UNDERSTANDING BARRIERS AND ENABLERS TO ADHERENCE TO NICE FALLS GUIDELINES WHEN TREATING OLDER ADULTS WHO ATTEND AN EMERGENCY DEPARTMENT (ED).

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Abstract:

Helen Lowe. Understanding barriers and enablers to adherence to NICE Falls guidelines when treating older adults who attend an Emergency Department (ED).

Background: Approximately one in three older adults (aged 65 and over) fall each year. Such falls commonly present at EDs (Help the Aged, 2005; Close, Ellis, Hooper, Glucksman, Jackson and Swift, 1999). The National Institute for Health and Care Excellence (NICE) 'Falls' guidelines (2004) were developed to improve management of falls, including their assessment and ways to prevent future falls. However, there is evidence of poor adherence to the guidelines (Sheldon et al., 2004). This research explores how falls are managed in EDs and the reasons why guidelines are not always followed.

Methods: I undertook a detailed review of relevant research on the management of falls in EDs. Research also took place at two sites. Two particular research methods were employed; 1) observation research of healthcare professional and patient interaction, and 2) interviews with healthcare professionals. I observed the care of 27 patients and interviewed 30 health professionals. These methods were chosen in order to investigate factors influencing adherence.

Results: Adherence to the guidelines was poor at both EDs. Various barriers and enablers (determinants of practice) influenced adherence, including: communication, complexity of patient care, services offered outside the ED, ED care processes (including education and busyness), variation in staff and cross-boundary care.

Conclusions: A variety of factors influence adherence to the Falls guidelines within an ED, but it may be difficult to address all of them simultaneously and in the context of busy EDs. Simple interventions such as education and pro-formas are unlikely to have substantial effect on their own, although taking advantage of the influence of senior staff could enhance their effectiveness. In addition to such interventions, collaborative care with other NHS services offers a potential approach.

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Contents list:

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List of abbreviations:

ADL- Activities of Daily Living.

AMT- Abbreviated Mental Test.

AMU- Acute Medical Unit.

APT- Assess Prioritise Treat.

AUC- Area Under the receiver operating characteristic Curve.

CAREFALL- Combined Amsterdam and Rotterdam Evaluation of FALLs study group.

CASP- Critical Appraisal Skills Programme.

CCIS- The Trauma Registry and the patient information database.

CEC- College of Emergency Medicine Clinical Effectiveness Committee.

CI- Confidence interval.

CINAHL - Cumulative Index to Nursing and Allied Health Literature.

CCRBT- Cochrane Collaboration Risk of Bias Tool.

COPD- Chronic Obstructive Pulmonary Disease.

CPD- Continuing Professional Development.

CTI- CAREFALL Triage Instrument.

ED- Emergency Department.

EDIS- Emergency Department Information System.

EDU- Emergency Decisions Unit.

EPHPP- Effective Public Health Practice Project Quality Assessment Tool.

Falls guidelines- National Institute of Health and Clinical Excellence Falls guidelines (2004).

FP- Family Physicians.

FR- Functional Reach.

FROP-Com tool- Falls Risk for Older People in the Community assessment tool.

HCP- Healthcare Professional.

HMO- Health Maintenance Organisation.

HV- Health Visitor.

IFEM- International Federation for Emergency Medicine.

KT- Knowledge Translation.

MFES- Modified Falls Efficacy Scale.

MMSE- Mini-mental state examination.

MUR- Medicine Usage Review.

NoF- Neck of Femur.

OT- Occupational Therapist.

PCT- Primary Care Trust.

Post-RATS- Post Rapid Assessment Triage area sub-department.

PROFET- Prevention of Falls in the Elderly Trial.

PT- Physiotherapist.

QoL- Quality of Life.

RAT- Rapid Assessment Triage.

RCT- Randomised Controlled Trial.

SoB- Shortness of Breath.

TIA- Transient Ischaemic Attack.

TUG- Timed-up and Go.

Chapter 1- An introduction to the thesis:

In this chapter I present the purpose of my research. I initially set out what a fall is, the causes of falls, and the significance of researching falls (pages 24-28), followed by what the recommended guideline care is for older adults who have a fall (pages 28-31). I then move on to describe the Emergency Department research context in which the data collection took place (pages 32-33).

The chapter then makes the distinction between adherence and implementation (page 34), moving on to describe adherence behaviours, determinants of practice and ways to change practice both generally (pages 35-42) and with reference to Emergency Departments (pages 42-43).

The definition of a fall:

A fall can be defined as "an event whereby an individual comes to rest on the ground or another lower level with or without loss of consciousness (American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2001)." This definition is accepted as an accurate definition by the National Institute for Health and Care Excellence (NICE, 2004).

A fall can be sub-categorised into whether it is a mechanical or a non-mechanical fall:

a) Mechanical falls are accidental falls caused by external factors as opposed to medical reasons, for example, a slip or a trip (Clawson and Patterson, 2003). People experiencing mechanical falls can be either active or frail. Active mechanical fallers are individuals who are less likely to have a fall history, and have an active lifestyle (Kingsley, 2004). Frail mechanical fallers are those who are likely to have a walking aid such as a Zimmer frame and are more likely to have a previous history of falls.

b) Non-mechanical falls are not primarily determined by external factors. For example, they may occur as a consequence of illnesses such as syncope (Kingsley, 2004). The causes of falls are described further in the following section.

The causes of falls:

Falls are caused by a variety of factors all of which can be investigated through a comprehensive patient assessment (Hausdorff, Rios and Edelberg, 2001). These include:

- Acute illness - Patients with a chest infection, for example, may present with a fall.
- Disease - An older adult may present with a fall as a result of a stroke or as a result of Parkinson's disease.
- Long-term conditions - A condition may be worsening, or a patient may not be adhering to medication and treatment recommendations.
- Poor nutrition and hydration - Falling as a result of dehydration and/or malnourishment.
- Visual problems - Falling as a result of poor vision; some visual problems can be managed, for example, by wearing glasses.
- Gait and balance problems - Falling as a result of foot pain, for example, or wearing footwear that reduces stability, such as oversized slippers.
- Incontinence - Falling as a result of increased visits to the bathroom due to age-related changes in kidney or bladder functioning, or as a result of diuretic medication.
- Postural hypotension - Falling as a result of low blood pressure making a person feel dizzy, which may also be caused by medication.
- Medication - Falling due to a medication's side-effects such as sedation or confusion.
- Environmental hazards - Falling as a result of slipping on or tripping over something.

- Syncope - Falling as a result of losing consciousness.

The significance of researching falls:

The number of people aged 65 (older adults) and over is increasing (Gavrilov and Heuveline, 2003). This ageing population is a consequence of the 'baby boom', a large number of births in the 1950s, and also increased longevity. In 2010 there were 10 million people in the United Kingdom who were over the age of 65; it has been projected that the number will be 19 million by the year 2050 (Cracknell, 2013). The ageing population has implications for both the care older adults require and the resources that the NHS needs in order to meet the inevitable increase in demand (Cracknell, 2013; Downing and Wilson, 2005, and Department of Health, 2004).

Older adults are the main recipients of healthcare, with the average NHS spending for retired households being nearly double of that for non-retired households. There has been an increase in the number of older adults treated within the NHS, many of whom present to Emergency Departments with a variety of symptoms (Cracknell, 2013, Downing and Wilson, 2005, and Department of Health, 2004). There is a five times higher admission rate in older adults over the age of 70 as compared to those who are aged less than 30 (Wass and Zoltie, 1996).

The increase in the number of older adults presenting with complex needs is placing strain on Emergency Departments (RJA, 2012; Royal College of Physicians, 2012a; Bentley and Meyer, 2004, and Sanders, 1992). George, Jell and Todd (2006) found that overcrowding in Emergency Departments was both due to the ageing population and changes in practice, such as increased admissions and clinical investigations.

The prevention and management of falls in at risk individuals has received considerable attention in both policy and practice in the English NHS.

Approximately one third of adults aged 65 and over fall each year (Hausdorff, Rios and Edelberg, 2001), and falls commonly present at Emergency Departments. Falls account for over 600,000 Emergency Department attendances and lead to over 200,000 admissions annually (Help the Aged, 2005; Scuffham, Chaplin and Legood, 2003, and Close, et al., 1999).

The incidence of falls and fall presentations is also of concern, because of their association with mortality and morbidity. As outlined above a variety of factors have been shown to cause falls, a variety of injuries can also result from them. These can be physical, for example, fractures, social, for example, requiring help at home, or emotional complications such as fear of falling (Yoshida, 2007). Both the causes and consequences need to be taken into consideration during patient assessment. However, research specifically related to the care of older adults who have experienced a fall shows gaps in care (Age UK and National Osteoporosis Society, 2012). For example, an audit found that assessments of gait and balance were not always conducted (Age UK and National Osteoporosis Society 2012, and Royal College of Physicians, 2010). The identification of patients at risk of falls (and repeat-falls) is required in order to prevent re-occurrence (Wang and Wollin, 2004). This is important as the treatment a patient receives after a fall has an impact not only upon the individual patient, but upon NHS resources (Masud and Morris, 2001).

An example of the consequence of falls is hip fracture (fractured Neck of Femur- NoF). Around half of the individuals who present with a fracture never return to their level of functioning prior to the fall, and a fifth of these die within three months (Help the Aged, 2005). Around half of patients who suffer a hip fracture have previously presented with another non-hip fragility fracture (Klotzbuecher, Ross, Landsman and Berger, 2005) and it may have been possible to prevent fall re-occurrence, benefiting individual patients. This also has benefits to cost management in the NHS as the annual cost of hip fracture care averages £2 billion (NICE, 2011a).

Some healthcare professionals are not aware of the role that they can play in managing and preventing falls (Nazarko, 2009). The identification of patients at risk of falls (and repeat-falls) is required in order to prevent repeat occurrence (Wang and Wollin, 2004), and the Emergency Department may be able to facilitate this. Research into the management of falls may be able to shed light on ways in which falls are currently managed and how they can be better managed in order to facilitate Emergency care of falls patients.

The NICE 'Falls' guidelines and how they have been introduced into Emergency Departments (EDs):

Standard two of the National Service Framework for Older People in England (Department of Health, 2001) supports the individualised treatment of older people and their freedom of choice, and Standard Six addresses reducing the incidence of falls through ensuring effective treatment and implementing rehabilitation. The National Clinical Audit of Falls and Bone Health in older people (Martin, Husk, Lowe, Grant and Spencer-Williams, 2007, P 10) argued that good clinical practice based on guidelines can "reduce death and disability resulting from hip fractures and prevent future falls and fragility fractures."

The NICE Falls guidelines (2004), were developed in order to focus on the serious effect of falls. The contents of the guidelines were formulated from a variety of review findings, including Gillespie, Gillespie, Robertson, Lamb, Cumming and Rowe (2003), and Shekelle, Woolf, Eccles and Grimshaw (1999). The authors were a board of specialists in the field, including those with a background in nursing, general practice, research and those providing specialist falls services; the development was led by Professor Gene Feder, a specialist in Primary Care. The aim of the 2004 Falls guidelines was to reduce the impact of falls upon both older adults, and the costs to the NHS. The guidelines include twelve groups of recommendations covering the following aspects of care:

1. Case and risk identification.

2. Multifactorial assessments- The components of a multifactorial risk assessment (NICE, 2004) are outlined in *Table One* below.
3. Multifactorial interventions.
4. Strength and balance training.
5. Exercise in extended care settings.
6. Home hazard and safety intervention.
7. Psychotropic medication.
8. Cardiac pacing.
9. Encouraging older adult participation in falls prevention programmes.
10. Education and information-giving: Healthcare professional, carer and patient education, for example, on fall risk factors and preventative techniques.

The eleventh and twelfth groups of recommendations cover what interventions cannot be recommended due to lack of evidence. E.g. interventions such as correction of visual impairment and/ or use of hip protectors.

Table 1- Falls guideline recommendations (NICE, 2004) regarding multifactorial risk assessments in older adult Falls patient care:

1	Identification of falls history.
2	Assessment of gait and balance.
3	Assessment of osteoporosis risk.
4	Assessment of perceived functional ability and fear related to falling.
5	Assessment of visual impairment.
6	Assessment of cognitive impairment and neurological examination.
7	Assessment of urinary incontinence.
8	Assessment (or recommended assessment) of home hazards.
9	Cardiovascular examination.
10	Medication review recommended.
11	Encouraged to participate in a falls prevention programme.

Note: Since the data collection in this research (2010- 2012) the NICE 2004 guidelines have been reviewed and republished as 'Falls: assessment and prevention of falls in older people' guidelines (NICE, 2013a). However, as the authors of the new guidelines note, the 2013 guidelines build on those produced

in 2004. Unless otherwise stated, the NICE Falls guidelines referred to from this point onwards are those published in 2004.

The guidelines were developed for older adults (aged 65 and over) at risk of falling, families and carers, healthcare professionals who care for vulnerable individuals who are at risk of falling, and individuals who are responsible for healthcare service delivery (NICE, 2004). They make recommendations on the care of older adults who attend settings such as an Emergency Department following a fall.

NICE (2005) published a document that presented suggestions on how organisations can decide whether to implement guidelines. For example, a presumption is that guidelines can be implemented within a department by a drive from seniors, but, it can sometimes be difficult to change seniors' attitudes towards guideline adherence. Healthcare professional co-operation is paramount to adherence (Fortinsky et al., 2004); if they do not see guidelines as useful, then they may not follow them (see page 34) for the distinction between implementation and adherence). NICE recognises that guidance may not be relevant to all clinical practice, and asks that if this is thought to be the case at an organisational level, the reasons should be logged, and then no further action is required. Therefore, in order for the guidelines to be employed in the Emergency Department, they need to be viewed as relevant by seniors who have an influence on Emergency Department practice. Ignorance or disengagement by seniors may lead to demoralisation or disempowerment in Emergency Department staff (International Federation for Emergency Medicine -IFEM, 2012).

In order to meet care recommendations, NICE guidelines are reviewed by the College of Emergency Medicine and those which are deemed relevant are highlighted and recommended on their website and links to the guidelines are provided. One such recommended guideline is the Falls guideline (College of Emergency Medicine, 2014a). The College of Emergency Medicine Clinical

Effectiveness Committee (CEC) promotes clinical effectiveness and evidence-based care. It links with collaborative networks that help formulate and facilitate the uptake of policies and strategies (College of Emergency Medicine, 2014b). A dissemination strategy has been produced which aims to facilitate the adoption of relevant guidelines in Emergency Department care practices (Boyle, Banerjee and Benger, 2010). Such techniques include: publication on the College website, discussion in departmental newsletters, publication on relevant websites (for example, Royal College of Physicians), publication on the educational resource ENLIGHTENme website (see glossary), publication in the Emergency Medicine Journal, discussion at board meetings, and launching documents at conferences and Continuing Professional Development events (CPD).

As Emergency Departments are a first point of call for older adults who experience a fall and provide a context in which multi-factorial assessments can be conducted or recommended, this research focuses on multi-factorial assessments, a central component of care for all older adults who fall. As stated in the guidelines "…older people who present for medical attention because of a fall, or report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should be offered a multifactorial falls risk assessment (2004, P 4)." The American Geriatrics Society and British Geriatrics Society (2010) recommend that all older people who report falls should be asked whether they have had two or more falls during the last 12 months, whether they presented acutely with a fall (i.e. a fall is the reason for their presentation), or have problems with their balance (all parts of case and risk identification). Falls patients present for medical attention to Emergency Departments, and Emergency Departments should focus on conducting these individualised multi-factorial falls assessments (see *Table One*) or making a referral to an appropriate service so that they are conducted. Falls prevention interventions can also be encouraged if deemed necessary post assessment.

The Emergency Department research context:

An Emergency Department is a department in which emergency medicine is provided. Emergency medicine was defined by the IFEM (2008) as "a field of practice based on the knowledge and skills required for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of episodic undifferentiated physical and behavioural disorders; it further encompasses an understanding of the development of pre-hospital and in-hospital emergency medical systems and the skills necessary for this development (P 1)."

The definition of Emergency Medicine emphasises both the breadth and depth of medical knowledge and skills that clinicians need to possess, alongside knowledge of organisational processes. The Emergency Department is the 'front door' to a hospital (Department of Health, 2004). It is known to be a fast paced and pressurised environment in which some patients are critically ill (Creswick, Westbrook and Braithwaite, 2009).

The IFEM (2012) 'framework for quality and safety in the Emergency Department', states that an Emergency Department should:

a. Be organised.
b. Provide access to specialists.
c. Be able to provide resuscitation, treatment and diagnostic resources.
d. Be dedicated and properly equipped.
e. Be infection controlled.
f. Have space to provide privacy and dignity in treatment.
g. Be efficient.
h. Provide access to continued support post transfer or discharge.
i. Provide the resources and training to ensure the above take place.

As noted by the IFEM (2012), the core responsibilities of an Emergency Department's healthcare professionals include:

a) Providing quality of care.
b) Providing an organised system.
c) Providing specialist roles and care.
d) Diagnosing illness.
e) Treating illness.
f) Respecting and preserving privacy and dignity.
g) Portraying critical thinking in decision making.
h) Being able to think quickly.
i) Having good communication skills.
j) Ensuring that the Emergency Department roles are adhered to (facilitated by commissioners and managers).

Implementation and adherence:

Various terms are used to refer to the process of describing the most appropriate and evidence supported elements of care and getting such elements into routine practice. Two key terms are implementation and adherence. Implementation is the act of putting something into practice (NICE, 2013b). In the context of this research, implementation is the act of putting Falls guidelines into practice. Adherence is the act of doing what is required (Merriam-Webster, 2014a). It is defined in a medical reference encyclopedia (Reference.MD, 2012, P 1) as:

> "Conformity in fulfilling or following official, recognised, or institutional requirements, guidelines, recommendations, protocols, pathways, or other standards."

Guidelines need to be adhered to in clinical practice in order for effective implementation to occur (Lugtenberg, Burgers and Westert, 2009). Measuring adherence, for example, whether specific guideline recommendations are followed, provides evidence on the quality of care and the need for additional implementation. In the context of this research, in order for Falls guideline adherence to be possible, the Emergency Department needs to have adopted the guideline recommendations as part of their departmental practice. This research investigates both adherence behaviours and determinants of practice. A determinant of practice is a factor that may prevent or enable improvements (Flottorp et al., 2013), in this case barriers and enablers to guideline adherence.

A model for understanding guideline adherence:

A range of psychological models and theories of behaviour change have been developed, which can be applied to understanding healthcare professional behaviour, in particular adherence to guidelines. These include learning theories, such as the Social Learning Theory (Bandura, 1977), and social cognition models such as the Health Belief Model (Rosenstock, 1974) and the Theory of Planned Behaviour (Ajzen, 1985). These theories suggest that people can learn through observation (Social Learning Theory), beliefs can influence action (Health Belief Model) and that attitudes, norms and their perceived level of control over a behaviour can effect a person's intentions and consequently their behaviour (Theory of Planner Behaviour). Theories may be applied to the behaviour of individual healthcare professionals, to healthcare teams and to organisations, and used to guide the development of interventions to improve adherence (Robertson, 1996). Therefore, drawing on a menu of theories or constructs may be of more value than relying on a single theory to guide investigations of adherence (Brehaut and Eva, 2012). Nevertheless, the role of theory is not yet fully established. On reviewing the use of different theories in five studies, Eccles and colleagues (Eccles et al., 2012) concluded that the targeted behaviours need to be better specified, theories need to be better operationalised and ways are needed to extend the range of theories that are used, and to apply experimental research designs to the evaluation of theory guided interventions to improve adherence. In this thesis, I have used a tailored adherence and implementation model to understand adherence to guidelines and ways of improving adherence (Baker et al., 2010).

Various factors have been found to influence adherence to guidelines, including; knowledge of guideline recommendations, attitudes (and agreement with guidelines), perceptions of risk, outcome expectancy, work pressure, time pressures and the work environment (contextual factors). Other factors include beliefs about capabilities, and beliefs about consequences (Godin, Bèlanger-Gravel, Eccles and Grimshaw, 2008; Buxton, 2006; Davies and Littlejohns, 2002;

Faraquhar, Kofa and Slutsky, 2002; Deming, 2000, and Cabana et al., 1999). Other determinants of healthcare professional practice (further described on pages 37-38) include: guideline-related factors, healthcare professional characteristics, patient factors, professional interactions, incentives and resources, ability of organisations to change and social, legal and political factors. In this 'Implementation and Adherence section' (pages 34-43), I draw on Cabana et al.'s (1999), and Flottorp et al.'s (2013) work on adherence, and refer to Deming's system of profound knowledge in order to put the tailored adherence and implementation model into context. I then present both NICE's (2007) and Grol and Grimshaw's (2003) recommendations on how to change practice.

Cabana et al.'s (1999) knowledge, attitudes, behavior framework:

Cabana et al. (1999) found that physician-related barriers to (or determinants of) adherence were: lack of awareness of guidelines, lack of familiarity with guidelines (when aware of them), lack of agreement with recommendations, lack of self-belief in ability to perform a particular behaviour, lack of belief in the importance of behaviour change and lack of motivation to change. They also identified external factors affecting adherence, such as time limitations and reminder systems providing prompts. Furthermore, there were environmental-related barriers such as access to resources and facilities required in order to adhere to guidelines. They argued that such factors or barriers limited adherence through influencing cognitive components (affecting healthcare professionals' knowledge), influencing affective components (affecting attitudes), or by restricting healthcare professionals abilities (affecting behaviour).

Guideline-related barriers concerned the ease of use, and the ease of adopting new behavioural routines, which may be easier to achieve than stopping well-established routines. Patient-related barriers were also found; patients needed to regard guideline recommendations as of benefit and be willing to accept change.

The above factors thought to influence adherence behaviours are explored further in Chapter Two (pages 46-107).

Determinants of practice and tailored implementation:

Tailored implementation involves the identification of the determinants of adherence (Flottorp et al., 2013), which may be achieved by using a variety of methods (Krause et al., 2014). Through investigation of various methods including observations, interviews and consultations with the implementation research team, Krause et al. (2014) identified nine commonly used methods. The research was conducted as part of the Tailored Implementation for Chronic Disease project (discussed below), which aimed to advance tailoring methods (Flottorp et al., 2013).

Of the nine methods, Krause et al. (2014) studied the following five in detail: brainstorming, patient and healthcare professional interviews, structured group discussions, open-ended questionnaires completed by healthcare professionals and determinants of practice identified from closed-questions in a checklist completed by healthcare professionals. Interviewing and brainstorming identified the greatest number of determinants, whereas open questionnaires and interview questions identified the least. However, the open questions generated more unique responses, and the authors recommended that a combination of methods should be considered.

Flottorp et al. (2013) conducted a systematic review of frameworks which detailed determinants of practice (including Cabana et al.'s 1999 research). They developed a checklist of factors that may influence healthcare professionals' practice, including their adherence to guidelines. The determinants set out in the checklist included:

- Guideline factors (e.g. characteristics, strength of evidence, usefulness).
- Healthcare professional factors (e.g. knowledge, characteristics).

- Patient factors (e.g. patient needs, adherence).
- Professional interactions (e.g. peer influence, communication, teamwork).
- Incentives and resources (e.g. availability of resources, support, organisation's readiness, monitoring).
- Capacity for the organisation to change (e.g. constraints, readiness, management).
- Social, legal and political factors.

The model underlying and common to both Cabana et al. (1999) and Flottorp et al. (2013) is that by identifying the determinants of adherence or non-adherence, it should be possible to plan interventions that address the determinants and therefore lead to improved adherence. This approach is often referred to as tailored implementation (Baker et al., 2010).

Methods for selecting interventions to account for the identified determinants have been investigated recently (Wensing et al. 2014). However, the evidence on how tailoring can be most effectively achieved is limited (Baker et al, 2010).

<u>An alternative approach:</u>

Although I use the model of tailored implementation, there are other ways to understand guideline adherence.

A system of profound knowledge (Deming, 2000):

Deming's (2000) work on systems offers a different approach to thinking about the influence of context upon adherence. A system of profound knowledge is "…an effective theory of management that provides a framework of thought and action for any leader wishing to transform and create a thriving organisation, with the aim for everybody to win (The W. Edwards Deming Institute, 2014, P 1)…" Deming (2000) defined a system as "a network of interdependent components that work together to try to accomplish the aim of the system

(Deming, 2000, P 50).” He argued that for a system (in this case a care system) to work, an outside view is required in order to understand the system in place.

Deming’s (2000) view is that current management systems are often faulty, for example, they are based upon short-term thinking such as meeting the four-hour treatment target that is applied to Emergency Departments (see glossary), there is a lack of constancy of purpose with individuals not necessarily following a unified goal, for example, sub-teams focusing on their role in triage rather than care of a patient across the whole Emergency Department. He suggests that it would be more efficient to set long-term goals and to inform staff about their place within a system’s functioning as a whole, through education and improving communication.

Management’s role is viewed as directing the components of the system, for example, sub-teams and sub-departments operating within Emergency Departments, towards meeting the aim of the department. For this to take place, everybody in the system needs to benefit from the employment of the system.

In order for a system to become more efficient, Deming describes four important elements to consider: appreciation of a system, knowledge of variation within a system, a theory of knowledge, and psychology. These elements are viewed as interacting and hence cannot be viewed separately.

An individual needs to understand that varied components within a system interact, for example, patient assessment and triaged care. The greater the interdependence between the components the more important it becomes that there is efficient co-operation and communication between the components. There is also a greater need for management of the system in order to ensure that the components interact as intended. An individual component’s main aim is to contribute to the system, rather than focus on an individual goal such as a quick discharge from one Emergency Department sub-department to another.

Variation within a system needs to be recognised in order to understand a system's processes. There is variation in how individuals work within a system and variation in the system's flow. For example, an Emergency Department care system may vary in terms of how busy the department is, the resources available and the individual characteristics of the members of staff who are directing care. With regard to a theory of knowledge, managers need to understand that management relates to prediction and theory. A manager cannot be sure about the interactions within a system and the output of a system of care. Modifications may need to be made once comparisons are made between what is thought will happen and what is observed; an idealist viewpoint with regard to care compared to a realist viewpoint.

The importance of psychology is that it should be recognised that individuals are different; a manager needs to recognise differences in abilities, in order to optimise each person's contribution to the systems. It should also be recognised that people are born with the need for good relationships with one another and that people are willing to learn. These traits can be used in order to improve understanding and to improve communication between individuals and individual components of a system.

Deming's (2000) systems theory highlights the importance of contextual factors upon adherence. It is important to recognise how an Emergency Department functions in order to be able to further understand and influence its functioning, and the behaviours (including guideline adherence) of those working within it. Deming's (2000) view is therefore broader than the idea of tailoring, although there is a little commonality, in that the processes in place within a specific system (Emergency Department) need to be investigated in order to change care processes, and improve adherence behaviours.

Changing practice through tailoring:

The Tailored Implementation Model is a common component of frameworks and approaches for addressing adherence and quality improvement.

Here I refer to the NICE (2007) approach and the approach recommended by two of the most influential figures in guideline implementation.

NICE recommendations for changing practice:

In their 'How to change practice' document (2007) NICE highlighted barriers to guideline adherence (determinants of practice), and suggested that a tailored approach was required in order to overcome barriers. The document claimed that adherence can be manipulated through addressing:

Awareness and knowledge: of what needs to be changed.
***Motivation*:** Self-motivation and motivation derived by incentives.
Acceptance and beliefs: Beliefs and attitudes influence whether someone will change their behaviour. Perceptions of the benefits of change versus costs, and perceptions of others opinions are important. Guidelines may conflict with other recommendations healthcare professionals follow.
Skills: People need to know how to change their behaviours.
Practicalities: Resources and equipment need to be available to initiate change.

Grol and Grimshaw (2003) - Implementing evidence and changing practice:

Through a mixed-methods approach Grol and Grimshaw (2003) aimed to provide an overview of knowledge about initiatives for changing medical practice. They found that the areas to focus on are the influence of the attributes of the evidence (some evidence is easier to implement than others), barriers and enablers (determinants of practice), and the effectiveness of implementation and dissemination strategies.

They argued that a comprehensive approach to tailored implementation focusing on professionals, patients, teams and organisations is needed and that no approach to guideline implementation is superior. They suggested that the key points to consider are: involving the relevant people, evidencing the

proposed changes in practice, studying the main difficulties in achieving change, and tailoring strategies to different aspects of the problem.

Guideline adherence within an Emergency Department:

Emergency Departments have a specific, almost unique role in health services (pages 32-33) and some barriers and enablers (determinants of practice) to the use of guidelines may relate to the particular features of Emergency Departments that flow from their role. Such features may include open access, a wide range of clinical cases, and the care of some patients who require immediate management if they are to survive. In order to distinguish those barriers and enablers that relate to these features that are inherent to the role of Emergency Departments from barriers and enablers common to a wide range of health care settings, I use the term “context” to refer to them.

When healthcare professionals are recruited to work in an Emergency Department, they are expected to fulfil the roles defined by the IFEM (2012). However, the Emergency Department context influences care processes and patient outcomes (Person, Spiva and Hart, 2012; Aiken et al., 2011; Tsai, 2011; Trinkoff, Johantgen, Storr, Gurses, Liang and Han, 2011; Armellino, Quinn, Griffin and Fitzpatrick, 2010; Brazil, Wakefield, Cloutier, Tennen and Hall, 2010; Handel et al., 2010; Huang et al., 2010, and Meterko, Mohr, and Young, 2004). As noted in the Mid Staffordshire NHS Foundation Trust Public Inquiry (The Francis report 2013), healthcare professionals may habituate to the organisation’s processes. For example, they become used to staff shortages and it can reduce their level of concern about gaps in care that may be of consequence. In order to change practice, quality of care needs to be monitored to ensure that the usual way of working (practices that healthcare professionals are habituated to) meets care recommendations. This is illustrated by the fact that although NICE Falls guidelines are of relevance to Emergency Department care of falls patients (discussed pages 28-31), they are not always adhered to (Sheldon et al., 2004). The section that follows describes the purpose of this

research in terms of investigating whether Falls guideline are adhered to, and the reasons behind the findings.

The purpose of this research:

This research focuses on investigating whether the NICE Falls guidelines (2004) are adhered to when treating older adults within Emergency Departments, identifying barriers and enablers to adherence (determinants of practice), and considering ways they can be addressed through tailored intervention.

The approach to studying adherence taken in my research was that of Cabana et al. (1999) and Flottorp et al. (2013), namely the idea of determinants of adherence and the model of tailored implementation. The approach was chosen as it forms the basis for much research into adherence in healthcare, and to quality improvement activities. In addition the importance Cabana et al. (1999) and Flottorp et al. (2013) give to addressing determinants through tailoring is supported by the other research that I have presented on pages 34-42 (NICE, 2007, and Grol and Grimshaw, 2003).

Investigation of the determinants of adherence in the Emergency Department is used to provide insight into departmental practices and potential modifications that could be made to facilitate adherence (Lang, Wyer and Haynes, 2007).

Research has been conducted investigating the effectiveness of tailored interventions in overcoming barriers to change. Baker et al., (2010) conducted a Cochrane review in which it was concluded that tailored interventions were more effective than no intervention in improving practice. However, research is needed to improve the methods of tailoring and therefore also improve the effectiveness of this model. Furthermore, the review of Randomised Controlled Trials (RCTs) of this approach (Baker et al, 2010), concluded that although more likely to be effective than no implementation intervention, it is not clear whether it is cost-

effective, and the methods for identifying determinants of practice and designing strategies to address them are not yet well developed or understood. The available evidence is therefore inadequate for providing definitive guidance on effective dissemination and implementation techniques for guidelines, particularly in the UK and within acute care settings.

In the research reported in this thesis, following review of relevant studies of adherence, data have been collected through conducting observations of patient care and interviewing healthcare professionals at two hospitals, one an inner city hospital, and one based in a moderately sized town. The sites were chosen to enable investigation of determinants in more than one Department, allowing an exploration of any site specific barriers and enablers (determinants of practice) that may need to be taken into consideration when drawing conclusions from this research.

The specific aims of this research were to explore and provide insight into the following research questions, through studying adherence to the NICE Falls guidelines when older adults presented to an Emergency Department:

1. When and why do healthcare professionals deviate from or adhere to the clinical practice guidelines in the management of falls?
2. What are barriers and enablers to adherence (determinants of practice)?
3. What methods of falls management do healthcare professionals practice when not following the NICE clinical practice guidelines?
4. What influence does an Emergency Department context have upon adherence behaviours?
5. How can issues regarding adherence to Falls guidelines within an Emergency Department be addressed?

A review of relevant literature describing the management of falls when older adults present to an Emergency Department is first provided in Chapter Two (pages 46-107). The methods of observations and interviews are described

in Chapter Three (pages 108-138). Chapter Four (pages 139-165) presents the observation and clinical note findings on current levels of adherence. In Chapter Five (pages 166-242) both observation research and interview research findings are combined in order to explore the barriers and enablers to guideline adherence (determinants of practice) through framework analysis. In Chapter Six (pages 243- 266) I consider which determinants can be addressed in initiatives to improve Falls guideline adherence. Methodological issues are discussed in Chapter Seven (pages 267- 284) and finally Chapter Eight (pages 285-304) draws together all of the research findings.

Chapter 2- A review of the determinants of adherence to NICE Falls guidelines with older adults within Emergency Departments:

The review addresses aspects of research questions one, two, three, four and five. In this chapter, current research evidence is identified and synthesised in order to explore how Falls guidelines are adhered to in Emergency Departments.

Part 1- Background and methodology:

Introduction:

Review Topic:

The model of adherence and implementation followed in this thesis is that of tailored implementation, in which factors or determinants that influence practice are identified and used to plan interventions to bring about improved practice (see Chapter One). Various factors have been found to influence adherence to guidelines (Godin et al., 2008; Buxton, 2006; Davies and Littlejohns, 2002; Faraquhar, Kofa and Slutsky, 2002, and Cabana et al., 1999). However, there is only limited evidence on effective dissemination and adherence techniques for guidelines, particularly factors influencing adherence in the UK and within acute care settings. Grimshaw et al. (2004) found this to be the case in the systematic review they conducted in 2004; out of the 235 included studies, only 25 were conducted in the UK (11%). Six of the 235 were conducted in Emergency Department settings (3%), of which only two were conducted in the UK. This review focuses on identifying barriers and enablers (i.e. determinants) to adherence to NICE Falls guidelines with older adults (65 years old and over), within Emergency Departments.

Review Question:

What are the barriers and enablers (determinants of practice) to adherence to NICE Falls guidelines with older adults, within an Emergency Department?

Methodology- Search strategy and analysis:

Search strategy:

The search was conducted October 2010-December 2011, articles from all available archives from their inception until December 2011 being studied. The Medline, Embase and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases were searched via Ovid and NHS Evidence, in order to find papers reporting studies of the management of falls in older adults within Emergency Departments. Open Grey, and EThOS were used in order to access unpublished work, reports, policy documents, conference proceedings, and lecture notes from any available archive until December 2011 (further particulars *Table Two*). A combination of search terms was employed across database searches and drawn from searching synonyms of key terms derived from the review topic (example in Appendix One, Part A). The search method was piloted in order to ensure that it was comprehensive. I initially used a variety of search terms to find those which identified relevant articles. I found that a combination of a variety of synonyms needed to be searched at one time in order to find the most relevant search results (Appendix A). E.g. if 'ED' and 'older adults' were searched as a combination on their own, the results generated research papers about erectile dysfunction, in addition if 'Emergency Department', 'management' and 'seniors' (as opposed to senior citizens) were searched, search results about senior staff member management were generated. From this pilot search process, I was able to construct a search strategy that included the most appropriate terms. The technique was viewed as comprehensive when pilot searches employing the various synonyms produced duplicates within databases and across database searches, i.e. searches conducted within one database through a combination of varied synonyms

produced duplicates, and duplicates were produced when comparing one individual database's search results to another; over 2000 duplicates were generated during the full search. I sought to identify papers that focused on the management of falls/ slips and trips in the over 60s within the Emergency Department. The search process is detailed in *Figure One* (page 49).

Although people at risk of fragility fractures following falls tend to be aged 65 or over (the age group defined as older adults in this research), the over 60s category was chosen in order to encompass those in some studies categorised in a 60-69 year old age group; this made the search results more comprehensive although some papers defined older age as being of 60 years and over.

The aim was to investigate how falls were managed, why they were managed this way (i.e. the barriers to and enablers of appropriate management), and how falls management could become more appropriate. Papers had to be available in full text and could be primary research, secondary research (for example, systematic reviews), conference proceedings, reports, published work, unpublished work or audit. Secondary research was included, in order to search these papers' references for both published and unpublished primary research studies, which were then incorporated into the inclusion/exclusion criteria assessment. In addition to the searches of Open Grey and EThOS, unpublished studies were searched for by checking the reference lists of the papers included from the primary search results.

Search results across databases were exported to EndNote and then matched against the inclusion and exclusion criteria (*Table Three*). I consulted with my co-reviewer (Professor Richard Baker) in order to produce a final inclusion list. Papers that focused on falls incidence as opposed to the area of interest, falls management, were excluded. In addition papers assessing fall risks, the presence of a fear of falling, or falls in the under 60 age group were also excluded.

Figure 1- Flow chart of search strategy:

(Moher, Liberati, Tetzlaff, Altman and the PRISMA Group, 2009).

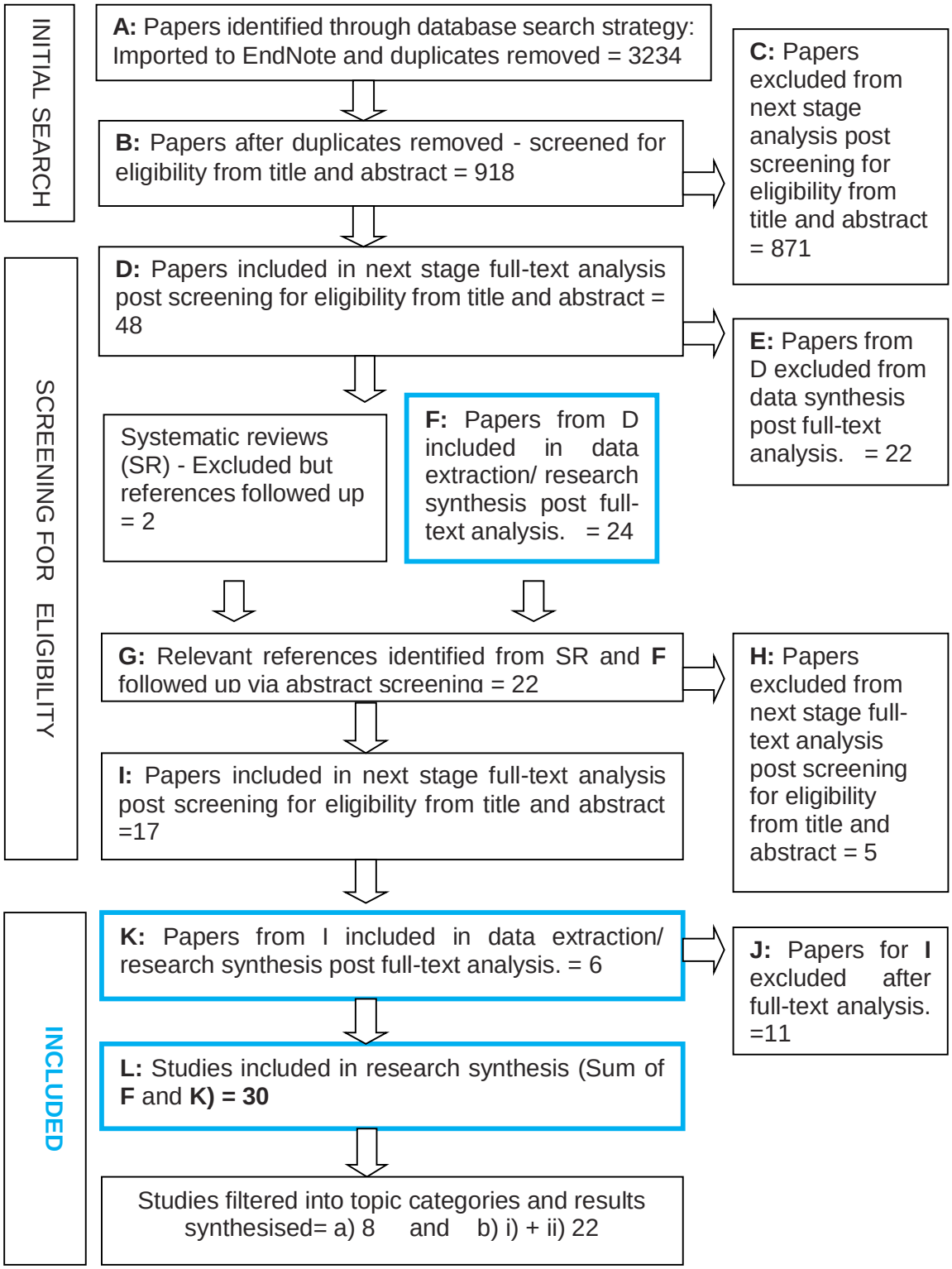


Table 2- Database search list:

Database	Bibliographic database/ bibliographic database the aforementioned database was accessed via: (AD= accessed directly).	Filters put in place:
Medline	Ovid	Embase 1980-2011 (full date range). Medline 1950-2011 (full date range). Terms in abstract. English. Human. Participants 60 and over, not just 65 and over.
Embase	Ovid	
CINAHL	NHS evidence	1970-2011 (full date range). Terms in abstract. English. Human. Participants 60 and over not just 65 and over.
Grey literature database	AD	Falls- elderly/ older adults.
ETHOS	AD	Falls- elderly. Falls- older adults.

Table 3- Inclusion and exclusion criteria:

Inclusion criteria:	Exclusion criteria:
Falls older adults (60+). Slips and trips older adults. Management of older adults. Prevention of future falls. Papers where full text available. Primary research. Secondary research (e.g. Systematic reviews). Conference proceedings. Published work. Unpublished work. Audit. How falls are managed. Why falls are managed this way. How fall management could be improved.	Mentions occurrence of falls (incidence) but not treatment/ management. Falls mentioned but not in older adults. Assessing risk of falls. Looking at presence of fear of falling. Not research (e.g. Commentary but not research). Looking at the cause of falls. Looking at the consequence of falls. Guidelines.

Figure One gives an overview of how the search results across the databases were filtered. In summary:

1. The search results were imported into EndNote so that all of the paper titles and their abstracts were compiled in one place.
2. Duplicate papers were removed.
3. The titles and abstracts of the remaining papers were screened and matched against the inclusion and exclusion criteria.
4. Papers were then filtered into either an exclusion category at this stage - Appendix B- (examples provided) or into an inclusion category for further screening - Appendix C (examples provided).
5. Full-text versions were obtained for all papers included post-abstract screening.
6. The full-text articles were then screened and categorised as excluded or included. Appendix D provides examples of excluded articles and Appendix E provides examples of those included.
7. The reference lists in the included papers (Appendix E) were then screened (Appendix F). Those which appeared to be relevant were then filtered as per steps one to six, outlined above.
8. The references which were extracted were then screened by abstract and filtered into an exclusion (Appendix G), or inclusion category (Appendix H).
9. The included secondary search results (Appendix H) were screened in-depth through accessing the full-text of papers; they were then filtered into an exclusion (Appendix I) or inclusion (Appendix J) category to complete the screening process. The list of papers included from the secondary reference list and the primary reference list were combined to give the final list of papers for data extraction (Appendix K- sum of Appendix E and Appendix J).
10. The list of primary and secondary search results that were to be included in data extraction (Appendix E and Appendix J), were combined into one

list of research papers (Appendix K). After beginning to review the papers, it was decided to divide them into sub-categories as the papers generally had one of two aims (see description of analysis stages, pages 52-56). Papers were grouped into ‘a’ and ‘b’ (Appendix L). Category a) refers to papers which focused on current levels of adherence and factors influencing adherence; category b) refers to papers which focused on what could be done to improve falls management i.e. improving adherence.

11. At each paper filtration/data extraction stage, at least one independent researcher was appointed to provide a second assessment of categorisation, in order to reduce the risk of bias. When differences occurred, discussion took place and the final categorisation was agreed.

Approach to synthesis:

I used narrative synthesis to describe the findings of the review. Narrative synthesis is an approach that relies on the use of text and words to summarise a synthesis of papers (Popay et al., 2006). A narrative synthesis approach, as opposed to statistical analysis approach, was chosen for two reasons; firstly, the review sought to draw together both quantitative and qualitative research; and secondly, limited quantitative data were available and it was not appropriate for a meta-analysis be conducted (University of Strathclyde 2014a, and Rodgers et al, 2009). The aim of the approach was to summarise authors’ findings (Green, Johnson and Adams, 2006).

Narrative synthesis can be conducted in a variety of ways (Snilstveit, Oliver and Vojkova, 2012), including thematic summaries, framework synthesis, realist synthesis, thematic synthesis and content analysis (see glossary). Neither framework synthesis (Kiwanuka et al., 2011) nor realist synthesis (Greenhalgh, Kristiansson and Robinson, 2007) were adopted as they take into account a priori theories, which was not the intention of this review. It was not feasible to synthesise papers and describe them under individual themes so neither thematic synthesis nor content analysis were adopted as analysis techniques

(thematic synthesis - Thomas and Harden, 2008; content analysis- Evans and Fitzgerald, 2002). It was not feasible because the included papers highlighted various factors that influenced guideline adherence and hence each paper's findings fitted into multiple theme categories. If the papers were presented in thematic categories then each paper would be described on numerous occasions.

Popay et al.'s (2006) guidance on the conduct of narrative synthesis was adopted because their guidance provided a systematic step by step method. Popay et al. (2006) described two stages to narrative synthesis; 1. Developing descriptions of the results - preliminary synthesis; 2. Exploring relationships between and within studies through techniques such as thematic analysis. Further detail of the stages of synthesis follow:

Stage One (Preliminary Synthesis) - Steps One – Four:

1. Textual description (preliminary synthesis): Describing each study.
2. Grouping (preliminary synthesis): organising the studies into smaller groups, for example, by the context in which results were reported (such as categorisation based on reporting current adherence, versus testing interventions).
3. Tabulation (preliminary synthesis), presenting data in a visual form.
4. Transforming data into a common rubric (preliminary synthesis), in purely quantitative research extracting numerical data in order to perform a meta-analysis, in the case of mixed-methods research looking at other methods of comparison such as producing thematic summaries.

Stage Two (Thematic Analysis) - Steps One - Two:

1. Vote counting (thematic analysis), looking at how often a theme occurred, looking at patterns.
2. Translating data (thematic analysis), appraising recurrent themes and concepts, selecting the conclusions that can be drawn from studies.

I have utilised these subheadings in my description of how I synthesised the research papers in order to detail how I adopted Popay et al.'s (2006) stages of narrative synthesis.

How I synthesised the research papers:

Stage One- Preliminary Synthesis- Steps One – Three: Textual description, grouping and tabulation:

Once the search had been conducted and the final inclusion list was generated, the data from each paper were extracted into tables. The data extraction form is shown in Appendix M and the completed data extraction tables are in Appendix N. Each paper underwent a quality assessment at this stage. The quality assessment criteria table (Appendix O) is an accumulation of an adjusted version of the Cochrane Collaboration Risk of Bias Tool (CCRBT), which focuses on evaluation of Systematic Reviews (accessed 2010) but was adapted as appropriate, the Quality assessment tool for quantitative studies - Effective Public Health Practice Project Quality Assessment Tool (EPHPP) (2009), and the Critical Appraisal Skills Programme (CASP) for Qualitative studies (accessed 2010). The three tools were combined in order to enable an assessment of all studies and their varied methodologies. Utilising these tools allowed for an assessment of whether the synthesis was based on reliable data. An example of an assessment is provided in Appendix P.

Barrier and enabler themes were extracted from the text through noting those specifically stated by the researchers and those that emerged from interpretation of their findings. For example, education as a theme may have been listed as an enabler in one paper and interpreted as one from reading another. An author may observe that participants were not aware of the guidelines, and suggested education as an enabler.

A Thematic Summary approach was adopted for the preliminary research synthesis as it is a way of categorising studies based upon thematic groups that are of relevance to the intended reader (Snilstveit et al., 2012, and Thomas, Harden and Newman, 2012). In this case the intention is to provide the reader with an overview of research that shows what has/is being done with regards to falls management, and ways to improve falls management. At the preliminary synthesis stage, papers were synthesised within two a priori categories. Papers were described in sections, split into:

a) Papers that focus on current levels of adherence.

b) Papers that focus on what could be done to improve fall management.

Within the above categories papers have been synthesised and summarised in sub-sections based upon research design (pages 61-98). The intention of producing these sub-sections was to better organise and summarise the research findings, synthesising the findings in each section separately, removing the issue of duplication.

Stage One- Preliminary Synthesis Step Four and Stage Two- Thematic Analysis- Steps One- Two:

Data to common rubric, vote counting and translating data:

At this stage in order to make conclusions more concise, the thematic summaries were then combined in order to evidence specific themes that emerged (pages 61-98). As both quantitative and qualitative research findings were combined, the results were translated into a common rubric categorised by themes (as opposed to a numerical form). When reading through the thematic summaries of the preliminary synthesis, notes were made regarding themes that emerged. The themes were put into a table and vote counting (full table - Appendix Q, example *Table Four*) was utilised in order to illustrate which papers

evidenced each theme. The data were translated into a textual description in the results section (pages 61-98).

Table 4- An example of vote counting:

Barriers:	**Lack of physician availability/ busy Emergency Department**	**Lack of physician co-operation**	**Lack of awareness of implications of inadequate management**	**Poor access to referral service**	**Varied opinions on best practice.**
Fortinsky et al. (2004)	✓	✓	✓		✓
Hendriks et al. (2008)			✓		

Part 2- Results, Analysis and Conclusions:

Results- The included studies:

Thirty papers met the inclusion criteria, and were described, tabulated and grouped into the two categories; a) papers that focus on current levels of adherence, and b) papers that focus on what could be done to improve fall management. The search results and the assessment and categorisation process are detailed in *Figure One*. The final list of papers is presented in *Table Five.*

Table 5- The final list of review papers:

Number:	**Reference:**
1	Baraff, I.J., Lee, T.J., Kader, S. & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31.
2	Bell, A.J., Talbot-Stern, J.K. & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to

	the emergency department after a fall: a retrospective analysis. *Medical Journal of Australia, 173*, 179-182.
3	Boele van Hensbroek, P., van Dijk, N, van Breda, G.F, Scheffer, A.C, van der Cammen, T.J.M., Lips, P., Goslings, J.C. & de Rooij, S.E. (2009).The CAREFALL Triage instrument identifying risk factors for recurrent falls in elderly patients. *American Journal of Emergency Medicine, 27*, 23-37.
4	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. & Swift, C. (2003). Predictors of falls in a high risk population: results from the prevention of falls in the elderly trial (PROFET). *Emergency Medicine Journal, 20*, 421-426.
5	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. & Swift, C. (1999). Prevention of falls in the elderly trial (PROFET: a randomised controlled trial), *Lancet, 353* (**9147**), 93-97.
6	Davison, J., Bond, J., Dawson, P., Steen, I. N. & Kenny, R. A. (2005). Patients with recurrent falls attending Accident & Emergency benefit from multifactorial intervention - A randomised controlled trial. *Age & Ageing, 34*, 162-168.
7	Davies, A.J. & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25*, 362-6.
8	De Vries, O.J., Peeters, G.M.E.E., Elders, P.J.M., Muller. M., Knol, D.L., Danner, S.A., Bouter, L.M. & Lips, P. (2010). Multi-factorial intervention to reduce falls in older people at high risk of recurrent falls: A randomized controlled trial. *Archives of Internal Medicine, 170,* 1110-1117.
9	Donaldson, M.G., Khan, K.M., Davis, J.C., Salter, A.E., Buchanan, J., McKnight, D., Janssen, P.A., Bell, M.& McKay, H.A. (2005).Emergency Department fall-related presentations do not trigger fall risk assessment: A gap in care of high-risk outpatient fallers, *Archives of Gerontology & Geriatrics, 41*, 311-317.

10	Fortinsky, R.H., Lannuzzi-Sucich, M., Baker, D.I, Gottschalk, M., King, M.B., Brown, C.J. & Tinetti, M.E. (2004). Fall-risk assessment and management in clinical practice: views from Healthcare providers, *Journal of the American Geriatrics Society, 52*, 1522-1526.
11	Hendriks, M.R.C., Bleijlevens, M. H. C., van Haastregt, J.C.M., Crebolder, H.F.J.M., Diederiks, J.P.M., Evers, S.M.A.A., Mulder, W.J., Kempen, G. I. J. M., van Rossum, E., Ruijgrok, J.M., Stalenhoef, P.A. & van Eijk, J.T.M. (2008). Lack of effectiveness of a multidisciplinary fall-prevention program in elderly people at risk: A randomized, controlled trial. *Journal of the American Geriatrics Society, 56,* 1390-1397.
12	Hill, K., Womer, M., Russell, M., Blackberry, I. & McGann A. (2010). Fear of falling in older fallers presenting at Emergency Departments. *Journal of Advanced Nursing, 66,* 1769-1780.
13	Kalula, S. Z., De Villiers, L., Ross, K. & Ferreira, M. (2006). Management of older patients presenting after a fall - An Accident and Emergency Department audit. *South African Medical Journal, 96,* 718-721.
14	Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214.
15	Lightbody, E., Watkins, C., Leathley, M., Sharma, A. & Lye, M. (2002). Evaluation of a nurse-led falls prevention programme versus usual care: a randomized controlled trial. *Age & Ageing, 31*, 203-211.
16	Lee, V. M., Wong, T. W. & Lau, C. C. (1999). Home accidents in elderly patients presenting to an Emergency Department. *Accident & Emergency Nursing, 7*, 96-102.
17	Miller, E., Wightman, E., Rumbolt, K., McConnell, S., Berg, K., Devereaux, M. & Campbell, F. (2009). Management of fall-related injuries in the elderly: a retrospective chart review of patients presenting to the Emergency Department of a community-based teaching hospital. *Physiotherapy Canada, 61,* 26-38.

18	Nordell, E., Jarnlo, G. B., Jetsen, C., Nordstrom, L. & Thorngren, K. G. (2000). Accidental falls and related fractures in 65-74 year olds: A retrospective study of 332 patients. *Acta Orthopaedica Scandinavica, 71,* 175-179.
19	Paniagua, M. A., Malphurs, J. E. & Phelan, E. A. (2006). Older patients presenting to a county hospital ED after a fall: missed opportunities for prevention. *American Journal of Emergency Medicine, 24,* 413-417.
20	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). *National Audit of the Organisation of service for falls and bone health for older people.* Available on: http://www.rcplondon.ac.uk/resources/national-audit-falls-and-bone-health-older-people [Accessed 4th January 2010].
21	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L., Ghurin, L.C. & Dharmage, S. C. (2009). Development of the falls risk for older people in the community (FROP-Com) screening tool. *Age & Ageing, 38,* 40-46.
22	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2008). The reliability and predictive accuracy of the falls risk for older people in the community assessment (FROP-Com) tool, *Age & Ageing, 37*, 634-639.
23	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2006). Falls risk and functional decline in older fallers discharged directly from Emergency Departments. Journals of Gerontology - *Series A Biological Sciences and Medical Sciences, 61*, 1090-1095.
24	Salter, A.E., Khan, K.M., Donaldson, M.G., Davis, J.C., Buchanan, J., Abu-Laban., R.B., Cook, W.L., Lord, S.R. & McKay, H.A (2006). Community-dwelling seniors who present to the Emergency Department with a fall do not receive Guideline care and their fall risk profile worsens significantly: A 6-month prospective study, *Osteoporosis International, 17,* 672-683.
25	Shaw, F.E., Bond, J., Richardson, D.A., Dawson, P., Steen, I.N., McKeith, I.G. & Kenny, R.A. (2003). Multi-factorial

	intervention after a fall in older people with cognitive impairment and dementia presenting to the Accident and Emergency Department: Randomised controlled trial. 7380 ed. United Kingdom.
26	Vivanti, A. P., Mcdonald, C. K., Palmer, M. A. & Sinnott, M. (2009). Malnutrition associated with increased risk of frail mechanical falls among older people presenting to an Emergency Department. *EMA-Emergency Medicine Australasia, 21,* 386-394.
27	Whitehead, C. H., Wunke, R. & Crotty, M. (2006). Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies? *Clinical Rehabilitation, 20*, 536-543.
28	Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service. *Aust Health Rev, 26 (**3**),* 88-97.
29	Yeung, P. Y., Woo J., Yim, V. W. T. & Rainer, T. H. (2009). Heterogeneity of health profiles of older people presenting to an Accident and Emergency Department with a fall. *International Journal of Gerontology*, *3,* 156-162.
30	Youde, J., Husk, J., Lowe, D., Grant, R., Potter, J. & Martin, F. (2009). The national clinical audit of falls and bone health: the clinical management of hip fracture patients. *Injury*, *40*, 1226-1230.

A summary table of the paper categorisation is provided in Appendix L.

Data were extracted from each paper using the template in Appendix M. The completed data extraction tables are provided in Appendix N *(Table 54-55*- split into categories). Data were extracted on the following:

- Aim, hypothesis and background to the research.
- Population and characteristics of participants.
- Sample size.

- Research design.
- Outcome measures.
- Key findings/ statistical significance if applicable.
- Barriers and enablers- determinants of practice (specifically noted by the author or identified by the reviewer from reading the findings).
- Implications of the findings.

Once the paper was categorised and the data were extracted (Appendix N), each paper was evaluated using the quality assessment table (Appendix O). An example of a completed quality assessment table is provided in Appendix P.

Finally the papers were organised into sections based upon research design ready for thematic summary analysis.

Results - The analysis:

Thematic summaries of the research findings:

Within each category results were synthesised through producing thematic summaries of papers, organised into sections by research design. The thematic summaries are presented in pages 61-98. The results of the quality assessments have been accounted for in the thematic summaries of the papers, including their strengths and weaknesses.

The summaries were then combined through thematic analysis (pages 99-104) in order to describe each theme and the research papers from which each theme emerged (evidenced in the vote counting tables illustrated in Appendix Q).

Category a - Current levels of adherence:

Several papers reported inadequate management of falls in the Emergency Department with regards to adherence to guidelines.

Section 1 –Thematic summary of Interview design research findings:

Fortinsky et al. (2004) interviewed Emergency Department clinical and non-clinical staff in Connecticut, in order to investigate whether they addressed falls risk factors after an educational intervention. Non-clinical staff are individuals who work in a hospital but do not provide medical treatment, for example, a receptionist (About, 2014). This paper is of relevance to this review topic as Fortinsky et al. (2004) investigated falls management practices and barriers and enablers (determinants of practice) for addressing fall risk factors. Thirty-three interviews were conducted and involved a cross-sectional open and closed-ended survey, either face-to-face or via telephone. The outcome measures were self-reported practice and barriers to addressing risk factors contributing to falls.

Barriers to adherence were identified. For example, patient compliance was an issue when intervening in patient care; a patient has to accept the treatment in order for it to be successful. Lack of physician availability and cooperation with following procedures could lead to low treatment referral rates. Taking these factors into consideration, the authors argued that presentation of empirical data reinforcing fall management techniques, efficient referral services, and addressing patient compliance issues, may lead to more adequate patient care.

The results highlighted the importance of reaching a shared understanding of patients' complaints and their treatment. For example, it was found that doctors, nurses, social workers and office-based primary care physicians viewed postural hypotension as a risk factor requiring intervention. However, non-clinical staff held different opinions on referrals. Emergency Physicians were more likely to report referring for gait/transfer impairments and balance disturbances while nurses reported referral rates were high for most falls risk factors. This study also suggests that patient education may be as important as healthcare professional education.

The study has limitations, most of which were related to it being conducted following an educational intervention. The aim of the intervention was to improve fall risk assessment and management, which the participants were aware of. However, healthcare professionals may overestimate their behaviour when later questioned, as they know what they 'should be doing' even if they are not doing it (DeAngelis, 2003, and Jones, Gerrity and Earp, 1990). In addition a baseline measure of practice was not taken, so although barriers were identified, the effect of the educational intervention could not be assessed; it was possible to investigate whether the participants (in their opinion) addressed fall risk factors after an educational intervention, but they did not know whether they were doing so before. In addition the data collection technique was not standardised, but was a combination of face-to-face or telephone interviews. Interview delivery method could influence responses. As Holbrook, Green and Krosnick (2003) point out, in face-to-face interviews the interviewer displays non-verbal communication, and by appearing more obviously engaged may be more likely to motivate interviewee responses.

Also, not all of the target population were recruited. When potential participants refused to take part, the researchers attempted to recruit a replacement participant from the same target group, but they were unsuccessful. Potentially, individuals who were not complying with all or some of the guidelines may not have consented to being interviewed for fear of scrutiny. Those who were interviewed may have been more comfortable with their current performance and practice and consequently happier to discuss it.

Like Fortinsky et al. (2004), Donaldson et al. (2005) investigated adherence to guideline care at presentation to the Emergency Department with a fall, but from the patient perspective. Sixty-three women aged 70 years and over who presented to an Emergency Department in Vancouver Canada with a fall, were interviewed at presentation and 18 months after discharge. The authors provided evidence of the long-term effects of what could be described as poorly managed falls. Women were most frequently referred to family practitioners or to

a physiotherapist, only one of the 63 women being referred to a falls clinic where fall risk factors were assessed and preventative techniques were discussed.

At 18 month follow-up, 44% of the women had experienced another fall and 40% of the women who had presented to the Emergency Department had had a fracture prior to this presentation, which had been missed. The findings illustrate the importance of efficient management of falls, with attention being given to the avoidance of future events. It could be suggested that falls could be better managed through employing preventative measures, through short-term management in an Emergency Department and long-term management through referral pathways. However, the reliability of the conclusions is limited due to the nature of the methodology. As recognised by the authors, patients' opinions about fall management in the Emergency Department were based upon recall after an 18-month time lapse, and there may be recall inaccuracies. In addition, the study suffers from a gender bias in that only women were recruited.

However, the study provides useful evidence on fall rates pre and post Emergency Department presentation, and demonstrates the possibility of further falls in the absence of efficient management. Donaldson et al. (2005) recognised systems should be put in place to ensure that the delivery of evidence-based healthcare in this at risk group is maintained.

Salter et al.'s study (2006) had a similar methodology and findings to Donaldson et al.'s (2005). Their study investigated whether guideline-based care was being adhered to in an Emergency Department, and collected information on the consequences of any variations in management at a 6 month follow-up. The care was measured by chart examination, patient falls diaries and interviews. The sample comprised a total of 51 participants, 18 males and 33 females aged 70 years and over who had been discharged to the community from a Vancouver Emergency Department after presenting with a fall. NB: this was the same Emergency Department that Donaldson et al.'s (2005) participants

were recruited from. The outcomes measured were fall risk, functional ability, confidence and dependence, and patient care.

The findings demonstrated that at six month follow-up, guideline care was not being provided by Emergency Department physicians or other healthcare professionals. Only eight individuals received some guideline care; only two cases of which were complete care. Fifteen were discharged from the Emergency Department with no further instructions, three of whom returned to the Emergency Department within 24 hours, one having fallen whilst awaiting hospital transport.

The study revealed a gap in care and the findings prompted the authors to call for novel methods for translating the guidelines into practice. However, as with all site-specific research it lacks generalisability; different procedures and policies may be in place in different hospitals. It could also be argued that the findings cannot be generalised to the same hospital as they are dependent on the non-clinical staff present at the time that the data were collected, individual practice being variable. Despite this, the findings concur with Donaldson et al.'s (2005) research which was conducted at the same hospital three years earlier. Hence this highlights the importance of finding ways of addressing guideline non-adherence, as even though non-adherence had been identified in 2005, improvements had not been made by 2006. Ways in which guideline adherence may be improved will be discussed in the context of the papers to be presented in category b (pages 73-98).

In conclusion, a variety of issues were highlighted with regards to factors influencing patient care. Patient compliance was found to be an issue when intervening in patient care, in that a patient has to accept the treatment in order for it to be successful. Patient education may be as important as healthcare professional education. In addition reduced staff availability and cooperation with following procedures could lead to low treatment referral rates. Gaps in care have been found alongside variation in staff opinions on referral patterns, with it being

shown that emergency physicians were more likely to report referring for gait/transfer impairments and balance disturbances while nurses reported referral rates were high for most falls risk factors (Salter et al., 2006; Donaldson et al., 2005, and Fortinsky et al., 2004). *Table Six* summarises the findings. The findings of this thematic summary were combined with the findings from the other studies through the vote counting tables (Appendix Q) and thematic analysis in the conclusion section (pages 99-104).

Table 6- Current levels of adherence- A thematic summary of Interview study findings:

Authors	Findings on fall management
Fortinsky et al. (2004)	There is inadequate adherence, and variation in the way falls are managed. Healthcare professionals were more likely to refer patients for further intervention for impediments in gait and transfer, followed by balance disturbances. They were least likely to refer when encountering foot or footwear problems and sensory deficits. Patient education is important as well as healthcare professional training.
Donaldson et al. (2005)	Women were most frequently referred to family practitioners or to a physiotherapist, only one of the 63 women was referred to a falls clinic. There are long-term implications of poor adherence to guidelines. At 18 month follow-up, 44% of the women had experienced another fall and 40% of the women who had presented to the emergency department had had a fracture prior to this presentation, which had been missed.
Salter et al. (2006)	Adherence is poor; findings similar to Donaldson et al.'s (2005) study. Only eight of 54 individuals received some guideline care; only two cases of which were complete care. 15 were discharged from emergency department with no further instructions- three of these individuals had a repeat fall.

Section 2- Thematic summary of Medical review/audit research findings:

Paniagua et al. (2006) examined the way in which fall risk factors were identified and addressed in a sample of 117 older patients aged 65 and over, presenting at an Emergency Department in Seattle USA with a fall-related complaint. They investigated whether risk factors were documented and whether guidelines were followed. The data were collected from a retrospective review of medical records focused on fall risk factors and the implications of prevention.

The study showed that with most fallers a falls history was not documented. The authors ascribed this to healthcare professionals' lack of awareness of the implications of falls and insufficient management of them, leading to high levels of mortality and morbidity. It was thought that time pressures on Emergency Department treatment led to post-discharge care not being given priority. They concluded that older adults who had fallen had a very high risk of recurrent falls and that preventative measures are essential.

However, the study was a retrospective analysis of previous findings and medical notes. The authors themselves state that falls were not managed efficiently, but medical notes may not be a complete representation of the way falls are managed, and interpretive bias is an issue. Interpretive bias is the notion that analysis is never completely objective or independent of a researcher's theoretical viewpoint. It is influenced by a person's pre-conceptions, hypotheses and beliefs. Interpretation can produce either good judgement or error (Kaptchuck, 2003). In this case, the analysis may not have provided a complete representation of the care received.

Although poor note-keeping is in itself inappropriate practice, it should also be recognised that the poor write-up may make management appear worse than it actually is; care received may not be noted, so the care may not be as deficient as the notes make it appear. Therefore, the findings need to be supported by further research as the authors recognised, perhaps by directly

asking patients about fall management as well as looking at medical notes, as in the Salter et al. (2006) study.

Kalula et al. (2006) focused on assessing the management of falls at Cape Town's Groote Schurr Hospital's Emergency Department, through conducting an audit of 100 patients' medical records. Information was collected on outcomes related to injuries sustained, preventative methods and the number of people in whom risk factors were identified and managed. Baseline measures were recorded in less than 30% of cases. The cause of the fall and patient history relevant to its occurrence were recorded in less than 20% of cases. Risk factors were only determined in 8% of cases within the Emergency Department. In contrast, 75% of patients had been referred to other services for further management. However, this was not a consequence of the individualised assessments that should have taken place, and there were no referrals to geriatric medicine, physiotherapists or occupational therapists.

It was argued, as in Paniagua et al.'s study (2006), that it is not practical or feasible to complete a detailed assessment of older adults within an Emergency Department due to time pressures. It was thought by Paniagua et al. (2006) that time limitations led to post-discharge care not being viewed as a priority. Kalula et al. (2006) suggested that streamlined referral is important in enabling better management of falls and improved non-clinical staff education. They concluded that older adults who had fallen have a very high risk of recurrent falls and that preventative measures are essential.

The findings highlight important barriers and enablers (determinants of practice), and potential ways of addressing them. However, with a methodological design similar to Paniagua's (2006) study, the same weaknesses can be identified. In addition, as with all of the research discussed, treatment within a National Health Service cannot be directly compared to private healthcare in other countries with different healthcare policies and practices.

The Royal College of Physicians' (RCP) Clinical Effectiveness and Evaluation Unit (2009) conducted a 'National Audit of the Organisation of Services for Falls and Bone Health of Older People'. The audit findings evidenced: a) opportunities to prevent recurrence of falls and fractures were being missed, b) commissioning rarely provided a fall and fracture strategy that was co-ordinated and c) many services were not adhering to the Falls guidelines. The auditors recommended that these issues could be overcome by primary care organisations developing appropriate commissioning strategies and the Department of Health reviewing how it could support such developments.

This audit fits into both category 'a' and 'b' as it highlights both inadequacies in the management of falls, alongside suggesting ways to overcome them. It provides a comprehensive overview of specific issues which need addressing that could be further assessed through research. As suggested in the audit report, research could be conducted to: a) see whether recommendations have been actioned, b) if recommendations have not been actioned, to investigate reasons why not, and c) if recommendations have been actioned, outcomes can be assessed with regards to quality of patient care.

The RCP Clinical Effectiveness and Evaluation Unit (2006) also conducted an audit to determine whether 157 of the varied Acute Trusts participating complied with the standards of the National Service Framework for Older People that relate to falls (Department of Health, 2001). Youde et al. (2009) presented the findings of this audit with respect to the care of patients who had a hip fracture, through measuring pre and post-operative care. The participating hospitals were those which admitted orthopaedic trauma cases, alongside all Primary Care Trusts (PCTs) across England.

In keeping with the findings of the 2009 RCP audit, large variations were found between hospitals in the delivery of care. Of particular concern were long lengths of stay and lack of access to pre-operative care. Process and clinical issues created barriers to such care. These included those caused by poor

access to a physiotherapist, and varied opinions on what is appropriate management. Suggested methods for improving management included additional non-clinical staff education and redesign of service delivery to meet expectations. The implications of this audit for Emergency Department care were discussed by Banerjee et al. (2011). The management of falls demonstrated in the audit was described as suboptimal. For example, less than 50% of individuals who presented with non-hip fragility fracture received a medication review, assessment of vision, continence, mobility and balance, or a cardiovascular examination. An urgent need to improve the care of people who had a fall and further investigation into the reasons behind this suboptimal care were recommended.

Youde et al.'s (2009) study and the RCP 2009 and 2006 audits have strengths in being conducted across more than one site, which allows greater generalisability of findings. There is still a risk of secondary interpretative bias with Youde et al.'s (2009) study, but this should be less of an issue as it is counterbalanced by the study's multi-site nature and the large sample of 3140 participants recruited. There was a relatively small loss of 300 potential participants (20 per site).

On the other hand it is worth considering whether there may be some bias: what were the reasons that these data were not submitted? It may be important to ask this question when evaluating smaller scale studies.

Miller et al. (2009) recruited a sample of 300 individuals aged 65 and over, in order to investigate current practice when presenting to the Emergency Department with a fall. Data were collected from patient records over a one year period (2004-2005), via a longitudinal retrospective chart review conducted in a community-based hospital in Toronto, Canada; 25 charts were randomly selected each month.

Information was collected on circumstances surrounding the fall, the management of falls and healthcare professional involvement, patient outcomes, demographics, history and risk factors. Twenty-nine percent of patients had a previous history of falls in the six months prior to this Emergency Department presentation, and eight percent of the 300 patients returned post-discharge, presenting again with a fall. Nearly 38% of patients who returned with a fall were diagnosed with a fracture. Eighty-one percent of patients were discharged directly home from the Emergency Department, and for 62% there was no documentation of referral to, for example, a physiotherapist or an occupational therapist

Among the studies in this section, therefore, there were low rates of guideline adherence. It could be argued that, as Youde et al. (2009) found, poor management could be related to both process and clinical issues. They noted that barriers to guideline adherence could include language barriers, lack of resources and quality management, and as recognised by other authors, time constraints and poor time management, including those caused by poor access to a physiotherapist (Boele van Hensbroek et al., 2009; Davidson et al., 2005; Whitehead et al., 2003, and Kingston et al., 2001) -See Studies of interventions to improve fall management, and adherence (pages 73-98). In addition, varied opinions on what is appropriate management may be a barrier to guideline adherence.

The studies showed both variation and gaps in care, for example, falls history not being documented. Lack of awareness of the implications of insufficient care such as repeat presentations was an issue, and some patients were not referred to other services for further management of their care. Opportunities to prevent recurrent falls were being missed and poor co-ordination of care was an issue with many services not adhering to Falls guidelines (Miller et al., 2009; RCP, 2009; Youde et al., 2009; Kalula et al., 2006; Paniagua et al. 2006, and RCP, 2006). *Table Seven* summarises the findings with regards to the current management of falls.

Table 7- A thematic summary of current levels of adherence- Medical review/audit research findings:

Authors	Findings with regards to fall management
Paniagua et al. (2006).	Poor adherence was found and was due to a lack of awareness of both falls history, and the implications of insufficient management of them.
Kalula et al. (2006).	Adherence was poor. Causes of falls and patient history were recorded in <20% of cases. Rick factors were determined in 8% of cases. Insufficient management. However, 75% were referred on to other services.
Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009).	Adherence was poor. Prevention opportunities were being missed. There was a lack of co-ordination in fall management.
Youde et al. (2009).	Poor adherence and large variations in delivery of care. Long lengths of stay. Lack of access to pre-operative care.
Miller et al. (2009).	Low rates of guideline adherence.

All of the studies point to the need for further research into the management of falls and the potential barriers and enablers (determinants of practice) to guideline adherence. The aim would be to tailor interventions in order to improve healthcare professionals' adherence to guidelines, and consequently to improve patient outcomes. The studies presented in category b provide suggestions and highlight ways in which this aim could be achieved.

Category b - Papers that focus on what could be done to improve fall management:

b i) A group of papers that investigate risk factors for falls that can be targeted by fall prevention interventions:

Section 1- A thematic summary of questionnaire design research findings:

Davies and Kenny (1996) assessed individuals who had presented with a fall to an Emergency Department, in order to investigate both the type and frequency of falls. The aim was to identify modifiable risks. Participants were recruited from an inner city Emergency Department, at the Royal Victoria Infirmary, Newcastle upon Tyne in England, over a four week period and underwent an assessment of cognitive and fall status, through a semi-structured questionnaire. Those with recurrent or unexplained falls then underwent a more detailed assessment.

Thirty percent of individuals fitted into the unexplained or recurrent falls category and another 29% could recall a reason for falling. Unexplained and recurrent falls in some cases were associated with medication and with gait abnormalities. Davies and Kenny (1996) suggested that further investigation into factors that may be associated with recurrent or unexplained falls, may allow the development of more rapid assessment of patients presenting to an Emergency Department and consequently reduce hospital admission rates.

Lee et al.'s study (1999) provides further insight into home accidents in older adults aged 65 and over who presented to an Emergency Department in Hong Kong, following a fall. They investigated home accident patterns, mechanisms of accidents, and factors associated with accident occurrence. One hundred participants, who had experienced injury from a fall within a week of

data collection, were recruited through a convenience sample obtained over an eight week period.

Data were collected by questionnaire. A variety of factors were found to be associated with falls, including sensory deficit, mobility problems, illness and environmental factors such as cluttered living accommodation and slippery floor surfaces, for example, in the bathroom. Lee et al.'s (1999) study suggested that prevention was the best course of action, and could be facilitated by improved non-clinical staff, carer and family member education. The former could lead to benefits such as organising an occupational health assessment or advising the fitting of a handrail in a bathroom.

The questionnaire findings showed that unexplained and recurrent falls could be associated with medication and with gait abnormalities, sensory deficit, mobility problems, illness and environmental factors. Both studies suggested that prevention was the best course of action (Davies and Kenny, 1996, and Lee et al., 1999). *Table Eight* summarises the findings with regards to what could be done to improve fall management.

Table 8- Risk factors that can be targeted - A thematic summary of questionnaire research findings:

Author	Risk factors that can be targeted
Davies and Kenny (1996).	Medication. Gait abnormalities.
Lee et al. (1999).	Fall hazards e.g. Bathroom having a slippery surface. Hazards can be addressed at an occupational therapy assessment. For example, providing equipment to prevent falls in rooms where more time is spent, such as the kitchen or bathroom.

Section 2- Thematic summary of Interview design research findings:

Whitehead et al. (2006) conducted a study to investigate the reasons for individuals presenting to an Emergency Department with a fall, following a prevention strategy for future falls or injuries. Sixty individuals aged 65 years and over, who presented with a fall to a medical centre, public hospital, and a general hospital in Adelaide, Australia, were recruited and interviewed.

Fifty-two percent stated that after their fall they had considered prevention strategies. However, individuals were reluctant to follow those that were recommended, and it was concluded that fall prevention strategies were likely to require an individual behavioural modification strategy, in order to increase uptake. This finding supports Fortinsky et al.'s (2004) view that patient compliance is as important as healthcare professionals' adherence to guideline recommendations. Further research with qualitative methodology may be worthwhile, in order to explore the reasons why some individuals do not wish to follow advice about falls prevention. The structured interview methodology that this study employed did not allow in-depth exploration of individual reasons, but was restricted to simple categorisation.

In conclusion, fall prevention strategies are beneficial but patient behaviour needs to be modified to increase patient uptake. *Table Nine* summarises the findings with regards to what could be done to improve fall management.

Table 9- Risk factors that can be targeted - A thematic summary of interview research findings:

Author	Risk factors that can be targeted
Whitehead et al. (2006).	Patient compliance with preventative strategies.

Section 3- Thematic summary of Medical review/audit research findings:

Like Davies and Kenny (1999) and Lee et al. (1999), Bell et al. (2000) suggested that preventative programs would be beneficial and the Emergency Department could have a role in referral to such schemes. They studied older adults aged 65 and over who presented to an Emergency Department, in order to investigate factors associated with a fall, the injuries sustained and patient outcome. A sample of 733 individuals was recruited from the Emergency Department of the Royal Prince Alfred Hospital in Australia. Data were collected from a retrospective analysis of the trauma registry information system in place at the Emergency Department and patient medical records. The sample of patients was found to have a high rate of admission, and prolonged hospitalisation was common. Individuals had fallen before in a third of cases, and high injury rates were also found.

Nordell et al.'s (2000) study gives recognition to the importance of guideline development and adherence, outside the UK NHS context. They aimed to investigate background factors related to the occurrence of falls, consequences of accidental falls, and preventative measures. They recruited a sample of 332 older adults, aged 65-74, from the Department of Orthopaedics Emergency Clinic of the Lund University Hospital, Sweden, and collected data on fall risk factors included walking, balance impairment, and medication.

In 75% of patients, fractures were found to have occurred and were more common in women than men; one third of the patients were admitted to the hospital from the Emergency Department. As Nordell et al. (2000) recognised, there were gaps in the medical records, with fractures and falls often not recorded in the medical notes (the research team were able to recognise gaps due to their medical background). These gaps led to bias in reported statistics.

The research shows the benefits of healthcare professionals contributing to data collection, in order to identify whether gaps in medical records exist.

In conclusion, in falls patients there are high injury rates including fractures, high rates of admission and prolonged hospitalisation. Previous falls are a risk factor for fall presentation alongside a greater risk among females (Bell et al., 2000, and Nordell et al., 2000). *Table 10* summarises the findings on what could be done to improve fall management.

Table 10- Risk factors that can be targeted - A thematic summary of medical review/ audit research findings:

Author	Risk factors that can be targeted
Bell et al. (2000).	Previous falls.
Nordell et al. (2000).	Walking. Balance impairment. Medication. Gender- women more prone to fractures.

Section 4- Thematic summary of 'Screening research' findings:

Vivanti et al. (2009) investigated the associations between fall risk, malnutrition, and hospital admission, in adults over 60 presenting to a tertiary Emergency Department in Australia. A sample of 126 older people that included 'non-fallers', frail people and 'active mechanical fallers' was recruited and underwent malnutrition screening and assessment (see pages 24-26).

A six month history of self-reported falls and hospital admissions, the prevalence of malnutrition and the number of 'frail mechanical falls' were documented. It was found that 'frail mechanical fallers' were more likely to be malnourished in comparison to 'active mechanical fallers' or 'non-fallers' (P=0.02) (see glossary). Malnourished individuals had a five times greater risk of

hospital admission (P=0.001) and there was increased risk of self-reported falls over a six month period (P=0.03). These findings showed that older adults may benefit from being nutritionally screened to reduce the risk of falls and admissions.

However, recall bias may have been an issue as a consequence of the self-reported recording in the six months post-discharge; individuals may not recall information in a non-biased way, due to forgetting, for example. Also, the sample recruited was a convenience sample of fallers who presented to the Emergency Department who were sometimes prioritised over 'non-fallers'; there may have been an overestimation of the prevalence of malnutrition, as the authors noted. It is also hard to justify an analysis of statistical significance (which assumes a probability sampling framework) in a convenience sample (Mora, 2011).

Yeung et al. (2009) evaluated fall prevention interventions' applicability in Emergency Departments. They gathered data over a one year period, with a sample of 807 patients aged 60 and over. The research was conducted in a regional hospital in Hong Kong. Information about the participants' health profile was collected and compared to figures from the general population. The data were collected over a one year period in order to assess whether the approach addressed the needs of the Emergency Department and elderly patients.

Multiple and varied health problems and degrees of frailty were found, such as balance impairment, mobility impairment, and cognitive deficits. This suggests that due to such characteristics of patients, a homogenous approach to management of falls may not be feasible, and treatment tailored to the individual would be more appropriate. However, although the paper recognises this, Yeung et al. (2009) do not make recommendations on employing patient specific treatment. Vivanti et al.'s (2009) and Yeung et al.'s (2009) papers

supported the idea of utilising a comprehensive assessment such as the FROP-Com (Falls Risk for Older People in the Community assessment- National Ageing Research Institute, 2001) or CAREFALL triage (Combined Amsterdam and Rotterdam Evaluation of FALLs study group- Dutch Falls Prevention Collaboration, 2004). This would enable greater insight into patient needs, and providing care focused on patients' individual treatment requirements.

In conclusion, malnourishment, balance impairment, mobility impairment, and cognitive deficits were all risk factors for falls (Vivanti et al. 2009, and Young et al., 2009). *Table 11* summarises the findings with regards to what could be done to improve fall management.

Table 11- Risk factors that can be targeted - A synthesis of screening research findings:

Author	Risk factors that can be targeted
Vivanti et al. (2009).	Malnutrition.
Yeung et al. (2009).	Balance impairment. Mobility. Cognitive deficits.

Section 5- Thematic summary of Randomised Controlled Trials (RCTs) undertaken during development of tools to identify patients at risk of further falls

Russell et al. (2006) conducted a cross-sectional study of baseline data from an RCT. The aim was to describe fall prevalence and characteristics, and factors associated with decline in performing Activities of Daily Living (ADLs) such as eating, bathing and dressing (Lawton and Brody, 1969). Three-hundred community dwelling older adults aged 60 years and over were recruited after being discharged home from an Emergency Department in Melbourne, Australia. They underwent a home-based assessment of fall risk factor prevalence,

functional decline, measures of gait, falls efficacy - a measure of fear of falling (Tinetti, Richman and Powell, 1990) and depression.

Fall-related injuries were found in 91% of the participants. Polypharmacy, home hazards, decreased balance and arthritis were the most common risk factors identified in recorded falls. Decline in function was associated with independence prior to a fall, being female, having depression, sustaining a fracture and having slower TUG scores (a test of functional mobility) (Podsiadlo and Richardson, 1991). The findings highlighted the need for risk assessment within the Emergency Department and after discharge; such assessment can facilitate fall prevention through identifying the more common risk factors across patient groups, alongside those specific to an individual, through a tailored assessment.

Russell et al. (2008) tested an assessment tool. The study focused on determining the 'Falls Risk for Older People in the Community tool's (FROP-Com's)' predictive accuracy and reliability. This multi-factorial risk assessment tool was compared to the Timed-up and Go (TUG) (Podsiadlo and Richardson, 1991) and the Functional Reach (FR) test outcomes (Duncan, Weiner, Chandler and Studenski, 1990). The TUG test is a measure of functional ability in which a patient is observed and timed from standing up, walking 3 metres and then sitting back down (Podsiadlo and Richardson, 1991). The FR test is a measure of balance, specifically the difference between an arm's length and reach (Duncan et al., 1990).

The multi-factorial risk assessment tool was tested in an RCT conducted in Melbourne Australia, in a sample of community dwelling patients aged 60 and over, who presented to the Emergency Department after a fall. The tool was found to be successful in predicting falls. The findings warranted the use of a

simple manageable (short time to complete) predictive instrument with long-term preventative consequences.

"…The intra-class correlation coefficients (ICC) for intra-rater reliability and inter-rater reliability for the FROP-Com were 0.93 (95% CI 0.84-0.97) and 0.81 (95% CI 0.59-0.92) respectively… (Russell, 2008, P 636)." Approximately 48% of the participants had had a fall at 12 months follow-up. When comparing the FROP-Com and FR scores the Pearson's r correlation coefficient was 0.50 (95% CI– 0.42-0.58). The Spearman's p value between the TUG and the FROP-Com was 0.62 (95%- 0.54-0.68). These results indicate some correlation between the different measures and good reliability.

However, the intervention assessment may be more formalised than the control group assessment (usual care). Therefore, the two study groups may not be directly comparable. Russell et al. (2008) recognised this and sub-divided the control group analysis. The participants in the subset of the study (those in the control group who did not receive the 'usual care' preventative services) had significantly better TUG, FR and FROP-Com scores than when the usual care group was assessed as a whole. An 'Area Under the receiver operating characteristic Curve (AUC)' was calculated in order to determine the FROP-Com's predictive accuracy (Bewick, Cheek and Ball, 2004). The FROP-Com was described as showing moderate capacity in predicting falls. When the FROP-Com's predictive accuracy was assessed across the whole control sample - 344, the AUC of the FROP-Com was 0.69 (95% CI-0.63-0.75).

Russell et al. (2009) aimed to develop a screening tool to be used in the Emergency Department, to identify those individuals who presented with a fall and required further assessment. The research aimed to utilise the findings of the study they conducted in 2008. The 2009 study was 'nested' within this RCT, the control group being used as participants and the intervention group excluded.

The study developed a screening tool based upon the FROP-Com's items found to be most predictive of falls. These items were the number of falls an individual had had in the preceding 12 months, observations of balance and the need for assistance with activities of daily living. The FROP-Com screening tool could be a stand-alone tool or incorporated into a larger geriatric assessment. As the authors stated, it "can be used in time-limited situations to classify those at high-risk of falls who require more detailed assessment and management (2009, P 40)."

Boele van Hensbroek et al. (2009) investigated modifiable fall risk factors, using the Combined Amsterdam and Rotterdam Evaluation of FALLs study group CAREFALL Triage Instrument (CTI), a questionnaire which assesses modifiable risk factors for recurrent falls (Dutch Falls Prevention Collaboration, 2004). They aimed to validate the questionnaire, as part of an on-going trial, similar in design to Russell et al.'s 2006 and 2008 studies. A sample of Dutch speaking individuals aged 65 and over was recruited from the Emergency Department of an academic medical centre in the Netherlands. The test-retest reliability and the clinical, construct, and content validity of the questionnaire were measured.

Female gender, age and six risk factors were found to correlate with recurrent falls. Clinical validity (the agreement between the Fall Prevention Clinic (FPC) clinician's assessment and the CTI findings), was found to be fair for: balance, hypotension and urinary incontinence. It was found to be moderate for fear of falling and mood, and the presence of a high risk of osteoporosis. Finally, the clinical validity was found to be substantial for both medication and impaired vision.

Test-retest reliability was measured by calculation of the level of agreement between the CTI when administered on two separate occasions. It

was found to be substantial with regards to medication (0.78), the high risk of osteoporosis (0.77), moderate for a person's balance and mobility (0.48) or related to their mood (0.49) and recurrent falls (0.60). In addition it was found to be fair with regards to orthostatic hypotension (0.38), urinary incontinence (0.34) and impaired vision (0.36), and poor with regards to an individual's fear of falling (0.20). The intra-class correlation coefficient calculation showed there to be a substantial agreement for the number of risk factors as a whole (0.79).

Finally, the assessment of construct validity showed that there was a strong trend for a higher presence of fall risk factors to be detected by the CTI in a fall group compared controls. However, the results were not significant at the 0.05 probability level (P= 0.53).

It can be argued that this tool has potential for application in the Emergency Department in selecting patients at high risk of recurrent falls who should be referred to a fall prevention outpatient clinic. However, as the CTI in this case was administered as part of standard care, the results with regards to clinical validity may be biased. A higher level of agreement between both assessments may have been found than would have occurred in a comparison made with results from a clinic for which the CTI assessment is not standard protocol. Also cognitive impairment in participants was not measured, although impairment may lead to less accurate reporting by patients. Further evaluation is therefore advisable before widespread use.

In conclusion, polypharmacy, home hazards, decreased balance and arthritis were the most common risk factors identified in recorded fall occurrences. There is a potential use for falls risk assessment tools in selecting patients who may benefit from further intervention following Emergency Department discharge (Boele van Hensbroek et al, 2009; Russell et al., 2009;

Russell et al., 2008, and Russell, et al., 2006). *Table 12* summarises the findings on what could be done to improve fall management.

Table 12- Risk factors that can be targeted - A thematic summary of RCT research findings:

Author	Risk factors that can be targeted
Russell et al. (2006-2009).	Polypharmacy. Home hazards. Decreased balance. Arthritis. *Indicators of decline post-fall:* Independence. Female gender. Fractures. Tug scores (a test of functional mobility).
Boele van Hensbroek et al. (2009).	*The greater the number of risk factors out of the list below, the greater the number of falls:* Medication. Balance and mobility. Fear of falling. Orthostatic hypotension. Mood. Osteoporosis. Impaired vision. Urinary incontinence.

b ii) Studies of interventions to improve fall management, and adherence.

Section 1 -Thematic summary of Results from a pre-post interview comparison:

Baraff et al. (1999) conducted a prospective cohort pre- and post-intervention comparison study. They aimed to determine whether interventions in which Emergency Department physicians were presented with guidelines and health information, reduced rates of falls. An educational intervention was also delivered to primary care physicians. The pre-intervention group consisted of 1140 patients (907 of who completed the interview) and 759 in the post-

intervention group (597 of who completed the interview). The number of falls in the year following the patients' Emergency Department attendance was compared pre and post healthcare professional intervention, information on falls being collected by telephone interview of community dwelling adults aged 65 and over. Hospitalisation rates were determined from a database.

The intervention did not reduce the number of falls; the rate of falls in the pre-intervention group was 18% compared to 21% in the post-intervention group. Also it did not have a significant positive effect on reducing repeat falls.

The findings could possibly be explained by the guidelines not being adhered to. It could also be argued that the self-reported nature of recording fall occurrence may lead to a biased perspective with regards to fall rates, when compared to objective data collected about hospital admissions. However, self-reporting should not introduce bias in the comparison between pre- and post-intervention self-reported fall frequency, as the data collection method was consistent. Further research into the management of falls and methods of guideline adherence is warranted.

In conclusion, an educational intervention which presented healthcare professionals with guidelines and health information did not have a significant effect on rates of repeat falls. *Table 13* summarises interview study findings.

Table 13- Interventions and their effectiveness- A thematic summary of pre-post interview comparison studies:

Author	Details of intervention	Findings and effectiveness
Baraff et al. (1999).	Emergency Department non-clinical staff presented with an educational intervention.	There was no significant effect on the number of falls. However, there was no increase in admissions either; hence the intervention may reduce fall recurrence rates.

Section 2- Thematic summary of RCT research findings:

Close et al. (1999) conducted an RCT entitled 'the Prevention of Falls in the Elderly Trial' (PROFET). They recruited adults aged 65 and over who presented to an Emergency Department in Kings College Hospital, UK. They aimed to investigate whether an interdisciplinary assessment could influence future fall rates. The sample size was based on an average number of falls being two per year (standard deviation 1.5, attrition 25%, 90% power to detect 30% reduction in falls in the intervention group – 114. At $P<0.05$), and was calculated to be 352 participants. At data collection, 397 participants were recruited, 184 being assigned to the intervention group and 213 to the control. The intervention comprised assessments by occupational therapists and referrals to services. Participants were followed-up by telephone and home visits in order to assess fall occurrence at four monthly periods for a year. At 12 month follow-up there was a significantly smaller risk of falling and of experiencing recurrent falls in the intervention group compared to the control. There were 183 falls in the intervention group and 510 in the control group ($P<0.01$).

The results suggest that an interdisciplinary approach could be effective in reducing falls. However, as with all interventions found to have a significant effect within a research environment, they are only of any benefit when translated into practice and all of the intervention components are fully followed. However, it cannot be predicted which specific component of the intervention had a significant effect or whether it was the inter-disciplinary approach as a whole; hence the intervention would need to be fully implemented.

In 2003, Close et al. aimed to develop an approach to streamline Emergency Department referrals to a specialist falls clinic, through examining the fall risk factors highlighted in their 1999 trial. A sample of 397 patients taken from the 1999 PROFET trial was recruited and a secondary analysis was

undertaken in order to investigate future fall predictors, loss to study follow-up predictors, and the interaction that risk factors had with interventions. A history of falls in the year previous to data collection, falling indoors, inability to stand up after a fall, alcohol consumption, cognitive impairment, hospital admissions and fall history were found to be significant predictors associated with the likelihood of future falls. Predictors of loss of participants to follow-up were indoor falls and a reduced Abbreviated Mental Test score (AMT) - a test of cognitive function (Hodkinson, 1972).

The authors concluded that factors that predict future falls are easily measured in the Emergency Department setting; they are useful measures which can be used to prioritise individual assessment. It could be argued that this would benefit both the patient and healthcare professionals, improving department efficiency and reducing repeat presentations.

Kingston et al. (2001) conducted a study of whether a health visitor intervention after a fall could improve a faller's functional status. The study included women aged 65-79 years who were discharged directly home from the Emergency Department. The target sample size was 140 patients, but due to refusal and non-contactability the achieved sample was 109. These women participated in an RCT at North Staffordshire NHS Trust Emergency Department. The health visitor intervention took place within five working days of Emergency Department discharge. The intervention included information and advice on pain control and medication, how to get up after a fall, risk factors for falls, and diet. The Short Form 36 questionnaire, a measure of functional-ability, well-being and overall health, was utilised (Ware and Sherbourne, 1992). The main outcome measure of interest was physical functioning, which was measured alongside other components of the Short Form 36 questionnaire (physical role limitation, bodily pain, general health, vitality, social functioning, and emotional role limitation and mental health).

At 12 week follow-up there was no statistically significant difference between groups for the primary outcome measure, physical functioning (P= 0.13), or six out of seven of the other domains of the Short Form 36 measures; general health showed a small statistically significant deterioration in the intervention group (P=0.037). With regards to the occurrence or non-occurrence of future falls, the 'no further fall' group had higher scores in physical functioning and general health. However, there was no statistically significant difference in either domain (physical functioning, P=0.07, general health P=0.08).

Data were also analysed as a whole, in order to investigate health changes across the sample during the whole data collection time window. Six out of eight domains showed a statistically significant improvement between day four and the week 12 assessment (Role limitation- Physical P<0.0001, Bodily pain, P< 0.001, Vitality, P<0.05, Social functioning P< 0.0001, Role limitation - emotional, P<0.05 and Mental health, P<0.05).

Kingston et al. (2001) concluded that the questions in the domains of physical functioning and general health could be used as part of a test battery. However, the suggestion that physical functioning (their key outcome measure) can be assessed as part of a battery is based upon a finding that is not significant. The authors' base this suggestion on the premise that the group who had no further falls had higher physical functioning scores at day four compared to those who did fall. This was the case, but there was no significant effect of the intervention. This highlights the need for further studies to assess whether an intervention can have a statistically significant impact on repeat fall presentations.

Various multi-factorial interventions for improving patient care and outcomes have been developed and tested. However, as Kingston et al. (2001) point out, as with all research, it should also be recognised that direct comparisons may not be appropriate across studies due to varied definitions of

falls and the sample characteristics. Differentiation of sample characteristics could be used to test the theory that intervention effects may be specific to a certain target population, for example, those who fall outdoors as distinct to those who fall indoors. Interventions should be more widely tested; those which have had an insignificant effect in a particular study may be more effective in different situations and with different patient groups. This is an important point that Kingston et al. (2001) raise and can be applied to the findings of all the studies that have been and are yet to be discussed.

Lightbody et al. (2002) assessed a post-discharge nurse-led care pathway and management plan. It was implemented with older adults who presented with a fall to an Emergency Department in a large teaching hospital in Liverpool, UK. An RCT design was employed with a sample of adults aged 65 and over. Out of a sample of 348 patients 177 received usual care and 171 were assigned to the intervention group (sample size calculation 168 patients per group based upon 35% reduction in falls at six months, P=0.05, 90% power). The intervention comprised a home-based nurse-led assessment of risk factors for falls which were easily modifiable. All patients were educated on household safety.

At follow-up 36 patients in the intervention group had had a fall compared to 39 in the control group. The patients in the intervention group had experienced 89 falls, whereas those in the control group had had 145. However, unlike Close et al.'s study (1999), for example, the difference between groups for the number of falls and the consequences of falls such as hospital admission was not significant.

Shaw et al. (2003) also employed an RCT design in order to assess the effectiveness of a multi-factorial intervention in reducing repeat falls. They recruited a sample of older adults who had attended one of two Emergency Departments in Newcastle Upon-Tyne in the UK. There were 274 participants

(90 per group for 80% power to detect a clinically significant 30% reduction in falls). One hundred and thirty were assigned to the intervention group and 144 to the control group who received conventional care (after an attrition rate of 20 in the intervention group and 14 in the control). The sample was specific to patients with cognitive impairment, and the findings cannot be generalised beyond this group, but, the study offers insight into a group that are often excluded from RCTs. The intervention included cardiovascular, physiotherapist and occupational therapist assessment.

No statistically significant differences between groups were found for the number of individuals who had fallen at one year follow-up. No statistically significant difference between groups was found for secondary outcome measures, either future attendances at Emergency Department as a result of a fall, time to next fall, hospital admissions, or mortality. The findings suggested that the interventions did not benefit patient care in this population.

Whitehead et al. (2003) conducted an RCT to assess the effectiveness of a falls prevention service in adults aged 65 and over. The participants had fallen and then attended an Emergency Department at Flinder's medical centre in Australia. The data were collected over a 22 week period through recordings in falls diaries. The intervention involved a fall risk assessment and writing evidence-based prescriptions, which were faxed to GPs for action.

At six month follow-up, those in the intervention group were more than 12 times more likely than those in the control group to follow preventative advice, and there were over half the number of falls in the intervention group. However, there was no statistically significant reduction in falls. Further exploration of the merits of preventative advice is justified, in particular it may be useful to conduct research without falls diaries being the main data collection tool as these may be inaccurate and are subject to bias; the statistically insignificant reduction in falls

may be explained by this problem. In addition, the influence of intentions upon behaviour may be a factor as critics of the Theory of Planned behaviour (Ajzen, 1985) suggest, people may intend to change their behaviour, in this case taking on-board preventative advice, but they may fail to implement such techniques (Conner and Godin, 2007).

Davison et al. (2005) also aimed to test the effectiveness of a multi-factorial intervention in preventing falls, through an RCT. Individuals who were cognitively intact, had presented to an Emergency Department with a fall, and had had at least one other fall in the year preceding attendance were recruited. A total of 313 individuals were recruited, of which 159 were assigned to the intervention group and 154 received usual care (control group), and after attrition 141 remained in each group after one year. The multi-factorial intervention took place in Newcastle, UK, and consisted of medical, physiotherapist and occupational therapist assessment, which took place after a fall. The outcome measures were the number of falls and fallers one year after recruitment and fall-related hospital admissions, injury, mortality and fear of falling, which were measured from medical records and falls diaries.

When basing results on the sample at one year follow-up, there were 36% fewer falls in those individuals who received the multi-factorial intervention (relative risk 0.64, 95% CI 0.46-0.90); however, this finding was not of statistical significance. In addition there was no significant difference between groups with regards to the number of recurrent fallers post intervention (65% in the intervention group, versus 68% in the control). There was also no significant difference in the number of fall-related attendances, 25/159 in the intervention group versus 27/154 in the control (90% CI 0.55-1.47), and in hospital admissions between the intervention and control groups, 14/159 in the intervention group versus 17/154 in the control (80% CI 0.41-1.56). However, in those who received the intervention and had fallen, at one year follow-up, the

length of hospital admission had been significantly reduced (mean difference 3.6 days, 95% CI 0.1–7.6) alongside an improvement in falls efficacy and a reduction in their level of fear of having a fall (Tinetti, Richman and Powell, 1990). In summary, the intervention reduced the number of falls in the sample of recurrent fallers and reduced the length of hospital admission. However, it did not reduce the number of fallers; the same proportions of participants were still falling, but less frequently.

A weakness with this study is the sample; 352 participants were estimated as required for 90% power in detecting a significant difference, but thirty-nine fewer were recruited. The sample size also reduced from the intervention group and control group at follow-up, potentially biasing the results. Additionally, although some aspects of the multi-factorial intervention appeared to be an effective fall prevention tool, as with other successful multi-factorial interventions it is not possible to single out which particular components were effective. If due to a single component, it would be beneficial to identify this as it may make an intervention more cost effective and less time consuming.

This point applies to Shaw et al.'s (2003), Russell et al.'s (2008), and De Vries' research (2010; to be discussed). In addition, a specialist falls assessment was delivered to 21% of the control group, which the authors argued may have biased the findings as this may not be considered usual care. The authors suggested that the findings may be used to inform the development of falls services through encouraging appropriate triage of 'fallers' attending the Emergency Department, and employing an individualised approach to their care management.

Hendriks et al.'s (2008) aim was to assess whether Close et al.'s (1999) fall prevention programme was more effective than usual care, in a sample of community dwelling Dutch individuals aged 65 years and over who were seen at

an Emergency Department after a fall. The programme (developed in the UK) was adapted to be applied in the Netherlands. An RCT design was used with four and 12 month follow-up after baseline assessment; an initial sample of 166 individuals were in the control group of whom 42 withdrew, compared to 167 in the control group, of whom 32 withdrew. The intervention was a detailed medical and occupational therapist assessment. The aim was to evaluate and address risk factors for recurrent falls, followed by referrals and recommendations, as appropriate. The intervention site was a University hospital with a home-based intervention.

The outcome measures were the number of people who sustained a fall, measured by a fall calendar, and the participants' daily function, measured by the Frenchay Activities Index (Schuling, de Haan, Limburg, and Groenier, 1993), a way of recording patient activities. Like the majority of other studies, the authors' findings differed from Close's Prevention of Falls in the Elderly Trial (PROFET) study findings. The fall prevention programme was found to have no statistically significant effect on either daily functioning (P = 0.57) or falls (at least one fall, P= 0.59, more than one fall P= 0.87, injurious fall P= 0.53) at the 12 month follow-up.

Hendriks et al. (2008) recommended that further feasibility studies are required, since an intervention unsuccessful in one setting may be successful in another. They supported the idea (Kingston et al., 2001) that findings may be site specific. This was demonstrated in this case, where a programme successful in the UK was not successful in the Netherlands. The factors that rendered an intervention effective in one setting ineffective in another were not explained by the studies reviewed, however.

Another weakness of this study is that varied numbers of people conducted assessments, possibly leading to interpretive bias. In addition,

intervention assessment may be more formalised than control group assessment, as the usual care patterns followed in this group may be more variable (as illustrated by the varied adherence to falls management guidelines). Hence the findings may not be directly comparable. Observations of the patterns of usual care may be worth noting, in order to find a more accurate control comparison to the structure of the intervention.

In sum this study, alongside others, (Hendriks et al., 2008, and Salter et al. 2006) highlights lack of generalisability across healthcare settings and countries, and healthcare policies and practices. However, it offers insight into how this may be addressed through detailed investigations including baseline measures into usual care policies and practices, so that interventions can be better tailored to specific settings.

De Vries et al. (2010) found similar results. They conducted an RCT at a geriatric outpatient clinic in a hospital in Amsterdam, Netherlands, in order to evaluate the effectiveness of multi-factorial interventions in reducing future falls in a sample of 217 older adults (sample size calculation - 57 needed per group with 80% power in order to reach the P=0.05 significance level with a difference of 50% between groups). In the intervention, individuals visited a Geriatric Outpatient Clinic in order to undergo a fall-risk assessment. The multi-factorial intervention was tailored to the identified needs of the patient. The primary outcomes were the time to first and second falls after the randomisation period. The secondary outcomes were fractures, activities of daily living, quality of life (QoL), and physical performance.

The results showed no significant treatment effect for the primary outcome measure, time to the first fall (P>0.05). The results therefore demonstrated that the multi-factorial intervention did not reduce falls. The authors suggested that this may be due to participants being aware of the nature of the study due to the

publication of guidelines that addressed fall risks (American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2001). In addition, they noted that hallmark studies such as Close et al.'s (2003 and 1999) had been recently published; healthcare professionals may have already been following these recommendations during usual care. If this was the case, although the study did not show a significant effect of the intervention, guideline adherence may be having an effect independent of the study. It would have been helpful if the authors had presented the statistics for recurrent falls in this hospital, to compare the rate of falls prior to the hallmark studies being published.

Hill et al. (2010) investigated fear of falling in 712 participants and the reduction in fear that multi-factorial falls prevention could make over a six month period. The study was a sub-analysis of the RCT conducted by Russell et al. (2009) outlined previously, which was an evaluation of a falls prevention programme. They used the Modified Falls Efficacy Scale (MFES) - an assessment of physical and social activities to measure levels of fear (Drozdick and Edelstein, 2001; Hill, Schwarz, Kalogeropoulos and Gibson, 1996, and Tinetti, Mendes de Leon, Douchette and Baker, 1994).

The findings showed that 60% of the Falls patients who presented to the Emergency Department and had been discharged feared falling. At 12 month follow-up there was a statistically significant improvement in the fear of falling ($F= 37.3$, $P<0.001$) from baseline data. However, there was no statistically significant difference between groups; both groups had statistically significant improvements in their fear of falling. It must be noted however, that the data analysis is secondary; hence the results are limited by the data that were available.

In conclusion, a variety of multi-factorial interventions have been tested. Interventions have included: assessments by occupational therapists/ nurses/ physiotherapists/ health visitors, referrals to services such as outpatient clinics and GPs. Multi-disciplinary approaches tended to be associated with reduced falls, increased uptake of preventative advice, reduced fear of falling (De Vries et al., 2010; Hill et al., 2010; Hendriks et al., 2008; Davison, et al, 2005; Close et al., 2003; Shaw et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001, and Close et al.,1999). However, only Close et al.'s study conducted in 1999 showed a statistically significant effect. *Table 14* summarises the RCT interventions and their effectiveness.

Table 14- Interventions and their effectiveness - a thematic summary of RCT research findings:

Author	Details of intervention	Did the intervention have any effect? ***(full statistical interpretation is detailed in the data extraction tables in appendix n).***
Close et al. (1999).	Testing PROFET	Smaller risk of falls in those assessed by the tool.
Close et al. (2003).	Developing and applying risk factors for falls identified in previous PROFET trial.	Significant predictors: * = those identified previously. A history of falls in the year previous to data collection. Falling indoors* Inability to stand up after a fall* Alcohol consumption. Cognitive impairment* Hospital admissions.
Kingston et al. (2001).	This particular paper reports an approach towards rehabilitation post-fall that utilised a health visitor (HV) intervention. Outcome measures- scores on sf36 primarily physical functioning.	There was no statistically significant difference between the intervention and control group with regards to seven out of eight of any of the sf36 measures. General health showed small statistically significant deterioration (P=0.037).
Lightbody et al. (2002).	Nurse-led care pathway management plan post-discharge.	There were less falls in the intervention group, but this was not a statistically significant finding.
Shaw et al. (2003).	Cognitively impaired sample. Multi-factorial intervention: cardiovascular, physiotherapist	It was found that there were no statistically significant differences between groups with regards to the number of individuals who had fallen at one year follow-up (intervention group 652 falls versus 728 in control). No statistically significant difference between groups were found for secondary outcome measures such as

	and occupational therapist assessment	future attendances at the emergency department as a result of a fall, time to next fall, hospital admissions or mortality.
Whitehead et al. (2003).	Fall risk assessment and evidence-based prescription to GPs.	The intervention group was more likely to take on-board advice. There were half the number of falls in this group. However, then the data were adjusted for baseline scores there was no statistically significant findings.
Davison et al. (2005).	Medical assessment, physiotherapist assessment, and occupational therapist assessment.	36% fewer falls in the intervention group. Length of admission reduced. However, the above findings were not statistically significant.
Hendriks et al. (2008).	Medical and occupational assessment evaluating and addressing risk factors through referrals and recommendations.	No statistically significant effect on daily functioning or falls at 12 month follow-up.
De Vries et al. (2010).	Geriatric outpatients clinic- falls assessment.	The results illustrated that the multi-factorial intervention did not reduce falls, however, this findings was not statistically significant.
Hill et al. (2010).	Sub-analysis of Russell's (2009) study. Looking at fear of falling and its influence on falls.	Increased fear of falls, but not statistically significant.

Conclusions:

This section draws together the key findings from each of the thematic summaries (pages 61-98). The summaries are combined through thematic analysis in order to describe the key themes and the research papers from which each theme emerged (based on the vote counting illustrated in Appendix Q). The descriptions which follow and the vote counting tables in Appendix Q illustrate which papers' evidence contributed to findings on:

- Current levels of adherence.
- The implications of inadequate management.
- Barriers and potential enablers to improving guideline adherence.

Current levels of adherence:

The papers in category a) of this review addressed aspects of research questions one, two and three (page 44) through providing an outline of current Falls guideline adherence levels. The identified research papers demonstrated inadequate adherence to the Falls guidelines in the Emergency Department.

The issues with current levels of adherence were found to be:

- Variation in the way in which care is managed.
- Gaps in care.
- Long-term implications of insufficient management of care.
- Lack of awareness of falls care recommendations/ education.
  NB: not specifically NICE Falls guidelines, as papers are not just from the UK.
- Prevention opportunities being missed.
- Poor co-ordination of care.

The above themes are summarised in sections below.

Variation in the way in which care is managed:

Across all included studies, wide variation was found in the way in which care was managed. For example, studies reported variation in physician education, physician availability and co-operation with following procedures, and variation in referral patterns (Miller et al., 2009; RCP, 2009; Kalula et al., 2006; Salter et al., 2006; Donaldson et al., 2005, and Fortinsky et al., 2004).

Gaps in care:

Some papers revealed there were gaps in care, such as not recording a falls history, referral pathways or the causes and consequences of falls (Miller et al., 2009; RCP, 2009; Vivanti et al., 2009; Yeung et al., 2009; Kalula et al., 2006; Paniagua et al., 2006; Salter et al., 2006; Donaldson et al., 2005; Nordell et al., 2000, and Davies and Kenny, 1996).

Long-term implications of insufficient management of care:

Among others, the implications of inadequate management have been found to be: recurrent falls, repeat presentations, fractures and other fall–related injuries, and prolonged hospitalisation (De Vries et al., 2010; Hill et al., 2010; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Youde et al., 2009; Hendriks et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001; Nordell et al., 2000; Close et al., 1999, and Davies and Kenny, 1996).

Lack of awareness of falls care recommendations/ education:

On occasions healthcare professionals had gaps in their knowledge about the management of people who have fallen (De Vries et al., 2010; Hill et al., 2010; Boele van Hensbroek et al., 2009; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009; Hendriks

et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001; Bell et al., 2000; Nordell et al., 2000; Close et al., 1999; Lee, Wong and Lau, 1999, and Davies and Kenny, 1996).

Prevention opportunities being missed:

Repeat presentations illustrated that on occasions recommendations on prevention of future falls were being overlooked (De Vries et al., 2010; Hill et al., 2010; Boele van Hensbroek et al., 2009; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009; Hendriks et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001; Bell et al., 2000; Nordell et al., 2000; Close et al., 1999; Lee, Wong and Lau, 1999, and Davies and Kenny, 1996).

Poor co-ordination of care:

Poor co-ordination of care within and between departments/ services was reported in various papers (Miller et al., 2009; RCP, 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009 Kalula et al., 2006; Russell et al., 2006; Salter et al., 2006; Donaldson et al., 2005; Close et al., 2003; Bell et al., 2000, and Close et al., 1999).

Barriers and enablers to guideline adherence:

Aspects of research questions two, four and five were addressed through identifying both the barriers and enablers (determinants of practice) to Falls guideline adherence.

Barriers to guideline adherence:

Barriers to guideline adherence were found to be:

- Lack of physician availability.
- Lack of physician awareness of the implications of inadequate management.
- Poor access to referral services.
- Varied opinions on best practice.

Lack of physician availability:

Lack of physician availability was a barrier to guideline implementation, and time pressures were thought to be a related issue (Miller et al., 2009; Kalula et al., 2006; Donaldson et al., 2005, and Fortinsky et al., 2004).

Lack of physician awareness of the implications of inadequate management:

Across all studies it appeared that healthcare professionals may not be aware of the implications of inadequate management of fall presentations (Flottorp et al., 2013; De Vries et al., 2010; Hill et al., 2010; Boele van Hensbroek et al., 2009; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009; Hendriks et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Shaw et al., 2003; Whitehead et al.,

2003; Lightbody et al., 2002; Kingston et al., 2001; Bell et al., 2000; Nordell et al., 2000; Baraff et al., 1999; Cabana et al., 1999; Close et al., 1999; Lee, Wong and Lau, 1999, and Davies and Kenny, 1996).

Poor access to referral services.

Limited access to referral services seemed to be a barrier to providing guideline care (Miller et al., 2009; Youde et al., 2009; Paniagua et al., 2006; Russell et al., 2006Salter et al., 2006; Kalula et al., 2006; Whitehead et al., 2006; Donaldson et al., 2005, and Whitehead et al., 2003).

Varied opinions on best practice:

Healthcare professionals' opinions on best practice appeared to be varied, and they need to ensure their subjective opinion does not impede adherence to guidelines (Miller et al., 2009; Paniagua et al., 2006; Donaldson et al., 2005, and Fortinsky et al., 2004).

Enablers to improving guideline adherence:

Potential enablers to improving guideline adherence include:

- Streamlined referrals and redesign of service delivery.
- The use of empirical data to reinforce fall management techniques.

Streamlined referrals and redesign of service delivery:

It was shown that referral patterns influenced patient care. For example, repeat presentations may be associated with a lack of post-discharge intervention (RCP, 2009; Paniagua et al., 2006; Salter et al., 2006; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Shaw et al., 2003, and Close et al., 1999).

The use of empirical data to reinforce fall management techniques:

All research findings highlighted the benefit of healthcare professional refresher training, and the use of empirical data supporting the management of falls to help reinforce adherence to guideline care (De Vries et al., 2010; Hill et al., 2010; Boele van Hensbroek et al., 2009; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009; Hendriks et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Shaw et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001; Bell et al., 2000; Nordell et al., 2000; Baraff et al., 1999; Close et al., 1999; Lee, Wong and Lau, 1999, and Davies and Kenny, 1996).

<u>The strengths and weaknesses of the review process:</u>

Formal methods were used to conduct the review. Numerous journals were searched with a wide variety of search terms. To ensure that the majority of relevant papers were included, secondary references were followed-up alongside primary search results, this allowed access to any research papers that may have been missed from the initial database searches. A large number of duplicates were found across search stages, demonstrating data saturation.

However, it could be argued that such a broad range of search terms led to a lack of specificity in search results, with over 800 papers being excluded prior to full-text screening (*Figure One* page 49). Although a pilot search was run and Boolean operators were used in the search strategy, a number of results were irrelevant and had been picked up due to one of many search terms being detected in the title or abstract at the initial search point (Appendix A).

The search results generated were independently assessed by two researchers at varied stages in the paper assessment process set out in *Figure One.* This allowed a reduction of selection bias when matching papers against

the inclusion and exclusion criteria (National Centre for the Dissemination of Disability Research, 2007).

Narrative synthesis:

Narrative synthesis has its strengths in that it is a useful way of drawing together research conducted through a variety of methods; it provides an alternative to meta-analysis when this is not feasible (Rodgers et al., 2014; Garg, Hackman and Tonelli, 2008; Green et al., 2006, and Popay et al., 2006).

However, the researcher has to keep the interpretation objective and not opinion-orientated (Garg et al., 2008, and Green et al., 2006). In order to attempt to overcome this issue, it may be an advantage if the reviewer is not an expert in the particular field (Green et al., 2006), as can be argued to apply in this case at the time the review was undertaken (See 'Characteristics of the researcher' pages 267-268).

How the review findings inform my thesis

The review contributes to addressing research questions one, two, three, four and five - when and why do healthcare professionals deviate from or adhere to the clinical practice guidelines in the management of falls; what are the barriers and enablers to adherence (determinants of practice); what methods of falls management healthcare professionals practice when not following the NICE clinical practice guidelines?; what influence does an Emergency Department context has upon adherence behaviours, and how can issues regarding adherence to Falls guidelines within an Emergency Department be addressed? (page 44).

The studies that identified factors influencing adherence to the Falls guideline reflect the Tailored Implementation Model that has informed my research. Category b) introduced papers that focus on what could be done to improve fall management. Numerous potentially modifiable fall risk factors have

been identified in the research illustrated in part b i) including home hazards and compliance with preventative strategies. However, there is limited evidence as to whether interventions which have aimed to address these can improve fall management and adherence (part b ii). With the exception of Close et al.'s (1999) PROFET assessment, the interventions which have been developed have not had a statistically significant influence on falls management and fall recurrence.

The findings of the review point to the need for further research into, and analysis of how a more effective intervention can be developed, to improve fall management and patient outcomes. In addition they suggest the need to conduct further investigation into determining whether Close et al.'s (1999) findings and intervention design can be utilised. Future research could allow an investigation of the merits of effective fall management, through providing education on preventative methods and associated guideline adherence, therefore matching guideline care.

Identifying potential barriers and enablers (determinants of practice) to adhering to Falls guideline care, from collecting data through observations and interviews, allows a more holistic understanding of how falls are currently being managed in an Emergency Department (potentially modifiable factors). The identified factors influencing adherence will be investigated further through the observation study, namely:

- Variation in the way in which care is managed.
- Both healthcare professional and patient education, varied opinions on best practice.
- Lack of access to pre-operative care, lack of physician availability, lack of physician co-operation, poor access to referral services.

The aim is to offer suggestions on how barriers can be addressed, thereby improving guideline adherence rates, and consequently improving patient outcomes.

Conducting the review informed both my observation and interview study and my final conclusions drawn in Chapter Eight (pages 285-304). It informed my observation study through allowing me to familiarise myself with the field and possible barriers and enablers (determinants of practice) to Falls guideline adherence. It also allowed me to become aware of potential gaps in care to look out for. None of the research results which were generated were observation studies, and therefore the review suggested that adopting observation research methodology might provide new insight into levels of guideline adherence. The findings informed my interview schedule through suggesting topics of investigation.

In the next chapter, I provide an overview of the research methodology that was adopted in order to further investigate determinants of Falls guideline adherence, within the Emergency Department.

Chapter 3- Methodology:

I undertook an observation and interview study in order to gain insight into all of the research questions (page 44), observing guideline adherence, and barriers and enablers to adherence (determinants of practice) in order to explore ways in which they could be addressed (chapters four, five and six). A general overview of the research design is described below. Details of the research location, the participants recruited and the materials that were required follow. The research process is then explained in further detail in terms of the research ethics approval process and the data collection procedures.

The methodological approach:

In-depth study through qualitative research allowed an exploration of barriers and enablers (determinants of practice) to guideline adherence (Kvale and Brinkmann, 2009; Bowling 2007, and Wenger, 1998). Observation and semi-structured interview data collection methods were adopted. Observation research involves a researcher watching, listening to and recording the area of interest (Bowling, 2007). Semi-structured interviews involve an interviewer asking participants (interviewees) about a topic of interest through open-ended questions, that is, questions with no pre-defined response category such as a yes/no answer (Bowling, 2007).

Data collection was carried out in two ways: 1) observation research of healthcare professional and patient interactions plus review of the medical records of these interactions, and, 2) semi-structured interviews with healthcare professionals.

Utilising this combined approach allowed adherence practices to be viewed from both the perspective of an outside observer as well as the opinions of those who work within the Emergency Department.

The findings were combined in order to investigate both witnessed (researcher observed) and interviewee reported guideline adherence behaviours.

Overview:

Data were collected in order to gain insight into adherence to NICE Falls guidelines within two Emergency Departments. Two sites were chosen in order to obtain both breadth and depth of knowledge on the procedures followed when individuals presented with falls, in addition to the contextual factors influencing guideline adherence. Episodes of observation of the care of individuals who presented with a fall were conducted and interpreted. With consent, patients were approached and observed from presentation at the Emergency Department until discharge, and healthcare professionals who were involved in their care were also observed when permission was granted.

After all observation data had been collected, a variety of healthcare professionals were recruited for semi-structured interviews; the interviews were not necessarily conducted with the healthcare professionals who had been observed, although it was possible for someone who had been observed to also take part in an interview. The interviews sought to develop understanding of patterns of care that had been observed, and to gain explicit viewpoints in relation to how and why guidelines were or were not followed, and the factors which were thought to be barriers and enablers (determinants of practice) to guideline adherence.

The findings from both the observations and interviews were used to gain insight into the nature of the care provided and the level of compliance with care guidelines, as well as the barriers and enablers to adherence (both witnessed - observations, and specifically reported - interviews). This was to meet the aim of identifying potential ways to improve guideline adherence.

Research locations and participants:

Research locations:

An opportunistic (convenience) sample of healthcare professionals and patients was recruited from the Emergency Departments at 'City Hospital' and 'Town Hospital', where there were diverse populations of patients. This method of sampling involves recruiting a variety of participants, when the opportunity arises. This method was chosen due to the unpredictability of patient presentations and staff availability in the Emergency Department.

The aim was for healthcare professionals from different levels of seniority to be enlisted in all phases of data collection. This was to ensure that there was a range of participants and to take account of the different levels of experience and knowledge and any impact that might have on the findings. However, due to unpredictability of presentations it was not possible to pick out a varied sample of healthcare professionals to observe, as once a patient was recruited it could not be predicted who would treat them. The same was true of interviewee recruitment, those who were available and willing to take part being recruited.

Recruitment from both hospitals allowed research into the management of falls in both a city hospital with a busy Emergency Department and a town hospital with a less busy Emergency Department. More specific information about the study sites is provided below, although some references to the source of the information cannot be supplied as they would breach anonymity. The hospital names, resource references, and more specific demographics have been removed in order to preserve some degree of anonymity.

City Hospital:

Demographics:

(Health and Social Care Information Database, 2014):

- Catchment area of approximately one million people.

- Between 140,000 and 145,000 Emergency Department attenders at City Hospital in 2013 (18.3 million in England in 2013).
- Between 800 and 1000 inpatient beds.

Additional site information:

Patient presentations were coded on a computer system, which provided general information on their names, age, gender, bay allocation and time of presentation (in a box which changed colour to red when nearing the four hour recommended discharge time[1]). The names of the healthcare professionals treating the patient and a brief coding of the patient's presenting characteristics (e.g. TIA, Head injury) were also input into the system. The patient's detailed clinical notes were paper based and included freehand notes made by healthcare professionals, completed pro-formas and printouts of test results.

The Emergency Department comprised of three sub-departments: Minor injuries (Minors) - an area in which patients with less serious injuries or illnesses were treated, Major injuries (Majors) - an area specialising in the treatment of patients who are unable to walk and those with potentially serious conditions; and the resuscitation department (Resus). Resuscitation is the procedure used to restore life, i.e. Cardio Pulmonary Resuscitation- CPR (see glossary) (MedicineNet, Inc, 2012). The Resus department was an area allocated to individuals who required a more intensive level of care than those who remained in the 'Majors' department (University Hospitals of Leicester, 2013).

The Emergency Decisions Unit (EDU) and the Acute Medical Unit (AMU) were departments that at times patients were referred onto. The EDU was an area patients were transferred to when they: were awaiting test results, required further treatment, or required observation before discharge. The AMU was a first point of entry to a hospital for those who are referred as emergency cases by a

[1] The four hour rule was set in the 2000 NHS Plan (Department of Health, 2000), which stated that by 2004 100% of patients who attend an Emergency Department should stay for no longer than four hours.

GP. Those requiring admission from the Emergency Department were also directed there (University Hospital Southampton, 2013).

Information on the hospital's performance has been extracted from available Care Quality Commission reports (2014). It should be noted that all of the available reports were produced after data collection had commenced; information has been extracted to describe the research site and the findings are not used for data comparison purposes.

Only one report could be accessed from the Care Quality Commission archives. Upon inspection in 2014 it was recorded that improvements were needed across the hospital, including Accident and Emergency, Medical Care, Surgery and Maternity and Family Planning, with the average score for the hospital being 'requires improvement' (Care Quality Commission, 2014). Demand for Emergency Department services was noted as a key issue that needed addressing.

There were specific references to Emergency Department performance requiring improvement. Firstly, there was limited capacity leading to lack of dignity and privacy, with patients being seen in communal areas. However, there was good communication between staff and patients with staff updating patients; they also ensured patients were comfortable. Secondly, the report stated that for four weeks prior to the inspection date, on 50% of occasions staffing levels were below expectations. However, despite this, staff felt they were well led by seniors who understood the pressurised working environment.

In addition, responsiveness to patient care needs and safety were reported as requiring improvement. It was noted that the observed busyness of the department may impact on incidence reporting. Some patients left the department without being seen, and this may have been related to the busyness.

Town Hospital:

Demographics:

(Health and Social Care Information Database, 2014):

- Catchment area of between 300,000 and 350,000 people.
- Between 80,000 and 100,000 Emergency Department attenders at Town Hospital 2012-2013 (18.3 million Emergency Department attenders in 2013 in England).
- Between 500 and 700 inpatient beds.

Additional site information:

Patient presentations were coded on a whiteboard, general information on the patients' names, age, gender, bay allocation and time of presentation was noted on the whiteboard. The names of the healthcare professionals treating them and a brief note of the patient's presenting characteristics (e.g. TIA, Head injury) were also written on the whiteboard. Town Hospital patient's detailed clinical notes were also paper based and included freehand notes made by healthcare professionals, completed pro-formas and printouts of test results.

Like City Hospital, the Emergency Department comprised of three departments: Minor injuries (Minors), Major injuries (Majors) and a resuscitation department (Resus).

As with City Hospital, information on the hospital's performance has been extracted from Care Quality Commission reports available 2011-2014. Common themes across the reports were that the hospital had staffing issues, was busy, and there were long treatment times and delays in patient transfer.

Specific comments on the Emergency Department were that firstly, enforcement action was needed on the care and welfare of people who use

services. Secondly, action was needed on infection control and cleanliness, the care and welfare of service users, and supporting workers.

Recruitment and data collection:

Data collection took place September 2011- July 2012.

In the observation phase of research, interactions between patients and healthcare professionals were observed over the duration of a patient's stay in the Emergency Department. Each episode equated to an individual patient's full length of stay in the Emergency Department, approximately four hours. On separate occasions semi-structured interviews were conducted with healthcare professionals. I sought to observe equal numbers of episodes of care at Town Hospital and at City Hospital, and undertake both the same number of observation episodes and interviews at each site.

The aim was to recruit a minimum of 90 participants (30 patients, 60 healthcare professionals). This was split into 60 participants for the observation phase of data collection, 30 participants per research site, and 30 interviewees, split into 15 per site. In order for care to be observed for each episode of observation, a patient was recruited (30 in total) alongside a minimum of one healthcare professional (a minimum of 30 participants). This sample size was chosen because preliminary research into the observation and interview data collection approaches revealed this to be adequate for gaining insight into and observing patterns of behaviours whilst still allowing for participant drop-out. The practical difficulties of recruiting and analysing observations of, and interviews with, a larger number of participants were also factors in selecting the sample size (Daniel, 2012, and White Paper, 2009).

All of the healthcare professionals were recruited directly through providing informed consent, whereas patients were either recruited directly through providing informed consent or through assent being given by a consultee. A personal consultee is an individual who knows the patient well, but

is not at the Emergency Department with them in either a paid or professional capacity (Department of Health, 2008). NB: a carer can only give consent under section 32 of the HM Government Mental Capacity Act if they are not paid as a carer, therefore only unpaid carers such as relatives were able to give consent to participation. A nominated consultee is someone who has been briefed on the research and is prepared to be consulted, but they have no connection with the research data collection, for example, a healthcare professional who is not recruited to the study (Dixon-Woods and Angell, 2009, and Department of Health, 2008).

Information leaflets on the nature of the study were distributed to patients or consultees. All information detailing the nature of the study, and the documentation the patient (or personal consultee) was asked to read and complete was produced in a variety of languages. Staff versions were produced in English alone as all staff were able to speak English.

When older adults presented with a fall at the Emergency Department, they were asked if they wished to take part in the study, and were provided with an information leaflet detailing the study and also information on what would happen to the details they provided. They were also asked if they were willing to consent to researchers accessing their clinical records in order to extract any information-related to the management of their fall presentation. Posters with a brief introduction to the study were displayed across the Emergency Department to try to make patients aware of the study before being approached.

Patient leaflets noted that I would not interact with the patient, and had no medical knowledge. This was also reiterated by me wearing a bright T-shirt, which had the word ‘observer’. I also wore a name badge. My photograph was printed on all of the information leaflets and posters. Since patients could not be approached prior to their attendance at the Emergency Department, they were approached when they presented. Care was taken to ensure that my approach would not impede care, first approaching the patient in the cubicle when they were not receiving treatment (after I checked with a healthcare professional

whether I was able to approach). They were given 15 minutes to consider whether to consent. A short time had been chosen as the aim was observe the whole care pathway.

A debrief in which participants (or their consultees) were fully informed about the research questions being investigated and in which anonymity and confidentiality was reiterated, was provided after both observations and interviews. Participants were informed of their right to withdraw (at this point and up to two weeks after). Patients (or consultees) were also provided with a second opportunity to ask questions about the research at this time point. A slip was attached to their consent form along with a self-addressed envelope marked 'confidential' to enable them to instruct withdrawal of consent within the two week time period. A slip to be utilised in order to request research findings was also attached.

Patients and consultees were provided with the information required in order to withdraw the patient from the study on their copy of the consent form (signed in place of the patient). A patient for whom consent was provided by a consultee also received study information if they regained capacity to consent after Emergency Department discharge. For example, they may have been experiencing amnesia at the time of observation, which was no longer the case after discharge.

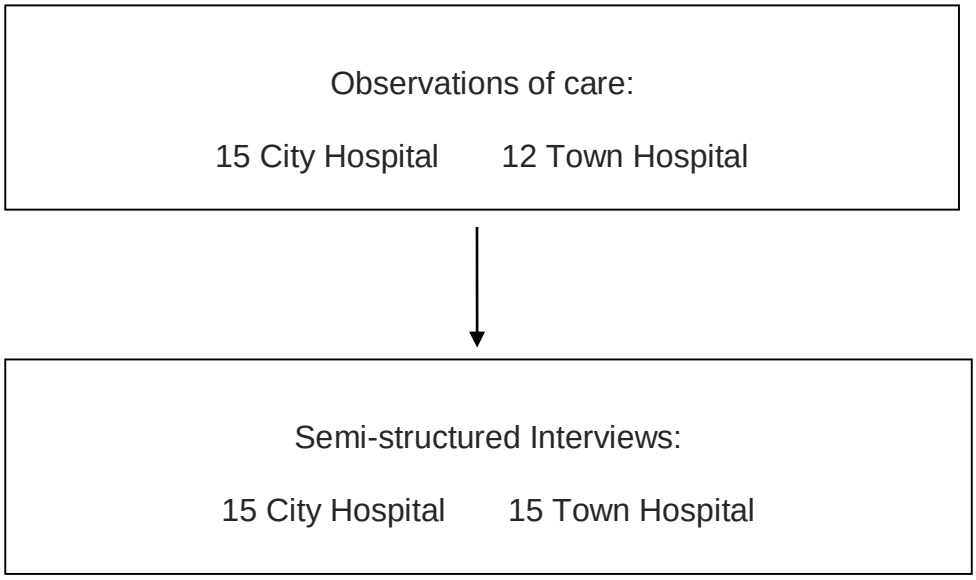
A unique identification code was devised by participants in order to allow identification of those who wished to withdraw their data. The formula that was used to generate this code was: Third letter of Father's first name, Date born, Do you have a pet? Y/N, Mother's initials. For example, my pseudonym would have been M16YFL. The code was noted on any data that were recorded and the participant's copy of any documentation that was completed. It was not recorded on the researcher's copy of the consent form, and consequently participant names and data cannot be associated. If the participant wished to withdraw they could quote this code and the information was deleted accordingly.

Healthcare professionals were informed about the study (observation and interview) through posters displayed in staff only areas. Healthcare professionals in Emergency Department care were provided with one information leaflet for the observation aspect of the study (healthcare professionals as participants, only), and a separate one for interviews.

Healthcare professionals were asked if they wished to provide informed consent to both observations and interviews (on separate forms, so that they had the option to consent to one but not the other). Healthcare professionals were approached about the observation aspect of the study and were asked if they wished to participate in an interview. All participants were asked to provide consent to their data being used in developing an educational intervention and for publication.

Figure Two illustrates an overview of the stages of data collection and the number of participants recruited at each stage.

Figure 2- An overview of the stages of data collection, and recruitment numbers:



<u>Observation methods:</u>

The stages of data collection for the observation research are described below and summarised in diagrammatical form in Appendix Two.

Stages of data collection:

Firstly, healthcare professionals were invited to participate in the study (Appendix Three). They were provided with information leaflets regarding the study (Appendix Four), posters were also displayed within the Emergency Departments (Appendix Five and Appendix Six). Twenty-four hours later healthcare professionals were approached and asked if they were willing to participate, and if they were, asked to provide written informed consent (Appendix Seven). They were asked to inform myself if a patient aged 65 or over presented with a fall. They were also asked to complete a demographic questionnaire which gathered information including job role, age and gender (Appendix Eight).

The patient (or consultee) was then approached and provided with an invitation (Appendix Nine) and information leaflet (Appendix 10-12). They were left for 15 minutes to decide if they wished to consent. If the patient (or consultee) provided written informed consent (examples of consent forms Appendix 13-14) as well as the healthcare professional, they were both provided with help in generating a unique code to access their data should they wish to withdraw from the study at a later date (code generation guidance - Appendix 15). Patients (or the consultee on the patient's behalf) were then asked to complete a demographic questionnaire (Appendix 16). Patients (or consultees) and healthcare professionals were both provided with opportunities to ask any questions.

Observations were non-participant observation, I observed without interrupting normal patterns of care. I noted the interaction between patients and healthcare professionals in an observation notes document (Appendix 17). The document provided space to note the questions asked, answers given and the tests observed to be conducted within the Emergency Department. Any potential barriers and enablers to adherence to Falls guidelines (determinants of practice) were noted. The document provided a summary of 'key pointers' on guideline multi-factorial assessment recommendations, for reference purposes. When taking notes I also considered the findings from my review in order to explore possible adherence behaviours.

Observation notes were made for the duration of the patient's stay, including notes on patient treatment, and contextual factors that may influence adherence behaviours. For example, a personal assessment of how busy the department was and comments made by healthcare professionals were combined in order to produce the categorisations of 'busy' and 'quiet'. The assessment of whether the department could be defined as busy or quiet was made through note-taking and tallying the number of patients within the department at regular time intervals. Activity was not just defined from observation of the workload of the healthcare professionals who were participants but rather defined from a combination of this and my own

observations on the busyness of the department as a whole; i.e. the busyness of the department should not be defined by the workload of a participant alone, a participant may have a heavy workload at time of observation, but the department may not necessarily be busy.

At discharge patients (or consultees) and healthcare professionals were debriefed on the nature of the study (provided with information regarding the nature of the study and given an opportunity to ask questions). Examples of debrief forms are provided in Appendix 18-20. The right to withdraw their data was reiterated to them.

If patients and healthcare professionals were separated during the patient's care, the healthcare professionals were shadowed in order to observe the full care pathway. This was also to help to ensure that I had minimal interaction with the patient (for example, a patient might initiate conversation with the researcher if the two were alone together). Observation of the patient and healthcare professional's interaction also provided insight into the ways falls were managed other than by adherence to the NICE Falls guidelines. NB: if more than one healthcare professional was treating the patient, the healthcare professional initially approached was shadowed, unless the other healthcare professional/s involved in the patients' care also consented to participation. If more than one consented then the care provided by each of them was observed.

I also collected information from clinical records. A clinical data extraction form was devised to collect data from the clinical notes made from episodes of the patients' care that may not have been observed (Appendix 21). The form was a template based on a nursing over 65 data extraction sheet (reference not provided in order to maintain anonymity). It provided space for notes to be made on topics such as falls history, calcium and vitamin D intake, and injuries associated with the fall.

The possible reasons and rationale behind particular behaviours were monitored and noted. Observations were carried out at different times of the day

and different days of the week, to study variations in practice in a range of working scenarios (for example, at times of high activity, or whether senior healthcare professionals were present). This enabled a more representative sample of healthcare professionals' management of falls (through following varied shift patterns). It was recognised that a healthcare professional may be observed more than once by chance, and therefore no more than three observations of the same healthcare professionals (i.e. the same healthcare professional caring for three different patients who had experienced a fall) were allowed, in order to minimise any bias.

An overview of the data collection materials is provided in Appendix 22 and I provide an example of how I would conduct observations below.

A typical day observing care in the Emergency Department:

- I would arrive at the Emergency Department and check the computers or whiteboards to see whether any potential falls patients were being treated.
- **If a patient was being treated,** then the time of presentation was noted: If the patient had been in the department longer than an hour and the department was quiet, I made the decision to wait for another presentation as I believed that I had missed a significant amount of their initial assessments. If the department appeared busy and a healthcare professional was not allocated to direct the patient's care (on the whiteboard/ computer screen) I would check with staff whether they had been seen. I asked incase a patient had been seen, but the notes had not yet been updated. If a patient had not been seen then I would check that the healthcare professionals working in the area that the patient was waiting were ones who had consented to observations. If so, once I obtained healthcare professionals' advice as to whether it was appropriate to do so, I would approach the patient to begin the consent process outlined in the previous section.

- **If a patient had not presented** then I would monitor the computers or whiteboards and watch for potential participants presenting. I also waited for healthcare professionals to approach me when they thought a potential participant had presented (both those directing care, and those who had consented to observations). Once a participant had presented the consent process outlined above began.
- **Whilst waiting for patient presentations** I remained in the Emergency Department ensuring that I was in a position to observe most of the events that were occurring, but without interfering in any aspects of care. At these times I made notes about the Emergency Department functioning. I documented staff-staff interactions and staff-patient interactions, including whether the environment seemed busy, staff appeared stressed, whether staff had time to chat, time to sit down to make detailed notes, whether they sought advice from others, whether they needed their roles to be allocated or they followed their initiative, and whether they took breaks.
- **Conducting an observation:**

  Once consent had been obtained I entered the patient's cubicle and noted down everything that the healthcare professionals and patients did or said. I used a checklist to assess whether guidelines had been adhered to (Appendix 22). This made it easier to focus on in-depth conversations and interactions, as I could tick key criteria from a list rather than spend my time writing them out and missing key discussions or tests being administered.

  I would leave the patient as the healthcare professional did and watch (from a distance) what they did and whether the patient was moved and/or approached by another member of staff. I observed when healthcare professionals consented and also made note of any recordings that were being taken, for example blood pressure, and at what time intervals the patient was visited.

I would make notes about the patient's care whether in the cubicle observing their care or at a distance. Such notes were made for the full duration of their stay and until the patient was formerly discharged from the Emergency Department, as indicated by removal of the patient's name from the computers or whiteboards.

Deciding whether guideline recommendations were adhered to:

The key NICE (2004) Falls guideline recommendations on the components of a multifactorial falls assessment that every falls patient should receive are detailed in *Table One* (Chapter One- page 29).

The decision regarding whether a guideline recommendation was adhered to was based upon both observation notes and data extraction from clinical notes using a clinical data extraction form template (Appendix 21). At both sites clinical notes made during a patient's Emergency Department stay were on paper. I extracted data from the notes by reviewing a patient's complete file when they were close to leaving the Emergency Department, this allowed me to gain as much information as possible about all of the patient's care. I read the freehand notes made by healthcare professionals, for example, how they described the patient's clinical characteristics. In addition I reviewed completion of pro-formas, for example, those asking pre-defined questions regarding pre-existing medical conditions "Has the patient got a history of stroke or known to have Parkinson's disease?" I also looked at printouts of test results, for example, an Electrocardiogram (ECG) recording. I looked at notes so I could decide whether a test had been conducted, not so I could try to interpret the findings.
With reference to the NICE Falls guidelines, a description of how it was decided whether each recommendation had been adhered to follows. Examples are provided in Chapter Four (pages 139-165).

1. Identification of falls history:

This guideline recommendation was categorised as being adhered to if a healthcare professional specifically asked a patient whether they had fallen before, or if they referred to the patient's notes to gather this information.

2. Assessment of gait and balance:

The recommendation on the assessment of gait and balance was categorised as having been adhered to if a healthcare professional looked at how steady a patient was on their feet, and/ or they asked the patient about their mobility.

3. Assessment of osteoporosis risk:

It was difficult to judge whether an osteoporosis assessment had taken place as relevant questions were often asked independently of an assessment. It was decided that an assessment of osteoporosis risk had occurred when any of the factors NICE (2012a) considered as contributing to an increased fracture risk were discussed or assessed, including bone changes, smoking status, alcohol intake and a family history of fractures.

4. Assessment of perceived functional ability and fear related to falling:

An assessment was viewed as having taken place if a patient was asked about how they coped at home and/ or if they were directly asked if they feared falling.

5. Assessment of visual impairment:

A visual assessment was deemed as having taken place if a patient was asked about their eyesight and/ or a visual impairment was noted. Ideally vision would be assessed using a chart.

6. Assessment of cognitive impairment and neurological examination:

An assessment of cognitive impairment and neurological functioning, involved checking a patient's memory, attention and reactions.

7. Assessment of urinary incontinence:

Urinary incontinence was viewed as having been assessed if a patient was asked, or had a pad checked.

8. Assessment (or recommended of assessment) of home hazards:

An assessment of home hazards was categorised as having taken place if a patient was asked about their living arrangements and/ or an assessment was recommended as taking place post-discharge, for example, by an occupational therapist.

9. Cardiovascular examination:

If an ECG was recorded, I accepted that a cardiovascular examination had been conducted and that this guideline recommendation had been adhered to. This was because patients had their hearts listened to and their blood pressure taken routinely with a variety of presentations in the Emergency Department; using an ECG as the assessment criterion was thought to discriminate a cardiovascular examination from routine, basic Emergency Department assessments.

10. Medication review recommended?

Patients were asked about medication that they took; further details about prescribed medication were sought from their notes. A medication review was categorised as having taken place if a patient was asked about, or clinical notes were made about their medication, whilst they were being treated in the Emergency Department. However, it is recognised that a review of their medication, such as the dosage prescribed, for example, should have also been advised. Medication may be defined as being reviewed within the Emergency Department by a patient being asked about their medication, but a review of the type of medication or dosage a patient was taking may not be specifically checked.

11. Encouraged to participate in a falls prevention programme:

Encouragement to participate in a falls prevention programme was deemed to have taken place when recommendations on further care were made by a health professional.

Methods of semi-structured interviews:

Interviews were semi-structured, allowing flexibility for individuals to explain and describe their actions within the context of adherence to recommended practice when treating Falls patients. The questions asked focused on healthcare professionals' job roles, their opinions on working in an Emergency Department, their opinions on guidelines generally and their opinions on NICE Falls guidelines specifically.

The interview was guided by the initial interview structure developed from the Falls guideline recommendations and review findings regarding adherence behaviours (Appendix 23), but flexibility was allowed based upon interviewees' responses. I practiced conducting the interview with fellow students in order to ensure I felt confident in delivering the questions and engaging interviewees so that I could gather rich data. The questions which were included and examples of how interviewee responses guided further questioning are provided in *Table* 15 below.

Table 15- Interview questions and examples of further questions interviewees were asked based upon their response:

Question:	Examples of further questions/ ways of gaining more in-depth answers:
Tell me about your job role.	If the interviewee just stated their job title I asked for further information about what the role involved.
What is your role with regards to Emergency Department care?	If the interviewee just stated their job title or gave a general overview of what their role involved, I asked for more specific information, for example, what their role as a nurse involved within the context of Emergency Care.

How do you find working within in the ED?	I asked them to elaborate if they provided short responses. E.g. if they said working within the ED was stressful I asked them why.
Is there anything you would change with regards to how care is managed within the ED?	When they gave responses as to what they would change I asked them why they would make this change.
Do you think working within the ED context influences care?	If they answered yes I asked them in which ways and why. E.g. if they said yes because it was busy, I asked them why they thought this influenced care.
How guidelines are (generally) followed within the ED?	I asked them to elaborate on their responses and asked them why.
What is your role with regards to the management of falls in older adults?	If their responses required clarification, I asked for further details. E.g. if they said their role was to treat patients, I asked what they meant by this.
Specific to Falls in older adult guidelines, what are the processes that you understand should be in place in ED care?	I asked for in-depth explanations of their responses. E.g. if they said preventing further falls, I asked how.
Do you think Falls guidelines are always put in place?	I asked them to elaborate why they were/ were not put in place.
What facilitates putting these guidelines in place?	I asked for further details if a response required clarification. E.g. if they said improved staffing, I asked them how they thought this would help.
Do you think there are any barriers?	If yes- what are they?
Have you got any other points you wish to add?	I asked for clarification/ for them to elaborate their responses.

The stages of data collection for the semi-structured interviews are summarised below and are detailed in diagrammatical format in Appendix 24.

Stages of data collection:

Healthcare professionals involved in Emergency Department care were invited to participate (Appendix 25) and were provided with information leaflets about the study (Appendix 26). They had 24 hours to decide whether to participate. If they wished to participate they were asked to provide confidential contact details so that an interview could be arranged, to be conducted in a private room.

When the interview took place, written informed consent was requested (Appendix 27) and participants were provided with the opportunity to ask questions. Interviewees were asked to produce a pseudonym (a false name) to be referred to in order to provide a means of identifying the quotations used in write-up, and the interview began by the participant's pseudonym being stated at the beginning of the recording (for future reference). The pseudonym chosen was to be in no way associated with their true name, to maintain anonymity i.e. it could not be a nickname. The pseudonym-true name association was only noted on their copy of the consent form. It was only revealed if they wished to withdraw; the association remained confidential and was destroyed along with any data removed.

The participant was asked approximately what time they had available, and if it was limited then the interview could be directed to the key questions (areas that appeared to be important post observation research). The demographic questionnaire was completed, its focus being on gathering information about their job role, age and gender (Appendix Eight).

After the interview, participants were given the opportunity to ask questions and were debriefed (provided with information on the nature of the study and given an opportunity to ask questions), and asked to sign a researcher and participant copy of the debrief form (example in Appendix 28). Their right to withdraw up to two weeks after data collection was reiterated.

Semi-structured interviews were conducted with both healthcare professionals who had been observed and those who had not. Approval was obtained from the Nottingham 1 Research Ethics Committee for a provisional interview schedule, to be amended if necessary in the light of the findings emerging from observation and review findings. The breadth of the schedule meant that it was not amended; the questions allowed exploration of all of the areas of interest.

The interviews were audio-recorded and transcribed verbatim, both recordings and verbatim transcripts remaining anonymous. It was anticipated that interviews should take an average of 30 minutes, in order to avoid using clinical practice time; this time window included time for obtaining informed consent and a debriefing post-interview. All documentation remains confidential.

An overview of the data collection materials is provided in Appendix 29.

Interview research participants:

This section sets out the inclusion criteria and characteristics of the health professional interviewees.

Number of interviews:
15 at City Hospital
15 at Town Hospital

Participant inclusion criteria:

Worked within the Emergency Department. There were no exclusion criteria.

Interviewee demographics:

Fifteen interviews were conducted at each of City and Town Hospital's Emergency Departments (total = 30). The numbers of healthcare professionals, their gender, their age, their ethnicity, and their employment status and role are summarised in *Tables 16- Table* 21.

Table 16- The number of interviewees at each Emergency Department:

Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)
15	15

Table 17- The gender of the interviewees at each Emergency Department:

Town Hospital's Emergency Department (ED)		City Hospital's Emergency Department (ED)		Total	
Male	**Female**	**Male**	**Female**	**Male**	**Female**
9	6	8	7	17	13

Table 18- The age of the interviewees at each Emergency Department:

Age range	Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)	Total number
16-20	0	0	0
21-25	1	1	2
26-30	2	2	4
31-35	2	2	4
36-40	3	5	8
41-45	2	1	3
46-50	2	3	5
51-55	0	1	1
56-60	3	0	3
61-65	0	0	0
66-70	0	0	0
Missing data	0	0	0
	Range: 24-57 **Mean:** 41	**Range:** 23-55 **Mean:** 38	**Range:** 23-56 **Mean:** 40

Table 19- The ethnicity of the interviewees at each Emergency Department:

Ethnicity	Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)	Total
Prefer not to say	1	0	1
White British	8	7	15
White other	1	4	5
Indian	3	1	4
Pakistani	0	0	0
Bangladeshi	1	0	1
Black Caribbean	0	0	0
Chinese	0	0	0
Other	1	2	3
Unknown	0	1	1

Table 20- The shift pattern of the interviewees from both Emergency Departments:

Town Hospital's Emergency Department (ED)			City Hospital's Emergency Department (ED)			Total		
Full-time	Part-time	Unknown	Full-time	Part-time	Unknown	Full-time	Part-time	Unknown
14	1	0	11	4	0	25	5	0

Table 21- The job role of the healthcare professionals who were interviewed in the Emergency Departments (EDs) - Town Hospital and City Hospital:

Category	Job role	Category total: Town Hospital's ED		Category total: City Hospital's ED		Role total	Category total: across sites
Medical/ Drs	Consultant	3	7	2	7	5	14
	Specialist Registrar	2		2		4	
	Junior Dr/Senior House Officer	2		3		5	
	Locum Dr	0		0		0	
	Physician Assistant	0		0		0	
Advanced/Nurse practitioner		3	3	1	1	4	4
Nursing	Senior nurse/ Charge nurse/ Sister/ Matron	2	5	2	7	4	12
	Staff nurse	0		2		2	
	Healthcare Assistant	3		3		6	
Total		15		15		30	30

Analysis:

Demographic questionnaires were completed to provide information on the breadth of the population recruited. The questionnaires gathered data on: gender, age, employment status and ethnicity (Appendix Eight).

I produced the interview transcripts alongside observation notes. There were two elements to the analysis of the observation notes. In one element, they were used to provide information on the number of guideline Falls multi-factorial assessment recommendations that were adhered to on each occasion, this information being supplemented by a review of each patient's clinical notes (see Appendix 21 -clinical data extraction guidance sheet). In the second element of the analysis, the notes of the observed cases were analysed using a framework analysis approach (Ritchie and Spencer, 1994). The interview transcripts were also analysed by this approach and the findings are amalgamated in Chapter Six (pages 243-266).

How I decided on my analysis methodology:

The framework analysis approach (described in detail in the next section) was chosen as it is a comprehensive approach used in health research (Gale, Heath, Cameron, Rashid and Redwood, 2013). It can be used to produce practice orientated findings - those which can be used to solve practical problems - and to generate policy (Gale et al., 2013; QSR, 2012, and Bleijenbergh, Korzilius and Verschuren, 2010). Any amendments in practice can then reflect individual needs and may lead to greater levels of compliance (Srivastava and Thomson, 2009).

Framework analysis allows an interpretation of a large data set in order to develop a holistic overview (Gale et al., 2013). Unlike other analysis approaches such as narrative analysis, discourse analysis and phenomenological analysis approaches, it is not tied to a particular theoretical

approach and is therefore flexible in its use, allowing the researcher to adopt both inductive and deductive approaches to analysis (Gale et al., 2013).

Being systematic in nature, it allows the researcher to adopt a transparent and organised approach to data analysis; in turn this increases the rigour of the analysis process and the credibility of the research findings (Smith and Firth, 2011; Lacey and Luff, 2009, and Pope, Ziebland and Mays, 2000).

The framework analysis approach (Ritchie and Spencer, 1994):

Framework analysis is a technique that was developed by Ritchie and Spencer (1994). The approach was developed within the context of conducting applied qualitative research, research that Ritchie and Spencer described as having outcomes that action can be taken on, for example, investigating adherence and then taking action to improve adherence. The observation and interview data collection methodology that I have adopted are recognised approaches to generating data for framework analysis (Gale et al., 2013, and Ritchie and Spencer, 1994). Through these techniques I have both observed and questioned what was happening within the Emergency Departments. I have looked at the potential causes and consequences of non-adherence within the Emergency Departments and possible strategies for which issues can be overcome.

Framework analysis is described as grounded or generative; it is based on and driven by people's accounts and observations (Srivastava and Thomson, 2009). It is dynamic in that it is open to changes, amendment and addition throughout the stages of analysis. It is systematic in having a series of explicit stages, and comprehensive in allowing a full review of material that is collected (Lacey and Luff, 2009).

Framework analysis allows between and within-case analysis, both comparisons between cases and associations within them can be made. The

approach also allows for findings to be sorted according to key issues and themes (Gale et al., 2013, and Ritchie and Spencer, 1994). The organised step-by-step analysis process allows easy retrieval of data at each stage (Ritchie and Spencer, 1994).

There are five stages in framework analysis (Ritchie and Spencer, 1994). I describe them below and then refer to how my analysis followed this framework in the section titled 'How I applied the framework analysis approach' (pages 135-138).

1. **Familiarisation-** immersing yourself in the findings, not becoming distracted by one theme or idea, taking note.
2. **Identifying a thematic framework-** A priori issues (research questions/ theories), emergent issues and patterns in the findings are reviewed. The researcher goes back to the notes made in stage one in order to find a way in which findings can be examined and referenced. E.g. referenced by what have emerged as key issues, concepts and/or themes.
3. **Indexing-** Indexing is a way of labelling data into smaller chunks that can later be retrieved and explored. Indexes are not elaborated in detail. Later stages of analysis are more interpretive and these stages refine what is in each category. Version one of the index consists mostly of a priori issues. The index is then applied to a selection of transcripts, categories are then refined and the emergent and analytical themes will become clearer.

   Indexing references are recorded in a margin. For example, 1, 2, 3. They are then used to refer back to an index 1= 2= 3= etc.

   Indexing can enable a researcher to see how different topics are linked together, for example, index 1 and 2 appearing within the same paragraph.
4. **Charting-** looking at the data as a whole. In this stage, the researcher explores themes across all transcripts in order to see the pattern of themes across the whole data set. Charts are used to show how themes span the data.

   Charts have headings and sub-headings which are based on both the thematic framework that emerges and a priori questions.

5. **Mapping and interpretation-** (this is the stage where what Ritchie and Spencer, 1994, describe to be the key aims of qualitative analysis are addressed).

   Data are drawn together. The researcher looks at defining concepts, the nature of the phenomena under investigation, and categorising behaviours, motivations and attitudes. They look at associations between experiences, attitudes, behaviours, circumstances and motivations. They look for explanations and whether they are implicit or explicit. They also develop ideas and strategies as well as their own theories.

How I applied the framework analysis approach:

The framework analysis approach was assisted by NVivo software and Microsoft Excel. The analysis consisted of developing a thematic framework based on coding transcripts and notes and then organising these into categories. How I undertook the stages of analysis are outlined below:

Stage 1- Familiarisation:

I familiarised myself with all of the data through reading through all the observation notes in one sitting and the interview transcripts in another (as noted by Ritchie and Spencer, 1994, it is often not practical to read through every bit of data in one go without becoming distracted).

I went through and annotated the text with initial thoughts about topics, themes, and notes regarding the atmosphere (in particular in the observation research findings).

Stage 2- Identifying a thematic framework:

I went back through my notes and listed the key notes/themes I had drawn-up at the familiarisation stage. I used these to draw-up a framework for data to be sorted. I drew on a priori issues; topic aims, Cabana' et al.'s (1999) model of adherence, Flottorp et al.'s (2003) model of tailored implementation, and my

review findings. In addition I drew on interview subjects/focused questions which were developed from such a priori issues.

I drew on emergent issues, including the issues that were raised by participants, what participants saw to be (or I observed to be) a barrier to adherence.

I drew on analytical themes through noting topics that kept occurring, the pattern of people's views and experiences (those specifically stated and those observed).

Stage 3- Indexing:

All data were read and indexed (Appendix 30) based upon the themes that had initially emerged. Indexing references were recorded in the margin of the transcript as a reference point (Example Appendix 31).

Indexing allowed me to organise the data and to explore ways in which topics were interwoven, for example, through the index references of 1 and 2 appearing in the same transcript extract.

Stage 4- Charting:

I used thematic charting to build up a picture of the data as a whole (an example is shown in Appendix 32). Data were lifted and rearranged in tables (Microsoft Excel) to enable me to look at experiences and issues across the data set, not just transcripts/observation notes independently.

I drew up charts for thematic analysis, where data for each theme were collected from all episodes of observation/ interview transcripts. Thematic charting was used where charts were drawn up for each key theme (rows) and data were input from across all sources, i.e. both observations and interviews (cases in columns). A reference, for example, '**Bob**' P2 was given next to the verbatim extract so that it could be referred back to in the main data set.

The cases were analysed in the same order for ease of referencing. E.g. when looking at the theme I refer to as 'busyness', data were extracted from observation episodes in date order (the order in which episodes are numbered) and interview transcripts in alphabetical order.

Charting was conducted across both observation and interview transcripts at the same time (and across both hospital sites). This was to gain an overall picture of themes/issues arising, which could then later be explored in the context of each hospital site. E.g. extracts related to busyness were taken from each observation extract (date order - across both hospitals), interview transcript (alphabetical order - across both hospitals).

Stage 5- Mapping and interpretation:

Key themes which were developed from index points were then drawn together and mapped (sub-ordinate themes into super-ordinate categories- *Figure Six*). These have been described and evidenced in Chapter Five (pages 166-242).

This stage enabled me to:

- Define concepts, for example, as to what individuals viewed a fall be.
- Map the range, for example, of factors that were associated with adherence and factors that were associated with non-adherence.
- Create typologies, (linking points) for example, i) the types of treatment received, and the number of recommendations followed, and ii) how participants defined a fall and the characteristics of a presentation.
- Find associations - for example, i) busyness and care received and ii) associated injury and nature of falls assessment.
- Seek explanations, for example, why guidelines were not always being followed (explicitly stated and observed explanations).
- Develop strategies, for example, the plausibility of educational interventions and the benefits of collaborative care.

In this chapter I have given an overview of the research design, research location, materials that were required and stages of participant recruitment. The research process was explained in terms of the research ethics approval process and the data collection procedures. An overview of the analysis technique and the way which I adopted it has also been provided. In Chapter Four I summarise the observation results on adherence to Falls guidelines, I address aspects of research questions one, two and three.

Chapter 4- A descriptive overview of the observation study - guideline adherence in observed episode of care and across the sample:

In this chapter I address aspects of research questions one, two and three and summarise the observation research results on adherence to the Falls guideline. The review (Chapter Two – pages 46-1087) suggested that levels of adherence would be unsatisfactory. This chapter provides an overview in terms of the care processes in place and the number of the NICE Falls guideline recommendations adhered to during each individual episode of observation and across the sample. An in-depth interpretation of the findings is provided in Chapter Five (pages 166-242) in which both observation research and interview research findings are combined in order to explore the barriers and enablers to guideline adherence (determinants of practice) through framework analysis. Technical terms are defined within the glossary (pages 482-517).

The aim of this chapter is to provide a preliminary overview of adherence behaviours, that is, to address the question 'what is the level of adherence to the guidelines in the two Emergency Departments?'

The observation notes have been reported in terms of how many and which recommendations (*Table 32*) were adhered to. The data arose from a descriptive analysis only, and tests of statistical significance were not appropriate. Concrete findings cannot be drawn from the limited data and the small differences between the number of guideline recommendations being adhered to at different locations or in different scenarios (for example, busy or quiet). The analysis is exploratory and descriptive only, and aims to suggest possible areas of further investigation with regards to factors influencing Falls guideline adherence behaviours.

Summary of care observed:

Fifteen episodes of observation were conducted at City Hospital's Emergency Department, and 12 episodes at Town Hospital's Emergency Department. Episodes of observation were conducted across mornings, afternoons and evenings. The start and end times of observations were dependent on if and when Falls patients presented. The length of observations varied from two to five hours at Town Hospital and three to six hours at City Hospital. On some occasions falls patients were not recruited; a maximum three hour waiting period was allotted and if a patient did not present within this time slot then data collection was conducted on another day (see 'Recruitment issues' pages 272-273 for further information).

Observation research participants:

This section describes the inclusion criteria for participants whose care was observed, and some information about their characteristics.

Periods of observation-

15 periods of observation at City Hospital.
12 periods of observation at Town Hospital.

Participant inclusion criteria:

Table 22- Observation research participant inclusion criteria:

Healthcare professional	Patient
Member of Emergency Department staff. Treated the patient whose care was observed.	65 or over. Consented to research either: Independently, or if they lacked capacity to consent, via a personal consultee (friend/relative) or via a nominated consultee (an individual who worked/s within the department and was independent to data collection).

Participant exclusion criteria:

- Those who the clinical team caring for the patient deemed it inappropriate to observe.
- Patients, carers or healthcare professionals who did not consent.

Observation research: patient demographics:

The patient demographics are summarised in *Tables 23-31.*

Table 23- The number of patients observed at each Emergency Department:

Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)
12	15

Table 24- The gender of patients observed at each Emergency Department:

Town Hospital's Emergency Department (ED)		City Hospital's Emergency Department (ED)		Total within each category	
Male	**Female**	**Male**	**Female**	**Male**	**Female**
8	4	11	4	19	8

More men presented with falls and were recruited than women (19 versus 8), although this was not as would be expected as falls are usually more often seen in women (Todd and Skelton, 2004).

Table 25- The age range of the patients observed at the Emergency Departments:

Age range	Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)	Total within each category
65-69	0	1	1
70-74	1	2	3
75-79	3	3	6
80-84	3	2	5
85-89	2	3	5
90-94	2	2	4
95-99	1	2	3
100+	0	0	0

	Range: 73-97 **Mean** age: 84	**Range**: 67-98 **Mean** age: 83	**Range**: 67-98 **Mean** age: 84

The mean age of 84 years and age range of 67-98 is as expected, as the risk of falls increases with age (Tremblay and Barber, 2005).

Ethnicity:

All of the patients I observed were White British. It was not intended that this ethnic group would be approached exclusively; the lack of participants from other ethnic groups reflected the group of patients presenting with a fall. During data collection, every individual who presented with a fall was White British, whether they were or were not recruited. The reason for this may be that the proportion of older people in the local ethnic minority groups may be lower than in the white population.

Observation research: Healthcare professional demographics

The healthcare professional demographics are provided in ***Error! Reference ource not found.Error! Reference source not found.***.

Table 26- The number of healthcare professionals observed at each Emergency Department:

Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)
13	17

Table 27- The gender of the healthcare professionals observed at each Emergency Department:

Town Hospital's Emergency Department (ED)		City Hospital's Emergency Department (ED)		Total	
Male	**Female**	**Male**	**Female**	**Male**	**Female**
7	6	9	8	16	14

Table 28- The age range of the healthcare professionals observed at each of the Emergency Departments:

Age range	Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)	Total within each category
16-20	1	0	1
21-25	0	3	3
26-30	3	5	8
31-35	3	1	4
36-40	3	6	8
41-45	0	3	4
46-50	0	0	0
51-55	0	0	0
56-60	1	0	1
61-65	0	0	0
66-70	0	0	0
Missing data	1	0	1
	Range: 19-60 **Mean:** 38	**Range:** 24-42 **Mean:** 32	**Range:** 19-60 **Mean:** 33

Table 29- The ethnicity of the healthcare professionals who were observed at the Emergency Departments:

Ethnicity	Town Hospital's Emergency Department (ED)	City Hospital's Emergency Department (ED)	Total within each category
Prefer not to say	0	0	0
White British	5	10	15
White other	2	2	4
Indian	2	3	5
Pakistani	0	0	0
Bangladeshi	0	0	0
Black Caribbean	0	0	0
Chinese	0	0	0
Other	1	2	3
Unknown	3	0	3

Table 30- The shift patterns of the healthcare professionals who were observed within the Emergency Departments:

Town Hospital's Emergency Department (ED)			City Hospital's Emergency Department (ED)			Total within each category		
Full-time	Part-time	Unknown	Full-time	Part-time	Unknown	Full-time	Part-time	Unknown
8	2	3	13	3	1	21	5	4

Table 31- The job roles of the healthcare professionals who were observed in the Emergency Departments:

Category	Job role	Total each site				Role total	Category total
		Town Hospital's ED		City Hospital's ED			
Medical/ Drs	Consultant	0	9	1	11	1	20
	Specialist Registrar	2				2	
	Junior Dr/Senior House Office	7		7		14	
	Locum Dr	0		1		1	
	Physician Assistant	0		2		2	
Advanced/Nurse practitioner		0	0	2	2	2	2
Nursing	Senior nurse/ Charge nurse/ Sister/ Matron	1	3	0	5	1	8
	Staff nurse	2		4		6	
	Healthcare Assistant	0		1		1	
Total		12		18		30	30

The number of episodes of observation at Town Hospital's Emergency Department was lower than the previously planned 15 episodes, because a new Rapid Assessment Triage System (RATs) was being trialled. This scheme was intended to provide patients with prompt treatment, but it made detailed or prolonged observations difficult as patients were being rapidly assessed and transferred. With respect to this study, the consequence of this rapid pace of assessment and treatment was that patients could not be invited to participate before undergoing treatment for their fall. NB: City Hospital's Emergency Department also implemented rapid assessment at triage; however, it was still

feasible to recruit 15 participants at this site, due to the larger number of attendances at this department which gave rise to delays in triage, hence providing a window of opportunity to approach patients.

Rapid assessment triage involves quick assessment of patients upon their arrival, leading to diversion into other departments as necessary (Grant, Spain and Green, 1999). With this system in place, at Town Hospital patients were directed to an initial assessment area, which was staffed by an individual identified as a senior decision maker (such as a consultant), and supported by a junior doctor, two band five nurses and an Emergency Department assistant who kept a record of the patient's journey through the Emergency Department (patient tracker). As noted in the posters displayed by the Hospital within the Emergency Department, the aim was to rapidly assess and initiate investigations and treatments, and to decide the patient's destination at the earliest opportunity. At Town Hospital, ambulance patients would go to reception, where they would be triaged into appropriate clinical areas, as outlined below:

- Patients with symptoms including dizziness, chest pain, shortness of breath (SoB) and diabetes emergencies were immediately sent to the Rapid Assessment Triage (RAT) area.
- Minor illness streams operated in the Emergency Department entrance, where patients who presented on foot were initially triaged then sent to the RATs area if necessary, or asked to wait to be seen in assessment rooms staffed by GPs.
- The Post-Rapid Assessment Triage sub-department (Post-RATs), received patients who were judged by the Rapid Assessment Triage team as requiring further treatment, before a definitive decision could be made about their care.

Figure Three depicts the RATs, the care pathway in place at Town Hospital. The triage system in place at City Hospital is depicted in *Figure Four*.

Figure 3- The patient journey from presentation at Town Hospital's Emergency Department to discharge / referral- Rapid Assessment Triage System (RATs):

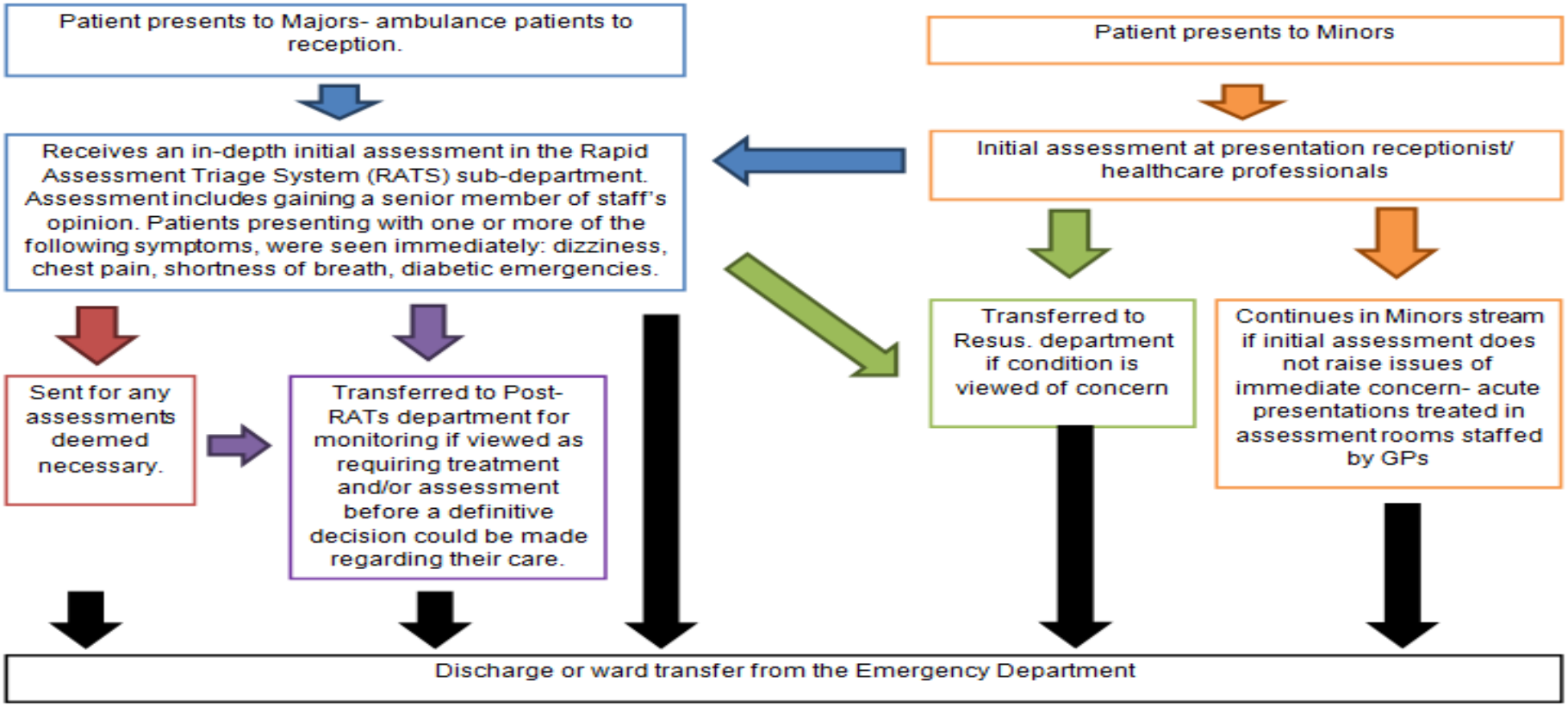
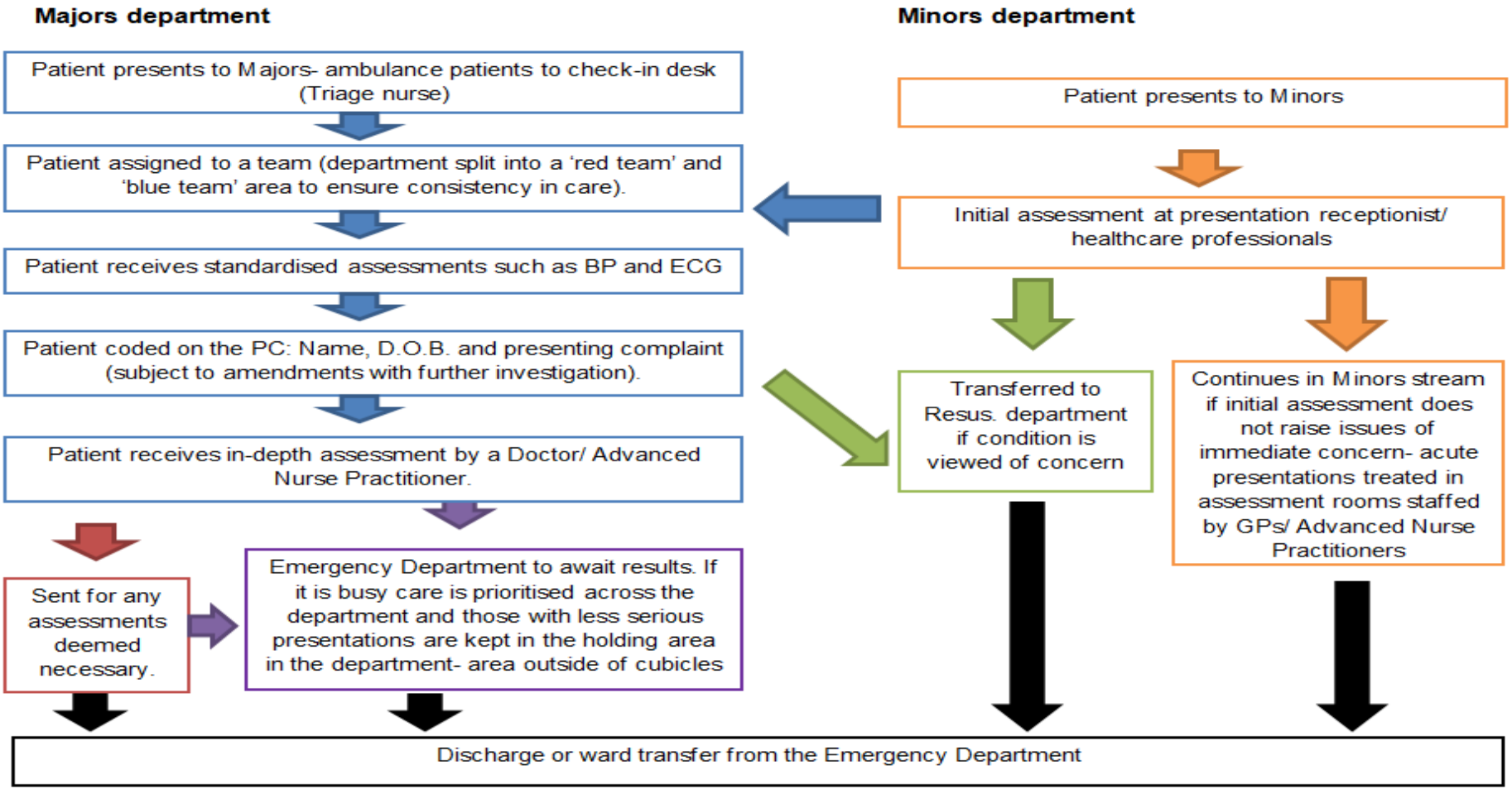


Figure 4- The patient journey from presentation at City Hospital's Emergency Department to discharge/referral:



The care patients received - adherence to NICE Falls guidelines:

Information extracted from the clinical notes and my own observation notes were combined in order to describe the care patients received. Care was assessed by comparing the number of multifactorial Falls assessment guideline recommendations (Falls guideline recommendations) in *Table One* adhered to in each individual episode of observation. The number of times a Falls guideline recommendation was adhered to across the whole sample was also measured, to assess adherence as a whole.

Table 32 provides an overview of adherence to each guideline recommendation in each individual episode of observation (out of 11 recommendations), and the number of times each individual guideline recommendation had been adhered to across the sample, for example, how many times a falls history was documented across the 27 episodes of observation (individual data and collective data).

Table 32- The frequency (number and percent) in which each of the guideline recommendations (as set out in Table One) (columns) was adhered to, and on which occasions (rows). Grey shading is used to indicate when a guideline recommendation was adhered to:

Episode of care	**Guideline recommendation number*- referring to recommendations summarised in *Table One***												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Number of guideline recommendations adhered to (out of 11)**	**%**
1												8	73
2												4	36
3												4	36
4												7	64
5												5	45
6												7	64
7												8	73
8												8	73
9												5	45
10												7	64
11												8	73
12												8	73
13												6	55
14												7	64
15												4	36
16												9	82
17												8	73

18												6	55
19												8	73
20												8	73
21												7	64
22												8	73
23												4	36
24												9	82
25												9	82
26												7	64
27												7	64
Number of times each guideline recommendation was adhered to (out of 27)	25	22	6	22	18	20	6	24	27	1	15	Mean % of times guideline recommendations were adhered to:	63%
%	89	78	22	78	67	74	22	89	100	4	56		

***Guideline recommendation number key:**

1. Identification of falls history.
2. Assessment of gait and balance.
3. Assessment of osteoporosis risk.
4. Assessment of perceived functional ability and fear related to falling.
5. Assessment of visual impairment.
6. Assessment of cognitive impairment and neurological examination.
7. Assessment of urinary incontinence.
8. Assessment (or recommended assessment) of home hazards.
9. Cardiovascular examination.
10. Medication review recommended.
11. Encouraged to participate in a falls prevention programme.

Site specific adherence:

City Hospital's and Town Hospital's Emergency Department's adherence to NICE Falls guidelines:

Table 33 details the number of Falls guideline recommendations adhered to in an individual episode of observation at Town Hospital's and City Hospital's Emergency Departments.

Table 33- The number of Falls guideline recommendations adhered to in an individual episode of observation - City Hospital's and Town Hospital's Emergency Department's adherence:

Episode of observation	Number and % of Falls guideline recommendations adhered to			
	Town Hospital		City Hospital	
	Number	%	Number	%
1			8	73
2			4	36
3			4	36
4	7	64		
5			5	45
6	7	64		
7	8	73		
8	8	73		
9			5	45
10	7	64		
11	8	73		
12			8	73
13	6	55		
14			7	64
15	4	36		
16	9	82		
17			8	73
18			6	55

19			8	73
20			8	73
21	7	64		
22			8	73
23	4	36		
24			9	82
25	9	82		
26			7	64
27			7	64
Average Number and % of Falls guideline recommendations adhered to at each site.				
	N= 6	=64%	N= 6	= 62 %

Table 34 details the number of Falls guideline recommendations adhered to in an individual episode of observation. The table shows that on no occasions were all of the 11 Falls multifactorial assessment guidelines recommendations in *Table One* adhered to at either hospital (ranging from 4-9/ 11 recommendations being adhered to at both City Hospital and at Town Hospital), in other words there was no case on which there was complete adherence to the recommendations of the Falls guidelines. At City Hospital adherence reached 62% of the guideline recommendations; a similar level (64%) were adhered to at Town Hospital. There was no clear distinction between sites with regards to the number of guideline recommendations adhered to. Across both sites the Falls guideline that was most frequently adhered to was conducting a cardiovascular examination (on 27/27 occasions). The recommendation on medication review was adhered to least frequently (1/27 occasions).

At City Hospital the guideline recommendations that were most frequently adhered to was conducting a cardiovascular examination (on 15/15 occasions). The recommendation on medication review was adhered to least frequently (0/15 occasions). At Town Hospital the guideline that was most

frequently adhered to was also conducting a cardiovascular examination (on 12/12 occasions). A recommendation of a medication review was the guideline that was adhered to least frequently (0/12 occasions).

Table 34- The frequency each individual Falls guideline recommendation was adhered to in an individual episode of observation:

Falls multifactorial assessment guideline recommendation		**Frequency each recommendation was adhered to**		
		Town Hospital (12 episodes of observation)	**City Hospital** (15 episodes of observation)	**Total** (out of 27 episodes of observation)
1	Identification of falls history?	12	13	25
2	Assessment of gait and balance?	10	12	22
3	Assessment of osteoporosis risk?	2		6
4	Assessment of perceived functional ability and fear related to falling?	10	12	22
5	Assessment of visual impairment?	10	12	22
6	Assessment of cognitive impairment and neurological exam?	9	11	20
7	Assessment of urinary incontinence?	2	3	5
8	Assessment (or recommended assessment) of home hazards?	11	13	24
9	Cardiovascular examination?	12	15	27

10	Medication review recommended? NB: medication may be asked/noted but review not specifically recommended/ followed-up.	1	0	1
11	Encouraged to participate in falls prevention programme?	6	9	15

Examples of when guideline recommendations were adhered to:

A description of how it was decided whether an element of the Falls guidelines had been adhered to is provided in Chapter Three (pages 123-138) Examples of when it was decided that each of them were adhered to are provided below.

An in-depth example of observation notes from each site is provided in Appendix 33 where they are explored in the context of determinants of practice.

1. Identification of falls history:

Below are examples of the questions healthcare professionals asked in order to obtain a falls history:

a) "When was your last fall?" (**Episode 1 - City Hospital Emergency Department**).

b) "Has he had (directed to the relative) previous falls"? "How many has he had this year?" (**Episode 7- Town Hospital Emergency Department**).

c) Clinical notes: 'Recent fall end 2011 – data collection 2012.' (**Episode 19 - City Hospital Emergency Department**).

d) "Have you had falls before?" (**Episode 11 - Town Hospital Emergency Department**).

e) Clinical notes: 'History of falls, patient unsure if within the last 12 months.' (**Episode 13 - Town Hospital Emergency Department**).

f) "Do you fall often?" (**Episode 25 - Town Hospital Emergency Department**).

2. Assessment of gait and balance:

a) Observer notes: *The healthcare professional asked how the patient was on their feet. There was no physical assessment.*
Clinical notes: 'Dizzy before fall, walks with a stick.' (**Episode 1 -City Hospital Emergency Department**).

b) Clinical notes: 'Walks with a stick, uses a mobility scooter, dizzy when standing.' (**Episode 4 - Town Hospital Emergency Department**).

c) Verbatim: Healthcare professional- "Are you steady on your feet?"
The patient stated that they get a bit dizzy "like anyone when they get out of bed." (**Episode 9 - City Hospital Emergency Department**).

d) Clinical notes: 'Slightly unsteady, unsafe slippers.' (**Episode 11 - Town Hospital Emergency Department**).

e) Verbatim: Healthcare professional - "Have you been feeling ill the last couple of days, has your balance been good, is it longstanding?"
Patient- "I've had falls previously, my balance is not good…I think I leant too heavily on my arm, I have arthritis." (**Episode 13 - Town Hospital Emergency Department**).

f) Verbatim: "Do you walk with a frame?" "Are you unsteady?"
Observer notes: *The healthcare professional asked the patient to lift their arms and legs; they could but they could not lift one leg as high as the*

*other. They had had an operation on one knee but not yet on the other knee, and therefore they could not raise the untreated leg (***Episode 18 - City Hospital Emergency Department**).

g) Clinical notes: 'Patient unsteady at present.' (**Episode 19 - City Hospital Emergency Department**).

h) Verbatim: Healthcare professional - "Did you stay sitting on the bed?" Patient- "Yes, dizzy for 30 minutes, (my) legs wouldn't allow me to stand up (...) I want something to hold in case it happens again." (**Episode 22 - City Hospital Emergency Department**).

i) Verbatim: "Do you get dizzy? Falls can be caused by dizziness." (**Episode 23 -Town Hospital Emergency Department**).

j) Verbatim: "Have you walked since (your fall)?" (**Episode 26 - City Hospital Emergency Department**)

3. Assessment of osteoporosis risk:

It was difficult to judge whether an osteoporosis assessment had taken place. Bone changes and osteoarthritis were discussed in two separate episodes of observation, but their discussion was triggered when they were found as a result of another assessment, an osteoporosis assessment having not been specifically requested. An osteoporosis risk assessment was deemed as having occurred on six occasions, such as when a patient was questioned about alcohol intake or smoking. However, it should be noted that these questions were often asked independently of an assessment, and therefore it was often unclear whether one had definitely taken place.

a) Observer notes: *A healthcare professional mentioned that bone changes had been detected on an X-ray, but a direct assessment had not been requested. The X-ray had been requested to assess an acute presentation (ankle pain following a fall) (***Episode 4 - Town Hospital Emergency Department**).

b) Observer notes: *The healthcare professional requested an X-ray, but stated they did not think there was a problem. The healthcare professional later advised the patient that they did not have a fracture, but they probably had long-standing osteoarthritis* (**Episode 9 - City Hospital Emergency Department**).

c) Verbatim: Healthcare professional- "Are you a smoker?"
Patient- "Years ago."
Healthcare professional- **"**Do you drink alcohol?"
Patient- "A little bit." (**Episode 27 - City Hospital Emergency Department**).

4. Assessment of perceived functional ability and fear related to falling:

a) Observer notes: *It was noted that the patient had a fear of falls* (**Episode 3 - City Hospital Emergency Department**).

b) Observer notes: *The patient was appreciative of the extra help they were told they would receive post-discharge* (**Episode 22 - City Hospital Emergency Department**).

5. Assessment of visual impairment:

a) Clinical notes: 'Patient has cataracts.' (**Episode 5 - City Hospital Emergency Department**).

b) Observer notes: *The patient had blurred vision and diplopia, macular degeneration* (**Episode 11 - Town Hospital Emergency Department**).

c) Clinical notes: 'Patient has reading glasses.' (**Episode 14 - City Hospital Emergency Department**).

d) Verbatim: Healthcare professional- "Were your glasses on when you fell?"
Patient- "No."

Observer notes: *Healthcare professional checked patient's* eyes (**Episode 22 - City Hospital Emergency Department**).

e) Clinical notes: 'Patient states that they have been advised to wear glasses, but they don't as they cannot see with them anyway.' (**Episode 23 - Town Hospital Emergency Department**).

f) Observer notes: *The patient was known to wear glasses, but they could not see clearly* (**Episode 23 - Town Hospital Emergency Department**).

g) Observer notes: *Healthcare professional checked for blurred vision* (**Episode 25 - Town Hospital Emergency Department**).

h) Verbatim: Healthcare professional- "Have you experienced any change in your eyesight?"

Patient- "No." (**Episode 26 -City Hospital Emergency Department**).

6. Assessment of cognitive impairment and neurological examination:

a) Observer notes: *Healthcare professional checked patient's reactions* (**Episode 5 - City Hospital Emergency Department**).

b) Verbatim: Healthcare professional- "What is your name?"

"What is your date of birth?"

"Why are you in hospital?"

Observer notes: *The patient does not respond to the questions. Their relative responded by saying that the patient cannot remember the fall or why they are in hospital* (**Episode 6 - Town Hospital Emergency Department**).

c) Observer notes: *Healthcare professional conducted a neurological examination.* (**Episode 7- Town Hospital Emergency Department**).

d) Observer notes: *After Neurological/ Cognitive assessments, healthcare professional stated to the patient that their concern was that a stroke was a cause of the fall* (**Episode 8 - Town Hospital Emergency Department**).

e) Observer notes: *Glasgow Coma Scale rating (GCS) 15- talking in full sentences.*

Verbatim: Healthcare professional- "How many fingers am I holding up? Can you follow my fingers?"

Observer notes: *The patient did not respond to the question, but they followed the healthcare professional's fingers. Healthcare professional checked pupil reactions, alongside shoulders, arms and legs. (***Episode 11 - Town Hospital Emergency Department**).

f) Clinical notes: 'Patient has Parkinson's disease.' (**Episode 16 - Town Hospital Emergency Department**).

g) Verbatim: Healthcare professional- "Do you know where you are?" (**Episode 17 - City Hospital Emergency Department**).

h) Verbatim: Healthcare professional- "Do you remember falling?"

Patient- "Yes."

Healthcare professional- "Did you lose consciousness?"

Patient- "No." (**Episode 26 - City Hospital Emergency Department**).

7. Assessment of urinary incontinence:

a) Verbatim: Healthcare professional-**"**Are your waterworks ok?" (Referring to infections and bladder control).

Observer notes: *The patient did not respond.* (**Episode 1 - City Hospital Emergency Department**).

b) Verbatim: Healthcare professional - "How are your waterworks?" (**Episode 13 - Town Hospital Emergency Department**).

c) Observer notes: *Patient's incontinence pad is checked* (**Episode 16- Town Hospital Emergency Department**).

d) Observer notes: *Asked if "they know when they need to go." Incontinence not checked (***Episode 23 - Town Hospital Emergency Department***).*

e) Verbatim: Healthcare professional - "Are your bowels ok?"

Healthcare professional - “Do you pass water ok… is it frequent?” (**Episode 25 - Town Hospital Emergency Department**).

8. Assessment (or recommended of assessment) of home hazards:

a) Observer notes: *The patient required support from carers* (**Episode 6 - Town Hospital Emergency Department**).

b) Verbatim: Healthcare professional (to relative) “Does he live alone? Does he cook, clean, wash himself”? (**Episode 7 - Town Hospital Emergency Department**).

c) Verbatim: Healthcare professional - “Are you independent?” (**Episode 8- Town Hospital Emergency Department**).

d) Observer notes: *The healthcare professional noted that the patient lived in a controlled flat with a ‘lifeline’ and that they completed their own activities of daily living (ADL)* (**Episode 13 - Town Hospital Emergency Department**).

e) Verbatim: Healthcare professional - “Do you have any carers?”
“Who does your dinner?” (**Episode 9 - City Hospital Emergency Department**).

f) Observer notes: *The healthcare professional asked how the patient was managing at home and stated that there was a concern and they were being referred to the Crisis Response Team. *The Crisis Response Team at Town Hospital was a team who worked to help people who had experienced a fall to function independently* (**Episode 15 - Town Hospital Emergency Department**).

g) Verbatim: Healthcare professional - “Do you look after yourself?” (**Episode 20 - City Hospital Emergency Department**).

h) Verbatim: Healthcare professional - “Where do you live; bungalow, house?”
“Do you have any help in the home?” (**Episode 27 - City Hospital Emergency Department**).

9. Cardiovascular examination:

a) Verbatim: Healthcare professional - "Is your heart racing? We are trying to see if it was a heart attack or if you have an irregular heart rate." (**Episode 7 - Town Hospital Emergency Department**).

b) Observer notes: *An ECG recording was taken as part of a standardised assessment.*

Verbatim: Healthcare professional - "Have you got any pain in your chest?" (**Episode 11 - Town Hospital Emergency Department**).

c) Observer notes: *The healthcare professional repeated an ECG as there was a slight abnormality on the previous one. (***Episode 19 - City Hospital Emergency Department**).

d) Verbatim: Healthcare professional - "Has anyone told you (that) you have a heart murmur?" (**Episode 18 - City Hospital Emergency Department**).

10. Medication review recommended?

a) Verbatim: Healthcare professional - "What are the (medication) doses?" (**Episode 7 - Town Hospital**).

b) Verbatim: Healthcare professional - "What is your health like normally? Do you take regular medication?" (**Episode 8 - Town Hospital Emergency Department**).

c) Verbatim: Healthcare professional - "Any recent changes in medication?" (**Episode 13 - Town Hospital Emergency Department**).

d) Verbatim: Healthcare professional - "Have you got a list of medication?" (**Episode 19- Town Hospital Emergency Department**).

e) Verbatim: Healthcare professional - "Have you got any medical information from your GP?" (**Episode 27- City Hospital Emergency Department**).

11. Encouraged to participate in falls prevention programme:

a) Observer notes: *Healthcare professionals spoke to the Primary Care Team regarding a falls prevention action plan, where data were collected regarding falls risk factors such as confusion, interventions to reduce falls within the Emergency Department, and follow-up direction of care. I.e. admission of falls clinic referral* (**Episode 3 - City Hospital Emergency Department**).

b) Observer notes: *A patient was referred to an Emergency Decisions Unit (EDU) for further assessment* (**Episode 5 - City Hospital Emergency Department**).

c) Observer notes: *In this episode of observation the Crisis Response Team recommended that the department provided transport and completed a new falls pathway* (**Episode 13 -Town Hospital Emergency Department**).

d) Observer notes: *Patient was referred to the Crisis Response Team* (**Episode 15 - Town Hospital Emergency Department**).

e) Observer notes: *It was recommended that the patient stayed in so that their care pathway could be reviewed* (**Episode 25 - Town Hospital Emergency Department**).

Discussion:

This chapter reports the study in which I sought to address aspects of questions one, two and three. In this chapter I have used information from observation and clinical records to describe the level of adherence to the Falls guideline recommendations. This contributed to addressing when and why healthcare professionals working within an Emergency Department deviate from Falls guidelines (barriers and enablers to adherence) and what other methods of falls management they employ. I found that adherence was variable and sometimes poor, my observation findings reflecting the conclusions drawn from my review findings (Chapter Two- pages 99-107).

The observation notes have been reported in terms of how many and which guideline recommendations (*Table One*) were adhered to. The data arose from a descriptive analysis only, and there were no tests of statistical significance. Generalisable findings cannot be drawn from the limited data and the small differences between the number of recommendations being adhered to at different locations or in different scenarios (for example, busy or quiet). The analysis is exploratory and descriptive only, and aims to suggest possible areas of further investigation with regards to factors influencing Falls guideline adherence behaviours. Nevertheless, the findings show clearly that adherence to the guidelines is deficient. This finding is similar to that found in the studies included in the review. Having identified that there are deficiencies in adherence, the next step in the Tailored Implementation Model is to investigate what barriers and enablers are influencing practice (determinants of practice).

An in-depth interpretation of the findings in terms of barriers and enablers to guideline adherence is provided in Chapter Five (pages 166-242) in which both observation research and interview research findings are combined. The findings are combined in order to provide insight into the barriers

and enablers (determinants of practice) to Falls guideline adherence generally, and where possible adherence to each of the specific Falls multifactorial assessment guideline recommendations discussed in this chapter.

Chapter 5 - Barriers and enablers to Falls guideline adherence within an Emergency Department: findings from framework analysis of observations and interviews:

In the previous chapter, observations of clinical practice and review of records were used to determine the degree of adherence to the Falls guidelines in two Emergency Departments. Reflecting the review findings (Chapter Two-pages 99-107), adherence was variable, and for some parts of care, was low. This chapter addresses aspects of research questions one, two, three and four (page 44). It does so through presenting the barriers and enablers to guideline adherence (determinants of practice) and what healthcare professionals did when not following guidelines that emerged from framework analysis of the observation research and the interview findings.

Mapping the themes through framework analysis:

Familiarisation and identifying a thematic framework:

The analysis aimed to develop a thematic framework through identifying both the respondent articulated (interviewee responses), and researcher perceived (observed) barriers and enablers to Falls guideline adherence.

A more detailed description of the analysis process is provided in Chapter Three, but to summarise: after familiarisation with the observation notes and interview transcripts I developed a thematic framework. I did this through reading through my notes and listing events that occurred, characteristics of the environments, social interactions, topics people raised, people's views, experiences and behaviours (both those specifically stated and

those observed). I looked at the connections between the themes that emerged from the data and linked these together in a map of sub-ordinate and super-ordinate themes, putting themes into categories. The categories (super-ordinate themes) were Communication, Complexity of patients' care, Emergency Department care processes, Variation in Emergency Department staff and attitudes towards guidelines and Cross-boundary care (the impact of previous care experiences and integration with other hospital departments and external healthcare services). The links between themes both within and across these categories were explored in order to investigate factors influencing adherence to guidelines, including the links between staff-staff member communication and staff-patient communication (within a category) and the links communication had with staffing patterns.

Figure Five provides a written overview of the indexed sub-ordinate themes in the super-ordinate categories. An example of how the observation notes and verbatim transcripts were indexed and an example of charting are provided in Appendices 31 and 32. The themes and the interactions between them are mapped diagrammatically in *Figure Six.* The themes are then described in detail and evidenced in the section that follows. Indexing, charting and mapping:

Figure 5- An overview of themes at indexing stage

1) **Communication:**

a) Staff-patient communication

a) Impaired communication
ii) Patient acceptance of staff recommendations

b) Staff-staff communication

i) Lack of support within their role
ii) Senior staffs' adherence
i) Support from seniors

c) Categorisation of patients- what is perceived to be a fall?

2) **Complexity of patients' care:**

a) Falls history and guideline adherence
b) Prioritisation of care needs

3) **Emergency Department care processes:**

a) Busyness
b) The ambience of the department
c) Functionality of the Emergency Department
d) Variation in care pathways
e) Targets
f) Access to resources
g) Education

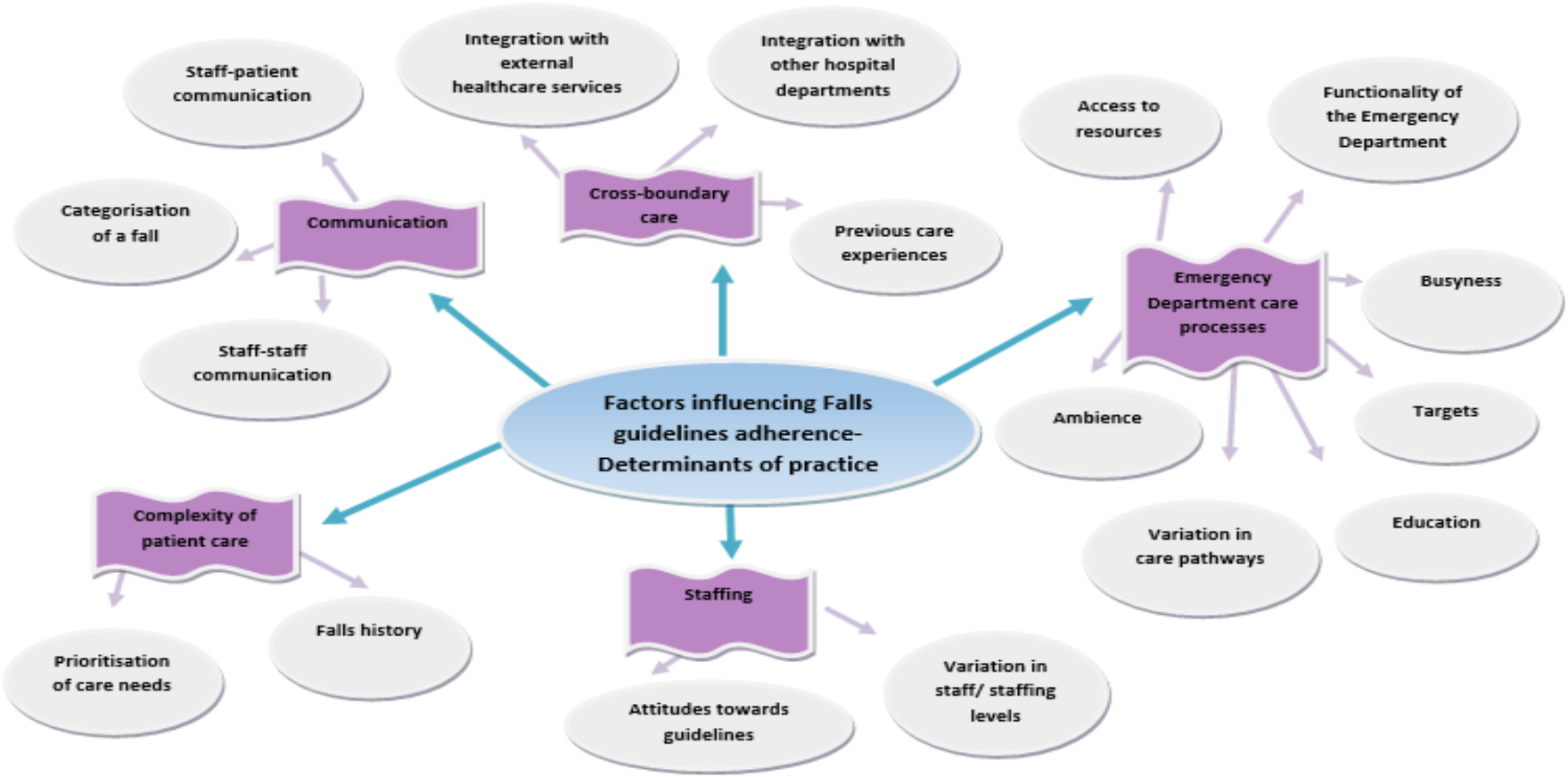
4) **Staffing:**

a) Attitudes towards guidelines
b) Variation in Emergency Department staff/ staffing levels

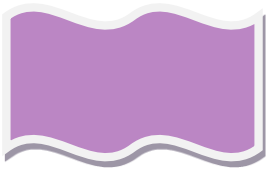
5) **Cross-boundary care:**

a) The impact of previous experiences
b) Integration with other hospital departments and external healthcare services

Figure 6- Mapping the key themes influencing Falls guideline adherence that emerged from framework analysis.



The key to the colours and shapes is presented below:

Level of theme:	**Code:** Banners are used to illustrate when there are further sub-ordinate themes	**Code:** Ovals are used to illustrate when there are no further sub-ordinate themes
Highest level (category)		**Not present**
Secondary level (sub-ordinate 1):	**Not present**	

Describing and evidencing the themes:

In this section the themes which emerged from the five stages of analysis of observations and interviews (pages 135-138) are taken in turn, described further, and evidenced through observation note extracts and illustrative verbatim interview extracts. Extracts are indented in the text and labelled as observation or interview extracts. Interview extracts are also in italics to make the distinction clearer (observation episode and interviewee references are provided).

Interview extracts have been presented with pseudonyms in order to preserve anonymity; a brief description of individuals' job roles is provided in Appendix 34. The level of detail in the biographies has been limited in order to maintain anonymity. The details of the interviewee roles (not necessarily the titles) are noted as described by the interviewee; interviewees may have the same job title but describe their role in varied ways.

NB: In the interview extracts […] indicates that the whole verbatim extract has not been used. (…) indicates that some text has been omitted mid-sentence.

Communication:

Communication within departments and between sub-departments influenced care. A variety of episodes of observation and interviewee responses at both hospital sites highlighted the impact of communication on a patient's care-pathway; this was both in terms of communication between staff and patients and in terms of staff-staff member communication and their interactions. A lack of effective communication across a department may influence patient treatment.

Staff-patient communication:

Impaired communication:

Impaired communication, for example, with patients with dementia, and those with hearing loss, may lead to gaps in Falls guideline assessments, such as identifying a falls history, assessing perceived functional ability and fear related to falling, assessing visual impairment, assessing cognitive impairment and neurological functioning, assessing home hazards, and encouraging participation in falls prevention programmes.

Team-working may be influenced by communication across the Emergency Department, in terms of communicating both the needs of the patient which have been met, and those which have not. It was important for information to be relayed between staff in order to complete a comprehensive assessment, for example, communicating and following the initial assessment and triage recommendations throughout each individual patient's journey. The individual who initially diagnosed a condition or recommended a patient's care pathway possibly had an influence on a variety of individual healthcare professionals' duties of care. Relay of information between a variety of individuals may be an issue. There may be disagreement about who performs a particular role, which exacerbates miscommunication amongst staff, leading to tests being duplicated or missed. Staff were aware of the importance of team-working.

Dementia was both viewed (observation research) and described (interviews) as a factor influencing patient care, due to communication difficulties associated with the condition. I observed that healthcare professionals' interactions with patients were different when treating a patient diagnosed with dementia, as compared to treating an individual without this condition. Healthcare professionals often had to communicate indirectly with such patients via a carer/relative, and gaining a direct patient viewpoint was often not feasible. This may have meant that the patient was unable to provide as much insight into the factors contributing to their fall, this may lead to a less comprehensive assessment being conducted. For example, on one occasion the questions that were asked in order to build a picture of the events surrounding a fall were directed to a patient's relative. The relative had not been present at the time of the patient's fall and therefore the relative speculated about the circumstances that may have contributed to its occurrence.

> 'Context: A patient with advanced Alzheimer's who was found on the floor by their carer. The patient was found to have an abnormal heart rhythm and admitted to the hospital for monitoring
>
> [...] **Q...**Do you know why you are here?
> **A-** Patient was not coherent – Relative answered -Carer found the patient on the floor in the bedroom. Relative noted that her relative had advanced Alzheimer's [...]'
>
> **(Observation episode 19- City Hospital Emergency Department)**

Communication with people with dementia was explicitly stated to be a problem by some interview respondents.

> *"[…] In many of the cases the patient is not in a situation to explain (…) what they're normally like, they're confused […]."*
>
> **(Joe, Doctor, Town Hospital Emergency Department)**

It was argued by the interviewees that emergency care was not readily tailored to the specialist needs of people with dementia, such as continuity of care, which was described as important in avoiding anxiety and disorientation. Continuity of care may be impeded by a variety of staff being involved in a patient with dementia's care.

> *"[…] I think a clearer history especially patients who have memory problems or dementia (…) would facilitate […]. A lot of times the history is not very clear, we're not sure what's happened to this patient they might be falling everyday (...) but nobody tells us and we don't know, they deny it because they don't remember [...]."*
>
> **(E, Doctor, City Hospital Emergency Department)**

> *"[…] Dementia care- it's very difficult (…), many patients (…) in this age group that fall (…) have dementia and I do think (…) the system where they go from one doctor to be then seen by another doctor, I think that can be quite disorientating anyway. I think dementia patients would benefit from not being moved (…) around the department and (…) from doctor to doctor and not being left (…) in a corridor […]."*
>
> **(Amanda, Nurse, Town Hospital Emergency Department)**

> *"[…] I don't think we necessarily do particularly well (…) as in an Emergency Department (…), but that's something we are trying to address (…), we're looking at (…) reducing the clinical element of the (…) environment of places where (…) we'll keep (…) people with dementia […]."*
>
> **(Arthur, Nurse, City Hospital Emergency Department)**

Other impairments also hindered communication. For example, in some situations it was observed that individuals who were hard of hearing had to have information relayed via a relative or carer. In one episode of observation, the

questions were sometimes misinterpreted by the patient and it took time and patience to elicit information from this individual.

> Context: A patient who was found on the living room floor by his relative. Questions were answered by a relative as the patient was hard of hearing. The patient was admitted for further assessment as a multitude of factors related to the patient's co-morbid medical conditions could have caused the fall.
>
> **[…] Q-** Before the fall were you lightheaded or dizzy?
> **A-** Trouble with eyes/cataracts […].
>
> **(Observation episode 7- Town Hospital Emergency Department)**

Healthcare professionals initially tried to guide conversation directly to a patient; however, in some circumstances this was not possible. In a similar fashion to communication with someone with dementia, in these situations a third party method of communication was used, for example communicating with a carer or relative. However, although more information could be elicited in this way, the explanation of events could become distorted. This third party relay of information was both observed by myself and described by healthcare professionals as possibly resulting in information being lost in translation from the patient to the healthcare professional.

> Context: The patient presented with pain in their hand as the result of a fall. It is found that they had fractured their finger, and they are referred to the fracture clinic.
>
> '[...] **Q-** What happened?
> **A-** Fell

(Patient quite deaf, healthcare professional spoke loudly and also relayed questions via their relative).
The patient was asked (…) questions and found it hard to respond, as they were in shock [...]'

(Observation episode 2- City Hospital Emergency Department)

It was also observed that on occasions patients were bombarded with questions, and this made it difficult for them to provide detailed responses, leading to communication gaps.

Context: Patient presented experiencing pain across their abdomen. They had a falls history and were kept in the hospital for further examination, including an X-ray, occupational therapist and physiotherapist examination.

'[...] 10:15- seen by a healthcare professional for a consultation–
Asked what name the patient wished to be referred to.
Asked what happened (patient bombarded with questions all at once- Healthcare professional spoke in a loud voice as the patient was hard of hearing NB:- I may have missed some answers- focused on the questions:
Q- How did you fall?
Dizzy (…)
Q- What were you doing?
Q- Did you have any chest pain?
Yes (healthcare professional asked further details) [...]'

(Observation episode 1 - City Hospital Emergency Department)

The use of technical jargon was also viewed to be an issue.

Context: The patient presented with pain in their hip and ankle after falling from their mobility scooter.

'[...] Q- Have you had a Myocardial Infarction?
(Healthcare professional could not find lay terminology 'Heart attack'. Patient had to guess until there was a coherent understanding.) (...)'
'(...) Healthcare professional checked patient's joints and said "make X-ray." Patient informed them that they had already had one.
Healthcare professional left, no comment- unsure if returning.
10 minutes later healthcare professional returned (must have been checking X-ray/s). They stated it was good news that there was no fracture just a sprain, but the bad news was there were bone changes. Healthcare professional very friendly, but there was no clear explanation as to what the diagnosis meant [...]'

(Observation episode 4 - Town Hospital Emergency Department)

Context: A patient who presented had dementia; consent was obtained via a personal consultee. The patient had tripped over a step in the kitchen and was experiencing pain in their shoulder and hip. After investigation the patient was discharged.

'[…] 12:50- Healthcare professional left. Relative spoke to me and said "sometimes you can hardly understand them" […].'

(Observation episode 16 - Town Hospital Emergency Department)

Patient acceptance of staff recommendations:

One issue that I observed to influence adherence at both sites, in particular to employing falls prevention techniques, was that sometimes patients and/or relatives were unwilling to co-operate and take on-board healthcare professionals' advice. In some cases, although offered guideline care, patients were unwilling or unable to follow care recommendations. Some patients did not agree with care advice; although guideline care was offered it was not followed and/or accepted.

For example, it was observed on one occasion that a patient was in a hurry to get home and stubbornly did not wish to take a healthcare professional's advice on painkillers. They kept asking "can I go home now?" They also would not take on-board recommendations about their footwear being a fall hazard:

> Context: The patient presented with a head injury after a fall in the garden. They could not recall the events surrounding the fall. The acute problem was prioritised before discharge.
>
> '[…] NB: slippers unsafe but patient won't change (…)
> **Q-** Have you had any painkillers since your fall?
> **A-** No
> **Q-** Do you want some?
> **A-** Patient stated that it depended on what they were and they would only take Nurofen, nothing else.
> HCP stated how it was not ideal as it could make them bleed more. Patient was adamant it wouldn't, did not see HCP as an authority figure. The patient was also persistent about going home as they kept getting out of their bed and going to the nurses' desk […]'
>
> (**Observation episode 11 - Town Hospital Emergency Department)**

In another episode of observation, a patient was distressed and continually attempted to justify why they did not need to be admitted, stating that they had support at home. It took both a healthcare professional and a relative to persuade the patient to be admitted.

> Context: The patient presented after falling in the bathroom. They had multiple health problems, including osteoporosis and a visual impairment. Patient had pain in their wrist. Due to multiple concerns, re. memory, vision, heart the patient was admitted for a comprehensive assessment.
>
> '[…] Patient was distressed and tried to justify they did not need to be admitted as they had carers. The HCP and relative backed each other up with regards to the decision by saying that the minor falls that they were having may get worse […] '
>
> **(Observation episode 6 - Town Hospital Emergency Department)**

Patient acceptance of care can influence the ease in which healthcare professionals can adhere to Falls guidelines. A patient has the right to be an active participant in directing their own care (Alakeson, 2011) and decide whether or not to take on-board recommendations. If a patient is not willing to accept recommendations, it may make it harder for healthcare professionals to adhere to specific aspects of Falls guideline care which require patient input, such as giving a falls history, assessing home hazards, or putting in place falls prevention plans.

Staff-staff member communication within the Emergency Department:

Communication amongst staff, and team-working [collaborative working to reach a goal, (WebFinance, Inc, 2014)], was important for quality of care. When communication within the Emergency Department and/or between departments was poor, breakdowns in delivering aspects of care were prone to

occur (communication and cross-boundary care are discussed in pages 172-188 and pages 227-240). The large numbers of staff employed within the Emergency Departments often meant that healthcare professionals worked with a variety of staff across shifts. Team-working could be influenced by the staff rota and the efficiency of staff-staff member communication.

Miscommunication about a patient's location was also observed.

> Context: The patient's husband's carer found the patient on the floor. The patient could not remember how they got there. They were found to have a heart murmur, sent for an X-ray and transferred to EDU for monitoring.
>
> '[...] 4:10- Unbeknown to the healthcare professional treating the patient, the patient had been taken straight to EDU (hence removed off the computer screen). The patient was in EDU to await results and for further assessment and observation [...]'
>
> **(Observation episode 27- City Hospital Emergency Department)**

In **observation episode 11- Town Hospital** (see 'Patient acceptance of staff recommendations' pages 178-179), it was recommended by the ambulance service that the patient should receive follow-up care by a specialist team after discharge. However, this recommendation was not relayed throughout the team and the patient was discharged accompanied by their family, once treatment of their acute injury was provided.

One interviewee noted that communication between staff and team-working was important in patient care. It was also observed that junior staff were able to consult with their seniors to seek advice on patient care.

"[…] I think it's the team (…) play aspect (…). So there's a big sort of team role amongst the whole staff down here, so y'know the nurses, we're all just working together (…) for the common cause, so I really like that aspect […]."

(Aussie, Doctor, Town Hospital Emergency Department)

Context: Patient presented experiencing pain across their abdomen. They had a falls history and were kept in the hospital for further examination, including an X-ray, occupational therapist and physiotherapist examination.

'[...] Healthcare professional informed the patient that they would speak to a senior- the patient was left to rest.
Senior member of staff entered- told the patient that their daughter was worried. They carried out examinations (as before) and asked further questions regarding their living situation. Additionally- checked head, examined reflexes, checked how the patient was on their feet [...]'

(Observation episode 1 - City Hospital Emergency Department)

It was thought by interviewees recruited from Town Hospital's Emergency Department that duplication of treatment occurred across Emergency Department sub-departments i.e. assessment and treatment areas. The duplication was also adding to time pressures. It was thought possible that some tests would be missed due to lack of consistency across the transfer process.

" *[…] the doctors themselves repeat everything, so whichever the first one's done in assessment they come through the Majors and*

that doctor will then do it all again. So from a time point of view (…) that doesn't make sense either […]."

(Amanda, Nurse, Town Hospital Emergency Department)

"[…] for example, blood tests might be omitted (…) and you just have to hope that the doctors in the other area (…) will pick up on these kind of things […]."

(Tommy, Doctor, Town Hospital Emergency Department)

"[…] we perhaps don't do them here; we perhaps presume others are going to do it […]."

(James, Doctor, City Hospital Emergency Department)

Healthcare professionals' personal priorities that were drawn from their views as individuals, or a consequence of the specific requirements of their job role, secondarily influenced treatment patients received. From an individual healthcare professional's perspective it may not have been thought necessary to request certain tests as this may not be defined or viewed as part of their job role responsibilities. For example, a senior doctor may prioritise a certain treatment plan; this would then be relayed in terms of tests to be conducted by juniors. Whether these tests were completed may also be prioritised by such juniors.

A member of staff described as a 'tracker' had a key role within Town Hospital's Emergency Department's communication. The trackers' original role was to map the patient's care, from the point of presentation to their discharge. This map was made available on a whiteboard that was accessible to all staff. It allowed healthcare professionals to monitor a patient's location, treatment received and any further care required. The recent introduction of the RATs at Town Hospital's Emergency Department appeared to lead to a more limited role for the trackers, which healthcare professionals viewed as reducing department efficiency. Team-working was important, there needed to be a widespread acceptance across departments about the Falls guidelines generally, and with regards to particular staff groups' roles related to the Falls guideline adherence.

A central individual having a role solely involved in co-ordinating care was viewed as important. The removal of this role during a trial of the RATs at Town Hospital's Emergency Department may have caused miscommunications in the care of some patients.

It was observed that it was important to make detailed clinical notes. If healthcare professionals provided detailed notes after initial assessments, then there was less repetition when a patient's care was picked-up at a later time point. For example, they would not be repeatedly asking a patient for details about the situation surrounding their fall. In addition there would be a reduction in clinical errors as detailed clinical notes would reduce gaps in care; e.g. the consequences of a fall may have been viewed as more important than the causes, and hence noted, but the possible causes should also have been recognised and investigated further.

> Context: A patient who presented after falling and hitting their head on the ice. They could not recall the events surrounding the fall. A CT scan was prioritised.
>
> '[…] Treatments: Plan- Blood tests, CT, discussion with senior and analgesia […]'
>
> **(Observation episode 14 - City Hospital Emergency Department)**

Staff may conduct the necessary assessments, but not document them; hence appropriate care recommendations may not be communicated when a patient is discharged (see 'Cross-boundary care' pages 227-240 for a discussion of the issues posed by patients moving across the Emergency Department boundaries). For example, this was observed to be the case on a couple of occasions when it appeared that a medication review was being considered. However, healthcare professionals did not appear to ask any in-depth questions about how a patient was tolerating the medication, or whether they were taking

it appropriately. Consequently, it was not clear whether the question was asked as part of a standardised assessment, or as part of an assessment of a possible contributor to a fall.

> *"[…] I know they will (…) ask things around medication and y'know previous falls and that you know they'll go through it (…) and probably document it in the notes - and certainly they'll document their medication (…) but they don't make the link […]."*
>
> **(Arthur, Nurse, City Hospital Emergency Department)**

There may be minimal follow-up care outside the hospital, due to further care recommendations being based on assessment findings that lack detail. An example was observed in which a patient at Town Hospital had balance difficulties, but the healthcare professional involved in triage did not specifically ask them about these difficulties (**Observation episode 6- Town Hospital**). The healthcare professional who was observed explicitly stated this to me as they wanted to make it clear that they were following guidelines, although it may not appear to be the case from an observer perspective. They did not document a balance or gait issue as they did not observe one.

Categorisation of patients- What is perceived to be a fall?

I observed that communication was influenced by what individual healthcare professionals defined as a fall. A fall was often viewed as distinct from a 'collapse'; a distinction that appeared to be made in terms of the characteristics of a 'mechanical' and a 'non-mechanical fall' (see glossary). I observed that a patient presentation may have been coded in terms of the injury they presented with, such as a fractured neck of femur (NoF), or in terms of the event precipitating their visit to the Emergency Department, for example, a fall from a wheelchair. The Falls guidelines refer to both mechanical and non-mechanical falls in their definition of a fall, but mechanical falls were more often managed in relation to Falls guidelines. It appeared that the explicit presentation resulted in a more direct categorisation.

The above reiterates the importance of a standardised assessment for patients aged 65 or over who may be believed to have either fallen or collapsed. A standardised assessment may help to identify the many factors contributing to a fall, thus providing a more comprehensive assessment and initiating an appropriate care pathway. However, a fall definition needs to be coherent in order for this assessment to be conducted. As **Bob** described, the best way to address confusion regarding definitions and specific care pathways to follow may be through providing a comprehensive assessment form which is viewed as relevant by all members of staff, regardless of their varied fall definitions. For example, an over 65's medical record form might be helpful if it were used with all individuals who presented in this age group.

> *"[…] my role is to say (…) 'this is not a mechanical fall (…), so we don't concentrate on the injury, but actually (…) what we see is this frail older patient.' (…). Even seniors do not necessarily sing from the same hymn sheet (…) with our own specialisms (…) and experiences […]."*
>
> **(Bob, Doctor, City Hospital Emergency Department)**

Whether a fall was categorised as a 'fall' or a 'collapse' (by healthcare professionals and/or in computer coding) influenced the care a patient received.

> Context: Patient presented with abdominal pains after slipping over whilst walking the dog. Patient in pain- pain relief prioritised over X-ray investigating potential injuries.
>
> **'[...] Q-** Any referral to a falls clinic?
>
> **A-** No
>
> HCP stated that it sounded like falls (i.e. mechanical as opposed to a collapse).
>
> Patient brought up about a head injury they had before.

Healthcare professional commented that the patient had had a lot of falls.

Q- Any faints, funny turns?

A- No, but sometimes unconscious because of a fall

[..] .healthcare professional later noted to me that they did not think it was a fall (contrasting definitions- even though they came to the ground they did not see it as fall). They said it was a surgical problem [...]'

(Observation episode 20 - City Hospital Emergency Department)

Context: A patient who presented with dementia; consent was obtained via a personal consultee. The patient had tripped over a step in the kitchen and as a result were experiencing pain in their shoulder and hip. After investigation the patient was discharged.

'[…] 10:38 – appropriate patient presented- only knew as a HCP approached me- they had been coded as 'limb' [...]'

(Observation episode 16 - Town Hospital Emergency Department)

'Context: A patient with advanced Alzheimer's who was found on the floor by their carer. The patient was found to have an abnormal heart rhythm and admitted to the hospital for monitoring

'[…] Coded as C? C (Collapse Cause Unknown) […]'

(Observation episode 19 - City Hospital Emergency Department)

Context: A patient who presented with a facial injury after having fallen on their face after feeling dizzy. The patient had diabetes and had

mixed up their medication/ not eaten. They were referred for a home assessment.

'[…] 8:25- patient presented with a fall (coded as facial injury) […]'

(Observation episode 22 - City Hospital Emergency Department)

In some circumstances a patient who landed at a lower level was not viewed as having fallen. For example, I asked a healthcare professional if a patient was appropriate to approach for their care to be observed (i.e. they had had a fall). I was told that the individual was not suitable as a potential participant because they had slipped in their bed and had not fallen to the ground. On another occasion a healthcare professional stated that a patient had presented with a fall, whereas their colleague said they were unsuitable to approach because they viewed it as more of a 'collapse' as there had been a period of unconsciousness. In another instance, a patient explicitly stated that they had not had a fall, but they had collapsed.

Variation in different healthcare professionals' definition of a fall was observed at both research sites. The variation was either observed directly, or highlighted through interview responses. Inconsistencies regarding what constituted a fall may have led to inconsistencies in how patients were treated and the prioritisation of their care. Healthcare professionals' varied classification of a fall may have affected further treatment.

When a fracture was found a patient was referred to the fracture clinic (in the case of a broken finger - **Observation episode 2 - City Hospital Emergency Department**), or awaited surgery and/or admission once a bed became available. The way healthcare professionals applied coding in relation to the focus on a cause or a consequence resulted in differences in the messages communicated, affecting the subsequent patient's care pathway. In an afore-mentioned episode of observation involving a patient who had tripped

over (a mechanical-fall), towards the end of the episode of observation, the patient was described as not being a falls patient, as the issue the patient presented with (post-fall) was one which required surgical treatment. In this case the acute pain the patient was experiencing took priority over the possible cause of the fall, and it may be that the fall presentation was not followed-up further (**Observation episode 20 - City Hospital Emergency Department**).

Care was managed a) in terms of possible causes, and/or b) as a fall presentation (more likely to conduct a comprehensive assessment), and/or c) in terms of a presenting complaint as a consequence of a fall. For a comprehensive assessment to be undertaken, a fall needed to be correctly defined with both possible causes and consequences being assessed.

Complexity of patients' care:

Treatment of patients with falls can be complex for two main reasons; firstly, relating to the complex treatment of falls themselves, and secondly because some patients have complex care needs.

Patient care was seen to have a multitude of factors that needed to be taken into consideration both when assessing and treating a patient. E.g.:

> 'Context: A patient with advanced Alzheimer's who was found on the floor by their carer. The patient was found to have an abnormal heart rhythm and admitted to the hospital for monitoring
>
> '[...] **Q-** (To relative) if you had the option would you rather she was kept in hospital or went home?
> **A-** Relative stated that they needed to weigh up decision based on the impact of her Alzheimer's and her unsteadiness. With regards to Alzheimer's the relative thought that the patient

would be better in their own environment, but with regards to their unsteadiness they would be better off in hospital [...] '

(Observation episode 19 - City Hospital Emergency Department)

Often older adults who presented with a fall had other health problems, not just acute problems of immediate concern. For example, patients presented with: 1) visual problems such as cataracts, 2) high blood pressure 3) cardiac problems such as angina 4) neurological problems and/or 5) dementia. One patient whose care was observed at Town Hospital had dementia, macular degeneration and an aneurysm as well as a possible fracture, which was the focus of their treatment (**Observation episode 11- Town Hospital Emergency Department**). Another patient who presented to City Hospital with abdominal cramps post-fall, had a heart defect and a history of a stroke (**Observation episode 20- City Hospital Emergency Department**).

In some cases, acute concerns had been prioritised over certain falls care pathway recommendations. For example, it was observed that in the case of a fracture of the neck of the femur, surgical intervention was prioritised. It is clear that any urgent interventions should be prioritised, such as surgery, but it is equally important that other assessments are completed as soon as practical, with notes clearly annotated to ensure that they are followed up.

Context: The patient had had fall in the morning, they lost their footing and hit the door and their hip on the floor, there was poor lighting.

'[...] Possibility of patient going to theatre for a dynamic hip screw or a ward and then theatre [...]'

(Observation episode 10 - Town Hospital Emergency Department)

Context: A patient who presented with a facial injury after having fallen on their face after feeling dizzy. The patient had diabetes and had mixed up their medication/not eaten. They were referred for a home assessment.

'[...] Patient not seen by Geriatricians straight away as originally planned, as chest infection viewed as a priority [...]'

(Observation episode 22 - City Hospital Emergency Department)

Categorisation was sometimes dependent upon the patient's presenting characteristics and no further assessments were conducted once a possible cause was established. On one occasion I observed that treatment of a possible stroke was prioritised over the characteristics of a fall. It is to be expected that potentially life threatening conditions are treated first. It was thought that the fall was a consequence of a stroke and therefore the patient was referred on to receive assessments from a stroke specialist team. However, it may be that the stroke team would not review the fall as part of their assessments.

Context: The patient presented after having experiencing loss of feeling in their leg which resulted in them being unable to get into bed.

'[...] Healthcare professional left and looked at stroke pathway to call necessary individuals. On hold to the stroke team for 10-15 minutes. Got through at 10:50.
11:30- Healthcare professional asked patient if they had had any hip pain and how their strength was. They stated that they had no hip pain and that their strength was better than it had been previously. They stated that the stroke team in ----- wanted to see him. It was precautionary to try to prevent any further strokes (if it was that) – it

may be an early warning. Patient awaited transport to ---- who were waiting for him [...] '

(Observation episode 8 - Town Hospital Emergency Department)

Bob's view was that non-mechanical falls needed more investigation than mechanical in order to establish causes, a mechanical fall did not need such a thorough investigation, although treatment was the priority. Related to this point, there was the issue of the underlying physiological reason for the fall being missed even if the presentation of a fall was recognised. He believed the issue was not the categorisation of a fall, but the sub-categorisation. He highlighted how a standardised assessment was required in order to differentiate between a mechanical and non-mechanical fall in terms of both its cause and its consequences. However, it should be noted that other interview transcripts and observations were not consistent with his view that a healthcare professional had an understanding of the fall definition itself. **Bob's** quote illustrates the complexity of patient care and its implications with regards to treatment:

"[…] one of the (…) pitfalls (...) is that (…) a lot of what is an unexplained fall could be a syncopal event (…) or classified wrongly as a mechanical fall. (…) my role is to be almost be (…) a physiology detective, or a physiology police to say 'no.no.no (…) this is not a mechanical fall (…) so don't concentrate on the injury but actually (…) see this is a frail older patient. Will they need a fuller work up'? (…) what is actually important (…) is it a standardised assessment […]."

(Bob, Doctor, City Hospital Emergency Department)

Dan also had a similar perspective with regards to the holistic approach required when managing the care of an elderly patient.

"[…] I think that's what makes this whole problem so challenging in that y'know you say 'find me an 85 year old who's fallen over' and you can name 100 reasons why that's happened (…) ; I think this is why we tend to admit so many patients, as you don't get 'quick win' situations (…) in the elderly (…) you tend to admit on a 'hair trigger' (…) you're not as brave in the old (…) as you are with the young and that makes it very difficult […]."

(Dan, Doctor, City Hospital Emergency Department)

Prioritisation of care needs:

Due to complexities in patient presentations, healthcare professionals in the Emergency Department often had to decide which patient problems to prioritise, for example, shortness of breath or fractured neck of femur. This had been both specifically stated in interviews, and the prioritisation was observed.

"[…] if a patient has fallen and there's an overriding medical concern (…) then that gets priority (…) and from ED we won't necessarily get to deal with a fall (…) and we'll be dealing with whatever medical condition we find […]."

(E, Doctor, City Hospital Emergency Department)

"[…] the acute medical problem takes precedence […]."

(Joe, Doctor, Town Hospital Emergency Department)

"[…] in a care home environment, a patient wanting to talk to you about their long lost husband for half an hour is appropriate (…), when you think they might be having a heart attack in front of you (…) it's appropriate to put that to one side and to deal with the emergency in front of you […]."

(Sam, City Hospital Emergency Department)

One individual described how sometimes they "*[…] got told off […]*" (**Aussie, Town Hospital Emergency Department**) if they tried to do investigations which were not specifically necessary.

> *"[…] I like to think that I'm the patient advocate (…) so although I get told off on occasions I always try and do the maximum for my patients every time (…) and so essentially (…) I try to get (...) all the investigations done as much as possible […]."*
>
> **(Aussie, Doctor, Town Hospital Emergency Department)**

In some cases interviewees argued that it is hard for Emergency Department staff to offer further help to patients; older adults may have a history of falls and have already received the recommended care which may have been unsuccessful. For example, the healthcare professional may not adhere to guidelines as they do not see their value in terms of producing a positive patient outcome. Additionally they may think that they are not able to directly influence any improvement in the patient's wellbeing. The acute problem may be the only factor related to the fall that they believe could receive an intervention once in the Emergency Department, hence this was prioritised.

> *"[…] you've got people that have come in with recurrent falls (…) and whether they're at home, or in a nursing home and they've got the care package in place and they've got all the input but they're still falling […]."*
>
> **(Doris, Nurse, City Hospital Emergency Department)**

Acute problems such as cuts to the head and fractured wrists appeared to lead to discharge without further follow up. When identified, environmental causes of a mechanical fall seemed to be viewed as easier to treat than a cause of a non-mechanical fall. Where patient coding on the computerised patient care system showed fall patients being categorised by their acute presentation, physiological abnormalities were prioritised.

For example, it was noted in patient care plans within the clinical notes, that:

- Two patients with a chest infection would receive treatment with antibiotics; there was no mention of further falls assessments (**Episode 15 - Town Hospital Emergency Department; Episode 22 - City Hospital Emergency Department)**.
- An individual who had fallen had a heart murmur and hypotension, and this was monitored as a possible cause (**Episode 27 - City Hospital Emergency Department**).
- A 'possible' assessment would take place in the Emergency Decisions Unit, but the head injury was a priority. This may mean that a falls assessment was not conducted as time was focused on the acute problem (**Episode 14 - City Hospital Emergency Department**).
- An individual had been found to have sustained a fracture; they were discharged to the fracture clinic with no further assessments (**Episode 2 - City Hospital Emergency Department**).
- An individual who had severe stomach pain after a fall was viewed as a patient with a surgical problem, not a falls patient. No specific falls assessment was conducted. As discussed, a healthcare professional's definition/understanding of what a fall is influences whether they follow the protocol (**Episode 20 - City Hospital Emergency Department**).

<u>Emergency Department Care Processes:</u>

'Busyness':

At both sites, when some interviewees were asked the question 'how do you find working within the Emergency Department?' they spoke purely in terms of the cause and consequence of a busy, challenging environment. I observed that healthcare professionals had to multi-task in assessing patients and administering treatment; patients presented in quick succession in a department in which there was limited space and resources available. On one occasion, a

patient had to wait for steri-strips to be applied to a cut as a healthcare professional had to be called away to treat another patient (**Observation episode 2 - City Hospital Emergency Department**). On another occasion, a patient had to wait for 20 minutes before being provided with assistance with going to the toilet (**Observation episode 19 - City Hospital Emergency Department**).

Table 64 (Appendix 35) provides an overview of guideline adherence when the department was busy, or when it was quiet (busyness defined in glossary). It is clear that adherence was unsatisfactory, whether departments were busy or quiet.

The busyness of the departments and the patient care provided were viewed as both a cause and a consequence of one another. The busyness of the department was thought to influence patient care, in particular at City Hospital, as the verbatim extracts illustrate. As summarised by **James**, busyness was viewed as a key contextual factor; it was seen to have varied causes and implications.

> *"[…] so it's down to the 'busyness' of it, it's not built for purpose, so when it's not built for purpose you don't have the facilities to have everybody in a bay who needs oxygen therapy (…) for example, (…) staff don't know what patients are left in the department (…) there's not necessarily appropriate handovers, particularly when patients are waiting longer than four hours […]."*
>
> **(James, Doctor, City Hospital Emergency Department)**

Busyness across the department may have led to both prioritisation of patients requiring immediate treatments and also prioritisation of individual patient care needs. This may mean that some assessments are not conducted as they are not prioritised when assessing a patient's care needs.

"*[…] body mapping and their things like that just tend to (…) be further down the list (…) and aren't seen as priorities for some people […].*"

(Adam, Nurse, Town Hospital Emergency Department)

"[…] when it's very busy you are under a lot of pressure to get patients out, because there's not many beds (…) and sometimes (…) in order to get people out of the area you skip on certain things […]."

(Tommy, Doctor, Town Hospital Emergency Department)

Sam and **Harry** illustrated how contextual factors within the Emergency Departments influenced Falls guideline adherence. For example, a busy department may lead to reduced Falls guideline adherence due to time constraints, although they noted that they were aware of the Falls guidelines and had intended to follow them. Healthcare professionals may have deliberately chosen to not follow Falls guidelines, or may have been distracted from adhering to them; they may have found that it was not feasible to adhere to them in pressurised situations. Healthcare professionals felt the need to reach a balance between efficiency and precision in terms of the patient care they provided. Prioritisation was viewed as a consequence of busyness.

"[…] I think sadly (…) it does (…) have an impact on patient care if you're really busy. I know (…) I intend to always follow them (…) 'can I guarantee I always follow them'? No […]."

(Sam, City Hospital Emergency Department)

"[…] someone says 'you should have followed the guidance' yes but there's so many other factors (…), sometimes (…) time pressures (…) I guess you have to make do with the opportunities you have (…) and you [...] just grasp them […]."

(Harry, Doctor, Town Hospital Emergency Department)

Some respondents argued that in a busy setting there was a lack of attention to detail. Better quality care was thought to be provided at quieter times. Although healthcare professionals were aware of this variation, they believed that it should not be the case.

> *"[…] I think the standard of care here probably is massively variable (…) in all honesty, I think that if you come (…) In the middle of an extremely busy shift (…) you don't get the same standard of care, not because of lack of want […]."*
>
> **(Barbara, Doctor, City Hospital Emergency Department)**

In contrast, one senior member of staff described the busyness as 'organised chaos'; the staff were working efficiently in pressurised environments.

> *"[…] you can see how chaotic it can be (…) sometimes, but it's organised […]."*
>
> **(Arthur, City Hospital Emergency Department)**

Nevertheless, the majority of individuals described feeling rushed and I observed this to be the case; for example:

> *"[…] we're running around like headless chickens sometimes […]."*
>
> **(Margaret, Healthcare Assistant, City Hospital Emergency Department)**

> Context: A patient who presented with pain in their ankle and hip from having fallen off their mobility scooter after feeling dizzy. The patient was discharged after being advised how to manage the acute injury and to maintain hydration levels to reduce the likelihood of dizzy spells.

‘[...] the healthcare professional had to leave room as they were required elsewhere. The patient and their relative were understanding. The healthcare professional was gone for approximately 5 minutes [...]’

(Observation episode 4 - Town Hospital Emergency Department)

Context: Patient fell and hurt their hip in the ice. They were referred to Orthopaedics with a fracture.

‘[...] Department very busy, patients waiting side by side and queues of ambulance trolleys [...]’

(Observation episode 12 - City Hospital Emergency Department)

The ambience of the department:

Other factors could influence the ability of an Emergency Department to maintain performance when busy. For example, inefficient team-working could impact on or be a reflection of the department’s ability to cope during very busy periods.

I observed that staff-staff and staff-patient interactions contributed to the ability of a department to manage workload. It was observed on one occasion that a relative was uneasy about asking for assistance from a healthcare professional in helping a patient to the toilet. The department was busy and they could see that the healthcare professionals had other, ‘more important’ matters to attend to.

Context: Patient presented experiencing pain across their abdomen. They had a falls history and were kept in the hospital for further

examination, including an X-ray, occupational therapist and physiotherapist examination.

'[...] Department was becoming increasingly busy throughout the day 1145 + very busy, some staff seemed stressed. Conflict between Emergency Department staff and paramedics regarding patient priorities. NB: the bay that the patient I observed was in was one of the quieter ones, set aside from the congested Emergency Department.

A patient in the ward started to cause trouble and had to be approached by security [...]'

(Observation episode 1 - City Hospital Emergency Department)

Sam highlighted that A&E was not the right place for older adults who had experienced falls to be treated. His view was that care could be better managed in environments that were more familiar to an older adult. This was considered to reduce patient stress and improve the care the patient received. It was thought that not all of the necessary health checks would be conducted within an Emergency Department environment and the Falls guidelines would be best put in place elsewhere. **Sam** also described how assessment within a busy Emergency Department may be an unnecessarily stressful experience for patients who had experienced repeated falls. This was due to patients presenting with multiple issues, which he described as having the potential to be unmanageable.

"[…] A lot of the time I don't think A&E is the right place for these people to be (…), being in the current healthcare system we don't have much choice and maybe one day somebody (…) will set up a (…) scheme where if you are ancient and ill with multiple co-morbidities (…) and you have a fall over in your lovely care home environment, somebody sensible will actually go and see you there (…) and not send you down to the busiest area (...) in .....(…).

I would say we see tens of people every day who are sent down where we do very little in terms of intervention (…) or real investigation and send them back out exactly the way they were (…). I'm not sure (…) why we have to distress them so greatly (…) by doing what we do to them, by bringing them to us with all the 'shouty', 'screamy' drunk people (…) and people with mental health problems, and the noise and the staff (…) and the bright lights and everything (…) that's the thing I'd change if I could […]."

(Sam, City Hospital Emergency Department)

In some circumstances, Emergency Department treatment targets were thought to make the department more stressful and therefore influenced aspects of care.

"[…] very stressful (…) especially because of the targets […]."

(John, Doctor, Town Hospital Emergency Department)

"[…] the situation in A&E is often highly pressurised (…) not just by the high patient volumes, but the fact that we have all these targets (…). Sometimes when it's target driven it takes away from patient care (…) and puts unnecessary pressures on the staff […]."

(E, Doctor, City Hospital Emergency Department)

Other interviewees not only stated, or portrayed the challenge of the Emergency Department care system, but also provided insight into how they viewed the challenge, and whether they enjoyed the challenge of Emergency Department care.

"[…] it's very challenging and it's interesting as well (…). You know most of the time you see sick patients, you see them, treat them; you get satisfaction from that as well […]."

(GM, Doctor, Town Hospital Emergency Department)

"[…] stressful (…) but rewarding […]."

(Doris, Nurse, City Hospital Emergency Department)

Functionality of the Emergency Department:

Accessibility of medical equipment, available space and the layout of the Emergency Department were viewed as issues that effected functionality at both hospitals; issues were both described and observed.

On some occasions it was observed that falls patients were moved to a holding area (outside cubicles) whilst other patients received assessments. This sometimes meant that it was harder to keep track of where a patient was, as the computer system coding their location may not have been updated immediately. In addition it may have made it harder to conduct comprehensive assessments as cubicle availability was limited, hence conducting assessments of urinary incontinence, for example, may not be prioritised as access to the private space was limited.

Margaret noted that Falls guidelines were only of any use if facilities allowed them to be put in place.

"[…] it comes to a point where we get gridlocked (…). I do think it all boils down to common sense within the department (…) and you can have all these guidelines (…) but if (…) there's not enough room, and not the facilities to do the work by these guidelines you can't do it […]."

(Margaret, Healthcare Assistant, City Hospital Emergency Department)

It was observed that staff were often rushing about the department in order to treat varied patients in quick succession. As **Adam** (**Town Hospital Emergency Department**) described, although it has been argued that more staff

were required to run the department more efficiently in busy periods, there needed to be the space for this to be possible.

> *"[…] there's not enough space and as usual they want more staff (…), more nurses, more doctors […]."*
>
> **(Adam, Nurse, Town Hospital Emergency Department)**

> *"[…] there isn't enough staff to deal with the (…) people that are here, (…) although saying that, if we had enough staff there still wouldn't be the room (…) to deal with people […]."*
>
> **(Margaret, Healthcare Assistant, City Hospital Emergency Department)**

> *"[…] I think it's very difficult, the only way things will change is if we expand (…) building infrastructure […]."*
>
> **(Antony, Doctor, Town Hospital Emergency Department)**

> *"[…] department is too small physically […]."*
>
> **(Barbara, Doctor, City Hospital Emergency Department)**

> *"[…] I think the structure of the building (…) it's not coping with the volume of patients […]."*
>
> **(Brad, Nurse, City Hospital Emergency Department)**

Staff often had multiple care responsibilities, treating several patients at once. Increased levels of staffing may have helped to facilitate patient care. However, it should also be noted that staff can only work with the resources they have available. Increased staffing may lead to faster treatment, but a backlog of patients waiting to leave the department cannot be resolved without input sourced externally from the Emergency Department.

There were issues with lack of beds. I observed that there was often a backlog of patients being held within both hospitals' Emergency Departments,

because there were no beds available in other departments. Reduced availability of beds may lead to quicker patient turnaround and therefore less thorough assessment. This point relates to the influence of structural factors. For example, the layout and size of a department may have a secondary effect on bed availability, due to inadequate treatment space for the volume of patients.

> *"[…] I guess the A&E department's the A&E department, and at the end of the day you just run with the system that's in place […]."*
>
> **(Harry, Doctor, Town Hospital Emergency Department)**

> *"[…] it's our responsibility to establish and put in place systems by which patients can receive the best quality on each occasion (…). So (…) the ways that we set up the system in the department totally influences how patients are cared for […]."*
>
> **(Smith, Doctor, City Hospital Emergency Department)**

There were also issues with accessing appropriate medical equipment, and not only shortages of equipment but also problems with the equipment itself. It was observed on one occasion that one ECG machine was broken and the Emergency Department staff were therefore limited in the number they had available to meet patient need. Dave described both issues.

> *"[…] our trolleys aren't very well designed (…) for people with falls, they are quite high (…) especially for little old ladies who can't step down very well (…) we don't having moving equipment and things like that here (…) it's very difficult in our rooms especially (...). They're difficult to hear, I mean you can close the door and they can close doors. You just have to be careful (…) we do try to place people in monitored cubicles […]."*
>
> **(Dave, Nurse, Town Hospital Emergency Department)**

Context: A patient presented with pain in their back and leg after having experienced a fall. An ECG machine had to be substituted.

'[…] A healthcare professional noted that a machine needed reporting as faulty […]'

(Observation episode 3 - City Hospital Emergency Department)

Variation in care pathways:

Both variation between healthcare professionals' perspectives regarding care and the care pathway across the department need to be addressed in order to provide consistency in care of people who have had a fall. Care pathways were viewed as a key factor influencing patient care. One patient presenting with a fall may receive care that another individual with the same presentation may not, dependent on who has directed the care they received. This was not only noted by senior healthcare professionals but also by those of a more junior level:

"[…] there are a lot of operating procedures, so there are a lot of guidelines for certain (…) problems (…) sometimes it varies with who's in charge […]."

(James, Doctor, City Hospital Emergency Department)

It was noted that the department that a patient presented to may influence care. Patients with the same condition may present to either the Minor injury department or the Majors department and may receive different treatment. **Bob** suggested that the processes of care varied between the Minor and Major injury departments and that patient symptoms may be missed, dependent on where a patient presented. **Bob's** view was that in Minors, an injury may be prioritised and other symptoms go unnoticed, whereas a patient would get a more comprehensive assessment as standard in Majors.

"[…] the physical environment, the physical place to which the patient gets to (…) defines what care they get […]."

(Bob, Doctor, City Hospital Emergency Department)

However, from my observations, a patient presenting to a Majors department did not necessarily receive a more comprehensive assessment. If an injury was considered to be of concern when a patient presented, then this seemed to be the focus of the care received regardless of the department to which they presented. The consequences of the fall as opposed to the causes appeared to be the main focus, and this may be why there was only one observed case in which a medication review was recommended.

"[…] I don't think there's a standardised approach (…) to it (…) it's very variable; if someone looks like they might be able to go home (…), if someone looks like they need to be admitted, there's not necessarily everything that should be done (…) down here as part of an initial (…) management. It's more of a case of 'we'll get them to a ward area' and then you're hoping that it's taken up there […]."

(James, Doctor, City Hospital Emergency Department)

Both **Beverly** and **Smith** believed that inconsistencies in care pathways were easily resolved. Both suggested a facilitator would be people 'just' sticking to protocol.

"[…] I think we just need to be consistent with what we're doing (…). If we've got one set of guidelines and we follow them (…) then there shouldn't be any reason why it'd fail [...]."

(Beverly, Nurse, City Hospital Emergency Department)

"[…] we've got (…) strategic decisions with the whole range of conditions that from today we are going to do X,Y,Z for these patients (…) and that happens (…), but that hasn't happened with

falls (…). So if they wanted to do that for 'falls; (…) it would be straightforward to do that, it's not difficult (…) or some rocket science thing to do […]."

(Smith, Doctor, City Hospital Emergency Department)

Targets:

I observed that targets influenced care. Healthcare professionals had competing priorities regarding patient care; in-depth assessments or meeting target treatment times. The four-hour target, in particular, was both observed as an issue and viewed with concern by healthcare professionals at City Hospital (Department of Health, 2000). The four-hour target relates to the maximum amount of time a patient should be within an Emergency Department before discharge or transfer.

I observed on numerous occasions that time constraints may have made healthcare professionals feel pressurised into making clinical decisions about patient admission or discharge. On one occasion, a patient was transferred to a fracture clinic as time was pressing (**Observation episode 2- City Hospital Emergency Department**). This may be a coincidence (i.e. the healthcare professional did not view more clinical assessments of the cause of the original fall to be necessary), but it may also have been because focusing on an acute injury may make them more likely to meet the four-hour target.

From the point of view of some interviewees, targets were viewed to have an influence upon patient care within an Emergency Department. Healthcare professionals argued that the four-hour target may have a negative impact upon patient care, as it did not allow time for a comprehensive assessment of presenting complaints and treatment requirements. It emerged from interviews that targets made it hard to conduct comprehensive assessments.

"[…] I think the four-hour target is (…) often very (…) not conducive (…) in providing (…) a full assessment to somebody (…) so for old I think (…) that's a problem that's gonna become more and more apparent […]."

(Bob, Doctor, City Hospital Emergency Department)

"[…] I'd probably (…) get rid of the four hour rule (…), it seems to dominate a lot of (…) the proceedings and just means it has turned a lot of the service into triage (…) rather than actually treating […]."

(David, Doctor, City Hospital Emergency Department)

'E' also mentioned how the Emergency Department four-hour care process target did not take staffing levels into consideration. Within City Hospital's Emergency Department, the four-hour target was viewed as a barrier to comprehensive patient assessments.

"[…] the targets (…) on time, the four-hour target (…) they don't necessarily take into consideration (…) the clinical state of the patient (…) and I think they're something of a distraction (…) as opposed to helping […]."

(E, Doctor, City Hospital Emergency Department)

In addition, the four-hour target was viewed as having negative consequences on the cost-effectiveness and processes in place when administering emergency care. **David** (**City Hospital Emergency Department**) argued that the Emergency Decisions Unit may have been set-up as a consequence of the four hour rule; it was described as having the purpose of reducing four-hour target breaches.

Access to resources:

Access to guidelines/documents was an issue that was both observed and described to have the potential to influence care. From what I observed, copies of NICE guidance were not readily available, but there were aids to prompt falls assessments being conducted.

At Town Hospital's Emergency Department, I observed that they had a 'Think Falls' note placed at eye level, within the Emergency Department at the work station (where healthcare professionals went to make notes) in order to prompt healthcare professionals to consider falls assessments, when they were completing patient records.

I observed within City Hospital's Emergency Department that pro-formas (documents used to record information about patients and their clinical characteristics) were stored in an organised manner within easy reach of all staff. For example, the key Assess, Prioritise, Treat (APT) pro-forma, which was to be completed when an individual over 65 presented, was printed on bright green paper, to make it distinct from other documents. The pro-formas were used when every patient aged 65 years and older presented, but in all the cases I observed, the pro-formas were not fully completed. All pro-formas were stored on a wall in a co-ordinated manner, with a contents list referencing each pro-forma's location within what could be described as a document library. **Bob** viewed pro-formas as having two functions, firstly highlighting the guidelines and secondly prompting adherence.

> *"[…] our shortcut guidelines, which are expressed in the form of a pro-forma (…) is obviously a dual function tool, it offers and issues guidance where you can just look at it and you can actually use it to document things as you go along […]."*
>
> **(Bob, Doctor, City Hospital Emergency Department)**

Healthcare professionals needed to be able to easily search for care recommendations within the clinical setting, in order to understand what care needed to be provided and why. I observed on one occasion that it was hard to do this as there were limited computers available and the information was accessed through these means.

Accessibility of both Trust specific and National guidelines was thought to facilitate guideline adherence.

> *"[…] I think (…) accessibility (…) is actually difficult, it's definitely something (…) if a guideline is not actually available physically, but you have to say (…) you have to go onto the Intranet (…) to actually follow it (…) then there is a problem […]."*
>
> **(Bob, Doctor, City Hospital Emergency Department)**

> *"[…] I think intranet access (…) can be quite tricky. It's not an easy (…) thing to follow (…). There's one of the doctors who is getting all the clinical guidelines (…) so we actually have our own space on the intranet (…) to have guidelines on it, and I think that will make things a lot easier […]."*
>
> **(Polly, Town Hospital Emergency Department)**

Antony described variation in the accessibility of guidance, **Polly** reinforced the idea that computerised access would be of benefit and noted that there was talk of such a system being set up (I did not observe any signs of such a system being introduced). Healthcare professionals reported that guidance was available in Town Hospital's Emergency Department; however, it did not allow ease of access to notes that were of particular relevance to emergency medicine. A computerised system would allow easier navigation when viewing the guidelines, allowing healthcare professionals to access information of relevance to individual patient care.

"[…] There are lots and lots of Trust guidance but just not available on the Intranet (…), or easily available which means you have to do lots of hunting and searching (…) , sometimes it's just easier to (…) refer to a national or international guidance (…) followed all over the world, or all over the country […]."

(Antony, Doctor, Town Hospital Emergency Department)

"[…] the way we deal with forms, sometimes we can't find the forms […]."

(John, Doctor, Town Hospital Emergency Department)

As **Aussie** noted, the use of standardised pro-formas may help with adherence to guidelines.

"[…] what you need is ideally a sheet for anyone who's over 65 with all this combined and also with the guidelines (…) so if you've got the question 'have you fallen more than three times in the last year'?, you tick the box (…) and that generates an automatic referral to the falls service […]."

(Aussie, Doctor, Town Hospital Emergency Department)

However, as **Barbara** (**City Hospital Emergency Department**) described, although comprehensive, further guidance was required to point healthcare professionals in the right direction with regards to which of the documents they should use when an older adult presented with a fall. The pro-formas were easily accessible and therefore some argued that they would overcome issues of guideline accessibility, but although they highlighted key guidelines, they did not explain how to adhere to them. The pro-formas were not easily utilised, because a healthcare professional needed to understand their purpose in order to know which sheets to use, not just know the sheets' location.

"[…] there is no definitive list anywhere for exactly what the pathways are for (…) therefore you can be in a situation where you are merrily doing what you think the best thing is to do and somebody go 'have you seen the whatever pathway?' and you'll be like 'I didn't even know there was one'! […]."

(Barbara, Doctor, City Hospital Emergency Department)

Adam described part of his role as checking that individuals had completed care plans for patients who had had a fall (I observed him doing this). His role acted as an aid to Falls guideline adherence based upon such hospital specific procedures. This role related to the prioritisation of care within an individual case and across the department, which has both been described and observed as an influence upon guideline adherence. He communicated the need for document completion, and provided detail regarding the necessary assessments.

Adam's (**Town Hospital Emergency Department**) description of this part of his job role shows how prioritisation of care can be influenced by the presence of documentation such as pro-formas, which aid in adhering to recommended care. If pro-formas are developed and their completion is audited then there may be improved adherence. Thus, Falls guidelines incorporated into an audited pro-forma may help to facilitate guideline adherence. This suggestion supports the observation notes made about adherence to guidelines in terms of City Hospital's Emergency Department and Town Hospital's Emergency Department's adherence. **Antony's** comment illustrated a view of the merits of pro-formas in supporting care and also the importance of team-working in ensuring that documents were completed.

"[…] I think that anybody coming in with a fall should have a pre-filled pro-forma (…) for the various tick box exercises, outlining and suggesting things which are compulsory (…) and again the suggestions for further follow-up […]."

(Antony, Doctor, Town Hospital Emergency Department)

However, although potentially beneficial in completing necessary assessments and related paperwork, the tick-box referral process **Aussie** (**Town Hospital Emergency Department**) and **Antony** described, and the issue **Barbara** (**City Hospital Emergency Department**) raised about accessibility of pro-formas may lead to healthcare professionals adhering to guidelines and completing pro-forma without knowing why. Pro-formas may be available, but as **Arthur** (**City Hospital Emergency Department**) noted people may be completing them without any idea as to why they should be doing so. It may just become a 'tick box exercise' completed by staff viewed as an administrative requirement. Although a document is completed, its completion may not be meaningful, for example, a healthcare professional may tick the necessary boxes to refer someone for follow-up treatment, but not know why.

Education:

It has been noted that inconsistencies in how healthcare professionals defined a fall and gaps in knowledge due to problems with access to resources, may influence Falls guideline adherence. Inconsistencies in understanding Falls guidelines and the definition of a fall highlight the impact of education and training regarding Falls guideline adherence. The following notes relate to opinions raised in interviews on the impact of Falls guideline education; interviewees' level of education about the Falls guidelines was not assessed.

Lack of education about the Falls guidelines was described as influencing Falls guideline adherence (most often described by City Hospital staff). Some interviewees pointed out that staff could not be informed about all guidelines, the department selected which guidelines were prioritised. This was due to both the large number of guidelines, the large number of staff to train and the busyness of the department.

"[…] we have so many doctors and nurses that even the existence of guidelines for two or three years will not guarantee that everybody knows about it […]."

(Bob, Doctor, City Hospital Emergency Department)

"[…] it's a question of familiarity […]."

(Joe, Doctor, Town Hospital Emergency Department)

'Refresher' educational classes were viewed as a means of counteracting the effect of busyness on adherence to guidelines.

"[…] it's a busy department and you forget things (…) so I think refreshment like once in six months (…) must get to all the doctors [...]."

(John, Doctor, City Hospital Emergency Department)

Prioritisation in education was viewed as an influence on Falls guideline adherence. Healthcare professionals' competing priorities may lead to less in-depth assessments and it was argued that there was more focus on some guidelines than others. This is not necessarily specific to Emergency Department healthcare professionals' education about guidelines, but it may also be related to the weighting placed upon guidelines in medical training.

"[…] I think certain guidelines which are hammered in (…) quite err vigorously, like antibiotic prescribing (…), people are very aware of following (…) those kind of guidelines. […]."

(Tommy, Doctor, Town Hospital Emergency Department)

Care may be dependent on how influential a healthcare professional is. I.e. if a healthcare professional is influential, then their recommendations are more likely to be followed. If one healthcare professional did not see the merit of Falls guidelines, then the information, ideas and guideline recommendations

may not necessarily be spread to others (this could be within and across hospitals as well as solely within the Emergency Department).

Arthur argued that support from seniors may help to improve NICE Falls guideline adherence, through prioritising their adherence (a potential enabler). It could be argued that healthcare professionals should be introduced to care pathways, as well as physiological symptoms and medical treatment, at early time points in their career. This knowledge could be reinforced across all levels of seniority, through healthcare professionals 'marketing' guidelines.

> *"[…] And it's the people like (…) the band 7s (…) and the middle grades and the consultants, who should really be reinforcing the message (…) but not just say that it's a form that needs to be done. I don't necessarily think (…) [pause] (…) some of the staff within the department really understand why they are doing it (…) and the benefits […]."*
>
> **(Arthur, Nurse, City Hospital Emergency Department)**

However, individuals may receive training and still not adhere to a recommendation if their peers do not. They may also not adhere to guidelines because they do not know why they should follow them. A lack of understanding of their benefit, accompanied by a lack of reinforcement from seniors, may reduce levels of adherence to Falls guidelines. **Smith**, **Sam** and **Arthur** also highlighted this point.

> *"[…] they know after a week of being here which guidelines are used routinely and regularly (…) and which guidelines (…) maybe we tend not to use (…) there's a culture in the organisation (…) which somebody starting new will pick up […]."*
>
> **(Smith, Doctor, City Hospital Emergency Department)**

"[…] I think the biggest barrier is getting people to buy into the value of doing it (…) and I think that somebody that's been around for donkey's years [pause], you know the value of trying to stop people coming back in (…) in four months' time with a fractured hip, because if you don't stop it then in four months' time you're the person dealing with the broken hip […]."

(Sam, City Hospital Emergency Department)

"[…] I don't necessarily think (…) some of the staff within the department really understand why they doing it (…), if they understand the reason (…) they're doing it then hopefully it might influence their decision to say 'well actually I'll do it rather than not do it'. Hopefully through education you'll get people to not only do it, but to do it meaningfully as well (…) which means they will follow the right path […]."

(Arthur, Nurse, City Hospital Emergency Department)

Variation in Emergency Department staff and their attitudes towards guidelines:

Variation in staff on duty across the Emergency Department was observed to influence care, and may be associated with gaps in communication. The variation in staff, due to rotation of junior doctors, was viewed by interviewees as a factor influencing care, but this was not observed as the data collection did not overlap with a period of rotation of juniors.

Staff opinions varied and some individuals appeared to work more collaboratively (permanent staff working together, issues with bank staff/ locums are described later). Healthcare professionals may have to adapt to working with different individuals within the same department, individuals who may have different opinions and/or ways of working.

" […] so for me the blockers [to guideline adherence] are all about the people, the people that come and go, so y'know the migrant workers (…) like the F2s, and then the staff that come for a short period of time and then go […]."

(Arthur, Nurse, City Hospital Emergency Department)

"[…] perhaps the junior doctors don't see the value of it [guidelines] (…) because they're not here long enough (…) to deal with the outcomes when (…) people get brought back in […]."

(Sam, City Hospital Emergency Department)

Different healthcare professionals may have had different priorities on what care a patient should receive, and may prioritise which care needs are communicated between staff and with patients. **Amanda** described how the efficiency of communication and team-working was variable and dependent on the staff rota, although some individuals worked more collaboratively. The main body of findings regarding communication as a determinant of practice are described in (pages 172-188).

"[…] I think sometimes we have good communication and (…) it does depend on what staff are on (…) as to how good the communication is […]."

(Amanda, Nurse, Town Hospital Emergency Department)

It was observed on one occasion that a healthcare professional was unaware that a patient had not had a falls assessment until another informed them directly.

Context: The patient presented with pain in their hand as the result of a fall. It is found that they had fractured their finger and they were referred to the fracture clinic.

'[…] One HCP informed another that the patient still needed a falls assessment – they were unaware of this […]'

(Observation episode 2 - City Hospital Emergency Department)

James' point reiterated the importance of communication within the group of staff working together.

"[…] staff don't know what patients are left in the department (…) they're not necessarily appropriate handovers […]."

(James, Doctor, City Hospital Emergency Department)

One healthcare assistant described how they raised any concerns they had about a patient's stability, before safe discharge was suggested and confirmed. They felt that they had a responsibility for both patient care, and to the team, through communicating any concerns. They felt that they had a voice regardless of their role within the department. Their actions reiterated the importance of what **James** described as 'appropriate handovers' between staff, and also the importance of accuracy in patient discharge recommendations.

"[…] even at my level you get them out, you get them dressed (…) and you're thinking there's no way they're safe because they're going to fall at home, (…), I will always flag it up (…) and it has always been taken seriously […]."

(Abbey, Healthcare Assistant, Town Hospital Emergency Department)

It appeared that consistency in team membership helped to promote uniformity in care. Thus, a team that was used to working together and had shared an appropriate definition of falls, was better placed to follow the guidelines. Furthermore, the risk of miscommunication in inconsistent teams may be reduced.

In Town Hospital's Emergency Department in particular, there were often staff shortages, 'bank staff' being commonly brought in. Time was spent showing such staff the procedures to follow, and because of limited time available they often omitted detailed guidance on the fall care pathway. Bank staff's patient care was influenced by the information relayed by permanent staff, about their allocated role in the specific department. However, bank staff needed a comprehensive understanding of Falls guidelines, in order to adhere to recommendations in varied Emergency Departments. Thus, if a bank member of staff is not familiar with the Falls guidelines, they will be unlikely to become familiar with guidelines within the Emergency Department. The specific processes employed in a particular Emergency Department may help or hinder guideline adherence, dependent on whether there is a positive level of communication and team-working amongst staff. Bank staff may model permanent staff behaviour; hence guideline adherence by such team members may help or hinder adherence, dependent upon whether site-specific healthcare professionals adhered to guideline care. I observed that such bank staff were directed to meet the minimum requirements with regards to the care they provided.

> *"[…] nurses are permanent here (…) so they will probably advise the doctor […]."*
>
> **(GM, Doctor, Town Hospital Emergency Department)**

> *"[… I'm sure there's people coming in from other departments who come to work here that aren't aware (…) and we use a lot of bank staff (…), things like that, they're going to do the bare minimum […]."*
>
> **(Adam, Nurse, Town Hospital Emergency Department)**

Aussie summarised how awareness of guidelines and opinions about them may influence adherence. Again, he highlighted the importance of

education, as well as how attitudes towards the care of people who have fallen may influence adherence.

> *"[…] I certainly think that (…) the vast majority of people (…) aren't aware of guidelines full stop (…), let alone Falls guidelines (…). So I think you know falls isn't considered the sorta sexy medicine […]."*
>
> **(Aussie, Doctor, Town Hospital Emergency Department)**

The number of staff working within both hospitals' Emergency Departments was observed and viewed (by interviewees) as a barrier to Falls guideline adherence.

> Context: Patient presented after having experienced a couple of falls during the night and hitting their head. They awaited help in the morning after having slept on the floor. They were found to have a heart murmur and were referred to see a physiotherapist as a result of numerous falls.
>
> '[…] Department getting busier. Ambulance queue/ short of trolleys, short of staff, they were still calm and collected, however […]'
>
> **(Observation episode 18 - City Hospital Emergency Department)**

Shortages of staff led to increased pressures on staff and potentially reduced rates of adherence to guideline recommendations.

> *"[…] we run basically on a skeleton crew of nursing staff (…), which isn't I think very safe […]."*
>
> **(Aussie, Doctor, Town Hospital Emergency Department)**

> *"[…] sometimes it's a matter of you haven't got enough manpower to go back (…) and actually assess people […]."*

(Doris, Nurse, City Hospital Emergency Department)

"[…] I think more people would make a massive difference (…) […]."

(Dave, Nurse, Town Hospital Emergency Department)

"[…] there aren't enough doctors, there's not enough nurses (…) […]."

(Barbara, Doctor, City Hospital Emergency Department)

In some cases, interviewees did not appear to have as much enthusiasm for their job compared to others. The variation in healthcare professionals' enthusiasm raised the issue of the effects of a person's enthusiasm upon adherence to Falls guidelines, as well as general patient care. A healthcare professional's enthusiasm could influence, or be a reciprocal effect of, the ambience (atmosphere/mood) of the department. The term "work friendly", used by **Antony** may also refer to the structure of the department and the care processes in place.

"[…] the place I work in is not work friendly anymore and if you speak to most people they will mention (…) it's not pleasurable as it used to be […]."

(Antony, Doctor, Town Hospital Emergency Department)

In contrast to **Antony's** and **James'** (**City Hospital Emergency Department**) opinion, other healthcare professionals (working within both Town Hospital's and City Hospital's Emergency Departments) described their motivation to succeed in their job. For example, they said that despite some notable challenges to working in the department, they were motivated by the variation in their job role, as well as the challenges the role entailed and the evidence of patient benefit from the care they provided.

"[…] it's challenging and it's interesting as well (…). You know most of the time you see sick patients, you see them, treat them; you get satisfaction from that as well […]."

(GM, Doctor, Town Hospital Emergency Department)

"[…] it's stressful (…), but rewarding […]."

(Doris, Nurse, City Hospital Emergency Department)

The organisational structuring of the department influenced guideline adherence. Healthcare professionals' varied opinions on clinical treatment generally, as well as specifically to the Falls guidelines, appeared to affect the care they recommended. Healthcare professional role requirements with regards to guideline adherence needed to be clear, in order for the appropriate care to be provided. In particular there were issues related to the variation in seniors' and juniors' perceived and/or assigned care roles and responsibilities. I observed that juniors relied on advice from seniors, seeking their opinions on patient care.

Context: The patient presented with pain in their head after falling whilst gardening.

'[…] Plan: Urine sample, scan of head. 24 hour until discharge to watch head injury/stay in dependent on results. Falls assessment, blood tests to check if it was a non-mechanical fall, lying and standing blood pressure checks. Patient was not keen but they needed the checks as they did not wish to send them home alone with a head injury.
12:35- Healthcare professional sought advice about how to deal with the patient's concerns about the recommended treatment plan and they returned to see the patient with a senior member of staff […]'

(Observation episode 26 - City Hospital Emergency Department)

As discussed in the context of education as a determinant of adherence (pages 212-215), peer influence may be important. It could be argued that if senior members of staff were to follow guidelines, then juniors would be more likely to follow suit.

> *"[…] the people are quite supportive; I mean the consultants are pretty good […]."*
>
> **(Harry, Doctor, Town Hospital Emergency Department)**

> *"[…] we're allowed to put our opinions forwards (…) and the senior nurses and doctors do listen to us […]."*
>
> **(Ruby, Healthcare Assistant, City Hospital Emergency Department)**

> *"[…] my guidelines would be whatever they asked me to do […]."*
>
> **(Abbey, Healthcare Assistant, Town Hospital Emergency Department)**

Abbey's quote reiterates the importance of peer guidance. It was noted by a more senior member of staff that they:

> *"[...] make sure that the junior doctors do those things (…) when they are discharging elderly patients […]."*
>
> **(Joe, Doctor, Town Hospital Emergency Department)**

Being at a level of seniority and directing staff may have had an influence on the patient care received. **Bob** believed this to be the case:

> *"[…] you need somebody with clinical credibility to champion that sort of work […]."*
>
> **(Bob, Doctor, City Hospital Emergency Department)**

Healthcare professionals may actively pick which aspects of guideline care they follow based on their experiences of prioritisation and guidance from others. Within their role, healthcare professionals required support from a variety of staff. In some circumstances, healthcare professionals were left feeling that they had to manage as well as they could, given challenging circumstances. Staff wished to see a department where support was offered by and to all grades of staff within the Emergency Department, from time of patient presentation to discharge.

> *"[…] so it's just about trying to do what you can (…) and follow as much of the guidance as possible really. And then I guess sharing the responsibility with colleagues (…) and saying 'Do you mind doing this for me'? and then reporting back. So I guess involving others who are around to help […]."*
>
> **(Harry, Doctor, Town Hospital Emergency Department)**

> *"[…] I would like to see the department where you get more senior input (…) to patient care earlier […]."*
>
> **(Dan, Doctor, City Hospital Emergency Department)**

In one case, a healthcare assistant wanted support in pursuing further training for their role. In response to the question 'what do you think would facilitate guidelines being implemented?' the individual responded that:

> *" […] I think probably more adequate training (…), certainly people at my level (…) to be able to be aware of the falls risk assessments and (…) stuff that we're not really involved in; I would like to learn more (…) of that […]."*
>
> **(Abbey, Healthcare Assistant, Town Hospital Emergency Department)**

The merits of utilising junior staff's skills in improving the efficiency of Emergency Department care were also recognised by a more senior member of staff. Although they worked at a more junior level than other healthcare professionals, they suggested that individuals such as healthcare assistants had a key role and that a larger number of them would make the department run more effectively. Shared incentives, responsibility and accountability may be beneficial.

> *"[…] the problem is we all delegate - all the specialists, all the consultants (…), registrars, doctors, trained nurses, all delegate tasks to the same very small pool of people (…) and then we all wonder (...) why those simple tasks haven't happened. Whereas if we had a larger pool of people able to do the simple tasks (…) and smaller pool of people directing those tasks to be done it might work better […]."*
>
> **(Sam, City Hospital Emergency Department)**

It was thought that the categorisation of the hospital as teaching or non-teaching, influenced whether there was a focus on following guidelines. **Aussie** commented about their experience of the influence of the NHS care structure, in terms of the training systems in place and the consequences of possible site-specific variation.

> *"[…] generally (…) it depends which A&E you working in (…). If you work in an academic teaching hospital then guidelines are (…) quite (…) prominent, (…) particularly in the last place I worked we had somebody (…) using guidelines to develop pro-formas […]."*
>
> **(Aussie, Doctor, Town Hospital Emergency Department)**

Healthcare professionals' attitudes towards guidelines, and their perspectives on caring for an older adult falls patient, were varied. Some regarded it as acceptable to deviate from guidelines, so long as they could justify

the reason for non-adherence. In one case, an individual described how healthcare professionals may make a conscious decision not to follow guidelines.

> *"[…] the key thing is to justify reasoning why you've deviated (…) from the guidelines, and I think if you can do that then 'y'know you're pretty safe […]."*
>
> **(Harry, Doctor, Town Hospital Emergency Department)**

> *"[…] [it's] good to have a set of rules to work by (…), but I think in the real world when A&E is so stressed and (…) overpopulated as much as anything, I think guidelines have to by the by (…). I think if you stick to basic (…) care and (…) compassion to people, I think that's a more worthy way or going (…) rather than sticking to guidelines (…). I myself would want somebody to care for me, rather than think 'uh, I can't do that because it's not within out remit' […]."*
>
> **(Margaret, Healthcare Assistant, City Hospital Emergency Department)**

The interviewees thought that familiarity with guidelines, understanding of guideline usage, ease of usage, number of guidelines and prioritisation of individual guidelines all influenced adherence. It was also observed, and stated by interviewees, that the complexity of patient presentations within the Emergency Department context, made categorisation of patient's care requirements difficult. Therefore, it was hard to use guidelines unless a patient presented with very obvious pathology, such as a head injury from tripping. For example, it was observed that one patient presented with balance difficulties, visual impairments and heart abnormalities (**Observation episode 7- Town Hospital**).

Falls guideline care was described as not being easy to follow unless a patient had been seen to have had a fall, or had a recollection of the circumstances.

> *"[...] I think the problem is (…) just very complicated and (…) to have a specific guideline unless it's for a very obvious pathology (…) it's difficult […]."*
>
> **(Dan, Doctor, City Hospital Emergency Department)**

In addition, **Barbara** and **Bob** described how the number of guidelines and familiarity was viewed as an issue effecting Falls guidelines adherence.

> *"[…] there are too many for them (…) there is no definitive list anywhere for exactly what the pathways are for […]."*
>
> **(Barbara, Doctor City Hospital Emergency Department)**

> *"[…] y'know every week we could throw a new guideline at them (…) and the response then that you very often get it 'Jesus […] yet another thing' […]."*
>
> **(Bob, Doctor, City Hospital Emergency Department)**

The importance of some guidelines was seen to be prioritised over others.

> *"[…] I would say that some guidelines are followed very well, other guidelines (…) we have the intent to follow well (…) but fall down on the actuality (…) it's not deliberate non-adherence it's just appropriate prioritisation (…) which means sometimes the guidelines don't get followed (…) . Can I guarantee I always follow them'? (…) I get distracted sometimes if something else goes off […]."*
>
> **(Sam, City Hospital Emergency Department)**

Interviewees were asked whether they followed guidelines generally, as well as being asked if they followed Falls guidelines specifically. This was asked

in order to gain insight into whether Falls guideline adherence may be related to attitudes towards guidelines in general, or perspectives on the specific guideline. **Dan** had a positive opinion of guidelines so long as they were guidelines, not rules to follow. This is a key point to consider; guidelines are not set procedures that must always be followed.

> *"[…] guidelines, as long as they're guidelines (…); I don't like the (…) 'slavish' adherence to pro-formas […]."*
>
> **(Dan, Doctor, City Hospital Emergency Department)**

When asked if they followed guidelines, one individual referred to why they thought guidelines should be followed. They justified guideline adherence as being necessary in order to obtain funding:

> *"[…] I think they are good in the fact that they will probably enable future funding when we end up being funded on best practice and things like that (…) as long as our guidelines are based on best practice (…) that will enable us to get paid which is quite important [...]."*
>
> **(Barbara, Doctor, City Hospital Emergency Department)**

<u>Cross-boundary care:</u>

Cross-boundary care refers to the care a patient receives for their fall before and/or after Emergency Department presentation.

The impact of previous care experiences:

Care systems both outside of the Emergency Department and outside of the hospital were viewed as influencing Emergency Department care. NB: I only observed care within the Emergency Department, and these findings are largely

based on interviewee responses, my observations within the departments, and patients' comments during observations.

Patients' experiences of care within and externally to the Emergency Department were thought to influence their adherence to care recommendations, for example, if a patient had had a negative experience of a previous hospital admission, then they may be less likely to take on-board the Emergency Department care recommendations.

For example, one episode of observation at City Hospital illustrated how a negative past experience may make a patient less likely to take on-board an Emergency Department care recommendation. The patient had previously been admitted to a ward within that hospital, but had caught an infection and become more unwell during their stay. Therefore, they were not keen on being admitted to the hospital unless it was to a different ward (**Observation episode 6- Town Hospital**). Other examples of the influence of previous experiences of NHS care follow:

> Context: The patient presented after falling in the bathroom. They had multiple health problems, including osteoporosis and a visual impairment. Patient had pain in their wrist. Due to multiple concerns, re. memory, vision, heart the patient was admitted for a comprehensive assessment.
>
> '[...] The relative stated that they had had an assessment before which had not helped as they were given a Zimmer frame which is not practical in the house.
> The healthcare professional was honest, stating they did not know all the details and that was why the patient is being referred on.
> The relative explained how the patient had had a bad experience within the hospital previously. They both agreed the assessment was needed and the healthcare professional reinforced that they did not recommend discharge unless a carer was there full-time.

The relative decided to call the GP to see if there was anything they could do. The patient and relative were reluctant to accept recommended care [...]'

(Observation episode 6 - Town Hospital Emergency Department)

Context: The patient was found at the top of the stairs, they were unsure how they got there. The patient's fast pulse was the main concern.

'[...] A healthcare professional stated that patient's pulse was quick and they wanted to see why. The healthcare professional requested an X-ray, but stated they did not think there was a problem, the X-ray showed that they did not have any fracture, but they probably had long-standing osteoarthritis. They wanted to bring it down before they sent them home.
The relative and patient agreed- although not initially happy about the thought of being in hospital for a couple of days [...]'

(Observation episode 9 - City Hospital Emergency Department)

Context: A patient who made repeat presentations to the Emergency Department, currently undergoing a home based assessment.

'[...] The healthcare professional informed the patient that they may need to be admitted. The relative was not happy due to previous care they had received- eating and drinking was not closely monitored and the patient was moved wards without being told […]'

(Observation episode 17- City Hospital Emergency Department)

Doris thought it to be the case that initial impressions within the Emergency Department had an influence on the patient experience of care both within and outside of the department, **Sam** agreed. They illustrated how the care within the Emergency Department was important regardless of any previous patient experiences with regards to care.

> *"[…] it impacts on (…) the whole patient experience from the start […], giving a bad impression from the beginning (…) they will always go away thinking 'those horrible A&E nurses didn't (…) assess my pain' or 'I told them I was in pain but nobody came back to me' […]."*
>
> **(Doris, Nurse, City Hospital Emergency Department)**

> *"[…] I don't think you're every too busy to be - not to be polite to people (…) or respectful to people and to treat them like you would hope (…) that's always the test 'are you treating the person like you would hope?' […]."*
>
> **(Sam, City Hospital Emergency Department)**

Extent of collaboration with other hospital departments and external healthcare services:

When considering the hospital care of older adults, it could be argued that flow and communication between departments and/or care providers influences adherence to Falls guidelines, and there are challenges when departments communicate with one another and when patients move across the Emergency Department boundaries.

Effective communication was observed when a healthcare professional at City Hospital spoke to those in other departments about patients' follow-up care requirements, for example, phoning a Primary Care Team to arrange assessment of the patient's needs. On one occasion it was observed at City

Hospital that a patient had presented to the Emergency Department on a day that they had a scheduled hospital appointment; the Emergency Department staff focused on their care so they could still go to this appointment.

> Context: The patient presented after experiencing a fall at home when going to use the toilet. Patient had an ECG conducted at the scene and had come to the Emergency Department as the ECG was abnormal.
>
> **'[...] Q-** Any recent changes to your medication/ dose?
>
> **A**- I have a list which is being monitored.
>
> The healthcare professional who asked the question responded "good."
>
> The patient made them aware that they had an appointment with a GP that afternoon. The healthcare professional stated that they would get their documents from the Emergency Department together for her to show them [...]'
>
> **(Observation episode 13 - Town Hospital Emergency Department)**

On a separate occasion there were concerns about how a patient was managing at home and it was recommended that this was followed-up.

> Context: Patient experienced a fall and they had an X-ray when they presented to the Emergency Department as they had hurt their ankle. They were found to have a sprain and also a chest infection for which they were given antibiotic treatment and referred for follow-up.
>
> '[…] Healthcare professional asked how they were managing at home and that there was a concern and they were being referred to the crisis response team […]'

(Observation episode 15 - Town Hospital Emergency Department)

Another patient received a follow-up physiotherapist assessment.

> Context: Patient presented after having experienced a couple of falls during the night and hitting their head. They awaited help in the morning after having slept on the floor. They were found to have a heart murmur and were referred to see a physiotherapist as a result of numerous falls.
>
> '[…] referred to EDU for a geriatric assessment-physiotherapist, plan to discharge the same day […]'
>
> **(Observation episode 18 - City Hospital Emergency Department)**

It was suggested by interviewees that there were gaps in communication between departments within a hospital and healthcare services outside a hospital, such as GPs or care homes. These communication gaps could have had a negative influence on patient assessment and care.

Problems could be caused by delays in the computer input of patient characteristics (observed at City Hospital). Delays in input meant that healthcare professionals had to keep checking with each other about the characteristics of the patients in each cubicle. If the patient presentation was coded on the computer at handover from paramedics or immediately after triage, then it may have been easier for healthcare professionals to follow a set treatment pathway as they would be more easily able to identify their roles in a patient's care. It appeared to be important for a detailed report of a patient's preceding care to be provided at handover from paramedics. In one episode of observation at Town Hospital, a healthcare professional specifically noted that the paramedics had stated that the patient had had pain in their back, and they asked the patient if

this was still the case. The healthcare professional used the information that the paramedics had communicated to them.

The poor availability of medical records was also viewed as a barrier to efficient patient assessments, care and the adherence to Falls guidelines. This barrier was most frequently described as an issue when a patient presented from a residential or nursing home. NB: this issue was not directly observed, as the patients who happened to present from care homes were not recruited to this study as they did not have capacity to consent to observation.

Medical records were viewed as important for both providing the history of a patient's Emergency Department care, and records of care received in places both internally and externally to a hospital environment. Gaps in medical records may explain why on some occasions a falls history was not obtained and why at both sites it appeared that a medication review was least frequently conducted or recommended.

> *"[…] it'd be nice to have a system where you could look at past medical history (…) there are some patients who are frequent attenders and (…) the staff will point out that this person has attended 20 times or something (…) but I've got nothing to say; I don't know why (…) this person has attended (…) it's not that it doesn't exist […]."*
>
> **(Tommy, Doctor, Town Hospital Emergency Department)**

> *"[…] most of the patients that come into A&E - if a particularly elderly group they either come from a care home (…) or a residential home, or a nursing home. They do not come with some of the records […]."*
>
> **(Joe, Doctor, Town Hospital Emergency Department)**

As well as gathering information at presentation, **Dan** noted it may be beneficial for Emergency Department staff to get feedback from other

departments about patient follow-up. Such feedback may help to improve their clinical practice.

> *"[…] we don't necessarily identify our mistakes very easily (…) we don't have stringent feedback for what we're doing, so that's (…) not ideal […]."*
>
> **(Dan, Doctor, City Hospital Emergency Department)**

Emergency Departments may not have the best links to other departments, leading to communication gaps and accessing equipment.

> *"[…] I think A&Es are generally fairly isolated from the rest of the hospital (…) so we don't have access to a lot of the things that would actually make our day much easier and make (…) the patient's experience much better […]."*
>
> **(Arthur, City Hospital Emergency Department)**

Antony said that 'buy-in' from other departments would be beneficial. He thought there would be merit in staff and departments working in a co-ordinated manner. Under-utilisation of staff may be a barrier to Falls guideline adherence.

> *"[…] I think we need some buy-in from elderly care physicians (…) to physically come to the Emergency Department and look after these people as well (…) we need some more support from the ICT [Intensive Care Team], Physios, OTs […]".*
>
> **(Antony, Doctor, Town Hospital Emergency Department)**

Polly noted that the hospital could support the Emergency Department with facilitating referrals through managing bed availability. Inflow and outflow in the Emergency Department were viewed as needing to balance.

[…] the problem for us is capacity (…), so it's moving people out of the department, but that's a change that needs to happen further on in the hospital […]."

(Polly, Town Hospital Emergency Department)

"[…] when it is busy we've got high inflow and no outflow, then obviously we do struggle [...]."

(Helen, Healthcare Assistant, Town Hospital Emergency Department)

The availability of specialist staff and specialist departments that have a role in caring for older adults who present with falls, may influence Falls guideline adherence. It was both observed by myself and viewed by interviewees that the input of occupational therapists and physiotherapists, for example, was warranted. I observed that on some occasions, occupational therapist and physiotherapist input was incorporated into patient care. In one episode of observation at City Hospital, a repeat faller received input from both an occupational therapist and a physiotherapist. They approached the patient whilst they were in the department in order to monitor their care during his hospital stay and after discharge, so that his treatment could be reviewed.

Context: Patient presented with a fractured pelvis which was prioritised over other assessments.
'[...] 2:40- Patient was discharged to EDU occupational therapist and physiotherapist assessment and to mobilise the left pelvis where there was a fracture [...]'

(Observation episode 5 - City Hospital Emergency Department)

It was suggested that it would be of benefit to have specialist services to be able to call upon and refer patients to.

"[…] I think it is realised (…) almost a sub-specialty (…) - geriatric emergency care (…) or sort of emergency care for the older patient may be an area that needs to develop […]."

(Bob, Doctor, City Hospital Emergency Department)

"[…] I think (…) what we really need (…) is more specific type 'Geriatric Outpatient Clinics' (…) where patients can be seen not as an inpatient but can be seen very rapidly (…) as an outpatient […]."

(Dan, Doctor, City Hospital Emergency Department)

"[…] myself and my colleagues in the team in Majors (…) are identifying whether they're at risk of falls and (…) we think 'well yeah actually you know perhaps (…) at 86, they're a bit frail, this is their third fall, get them down to the community matrons, get them seen by a geriatrician, 'falls clinic' (…) get it sorted' […]."

(Helen, Healthcare Assistant, City Hospital Emergency Department)

Staff may not have a comprehensive understanding of the roles of different hospital departments and healthcare service. **E** did not appear confident in their description of care outside the Emergency Department, as it was not familiar to them, demonstrating not only possible communication gaps, but also variable understanding of the hospital care system as a whole.

"[…] The medical condition (…) would get high priority (…) the patient would be seen to that regard and the fall dealt with later on I guess (…). From my point of view in the Emergency Department I don't get to see that side of things […]."

(E, Doctor, City Hospital Emergency Department)

With regards to the care processes outside the hospital that influenced care, **GM** (**Town Hospital Emergency Department**) noted how there were

negative implications of the large emergency response catchment area of Town Hospital and how this meant the Emergency Department could not easily meet service demand.

The NHS healthcare structure was thought to influence patient attendance rates, thereby having an impact on the feasibility of completing comprehensive patient assessments. In addition patient presentation patterns, (what clinical characteristics they presented with and where they presented) were thought to have an influence upon care received. **Ruth** felt that patient perceptions of what justifies Emergency Department treatment should be reviewed at national level. She thought that the change of title from 'Accident and Emergency' (A&E) to 'Emergency Department' had not have an impact upon the types of Emergency Department presentations, and that public education was important.

She thought patients felt they were more likely to receive individualised care within an Emergency Department. This point was reiterated by **Barbara**, who also noted that in some circumstances people in City Hospital's catchment area did not have GPs; this issue was raised both by an interviewee recruited from Town Hospital's Emergency Department and one recruited from City Hospital's Emergency Department. In an episode of observation a patient's relative also raised this issue.

> *"[…] It's all about education (…) to patients and (…) I personally think the change in the ways GPs work (…) had resulted in Emergency Departments having an increase in patients (…) because GPs have become such big practices now that patients don't feel as if they're getting an individual (…) care, whereas in previous years they would have done (…). So they think 'well every time I phone up the GP surgery they (…) see a different doctor or nurse (…) so they may as well come along to A&E' (…), so there's no continuity in care (…). And I think […], until that's resolved (…)*

Emergency Departments will continue to see an increase in patients […].”

(Ruth, Town Hospital Emergency Department)

“[…] I think here in …… there is a problem with GPs, and people either not having one for various different reasons (…), for different reasons which may not be their own fault. Or if they do have one, having absolutely no faith in what they say at all (…) and end up coming here anyway […].”

(**Barbara, Doctor, City Hospital Emergency Department)**

Context: A patient who was found on the living room floor by their relative. Questions were answered by their relative as the patient was hard of hearing. The patient was admitted for further assessment as a multitude of factors related to the patient’s co-varied medical conditions could have caused the fall.

‘[...] A patient’s relative mentioned that they thought the GPs were not as good as the hospitals were in this situation (treating a falls patient) [...]’

(Observation episode 7 - Town Hospital)

Continuity of care was an issue raised by **Doris**, in terms of the importance of following up patient care outside the Emergency Department and hospital. Related to the points that **Ruth** and **Barbara** raised about access to and faith in GPs, reduced continuity of care may cause issues with the adherence to any recommended falls prevention techniques.

Tommy observed that elderly patients were being moved on so that responsibility shifted elsewhere, to a care home, for example. He thought that this was a consequence of the intricate nature of elderly care; this may have

negative impact on patient experience, as a comprehensive assessment was lacking.

> *"[…] they are very difficult to manage sometimes (…) sometimes it feels to me that (…) elderly patients (…), there's a feeling of trying to move them on (…) because they want to pass [laughs] the responsibility back to say a care home (…) or to another ward […]."*
>
> **(Tommy, Doctor, Town Hospital Emergency Department)**

Follow-up and support from services external to the hospital may be recommended for safe discharge, but a patient may not have access to such services. It could not be assumed that someone else would pick up care where the Emergency Department left off. Although only noted on one occasion, this issue is important to take into consideration; it is possible that a repeat fall could be due to either a patient or carer not taking recommendations on-board or being unable to access appropriate services, as opposed to guidelines not being adhered to at a prior presentation.

> *"[…] everything that we give here* (…) *will obviously have an impact on* (…) *long-term healthcare needs and all that thing. If we do everything in a timely manner* (…) *we can minimise the risk and make sure that* (…) *we're promoting health and independence* (…) *so that they can sort of carry on with the* (…) *care elsewhere* (…) *but making sure that it's very safe as well […]."*
>
> **(Doris, Nurse, City Hospital Emergency Department)**

The cost of obtaining support at home was an issue in one case.

> <u>Context:</u> A patient who presented with a facial injury after having fallen on their face after feeling dizzy. The patient had diabetes and had mixed up their medication/ not eaten. They were referred for a home assessment.

'[…] **Q-** Have you got any help at home?

A- "No, I have been trying to get Age Concern but they charge £35 a month."[…]'

(**Observation episode 22 - City Hospital Emergency Department)**

"[…] I think we're quite lucky because we've got community matrons (…) and they're always very willing to come up and assess patients (…) and even if we just want a bit of advice for patients who have fallen once at home and are a bit unsteady, we are very well supported by them, so I think obviously identifying somebody that is a risk of falls or is a 'frequent faller' (…) is a key part, and once you've identified that, you can utilise community matrons […]."

(Helen, Town Hospital Emergency Department)

To summarise, it was thought that the following may have an influence on Emergency Department patient management: communication across boundaries and the extent of collaboration, hospital catchment area, availability and accessibility of medical records, access to services, trust in care sources external to hospitals, and continuity of care.

Concluding remarks:

The findings in this chapter contribute to addressing research questions one, two, three and four (page 44):

1. When and why do healthcare professionals deviate from or adhere to the clinical practice guidelines in the management of falls?
2. What are the barriers and enablers to adherence (determinants of practice)?
3. What method of falls management do healthcare professionals practice when not following the NICE clinical practice guidelines?

4. What influence does an Emergency Department context have upon adherence behaviours?

A large number of barriers and enablers to adherence (determinants of practice) were identified from observation research and interview findings and have been discussed in this chapter. Key factors found to influence adherence were:

Communication - between staff and with patients, staff-staff communication and perception of a fall.
Complexity of patient care - Falls history and guideline adherence and prioritisation of care needs.
Education and training – Lack of education about Falls guidelines. Healthcare professionals need to be aware of guidelines in order to adhere to them.
Influence of seniors – Educated seniors can promote guideline adherence across the department.
Emergency Department care processes - busyness, ambience, functionality of the Emergency Department, variation in care pathways, targets, access to resources.
Variation in Emergency Department staff and attitudes towards guidelines
Cross-boundary care - the care a patient receives for their fall before and/or after Emergency Department presentation.

In initiatives to improve adherence, it would be difficult to address all the determinants at once. Some determinants may be very difficult to address. It is therefore necessary to consider which determinants are the important ones to address.

Chapter Six (pages 243-266) synthesises the research and review findings (pages 99-107). The aim is to consider the ways in which determinants of practice could be addressed to initiate a change in adherence behaviours. It addresses the influence of the Emergency Department context upon employing

enablers to improve Falls guideline adherence, but also whether the reason there are barriers to guideline adherence is because Falls guidelines are not practical for use in an Emergency Department.

The conclusions, recommendations and implications that can be drawn from the research findings in terms of improving Falls guideline adherence are described in Chapter Eight (pages 285-304).

Chapter 6- Emergency Departments' ability to improve Falls guideline adherence behaviours- which determinants of practice can be addressed?

In the previous chapter, I addressed aspects of research questions one, two, three, and four and the determinants of adherence identified in the observation and interview study were described. In this chapter, I address aspects of questions four and five and draw on my observation and interview research findings alongside my review findings in order to consider which determinants can be prioritised in initiatives to improve Falls guideline adherence. Determinants are considered in the context of care in Emergency Departments in the first part of the chapter, and in the second part, I ask whether Falls guidelines are entirely suitable for use in Emergency Departments.

Prioritisation of the determinants to be addressed:

In this section determinants are considered in terms of whether they can be addressed in initiatives aimed at improving Falls guideline adherence. If a large number of determinants are identified, it can be difficult if not impossible to design interventions to address them all. It is then necessary to select those determinants on which to concentrate efforts. However, there is little evidence on how to select the determinants to address. Recent studies have shown that large numbers of determinants can be identified (Krause et al, 2014), and that ideas on how to address them suggested by different groups of professionals and researchers tend to be similar (Wensing et al., 2014). These studies highlight two properties of determinants that may be used to decide whether to address them. The first is whether the determinant is likely to have a large impact on care. If the impact is thought to be small, there is little to be gained by addressing it. The second is whether it is possible, through intervention, to alter the effect of the determinant. Thus, if the determinant is the location of the hospital, an

intervention to change the location of the hospital is much too costly to be realistic.

These two factors - apparent level of effect on care and whether amenable to change - are used here to structure a critique to identify those determinants to prioritise in interventions to improve Falls guideline adherence. They are presented as primary and secondary determinants, according to the extent in which they could be helpful in improving adherence. Primary determinants are those that I have concluded are more amenable to change, and appear to have greater potential for improving adherence; they may also lay the foundations for addressing other determinants. Secondary determinants are those I have assessed as important, but may have less impact on adherence or be less amenable to change. The primary and secondary determinants are listed. Each sub-section both describes the determinant and whether it can be addressed.

1. <u>Primary determinants:</u>

a) Support from seniors.
b) Education.
c) Cross-boundary care.

2. <u>Secondary determinants:</u>

a) Categorisation of a fall.
b) Communication and team-working, patient acceptance of staff recommendations.
c) Organisational factors- within department organisation, busyness, access to resources, availability of medical records and targets.
d) Staffing and consistency of care.

Primary determinants:

1. a) Support from seniors and clarity of role responsibilities:

I classed this as a primary determinant because it appeared to have an important influence on adherence and was potentially amenable to interventions. Agreement amongst senior medical and nursing staff on the management of falls could be reached in effectively led meetings, laying the foundation for care throughout the Emergency Department; this approach can be considered to be feasible.

Guidelines may be viewed by some healthcare professionals as incompatible with their experience of care, and therefore they do not trust recommendations or see them as relevant in their care; this was particularly found to be the case with senior members of staff. Clear facts and figures from respected sources, for example, specialists in the specific field of medicine and/or specialists in that Emergency Department care context, were viewed as important influencers upon adherence. Within the Emergency Department, it appeared that some guidelines were viewed as more of a priority than others (for example, those to do with an acute condition, such as the NICE 2011(a) guidelines on the management of hip fracture in adults).

Conformity, a change in a behaviour or a belief in order to fit in with those of a group (Cialdini and Goldstein, 2004), may be used to influence adherence to NICE Falls guidelines. Healthcare professionals conform to group norms, in that they mirror other healthcare professionals' care of a patient with a typical falls presentation. As peer influence was viewed as important, for example, mirroring other healthcare professionals' behaviour, junior doctors knew within a short period of joining the Emergency Department, which guidelines were prioritised, and sought to follow them.

Guideline adherence needs to be grounded in departmental care processes, so that healthcare professionals take on-board recommendations and mirror the care that they see their peers provide. If the majority of team members value and take on-board recommendations, then others within the team are more likely to follow suit.

Minority influence, where an individual or minority group is able to make a majority group change their behaviour or beliefs (Moscovici, Lage, and Naffrechoux, 1969), is also a person-centred factor influencing adherence. A senior's example is more likely to be followed, authority is respected amongst the staff members, and care recommendations are followed if reinforced by seniors. Moreover, the time healthcare professionals devote to following guidelines is proportional to the negative consequences of not following them; they follow guidelines if they are enforced and there are negative consequences to themselves or their team, if they are not adhered to. Healthcare professionals are influenced by both the behaviour of the majority and in this case, also by the behaviour of an authoritative minority. As my review findings support, a key barrier to overcome is to make those in authority, and as many healthcare professionals as possible, aware of and accept the importance of guidelines, leading to a collective understanding (RCP 2006; Donaldson et al., 2005, and Fortinsky et al., 2004).

However, attitudes would need to be taken into consideration when trying to change adherence behaviours. Although getting senior staff to recommend and reinforce care is a potential enabler to adherence, without changing their attitudes seniors are unlikely to promote the guidelines. A barrier to changing attitudes may be a senior's perception of conflict between the guidelines and their own experience.

Senior healthcare professionals' resistance to change as a result of experience will make simple educational sessions unlikely to promote change. Therefore, illustrative, real-life case-studies of care outcomes, based upon the

care techniques they have employed previously, may change the views of seniors. Reflecting on care that was followed by good outcomes may change the view of seniors, which in turn may influence their guidance of juniors. If a healthcare professional's behaviour is influenced by their experience, then providing such examples may reinforce the importance and applicability of guideline recommendations. Adherence to Falls guidelines may be facilitated if, from their experiences of positive patient outcomes, senior healthcare professionals come to view the guidelines to be of benefit. In addition healthcare professionals may be more susceptible to change if they have a role in adapting the clinical guidelines to the Emergency Department context.

Training from a case study approach may provide a more practical way of justifying clinical behaviour as it has an influence upon experience; a concept that seniors appeared to regard highly. An educational session on standardised guideline care may have more of an impact upon behaviour, if real-life examples are drawn on to influence both senior and junior staff opinions.

Seniors may have had more confidence in junior staff caring for falls patients as they were seen as more common and less serious presentations; juniors may have modelled how seniors treated falls patients, where care was often more focused on the acute problem rather than on a falls assessment. Once again, clarification regarding role allocation is important, senior staff need to not only be aware of guidelines, but aware of their importance, in order to relay the need for adherence by junior staff. Education not only needs to be targeted at juniors, but also at seniors, in order for their adherence to have a reciprocal effect upon the juniors' behaviours.

As one healthcare professional described, treating patients with falls was not the most exciting medicine. Juniors and seniors may have more interest in the less common presentations, as well as focusing care upon patients with more serious, life-threatening problems. The potential influences of severity and prevalence of a condition upon assessment could be interrelated. Care may be

more comprehensive because a presentation is less common and needs further exploration because it has the potential to become more serious or complex.

Addressing this determinant of practice is feasible because there are a limited number of seniors within the department, and therefore there is a smaller target audience to get on-board in order to support guideline adherence and education of juniors. If the importance of Falls guideline adherence is reiterated to seniors, and a process to achieve consensus among them effectively managed, juniors may receive more support and improve their adherence behaviours.

1. b) Education:

I classed this as a primary determinant because professionals need to be familiar with the guidelines in order to adhere to them, and because the delivery of education is potentially feasible. In order to adhere to Falls guidelines healthcare professionals need to have an awareness of what a fall is, care requirements, processes in place, and of Falls guidelines specifically. Although education alone is not a powerful intervention to improve guideline adherence, a key argument for the role of education is that healthcare professionals need to know what the guideline recommendations are before they can be expected to adhere to them. Some education is likely to be required before other interventions can be expected to have effect. Adjusting the means of delivering education to account for the pressures of work in Emergency Departments would help make it available to all staff. Education and associated training in how to apply the knowledge gained in the processes and operation of the Emergency Department, were viewed as an enabler by seniors as well as juniors. This determinant has the potential to be addressed in conjunction with support from seniors, through reiterating the need for adherence whilst treating patients as well as when receiving training.

Various factors related to the characteristics of guidelines were thought to influence Falls guideline adherence. These included: familiarity with the guidelines and an understanding of their use, number of guidelines, and the compatibility of a specific guideline with other guidelines already in place. Healthcare professionals had to be not only aware of guidelines, but also familiar with their content and their relevance to the care they provide.

Related to this is the impact of the large number of different sets of guidelines, which the Emergency Department team need to understand and apply, even when they may not be accessible. It would be hard to achieve adherence to the Falls guidelines through improving awareness, when they are just one among many other competing guidelines. Healthcare professionals' training may only have incorporated an overview of the Falls guidelines and not a full understanding of their detail and importance. Insufficient detailed knowledge of the Falls guidelines and the importance of them would be a barrier to adherence. Therefore, education may reduce non-adherence to Falls guidelines, however, as I move on to discuss, this may be an idealistic not a realistic assumption.

Education as an enabler- an idealistic viewpoint on Falls guideline adherence:

The gap between knowledge of evidence-based medicine and how it is followed in practice is referred to as the knowledge translation gap (Graham, Tetroe and the KT Theories Research Group, 2007). Primary research suggests that identifying the processes influencing the adoption of evidence-based practice and factors thought to impact upon the processes of behavioural change, may help to develop educational interventions. Such education could support and promote the adoption of clinical practice guidelines, consequently helping to improve patient care (Sheldon, et al., 2004, and Grimshaw et al., 2004).

As described in Chapter One (pages 24-45), this research focuses on adherence to Falls guidelines, so in this case I am referring to education as a tool used to improve adherence to guidelines that are already put in place in departmental procedures.

From the findings of my research study and my review, it could be argued that such barriers to adherence to the Falls guidelines found in this research might be addressed by education, enhanced by support from seniors (NICE 2007, Donaldson et al., 2005, and Fortinsky et al., 2004). Utilising these enablers may have a reciprocal effect on other factors influencing Falls guideline adherence, for example, improving communication as a result of increased awareness of care responsibilities. Based on NICE's recommendations (page 41) and the analysis in Chapter Five (pages 166-242), it would appear that enlisting support from seniors would be an efficient way of assisting with adherence to Falls guidelines. Healthcare professionals do not necessarily have a clear understanding of what constitutes a fall and hence need direction. Once it is recognised that a fall has occurred, a standard care protocol could be followed. For this to take place, use of the protocol would need to be supported by seniors, both reiterating the importance of correct classification and correct treatment.

Educational systems such as training via the 'Enlightenme Knowledge Bank', the 'Electronic Learning Initiative for Emergency medicine' (Enlightenme, 2013), might be more likely to be endorsed as the tool is an e-learning tool that has been specifically developed for educating staff who work within an Emergency Department. The use of e-learning can often be more flexible with short modules that can be accessed in short periods of downtime.

Education and support from seniors might improve efficiency of care, not necessarily via staff directly initiating assessments, but through them being aware of the need for them. They might either conduct the assessments themselves, or direct the patients to the services that can provide multifactorial

assessments and interventions. Staff awareness could lead to them indirectly adhering to guideline care, through making recommendations and then delegating care roles.

Table 35 illustrates how an e-learning educational intervention endorsed by seniors, may have the potential to help to overcome barriers to Falls guideline adherence.

Table 35- An illustration of how utilisation of an e-learning tool endorsed by seniors might overcome barriers to Falls guideline adherence:

Barriers: Barriers specifically stated Inverted enablers	**How does use of an e-learning tool overcome this issue?**
Negative opinion of guidelines.	Support from seniors- reiterating importance.
Lack of understanding of what a fall is.	Simple definition to direct care.
Large number of guidelines.	Focused document- key areas to assess. Directed to a specific guideline from initial assessment.
Negative drive for job.	Motivation from seniors. Practical tool to help to improve efficiency.
Low staffing levels.	Educational sessions can take place at quieter time periods.
Lack of access to specialist staff.	Allows a more comprehensive assessment by all staff and provides more direction as to whose help to employ.
Poor communication.	Provides guidance.
Lack of support.	Support from e-learning and support from seniors.
Accessibility of guidelines.	Simplified access for reference.
Access to patient history.	Provides guidance as to how to get as complete a history as possible- key factors that need to be investigated.
Poor hospital flow.	Allows a more efficient assessment within the department for quicker referral. Method of education means that it can be 'picked up' and 'let off' dependent upon the busyness of the department.
Busyness.	Improves efficiency as educational intervention can be accessed when the Emergency Department is quieter.

Although the above educational tool may match NICE's suggestions on overcoming barriers to implementation (page 41), this research project has shown that the techniques that NICE suggest, may reflect an idealist viewpoint and that educational interventions alone do not guarantee adherence to recommendations (Reeves, Perrier, Goldman, Freeth and Zwarenstein, 2013; Forsetlund et al., 2009, and O'Brien et al., 2007). The enabler 'education' may improve understanding of Falls guidelines and adherence to them (supported by, Donaldson et al., 2005; Fortinsky et al., 2004, and Lee et al., 1999), but there may be other factors influencing how practical it is to employ this enabler in the Emergency Department; in addition research has shown that although some suggest that training would be of benefit, educational interventions alone may not achieve sustainable change (Grimshaw et al., 2004, and Swerissen and Crisp, 2004). The feasibility of utilising an educational tool and sustaining change in adherence behaviours can be affected by departmental priorities, for example. Such prioritisation could include the time an Emergency Department allocates to educational interventions, a potential facilitator towards overcoming lack of education, versus the perceived benefits of using this time to focus on Falls guideline care. Lack of focus on Falls guideline care is a possible impediment to education as an enabler. Departmental priorities may help or hinder education as an enabler to Falls guideline adherence (supported by my review findings: Youde et al., 2009, and Paniagua et al., 2006). Education about Falls guidelines and the importance of adherence may not occur as a result of prioritisation of other educational training sessions.

It may be hard to persuade a healthcare professional to attend a training session, when working within a busy department, and priorities may be influenced by busyness. It may appear to make matters worse from the perspective of those submerged in Emergency Department care. Busyness may have a negative influence upon the utilisation of an enabler such as feedback/training sessions to improve Falls guideline adherence (supported by my research and review findings: Paniagua et al., 2006). This could lead to doubts about guideline applicability and the feasibility of utilising them in day-to-

day emergency care. For educational interventions on Falls guidelines to be effective, it follows that they should be given priority, and that senior staff should be consistent in supporting this priority and in demonstrating adherence to the recommendations themselves. The timing and mode of educational sessions should reflect the priority given to falls, and allow for the busy nature of Emergency Departments. This should help make running educational sessions more practical and lead to more evidence-based practice and maintainable change in adherence behaviours.

1. c) Cross-boundary care:

I classed this as a primary determinant as it appeared to have an important influence on adherence and it potentially could be addressed. This determinant has the potential to be addressed through healthcare professionals and commissioners considering care pathways and alternative services to be used in conjunction with Emergency Department treatment of falls patients. As discussed pages 296-303, there is some potential for improving Falls guideline adherence through collaborative cross-boundary care, my observations and the interviews identified a distinction between cross-boundary care alone and collaborative cross-boundary care. Cross-boundary care refers to the care a patient receives for their fall before and/or after Emergency Department presentation. Collaborative care refers to healthcare professionals working together in order to co-ordinate care delivery across boundaries (National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester, 2013). Collaborative care utilises the services outside the Emergency Department, those that patients may present to independent of receiving Emergency Department care, or those accessed in conjunction with Emergency Department care either before and/or after presenting there for treatment (cross-boundary care). Thus, collaborative care may be cross boundaries, but cross-boundary care is not necessarily collaborative unless it includes features of collaboration that include shared policies and good communication.

When falls are correctly classified, often time constraints lead to a shift in responsibility for individualised patient care needs. For example, a falls assessment may be delegated to another department such as the Emergency Decisions Unit; the Emergency Department staff actively re-direct care. When this is the case, it reflects that healthcare professionals within the Emergency Department are aware of guideline recommendations, but targets and busyness influence Falls guideline adherence. However, care may also be passively re-directed, i.e. the falls assessment is reliant upon where an individual is directed post-discharge. There is consequently a need for other healthcare professionals to pick-up where the Emergency Department leave-off, and conduct a comprehensive falls assessment. The Emergency Department may either not prioritise a falls assessment, or may miss the need. As demonstrated in this research and in my review findings, referrals need to be accurate and efficient in order to facilitate Falls guideline adherence (RCP, 2012a; Youde et al., 2009, and Fortinsky et al., 2004).

As illustrated in my research and supported by my review findings, care pathways consider care of patients across boundaries between care teams or services, and are both an influence on, and are influenced by adherence (RCP, 2012; Youde et al., 2009; Paniagua. et al., 2006; Russell et al., 2006; Donaldson et al., 2005; Close et al 2003, and Close et al., 1999). For example, when looking at the influence of cross-boundary care upon adherence to Falls guidelines when a patient presents to an Emergency Department, a patient's previous care experiences may have an influence on Emergency Department Falls guideline adherence because of the patient's or relative's willingness to take on-board recommendations. With regards to the impact of Emergency Department adherence upon cross-boundary care, the initial triage can influence whether a falls risk assessment is carried out, and Falls guideline adherence can influence whether a patient is discharged (discharge care pathway). Greater attention to the decisions made at triage, including taking account of the causes as well as consequences of a fall, has potential to improve the efficiency of treatment, and contribute towards meeting the four-hour target.

Healthcare professionals within the Emergency Departments did not see the whole patient care pathway (neither before entering nor leaving the boundaries of the Emergency Department). Information or feedback on how a patient managed after the Emergency Department treatment would help staff appreciate the importance of their own roles, and make care within the Emergency Department more efficient. Potentially seeing positive outcomes as a result of Falls guideline adherence and negative as a result of a lack of adherence to Falls guidelines, may influence care initiated by a healthcare professional when patients in similar circumstances require treatment. Healthcare professionals may also recognise the benefit of collaborative cross-boundary care and how it can help to relieve pressures on the Emergency Department as well as being of patient benefit.

Secondary determinants:

The secondary determinants are less amenable to change or are less important determinants of adherence than the determinants I have suggested as primary; however, they may also be more susceptible to interventions once the primary determinants have been addressed.

2. a) Categorisation of a fall:

Categorisation of a fall at initial presentation influences patient care pathways and Falls guideline adherence, and it has the potential to be improved if seniors are in agreement and providing education becomes possible. Healthcare professionals can act variably to similar clinical presentations and the same diagnosis may not lead to the same management. In work on the management of sore throat by general practitioners, it was noted that the diagnosis of tonsillitis or viral pharyngitis often followed the decision on whether to prescribe antibiotics (Howie, 1974, and Howie, 1973). If the GP wanted to prescribe an antibiotic, a diagnosis of tonsillitis was made. The assumption that diagnosis always precedes management decisions was mistaken. I am unable to conclude from my observations that this process was occurring in the

categorisation of falls, but it is a reason for being cautious about the extent to which this behaviour is amenable to change.

Variation in classification - or diagnosis - can be used to justify clinical practice behaviours, if a fall was incorrectly categorised, then the need for a falls assessment may be missed and it may not have been viewed as non-adherence to Falls guidelines. Emergency Department staff could be assigning a diagnosis to match the management they want to implement; such a diagnosis may mean that they do not need to do a falls assessment, but do something quicker, for example, categorising a fall presentation in terms of a consequential injury and therefore treating the acute injury. Adjusting the terms used in categorisation of a fall may make it appear that there has been an improvement in adherence (Dixon-Woods, Leslie, Bion and Tarrant, 2012). Healthcare professionals could be better educated as to what constitutes a fall and how a fall presentation should be managed, although this might improve categorisation, but education alone is unlikely to overcome the tendency to allocate a category in accordance with the management the healthcare professional wishes to follow (see pages 249-253).

2. b) Communication and team-working:

Communication both between staff and patients and staff-staff member communication were equally important. Communication has the potential to be addressed with the support from seniors, educational interventions and/or support from cross-boundary services and the appropriate commissioning of services. Miscommunication may influence patient treatment. Communication with patients needs to be tailored to a patient's level of understanding in order to gain a fuller picture of events surrounding a fall. This could reduce some of the problems of relying on information from a third party such as a carer. A first-hand account of events allows for better patient-centred treatment. Fall guideline care was described as not being easy to follow unless a patient was willing to accept recommendations, had been seen to have had a fall, or had a recollection of the circumstances.

In some cases, although offered guideline care, patients were unwilling to co-operate with care recommendations, such as the suggestion of accessing outpatient facilities (a finding supported by Fortinsky et al. 2004). Some patients did not agree with care advice; although guideline care was offered it was not followed and/or accepted.

Whether or not a patient is receptive to guideline care may have an effect upon preventative techniques being recommended or employed as a method of Falls guideline adherence. Limited patient acceptance may reinforce the barrier related to attitudes towards guidelines. Healthcare professionals, who find particular recommendations are repeatedly not met by patients, may become accustomed to not employing such recommendations. Communication between staff and patients and staff-staff member communication may have had an impact upon care. Patient specific requirements need to be taken into consideration by healthcare professionals, in order to pick out which parts of the guideline care the patient would reap most benefit from and to try to increase patient adherence. Interventions to improve communication and teamwork therefore appear likely to be of value, although they would benefit from support from seniors and are not specific to the management of falls, and therefore I have classed this as a secondary determinant.

2. c) Organisational factors:

Some organisational factors are less amendable to being addressed, because of practical issues, and because they are not under the control of the Emergency Department. For example, it would be easier to address issues with accessing printed copies of guidelines, through gaining support from seniors, than it would be to address other determinants. Electronic access is affected by the current computer systems in operation, which is out of Emergency Department control. The busyness, the four hour target and availability of external resources such as medical records also cannot be changed within the

Emergency Department. It is also not practical to improve access to medical equipment and make structural changes to improve capacity.

However, Emergency Department efficiency could be improved; better organised departments, with all healthcare professionals recognising their role and the benefits of it, may perform better. The feasibility of addressing such changes in practice may be secondary to support from seniors. As illustrated in this research and my review findings, healthcare professionals need to be motivated to employ guidelines (supported by Paniagua et al., 2006, and Fortinsky et al., 2004). Juniors and seniors had different priorities; junior doctors would follow the seniors' guideline care, and care of patients who presented with a fall may have been viewed as less complex cases and more mundane in terms of treatment within the Emergency Department. The high frequency of older adult presentations and the view that such care was consequently mundane, may have led to comprehensive assessments not always being undertaken. It should have been recognised that older adult presentations were often complex, with patients not only presenting with injuries following a fall, but also with co-morbid illnesses. Although this was the case, it may not have been recognised; an individual patient's care, and care of patients across the department, were assessed and prioritised based upon immediate treatment recommendations. Initial triage assessments of patient care requirements influenced their subsequent treatment. When evaluating the benefits and drawbacks of specific care pathways, there were trade-offs between the departmental/treatment efficiency and guideline adherence. Conflicting prioritisation between individualised falls patient care, versus efficiency throughout the department, was viewed as a consequence of busyness. Healthcare professionals were assigned duties based upon clinical need across the department, not necessarily based upon an individual's care needs.

There were also problems due to lack of bed availability to treat patients, and increased length of time between when a patient presented and when they should be discharged. For example, an older adult presenting with a fall with a

potential neck of femur fracture would receive an X-ray as a priority. If a fracture was found then the treatment focus was on the acute problem (efficiency in dealing with the primary problem) and not necessarily based upon general falls care pathway recommendations described in the guidelines. With regards to care prioritisation across the department, an individual experiencing a cardiac arrest would need to be attended to immediately. This may consequently lead to less time or attention available for patients who were not viewed as displaying immediate concerns, such as falls patients. It therefore appeared that healthcare professionals used the targets as justification for skipping some guideline care; the focus was on meeting the departmental target for which they were being monitored, not meeting guideline recommendations.

The results revealed a possible influence of other departments within the hospital, effecting patient treatment and departmental efficiency. These related to service delivery across departments, and referral processes (supported by review papers included in my review: Youde et al., 2009; Russell, 2006; RCP 2006; Davidson, 2005; Close, 2003, and Close, 1999). A backlog of patients due to reduced bed availability for example, effected the functioning of the Emergency Departments and impacted upon treatment time, with implications for targets set within the Emergency Departments. A collaborative approach to care could be utilised by involving specialists in patient care, such as occupational therapists, physiotherapists and geriatricians, improving both patient care through a comprehensive assessment of care needs alongside improving departmental efficiency.

'Busyness':

The context of busyness was thought to influence the possible trade-offs between work efficiency and adherence. Healthcare professionals were used to working in a department where there were problems related to staff shortages and lack of treatment space, and had adapted to these conditions. However, adherence was poor as guidelines adherence was viewed as consuming time,

particularly within a busy department when there was little time to complete full assessments. As Kusin (2009) stated, healthcare professionals may feel anatagonised due to fatigue, a patient's possible misuse of resources and/or not being able to resolve patients' clinical problems, and this may lead to gaps in patient care.

Busyness across the department was a key influence on care, but it would be hard to manipulate this as a factor to improve adherence. Increased staffing and team-working, and improved Emergency Department care processes cannot influence the number of patient presentations, although it may help healthcare professionals to better manage patient care during busy periods. The cost implications of increased staffing is an important factor in considering the feasibility of increasing staff numbers in order to improve guideline adherence. The complex relationship between factors affecting adherence also needs to be considered. For example, factors such as education on guidelines and the influence of education on efficiency of team-working (all team members understand the guidelines) could affect adherence in busy periods. Hence a multitude of issues need to be overcome in order to have a reciprocal effect upon the consequences of busyness. Care systems external to the hospital might be more successful in improving care, and include sharing workload with general practitioners or the introduction of a specific falls service.

Access to resources:

The physical and organisational structure of the Emergency Departments was seen as an issue at both Town Hospital and City Hospital, in particular, lack of treatment space and the effect on communication between sub-departments. Changes in the organisational structure of the department in terms of staffing and new care pathways were enablers to Falls guideline adherence. As a healthcare professional highlighted, the structural design and the systems in the Emergency Departments may need to be altered in order to apply the guidelines. For example, providing electronic access to guideline recommendations was

seen as relevant at Town Hospital's Emergency Department. Extending the Emergency Departments' clinical treatment areas was seen as important at both sites, because the existing space restricted the time and space available for completing comprehensive patient assessments.

However, it could be impossible to put such changes in place because of the additional funding needed. In addition although some healthcare professionals thought that improved access to electronic resources, guidelines and standardised pro-formas would facilitate guideline adherence, other research evidence has been to the contrary (Gulley and Chan, 2013; Haase, Follman, Skipka and Kirchner, 2007, and Grimshaw et al., 2004).

Availability of medical notes:

Availability of medical notes influenced Falls guideline adherence (limited information as a barrier). However, the feasibility of overcoming this barrier is limited. Different processes or procedures in the Emergency Department would not, for example, be able to overcome the problem of a care home providing medical notes about a patient with dementia.

Targets:

Externally imposed targets are difficult for Emergency Departments to change. It has been established that the recommendations included in an audit are often given particular attention, possibly to the detriment of other care recommendations. Healthcare professionals can attempt to meet the audit requirements with the least amount of effort, and become accustomed to doing the minimum required to meet the assessment of guideline adherence (Courty and Marschke, 2003, and Dixon-Woods, Leslie, Bion and Tarrant, 2012). They may not necessarily come to understand the merit of following these guidelines; they may follow them purely because they are being monitored.

I observed that staff had to work in a pressurised target driven environment and often had multiple care responsibilities, treating several patients at once. The targets are set in order to improve the efficiency of care; but they often appeared to have the opposite effect. The assessments made the completeness of care depend on the amount of time available, not necessarily on what the patient required. This reduced overall efficiency and could potentially lead to repeat presentations. Aspects of care that are viewed as less of a priority are often side tracked in order for target times to be met (Dixon-Woods, Leslie, Bion and Tarrant, 2012; Paniagua et al., 2006, and Holmstrom and Milgrom, 1991).

The recommended quick pace of patient assessment to discharge time, means that guidelines are prioritised based upon not only the urgent care needs of the patient, but also in terms of how much time treatment consumes, and the needs of other patients in the department (supported by papers included in the review: Youde et al., 2009, and Paniagua et al., 2006). A full falls assessment is often viewed as an 'added bonus' in the treatment of a falls presentation.

Conversely, feedback unrelated to external targets on healthcare professionals' clinical treatment was viewed as being an important motivator to encourage adherence to Falls guideline care. Feedback could also help educate healthcare professionals and possibly change their attitude towards adherence to the guidelines. Feedback may help to overcome potential issues within the department such as healthcare professionals' reluctance to change old behaviours. It may prompt reflection on the experience/s of the practicalities of utilising guidelines. Direct feedback from authoritative healthcare professionals working within the Emergency Department could strengthen impact.

2. d) Staffing and consistency of care:

When communication between departments was poor, breakdowns in delivering aspects of care were prone to occur. The large numbers of staff

employed within the Emergency Departments often meant that healthcare professionals worked with a variety of staff across shifts, and this influenced team-working. Also, individuals working together may have had different attitudes about Falls guideline care. Due to the large numbers of staff it would not be feasible to address this determinant in ensuring consistency in teams working together. Communication amongst the staff was both described and observed as influencing care; team-working could be influenced by the staff rota and the efficiency of staff-staff member communication. Care may be dependent on how influential a healthcare professional is. I.e. if a healthcare professional is influential, then their recommendations may be more likely to be followed. If one healthcare professional did not see the merit of Falls guidelines, then the information, ideas and guideline recommendations may not necessarily be spread to others (this could be within and across hospitals as well as solely within the Emergency Department).

Changes in staff could also be a barrier. In Town Hospital's Emergency Department in particular, there were often staff shortages, 'bank staff' being commonly brought in. There were also a large number of locum doctors working in Town Hospital's Emergency Department. I observed that they had limited awareness of local procedures, hence there were inconsistencies in knowledge about particular site-specific processes in place. They required support from permanent staff, therefore the guidelines which were followed by these healthcare professionals were those that were prioritised in the department.

Time was spent showing such staff the procedures to follow, and because of limited time they often omitted detailed guidance of the fall care pathway. The bank staff/locum's patient care was influenced by the information relayed by permanent staff, about their allocated role in the specific department. However, they needed a comprehensive understanding of NICE Falls guidelines, in order to adhere to recommendations in varied Emergency Departments. The specific processes employed in a particular Emergency Department may help or hinder Falls guideline adherence, dependent on whether there is a positive level of

communication and team-working amongst staff. Bank staff/locums may model permanent staff behaviour; hence guideline adherence by such team members may help or hinder adherence across the department as a whole, dependent upon whether site-specific healthcare professionals adhered to guideline care.

It should be recognised however, that consistency of team members does not guarantee consistency of definitions and the effective communication that follows. Teams that were well led and managed were more likely to have settled on agreed terms and definitions, which was a means to produce consistency in patient care. A key enabler to Falls guideline adherence could be to ensure such inconsistencies are diminished through healthcare professionals receiving training. In addition to ensuring accuracy when defining and categorising a patient's presenting problem (i.e. a fall), there also appeared to be a need for consistency in how a patient was coded on the computer system. Sometimes patients were coded in terms of the event precipitating the visit to the Emergency Department, for example, a fall from a wheelchair, or in contrast in terms of what they presented with, for example, a broken nose. Consistency in team membership helped to promote uniformity in care. Thus, a team that was used to working together and had shared an appropriate definition of falls, was better placed to follow the guidelines. Furthermore, the risk of miscommunication in inconsistent teams may be reduced.

Are Falls guidelines practical for use in an Emergency Department?

My findings have emphasised the need to consider not only what the barriers and enablers to Falls guideline adherence (determinants of practice) are, but whether the reason that it is hard to adhere to Falls guidelines is due to them having been developed in a way that is not practical for use in Emergency Departments. In this section I discuss whether other approaches should be considered when providing emergency care for older adults who present with a fall. In order to reflect upon this, the characteristics of emergency medicine and

the characteristics of the older adult patient population need to be taken into account.

Emergency medicine may not function in the idealistic way the IFEM (2008, 2012) describes (pages 42-43), hence the feasibility of following guidelines may need to be reviewed based upon an accurate understanding of the individual Emergency Department's barriers and enablers (determinants of practice). An assessment needs to be made with regards to an Emergency Department's actual functioning (a realist view), not in terms of the idealist view of emergency medicine's organisational processes, roles, and responsibilities. An assessment of guideline relevance needs to be based upon observations of an Emergency Department's day to day functioning, not upon the concept of emergency medicine, and a care system needs to be developed that is tailored to departmental need. Emergency Departments may be thought to be too busy, and serving too wide a range of patients, for them to be a suitable place for full assessment following a fall to be undertaken. This is a decision that an organisation such as a Hospital Trust or Clinical Commissioning Group (CCG) might make.

The Emergency Department could fulfil the role of a gatekeeper, in that rather than a source of general medical care, they recognise the need for falls assessments and refer patients to services that are better equipped for Falls guideline adherence. A re-design of service delivery with a collaborative approach to care may lead to streamlined referrals and a more comprehensive falls assessment, and would benefit the patient and reduce pressures upon Emergency Departments (RJA, 2012, and Department of Health, 2010). This may help to ensure that a patient gets comprehensive care even if an Emergency Department cannot match all Falls guideline care expectations. This approach reflects the consideration above of the role of the determinant of cross-boundary care, but rather than using a new care pathway to improve adherence in the Emergency Department, it is used to direct care away from the Department.

Conclusions:

In this chapter I have addressed aspects of research questions four and five. The determinants of practice have been tested in discussion against criteria of importance of effect on care and the extent to which they are amenable to change, in order to identify those that could be given priority in interventions to improve adherence.

I conclude that interventions to improve adherence should include taking advantage of the influence of authoritative seniors, the use of educational and training approaches tailored to the busy context of Emergency Departments, and improving collaboration and communication across boundaries with other departments and services. An alternative approach could involve the creation of new, or referral to existing, alternative services for delivery of Falls care.

In the next chapter I discuss the strengths and limitations of the research reported in this thesis, and in the final chapter (Chapter Eight) I consider the findings for practice and further research.

Chapter 7- Methodological issues - strengths and limitations:

In this chapter I present the methodological issues that should be considered when interpreting and drawing conclusions from the research findings. My discussion includes the following topics:

- The characteristics of the researcher - Knowledge bias.
- Sampling bias and data saturation.
- The Emergency Department as research setting.
- The practicalities of conducting research within an Emergency Department – Recruitment issues and the consent process.
- The data collection and analysis methodology – Observation research methodology, Semi-structured interview research methodology and Framework analysis methodology.

Characteristics of the researcher:

Knowledge bias:

I am a postgraduate student with a background in Psychology and Health Psychology. I am not medically trained and this may have implications for my interpretation of the findings.

It is a positive that I have no medical training in that I am less open to bias in my interpretation of events. On the other hand, when completing my checklist on whether guideline recommendations were being met, I would have had a better understanding of what tests were being conducted with which equipment was being used if I had medical training. For example, I know what an ECG is, but I do not know how the findings were or should have been interpreted and used to influence patient care. I could only observe what happened and was not

aware of what should have happened in terms of the management of a specific patient's care. On occasions, it could have been justifiable for a healthcare professional to deviate from following the Falls guidelines, based upon the details of test results, but I would not have known this.

In addition, my lack of medical knowledge initially made it harder for me to adapt to researching within the Emergency Department, as it took me time to become accustomed to different healthcare professional roles and responsibilities. For example, I could have noted observations specific to healthcare assistants' roles or nurses if I had been able to identify them by their uniform from day one.

Conducting research within an Emergency Department:

Sampling:

Convenience sampling in both observation and interview research had its strengths in that it allowed recruitment of a variety of individuals within the Emergency Department. This allowed representation of individuals from a variety of demographic groups, i.e. different job roles, gender, ethnicity, age. The variety of participants enhances the transferability of the findings. However, on a couple of occasions older adults presented unaccompanied or without personal consultees and the nominated consultee was not available at that particular time due to the busy nature of the department, this led to patients from care homes having to be excluded on a couple of occasions, reducing variation in the patient sample. In hindsight it may have been better to have assigned the nominated consultee role to more than one individual.

Additionally I was unable to recruit as wide a range of healthcare professionals in the observation study as I anticipated. There was not as much variation in job roles as I would have liked with the majority of those recruited being doctors (*Table 31).* This was mainly due to patients requiring a 15 minute

thinking period before consenting to observations, the time in which nurses and other healthcare professionals conducted initial assessments; their assessments had ceased before permission could be granted for observations to take place.

Secondly, with recruitment being voluntary, it could be argued that a certain type of healthcare professional volunteers to participate in a study. Someone who intentionally does not follow guidelines may be less likely to volunteer to participate in research, as they may lack interest in the research or be concerned about possible repercussions if they are shown to not follow guidelines.

A general consideration is that, as has been shown in this research, contextual issues influence care processes. Therefore, it must still be recognised that individual episodes of observation and interviewee responses cannot be used to provide a generalised theory of Falls guideline adherence behaviours that can be applied to all emergency care contexts. The specific findings should not be generalised to other Emergency Departments, that is, different determinants may well be dominant in other Departments, although the underlying principle - that determinants affect practice - is more readily generalisable.

Sample size also needs consideration. In qualitative research it is often assumed that large samples are not as important as in quantitative research where statistical significance of findings is being investigated. However, there is debate on what an adequate sample size for qualitative research should be and that a small sample size may limit the generalisability of the findings (DePaulo, 2000, and Morse, 2000). The inclusion of a larger sample of Emergency Departments would have increased generalisability to all Departments in England, but the use of a large sample was not feasible in this thesis.

In future research, a quantitative study may be used to investigate the prevalence or importance of determinants perceived by healthcare

professionals. A qualitative sample needs to be large enough to make sure that researchers hear about/observe the majority of possible opinions or behaviours that could be of importance to the topic under investigation (DePaulo, 2000). The inclusion of 30 participants has been claimed to be a good starting point for conducting in-depth interviews, provided the sample is selected to ensure a range of individuals (Ritchie, Lewis and Elam, 2003; Creswell, 1998; Morse, 1994, and Griffin and Hauser, 1993). In the case of this research 30 participants were recruited, selected to ensure a range of individuals (DePaulo, 2000)

Saturation is an important element in qualitative research when determining sample size (Mason, 2010). An adequate number of participants is reached when data saturation occurs, indicated by repetition of interview responses, and repetition of observation findings. The practicalities of data saturation are recognised by researchers, and in some cases it may not be reached during limited time frames and the requirement of ethic committees for researchers to provide sample sizes at research outset (Green and Thorogood, 2009). Data saturation appeared to be reached in the interview research findings in this study as the same opinions were raised on repeated occasions. The same was true of observations, in that the same care pathways were observed for individual cases and care was observed in both busy and quiet time periods with similar care processes being adopted. However, no cases were identical so it could be argued that a much larger number of episodes of observation could have taken place in order to further investigate adherence to guidelines and patient care in a greater variety of scenarios. This was not feasible within the scope of this research due to the time each individual episode of observation took. A larger range of observations may have taken place in a study with more resources, and more researchers present and over a longer time period in order to investigate whether there were seasonal influences upon guideline adherence, such as greater adherence during the winter when footpaths were covered in ice or snow (observations took place between September 2011 and March 2012).

The Emergency Department as a research setting:

It is recognised that the Emergency Department is a first contact service that is different to other healthcare sectors. Emergency Departments are busy, receive patients with a wide range of conditions, and often have to undertake the initial assessment and management of patients with life threatening problems, before handing patients on to other hospital departments (i.e. Admission - the Emergency Department is a key path to admissions).

Conducting a range of observations and interviews at each site allowed insight into the day-day functioning of the Emergency Department and how this influenced Falls guideline adherence. Research question four (What influence does an Emergency Department context have upon adherence behaviours?) was initially asked to differentiate the barriers and enablers (determinants of practice) inherent to the functioning of the Emergency Department - its context. However, in adopting the tailored implementation approach it emerged that there was an overlap between the terms 'context' and 'barriers and enablers'. The checklist developed by Flottorp et al. (2013) included categories of determinants that could be used to include the barriers and enablers (determinants of practice) typical of Emergency Departments. My research questions were set prior to the adoption of the Tailored Implementation Model and therefore, in order to remain consistent with the research questions and distinguish between the ideas of determinants (i.e. barriers and enablers) and context, I defined context as those determinants arising from the key functions and related characteristics of Emergency Departments. For example, busyness was described under my definition as a contextual factor, although it may also be found amongst the determinants of practice in Flottorp et al.'s (2013) checklist.

As noted in the introduction, the Emergency Department was chosen as the research setting due to it being a department in which a significant number of falls patients present. The research investigated the level of adherence to the Falls guidelines and potential ways in which adherence could be improved.

Although of interest, patient care could not be observed outside Emergency Departments because of practical resource restraints. Focus on two departments allowed more in-depth observations of the functioning of these Emergency Departments and the influence of determinants such as Emergency Department processes.

There were also methodological issues related to the location of observations. A key issue was that when a patient was referred to another department (rather than discharged from the hospital), it could not be predicted where a patient would be referred to. Informed consent to observation of care could not then be gained from healthcare professionals who worked in the departments that patients were transferred to. In order for observations to take place, the necessary consent procedures had to be followed, but with referrals being unpredictable it was not possible to do this. In addition, ethics committee approvals would be required in order to recruit individuals from numerous departments, but this was not practical.

Additionally, periods of observation within the Emergency Department were lengthy; if care was followed up post-discharge, then it would not have been feasible for one researcher to conduct observations from hospital presentation to discharge.

Recruitment issues:

There were practical issues that arose when conducting both phases of research in the Emergency Department (the method of data collection is described in Chapter Three pages 114-138). Unpredictability of presentation was a recruitment issue in the observation research, a 'hope and wait approach' had to be adopted when recruiting potential participants for observation. As an episode of observation of patient care could last over four hours, it was decided that I would wait for a maximum of three hours for a potential participant to present at the Emergency Department and therefore an episode of observation

in the department could last over seven hours, including waiting time and observation time. As only one researcher was available this was the only time feasible, as I had to be present to observe every aspect of care for the whole time the patient was in the department.

Obtaining consent:

In order to meet the requirements proposed by the ethics committees, informed consent was obtained from all the healthcare professionals who participated, and from patients (or consultees on their behalf). A flow-chart of the process for gaining approval for the study from the Research Ethics Committee (REC) is given in Appendix 36.

Patients:

Before data collection, capacity to consent was a recognised issue to consider when recruiting participants from within the older adult age group; however, other factors that were not previously considered caused challenges. For example, a patient who presented with a fractured arm could not sign a consent form. Likewise, a patient may be in an uncomfortable position on a bed or trolley and therefore be unable to sign a consent form. In addition sight and hearing impairments meant that some patients could not understand information either shown or read to them. In some cases patients were in too much pain to be approached about the possibility of observing their care. This led to bias in that treatment of such presentations was less likely to be observed.

A further issue regarding patient recruitment was that some healthcare professionals were unable to provide advice as to whether they thought capacity to consent could be obtained when a patient was in a confused state but did not have a diagnosis of dementia. If there were any doubts regarding capacity to consent and a nominated consultee appeared unavailable, then the patient was not approached.

Variation in healthcare professionals' definition of a fall was as much of an issue as their opinion regarding capacity to consent. As noted in the findings, a fall definition may influence adherence, but it also influenced participant recruitment processes. Some healthcare professionals coded a fall as distinct from a collapse as they did not view a loss of consciousness (although involving a fall to the ground) as a fall. Variations in coding meant that a patient viewed as appropriate based upon the NICE guidelines definition of a fall (pages 24-25) was not approached to avoid giving the impression that the healthcare professional's opinion was being undermined. The patient may be made to unnecessarily feel that they should have concerns about their treatment as they had not been fully informed by a healthcare professional about all aspects of their required care. On all occasions, if there was any concern about a patient's suitability as a potential participant, then they were not approached.

In addition patients could only be approached after they had been identified as an individual who had fallen; patients had received initial assessments in order for their care to be triaged. As potential participants had to be identified based upon healthcare professionals' definitions, such assessments were often missed, as a patient was not coded on the records as having fallen (and hence not approached), until such an assessment had been conducted. In addition, there were gaps in episodes of observation due to missing care received during the 15 minutes uninterrupted 'thinking period', the time a potential participant was given in order to consider whether they consented to their care being observed. Consent to access clinical notes was obtained in order to try to reduce gaps in the data collected. However, the notes may have been biased. For example, the key indicators of adherence that were being observed and recorded by the researcher may have or may not have been recorded by the healthcare professionals. It was hard to tell whether guideline care was adhered to purely based upon what was written in clinical notes; clinical notes only provided a selective summary of care. Gaps in data collection were particularly frequent when the Rapid Assessment Triage system was implemented at Town Hospital, where 12 out of 15 planned episodes of

observation were conducted. Three episodes did not take place because it was not feasible to recruit individuals when they were moved quickly, and neither healthcare professionals nor patients could be approached and provided with a thinking period before consenting.

Healthcare professionals:

When it was busy it was hard to gain the necessary signed consent for observation from healthcare professionals. If a healthcare professional could not be approached and sign consent forms before treating a patient, then the care of the patient could not be observed. It was more practical to speak to a healthcare professional and gain their consent to participate when the department was quiet, but quiet times coincided with fewer potential participants presenting. When it was busy it was hard to gain written consent from healthcare professionals, but when it was quiet it was hard to recruit patients, leading to delays in recruitment. For example, part of one patient's care was not observed due to them being moved to and treated in the Resuscitation department. They were treated before consent could be gained from the healthcare professionals initiating their care. On another occasion, healthcare professionals could be spoken to, but there were no appropriate patient presentations. In addition, patient waiting times influenced whether patients were happy to consent to participation. If patients had long waits in an ambulance queue they were often not interested in participating as they lacked motivation or were too tired to read and consider the information they were presented with.

Another issue with regards to healthcare professional consent was that bank staff/locum healthcare professionals had not seen the research information leaflet before recruitment took place. They were therefore unable to consent as there was no opportunity for them to complete the 24 hour thinking period. A related problem was that even if they were avoided as potential recruits, they may have later treated a patient being observed after data collection had commenced, and the care they provided could still not be observed and

recorded. In this case, data had to be extracted from clinical notes. Ideally all healthcare professionals who treat a patient should agree to being observed in order to remove bias in extracting data from clinical notes (patient permission was required in order to do so).

The ethics of informed consent in observation research and other qualitative research methods has been the subject of debate as it is not always achievable in terms of some of the regulatory rules that take clinical research as the standard. Research transparency (openness about the nature of the research Ball, 2009); is often not possible and researchers do not have full control over the research, factors that are fundamental in obtaining ethics approval. In clinical research by survey, for example, it is possible to state in advance what participation in the study may involve, but this is not the case in observation (or ethnographic) research, and this is one of the reasons why, when compared to experimental research, this methodology can be viewed with concern (Pollock, 2012, and Murphy and Dingwall, 2007). Murphy and Dingwall (2007), however, argue that there are fundamental differences that should be recognised.

Observation research has particular characteristics including relatively long periods of involvement in the research, and a semi-public nature in which people move in and out of the research setting. For example, a variety of individuals may be observed in a single Emergency Department and the decision on who should be approached for consent in order to make notes may not be clear (Drew, Hardman and Hosp, 2008; Murphy and Dingwall, 2007; Creswell, 2005; Denzin and Lincoln, 2005, and Mulhall, 2003). In addition, in observation research some ethical concerns may not be anticipated and accounted for before data-collection, but instead become apparent during the research. For example, unforeseen psychological issues may become apparent, and therefore participants need to be treated with respect and provided with access to any support they may need.

In observation research, the focus and design can evolve during the study, and consent is necessarily limited and tentative (Murphy and Dingwall, 2007, and O'Neill, 2002). Some researchers have suggested that waivers of consent should be considered in observation research where obtaining consent is impractical. Hospital research is an example of such circumstances (Lertsithichai, 2005).

In the course of studies, the ethics of investigation can be reliant upon the judgement of the researcher, and therefore researchers need to continually interrogate the research process (Pollock, 2012 and Mulhall, 2003). In order to take potential issues with informed consent into consideration, research needs to be conducted as overtly as possible, minimising distress and disruption caused to an individual (Murphy and Dingwall, 2007).

As various authors note, there are differences between observation and clinical research, and it has been argued that a rethink of traditional ethics approval governance as applied to observation/ ethnographic research is required (Murphy and Dingwall, 2007). This would enable such governance to become more fit for purpose.

How the consent process could have been handled differently:

Although not all issues with consent could be overcome, for example, the unpredictability of bank/locum staff attendance, taking the above into consideration, consent may have been obtained more easily through adopting the following techniques:

- Observation study – Saving time by liaising with ambulance staff whilst patients awaited bed allocation, in order to provide patient information leaflets to those they deemed appropriate to approach. Such patients would be provided with information leaflets but no further action would be taken if the healthcare professional who was responsible for their care did not define the presentation as a fall, or consent to participation. There may

also be the possibility of delaying written informed consent to a period in which a patient or healthcare professional may be more easily approached to complete a consent form, such as after initial in-depth assessments (Royal College of Nursing Research Society, 2011).

- Observation study – Explore other routes to obtaining patient consent without the physical need for a signature from those unable to sign. E.g. signatures of behalf of patient by a relative (not just in the case of filling the role of a personal consultee) and obtaining oral consent through audio-recording if individuals were illiterate or not physically able to sign a consent form (World Health Organisation, 2014).
- Both phases of research – considering the possibility of justifying a shorter thinking period for staff to consider research participation. This would allow for both providing information to staff and obtaining consent from them on the day of data collection. This would allow more flexibility in recruiting interviewees in quiet periods and recruiting staff who were treating falls patients. A data collection opportunity would not then be missed purely because a healthcare professional had not accessed the information leaflet 24 hours in advance (the assigned thinking period for this study).

The data collection and analysis approaches:

The methods adopted when conducting this research have both strengths and limitations with regards to the quality of data produced. There are strengths and limitations specific to the individual methods of data collection (observation research and semi-structured interviews) and the framework analysis approach, and these are discussed individually.

Observation research methodology:

I adopted observation research methodology as it has its strengths in being free from bias from self-report and applicable for use in a variety of

contexts (University of Strathclyde, 2014b, and MBA, 2013). I utilised these strengths through making live notes at the time of observations in a variety of data collection scenarios.

However, as in the case of the procedure for obtaining consent, observation research may not always provide comprehensive data and data analysis can be limited by gaps in the observation data collected; I reduced gaps by accessing patients' clinical notes, however, these notes did not provide as much information as when I observed care first-hand. The study was not an in-depth ethnographic study. It is argued by some researchers that ethnographic research, where a researcher collects, describes and analyses how individuals categorise meaning in their world and how their experience molds their behaviour (Holloway and Wheeler, 2002, and Aamodt, 1991), provides more in-depth data as the researcher immerses themselves in the culture and records extensive field notes. Ethnographic research does so with a variety of methods, including detailed observational methods (Clough and Nutbrown, 2008; Delamont, 2007, and Trochim, 2006).

I chose to adopt observation methodology as I was conducting observations of individual episodes of patient care as well as Emergency Department overall function and ways in which the context influenced adherence. As I was doing so I could not make extensive field notes about what was happening across the whole Emergency Department culture.

Secondly, data collection was being conducted in conjunction with semi-structured interviews; such triangulation of research strategies improves credibility (Holloway and Wheeler, 2002; Robson, 1993, and Guba and Lincoln 1985). In interviews, the whole data collection session is recorded and all data can be analysed. Using both approaches allowed me to explore both what I observed and what individuals described to be determinants of practice when adhering to Falls guidelines.

I recognised that pre-conceived ideas may influence interpretation (see ’characteristics of the researcher’ pages 267-268) and in order to try to reduce observer bias I tried to be receptive to all observations, ensuring that I noted all events that occurred, not just those that related to a priori theories. I also accounted for contextual factors that may have interplayed with findings, for example how busy the department was. In order to try to make notes about all of the care a patient received, I also familiarised myself with the layout of the departments and the care systems in place prior to data collection.

A weakness of observation data collection is that it is time-consuming (University of Strathclyde, 2014b), and I often spent long periods of time in the Emergency Department awaiting patient presentations and observing approximately four hours of patient care (see ‘Recruitment issues’ pages 272-273). I did not want to let any fatigue lead to gaps in recording observation notes and therefore I only conducted one episode of observation on each Emergency Department attendance.

The Hawthorne effect, where there are changes in the behaviour of individuals as a result of being observed (Wickström and Bendix, 2000), may also have occurred. Healthcare professionals may have treated patients differently to how they would have done if I had not been present. Healthcare professionals may know the Falls guideline recommendations and adhere to them when being observed, but not on other occasions. The interview phase of research helped to shed light on what healthcare professionals knew about guidelines and whether they believed they adhered to them, and if not why not. The combination of techniques allowed a comparison of what I observed of adherence behaviours and the healthcare professionals’ views on adherence patterns. A comparison could then be made and conclusions drawn with regards to researcher perceived barriers and enablers- determinants of practice- (developed from observation research) and ones that interviewees stated.

Semi-structured interview research methodology:

The interview phase of research allowed comparisons of individuals' thoughts with what I observed. The interview process provided rich data through allowing an exploration of topics that arose during interviewer-interviewee discussions. In the observation research, clarification of events and clinical notes could not be sought, because the patient's care could not be interrupted; hence individual interpretations were made if I was unsure of something. The interview research offered the opportunity to gain clarification about participant responses, through communicating with the individual participant.

However, with regards to interview data collection, the main issue was healthcare professional availability. It was hard to find situations in which a healthcare professional was able to allocate time away from their clinical workload in order to be interviewed, in addition when individuals were interviewed, interview sessions tended to be shorter than initially anticipated, possibly because of the busy nature of the department. The complete interview schedule was covered, as on occasions interviewees answered what would be a follow-up question in their initial response to a preceding question, but the interviewees may have had the busyness of the department in the back of their minds and shortened their responses as they felt the pressure to go back to the department and support their team members. Healthcare professionals' responses were not cut short, but more time available would have allowed additional exploratory questions to be asked.

In addition, although I practiced conducting my interview with fellow students in order to feel confident in asking questions and reacting to interviewee responses, I did not pilot the interview with healthcare professionals. With hindsight it may have been of benefit to have done so as I may have been better able estimate the length of responses to questions and make best use of the time available. If thought necessary, an amended interview schedule could have been submitted for review by the ethics committee. However, it should also be taken into consideration that waiting for approval for any amendments may have led to

delays in interview data collection, this should be recognised when deciding whether to conduct a pilot.

Another weakness with the use of semi-structured interview methodology is the bias that can be made when analysing the data, the researcher overlooking information that does not fit with their initial expectations. However, utilising the framework analysis approach helped to overcome this through exploring both a priori areas of interest (those in the interview schedule) and newly developed themes. In this case not having a medical background was of benefit as this allowed a more generalised assessment of data.

Framework analysis methodology:

The strengths which are outlined below have been mentioned in the methodology chapter where I described how I decided on my methodology (pages 132-133). Here they are summarised alongside the weaknesses of the framework analysis approach.

Framework analysis allows for a large data set to be organised and reduced systematically (Gale et al., 2013; Smith and Firth, 2011; Lacey et al., 2009, and Pope et al., 2000). It does so whilst remaining comprehensive and allowing for in-depth data extraction and interpretation (Gale et al., 2013, and National Centre for Learning, 2012).

Incorporating both between-case and within-case analysis is a way in which framework analysis provides a comprehensive approach to data interpretation (Gale et al., 2013, and Ritchie and Spencer, 1994). Charting allows close attention to be given to describing data, which provides a basis for more detailed stages of interpretation. It allows for a clear audit trail to be produced, meaning that it has the benefit of providing a quick way of tracing themes back to data, for example, providing an illustrative verbatim extract for a theme (Gale et al., 2013).

However, there are two potential reservations. Firstly, it has been noted that researchers need to ensure that they are always reflective and are not drawn off course by a priori theories (National Centre for Learning, 2012). I think this was less of a concern with my interpretation as I am less biased in my knowledge of the functioning of an Emergency Department and falls management than a researcher with clinical expertise in this field (see 'Characteristics of the researcher' pages 267-268).

Secondly, it has been noted that a weakness of framework analysis is that its comprehensive approach makes it time-consuming (National Centre for Learning, 2012). I did not find this to be problem, because this research project has been my sole focus and I have not had to conduct in-depth analysis of other data at the same time. Therefore, I believe the benefits of the framework analysis approach outweigh the limitations.

Key points from the above description are laid out in *Table 36* below:

Table 36- The strengths and weaknesses of the framework analysis approach:

Strengths	Weaknesses
• Comprehensive (Gale et al., 2013). • Recognised technique for producing practice-orientated findings (Gale et al., 2013, and Bleijenbergh et al., 2010). • Allows an interpretation of a large data set (Gale et al., 2013). • Data are organised but reduced (National Centre for Learning, 2012). • Systematic (Gale et al., 2013) • Includes both between and within-case analysis (Gale et al., 2013, and Ritchie and Spencer, 1994). • Charting allows a description of data ready for interpretation (Gale et al., 2013). • Clear audit trail in which to evidence themes (Gale et al., 2013). • Flexible nature not tied to a theoretical approach (Gale et al., 2013).	• Time consuming (National Centre for Learning, 2012). • Analysts can sometimes be drawn towards a priori theories more than bottom-up data interpretations (National Centre for Learning, 2012).

This chapter has discussed the methodological issues that need to be considered when interpreting the findings. The strengths and weaknesses of the data collection and analysis techniques have been presented. In Chapter Eight I draw together conclusions, and recommendations are made regarding the care of older adults who present to an Emergency Department after having experienced a fall. I also present further research recommendations

Chapter 8- Conclusions, recommendations and implications:

This chapter draws together all of the research findings in order to discuss what my research adds on overcoming barriers to Falls guideline adherence, making recommendations about improving care of older adults who fall, and recommendations for further research into this topic. The research included a review of studies on adherence to guidelines on the management of falls in Emergency Departments, the use of observation and record review to investigate the levels of adherence in two Emergency Departments, the use of observations and interviews to investigate the determinants of adherence, and a structured discussion to draw out the determinants and interventions to address them that are most likely to lead to improved adherence.

The Emergency Departments' ability to change:

Adherence to Falls guidelines in the two Emergency Departments investigated in this work was unsatisfactory (see Chapter Four pages 139-165). A variety of factors have previously been identified as determinants of Falls guideline adherence, and these have been highlighted by NICE (2007) (page 41), and within the review findings (pages 61-104). The observation and interview studies in two Emergency Departments investigated the determinants in more detail, and suggested that an intervention incorporating collective agreement amongst seniors, education, and system improvements to care of patients across services has potential.

How my findings fit with models of adherence:

Cabana et al's (1999) and Flottorp et al.'s (2013) models of adherence suggest that physician/healthcare professional, external, environmental, guideline and patient-related factors influence adherence. Also, adherence is thought to be influenced by professional interaction, resources, capacity for

change and social, legal and political factors (pages 35-38). My findings show that Falls guideline adherence is related to these determinants of practice, alongside others (see 'What my research adds' pages 288-296). Examples of how my findings fit with a tailored adherence and implementation model are provided below:

- **Falls guideline-related factors:** Ease of use within an Emergency Department (e.g. the problem of accessing and using multiple guidelines).
- **Healthcare professional-related factors:** Knowledge of the Falls guidelines (e.g. the definition of a fall).
- **Patient-related factors:** Adherence to recommendations.
- **Professional interactions:** Communication and team-working.
- **Incentives and resources:** Availability of resources.
- **Capacity for the organisation to change:** Staff and department's ability to change.
- **Social, legal and political factors:** Targets.

My findings offer a way in which Flottorp et al.'s (2013) model can be expanded so that it also accounts for the following determinants of practice:

- **Categorisation of a condition/presentation (by a healthcare professional):** This can be added to Flottorp et al.'s (2013) model as an additional healthcare professional-related factor determining Falls guideline adherence. How a Fall was categorised influenced the care pathway a healthcare professional followed and was used as a justification for varied clinical practice behaviours.
- **Busyness:** This can be added as an additional determinant of practice related to the capacity for an organisation to change. Busyness was thought to influence trade-offs between work efficiency and Falls guideline adherence.

- **Staffing:** This can be added as an additional determinant of practice related to the incentives a department offers and the resources they have available to assist Falls guideline adherence. Variation in staff working together (both permanent staff and bank staff) and staff shortages influenced team-working, staff communication and the staffs' ability to adhere to guidelines. Variation in staff also led to variation in attitudes and behaviours with regards to Falls guidelines. The attitudes of senior staff were particularly important as their opinions on the importance of Falls guidelines was relayed to more junior members of staff.
  Staffing also influenced consistency of care patients receive.
- **Consistency of care:** This can be added as an additional determinant of practice related to the category 'professional interactions'. Variation in staffing, their communication, their attitudes and behaviours, and their awareness of Falls guidelines influenced care pathways staff followed and consistency of care.

The expanded checklist of determinants of practice would be as follows:

- **Guideline-related factors** (e.g. characteristics, strength of evidence, usefulness).
- **Healthcare professional-related factors** (e.g. knowledge, characteristics, categorisation of a condition/presentation).
- **Patient-related factors** (e.g. patient needs, adherence).
- **Professional interactions** (e.g. peer influence, communication, teamwork, consistency of care).
- **Incentives and resources** (e.g. availability of resources, support, organisation's readiness, monitoring, staffing).
- **Capacity for the organisation to change** (e.g. constraints, readiness, management, busyness).
- **Social, legal and political factors** (e.g. targets).

What my research adds:

My aim was to explore and provide insight into the following research questions, through studying adherence to the NICE (2004) Falls guidelines when older adults present to an Emergency Department:

1. When and why do healthcare professionals deviate from or adhere to the clinical practice guidelines in the management of falls?
   (Findings from the literature review and observation studies –Chapters Two, Four and Five).

2. What are barriers and enablers to adherence (determinants of practice)? *(Findings from the literature review and the observation and interview studies- Chapters Two, Four and Five).*

3. What methods of falls management do healthcare professionals practice when not following the NICE clinical practice guidelines?
   (Findings from the literature review- Chapter Two and from the observation and interview studies- Chapters Four and Five).

4. What influence does an Emergency Department context have upon adherence behaviours?
   (Findings from the literature review, the observation and interview studies, and the structured critique to prioritise the determinants to address in interventions- Chapters Two, Five and Six).

5. How can issues regarding adherence to Falls guidelines within an Emergency Department be addressed?
   (Findings from the literature review, observation and interview studies, and the structured critique to prioritise the determinants to address in interventions- Chapters Two and Six).

A summary of the review findings/ research findings/ chapters addressing each of the research questions are provided in *Tables 37- 42.*

Research question one- When and why healthcare professionals deviate from or adhere to the clinical practice guidelines in the management of falls?

Table 37- Levels of adherence and deviation from guidelines.

Study	Levels of adherence	Possible reasons why
Review findings		
Synthesis of papers' findings (pages 99- 101)	- Adherence variable. - Variation in the way in which care is managed. - Gaps in care. - Prevention opportunities being missed. - Poor co-ordination of care.	- Lack of physician availability. - Lack of awareness of guidelines. - Poor access to referral services. - Varied opinions on best practice.
Observation research	- Adherence variable. Levels of adherence *Table 32 (page 149)*. Examples of guidelines being adhered to (pages 155-1643).	See *Table 38*

Research question two- What are barriers and enablers to adherence (determinants of practice)?

Table 38- Barriers and enablers to adherence.

Study	Barriers and enablers (determinants of practice)
Review findings	
(Synthesis of papers' findings- pages 102-104).	**Barriers-** - Lack of physician availability. - Lack of physician awareness. - Poor access to referral services. - Varied opinions on best practice. **Enablers-** - Streamlined referrals and redesign of service delivery. - The use of empirical data to reinforce fall management techniques.
	Staff- patient communication.

Observation and interview research.	Patient acceptance of recommendations.
	Staff-staff communication.
	Categorisation of a fall.
	Prioritisation of care needs.
	Busyness of the department.
	Functionality of the department.
	Variation in care pathways / consistency of care.
	Targets.
	Access to resources.
	Education – What is a Fall? Understanding of guidelines.
	Variation in staff / staffing levels.
	Staff attitudes / support from seniors.
	The impact of a patient's previous experience.
	Cross boundary care- Cross-boundary care refers to the care a patient receives for their fall before and/or after Emergency Department presentation.

Research question three- What methods of falls management do healthcare professionals practice when not following the NICE clinical practice guidelines?

Table 39- Examples of practice.

Study	Examples of what healthcare professionals did
Examples from the review findings	
Fortinsky et al. (2004).	More likely to refer patients who had balance/ gait impediments.
Donaldson et al. (2005).	(If referred) more frequently referred to family practitioner or a physiotherapist than a falls clinic.
Salter et al. (2006).	Discharged with no further instructions and presented with a repeat fall.
Paniagua et al. (2006).	Did not always explore falls history.
Kalula et al. (2006).	75% referred onto other services, but insufficient management before-hand.
RCP (2009).	Displayed poor co-ordination of care.
Youde et al. (2009).	Provided inconsistent care.
Observation study / interview study	Prioritisation of individual care needs- treatment of acute injury such as a fracture.
	Referral to another department or team. E.g. stroke care team, physiotherapists, fracture clinic, surgery.
	Categorised a fall in terms of the acute injury. E.g. coded it on the computer as 'head injury'.

Research question four- What influence does an Emergency Department context have upon adherence behaviours?

As noted page 271, when adopting the Tailored Implementation Model, an overlap emerged between the terms ‘context’ and ‘barriers and enablers’, the terms potentially referring to the same concept. Having adopted the Tailored Implementation Model, for clarity and to remain consistent with the original research aims, I have defined context as the barriers and enablers (determinants of practice) which were particularly related to Emergency Departments - their functions and role in health services. *Table 40* gives examples of the barriers and enablers inherent to the functioning of the Emergency Department, influencing adherence behaviours.

Table 40- Examples of contextual factors (i.e. barriers and enablers inherent to the functioning of the Emergency Department) influencing adherence behaviours.

Study	Factors	Page references
Review findings		
	Busyness and staff availability.	Page 102
	Co-ordination of care.	Page 101
Observation and interview research	Busyness and staff availability.	Pages 194-198 and pages 215-227
	Ambience of the department.	Pages 198-201
	Access to resources.	Pages 208-212
	Targets.	Pages 206-207

Research question five- How can issues regarding adherence to Falls guidelines within an Emergency Department be addressed?

Table 41- How issues regarding adherence to Falls guidelines can be addressed?

Study	Issues	What could be done?
Review findings:		
Close et al. (1999 and 2003).	Repeat falls as a consequence of poor adherence.	Develop and apply a risk assessment tool to predict falls- facilitate guideline adherence. (This study had statistically significant finding).
Observation and interview research findings	Staff- patient communication.	Prioritise the determinants of practice (as illustrated in *Table 42*). .
	Patient acceptance of recommendations.	
	Staff-staff communication.	
	Categorisation of a fall.	
	Prioritisation of care needs.	
	Busyness of the department.	
	Functionality of the department.	
	Variation in care pathways / consistency of care.	
	Targets.	
	Access to resources.	
	Education – What is a Fall? Understanding of guidelines.	
	Variation in staff / staffing levels.	
	Staff attitudes / support from seniors.	
	The impact of a patient's previous experience.	
	Cross boundary care- Cross-boundary care refers to the care a patient receives for their fall before and/or after Emergency Department presentation.	

Table 42- Prioritising determinants for addressing by interventions.

Prioritising determinants	
Primary determinants	**Secondary determinants**
- Support from seniors. - Education. - Cross-boundary care.	- Categorisation of a fall. - Communication and team-working, patient acceptance of staff recommendations. - Organisational factors- within department organisation, busyness, access to resources, availability of medical records and targets. - Staffing and consistency of care.

NICE (2007) have anticipated that barriers to adherence can be overcome through improving awareness of guidelines and staff skills, encouraging the acceptance of the merits of guidelines' utilisation and motivating staff (focusing on education as an enabler) (pages 249-253). My study shows that such an approach it inadequate. This research and a Tailored Implementation Model (pages 35-42) have highlighted that there are additional factors that need to be considered when attempting to improve guideline adherence behaviours through tailored interventions (Flottorp et al., 2013; Baker et al., 2010; De Vries et al., 2010; Hill et al., 2010; Boele van Hensbroek et al., 2009; Miller et al., 2009; RCP, 2009; Russell et al., 2009; Vivanti et al., 2009; Yeung et al., 2009; Youde et al., 2009; Hendriks et al., 2008; Russell et al., 2008; Kalula et al., 2006; Paniagua et al., 2006; Russell et al., 2006; Salter et al., 2006; Whitehead et al., 2006; Davison et al., 2005; Donaldson et al., 2005; Fortinsky et al., 2004; Close et al., 2003; Shaw et al., 2003; Whitehead et al., 2003; Lightbody et al., 2002; Kingston et al., 2001; Bell et al., 2000; Grol and Grimshaw, 2003; Nordell et al., 2000; Baraff et al., 1999; Cabana et al., 1999; Close et al., 1999; Lee, Wong and Lau, 1999, and Davies and Kenny, 1996).

In identifying the key determinants of practice displayed in *Table 44* (discussed in Chapters Five and Six) my research has supported Flottorp et al.'s (2013) and Cabana et al.'s (1999) models of adherence. In addition these factors

are amongst those that Grol and Grimshaw (2003) suggest should be considered in a comprehensive approach to tailored implementation.

My research not only identifies determinants (barriers and enablers) that influence why and when professionals deviate from the guidelines, but also highlights the need to prioritise the determinants to be addressed by interventions.

It appears that there is no 'quick' fix solution to overcoming barriers to Falls guideline adherence within the Emergency Department, and it may be thought that there are too many barriers to handle. However, researchers have developed interventions to improve adherence to guidelines and to change healthcare professional behaviours, which have been successful through focusing on specific determinants, an example being the translation of guidelines into 'plain English' to improve patient adherence (Michie, Susan and Lester, 2005), and changing the behaviours of healthcare professionals through computer-based reminder systems (Hunt, Haynes, Hanna and Smith, 1998).

Approaches have been developed to create behaviour change interventions from research evidence. French et al. (2012) developed a four-step process to refer to when designing an intervention. They illustrate in their Theoretical Domains Framework that theory, evidence and practical issues need to be considered during the design process (supported by ICEBerg, 2006, and van Bokhoven, Kok and van der Weijden, 2003). Michie, van Stralen and West (2011) developed the behaviour change wheel which displays the links between sources of behaviours (determinants of practice), intervention functions and policy categories that should be considered. In this thesis, I used an essentially pragmatic theory – tailored implementation- rather than a behavioural theory such as the theory of planned behaviour (Ajzen, 1985) or social theories to guide my study of adherence. Basing the study on a specific behavioural theory may have led to different insights into adherence to the Falls guidelines, but such an approach would also have narrowed the range of issues and determinants I was

able to consider. The Flottorp et al (2013) checklist included a large number of determinants. Also, although the use of behavioural theory to guide the identification of determinants and design interventions to improve adherence may appear promising, there is as yet little evidence to demonstrate the superiority of this approach in comparison with more pragmatic approaches to intervention design. A review of randomised controlled trials of tailored interventions failed to find greater impact on adherence among trials that drew on behavioural theory (Baker et al., 2010).

When reflecting upon French et al.'s (2012), and Michie et al.'s (2005 and 2011) suggestions for creating behaviour change interventions, after further analysis I was able to consider which determinants to prioritise. This research suggests that encouraging agreement and leadership amongst seniors supported by staff education have the potential to improve adherence. However, although leadership by seniors and education may be appropriate interventions to think about there are reasons to be concerned that they may not be as effective as we may like. Therefore, it may be important to think about other types of intervention which also consider the secondary determinants. An example of this is collaborative cross-boundary care.

Collaborative care may be a way forward as shared responsibilities across boundaries can lead to reduced pressures on the Emergency Department and providing more comprehensive patient care. Managing falls patients' care needs across departments may facilitate Falls guideline adherence both within and outside the boundaries of the Emergency Department through sharing the workload when meeting all of the guideline recommendations. The benefits of a collaborative approach to care is discussed in the section which follows.

Recommendations for improving care:

The importance of collaborative cross-boundary care:

In this section I discuss the importance of collaborative care. The distinction between cross-boundary care and collaborative care can be confusing. As described pages 253-255, I am defining them as follows: Collaborative care is where healthcare professionals work together in order to co-ordinate care delivery (National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester, 2013). Collaborative care utilises the services outside the Emergency Department; services that can contribute to a collaborative approach to care are those that patients may present to independent of receiving Emergency Department care, or those accessed in conjunction with Emergency Department care. Cross-boundary care is the care a patient receives for their fall before and/or after Emergency Department presentation. Cross-boundary care may be collaborative, but may not, depending on whether it involves the level of communication and shared policies or guidelines typical of collaboration. Cross-boundary care can occur without collaboration between services, it can just be the process of moving across boundaries. Collaborative care is more efficient than cross-boundary care. An example of collaborative care that I observed was a patient being transferred to another department for a falls assessment by a physiotherapist, as recommended by the Emergency Department (**Observation episode 18- City Hospital Emergency Department**). An example of cross-boundary care was when a patient was referred to a fracture clinic to treat their acute problem and there was no further communication about falls care pathways (**Observation episode 10- Town Hospital Emergency Department**).

The intervention to improve adherence that emerged from the prioritisation of determinants included improvement of cross-boundary care. This involves improving the care which is received alongside Emergency Department treatment (when moving across boundaries) and the development of services outside Emergency Departments in order to develop a collaborative approach to

care. In this section, the implications for collaborative care across healthcare services of patients at risk of, or who have experienced, a fall are discussed.

Poor management of falls will in future place significant strain upon NHS resources. As the Department of Health (2012a, P1) state “If significant improvements aren’t made to prevention services, admissions will double and the NHS and Local Authorities will need to spend £6 billion a year on hip fractures by 2036.” My research has both provided support to existing models of adherence (Chapter One- pages 34-43) and provided additional ways in which non-adherence can be explored.

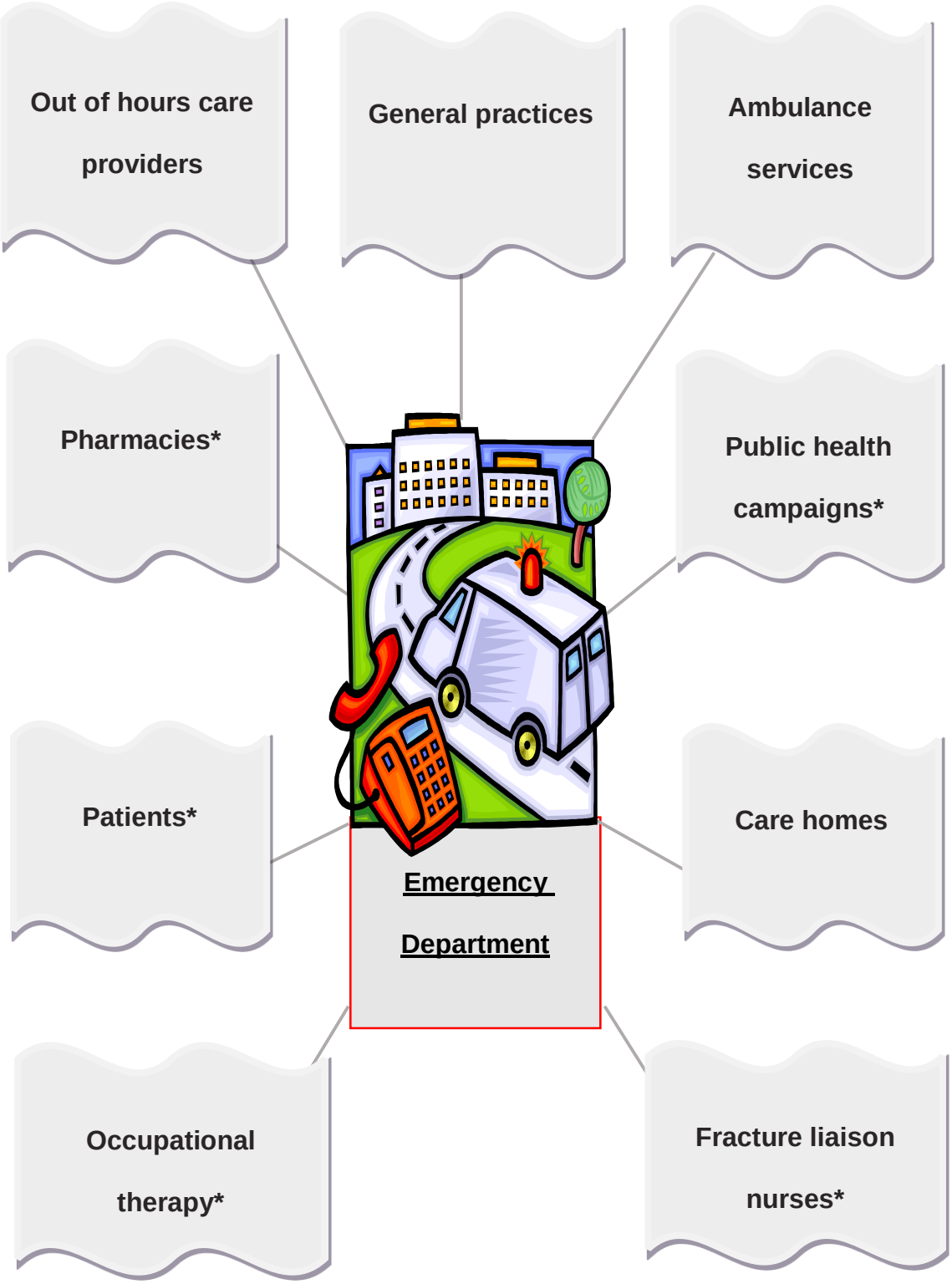
The practicality of addressing barriers to adherence and following guidelines in an Emergency Department has arisen as a key area of concern. In addition to the steps that may be taken to improve adherence to Falls guidelines in Emergency Departments, as discussed in this thesis (Chapter Six- pages 243-266), collaborative care has been described as a way forward when creating a new model for emergency care; an Emergency Department cannot function in isolation (IFEM, 2012; RJA, 2012; Mcleod, Bywaters and Cooke, 2003; Hendriksen and Harrison, 2001, and Close et al, 1999). As described in the IFEM’s emergency medicine definition, healthcare professionals should be aware of both in-hospital and pre-hospital healthcare systems and awareness of these systems may make it feasible for healthcare professionals to refer to appropriate services, so that comprehensive care can be provided elsewhere.

The pressures upon NHS resources flowing from the ageing of the population have not necessarily been taken into consideration in the recommendations of the NICE Falls guidelines. An increase in the number of older adult presentations to an Emergency Department means that in-depth patient assessments are less feasible. Being in-depth by nature, it may be hard to adhere to NICE Falls guidelines in a pressurised environment such as the Emergency Department, and the organisational processes and departmental culture may make it hard to make adaptations to facilitate guideline use.

High numbers of Emergency Department presentations are partly explained by lack of alternative services being available to a patient, or patients not being aware of services that are available (Banerjee, Conroy and Cooke, 2013, and NHS England, 2013a). NHS care services external to the hospital could be better utilised to both prevent falls and to improve Falls guideline adherence through sharing the workload, for example, treatment by local general practitioners and specific falls services. This would share incentives, responsibility and accountability (Banerjee, Conroy and Cooke, 2013; NHS England, 2013b; NHS Confederation, 2012, and Department of Health, 2009). Thousands of admissions to hospital could be avoided by more integrated care (Department of Health, 2012a).

Based upon the Age UK National Osteoporosis Society Report recommendations (2012) the Silver book care recommendations (Banerjee et al., 2012), and the Age UK (2010) report, *Figure Seven* provides an overview of the different groups which can work together to provide collaborative care. A description of the possible roles of these individual groups in adhering to Falls guideline care follows.

Figure 7- The service groups (both within and outside the hospital) who can support the Emergency Department and provide collaborative care of older adults who are at risk of falls and/or have fallen:*



In order for a successful falls care pathways to be developed, an assessment needs to be made by a multi-agency team composed of local commissioners and key stakeholders in order to assess current services and unmet care needs. These groups may include medical practitioners, nurses, Emergency Department staff, ambulance staff, pharmacists and occupational therapists. A pathway should agree each individual group's roles and can be used to help commissioners make a decision regarding local care needs and healthcare professional roles (Department of Health, 2009). Primary Care Trusts (PCTs) (reformed as Clinical Commissioning Groups and Local Area Teams from April 2013) need to ensure that guidance is adhered to; they are influential stakeholders in this process (Age UK and National Osteoporosis Society, 2012).

For adherence to care recommendations to occur, healthcare professionals need to be aware of the significance of a patient's clinical characteristics, i.e. recognising not only the consequences of a fall (a possible acute injury), but understanding the significance of a fall presentation occurring, and preventing future occurrences through employing preventative techniques such as follow-up falls risk assessments.

In April 2013, the Health Secretary noted in a speech that a reason for increased pressures upon Emergency Departments is partly due to poor quality GP and out of hours care (Broad, 2013, and Department of Health, 2013). Efficiently run GP practices and out of hours services can contribute to the collaborative care of older adults who are at risk of falls, or have fallen, through conducting falls assessments as part of the routine care of an older adult who attends an appointment. A key focus is to ensure that fracture patients are identified and their osteoporosis risk is assessed and treated where necessary. This is particularly important when an older adult has had a non-hip fracture, as it allows preventative techniques to be employed (Age UK and National Osteoporosis Society, 2012, and Clark, Gould, Morrison, Masud and Tobias, 2011).

Auditing is another process in which care can be monitored (Age UK and National Osteoporosis Society, 2012). For example, audit data can be found in the National hip fracture database (2013) and the Royal College of Physicians Clinical Effectiveness and Evaluation Unit report (Department of Health, 2009). As well as sharing information with the public regarding the efficiency of service delivery through auditing, Public Health campaigns can contribute to collaborative care by increasing both healthcare professional and patient awareness of care recommendations. For example, campaigns can highlight appropriate footwear to minimise fall risk, and the benefits of exercise (Burbridge, Love and Houston, 2013, and Age UK and National Osteoporosis Society, 2012). A patient should be made aware of and allowed to access falls prevention services, for example, strength and balance training classes where they can receive practical advice (Age UK and National Osteoporosis Society, 2012). Medical decisions should take account of a patient's wants and needs as well as healthcare professional recommendations (Department of Health 2012b, and Department of Health, 2010).

The ambulance service has a key role in the care of patients who present to an Emergency Department. With regards to older adults who have had a fall, Ambulance Trusts could also ensure that staff record and pass on any information regarding patients they assess who are not admitted to hospital but may still require treatment (Banerjee, Conroy and Cooke, 2013; Age UK and National Osteoporosis Society, 2012, and Banerjee et al., 2012). Through doing this they can link urgent care services with secondary prevention (NHS Confederation, 2012, and Department of Health, 2009).

Fracture Liaison Nurses are healthcare professionals who often work in primary care and have a role in carrying out assessments, reviewing medication, and recommending treatment (Department of Health, 2009). They have a role in the collaborative care of an older adult, as they link to hospitals in order to receive patients and employ follow-up care. They may identify older adults at risk of falls and establish reasons behind falls (Age UK and National Osteoporosis Society,

2012, and Mitchell and Adekunle, 2010). They can investigate bone density, start drug programmes for individuals who have osteoporosis and are at an increased risk of falling, they can monitor medication adherence and liaise with other falls services in order to provide comprehensive care (Department of Health, 2009).

Care homes may also fulfil a role in guideline adherence; in particular supplementation of Calcium and Vitamin D, supplementation may help to reduce osteoporosis risk (Age UK and National Osteoporosis Society, 2012). They can also conduct falls assessments and provide interventions to prevent falls within the care home, such as ensuring residents wear appropriate footwear and that bedrails are being put in place. Re-assessment of patient care needs and medical reviews are also viewed as valuable in providing quality of care (Social Care and Social Work Improvement Scotland and NHS Scotland, 2011).

Pharmacists could ask if older adults have had a recent fall when undertaking a Medicine Usage Reviews (MUR) (Age UK and National Osteoporosis Society, 2012). An older adult's contact with a pharmacist may provide an opportunity in which to gather information with regards to a fall history and assess fall risk factors. They could have a role in recognising fall risks that may be associated with medication side-effects (London Borough of Hounslow, NHS Hounslow, West Middlesex University Hospitals Trust and West London Mental Health Trust, 2009). Falls prevention campaigns have been run in conjunction with pharmacies and Public Health, for example, the 'well fitted' campaign run in Worcestershire where falls prevention information and a slipper replacement service were made available (Worcestershire County Council, 2013).

Occupational therapists could reduce falls through employing strength and balance training, providing home adaptations, and providing health and safety assessments. An assessment made in an older adult's living environment allows a care plan to be adapted to an individual's care needs (British Association of Occupational Therapists and College of Occupational Therapists, 2013).

Utilising multi-disciplinary skills, learning from experience, and generating contacts (for example, reaching people through Public Health campaigns) may provide a more feasible way of adhering to guideline care. Team-working can save time and costs and ultimately improve patient care (Department of Health, 2009).

Further research recommendations:

The formal review of the barriers and enablers (determinants of practice) to adherence to NICE Falls guidelines with older adults within an Emergency Department context (Chapter Two- pages 46-107) could be extended to include papers published from December 2011 onwards. This would allow for the findings to be up-dated.

Senior leadership and education as the core features of an intervention to improve adherence within the department needs further evaluation. This intervention has been tailored to the identified determinants, and therefore its potential merits investigation in a randomised trial or other type of experimental study.

Improved cross-boundary care was included as part of the proposed tailored intervention. Improved cross-boundary care through the commissioning of alternative services for falls also offers an alternative to intervention within Emergency Departments. Research into healthcare professionals' views on the potential impact of collaborative care may provide further insight into ways in which the care of older adults who present with a fall can be improved through more tailored treatment being provided both internally and externally to the Emergency Department. Research could investigate whether it is more feasible and beneficial to the patient and the NHS for the responsibility of conducting comprehensive assessments and care being transferred to less busy departments. Falls patient benefit may be maximised through utilising the NHS care system as a whole rather than only part of the system (the Emergency

Department). A collaborative approach to care may not only improve Falls guideline adherence but act as a Falls preventative method.

Appendices:

1. Review sub-appendices (includes *Tables 43- 58*).
2. *Figure 8-* A diagram of the stages of observation research data collection.
3. *Figure 9-* A diagram of the observation study invitation to healthcare professionals.
4. *Figure 10-* A diagram of a healthcare professional observation study double-sided information leaflet.
5. *Figure 11 - A* diagram of a poster aimed at healthcare professionals.
6. *Figure 12* – A diagram of a poster aimed at patients.
7. *Figure 13* - A diagram detailing an example of an observation study healthcare professional consent form.
8. *Figure 14* - A diagram of a staff demographic questionnaire.
9. *Figure 15* - A diagram of an observation study invitation to patients.
10. *Figure 16* - A diagram of an observation study double-sided patient information leaflet.
11. *Figure 17 - A* diagram of a personal consultee observation study double-sided information leaflet.
12. *Figure 18-* A diagram of a nominated consultee observation study double-sided information leaflet.
13. *Figure 19* - A diagram of an observation study patient consent form.
14. *Figure 20* - A diagram detailing an example of a consultee consent form.
15. *Figure 21-* A diagram of the 'How to calculate your unique code' information sheet.
16. *Figure 22* - A diagram of a patient demographic questionnaire.
17. *Figure 23* - A diagram of an observation notes sheet.
18. *Figure 24* - A diagram of an observation study patient debrief form.
19. *Figure 25* - A diagram detailing an example of a consultee debrief form.
20. *Figure 26* - A diagram of an observation study healthcare professional debrief form.
21. *Figure 27* - A diagram of a clinical data extraction guidance sheet.

Appendix 1- Review sub-appendices:

A. An example of search terms used across NHS Evidence (CINAHL) and Ovid (Medline and Embase).

B. C on diagram (*Figure One* Page 49). Examples of papers from B excluded from next stage analysis, after initial search results were screened for eligibility from the title and abstract.

C. Examples of papers from D on the diagram (*Figure One*) included in full-text analysis after titles and abstracts had been screened.

D. Examples of papers excluded from data extraction/ research synthesis post full-text analysis. Section E on diagram (*Figure One*).

E. *Table 43*- Papers included in data extraction/ research synthesis post full-text analysis. Section F on diagram (*Figure One*).

F. Section G on *Figure One* diagram. Examples of relevant secondary references identified from the review and full-text papers included at stage F. *Tables 44- 47* (pages 332- 339).

G. *Table 48*- Papers from G excluded from the next stage analysis of full-text., post screening for eligibility from the title and the abstract. Section H on diagram (*Figure One*).

H. *Table 49*- Papers from section G included in full-text analysis. Section I on diagram (*Figure One*).

I. Papers from I excluded post full-text analysis. Section J on diagram (*Figure One*).

J. *Table 50*- Papers from I included in data synthesis post full-text analysis. Section K on diagram (*Figure One*).

K. *Table 51*- References for studies included in data extraction and research synthesis (Sum of F and K). Section L on diagram (*Figure One*).

L. *Table 52*- References split into categories representing their focus with regards to fall management.

M. *Table 53*- Data extraction table.

N. Data extracted: *Table 54*- category a) data extraction (pages 354-364). *Table 55*- category b) data extraction (pages 365- 391).

O. *Table 56*- Blank Quality assessment criteria table.

P. *Table 57*- An illustration of a quality assessment conducted.

Q. *Tables 58- 60*- Vote counting for narrative synthesis.

Appendix A:

An example of search terms used across NHS Evidence (CINAHL) and OVID (Medline and Embase):

OVID $ used as truncation CINAHL * ($ used in these examples).

NB: CINAHL was not compatible with the A&E search as it searched it as 'A AND E', the same was true of the ED search. These could be searched as whole terms in OVID.

Emergency Department AND Care AND Fall$ AND Older adult$

Emergency Department AND Care AND Fall$ AND Elderly

Emergency Department AND Care AND Fall$ AND Geriatric$

Emergency Department AND Care AND Fall$ AND Aged

Emergency Department AND Care AND Fall$ AND Senior citizen$

Emergency Department AND care AND Slip$ AND Older adult$ **OR** Emergency Department AND care AND trip$ AND Older adult$

Emergency Department AND care AND Slip$ AND Elderly **OR** Emergency Department AND care AND trip$ AND Elderly

Emergency Department AND care AND Slip$ AND Geriatrics **OR** Emergency Department AND care AND trip$ AND Geriatric$

Emergency Department AND care AND Slip$ AND Aged **OR** Emergency Department AND care AND trip$ AND Aged

Emergency Department AND care AND Slip$ AND Senior citizen$ OR Emergency Department AND care AND trip$ AND Senior citizen$

Emergency Department AND care pathway AND Fall$ AND Older adult$

Emergency Department AND care pathway AND Fall$ AND Elderly
Emergency Department AND care pathway AND Fall$ AND Geriatric$
Emergency Department AND care pathway AND Fall$ AND Aged
Emergency Department AND care pathway AND Fall$ AND Senior citizen$

Emergency Department AND care pathway AND Slip$ AND Older adult$ **OR** Emergency Department AND care pathway AND trip$ AND Older adult$
Emergency Department AND care pathway AND Slip$ AND Elderly **OR** Emergency Department AND care pathway AND trip$ AND Elderly
Emergency Department AND care pathway AND Slip$ AND Geriatrics **OR** Emergency Department AND care pathway AND trip$ AND Geriatric$
Emergency Department AND care pathway AND Slip$ AND Aged **OR** Emergency Department Emergency Department AND care pathway AND trip$ AND Aged
Emergency Department AND care pathway AND Slip$ AND Senior citizen$ OR Emergency Department AND care pathway AND trip$ AND Senior citizen$
Emergency Department AND fall$ AND Older adult$
Emergency Department AND fall$ AND Elderly
Emergency Department AND fall$ AND Geriatric$
Emergency Department AND fall$ AND Aged

Emergency Department AND fall$ AND Senior citizen$
Emergency Department AND handling AND Fall$ AND Older adult$
Emergency Department AND handling AND Fall$ AND Elderly
Emergency Department AND handling AND Fall$ AND Geriatric$
Emergency Department AND handling AND Fall$ AND Aged
Emergency Department AND handling AND Fall$ AND Senior citizen$

Emergency Department AND handling AND Slip$ AND Older adult$ **OR** Emergency Department AND handling AND trip$ AND Older adult$
Emergency Department AND handling AND Slip$ AND Elderly **OR** Emergency Department AND handling AND trip$ AND Elderly
Emergency Department AND handling AND Slip$ AND Geriatrics **OR** Emergency Department AND handling AND trip$ AND Geriatric$
Emergency Department AND handling AND Slip$ AND Aged **OR** Emergency Department AND handling AND trip$ AND Aged
Emergency Department AND handling AND Slip$ AND Senior citizen$ OR Emergency Department AND handling AND trip$ AND Senior citizen$
Emergency Department AND hospital AND Fall$ AND Older adult$
Emergency Department Emergency Department AND hospital AND Fall$ AND Elderly
Emergency Department AND hospital AND Fall$ AND Geriatric$
Emergency Department AND hospital AND Fall$ AND Aged
Emergency Department AND hospital AND Fall$ AND Senior citizen$

Emergency Department AND hospital AND Slip$ AND Older adult$ **OR** Emergency Department AND hospital AND trip$ AND Older adult$

Emergency Department AND hospital AND Slip$ AND Elderly **OR** Emergency Department AND hospital AND trip$ AND Elderly

Emergency Department AND hospital AND Slip$ AND Geriatrics **OR** Emergency Department AND hospital AND trip$ AND Geriatric$

Emergency Department AND hospital AND Slip$ AND Aged **OR** Emergency Department AND hospital AND trip$ AND Aged

Emergency Department AND hospital AND Slip$ AND Senior citizen$ OR Emergency Department AND hospital AND trip$ AND Senior citizen$

Emergency Department AND Implement$ AND Fall$ AND Guid$ AND Older adult$ **OR** Emergency Department AND Implement$ AND Fall$ AND NICE guid$ AND Older adult$

Emergency Department AND Implement$ AND Fall$ AND Guid$ AND Elderly **OR** Emergency Department AND Implement$ AND Fall$ AND NICE Guid$ AND Elderly

Emergency Department AND Implement$ AND Fall$ AND Guid$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND Fall$ AND NICE Guid$ AND Geriatric$

Emergency Department AND Implement$ AND Fall$ AND Guid$ AND Aged **OR** Emergency Department AND Implement$ AND Fall$ AND NICE Guid$ AND Aged

Emergency Department AND Implement$ AND Fall$ AND Guid$ AND Senior citizen$ OR Emergency Department AND Implement$ AND Fall$ AND NICE Guid$ AND Senior citizen$

Emergency Department AND Implement$ AND Slip$ AND Guid$ AND Older adult$ **OR** Emergency Department AND Implement$ AND trip$ AND Guid$ AND Older adult$

Emergency Department AND Implement$ AND Slip$ AND Guid$ AND Elderly **OR** Emergency Department AND Implement$ AND trip$ AND Guid$ AND Elderly

Emergency Department AND Implement$ AND Slip$ AND Guid$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND trip$ AND Guid$ AND Geriatric$

Emergency Department AND Implement$ AND Slip$ AND Guid$ AND Aged **OR** Emergency Department AND Implement$ AND trip$ AND Guid$ AND Aged

Emergency Department AND Implement$ AND Slip$ AND Guid$ AND Senior citizen$ **OR** Emergency Department AND Implement$ AND trip$ AND Guid$ Senior citizen$

Emergency Department AND Implement$ AND Slip$ AND NICE Guid$ AND Older adult$ **OR** Emergency Department AND Implement$ AND trip$ AND NICE Guid$ AND Older adult$

Emergency Department AND Implement$ AND Slip$ AND NICE Guid$ AND Elderly **OR** Emergency Department AND Implement$ AND trip$ AND NICE Guid$ AND Elderly

Emergency Department AND Implement$ AND Slip$ AND NICE Guid$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND trip$ AND NICE Guid$ AND Geriatric$

Emergency Department AND Implement$ AND Slip$ AND NICE Guid$ AND Aged **OR** Emergency Department AND Implement$ AND trip$ AND NICE Guid$ AND Aged

Emergency Department AND Implement$ AND Slip$ AND NICE Guid$ AND Senior citizen$ **OR** Emergency Department AND Implement$ AND trip$ AND NICE Guid$ Senior citizen$

Emergency Department AND Implement$ AND Fall$ AND procedure$ AND Older adult$

Emergency Department AND Implement$ AND Fall$ AND procedure$ AND Elderly

Emergency Department AND Implement$ AND Fall$ AND procedure$ AND Geriatric$

Emergency Department AND Implement$ AND Fall$ AND procedure$ AND Aged

Emergency Department AND Implement$ AND Fall$ AND procedure$ AND Senior citizen$

Emergency Department AND Implement$ AND Slip$ AND procedure$ AND Older adult$ **OR** Emergency Department AND Implement$ AND trip$ AND procedure$ AND Older adult$

Emergency Department AND Implement$ AND Slip$ AND procedure$ AND Elderly **OR** Emergency Department AND Implement$ AND trip$ AND procedure$ AND Elderly

Emergency Department AND Implement$ AND Slip$ AND procedure$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND trip$ AND procedure$ AND Geriatric$

Emergency Department AND Implement$ AND Slip$ AND procedure$ AND Aged **OR** Emergency Department AND Implement$ AND trip$ AND procedure$ AND Aged

Emergency Department AND Implement$ AND Slip$ AND procedure$ AND Senior citizen$ **OR** Emergency Department AND Implement$ AND trips AND procedure$ AND Senior citizen$

Emergency Department AND Implement$ AND Fall$ AND polic$ AND Older adult$
Emergency Department AND Implement$ AND Fall$ AND polic$ AND Elderly
Emergency Department AND Implement$ AND Fall$ AND polic$ AND Geriatric$
Emergency Department AND Implement$ AND Fall$ AND polic$ AND Aged
Emergency Department AND Implement$ AND Fall$ AND polic$ AND Senior citizen$

Emergency Department AND Implement$ AND Slip$ AND polic$ AND Older adult$ **OR** Emergency Department AND Implement$ AND trip$ AND polic$ AND Older adult$
Emergency Department AND Implement$ AND Slip$ AND polic$ AND Elderly **OR** Emergency Department AND Implement$ AND trip$ AND polic* AND Elderly
Emergency Department AND Implement$ AND Slip$ AND polic$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND trip$ AND polic* AND Geriatric$
Emergency Department AND Implement$ AND Slip$ AND polic$ AND Aged **OR** Emergency Department AND Implement$ AND trip$ AND polic* AND Aged
Emergency Department AND Implement$ AND Slip$ AND polic$ AND Senior citizen$ **OR** Emergency Department AND Implement$ AND trip$ AND polic* AND Senior citizen$

Emergency Department AND Implement$ AND Fall$ AND approach$ AND Older adult$

Emergency Department AND Implement$ AND Fall$ AND approach$ AND Elderly

Emergency Department AND Implement$ AND Fall$ AND approach$ AND Geriatric$

Emergency Department Emergency Department AND Implement$ AND Fall$ AND approach$ AND Aged

Emergency Department AND Implement$ AND Fall$ AND approach$ AND Senior citizen$

Emergency Department AND Implement$ AND Slip$ AND approach$ AND Older adult$ **OR** Emergency Department AND Implement$ AND trip$ AND approach$ AND Older adult$

Emergency Department AND Implement$ AND Slip$ AND approach$ AND Elderly **OR** Emergency Department AND Implement$ AND trips AND approach$ AND Elderly

Emergency Department AND Implement$ AND Slip$ AND approach$ AND Geriatric$ **OR** Emergency Department AND Implement$ AND trip$ AND approach$ AND Geriatric$

Emergency Department AND Implement$ AND Slip$ AND approach$ AND Aged **OR** Emergency Department AND Implement$ AND trip$ AND approach$ AND Aged

Emergency Department AND Implement$ AND Slip$ AND approach$ AND Senior citizen$ **OR** Emergency Department AND Implement$ AND trip$ AND approach$ AND Senior citizen$

Emergency Department AND Manag$ AND fall$ AND Older adult$

Emergency Department AND Manag$ AND fall$ AND Elderly
Emergency Department AND Manag$ AND fall$ AND Geriatric$
Emergency Department AND Manag$ AND fall$ AND Aged
Emergency Department AND Manag$ AND fall$ AND Senior citizen$

Emergency Department AND Manag$ AND slip$ AND Older adult$ OR Emergency Department AND Manag$ AND trip$ AND Older adult$
Emergency Department AND Manag$ AND slip$ AND Older adult$ OR Emergency Department AND Manag$ AND trip$ AND Elderly
Emergency Department AND Manag$ AND slip$ AND Older adult$ OR Emergency Department AND Manag$ AND trip$ AND Geriatric$
Emergency Department AND Manag$ AND slip$ AND Older adult$ OR Emergency Department AND Manag$ AND trip$ AND Aged
Emergency Department AND Manag$ AND slip$ AND Older adult$ OR Emergency Department AND Manag$ AND trip$ AND Senior citizen$

Emergency Department AND Medical care AND fall$ AND Older adult$
Emergency Department AND Medical care AND fall$ AND Elderly
Emergency Department AND Medical care AND fall$ AND Geriatric$
Emergency Department AND Medical care AND fall$ AND Aged
Emergency Department AND Medical care AND fall$ AND Senior citizen$

Emergency Department AND Medical care AND slip$ AND Older adult$ **OR** Emergency Department AND Medical care AND trip$ AND Older adult$

Emergency Department AND Medical care AND slip$ AND Older adult$ OR Emergency Department AND Medical care AND trip$ AND Elderly

Emergency Department AND Medical care AND slip$ AND Older adult$ OR Emergency Department AND Medical care AND trip$ AND Geriatric$

Emergency Department AND Medical care AND slip$ AND Older adult$ OR Emergency Department AND Medical care AND trip$ AND Aged

Emergency Department AND Medical care AND slip$ AND Older adult$ OR Emergency Department AND Medical care AND trip$ AND Senior citizen$

Emergency Department AND negligen$ AND older adult$

Emergency Department AND negligen$ AND elderly

Emergency Department AND negligen$ AND geriatric$

Emergency Department AND negligen$ AND aged

Emergency Department AND negligen$ AND senior citizen$

Emergency Department AND negligen$ AND fall$ AND older adult$

Emergency Department AND negligen$ AND fall$ AND elderly

Emergency Department AND negligen$ AND fall$ AND geriatric$
Emergency Department AND negligen$ AND fall$ AND aged
Emergency Department AND negligen$ AND fall$ AND senior citizen$

Emergency Department AND negligen$ AND slip$ AND older adult$ **OR** Emergency Department AND negligen$ AND trip$ AND older adult$
Emergency Department AND negligen$ AND slip$ AND older adult$ **OR** Emergency Department AND negligen$ AND trip$ AND elderly
Emergency Department AND negligen$ AND slip$ AND older adult$ **OR** Emergency Department AND negligen$ AND trip$ AND geriatric$
Emergency Department AND negligen$ AND slip$ AND older adult$ **OR** Emergency Department Emergency Department AND negligen$ AND trip$ AND aged
Emergency Department AND negligen$ AND slip$ AND older adult$ **OR** Emergency Department AND negligen$ AND trip$ AND senior citizen$

Emergency Department AND Procedure$ AND Fall$ AND Older adult$
Emergency Department Emergency Department AND Procedure$ AND Fall$ AND Elderly
Emergency Department AND Procedure$ AND Fall$ AND Geriatric$
Emergency Department AND Procedure$ AND Fall$ AND Aged

Emergency Department AND Procedure$ AND Fall$ AND Senior citizen$

Emergency Department AND Procedure$ AND Slip$ AND Older adult$ **OR** Emergency Department AND Procedure$ AND trip$ AND Older adult$
Emergency Department AND Procedure$ AND Slip$ AND Elderly **OR** Emergency Department AND Procedure$ AND trip$ AND Elderly
Emergency Department AND Procedure$ AND Slip$ AND Geriatric$ **OR** Emergency Department AND Procedure$ AND trip$ AND Geriatric$
Emergency Department AND Procedure$ AND Slip$ AND Aged **OR** Emergency Department AND Procedure$ AND trip$ AND Aged
Emergency Department AND Procedure$ AND Slip$ AND Senior citizen$ **OR** Emergency Department AND Procedure$ AND trip$ AND Senior citizen$

Emergency Department AND Professional practice AND Fall$ AND Older adult$
Emergency Department AND Professional practice AND Fall$ AND Elderly
Emergency Department AND Professional practice AND Fall$ AND Geriatric$
Emergency Department AND Professional practice AND Fall$ AND Aged
Emergency Department AND Professional practice AND Fall$ AND Senior citizen$
Emergency Department AND Professional practice AND Slip$ AND Older adult$ **OR** Emergency Department AND Professional practice AND trip$ AND Older adult$

Emergency Department AND Professional practice AND Slip$ AND Elderly **OR** Emergency Department AND Professional practice AND trip$ AND Elderly

Emergency Department AND Professional practice AND Slip$ AND Geriatric$ **OR** Emergency Department AND Professional practice AND trip$ AND Geriatric$

Emergency Department AND Professional practice AND Slip$ AND Aged **OR** Emergency Department AND Professional practice AND trip$ AND Aged

Emergency Department AND Professional practice AND Slip$ AND Senior Citizen$ **OR** Emergency Department AND Professional practice AND trip$ AND Senior citizen$

Emergency Department AND Treat$ AND fall$ AND Older adult$

Emergency Department AND Treat$ AND fall$ AND Elderly

Emergency Department AND Treat$ AND fall$ AND Geriatric$

Emergency Department AND Treat$ AND fall$ AND Aged

Emergency Department AND Treat$ AND fall$ AND Senior citizen$

Emergency Department AND Treat$ AND slip$ AND Older adult$ **OR** Emergency Department AND Treat$ AND trip$ AND Older adult$

Emergency Department AND Treat$ AND slip$ AND Elderly **OR** Emergency Department AND Treat$ AND trip$ AND Elderly

Emergency Department AND Treat$ AND slip$ AND Geriatric$ **OR** Emergency Department AND Treat$ AND trips AND Geriatric$

Emergency Department AND Treat$ AND slip$ AND Aged **OR** Emergency Department AND Treat$ AND trip$ AND Aged

Emergency Department AND Treat$ AND slip$ AND Senior citizen$ **OR** Emergency Department AND Treat* AND trip$ AND Senior citizen$

Appendix B:

C on diagram (*Figure One* page 49). Examples of papers from B excluded from next stage analysis, after initial search results were screened for eligibility from the title and abstract-:

Exclusion reason is in bold. The terms in quotes are those which would be detected through the searches.
NB: some of the articles of 'complete irrelevance' were generated due to the use of the search term 'Aged', it was intended as Aged people but detected papers who referred to participants aged x years

1. Anon (1999). Trends in road traffic facility and injury in Victoria Lei Li and Virginia Routley. *Australasian Journal of Emergency Care, 6,* 8-18.
   Talks about 'Emergency care' but of irrelevance.

2. Anon (2006). 100% Humidity no better than blow-by for croup. *Journal of Family Practice, 55,* 485.
   Complete irrelevance.

3. Anon (2007). Rates of hospitalization related to traumatic brain injury--nine states, 2003. *MMWR. Morbidity and mortality weekly report, 56*, 167-170.
   Hospitalisation mentioned, but not as a result of or related to the management of falls, so irrelevant.

4. Anon (2008). Blood pressure guidelines - Where are we now? *Drug and therapeutics bulletin, 46,* 65-69.
   Talks about 'guidelines', but irrelevant.

5. Bojke, C., Philips, Z., Sculpher, M., Campion, P., Chrystyn, Henry, Coulton, S., Cross, B., Morton, V., Richmond, S., Farrin, A., Hill, G., Hilton, A., Miles, J., Russell, I., Wong, I. & Chi Kei (2010). Cost-effectiveness of shared pharmaceutical care for older patients: RESPECT trial findings. *The British Journal of general practice: the Journal of the Royal College of General Practitioners, 60***,** e20-27.
Talks about 'older' patients but is irrelevant.

Appendix C:

Examples of papers from D on the diagram (*Figure One*) included in full-text analysis after titles and abstracts had been screened – reasons in bold:

Snooks, H., Cheung, W., Close, J., Dale, J., Gaze, S., Humphreys, I., Lyons, R., Mason, S., Merali, Y., Peconi, J., Phillips, C., Phillips, J., Roberts, S., Russell, I., Sánchez, A., Wani, M., Wells, B. & Whitfield, R. (2010). Support and Assessment for Fall Emergency Referrals (SAFER 1) trial protocol. Computerised on-scene decision support for Emergency ambulance staff to assess and plan care for o/older people who have fallen: Evaluation of costs and benefits using a pragmatic cluster randomised trial. *BMC Emergency Medicine,* 10.2.
Specific relevance identified in title.

De Vries, O.J., Peeters, G.M.E.E., Elders, P.J.M., Muller. M., Knol, D.L., Danner, S.A., Bouter, L.M. & Lips, P. (2010). Multifactorial intervention to reduce falls in older people at high risk of recurrent falls: A randomized controlled trial. *Archives of Internal Medicine, 170***,** 1110-1117.
Specific relevance identified in title.

Hill, K., Womer, M., Russell, M., Blackberry, I., & McGann A. (2010). Fear of falling in older fallers presenting at Emergency Departments. *Journal of Advanced Nursing, 66***,** 1769-1780.
Looks at nurses roles in assessment and management of falls.

Vind, A. B., Andersen, H. E., Pedersen, K. D., Jãrgesen, T. & Schwarz, P. (2010). Effect of a program of multifactorial fall prevention on health-related quality of life, functional ability, fear of falling and psychological well-being. A randomized controlled trial. *Aging Clinical & Experimental Research*, 22**,** 249-255.
Emergency Department assessment.

Carpenter, C. R., Scheatzle, M. D., D'Antonio J. A., Ricci, P. T. & Coben, J. H. (2009). Identification of fall risk factors in older adult Emergency Department patients. *Academic Emergency Medicine, 16*, 211-219.

Looks at how fall risk factors can be identified within any older adult attending the Emergency Department.

Appendix D:

Examples of papers excluded from data extraction/ research synthesis post full-text analysis. Section E on diagram (*Figure One*).

Reasons for exclusion from follow-up are in bold.

Snooks, H., Cheung, W., Close, J., Dale, J., Gaze, S., Humphreys, I., Lyons, R., Mason, S., Merali, Y., Peconi, J., Phillips, C., Phillips, J., Roberts, S., Russell, I., Sánchez, A., Wani, M., Wells, B., & Whitfield, R. (2010). Support and Assessment for Fall Emergency Referrals (SAFER 1) trial protocol. Computerised on-scene decision support for Emergency ambulance staff to assess and plan care for o/older people who have fallen: Evaluation of costs and benefits using a pragmatic cluster randomised trial, *BMC Emergency Medicine, 10*.2.

Emergency Medical Service care not Emergency Department.

Vind, A. B., Andersen, H. E., Pedersen, K. D., Jãrgesen, T. & Schwarz, P. (2010). Effect of a program of multifactorial fall prevention on health-related quality of life, functional ability, fear of falling and psychological well-being. A randomized controlled trial. *Aging Clinical & Experimental Research, 22*, 249-255.

Looks at fall management post discharge- not relevant to the Emergency Department management or referral of care.

Carpenter, C. R., Scheatzle, M. D., D'Antonio J. A., Ricci, P. T. & Coben, J. H. (2009). Identification of fall risk factors in older adult Emergency Department patients. *Academic Emergency Medicine, 16*, 211-219.

Looks at fall risk factors in older adult Emergency Department patients but the sample used does not consist of patients who presented with a fall, these individuals were excluded.

Spice, C. L., Morotti, W., George, S., Dent, T. H. S., Rose, J., Harris, S. & Gordon, C. J. (2009). The Winchester Falls project: A randomised controlled trial of secondary prevention of falls in older people. *Age & Ageing, 38*, 33-40.
Not related to the Emergency Department context.

Veillette, N., Demers, L., Dutil, E. & McCusker, J. (2009). Item analysis of the functional status assessment of seniors in the Emergency Department. *Disability & Rehabilitation, 31*, 565-572.
Assessment of functional status, not relevant.

Appendix E:

Table 43- Papers included in data extraction/ research synthesis post full-text analysis. Section F on the diagram (Figure One):

Reasons for inclusion for full-text follow-up are in bold.

1	De Vries, O.J., Peeters, G.M.E.E., Elders, P.J.M., Muller. M., Knol, D.L., Danner, S.A., Bouter, L.M. & Lips, P. (2010). Multifactorial intervention to reduce falls in older people at high risk of recurrent falls: A randomized controlled trial. *Archives of Internal Medicine, 170***,** 1110-1117. **Specific relevance identified in title. Results suggest that management in an Emergency Department may not influence outcomes.**
2	Hill, K., Womer, M., Russell, M., Blackberry, I., & McGann A. (2010). Fear of falling in older fallers presenting at Emergency Departments. *Journal of Advanced Nursing, 66***,** 1769-1780. **Talks about the Emergency Department's role in assessing and managing individuals fear of falling.**
3	Boele van Hensbroek, P., van Dijk, N, van Breda, G.F, Scheffer, A.C, van der Cammen, T.J.M., Lips, P., Goslings, J.C & de Rooij, S.E. (2009).The CAREFALL Triage instrument identifying risk factors for recurrent falls in elderly patients. *American Journal of Emergency Medicine, 27***,** 23-37. **Looking at assessment of falls and modifiable risk factors within the Emergency Department setting.**
4	Miller, E., Wightman, E., Rumbolt, K., McConnell, S., Berg, K., Devereaux, M. & Campbell, F. (2009). Management of fall-related injuries in the elderly: a retrospective chart review of patients presenting to the Emergency Department of a community-based teaching hospital. *Physiotherapy Canada, 61***,** 26-38. **Specifically looks at the management of falls in the Emergency Department.**
5	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L., Ghurin, L.C.,& Dharmage, S. C. (2009). Development of the falls risk for older people in the community (FROP-Com) screening tool. *Age & Ageing, 38***,** 40-46. **Looks at the FROP-Com tool being used in the Emergency Department as a quick way to assess clinical outcomes and methods for prevention.**
6	Vivanti, A. P., Mcdonald, C. K., Palmer, M. A. & Sinnott, M. (2009). Malnutrition associated with increased risk of frail mechanical falls among older people presenting to an Emergency Department. *EMA - Emergency Medicine Australasia, 21***,** 386-394. **Talks about assessment methods which should take place.**
7	Yeung, P. Y., Woo J., Yim, V. W. T. & Rainer, T. H. (2009). Heterogeneity of health profiles of older people presenting to an Accident and Emergency Department with a fall. *International Journal of Gerontology, 3***,** 156-162. **Recommends a management pathway.**
8	Youde, J., Husk, J., Lowe, D., Grant, R., Potter, J. & Martin, F. (2009). .The national clinical audit of falls and bone health: the clinical management of

	hip fracture patients. *Injury, 40*, 1226-1230. **Service improvement recommendations regarding fall management.**
9	Hendriks, M.R., Bleijlevens, M.H., Van Haastregt, J.C. **et al.** (2008). Lack of effectiveness of a multidisciplinary fall-prevention program in elderly people at risk: A randomized, controlled trial. *Journal of the American Geriatrics Society, 56*, 1390-1397. **Emergency Department context fall management programme.**
10	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2008). The reliability and predictive accuracy of the falls risk for older people in the community assessment (FROP-Com) tool, *Age & Ageing, 37,* 634-639. **Looks at the important role Emergency Department assessment has in prevention.**
11	Kalula, S. Z., De Villiers, L., Ross, K. & Ferreira, M. (2006). Management of older patients presenting after a fall - An Accident and Emergency Department audit. *South African Medical Journal, 96*, 718-721. **Specific relevance identified in the title.**
12	Paniagua, M. A., Malphurs, J. E. & Phelan, E. A. (2006). Older patients presenting to a county hospital ED after a fall: missed opportunities for prevention. *American Journal of Emergency Medicine, 24*, 413-417. **Looking at the Emergency Department awareness of falls and secondary prevention.**
13	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2006). Falls risk and functional decline in older fallers discharged directly from Emergency Departments. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 61*, 1090-1095. **Looks at the role the Emergency Department plays in prevention.**
14	Salter, A.E., Khan, K.M., Donaldson, M.G., Davis, J.C., Buchanan, J., Abu-Laban, R.B., Cook, W.L., Lord ,S.R. & McKay, H.A. (2006). Community-dwelling seniors who present to the Emergency Department with a fall do not receive Guideline care and their fall risk profile worsens significantly: A 6-month prospective study, *Osteoporosis International, 17*, 672-683. **Looks at the adherence to guideline care and the implications of non-compliance.**
15	Whitehead, C. H., Wunke, R. & Crotty, M. (2006). Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies?, *Clinical Rehabilitation, 20*, 536-543. **Looks at ways falling could be better managed by not just making recommendations but by changing behaviour.**
16	Davison, J., Bond, J., Dawson, P., Steen, I. N. & Kenny, R. A. (2005). Patients with recurrent falls attending Accident & Emergency benefit from multifactorial intervention - A randomised controlled trial, *Age & Ageing, 34*, 162-168. **Shows the benefits intervening can have.**
17	Donaldson, M.G., Khan, K.M., Davis, J.C., Salter, A.E., Buchanan, J., McKnight, D., Janssen, P.A., Bell, M. & McKay, H.A. (2005).Emergency Department fall-related presentations do not trigger fall risk assessment: A gap in care of high-risk outpatient fallers. *Archives of Gerontology & Geriatrics, 41*, 311-317.

	Specifically looks at adherence to guideline care.
18	Fortinsky, R.H., Lannuzzi-Sucich, M., Baker, D.I, Gottschalk, M., King, M.B., Brown, C.J. & Tinetti, M.E. (2004). Fall-risk assessment and management in clinical practice: views from Healthcare providers. *Journal of the American Geriatrics Society, 52*, 1522-1526. **Very similar to my study design.**
19	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. &Swift, C. (2003). Predictors of falls in a high risk population: results from the prevention of falls in the elderly trial (PROFET). *Emergency Medicine Journal,* 20, 421-426. **Follow-up study of Close (1999). Provides a practical approach to implementing PROFET trial findings in an effort to improve Emergency Department management of falls.**
20	Shaw, F.E., Bond, J., Richardson, D.A., Dawson, P., Steen, I.N., McKeith, I.G. & Kenny, R.A. (2003). Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the Accident and Emergency Department: Randomised controlled trial. 7380 ed. United Kingdom. **Looks at the effects of an intervention conducted in an Emergency Department.**
21	Lightbody, E., Watkins, C., Leathley, M., Sharma, A. & Lye, M. (2002). Evaluation of a nurse-led falls prevention programme versus usual care: a randomized controlled trial, *Age & Ageing,* 31, 203-211. **Looks at the care pathway after Emergency Department management. Talks about liaison between an Emergency Department and other areas of care.**
22	Nordell, E., Jarnlo, G. B., Jetsen, C., Nordstrom, L. & Thorngren, K. G. (2000). Accidental falls and related fractures in 65-74 year olds: A retrospective study of 332 patients, *Acta Orthopaedica Scandinavica, 71*, 175-179. **Talks about the implications of Emergency Department management.**
23	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. &Swift, C. (1999). Prevention of falls in the elderly trial (PROFET): a randomised controlled trial, *Lancet, 353* **(9147)**, 93-97. **An assessment conducted externally to the Emergency Department, but looks at how well the Emergency Department management of a fall was handled retrospectively and how methods could be improved.**
24	Lee, V. M., Wong, T. W. & Lau, C. C. (1999). Home accidents in elderly patients presenting to an Emergency Department, *Accident & Emergency Nursing, 7*, 96-102. **Looks at the role of the Emergency Department in prevention of falls, through appropriate management.**

Appendix F:

Table 44- Section G on the Figure One diagram- Examples of relevant secondary references identified from the review and full-text papers included at Stage F:

NB: the paper below was excluded from data synthesis as it is a systematic review, but secondary references were assessed regarding relevance.

Gates, S., Lamb, S.E., Fisher, J.D., Cooke, M.W. & Carter, Y.H. (2008). Multifactorial assessment and targeted intervention for preventing falls and injuries among older people in community and Emergency care settings: Systematic review and meta-analysis, *BMJ, 336*, 130-133.
Looks at fall risk assessment within an Emergency Department context.

Papers identified by title which appeared to have a relevance to falls/ management/ Emergency Department Care.

1	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people.
2	Chou, W.C., Tinetti, M.E., King, M.B. et al. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice, *J Gen Intern Med, 2,* 117-122.
3	Rubenstein, L.Z. (2006). Falls in older people: epidemiology, risk factors and strategies for prevention, *Age & Ageing, 35-S2,* ii37-ii41.
4	Tinetti, M.E., Gordon, C., Sogolow, E. et al. (2006). Fall-risk evaluation and management. Challenges in adopting geriatric care practices, G*erontologist, 46,* 717-725.
5	Hendriks, M.R.C., van Haastregt, J.C.M., Diederiks, J.P.M., Evers, S., Crebolder, H., & van Eijk, J.T.M (2005). Effectiveness and cost-effectiveness of a multidisciplinary intervention programme to prevent new falls and functional decline among elderly persons at risk: design of a replicated randomised controlled trial, *BMC Public Health*, 5, 6.

Table 45 illustrates how the above list was formulated.

Table 45-* How *the results in Table 44 were formulated:

Paper from inclusion list (F)		Total references to follow-up from viewing title alone (A)	Total of A already included in research synthesis (F on flow diagram)	Total of A already excluded	References to follow-up
Gates (2008)		3	0	0	3
1	de Vries (2010)	2	2	0	0
2	Hill (2010)	5	3	0	2
3	Boele van Hensbroek (2009)	10	4	0	6
4	Miller (2009)	8	5	1	2
5	Russell (2008)	1	1	0	0
6	Vivanti (2009)	0	0	0	0
7	Yeung (2009)	3	3	0	0
8	Youde (2009)	2	0	0	2
9	Hendriks (2008)	6	4	0	2
10	Russell (2008)	7	7	0	0
11	Kalula (2006)	3	1	0	2
12	Paniagua (2006)	4	0	0	4
13	Russell (2006)	2	2	0	0
14	Salter (2006)	6	3	0	3
15	Whitehead (2006)	1	1	0	0
16	Davison (2005)	3	2	0	1
17	Donaldson (2005)	0	0	0	0
18	Fortinsky (2004)	1	1	0	0
19	Close (2003)	1	0	0	1
20	Shaw (2003)	3	1	0	2
21	Lightbody (2002)	0	0	0	0
22	Nordell (2000)	2	1	0	1
23	Close (1999)	5	0	2	3
24	Lee (1999)	1	0	0	1

Table 46- References to follow-up:

Paper:	**References to follow-up-** **Papers identified by title which appear to have a relevance to falls/ management/ Emergency Department Care.**
Gates (2008)	Hendriks, M.R.C., van Haastregt, J.C.M., Diederiks, J.P.M., Evers, S., Crebolder, H., & van Eijk, J.T.M (2005). Effectiveness and cost-effectiveness of a multidisciplinary intervention programme to prevent new falls and functional decline among elderly persons at risk: design of a replicated randomised controlled trial, *BMC Public Health*, *5*, 6. Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service, *Aust Health Rev, 26 (**3**),* 88-97. Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214.
2	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis, *Medical Journal of Australia, 173 (**4**),* 179-182. Guttman, A., Afilao, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E. & Rosenthal, S. (2004). An emergency department-based nurse discharge coordinator for elder patients: does it make a difference? *Academic Emergency Medicine, 11 (**12**),* 1318-1327.
3	Kannus, P., Parkkari. J., Koskinen, S., Niemi, S., Palvanen, M., Jarvinen M., et al. (1999). Fall-induced injuries and deaths among older adults, *JAMA, 281*(***20***), 1895-9. Stel, V.S., Smit, J.H., Pluijm, S.M., Lips, P., (2004). Consequences of falling in older men and women and risk factors for health service use and functional decline, *Age & Ageing, 33 **(1)**,* 58-65. Tinetti, M.E., McAvay, G., & Claus, E. (1996).Does multiple risk factor reduction explain the reduction in fall rate in the Yale FICSIT Trial? Frailty and Injuries Cooperative Studies of Intervention Techniques. *Am J Epidemiol, 144(**4**)*, 389-99? Whitehead, C., Wundke, R., Crotty, M., Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service, *Aust Health Rev, 26 **(3)**,* 88-97.

	Davies, A.J., & Kenny, RA. (1996). Falls presenting to the accident and emergency department: types of presentation and risk factor profile, *Age & Ageing,* 25 (**5**), 362-6. Tinetti, M.E. (2003). Clinical practice. Preventing falls in elderly persons, *N Engl J Med, 348 (**1**),* 42-9.
4	Khan, S.A., Miskelly, F.G., Platt, J.S., & Bhattachtyya, B.K. (1996). Missed diagnoses amongst elderly patients discharged from an accident and emergency department, *J Accid Emerg Med, 13,* 256-7. Baraff, I.J., Lee, T.J., Kader, S., & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31.
8	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people. Rubenstein, L.Z. (2006). Falls in older people: epidemiology, risk factors and strategies for prevention, *Age & Ageing, 35-S2,* ii37-ii41.
9	Chou, W.C., Tinetti, M.E., King, M.B. et al. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice, *J Gen Intern Med, 2,* 117-122. Tinetti, M.E., Gordon, C., Sogolow, E. et al. (2006). Fall-risk evaluation and management. Challenges in adopting geriatric care practices, G*erontologist, 46,* 717-725.
11	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis. *Medical Journal of Australia, 173,* 179-182. Close, J. & Glucksman, E. (2000). Falls in the elderly; what can be done? We need to streamline referral to falls programs and co-ordinate services within and outside hospitals, *Med J Aust, 173,* 176-177.
12	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis. *Medical Journal of Australia, 173,* 179-182. Khan, S.A., Miskelly, F.G., Platt, J.S. & Bhattachtyya, B.K. (1996). Missed diagnoses amongst elderly patients discharged from an accident and emergency department, *J Accid Emerg Med, 13,* 256-7.

	Baraff, I.J., Lee, T.J., Kader, S., Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31. Baraff, L.J. (1998). Emergency Department management of falls in the elderly, *West J Med, 168 (**3**),* 183-4.
14	Davies, A.J. & Kenny, R.A. (1996). Falls presenting to the accident and emergency department: types of presentation and risk factor profile, *Age & Ageing,* 25(**5**):362-6. Bell, A.J., Talbot-Stern., J.K. & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis, *Medical Journal of Australia, 173,* 179-182. Baraff, I.J., Lee, T.J., Kader, S. & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31
16	Rubenstein, L.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L., & Osterweil, D. (1990). The value of assessing falls in an elderly population. A randomised clinical trial, *Ann Intern Med, 113,* 308-16.
19	Nevitt, M.C., Cummings, S.R., Kidd, S., et al. (1989). Risk factors for recurrent non-syncopal falls. A prospective study, *JAMA, 261,* 2663-8
20	Davies, A.J. & Kenny, R.A. (1996). Falls presenting to the accident and emergency department: types of presentation and risk factor profile, *Age & Ageing,* 25 (**5**):362-6. Rubenstein, I.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L., & Osterweil, D. (1990). The value of assessing falls in an elderly population: a randomised clinical trial, *Ann Intern Med, 113,* 308-16.
22	Baraff, L.J., Penna, R.D., Williams, N., & Sanders, A. (1997). Practice guideline for the ED management of falls in community dwelling elderly persons, *Annals of Emergency Medicine, 30,* 480-489.
23	Currie, C., Lawson, P., Robertson, C., & Jones A. (1984). Elderly patients discharged from an accident and emergency department—their dependency and support, *Arch Emerg Med 1,* 205–13. Davies, A.J., Kenny, R.A. (1996). Falls presenting to the accident and emergency department: types of presentation and risk factor profile. *Age & Ageing, 25***,** 362–6. Khan, S.A., Miskelly, F.G., Platt, J.S., & Bhattachryya, B.K. (1996). Missed diagnoses among elderly patients discharged from an

	accident and emergency department, *J Accid Emerg Med, 13,* 256–57.
24	Lau, G. (1987). Elderly patient in the accident & emergency department, *Journal of the Hong Kong Medical Association, 39 (**3**),* 168-172.

Table 47- **Reference list with duplicates removed:**

Paper:	**Tally :**	**Total number of times referenced:**
Hendriks, M.R.C., van Haastregt, J.C.M., Diederiks, J.P.M., Evers, S., Crebolder, H., & van Eijk, J.T.M (2005). Effectiveness and cost-effectiveness of a multidisciplinary intervention programme to prevent new falls and functional decline among elderly persons at risk: design of a replicated randomised controlled trial, *BMC PublicHealth,* 5.6.	**I**	**1**
Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214.	**I**	**1**
Chou, W.C., Tinetti, M.E., King, M.B. et al. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice, *J Gen Intern Med, 2,* 117-122.	**I**	**1**
Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people.	**I**	**1**
Rubenstein, L.Z. (2006). Falls in older people: epidemiology, risk factors and strategies for prevention, *Age & Ageing, 35-S2,* ii37-ii41.	**I**	**1**
Tinetti, M.E., Gordon, C., Sogolow, E. et al. (2006). Fall-risk evaluation and management. Challenges in adopting geriatric care practices, G*erontologist, 46,* 717-725.	**I**	**1**
Guttman, A., Afilao, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E. & Rosenthal, S. (2004). An emergency department-based nurse discharge coordinator for elder patients: does it make a difference? *Academic Emergency Medicine, 11 (**12**),* 1318-1327.	**I**	**1**
Stel, V.S., Smit, J.H., Pluijm, S.M. & Lips, P., (2004). Consequences of falling in older men and women and risk factors for health service use and functional decline. *Age & Ageing, 33 (**1**)*:58-65.	**I**	**1**
Tinetti, M.E. (2003). Clinical practice. Preventing falls in elderly persons, *N Engl J Med, 348 (**1**),* 42-9.	**I**	**1**
Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service. *Aust Health Rev, 26 (**3**),* 88-97.	**II**	**2**
Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis, *Medical Journal of Australia, 173 (**4**),* 179-182.	**IIII**	**4**

Close, J. & Glucksman, E. (2000). Falls in the elderly; what can be done? We need to streamline referral to falls programs and co-ordinate services within and outside hospitals, *Med J Aust, 173,* 176-177.	**I**	**1**
Baraff, I.J., Lee, T.J., Kader, S. &Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31.	**II**	**2**
Kannus, P., Parkkari. J., Koskinen, S., Niemi, S., Palvanen, M., Jarvinen M., et al. (1999). Fall-induced injuries and deaths among older adults, *JAMA, 281* **(*20*)**, 1895-9.	**I**	**1**
Baraff, L.J. (1998). Emergency Department management of falls in the elderly, *West J Med, 168* ***(3)****,* 183-4.	**I**	**1**
Davies, A.J., & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25,* 362-6.	**III**	**3**
Khan, S.A., Miskelly, F.G., Platt, J.S., & Bhattachtyya, B.K. (1996). Missed diagnoses amongst elderly patients discharged from an accident and emergency department, *J Accid Emerg Med, 13,* 256-7.	**III**	**3**
Tinetti, M.E., McAvay, G., & Claus, E. (1996).Does multiple risk factor reduction explain the reduction in fall rate in the Yale FICSIT Trial? Frailty and Injuries Cooperative Studies of Intervention Techniques. *Am J Epidemiol, 144 (**4**)*, 389-99.	**I**	**1**
Rubenstein, L.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L., & Osterweil, D. (1990). The value of assessing falls in an elderly population: a randomised clinical trial, *Ann Intern Med, 113,* 308-16.	**II**	**2**
Nevitt, M.C., Cummings, S.R., Kidd, S., et al. (1989). Risk factors for recurrent non-syncopal falls. A prospective study, *JAMA, 261,* 2663-8.	**I**	**1**
Lau, G. (1987). Elderly patient in the accident & emergency department, *Journal of the Hong Kong Medical Association, 39 (**3**),* 168-172.	**I**	**1**
Currie, C.T., Lawson, P.M.M., Robertson, C.E., & Jones, A. (1984). Elderly patients discharged form an accident and emergency department- their dependency and support, *Arch Emerg Med, 1,* 205-13.	**I**	**1**

Number of references for follow-up after duplicates removed= 22

Appendix G:

Table 48- Papers from section G excluded from the next stage analysis of full-text (post screening for eligibility from title and abstract). Section H on diagram (Figure One):

	Rubenstein, L.Z. (2006). Falls in older people: epidemiology, risk factors and strategies for prevention, *Age & Ageing, 35-S2,* ii37-ii41. **Speaks about incidence and prevention, but not relevant to Emergency Department management and potential preventative assessment strategies.**
	Guttman, A., Afilao, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E. & Rosenthal, S. (2004). An emergency department-based nurse discharge coordinator for elder patients: does it make a difference? *Academic Emergency Medicine, 11 (**12**),* 1318-1327. **Not falls specific.**
	Tinetti, M.E., Gordon, C., Sogolow, E. et al. (2006). Fall-risk evaluation and management. Challenges in adopting geriatric care practices, G*erontologist, 46,* 717-725. **Discussion related to falls management, but not research and not Emergency Department focused.**
	Close, J., Glucksman, E. (2000). Falls in the elderly; what can be done? We need to streamline referral to falls programs and co-ordinate services within and outside hospitals, *Med J Aust, 173,* 176-177. **Commentary not research.**
	Kannus, P., Parkkari. J., Koskinen, S., Niemi, S., Palvanen, M., Jarvinen M., et al. (1999). Fall-induced injuries and deaths among older adults, *JAMA, 281*(***20***), 1895-9. **Talks about incidence of falls (in over 50s) and not specific to management.**

Appendix H:

Table 49- Papers from G included in full-text analysis. Section I on diagram (Figure One):

Papers of relevance

Reasons for relevance

1	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people. **NB: no abstract so looked at executive summary to assess relevance. Specific assessment of guideline adherence.**
2	Chou, W.C., Tinetti, M.E., King, M.B. et al. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice, *J Gen Intern Med, 2,* 117-122. **The objective is to identify barriers and facilitators to adherence to fall risk management by primary care providers**
3	Hendriks, M.R.C., van Haastregt, J.C.M., Diederiks, J.P.M., Evers, S., Crebolder, H., & van Eijk, J.T.M (2005). Effectiveness and cost-effectiveness of a multidisciplinary intervention programme to prevent new falls and functional decline among elderly persons at risk: design of a replicated randomised controlled trial, *BMC Public Health,* 5, 6. **Mentions falls and emergency care.**
4	Stel, V.S., Smit, J.H., Pluijm, S.M., Lips, P., (2004). Consequences of falling in older men and women and risk factors for health service use and functional decline. *Age & Ageing, 33 (**1**)*:58-65. **Looks at risk factors for future health service utilisation after presenting with a fall- has implications with regards to effective management.**
5	Tinetti, M.E. (2003). Clinical practice. Preventing falls in elderly persons, *N Engl J Med, 348 (**1**),* 42-9. **Discussion related to falls management.**
6	Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service. *Aust Health Rev, 26 (**3**),* 88-97. **Looks at patients' not healthcare professionals' uptake of fall prevention strategies.**
7	Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214. **Looks at falls post Emergency Department discharge and suggests ways they could be prevented.**

8	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis. *Medical Journal of Australia, 173,* 179-182. **Concludes that patients at risk can be identified in the Emergency Department and referred to falls prevention programmes.**
9	Baraff, I.J., Lee, T.J., Kader, S., & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31. **Specific relevance demonstrated in the title- 'Effect of a Practice Guideline for Emergency Department Care of Falls in Elder Patients on Subsequent Falls and Hospitalizations for Injuries'.**
10	Baraff, L.J. (1998). Emergency Department management of falls in the elderly, *West J Med, 168 (**3**),* 183-4. **Speaks specifically about the expectations with regards to Emergency Department management of older adults' care.**
11	Davies, A.J., & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25,* 362-6. **Speaks about the benefits of efficient assessment of older adults, with regards to repeat presentation of falls at Emergency Departments.**
12	Khan, S.A., Miskelly, F.G., Platt, J.S., & Bhattachtyya, B.K. (1996). Missed diagnoses amongst elderly patients discharged from an accident and emergency department, *J Accid Emerg Med, 13,* 256-7. **Talks about specialist treatment older adults require.**
13	Tinetti, M.E., McAvay, G., & Claus, E. (1996).Does multiple risk factor reduction explain the reduction in fall rate in the Yale FICSIT Trial? Frailty and Injuries Cooperative Studies of Intervention Techniques. *Am J Epidemiol, 144 (**4**)*, 389-99. **Looks at the value of patient follow-up.**
14	Rubenstein, L.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L., & Osterweil, D. (1990). The value of assessing falls in an elderly population. A randomised clinical trial, *Ann Intern Med, 113,* 308-16. **Focused on falls assessment in a care home context.**
15	Nevitt, M.C., Cummings, S.R., Kidd, S., et al. (1989). Risk factors for recurrent non-syncopal falls. A prospective study, *JAMA, 261,* 2663-8. **Looks at risk factors for recurrent falls.**
16	Lau, G. (1987). Elderly patient in the accident & emergency department, *Journal of the Hong Kong Medical Association, 39 (**3**),* 168-172. **Talks about incidence of presentation.**
17	Currie, C.T., Lawson, P.M.M., Robertson, C.E., & Jones, A. (1984). Elderly patients discharged form an accident and emergency department- their dependency and support, *Arch Emerg Med, 1,* 205-13. **Looks at Emergency Department compliance with recommendations and efficiency with regards to care.**

Appendix I:

Papers from I excluded post full-text analysis. Section J on diagram (*Figure One*)

Reasons for irrelevance and exclusion

Chou, W.C., Tinetti, M.E., King, M.B. et al. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice, *J Gen Intern Med, 2,* 117-122.

The objective is to identify barriers and facilitators to adherence to fall risk management by primary care providers, not Emergency Department doctors.

Hendriks, M.R.C., van Haastregt, J.C.M., Diederiks, J.P.M., Evers, S., Crebolder, H., & van Eijk, J.T.M (2005). Effectiveness and cost-effectiveness of a multidisciplinary intervention programme to prevent new falls and functional decline among elderly persons at risk: design of a replicated randomised controlled trial, *BMC PublicHealth,* 5, 6.

Looks at designing a study from the findings not testing one.

Stel, V.S., Smit, J.H., Pluijm, S.M. & Lips, P., (2004). Consequences of falling in older men and women and risk factors for health service use and functional decline. *Age & Ageing, 33 (**1**),* 58-65.

Looks at risk factors for future health service utilisation after presenting with a fall- has implications with regards to effective management. However, it speaks in terms of epidemiology and does not detail the ways the falls were managed.

Tinetti, M.E. (2003). Clinical practice. Preventing falls in elderly persons, *N Engl J Med, 348 (**1**),* 42-9.
Only discussion related to falls management, not research.

Baraff, L.J. (1998). Emergency Department management of falls in the elderly, *West J Med, 168 (**3**),* 183-4.
Commentary not research.

Khan, S.A., Miskelly, F.G., Platt, J.S., & Bhattachtyya, B.K. (1996). Missed diagnoses amongst elderly patients discharged from an accident and emergency department, *J Accid Emerg Med, 13,* 256-7.
Talks about specialist treatment older adults require with specific reference to the importance of detecting fall risks.

Tinetti, M.E., McAvay, G., & Claus, E. (1996).Does multiple risk factor reduction explain the reduction in fall rate in the Yale FICSIT Trial? Frailty and Injuries Cooperative Studies of Intervention Techniques. *Am J Epidemiol, 144(**4**)*, 389-99.
Looks at the value of patient follow-up.

Rubenstein, L.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L., & Osterweil, D. (1990). The value of assessing falls in an elderly population. A randomised clinical trial, *Ann Intern Med, 113,* 308-16.
Focused on falls assessment but in a care home context.

Nevitt, M.C., Cummings, S.R., Kidd, S., et al. (1989). Risk factors for recurrent non-syncopal falls. A prospective study, *JAMA, 261,* 2663-8.
Looks at risk factors for recurrent falls, but not in an Emergency Department context.

Lau, G. (1987). Elderly patient in the Accident & Emergency department, *Journal of the Hong Kong Medical Association, 39 (**3**),* 168-172.

Talks about incidence of presentation but does not mention management.

Currie, C.T., Lawson, P.M.M., Robertson, C.E., & Jones, A. (1984). Elderly patients discharged form an accident and emergency department- their dependency and support, *Arch Emerg Med, 1,* 205-13.

Looks at Emergency Department compliance with recommendations and efficiency with regards to care, but too generalised.

Appendix J:

Table 50- Papers from I included in data synthesis post full-text analysis. Section K on diagram (Figure One):

Reasons for relevance and inclusion

1	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people. **Specific assessment of guideline adherence.**
2	Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service, *Aust Health Rev, 26 (**3**),* 88-97. **Looks at patients' not healthcare professionals' uptake of fall prevention strategies. Hence it looks at healthcare professionals' management.**
3	Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214. **Looks at falls post Emergency Department discharge and suggests ways they could be prevented.**
4	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis, *Medical Journal of Australia, 173,* 179-182. **Concludes that patients at risk can be identified in the Emergency Department and referred to falls prevention programmes.**
5	Baraff, I.J., Lee, T.J., Kader, S., & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31. **Specific relevance demonstrated in the title- 'Effect of a Practice Guideline for Emergency Department Care of Falls in Elder Patients on Subsequent Falls and Hospitalizations for Injuries'.**
6	Davies, A.J., & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25,* 362-6. **Speaks about the benefits of efficient assessment of older adults presenting with falls with regards to repeat presentation at Emergency Departments.**

Appendix K:

Table 51- References for studies included in data extraction and research synthesis (Sum of F and K). Section L on diagram (Figure One):

Studies included in data synthesis (Sum of F and K in flow diagram).

Most recent first

Reasons for relevance and inclusion

1	De Vries, O.J., Peeters, G.M.E.E., Elders, P.J.M., Muller. M., Knol, D.L., Danner, S.A., Bouter, L.M. & Lips, P. (2010). Multifactorial intervention to reduce falls in older people at high risk of recurrent falls: A randomized controlled trial, *Archives of Internal Medicine, 170***,** 1110-1117. **Specific relevance identified in title. Results suggest that management in an Emergency Department may not influence outcomes.**
2	Hill, K., Womer, M., Russell, M., Blackberry, I., & McGann A. (2010). Fear of falling in older fallers presenting at Emergency Departments, *Journal of Advanced Nursing,* 66**,** 1769-1780. **Talks about the Emergency Department's role in assessing and managing individuals fear of falling.**
3	Boele van Hensbroek, P., van Dijk, N, van Breda, G.F, Scheffer, A.C, van der Cammen, T.J.M., Lips, P., Goslings, J.C & de Rooij, S.E. (2009).The CAREFALL Triage instrument identifying risk factors for recurrent falls in elderly patients, *American Journal of Emergency Medicine, 27***,** 23-37. **Looks at assessment of falls and modifiable risk factors, within the Emergency Department setting.**
4	Miller, E., Wightman, E., Rumbolt, K., McConnell, S., Berg, K., Devereaux, M. & Campbell, F. (2009). Management of fall-related injuries in the elderly: a retrospective chart review of patients presenting to the Emergency Department of a community-based teaching hospital, *Physiotherapy Canada, 61***,** 26-38. **Specifically looks at the management of falls in the Emergency Department.**
5	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L., Ghurin, L.C.,& Dharmage, S. C. (2009). Development of the falls risk for older people in the community (FROP-Com) screening tool, *Age & Ageing, 38****,*** 40-46. **Looks at the FROP-Com tool being used in the Emergency Department as a quick way to assess clinical outcomes and methods for prevention.**
6	Vivanti, A. P., Mcdonald, C. K., Palmer, M. A. & Sinnott, M. (2009). Malnutrition associated with increased risk of frail mechanical falls

	among older people presenting to an Emergency Department. *EMA - Emergency Medicine Australasia, 21*, 386-394. **Talks about assessment methods which should take place.**
7	Yeung, P. Y., Woo J., Yim, V. W. T. & Rainer, T. H. (2009). Heterogeneity of health profiles of older people presenting to an Accident and Emergency Department with a fall, *International Journal of Gerontology, 3*, 156-162. **Recommends a management pathway**
8	Youde, J., Husk, J., Lowe, D., Grant, R., Potter, J. & Martin, F. (2009). The national clinical audit of falls and bone health: the clinical management of hip fracture patients. *Injury, 40*, 1226-1230. **Makes service improvement recommendations regarding fall management.**
9	Hendriks, M.R., Bleijlevens, M.H., Van Haastregt, J.C. **et al.** (2008). Lack of effectiveness of a multidisciplinary fall-prevention program in elderly people at risk: A randomized, controlled trial, *Journal of the American Geriatrics Society, 56*, 1390-1397. **A fall management programme in the Emergency Department context.**
10	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2008). The reliability and predictive accuracy of the falls risk for older people in the community assessment (FROP-Com) tool, *Age & Ageing, 37,* 634-639. **Looks at the important role Emergency Department assessment has in prevention.**
11	Kalula, S. Z., De Villiers, L., Ross, K. & Ferreira, M. (2006). Management of older patients presenting after a fall - An Accident and Emergency Department audit, *South African Medical Journal, 96*, 718-721. **Specific relevance identified in the title.**
12	Paniagua, M. A., Malphurs, J. E. & Phelan, E. A. (2006). Older patients presenting to a county hospital ED after a fall: missed opportunities for prevention, *American Journal of Emergency Medicine, 24*, 413-417. **Looking at the Emergency Department awareness of falls and secondary prevention.**
13	Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). National Audit of the Organisation of service for falls and bone health for older people. **Specific assessment of guideline adherence.**
14	Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2006). Falls risk and functional decline in older fallers discharged directly from Emergency Departments. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences,* 61, 1090-1095. **Looks at the role the Emergency Department plays in prevention.**
15	Salter, A.E., Khan, K.M., Donaldson, M.G., Davis, J.C., Buchanan, J., Abu-Laban, R.B., Cook, W.L,, Lord, S.R. & McKay, H.A. (2006). Community-dwelling seniors who present to the Emergency Department with a fall do not receive Guideline care and their fall risk

	profile worsens significantly: A 6-month prospective study. *Osteoporosis International,* 17**,** 672-683. **Looks at adherence to guideline care and the implications of non-adherence.**
16	Whitehead, C. H., Wunke, R. & Crotty, M. (2006). Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies, *Clinical Rehabilitation,* 20**,** 536-543. **Looks at ways falling could be better managed by not just making recommendations but by changing behaviour.**
17	Davison, J., Bond, J., Dawson, P., Steen, I. N. & Kenny, R. A. (2005). Patients with recurrent falls attending Accident & Emergency benefit from multifactorial intervention - A randomised controlled trial, *Age & Ageing,* 34**,** 162-168. **Shows the benefits intervening can have.**
18	Donaldson, M.G., Khan, K.M., Davis, J.C., Salter, A.E., Buchanan, J., McKnight, D., Janssen, P.A., Bell, M., McKay, H.A. (2005**).**Emergency Department fall-related presentations do not trigger fall risk assessment: A gap in care of high-risk outpatient fallers, *Archives of Gerontology & Geriatrics, 41***,** 311-317. **Specifically looks at the adherence to guideline care.**
19	Fortinsky, R.H., Lannuzzi-Sucich, M., Baker, D.I, Gottschalk, M., King, M.B., Brown, C.J., & Tinetti, M.E. (2004). Fall-risk assessment and management in clinical practice: views from Healthcare providers. *Journal of the American Geriatrics Society, 52***,** 1522-1526. **Very similar to my study design.**
20	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. &Swift, C. (2003). Predictors of falls in a high risk population: results from the prevention of falls in the elderly trial (PROFET). *Emergency Medicine Journal, 20***,** 421-426. **Follow-up study of Close (1999) detailed later. Provides a practical approach to implementing PROFET trial findings in an effort to improve Emergency Department management of falls.**
21	Shaw, F.E., Bond, J., Richardson, D.A., Dawson, P., Steen, I.N., McKeith, I.G., Kenny, R.A. (2003). Multi-factorial intervention after a fall in older people with cognitive impairment and dementia presenting to the Accident and Emergency Department: Randomised controlled trial. 7380 ed. United Kingdom. **Looks at the effects of an intervention conducted in an Emergency Department.**
22	Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service, *Aust Health Rev, 26 (**3**),* 88-97. **Looks at patients' not healthcare professionals' uptake of fall prevention strategies. Hence it looks at healthcare professionals' management.**
23	Lightbody, E., Watkins, C., Leathley, M., Sharma, A. & Lye, M. (2002). Evaluation of a nurse-led falls prevention programme versus usual care: a randomized controlled trial, *Age & Ageing, 31***,** 203-211.

	Looks at the care pathway after Emergency Department management. Talks about liaison between an Emergency Department and other areas of care.
24	Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214. **Looks at falls post Emergency Department discharge and suggests ways they could be prevented.**
25	Bell, A.J., Talbot-Stern, J.K., & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis, *Medical Journal of Australia, 173,* 179-182. **Concludes that patients at risk can be identified in the Emergency Department and referred to falls prevention programmes.**
26	Nordell, E., Jarnlo, G. B., Jetsen, C., Nordstrom, L. & Thorngren, K. G. (2000). Accidental falls and related fractures in 65-74 year olds: A retrospective study of 332 patients, *Acta Orthopaedica Scandinavica, 71***,** 175-179. **Talks about the implications of Emergency Department management.**
27	Baraff, I.J., Lee, T.J., Kader, S., & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-31. **Specific relevance demonstrated in the title- 'Effect of a Practice Guideline for Emergency Department Care of Falls in Elder Patients on Subsequent Falls and Hospitalizations for Injuries'**
28	Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. & Swift, C. (1999). Prevention of falls in the elderly trial (PROFET): a randomised controlled trial, *Lancet, 353* (**9147**)*,* 93-97. **An assessment external to the Emergency Department but looks at how well the Emergency Department management of a fall was handled retrospectively and how methods could be improved.**
29	Lee, V. M., Wong, T. W. & Lau, C. C. (1999). Home accidents in elderly patients presenting to an Emergency Department, *Accident & Emergency Nursing, 7***,** 96-102. **Looks at the role of the Emergency Department in prevention of falls through appropriate management.**
30	Davies, A.J., & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25,* 362-6. **Speaks about the benefits of efficient assessment of older adults presenting with falls with regards to repeat presentation at Emergency Departments.**

Appendix L:

Table 52- References split into categories representing their focus with regards to falls management:

A- Focus on what has/is being done with regards to fall management.	B- Focus on what could be done to improve fall management.
1. Fortinsky et al. (2004)	1. Davies and Kenny (1996)
2. Donaldson et al. (2005)	2. Baraff et al. (1999)
3. Salter et al. (2006)	3. Close et al. (1999)
4. Paniagua et al. (2006)	4. Lee et al. (1999)
5. Kalula et al. (2006)	5. Bell et al. (2000)
6. Miller et al. (2009)	6. Nordell et al. (2000)
7. RCP (2009)	7. Kingston et al. (2001)
8. Youde et al. (2009)	8. Lightbody et al. (2002)
	9. Close et al. (2003)
	10. Shaw (et al. 2003)
	11. Whitehead et al. (2003)
	12. Davidson et al. (2005)
	13. Russell et al. (2006)
	14. Whitehead et al. (2006)
	15. Hendriks et al. (2008)
	16. Russell et al. (2008)
	17. Boele van Hensbroek et al. (2009)
	18. Russell et al. (2009)
	19. Vivanti et al. (2009)
	20. Yeung et al. (2009)
	21. De Vries et al. (2010)
	22. Hill et al. (2010)

Appendix M:

Table 53- Data extraction table:

Lead author (year):		
	Aim/ Hypothesis Background:	
Sample	Population/ characteristics of participants	
	Sample size	
Methodology	Design	
	Setting	
Results	Outcome measures	
	Key findings Statistical significance of results (if applicable)	

	Barriers/ Enablers: (specifically noted by the author or can be identified by the reviewer from reading the findings)	
	Implications of findings	

Appendix N:

Data extracted- Category a) current levels of adherence

Table 54- Category a) Data extraction:

		1) Fortinsky et al. (2004)
	Aim and background	"To determine the extent to which healthcare providers reportedly address evidence-based fall risk factors in older adults after exposure to an educational intervention and to determine barriers when healthcare professionals intervene with or refer older adults with identified fall risk factors (p 1)."
Sample	**Population/ characteristics of participants**	Inclusion/exclusion: Emergency department physicians, discharge planners, care coordinators, home health agency nurses and office-based primary care physicians. Average age 46. NB: this average age refers to the age of the healthcare professionals (HCPs) participating in the educational intervention. The educational intervention is aimed at improving older adult patient care.
	Sample size	22 female and 11 male= 33 participants: 6 telephone interviews + 27 in person.
Method	**Design**	Cross-sectional closed and open-ended survey for in person and telephone use.
	Setting	Geographical area of Connecticut where the Connecticut collaboration for fall prevention has been implemented, USA.
Results	**Outcome measures**	Self-reported practice (intervention or referral). Barriers when addressing risk factors for falls.
	Key findings- statistical significance of results (if applicable)	"Results within each provider group indicate that Emergency Department physicians were most likely to report directly intervening when addressing balance disturbances and postural hypotension (60%) and were most likely to report referring for gait/transfer impairments (80%) and balance disturbances (60%)." Nurses and social workers conducting hospital- based discharge planning or care coordination were most likely to report intervening when addressing postural hypotension (60%); reported referral rates were quite high in this provider group for most fall-risk factors (60–80%).

		The majority of home health agency nurses (60–90%) reported intervening for all risk factors except sensory/perceptive deficits, and reported referral rates were high for most risk factors except multiple medications and sensory/ perceptive deficits. Office-based primary care physicians reported high rates of intervention for multiple medications (88%) and postural hypotension (75%); reported referral rates were highest for gait/transfer impairments (88%) and environmental hazards (75%) (p 1524).”
	Barriers/ enablers:	Barriers:- patient compliance (willingness to make sacrifices/change). Barriers to referral: lack of physician availability/ co-operation, MediCare reimbursement limitations, unavailability of relevant community services, patient compliance with referral recommendations. Enablers: empirical data supporting management, organised referral protocol, addressing patient compliance.
	Implications of findings	Patient education is necessary as well as healthcare professional education.

		2) Donaldson et al. (2005)
	Aim and background	"We wanted to determine whether women aged 70 years and older who presented to the Emergency Department (ed) with a fall and injury, received guideline care within 18 months or presentation (p 311)."
Sample	**Population/ characteristics of participants**	Inclusion /exclusion: Women aged 70+ (mean age 81). Individuals not admitted to hospital. "a fall was defined as unintentionally coming to rest on the ground or other lower level, not caused by an overwhelming external force (p 312)."
	Sample size	63. 41% of 153 eligible people participated.
Method	**Design**	Prospective cohort sampling from an Emergency Department census. Participants were invited to participate in structured telephone interviews which were conducted 18 months after Emergency Department presentation.
	Setting	Emergency department in Vancouver- major patient care, teaching and research hospital, Canada.
Results	**Outcome measures**	Proportion of women who reported falls-specific referrals. Index fall.
	Key findings Statistical significance of results (if applicable)	Descriptive statistics: The most frequent referral was to family practitioners (32%) followed by physiotherapist (24%). Only one person was referred to a falls clinic.18 months after initial presentation to the falls clinic 44% of participants had had another fall.40% of participants had had a fracture previous to the fall they presented to the Emergency Department with.
	Barriers/ enablers:	Enabler: "potential to develop systems which will allow sustainable delivery of evidence-based healthcare to a population at high risk of future falls and injuries (p 316)."
	Implications of findings	"evidence-based guidelines are very useful but health will only improve if the advice contained in them is translated to at-risk members of the public (p 317)."

		3) Salter et al. (2006)
	Aim and background	"(1) to ascertain whether the care received by 54 older adults after an Emergency Department (ED) fall presentation met internationally recommended 'guideline care', and (2) prospectively evaluate this cohort's 6-month change in fall risk profile (p 672)."
Sample	**Population/ characteristics of participants**	Inclusion /exclusion: 'fall-related complaint', a fall was defined as "unintentionally coming to the ground or some lower level other than as a consequence of sustaining a violent blow, falling from a significant height as a result of mechanical failure or sudden onset of paralysis as in a stroke or epileptic seizure… the patient needed to have been: able to communicate in English, aged 70–years or older and community-dwelling on Vancouver's lower mainland within 150 km of Vancouver general hospital. For entry into the study, the participant needed to have been discharged back into the community from the ed without admission to hospital. We excluded: all residents of nursing homes or extended care facilities, patients with a history of pathology or impairments known to cause falling, including Parkinson's disease, stroke and multiple sclerosis, and patients with significant cognitive impairment (score <24 on the Folstein mini-mental state examination- Folstein, Folstein and mchugh,1975)" (p 673). Defined with reference to: Lord, Menz and Tidemann (2003).
	Sample size	51 completed.
Method	**Design**	Prospective cohort study. Measured physiological profile and assessed functional status, balance confidence, depression and physical activity. Measured by: chart examination, daily patient diary of falls submitted monthly, patient interview and physician reconciliation where needed. 6 month follow-up.
	Setting	Urban university tertiary Emergency Department Vancouver, Canada.
Results	**Outcome measures**	Care, fall risk, functional ability, confidence, dependence.

	Key findings Statistical significance of results (if applicable)	Guideline care was not being provided by either ed physicians or other HCPs at 6 month follow-up "only 2 of 54 (3.7%) of the fallers who presented to the ed received care consistent with AGS [American Geriatric Society] guidelines (p 672)." Only 8 people had some guidelines care at follow-up -2 complete and 6 partial. 15 were discharged from the Emergency Department with no further instruction- 3 returned within 24 hours with another fall (one while waiting for transport). "baseline physiological fall risk scores classified the study population at a 1.7 SD higher risk than a 65-year-old comparison group, and during the 6-month follow-up period the mean fall-risk score increased significantly. Within 6 months of the index ed visit; five participants had suffered six fall-related fractures. We conclude that this group of community-dwelling fallers, who presented for ed care with a clinical profile suggesting a high risk of further falls and fracture, did not receive guideline care and worsened in their fall risk profile by 29.5% (p 672)."
	Barriers/ enablers:	Barriers: -obtaining relevant medical information. -us billing incentive for family physicians (FP) to undertake a fall risk assessment. Enabler: Patient awareness of management may improve it.
	Implications of findings	Gap in care. Findings call for novel methods of knowledge translation.

		4) **Paniagua et al. (2006)**
	Aim and background	The aim was "to identify and characterise older patients who presented to an ed after having fallen, and to examine to what extent fall risk factors were identified and addressed in the ed setting. Specifically to assess whether fall risk factors were documented in the ed record and to determine whether ed providers are managing patients according to clinical practice guidelines for falls (p 414)."
Sample	**Population/ characteristics of participants**	Patients aged 65 and over. Mean age 78.4."the majority (57.1%) of fallers were white; more than half (57.3%) were men. 14 (12.1%) had fallen during the previous year. A large proportion of those who had fallen were aged 80 years or older (p 415)."
	Sample size	117.
Method	**Design**	Retrospective review of medical records (January-June 2002).
	Setting	Harborview medical centre Emergency Department, Seattle, USA.
Results	**Outcome measures**	Fall risk factors.
	Key findings- Statistical significance of results (if applicable)	"this study was able to illustrate the importance of risk factor identification in the oldest-old age group (older than 85 years) in concordance with established guidelines in the geriatrics literature, as well as introduce the potential significance of alcohol use (p 415)." "most fallers were not asked about a history of prior falls, nor were they scheduled for follow-up for the fall itself (p 416)."
	Barriers/ enablers:	Barriers: the above "may be because of a lack of awareness of the considerable morbidity and mortality associated with falls or because of an absence of a program to which patients could be referred for further evaluation (p 416)." "because of the nature of the ed setting, where time is limited for delivery of anything beyond care for the acute problem, care for the fall itself may not be a priority (p 416)."
	Implications of findings	"older adults who have fallen and sustained a minor injury are at exceptionally high risk for recurrent falls with major injury. Thus, recognition of this group and further action to reduce fall risks are essential (p 416)." Further research was recommended by the authors.

		5) Royal College of Physicians - RCP (2009)
	Aim and background	"Well organised services based on national standards and evidence-based guidelines can prevent future falls and reduce death and disability from fractures (P7)."
Sample	**Population/ characteristics of participants**	National audit.
	Sample size	National Audit.
Method	**Design**	National audit.
	Setting	National Audit, UK.
Results	**Outcome measures**	Standards of care – compared to 2005 audit.
	Key findings- Statistical significance of results (if applicable)	Opportunities to prevent recurrent falls and fractures are being missed. The risk assessment being conducted is inadequate. Services with Falls coordinators and Fracture Liaison Nurses have better case findings to identify high risk fallers. Many people/places are not following the guidelines.
	Barriers/ enablers:	Audit not investigation so none detailed or identified.
	Implications of findings	**It is important to / priorities are to:** Identify high risk patients and do the right things with these patients. Support services. Raise quality.

		6) Kalula et al. (2006)
Sample	**Aim and background**	"To determine the management of older adults presenting with a fall (P 718)." "Management should include treatment from assessment of injuries and correction of underlying risk factors in order to prevent recurrent falls (P 718)."
	Population/ characteristics of participants	Patients aged 65 and over.
Method	**Sample size**	100: 28 male 72 female.
	Design	Retrospective audit identifying circumstances surrounding a fall from medical records, determining factors predisposing falls and identifying factors elicited in examination which may contribute to falls and subsequent managements, determining referral, management, risk factors and interventions.
Results	**Setting**	Accident & Emergency Department Groote Schuur Hospital, Cape Town, South Africa.
	Outcome measures	Injuries sustained and preventative measures. Proportion of patients for whom risk factors were identified and managed and the proportion of patients with whom an appropriate intervention was implemented.
	Key findings- Statistical significance of results (if applicable)	Cause, history of fall and drug/alcohol intake was recorded < 20% cases. Risk factors were determined in 8% cases. 75% of patients were referred for further management. Baseline tests <30% cases.
	Barriers/ enablers:	**Barrier:** Not practical/feasible to give a detailed assessment of all Older adults who present at and Emergency Department. **Enablers:** Streamlined referral and improved education.
	Implications of the findings:	Effective management and/or referral → better outcomes.

		7) Miller et al. (2009)
	Aim and background	"To identify current practice for elderly individuals who have sustained a fall-related injury and subsequently presented to the Emergency Department (P 26)." - Falls are a major health concern. - There is an increase in the numbers of falls in the over 65 age group. - Fall risk assessment and intervention not being conducted.
Sample	**Population/ characteristics of participants**	Aged 65 and over. Fall-related injury. Presented June 2004-May 2005.
	Sample size	300.
Method	**Design**	Longitudinal retrospective chart review was conducted with patient records obtained over a 12 month period. Information was collected on risk factors, demographics, medical history, management, outcomes, circumstances surrounding the fall, Emergency Department management, healthcare professional involvement, patient outcomes.
	Setting	Community-based hospital, Toronto, Canada.
Results	**Outcome measures**	Patient outcomes post Emergency Department management, Risk factors, Management, Demographics, History.
	Key findings- Statistical significance of results (if applicable)	29.3% had a previous history of falls. 9.3% of these presented to Emergency Department in the 6 months prior to data collection. Most common diagnosis upon presentation was fracture – 37.7%. 8% returned to the Emergency Department within 6 months presenting with a fall. 17.7% for another reason. There was no referral documented for 62% of patients. Patients had various co-morbidities.
	Barriers/ Enablers:	Potential Barriers: Language barriers, Referral to physiotherapist when there was none as a dedicated resource, No quality management follow-up post healthcare professional education, Time effects/efficiency.
	Implications of findings	Fall management benefits patient care and healthcare management of costs. Implementation of evidence is required.

		8) Youde et al. (2009)
	Aim and background	Assessed compliance with standards- Healthcare Commission funded Royal College of Physicians (RCP) UK Clinical Effectiveness and Evaluation unit audit.
Sample	**Population/ characteristics of participant**	Inclusion/Exclusion: "The audit sample was consecutive patients aged >65 years attending hospital Emergency Departments with proven fractures of the hip for a 3-month period. The sample was restricted to those alive at April 2007 and excluded patients sustaining multiple fractures or having a documented life expectancy of less than 1 year. Target numbers were 20 per site for hip fractures to allow meaningful inter-site comparisons for benchmarking (P 1227)."
	Sample size	20 cases per participating site. 157/172 Acute Trusts submitted data. 84% PCTs.
Method	**Design**	Audit.
	Setting	All acute hospital trusts admitting Orthopaedic trauma cases and all PCTs in England, UK.
Results	**Outcome measures**	Management- presentation, preoperative care, postoperative care.

	Key findings- Statistical significance of results (if applicable)	Currently unacceptable wide variations in delivery of clinical care. “Data was entered for 3184 NoF (Neck of Femur) patients. 80% (2555/3184) were female with a median age of 83 years admitted from their own home (68% 2152/3184). Over 97% (3172/3184) presented to the A&E department on the same day as the fall (88% 2813/3184). The time in the A&E department was less than 2 hrs. In only 20% (640/3133) of cases with 23% (716/3133) having a stay of >240 min. 35% (1080/3088) of NoF patients were operated on within 24 hours of admission. Causes of delay to theatre included awaiting medical review (59% 566/956) or organisational reasons (29% 278/956). 48% (1480/2998) of patients were sat out of bed within 24 h. Only 35% (1115/3184) of patients were cared for in an orthogeriatric setting... There are currently unacceptable wide variations in the delivery of clinical care to older people presenting with a NoF. Of concern were the long lengths of time in A&E for many patients and the low level of routine access to pre-operative medical assessment. It is hoped that the launch of joint initiatives between the British Orthopaedic Association and the British Geriatric Society aimed at delivering service improvements in this area should lead to improved outcomes (P 1226).”
	Barriers/ Enablers:	**Barriers:** Process and clinical issues. Orthogeriatric services either do not exist or are unable to respond in a timely manner. There are differing opinions with regards to management. **Enablers:** Education. Redesign of service delivery to improve outcomes and reduce significant variations.
	Implications of findings	Concern regarding length of time in the Emergency Department and low level of routine access to pre-op medical assessment. Launch joint initiatives to improve outcomes. Unacceptable wide variations need addressing.

Category b) papers that focus on what could be done to improve fall management.

Table 55- Category b) Data extraction:

		1) Davies and Kenny (1996)
	Aim and background	"Evaluate the type and frequency of falls presenting to an inner city casualty department, and to identify modifiable risk factors in these patients (P 362)."
Sample	**Population/ characteristics of participants**	"All patients who presented with a fall to A&E of the Royal Victoria Infirmary during a randomly assigned 28-day period in August and September 1994 were screened…Excluded those classified as cognitively impaired, with reference to the mini-mental state exam. Patients with explained falls explained falls or explained losses of consciousness were not studied further. Patients who had injury that precluded and those who lived outside a 15-mile radius of the A&E department were also excluded (P363)." Aged 65 and over.
	Sample size	200- 188 Interviewed.
Method	**Design**	"A prospective descriptive study evaluated those over 65 years presenting to an inner city casualty department with falls. Over a 4-week recruitment period, all consenting subjects completed a semi-structured questionnaire regarding their falls and cognitive status. Those with unexplained or recurrent falls underwent a more detailed assessment: history and examination, gait and balance assessment, visual acuity measurement and neurocardiovascular investigations (including orthostatic blood pressure, carotid sinus massage and head-up tilt testing) (P362)."
	Setting	Inner city Emergency Department Royal Victoria Infirmary, UK.
Results	**Outcome measures**	

	Key findings- Statistical significance of results (if applicable)	29% could recall a reason for falling (accidental) and 30% experienced an unexplained fall or a recurrent fall. A cohort of 26 cognitively normal patients with unexplained falls and recurrent falls was fully investigated. In 23/26 patients, risk factors for falls were found (median: three risk factors). These included: culprit medication (10), gait abnormalities (9) and carotid sinus hypersensitivity (19) (P 362)."
	Barriers/ Enablers:	N/A
	Implications of findings	"Falls are a common presenting complaint yet a fall is readily explained in less than one-third of cases. Investigation of recurrent falls and unexplained falls has a high yield for possibly modifiable cardiac and non-cardiac risk factors. Targeted multi-disciplinary rapid assessment of patients attending the Accident and Emergency Department because of a fall might reduce the number of hospital admissions (P 362)."

		2) Baraff et al. (1999)
	Aim and background	"To determine the effect of a practice guideline for the ED management of falls in community-dwelling elders on selected health outcomes (P 1224)."
Sample	**Population/ characteristics of participants**	"Patients were eligible for the study if they were 65 years of age and presented to one of three study Emergency Departments for a fall. Exclusion criteria: Falls caused by violent blow, loss of consciousness,(fainting/syncope), new stroke or TIA, seizure, sport- or work-related activity, or other higher-risk activity normally associated with falls such as falling off a ladder, chair, fence, or tree ….Patients were excluded if they were admitted to the hospital, were nursing home residents, were previously unable to walk or communicate because of dementia, delirium, or prior stroke, had a terminal illness, were not English- or Spanish-speaking, or were not members of the managed care organization. Patients were not excluded if they walked with assistance such as a cane or walker (P 1225)."
	Sample size	-1899 eligible. -1504 took part in telephone interviews. -1140 pre-intervention group- 907 in this group participated in telephone interviews. -759 post intervention group -597 participated in telephone interviews.
Method	**Design**	"The experimental design was a pre–post-intervention comparison with one-year pre- and post-intervention phases. The guideline was presented to emergency physicians and nurses during a two-week interval between these two periods. The intervention also included health information provided to the subjects and a one-time educational intervention directed at primary care providers. The number of falls in the year following the ED visit was determined by telephone interview. The number of hospitalisations for falls was determined from the Health Maintenance Organisation (HMO) database of all health care encounters (P1224)."
	Setting	Telephone interviews- Patients enrolled from 3 Emergency Department part of a Health Maintenance Organisation (HMO) in Southern California, USA.
Results	**Outcome measures**	Number of falls in year following Emergency Department visit- determined by telephone interview- 12 to 15 months post Emergency Department visit. Number of hospitalisations for falls (determined from HMO database of all healthcare encounters).

	Key findings- Statistical significance of results (if applicable)	"18% of the pre-intervention and 21% of the post-intervention subjects reported at least one fall in the 12 months following their ED visits (p = 0.162). The rate of falls per 100 patient years was 36.2 in both groups. 3% of both groups were hospitalized at least once for a fall in the year following their ED visits. 1% in each group was hospitalized for a hip fracture (P 1224)."
	Barriers/ Enablers:	Potential barrier: Lack of evidence to support evidence-based practice- adherence to guidelines did not result in a reduction of falls.
	Implications of findings	Adherence to guidelines did not result in a reduction of falls. However, it did not affect hospitalisation rates either so although it did not have a positive effect on reducing repeat falls it did not have a significant negative effect in increasing hospital admissions either. Another consideration as to why the adherence to guidelines did not influence fall rate may be the guidelines were not followed directly.

		3) Close et al. (1999)
	Aim and background	Aimed to "assess the benefit of a structured interdisciplinary assessment of people who have fallen in terms of further falls (P 93)."
Sample	**Population/ characteristics of participants**	"...recruited patients between December, 1995, and the end of June 1996. All patients aged 65 years and above, who lived in the local community and attended the Accident and Emergency Department with a primary diagnosis of a fall were potentially eligible .... We excluded patients with cognitive impairment defined as a score on the abbreviated mental test (AMT) 24 of less than 7 and with no regular carer because of difficulties with informed consent and accurate recall of events. Patients, who did not live locally or spoke little or no English, were excluded ... "(P 93)."
	Sample size	184 Intervention. 213 Control. Sample size calculated based on an average number of falls being two per year, SD 1.5, Attrition 25%, 90% power to detect 30% reduction in falls in the intervention group – 114. At P<0.05 this was calculated to be 352 participants required.
Method	**Design**	Randomised Controlled Trail (RCT) Intervention- Occupational Therapy/ist (OT) assessments and medical referral to relevant services as appropriate. Intention to treat analysis. Follow-up data every 4 months for the total of a 1 year period.
	Setting	Contact via telephone and home visit.UK.
Results	**Outcome measures**	Future falls.
	Key findings- Statistical significance of results (if applicable)	"At 12-month follow-up, 77% of both groups remained in the study. The total reported number of falls during this period was 183 in the intervention group compared with 510 in the control group (p=0·0002). The risk of falling was significantly reduced in the intervention group (odds ratio 0·39 [95% CI 0·23–0·66]) as was the risk of recurrent falls (0·33 [0·16–0·68]). In addition, the odds of admission to hospital were lower in the intervention group (0·61 [·35–1·05]) whereas the decline in Barthel score with time was greater in the control group (p<0·00001) (P 93)."
	Barriers/ Enablers:	Potential barrier: Interdisciplinary approach needs to be managed properly in the Emergency Department in order to make appropriate referrals, this may be time-consuming.
	Implications of findings	Interdisciplinary approach to the care of this high-risk population can significantly decrease the risk of further falls and limit functional impairments.

		4) Lee et al. (1999)
	Aim and background	"The aims of this study were (1) to examine the pattern of home accidents in elderly patients presenting to our A&E; (2) to determine the nature and mechanisms of the accidents; and (3) to investigate the associated factors in these accidents (P 97)."
Sample	**Population/ characteristics of participants**	Aged 65 and over. History of injury at home within one week of study.
	Sample size	100.
Method	**Design**	Convenience sample during an eight week period. Questionnaire- Demographics, nature of accidental injury, Health status/physical status, drug history, past health.
	Setting	A&E in Hong Kong, China.
Results	**Outcome measures**	Factors associated with accidents.
	Key findings- Statistical significance of results (if applicable)	A variety of factors were found to be associated with falls. The authors argued that: "Prevention is of course the best strategy. Identifying the causal factors that are associated with home accidents, especially falls, and strategies to prevent them, could help to reduce hospital attendance and admission rate (P 101)."
	Barriers/ Enablers:	A&E non-clinical staff not providing basic nursing advice and education, or advising re. Preventative strategy.
	Implications of findings	A&E non-clinical staff have an important role in prevention.

		5) Bell et al. (2000)
	Aim and background	"To study older patients presenting to the Emergency Department after a fall - factors associated with the fall, injuries sustained and outcome (Bell, Talbot-Stern and Hennessy, 2000)."
Sample	**Population/ characteristics of participants**	"All patients over 65 years presenting to the Emergency Department (ED) after a fall, for whom complete medical records were available (P 179)."
	Sample size	733.
Method	**Design**	"A retrospective analysis using the ED Information System (EDIS), the Trauma Registry and the patient information database (CCIS), in addition to the patient's emergency and inpatient medical records (P 179)."
	Setting	Emergency Department of major inner city hospital, Royal Prince Alfred Hospital, Australia.
Results	**Outcome measures**	Factors associated with a fall, Injuries sustained, Patient outcome.
	Key findings- Statistical significance of results (if applicable)	Results: Of 803 patients over 65 years presenting to the ED after a fall, complete records were available for 733 (91.3%) (283 men and 450 women). Extrinsic (accidental) causes were implicated in more than a third of falls (313 patients [42.7%]). A high proportion of the patients were living at home (520; 70.9%) and walking unaided (389; 53.1%). Although absolute numbers of women increased with age, men were as likely as women to present after a fall. Many patients had fallen before, 39% of the men (111/283) and 24% of the women (110/450). In 78 patients (10.6%), alcohol misuse may have been a direct cause of the fall. The overall injury rate was 70.5% (517/733 patients), the most common injury being an isolated fracture (269/517 patients; 52.0%). In all, 419 patients (57.2%) were admitted to hospital, 48% (200/419) with a fracture and 52% (219/419) for investigation of the medical cause of the fall. The median length of hospital stay was 6 days (mean, 10.4 days; range, 1-129 days); 35% (146/419) of patients were in hospital for more than 10 days (P 179)."
	Barriers/ Enablers:	N/A
	Implications of findings	"Older patients presenting to the ED after a fall had high injury rates, high admission rates and often prolonged hospitalisation. About a third had fallen before. Patients at risk can be identified in the ED and referred to falls prevention programs (P179)."

		6) Nordell et al. (2000)
	Aim and background	Aimed to investigate background factors and consequences of accidental falls, and preventative measures.
Sample	**Population/ characteristics of participants**	Aged 65-74. “Inclusion criteria were that the fall/s had occurred during 1996 and that all the patients lived in the catchment area (229,000 inhabitants, 16,500 born 1922–1931) of Lund University Hospital (P 175).”
	Sample size	332. “Patients, who attended our emergency clinic and had an ICD-10 E-code corresponding to trauma and injuries after a fall (819G, 826 or 880–888) recorded together with the diagnosis, were studied retrospectively (P 175).”
Method	**Design**	Retrospective study of medical records.
	Setting	Dept of Orthopaedics Emergency Clinic, Sweden.
Results	**Outcome measures**	
	Key findings- Statistical significance of results (if applicable)	“... Tried to identify background factors, previous falls, circumstances and consequences of the fall, medical history, medication and physical function in a group of elderly people who had fallen and sustained injuries that needed medical care in the Department of Orthopaedics” emergency clinic. Another aim was to find indicators to prevent falls and fractures...Fractures occurred in three quarters of the registered falls. Women were more prone to sustain fractures than men (74%, p = 0.05)... Information regarding risk factors for falls and fractures were often missing in the patients’ medical records. Impaired walking and balance, and medication increased the risk of falls. Such patients constitute a high risk group for future falls and fractures (P 175).”
	Barriers/ Enablers:	N/A
	Implications of findings	Awareness of and documents about risk factors for falls and fractures is not satisfactory. This should be emphasised and made familiar to non-clinical staff so they implement guidelines.

		7) Kingston et al. (2001)
	Aim and background	"A number of approaches have been found to be effective in preventing falls … However, it is not yet clearly established, which is the most successful approach. This particular paper reports an approach towards rehabilitation post-fall that utilised a health visitor Intervention. The hypothesis tested was that such an intervention within five working days of attending an Accident and Emergency Department (A&E) with a fall would improve the medium-term self-reported functional status of elderly females who had fallen (P 209)."
Sample	**Population/ characteristics of participants**	Female, 65-79. Discharged from Emergency Department to home. Excluded: Cognitive impairment, Males, Females admitted to hospital or any other form of institutional care.
	Sample size	193 identified from case records. Final sample of 109 due to refusal and non-contactability= 60 Intervention and 49 Control.
Method	**Design**	RCT Health Visitor Intervention within 5 working days of Emergency Department discharge. Intervention included information/ advice with regards to: - Pain control and medication. - How to get up after a fall. - Risk factors for falls. - Diet. The control group received standard care. "This consisted of a letter from the A&E Department to their General Practitioner detailing the clinical event, any interventions in the hospital and recommendations as to the follow-up that was thought necessary (P 210)." Face to face methodology was used- interviews with a researcher independent to the study at baseline and within four working days of discharge. Questions related to: Activities of Daily Living (ADL), Biographical details, Medical history, Health status (Short Form 36 questionnaire), Follow-up assessment completed 12 weeks after the fall, by the same researcher.
	Setting	North Non-clinical Staffordshire NHS Trust Accident and Emergency Department, UK.

Results	**Outcome measures**	Change in physical functioning domain of Short Form 36 (SF36) measure of health status. Secondly changes in the remainder of the questionnaire. SF36 Domains: Physical functioning/ Role-physical, Bodily pain, General health, Vitality, Social functioning, Role-emotional, Mental Health.
	Key findings- Statistical significance of results (if applicable)	Both intervention and control could undertake the same ADL prior to the fall. However, more treatment of depression and angina in 12 months prior to fall in control group- statistically significant finding. Statistically significant greater number individuals fell outdoors (63% v 37%, $p<0.05$). Consequences of injury (Emergency Department record) classified into: Soft tissue, Fracture upper, Laceration upper, Fracture lower, Sprain lower, Sprain upper, Laceration lower. There was no statistically significant difference between groups with regards to 7/8 any of the Short Form 36 measures. General health showed small statistically significant deterioration in the intervention group (P=0.037) No stat sig difference between groups regarding experience of future falls. The whole sample was assessed and it was found that there was an improvement in 6/8 domains across day 4 to week 12 (whole assessment period).
	Barriers/ Enablers:	Mentions busy context of Emergency Department.
	Implications of findings	"The challenge of falls research is to develop screening instruments appropriate to the different situations in which falls are identified that can direct those individuals who are most at risk of continuing post-fall impairment. It is suggested that the questions in the domains of *Physical functioning* and *General health* may be used as part of a test battery to identify patients at risk of poor recovery and on whom an intervention might be targeted. It is entirely possible that the populations who fall indoors or outdoors might be different, and that an intervention might be more effective in on particular group… Of course, in the context of a busy A&E Department, the logistics of differentiating falls by any but the simplest classification is a real challenge for practitioners and researchers. However, as with other forms of illness and disability, the ability to differentiate different types of falls, alongside other significant variables, is likely to be of major importance if we are to provide effective...interventions (P 213-214)."

		8) Lightbody et al. (2002)
	Aim and background	"To evaluate a nurse-led management plan and care pathway for older people discharged from an Accident and Emergency Department after a fall (P 203)."
Sample	**Population/ characteristics of participants**	65 and over attending Emergency Department with a fall. Excluded if admitted hospital, lived institutional care, refused, were unable to consent, or were out of the area.
	Sample size	348 consecutive patients- 177 usual care-171 intervention group. 314 remained at 6 month follow-up (159 usual care and 155 intervention).
Method	**Design**	RCT. Falls nurse led intervention- "Within 4 weeks, the intervention group received a home assessment to address easily modifiable risk factors for falls. This included assessments of medication, ECG, blood pressure, cognition, visual acuity, hearing, vestibular dysfunction, balance, mobility, feet and footwear. All patients were given advice and education about general safety in the home (P 203)."
	Setting	Large teaching hospital Liverpool, UK.
Results	**Outcome measures**	Further falls, Functional ability, Re-attendance rates, Admission to hospital.
	Key findings- Statistical significance of results (if applicable)	"At 6 months post-index fall, 36 patients in the intervention group and 39 patients in the control group had 89 and 145 falls respectively. Although the intervention group had less falls, this was not significant (P> 0.05). Similarly, the intervention group had fewer fall-related admissions and bed days (8 and 69 respectively) than the control group (10 and 233 respectively). The intervention group scored significantly higher in indicators of function (P<0.05) and mobility within the community (P<0.02) (P 203)."
	Barriers/ Enablers:	N/A
	Implications of findings	"Although the differences were not significant, patients in the intervention group had fewer falls, less hospital attendances and spent less time in hospital. Moreover, patients in the intervention group were more functionally independent at 6 months post-Index fall (P 203)."

		9) Close et al. (2003)
	Aim and background	"This study examined risk factors from PROFET and used these to devise a practical approach to streamlining referrals from accident and Emergency Departments to specialist falls services (P 421)."
Sample	**Population/ characteristics of participants**	Participants from PROFET trial. 397 patients aged 65 and over living in local community and having attended Emergency Department.
	Sample size	184 Intervention and 213 Control.
Method	**Design**	Further analysis of the PROFET RCT: "Logistic regression analysis was used in the control group to identify patients with an increased risk of falling in the absence of any intervention. The derived predictors were investigated to see whether they also predicted loss to follow up. A second regression analysis was undertaken to test for interaction with intervention (P 421)."
	Setting	Secondary analysis of data collected in UK.
Results	**Outcome measures**	Future fall predictors, Loss to follow-up predictors, Interaction of risk factors with interventions.
	Key findings- Statistical significance of results (if applicable)	"Significant positive predictors of further falls were; history of falls in the previous year (OR 1.5 (95% CI 1.1 to 1.9)), falling indoors (OR 2.4 (95% CI 1.1 to 5.2)), and inability to get up after a fall (OR 5.5 (95% CI 2.3 to 13.0)). Negative predictors were moderate alcohol consumption (OR 0.55 (0.28 to 1.1)), a reduced abbreviated mental test score (OR 0.7 (0.53 to 0.93), and admission to hospital as a result of the fall (OR 0.26 (0.11 to 0.61)). A history of falls (OR 1.2 (1.0 to 1.3)), falling indoors (OR 3.2 (1.5 to 6.6)) and a reduced abbreviated mental test score (OR 1.3 (1.0 to 1.6)) were found to predict loss to follow up (P 421)."
	Barriers/ Enablers:	N/A
	Implications of findings	"The risk factors we found to be predictive of further falls are easily detectable in the A&E setting, may be a useful tool in deciding the degree of priority for further assessment, and may assist in the realistic planning of a service… (P 423)."

		10) Shaw et al. (2003)
	Aim and background	"To determine the effectiveness of multi-factorial intervention after a fall in older patients with cognitive impairment and dementia attending the accident and emergency department (P 1)."
Sample	**Population/ characteristics of participants**	WITH cognitive impairment. Aged 65 and over. Presenting to Emergency Department after a fall.
	Sample size	274. 130 assessment and intervention and 140 assessment via conventional care (control).
Method	**Design**	RCT Multi-factorial intervention.
	Setting	2 Emergency Departments Newcastle Upon-Tyne, UK.
Results	**Outcome measures**	"Primary outcome was number of participants who fell in year after intervention. Secondary outcomes were number of falls (corrected for diary returns), time to first fall, injury rates, and fall-related attendances at accident and Emergency Department, fall-related hospital admissions, and mortality (P 1)."
	Key findings- Statistical significance of results (if applicable)	"Intention to treat analysis showed no significant difference between intervention and control groups in proportion of patients who fell during 1 year's follow up (74% (96/130) and 80% (115/144), relative risk ratio 0.92, 95% confidence interval 0.81 to 1.05). No significant differences were found between groups for secondary outcome measures (P 1)."
	Barriers/ Enablers:	N/A
	Implications of findings	"Multi-factorial intervention was not effective in preventing falls in older people with cognitive impairment and dementia presenting to the Accident and Emergency Department after a fall (P1)."

		11) Whitehead et al. (2003)
	Aim and background	"Evidence-based guidelines recommend a range of treatments for falls and injury prevention. We undertook a randomised trial of a falls prevention service to screen for falls risk factors and recommend to GPs an evidenced base prescription for falls prevention (P 88)."
Sample	**Population/ characteristics of participants**	"All patients aged 65 years or over whose presentation to the ED was identified as related to a fall were reviewed ... They were included in the study provided they were living in the community or in low care residential care (i.e. Hostel accommodation) and satisfied our definition of a fall. We also excluded those who lived in nursing home accommodation, those who had significant cognitive impairment (MMSE <25 out of 30; Folstein, Folstein and McHugh, 1975) without a resident carer, those who lived outside the FMC catchment area, those who could speak little English and those with severe or terminal illness (P 90)."
	Sample size	"…261 eligible 140 consented (P 90)."
Method	**Design**	RCT. Usual care versus intervention comprising of a fall risk assessment and writing evidence-based prescriptions which were faxed to GPs for action.
	Setting	Flinders medical centre Emergency Department, Australia.
Results	**Outcome measures**	Primary: Uptake of advice at 6 months (telephone interview). Secondary: Falls rates monitored via a falls diary and telephone contact from researcher to monitor the rates and to also encourage use of the falls diary.
	Key findings- Statistical significance of results (if applicable)	"Over the six months patients in the intervention group were more likely to uptake preventative advice (OR=12.3; =4.2-35.9). We were unable to show a reduction in falls (OR=1.7; =0.7-4.4) (P 88)." "After controlling for baseline characteristics, there was no significant difference between the intervention and control groups in the risk of a subsequent fall (OR=1.7; =0.7-4.4; P=0.244) (P 92)."
	Barriers/ Enablers:	**Potential enabler**: A more simplified fall management process.
	Implications of findings	"A patient-centred evidence-based approach is feasible and effective in increasing the uptake of falls management advice. Long-terms compliance with advice requires further exploration (P 88)." The large number of patient fall presentations could evidence the need for guideline adherence.

		12) Davidson et al. (2005)
	Aim and background	"To determine the effectiveness of multi-factorial intervention to prevent falls in cognitively intact older persons with recurrent falls (P 162)."
Sample	**Population/ characteristics of participants**	Cognitively intact men and women aged 65 and over presenting to the Emergency Department with a fall or fall-related injury and at least one additional fall in the preceding year. Excluded if: "had >1 previous episode of syncope, were immobile, lived >15 miles from A&E, were registered blind, aphasic, had a clear medical explanation for their fall, i.e. Acute myocardial infarction, stroke, or epilepsy, or were enrolled in another study (P 163)."
	Sample size	313- 159 Intervention group- 154 usual care.
Method	**Design**	RCT of multi-factorial (Medical, PT, and OT) post-fall assessment and intervention compared with conventional care.
	Setting	Emergency Department in a university teaching hospital and associated district general hospital, UK.
Results	**Outcome measures**	Primary- Number of falls and fallers 1 year after recruitment. Secondary- Injury rate, fall-related hospital admissions, mortality and fear of falling.
	Key findings- Statistical significance of results (if applicable)	36% fewer falls in the intervention group. Proportion of patients who continue to fall- 65% compared with 68% relative risk (CI 0.81-1.12 95% confidence) No difference in the number of fall-related attendances and hospital admissions between groups.
	Barriers/ Enablers:	**Potential barrier:** Suggests limited resources. **Potential enabler:** Need for evidence-based stratified care pathways.
	Implications of findings	Study authors suggest that the findings will assist those in developing falls services to appropriately triage fallers attending the Emergency Department through an individualised approach.

		13) Russell et al. (2006)
	Aim and background	"The objectives of this study were to: (a) describe the characteristics and prevalence of falls risk factors among community-dwelling older fallers who have presented to the Emergency Department and are discharged directly home and (b) identify the factors associated with a short-term decline in ability to perform Activities of Daily Living (ADLs) after discharge home (P 1090)."
Sample	**Population/ characteristics of participants**	Community dwelling older adults 60+ admitted to Emergency Department following a fall and discharged directly home. They needed to be able to walk independently and were excluded if they had any cognitive impairment.
	Sample size	300.
Method	**Design**	Cross-sectional study of baseline data from a RCT assessment looking at the effectiveness of fall prevention interventions. "A home-based assessment after ED discharge was performed, which included the prevalence of falls risk factors, identification of functional decline, and objective measurements of balance, gait, depression, and falls efficacy (P 1090)."
	Setting	Melbourne, Australia.
Results	**Outcome measures**	Prevalence of falls risk factors.
	Key findings- Statistical significance of results (if applicable)	Fall-related injuries in 91% of participants (95% CI 87.2-94). "The most common falls risk factors identified in the home assessment were polypharmacy (79.0%, 95% CI, 73.9%–83.5%), home hazards (76.0%, 95% CI, 70.8%–80.7%), decreased balance (61.3%, 95% CI, 55.6%–66.9%), and arthritis (61.3%, 95% CI, 55.6%–66.9%). A decline in function was reported by 35% of participants (95% CI, 29.6%–40.7%). Sustaining a fracture, functional independence before the fall, being female, depression, and slower Timed Up and Go (TUG) scores were associated with a decline in function ($p < 0.05$) (P 1090)."
	Barriers/ Enablers:	N/A
	Implications of findings	"Older fallers discharged directly from the ED have a high prevalence of falls risk factors and are at risk of functional decline (P 1090)." The findings highlight the need for risk assessment within and post Emergency Department discharge.

		14) Whitehead et al. (2006)
	Aim and background	"To ascertain the reasons for not taking up a fall or injury prevention strategy among older people who have sustained a fall and attended an Emergency Department (P 536)."
Sample	**Population/ characteristics of participants**	As part of another trial they identified people who attended the Emergency Department after a fall. Included those who did not have cognitive impairment, did not live in residential care
	Sample size	60.
Method	**Design**	"Participants were interviewed to ascertain the reasons for not taking up a falls prevention strategy, their fall-related health state, and the likelihood of them undertaking a falls and injury prevention strategy (P 536)."
	Setting	Medical centres, General hospitals and Public hospitals in Australia
Results	**Outcome measures**	Uptake of specific Falls prevention criteria.
	Key findings- Statistical significance of results (if applicable)	"A total of 31 (52%) of the participants (60) had considered falls prevention after their fall. There were high levels of reluctance to undertake a strategy with 43 (72%) reluctant to take exercise classes, 10 (59%) reluctant to cease psychotropic medications, 26 (43%) reluctant to have a home safety assessment and 17 (28%) reluctant to take osteoporotic medication. When asked specifically about taking up a strategy to prevent a worsening health state, 19 (63%) of participants would take up exercise, 17 (57%) a home safety assessment, 4 of the 17 (59%) already taking implicated medications would stop and 56 (93%) would begin osteoporotic medication. In participants with a lower starting health state, home safety assessments were viewed more favourably (P 536)."
	Barriers/ Enablers:	N/A
	Implications of findings	Falls prevention strategies are likely to require a behavioural modification strategy in order to increase uptake.

		15) Hendriks et al. (2008)
	Aim and background	Aim to assess if fall prevention program more effectiveness than usual care.
Sample	**Population/ characteristics of participants**	Community dwelling Dutch people aged 65 and over seen at Emergency Department after a fall "People were excluded if they were unable to speak Dutch, were cognitively impaired (a score of 4 on the Abbreviated Mental Test 4), 9 had been admitted for more than 4 weeks to a hospital or another institution, or were permanently wheelchair-dependent or bedridden (P 1391)."
	Sample size	The sample size was calculated based on the findings of Close et al.'s 1999 study, where an intervention group comprised of 32% fallers, compared to a control group comprised of 32%. 164 participants were required per group in order to produce the same results- 90% power, 0.05 probability level and allowing for 25% attrition rate. 333: 166 intervention (42 withdrew), 167 control (32 withdrew).
Method	**Design**	RCT: Intervention: 4 months and 12 months after baseline assessment. Intervention was a detailed medical/ OT assessment to evaluate and address risk factors for recurrent falls followed by recommendations and referrals if indicated. Control: Usual care.
	Setting	University hospital and home-based intervention- Netherlands.
Results	**Outcome measures**	Number of people sustaining a fall (fall calendar). Daily functioning (Frenchay activity Index).
	Key findings- Statistical significance of results (if applicable)	Authors note difference in findings compared to UK trial (Close- PROFET). No statistically significant favourable effects on falls (odds ratio= 0.86 95% CI 0.50-1.49) or on daily functioning regression co-efficient 0.37 CI= 0.90-1.63) at 12 month follow-up.
	Barriers/ Enablers:	N/A
	Implications of findings	Intervention not effective in preventing falls and functional decline. Feasibility studies are recommended. An intervention successful in one setting may not be successful in another.

		16) Russell (2008)
	Aim and background	"Determine the reliability and predictive accuracy of the FROP-Com [Falls Risk for Older People in the Community (FROP-Com) assessment tool] (P 634)." This was designed for use in multi-factorial falls prevention programmes.
Sample	**Population/ characteristics of participants**	Community dwelling patients aged 60 years and over presenting to an Emergency Department after a fall. "The inclusion criteria were presenting to the ED with a fall, aged 60 years or older, discharged directly home following emergency care, living in the community, and being able to walk independently (P 635)."
	Sample size	Intra-rater reliability study = 20. Inter-rater reliability study = 20. Predictive study = 344 included in the study all of these had access to usual care services. However, a subset of these did not receive usual care.
Method	**Design**	Study testing questionnaire intra and inter-rater reliability within an RCT. Participants were monitored for falls for 12 months following home-based assessment including: FROP-Com, Timed up and go (TUG) and functional reach (FR). An assessment of intra-rater reliability was conducted through recruiting 20 participants at one hospital site. The intra-rater reliability was tested by an initial assessment being performed by a PT which was then followed by a two week follow-up assessment. The inter-rater reliability study was conducted through recruiting 20 participants from a second hospital site. For the inter-rater reliability assessment a Dr or PT conducted the initial and repeat assessments, in the second visit the clinician was blinded to the results. With regards to a predictive accuracy and concurrent validity assessment, 344 individuals were assessed by a home visit over 12 months. A correlation study assessed the concurrent validity; it compared the FROP-Com score to the Timed Up and Go (TUG), Functional Reach (FR), Human Activity Profile Adjusted Activity Score and the Modified Falls Efficacy Scale results. The initial FROP-Com score was compared to a score obtained from questioning individuals who had no falls/one or more falls in the 12 months after initial assessment, this allowed and assessment of predictive accuracy.
	Setting	Melbourne, Australia.

Results	**Outcome measures**	Number of falls in a 12 month period.
	Key findings- Statistical significance of results (if applicable)	**"**Results: the intra-class correlation coefficient (ICC) for intra-rater reliability and inter-rater reliability for the FROP-Com was 0.93 (95% CI 0.84-0.97) and 0.81 (95% CI 0.59-0.92) respectively. The AUC for the FROP-Com was 0.68 (95% CI 0.63-0.74). At the cut-off 18/19, sensitivity was 71.3% (95% CI 64.4-78.3) and specificity was 56.1% (95% CI 48.9-63.4). The AUC for the TUG was 0.63 (95% CI 0.57-0.69) and for the FR was 0.60 (95% CI 0.54-0.66) (P634)." "The 263 participants not receiving usual care potential falls prevention services had significantly better FROP-Com, TUG and FR scores than participants receiving usual care services (P637)."
	Barriers/ Enablers:	N/A
	Implications of findings	Reliable and less time consuming method to predict falls and potentially tailor follow-up treatment to patient-specific needs.

		17) Boele van Hensbroek (2009)
	Aim and background	"Validate the CAREFALL Triage Instrument (CTI) - a self-administered questionnaire concerning modifiable risk factors for recurrent falls in elderly patients who experienced a fall (P 23)."
Sample	**Population/ characteristics of participants**	Aged 65 and over who experienced a fall from standing.
	Sample size	"...Three series of patients were composed. First, to determine the construct validity of the CTI, 100 volunteer Dutch-speaking patients were recruited from the Academic Medical Centre Department of Internal Medicine outpatient Clinic. To reduce selection bias, each patient in this group (Comparison group) was matched to 2 patients from the CAREFALL database with the same age and sex, composing a group of 300 patients (100 comparison patients and 200 fall patients [fall group]). Second, data of a consecutive series of 111 patients (October 2004 through July 2006) who attended the Falls Prevention Clinic after triage were used to calculate the clinical validity. Third, a consecutive series of 27 patients (June 2004 through August 2004) in whom the CTI was re-administered by telephone call 2 weeks after returning the first CTI was used to determine the test-retest reliability of the CTI (P 25)."
Method	**Design**	Questionnaire piloted with patients and an RCT. Single centre case comparison study as part of an on-going trial.
	Setting	A&E department. Academic medical centre, Netherlands.
Results	**Outcome measures**	Clinical validity. Construct validity. Test-retest reliability.

	Key findings- Statistical significance of results (if applicable)	"Construct validity: Recurrent falls correlated with more risk factors. Age, female gender, and 6 risk factors correlated with recurrent falls. Clinical validity: the agreement between the CTI and the Fall prevention Clinics (FPC) was fair for balance and mobility, orthostatic hypotension, and urinary incontinence, moderate for mood, fear of falling, and high risk of osteoporosis, and substantial for medication and impaired vision. Test retest reliability: the agreement between the 2 CTIs was substantial for medication, high risk of osteoporosis, moderate for balance and mobility, mood, fair for orthostatic hypotension, impaired vision, and urinary incontinence, and poor for fear of falling (P 23)."
	Barriers/ Enablers:	**Possible barrier:** Time. **Possible enabler:** Less time consuming but accurate assessment tool.
	Implications of findings	Application in selecting high risk patients to refer to a fall prevention outpatient clinic after presenting at Emergency Department with a fall.

		18) Russell (2009)
	Aim and background	"Develop a brief screening tool for use in ED, to identify people who require further assessment and management (P 40)."
Sample	**Population/ characteristics of participants**	Aged 60+. Community-dwelling older adults presenting to Emergency Department after a fall.
	Sample size	344 control group of RCT (usual care including falls prevention screening services).
Method	**Design**	Prospective cohort study part of which was an RCT. After discharge assessment including FROP-Com. Monitored for 12 months. Items from the tool predictive of falls in a multi-factorial logistic regression were used to develop the FROP Com screen.
	Setting	Home-based assessment post Emergency Department discharge- Melbourne, Australia.
Results	**Outcome measures**	Number of falls in 12 month follow-up.
	Key findings- Statistical significance of results (if applicable)	The items most predictive of falls were used to develop a screening technique. These comprised of: Falls in previous 12 months, observation of people's balance and the need for assistance to perform domestic activities of daily living. They were used to develop FROP-Com screen from the items on the FROP-Com screening tool. Specificity 66.7% (95% CI- 59.8-73.6), Sensitivity 67.1 (95% CI 59.9-74.3)
	Barriers/ Enablers:	N/A as looking at what could be done not what the specific barriers and enablers to guideline adherence are/could be. However, it could be suggested that this tool was developed in order to overcome a barrier, such as time.
	Implications of findings	The FROP-Com screening tool could be a stand-alone tool or incorporated into a larger geriatric assessment. If a positive result is found then evidence-based falls prevention interventions could be implemented.

		19) Vivanti (2009)
	Aim and background	"To identify associations between malnutrition falls risk and hospital admission among older adults presenting at an Emergency Department. (P 386)."
Sample	**Population/ characteristics of participants**	Aged 60+ Presenting at Emergency Department. Non-fallers. Frail mechanical fallers and Active mechanical fallers. "Exclusion criteria included: substantial cognitive impairment (through ED non-clinical staff opinion as to whether informed consent possible), language barrier (excluded if no interpreter available), triage category 1 or being determined unfit by medical non-clinical staff (P 387)."
	Sample size	126.
Method	**Design**	Malnutrition screening, subjective global assessment tool administered to patients. Self-reported falls in the past 6 months and hospital admissions were documented.
	Setting	Tertiary Emergency Department, Australia.
Results	**Outcome measures**	Malnutrition prevalence. Number of hospital admissions. Number of frail mechanical falls.
	Key findings- Statistical significance of results (if applicable)	Increased risk of being assessed malnourished when diagnosed as a frail mechanical faller relative to a non-faller or an active mechanical faller (P=0.02). 5 x greater risk of hospital admission in malnourished (P=0.001). Malnourished increased risk of self-reported falls over 6 months (P=0.03).
	Barriers/ Enablers:	
	Implications of findings	Older adults at Emergency Department should be nutritionally screened to reduce the risk of future falls and hospital readmission.

		20) Yeung (2009)
	Aim and background	Evaluate falls prevention approach's applicability to the Emergency Department context.
Sample	**Population/ characteristics of participants**	Aged 60 and over. Fallers.
	Sample size	2942 fallers presented to Emergency Department only 807 (27%) of this target sample participated and completed the assessment.
Method	**Design**	1 year data collection assessing whether a falls prevention approach addressed the needs of elderly patients in the Emergency Department. "Information regarding their health profile including morbidity, comorbidities, medication use, self-perceived health status and body mass index were collected and used for comparison with the health profile of the general elderly population derived from two local large-scale surveys (P 156)."
	Setting	Regional hospital in Hong Kong, China.
Results	**Outcome measures**	Characteristics of fallers e.g. Demographic and health profile.
	Key findings- Statistical significance of results (if applicable)	Multiple health problems with varying degrees of frailty. "The findings indicated that a significant proportion of the older fallers attending A&E are frail with multiple morbidities and functional limitations in various health domains which are unlikely to be amenable to a homogeneous management approach such as practicing the tai chi exercises available for all older adults living in the community (P 159)."
	Barriers/ Enablers:	N/A
	Implications of findings	Individualised approach to treatment is recommended.

		21) De Vries et al. (2010)
	Aim and background	Falls are common and guidelines recommend intervention. To "evaluate the effectiveness of a multi-factorial intervention in older people with a high risk of recurrent falls (P 1110)."
Sample	**Population/ characteristics of participants**	Older adults 65 years and over with a high risk of recurrent falls, no cognitive impairment. Visited Emergency Department or family physician after a fall.
	Sample size	217 (one drop-out in intervention and 7 in control).
Method	**Design**	RCT- In the intervention individuals visited a Geriatric Outpatient clinic in order to undergo a fall-risk assessment. The multi-factorial intervention was tailored to the identified needs of the patient.
	Setting	Geriatric outpatient clinic of a university hospital and regional general practice, Netherlands.
Results	**Outcome measures**	Primary- Time to 1st and 2nd falls after randomisation Secondary- Fractures, activities of daily living, Quality of Life, Physical Performance.
	Key findings- Statistical significance of results (if applicable)	Within 1 year 51.9% of 106 in the intervention group and 55.9% of 111 in usual care participants fell at least once. No significant treatment effect from the time to 1st fall (0.96, 95% confidence interval 0.67-1.37) or to 2nd (1.13, 0.71-1.80). Similar results for secondary outcome measures.
	Barriers/ Enablers:	**Possible barrier:** Appropriateness/viewed appropriateness of guidelines.
	Implications of findings	Multi-factorial fall prevention program did not reduce falls.

		22) Hill et al. (2010)
	Aim and background	"The aim of this study was to investigate fear of falling in a group of older people presenting to Emergency Departments after a fall, and specifically: • The prevalence of overall fear of falling. • The magnitude of fear of falling of each sub-item of the Modified Falls Efficacy Scale (MFES). • Predictors and factors associated with fear of falling at baseline and 12-month follow-up, and • Change in fear of falling over 12 months with a multi-factorial falls prevention program (P1770)."
Sample	**Population/ characteristics of participants**	Aged 60+. Mean age 75. 70% female. Presented to Emergency Department after a fall and discharged home, independent, with/without walking aid.
	Sample size	712 (102 drop-out -14%).
Method	**Design**	Sub-analysis of previous RCT of a falls prevention programme. Baseline and 12 month measurement.
	Setting	7 hospitals in Melbourne, Australia.
Results	**Outcome measures**	Fear of falling, fall risk, depression, and balance / mobility methods. Looked at change overtime between groups and factors associated with the fear of falling.
	Key findings- Statistical significance of results (if applicable)	60% feared falling. At 12 month follow-up a statistically significant improvement occurred (F=37.3, P<0.001) and 13/14 sub items on a scale, but no significant difference between groups.
	Barriers/ Enablers:	
	Implications of findings	Fear of falling improved at 12 month follow-up but in both those who were intervention group and those in the control group. The intervention did not have a significant effect on the fear of falling.

Appendix O:

Table 56- Blank Quality assessment criteria table:

CASP- Critical Appraisal Skills Programme.

CCRBT- Cochrane Collaboration Risk of Bias Tool.

EPHPP- Effective Public Health Practice Project Quality Assessment Tool.

Quality assessment criteria		
Assessment tool:	**Criteria:**	**Author checklist**
CASP	*Was there a clear statement of the aims of the research (goal, importance, relevance)?*	
EPHPP CASP	*Was the research design appropriate? Has it been justified by the researcher?*	
EPHPP CASP	*Was the recruitment strategy appropriate to the aims of the research?*	
CCRBT	*What was the allocation sequence- was it adequately generated?* *N/A if not Randomised Controlled Trial (RCT)*	
CCRBT	*What was the method of concealing the allocation sequence- was it adequately concealed?* *N/A if not Randomised Controlled Trial (RCT)*	
CCRBT	*What (if any) methods were used to blind participants. Was knowledge of the allocated intervention adequately prevented?* *N/A if not Randomised Controlled Trial (RCT)*	
CCRBT	*Describe the completeness of outcome data for each main outcome. Were incomplete outcome data adequately addressed?* *N/A if not Randomised Controlled l Trial (RCT)*	
CCRBT	*Any other potential sources of bias?*	
CCRBT	*Are the conclusions of the study valid?*	

CCRBT Re. Systematic Review	*Are report authors of the study free from suggestion of selective outcome reporting?*	
EPHPP	*Selection bias* *Inclusion and Exclusion criteria*	
EPHPP- Design	• *RCT* • *Cohort (group studied more than once).* • *Cross-sectional study (group studied at a particular time point).* • *Case control study*	
EPHPP	*Are there any confounders in the relationship between the Independent and Dependent variables?*	
EPHPP	*Intervention integrity- Did at least 80% of participants receive complete intervention?*	
EPHHP	*Data collection methods e.g. self-reported (subjective) / assessment screening (objective) / medical stats.*	
EPHHP/ CASP	*Analysis- Was the analysis appropriate to the question asked? Was it rigorous?*	
CASP	*Is qualitative methodology appropriate? Does the research aid, to interpret or illuminate actions? Was the design appropriate?*	
CASP	*Was the data collected in a way that addressed the research issue? I.e. setting, method, form of data, saturation of data.*	
CASP	*Has the relationship between the researcher and participants been adequately considered? E.g. conflict of interests.*	
CASP	*Have ethical issues been considered?*	
EPHHP/ CASP	*Is there a clear statement of findings? / Discussion*	
EPHHP/ CASP	*How valuable is the research?*	

Appendix P:

Table 57- An illustration of a quality assessment conducted:

Quality assessment criteria		Author
Assessment tool	**Criteria**	Fortinsky (2004)
CASP (and relevant to Quantitative methods)	*Was there a clear statement of the aims of the research (goal, importance, relevance)?*	Yes
EPHPP CASP	*Was the research design appropriate? Has it been justified by the researcher?*	Yes
EPHPP CASP	*Was the recruitment strategy appropriate to the aims of the research?*	Yes
CCRBT	*What was the allocation sequence- was it adequately generated?* *N/A if not Randomised Controlled Trial (RCT)*	N/A
CCRBT	*What was the method of concealing the allocation sequence- was it adequately concealed?* *N/A if not Randomised Controlled Trial (RCT)*	N/A
CCRBT	*What (if any) methods were used to blind participants. Was knowledge of the allocated intervention adequately prevented?* *N/A if not Randomised Controlled Trial (RCT)*	N/A
CCRBT	*Describe the completeness of outcome data for each main outcome. Were incomplete outcome data adequately addressed?* *N/A if not Randomised Controlled Trial (RCT)*	N/A
CCRBT	*Any other potential sources of bias?*	Authors addressed that Healthcare Professionals may be more likely to over than underestimate behaviour- reporting the 'ideal'

		behaviour. Data was also collected post educational intervention so this may also lead to the findings not being representative of everyday practice.
CCRBT	*Are the conclusions of the study valid?*	Yes
CCRBT re. Systematic Review	*Are report authors of the study free from suggestion of selective outcome reporting?*	Yes
EPHPP	*Selection bias* *Inclusion and Exclusion criteria*	Emergency Department (ED) physicians, hospital-based discharge planners or care coordinators (Nurses or social workers), home health agency nurses, and office-based primary care physicians
EPHPP-Design	• *RCT* • *Cohort (group studied more than once).* • *Cross-sectional study (group studied at a particular time point).* • *Case control study*	Cross-sectional
EPHPP	*Are there any confounders in the relationship between the Independent and Dependent variables?*	N/A
EPHPP	*Intervention integrity- Did at least 80% of participants receive complete intervention?*	Yes Small sample size (initial sample size not recruited) but no drop-out.
EPHHP	*Data collection methods e.g. self-reported (subjective) / assessment screening (objective) / medical stats.*	Self-report. Structured interviews.
EPHHP/ CASP	*Analysis- Was the analysis appropriate to the question asked? Was it rigorous?*	Descriptive statistics as appropriate.

CASP	*Is qualitative methodology appropriate? Does the research aid, to interpret or illuminate actions? Was the design appropriate?*	N/A
CASP	*Was the data collected in a way that addressed the research issue? I.e. setting, method, form of data, saturation of data.*	Yes
CASP	*Has the relationship between the researcher and participants been adequately considered? E.g. conflict of interests.*	Yes
CASP	*Have ethical issues been considered?*	Yes
EPHHP/ CASP	*Is there a clear statement of findings? / Discussion*	Yes
EPHHP/ CASP	*How valuable is the research?*	Valuable as specifically identifies barriers and enablers (determinants of practice) to guideline adherence as viewed from healthcare professionals' perspectives.

Appendix Q:

Vote Counting for narrative synthesis:

Table 58- A vote count of the issues with falls management:

Issues with falls management	Variation in care management	Gaps in care	Long-term implications of insufficient management falls	Lack of awareness of falls/ education	Prevention opportunities being missed	Poor co-ordination of care.
Authors:						
Baraff et al (1999).				✓		
Bell et al. (2000).				✓	✓	✓
Boele van Hensbroek et al. (2009).				✓	✓	
Close et al. (2003).	✓		✓	✓	✓	✓
Close et al. (1999).	✓		✓	✓	✓	✓
Davison et al. (2005).			✓	✓		
Davies and Kenny (1996).		✓	✓	✓		

De Vries et al. (2010).			✓	✓		
Donaldson et al. (2005).	✓	✓	✓	✓	✓	✓
Fortinsky et al. (2004).	✓		✓	✓	✓	
Hendriks et al. (2008).			✓	✓		
Hill et al. (2010).			✓	✓		
Kalula et al. (2006).	✓	✓	✓	✓	✓	✓
Kingston et al. (2001).			✓	✓	✓	
Lightbody et al. (2002).			✓	✓		
Lee, Wong and Lau (1999).				✓		
Miller et al. (2009).	✓	✓	✓	✓	✓	✓
Nordell et al. (2000).		✓	✓	✓	✓	
Paniagua, Malphurs and Phelan (2006).		✓	✓	✓	✓	
RCP (2009).	✓	✓	✓	✓	✓	✓

Russell et al. (2009).			✓	✓		
Russell et al. (2008).			✓	✓		
Russell et al. (2006).			✓	✓	✓	✓
Salter et al. (2006).	✓	✓	✓	✓	✓	✓
Shaw et al. (2003).				✓	✓	
Vivanti et al. (2009).		✓		✓	✓	✓
Whitehead et al. (2006).	✓		✓	✓	✓	
Whitehead et al. (2003).			✓	✓		
Yeung et al. (2009).		✓		✓	✓	✓
Youde et al. (2009).	✓	✓	✓	✓	✓	✓

Table 59- A vote count of the barriers to guideline adherence:

Barriers:	**Lack of physician availability/ busy Emergency Department**	**Lack of physician co-operation**	**Lack of awareness of implications of inadequate management**	**Poor access to referral service**	**Varied opinions on best practice.**
Authors:					
Baraff et al (1999).			✓		
Bell et al. (2000).			✓		
Boele van Hensbroek et al. (2009).			✓		
Close et al. (2003).			✓		
Close et al. (1999).			✓		
Davison et al. (2005).			✓		
Davies and Kenny (1996).			✓		
De Vries et al. (2010).			✓		
Donaldson et al. (2005).	✓	✓	✓	✓	✓
Fortinsky et al. (2004).	✓	✓	✓		✓

Hendriks et al. (2008).			✓		
Hill et al. (2010).			✓		
Kalula et al. (2006).	✓		✓	✓	
Kingston et al. (2001).			✓		
Lightbody et al. (2002).			✓		
Lee, Wong and Lau (1999).			✓		
Miller et al. (2009).	✓	✓	✓	✓	✓
Nordell et al. (2000).			✓		
Paniagua, Malphurs and Phelan (2006).		✓	✓	✓	✓
RCP (2009).			✓		
Russell et al. (2009).			✓		
Russell et al. (2008).			✓	✓	
Russell et al. (2006).			✓	✓	

Salter et al. (2006).		✓	✓	✓	
Shaw et al. (2003).			✓		
Vivanti et al. (2009).			✓		
Whitehead et al. (2006).		✓	✓	✓	
Whitehead et al. (2003).			✓	✓	
Yeung et al. (2009).			✓		
Youde et al. (2009).			✓	✓	

Potential enablers to improving guideline adherence include:

- Streamlined referrals and redesign of service delivery.
- The use of empirical data to reinforce fall management techniques.
- Both non-clinical staff and patient education.

Table 60- A vote count of potential enablers to improving guideline adherence:

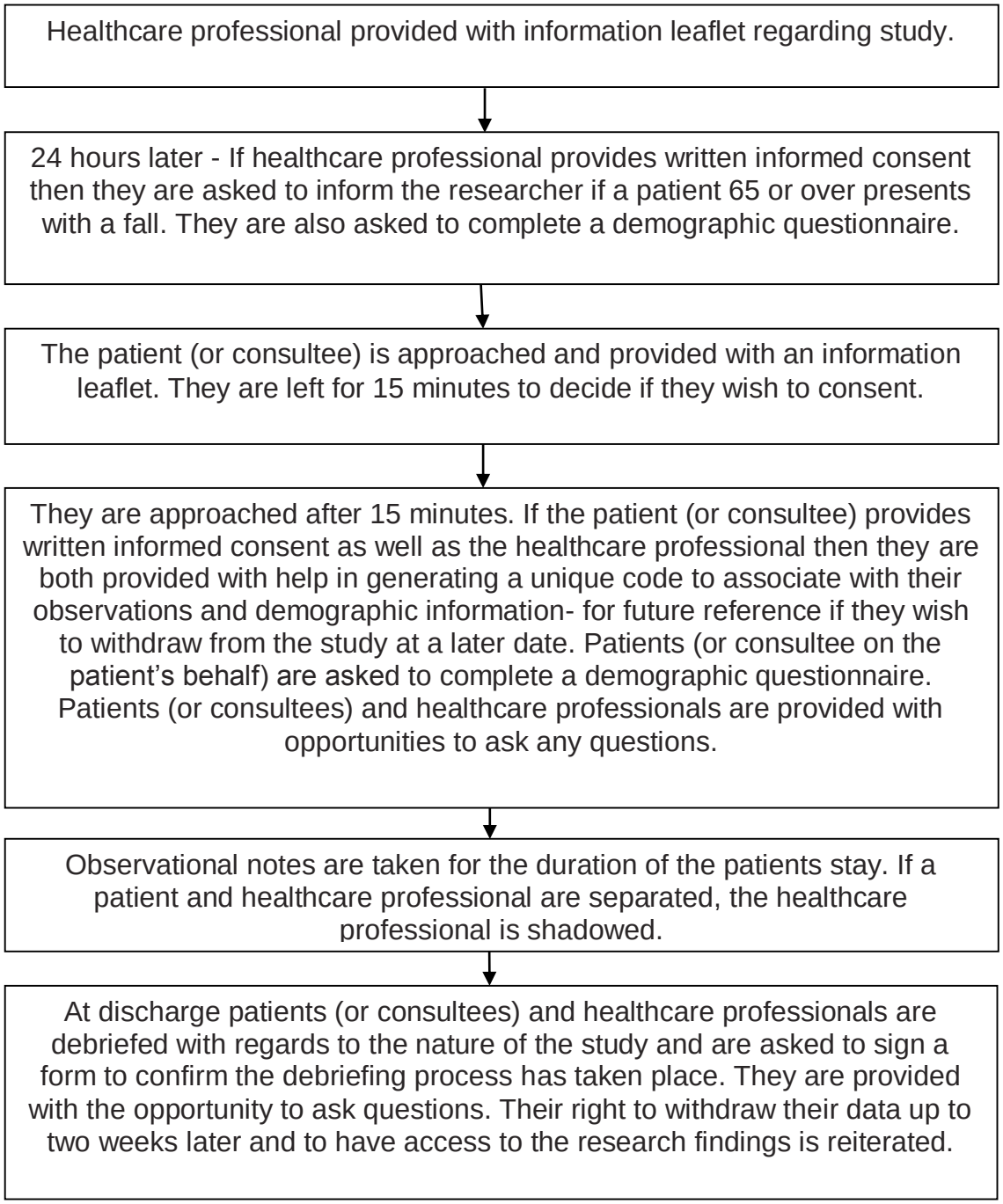
Potential enablers	Redesign of service delivery/ Streamlined referrals	Use of empirical data to reinforce fall management techniques
Authors:		
Baraff et al (1999).		✓
Bell et al. (2000).		✓
Boele van Hensbroek et al. (2009).		✓
Close et al. (2003).	✓	✓
Close et al. (1999).	✓	✓
Davison et al. (2005).		✓
Davies and Kenny (1996).		✓

De Vries et al. (2010).		✓
Donaldson et al. (2005).	✓	✓
Fortinsky et al. (2004).	✓	✓
Hendriks et al. (2008).		✓
Hill et al. (2010).		✓
Kalula et al. (2006).		✓
Kingston et al. (2001).		✓
Lightbody et al. (2002).		✓
Lee, Wong and Lau (1999).		✓
Miller et al. (2009).		✓
Nordell et al. (2000).		✓
Paniagua, Malphurs and Phelan (2006).	✓	✓
RCP (2009).	✓	✓

Russell et al. (2009).		✓
Russell et al. (2008).		✓
Russell et al. (2006).		✓
Salter et al. (2006).	✓	✓
Shaw et al. (2003).	✓	✓
Vivanti et al. (2009).		✓
Whitehead et al. (2006).		
Whitehead et al. (2003).		
Yeung et al. (2009).		✓
Youde et al. (2009).		✓

Appendix 2:

Figure 8- A diagram of the stages of observation research data collection:



Appendix 3:

Figure 9- A diagram of the observation study invitation to healthcare professionals:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Invite to Observational study

Dear Sir/Madam,

Helen Lowe, a PhD student, is currently undertaking research into how falls in older adults are managed in the Emergency Department. You are invited to participate in this study which involves observations of your patient care from when they present at the Emergency Department until they are discharged. You would be observed by either Helen Lowe or other researchers who understand Punjabi/ Gujarati until the patient is discharged.

I have attached an information leaflet for you to find out more about this study and to decide whether you wish to participate.

You have a minimum of 24 hours from receipt of this invitation to decide if you wish to participate and will then be approached to ask if you wish to consent. If you state you do not wish to consent you will not be approached again.

You have the right to withdraw at any point during the study or to withdraw your data up to two weeks later.

Please read the leaflet provided for further information and you will be given an opportunity to ask any questions when you are approached to be asked if you wish to take part.

Yours Faithfully

Helen Lowe

Helen Lowe

Appendix 4:

Figure 10- A diagram of a healthcare professional observation study double-sided information leaflet:

This leaflet is aimed at providing information and answering questions about this study. It provides information on:

1) **Why this research is being conducted.**
2) **What will happen to any of the information gathered if you decide to take part.**
3) **What will happen to any personal data.**

If you decide you would like to take part:
You will be asked to provide a code by which the research team can identify you, which we will help you to calculate.
If you consent to being observed you will be asked to read and sign a consent form to say you agree with what is stated in this leaflet and on the form.

You will be asked to make the researcher aware of any older adults who present with a fall during your shift, in order for them to be approached and provided with information regarding the study. If they too consent then their care will be observed. You may be observed on more than one occasion (maximum of 3 at your discretion) but will be asked to sign a consent form on each occasion.

Helen would also be interested in interviewing Healthcare Professionals and other staff involved in falls management at a later date. Please indicate on the consent form if you would be interested in being interviewed and in finding out further details.

Researcher's contact details:

Helen Lowe

Address:

Helen Lowe
PhD Student
Department of Health Sciences
University of Leicester
22-28 Princess Road West
Leicester
LE1 6TP

Tel:

0116 252 2522 ext. 5436

Email:

hll15@le.ac.uk

An observational study of the management of Falls in older adults in an Emergency Department

Staff
Information Leaflet
June 2011

What is involved?

1) Why is this research being conducted?

It is recognised that a large number of Emergency Department admissions in the over 65s are as a result of a fall.

This research will investigate the management of falls in an Emergency Department through observing the interaction between Healthcare professionals and Patients.

This research has been given ethical approval by an ethics committee; there are no specific hazards.

We are asking if you would give your consent for a researcher to observe you managing a patient's treatment when they present with a fall, for the full duration of their stay in the Emergency Department.

You would also be asked to complete a demographic questionnaire.

The aim is to improve the management of falls, and I plan to publish the findings of the study.

It is your decision as to whether you take part in this study.

2) What will happen to any information?

The observations of care will be noted, collated and analysed in order to understand and improve how falls are managed in an Emergency Department.

Should the researcher observe anything that might be thought malpractice, the researcher will consult the supervisors. The supervisors will consult Trust management as appropriate.

The findings will be used to develop teaching methods to inform staff of effective ways of managing falls. You have the right to request a summary of the research findings (approximate availability 2013), by completing the slip attached to the consent form.

3) Your personal data:

> **All** personal data will be **confidential** (only the researcher observing you will have access to your name, which will only be noted on your consent form).

Consent forms, demographic information and observational notes will be stored in separate locked filing cabinets. Any data stored on a computer during stages of analysis will be password protected.

> It will be **anonymous** (nothing will be associated with your name). Your name is only taken to show you have given **informed consent**. It will not be associated with the observations made. A **unique identification code** will be generated by you. It will be noted on your copy of the consent form and at the top of your data collection forms. This will only be associated with your data, to allow for your data to be found and removed from the results if you wish. This code will not be published and is not noted on the researcher's copy of your consent form.

>You have the **right to withdraw** from being observed at any point **during the study or** up to **two** weeks after the date you are observed (noted on your consent form).

You can withdraw your data by contacting me by email, telephone or by post through completing the slip on your consent form (providing me with your name– unique code association, this association is confidential and all details and notes will be destroyed), my details are overleaf. Please note that if you do not wish to withdraw from the study but a patient being observed does then data collection will not continue and all of the documentation will be destroyed.

Appendix 5:

Figure 11- A diagram of a poster aimed at healthcare professionals:

Appendix 6:

Figure 12- A diagram of a poster aimed at patients:

An observational study of the management of FALLS in Older Adults in an Emergency Department

Why is this research being conducted?

- It is recognised that a large number of Emergency Department attendances in the over 65s are as a result of a fall. We wish to observe how a fall is managed in an Emergency Department.

What is involved and how can I help?

We are looking for patient volunteers aged 65 or over who have had a fall and are willing to have their care observed.

- You **may be approached by a researcher** as you are admitted to the Emergency Department (with a bright 'Observer' t-shirt on).
- They will **provide you with further details** of this study to read.
- They will **ask** you if you have any questions and **whether you wish (consent) or do not wish for the treatment of your fall being observed.**
- **This research will not interfere with your care.**

Thank you,

Helen Lowe

Appendix 7:

Figure 13- A diagram detailing an example of an observation study healthcare professional consent form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Centre: University of Leicester

Patient identification unique code for this study:

CONSENT FORM- Observational study (Healthcare professional copy).

Title of project:
The management of falls in older adults within an Emergency Department.

Name of researcher:
Helen Lowe
University of Leicester

Please initial box

I confirm that I have read and understood the information leaflet dated June 2011 (Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

I understand that relevant sections of the data collected during the study, may be looked at by individuals from the University of Leicester, ..., from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to the records. ☐

……	……	……
Name of participant	**Date**	**Signature**

……

Participant's unique code

……	……	……
Name of person taking consent	**Date**	**Signature**

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

SLIP TO WITHDRAW INFORMATION (Up to 2 weeks from the date observed):

I no longer wish to participate in this study and I would like to withdraw all the information I have provided:

…… …… ……

Name **Date** **Signature**

……

Pseudonym

……

SLIP TO REQUEST A RESEARCH SUMMARY: PLEASE SEND 2013

I wish to request a copy of the research summary and I have provided my details below:

…… ……

Name ……

……

Address or email address

Appendix 8:

Figure 14- A diagram of a staff demographic questionnaire:

Hospital logo inserted here

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Unique Identification code:

……

Demographic questionnaire for staff:

Developed from: NHS service Delivery and Organisation National R&D programme (2001) Continuity of Care: patients' and carers' views and choices in their use of primary care services.

Please complete the sections below. All data will remain anonymous at publication and will be kept confidential. Your unique identification code is only noted in case you wish to withdraw to withdraw.

***NB*: If you have completed this before at another point in this research study please initial here and just provide your Identification code for reference.**

Identification code: _____ **Hospital:_____**

Gender: Male: ☐ Female: ☐

Age: _____

Please tick boxes as appropriate:

Employment status: Full-time employment ☐

Part-time employment ☐

Healthcare professional working within the ED: ☐

Other member of staff involved in ED care: ☐

Hospital logo inserted here

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Unique Identification code:

……

Ethnicity:

- Prefer not to say ☐
- White British ☐
- White other ☐
- Indian ☐
- Pakistani ☐
- Bangladeshi ☐
- Black Caribbean ☐
- Chinese ☐
- Other ☐

Appendix 9:

Figure 15- A diagram of the observation study invitation to patients:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Invite to Observational study

Dear Sir/Madam,

Helen Lowe, a PhD student, is currently undertaking research into how falls in older adults are managed in the Emergency Department. You are invited to participate in this study which involves observations of your care from when you present at the Emergency Department until when you are discharged. You would be observed by either Helen Lowe or other researchers who understand Punjabi/ Gujarati until you are discharged.

I have attached an information leaflet for you to find out more about this study and to decide as to whether you wish to participate.

You can decide you do not wish to take part now. If you decide you would like to think about participating you will be approached again in 15 minutes time.

You have the right to withdraw at any point during the study or to withdraw your data up to two weeks later.

Please read the leaflet provided for further information and you will be given an opportunity to ask any questions when you are approached to be asked if you wish to take part.

Yours Faithfully

Helen Lowe

Helen Lowe

Appendix 10:

Figure 16- A diagram of an observation study double-sided patient information leaflet:

This leaflet is aimed at providing information and answering questions about this study. It provides information on:

1) **Why this research is being conducted.**
2) **What will happen to any of the information gathered if you decide to take part.**
3) **What will happen to any personal data.**

If you decide you would like to take part:

You will be asked to read and sign a consent form to say you agree with what is stated in this leaflet and on the form.

You will be asked to provide a code by which the research team can identify you, which we will help you to calculate.

You would then be observed for the duration of your stay in the Emergency Department.

The researcher will only be observing, they will not be communicating with you. However, if you wish for them to stop at any time, please let them know and they will stop.

Researcher's contact details:

Helen Lowe

Address:

Helen Lowe
PhD Student
Department of Health Sciences
University of Leicester
22-28 Princess Road West
Leicester
LE1 6TP

Tel:

0116 252 2522 ext. 5436

Email:

hll15@le.ac.uk

Principal Investigator :

NB: For independent advice with regards to research you can contact the Patient Information and Liaison Service (PILS) -08081 788337

An observational study of the management of Falls in older adults in an Emergency Department

Patient Information Leaflet

June 2011

What is involved?

1) Why is this research being conducted?

It is recognised that a large number of Emergency Department admissions in the over 65s are as a result of a fall.

This research aims to understand the management of falls in an Emergency Department through observing the interaction between Healthcare Professionals and patients.

This research has been given ethical approval by an ethics committee; there are no specific hazards. We are asking if you would give your consent for a researcher to observe your treatment during your stay in the Emergency Department. You would also be asked to complete a demographic questionnaire.

The aim is to improve the management of falls, and I plan to publish the findings of the study.

Please note: The researcher is NOT medically trained. Should the researcher observe anything that might be thought malpractice, the researcher will consult the supervisors. The supervisors will consult Trust management as appropriate.

I also ask, with your permission that I can access your clinical notes in order to extract any data relevant to the Management of your fall within the Emergency Department.

It is your decision as to whether you take part in this study. Whether you do or do not agree to participate, your care will not be affected.

2) What will happen to any information?

The observations and clinical notes regarding your care will be noted, collated and analysed alongside other observations in order to understand and improve how falls are managed in an Emergency Department. Your demographic information will also be analysed.

The findings will be used to develop teaching methods to inform staff of effective ways of managing falls. You have the right to request a summary of the research findings (approximate availability 2013), by completing the slip attached to the consent form.

3) Your personal data:

> **All** personal data will be **confidential** (only the researcher observing you will have access to your name, which will only be noted on your consent form).

Consent forms, clinical data, demographic information and observational notes will be stored in separate locked filing cabinets. Any data stored on a computer during stages of analysis will be password protected.

> It will be **anonymous** (nothing will be associated with your name). Your name is only taken to show you have given **informed consent**. It will not be associated with the observations made. A **unique identification code** will be generated by you. It will be noted on your copy of the consent form and at the top of your data collection forms. This will only be associated with your data, to allow for your data to be found and removed from the results if you wish. This code will not be published and is not noted on the researcher's copy of your consent form.

> You have the **right to withdraw** from being observed at any point **during the study or** up to **two** weeks after the date you are observed (noted on your consent form).

You can withdraw your data by contacting me by email, telephone or by post by completing the slip on your consent form (providing me with your name-unique code association, this association is confidential and all details and notes will be destroyed), my details are overleaf. Please note that if you do not wish to withdraw from the study but a Healthcare Professional being observed does then data collection will not continue and all of the documentation will be destroyed.

Appendix 11:

Figure 17- A diagram of a personal consultee observation study double-sided information leaflet:

This leaflet is aimed at providing information and answering questions about this study. It

1) Why this research is being conducted.

2) What will happen to any of the information gathered if you decide to take part.

3) What will happen to any personal data.

If you decide you would like to take part:

You will be asked to read and sign a Nominated Consultee Declaration form to say you agree with what is stated in this leaflet and on the form.

You will be asked to provide a code by which the research team can identify your relative/friend which we will help you to calculate.

Your relative/friend would then be observed for the duration of their stay in the Emergency Department.

The researcher will only be observing, they will not be communicating with you or tyour relative/friend. However, if you wish for them to stop at any time, please let them know and they will stop.

Researcher's contact details:

Helen Lowe

Address:

Helen Lowe
PhD Student
Department of Health Sciences
University of Leicester
22-28 Princess Road West
Leicester
LE1 6TP

Tel:

0116 252 2522 ext. 5436

Email:

hll15@le.ac.uk

NB: For independent advice with regards to research you can contact the Patient Information and Liaison Service (PILS) -08081 788337

An observational study of the management of Falls in older adults in an Emergency Department

Personal Consultee Information Leaflet

June 2011

What is involved?

Introduction

We are asking if you would give your consent for a researcher to observe a patient's treatment during their stay in the Emergency Department. You would also be asked to complete a demographic questionnaire on their behalf. This research has been given ethical approval by an ethics committee; there are no specific hazards.

We feel that your relative/friend is unable to decide for him/herself whether to participate in this research. To help decide if he/she should join the study, we would like to ask you if in your opinion they would wish to take part. We would ask you to set aside your own views and consider their interests and what you feel would be their wishes and feelings. Any advance decisions they may have made and that you are aware of should take precedence.

If you give consent after reading the information we provide, we will ask you to read and sign the Personal Consultee declaration Form. We will then give you a copy to keep. We will keep you fully informed during the study so you can let us know if you have any concerns. You can withdraw your relative/friend from the study at any time without giving a reason and without their care being affected.

If you feel you cannot give your consent, it will not affect the standard of care they receive in anyway. If you are unsure about taking on this role, you may seek independent advice; we will understand if you do not want to take on this responsibility.

1) Why is this research being conducted?

It is recognised that a large number of Emergency Department admissions in the over 65s are as a result of a fall.

This research aims to understand the management of falls in an Emergency Department through observing the interaction between Healthcare Professionals and patients.

The aim is to improve the management of falls, and I plan to publish the findings of the study.

Please note: The researcher is NOT medically trained. Should the researcher observe anything that might be thought malpractice, the researcher will consult the supervisors. The supervisors will consult Trust management as appropriate.

I also ask, with your permission that I can access your relative's/friend's clinical notes in order to extract any data relevant to the management of their fall within the Emergency Department.

2) What will happen to any information?

The observations and clinical notes regarding their care will be noted, collated and analysed alongside other observations in order to understand and improve how falls are managed in an Emergency Department. Their demographic information will also be analysed.

The findings will be used to develop teaching methods to inform staff of effective ways of managing falls.

You or your relative/friend have the right to request a summary of the research findings (approximate availability 2013), by completing the slip attached to the consent form.

3) Personal data:

All personal data will be **confidential** (only the researcher observing the care will have access to your relative's/friends' name, which will only be noted on the consent form). Consent forms, clinical data, demographic information and observational notes will be stored in separate locked filing cabinets. Any data stored on a computer during stages of analysis will be password protected.

> It will be **anonymous** (nothing will be associated with yours or your relative's/friend's name). Their name and your name are only taken to show in your opinion they would not object to being observed and you therefore provide consent. Names will not be associated with the observations made. A **unique identification code** will be generated by you. It will be noted on your copy of the consent form and at the top of your data collection forms. This will only be associated with your data, to allow for your data to be found and removed from the results if you wish. This code will not be published and is not noted on the researcher's copy of your consent form. Both consultee and patient will have a copy of this declaration form.

> You have the **right to withdraw** your relative/ friend from being observed at any point during the study or the information recorded about them up to **two** weeks after this date (noted on your consent form). You can withdraw the data by contacting me by email, telephone or by post by completing the slip on your consent form (providing me with the name-unique code link, this link is confidential and all details and notes will be destroyed), my details are overleaf. Please note that if you do not wish to withdraw data from the study but a Healthcare Professional being observed does then data collection will not continue and all of the documentation will be destroyed.

Appendix 12:

Figure 18- A diagram of a nominated consultee observation study double-sided information leaflet:

This leaflet is aimed at providing information and answering questions about this study. It provides information on:

1) **Why this research is being conducted.**
2) **What will happen to any of the information gathered if you decide to take part.**
3) **What will happen to any personal data.**

If you decide you would like to take part:

You will be asked to read and sign a Nominated Consultee Declaration form to say you agree with what is stated in this leaflet and on the form.

You will be asked to provide a code by which the research team can identify the patient, which we will help you to calculate.

The patient would then be observed for the duration of their stay in the Emergency Department.

The researcher will only be observing, they will not be communicating with you or the patient. However, if you wish for them to stop at any time, please let them know and they will stop.

Researcher's contact details:

Helen Lowe

Address:

Helen Lowe
PhD Student
Department of Health Sciences
University of Leicester
22-28 Princess Road West
Leicester
LE1 6TP

Tel:

0116 252 2522 ext. 5436

Email:

hll15@le.ac.uk

Principal Investigator :

An observational study of the management of Falls in older adults in an Emergency Department

Nominated Consultee Information Leaflet

June 2011

What is involved?

Introduction

We are asking if you would give your consent for a researcher to observe a patient's treatment during their stay in the Emergency Department. You would also be asked to complete a demographic questionnaire on their behalf. This research has been given ethical approval by an ethics committee; there are no specific hazards.

We feel that a patient is unable to decide for him/herself whether to participate in this research. To help decide if he/she should join the study, we would like to ask you you if in your opinion they would wish to participate in the study. We would ask you to set aside your own views and consider their interests and what you feel would be their wishes and feelings.

If you give consent after reading the information we provide, we will ask you to read and sign the Nominated Consultee Declaration form. We will then give you a copy to keep. We will keep you fully informed during the study so you can let us know if you have any concerns. You can withdraw the patient from the study at any time without giving a reason and without their care being affected.

If you are unsure about taking on this role, you may seek independent advice; we will understand if you do not want to take on this responsibility.

1) Why is this research being conducted?

It is recognised that a large number of Emergency Department admissions in the over 65s are as a result of a fall.

This research aims to understand the management of falls in an Emergency Department through observing the interaction between Healthcare Professionals and patients.

The aim is to improve the management of falls, and I plan to publish the findings of the study.

Please note: The researcher is NOT medically trained. Should the researcher observe anything that might be thought malpractice, the researcher will consult the supervisors. The supervisors will consult Trust management as appropriate.

I also ask, with your permission that I can access the patient's clinical notes in order to extract any data relevant to the management of their fall within the Emergency Department.

2) What will happen to any information?

The observations and clinical notes regarding their care will be noted, collated and analysed alongside other observations in order to understand and improve how falls are managed in an Emergency Department. Their demographic information will also be analysed.

The findings will be used to develop teaching methods to inform staff of effective ways of managing falls.

You or the patient have the right to request a summary of the research findings (approximate availability 2013), by completing the slip attached to the consent form.

3) Personal data:

All personal data will be **confidential** (only the researcher observing the care will have access to the patient's name, which will only be noted on the consent form). Consent forms, clinical data, demographic information and observational notes will be stored in separate locked filing cabinets. Any data stored on a computer during stages of analysis will be password protected.

> It will be **anonymous** (nothing will be associated with yours or the patient's name). Their name and your name are only taken to show in your opinion they would not object to being observed and you therefore provide consent. Names will not be associated with the observations made. A **unique identification code** will be generated by you. It will be noted on your copy of the consent form and at the top of your data collection forms. This will only be associated with your data, to allow for your data to be found and removed from the results if you wish. This code will not be published and is not noted on the researcher's copy of your consent form. Both consultee and patient will have a copy of this declaration form.

> You have the **right to withdraw** the patient from being observed at any point **during the study** or the information recorded about them up to **two** weeks after this date (noted on your consent form). You can withdraw the data by contacting me by email, telephone or by post by completing the slip on your consent form (providing me with the name-unique code link, this link is confidential and all details and notes will be destroyed), my details are overleaf. Please note that if you do not wish to withdraw data from the study but a Healthcare Professional being observed does then data collection will not continue and all of the documentation will be destroyed.

Appendix 13:

Figure 19- A diagram of an observation study patient consent form:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

Centre: University of Leicester

Patient identification unique code for this study:

CONSENT FORM- Observational study of patients (Patient copy)

Title of project:

The management of falls in older adults within an Emergency Department-

Name of researcher:

Helen Lowe

University of Leicester

Please initial box

I confirm that I have read and understood the information leaflet dated June 2011(Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

I understand that relevant sections of the data collected during the study, may be looked at by individuals from the University of Leicester, ……, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to the records. ☐

……	……	……
Name of participant	**Date**	**Signature**

……
Participant's unique code

……	……	……
Name of person taking consent	**Date**	**Signature**

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

SLIP TO WITHDRAW INFORMATION (Up to 2 weeks from the date observed):

I no longer wish to participate in this study and I would like to withdraw all the information I have provided:

.....	.....	.....
Name	**Date**	**Signature**

.....
Unique code

.....

SLIP TO REQUEST A RESEARCH SUMMARY: PLEASE SEND 2013

I wish to request a copy of the research summary and I have provided my details below:

.....	.....
Name	.....
	.....
	Address or email address

Appendix 14:

Figure 20- A diagram detailing an example of a consultee consent form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

Centre: University of Leicester

Patient identification unique code for this study:

NOMINATED CONSULTEE DECLARATION FORM-

Observational study of patients, who it is agreed can be observed by a Nominated Consultee under Section 32 of the Mental Capacity Act.
(**Consultee copy**)

Title of project:
The management of falls in older adults within an Emergency Department- Observations of patient care.

Name of researcher:
Helen Lowe
University of Leicester

Please initial box

I ..... have been consulted about .....'s participation in this research project. I confirm that I have read and understood the information leaflet dated June 2011 (Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

In my opinion as a Nominated Consultee I consider the adult patient who is unable to consent would wish to take part in the above study. ☐

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
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LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

I understand that participation is voluntary and that I can request that he/she can be withdrawn from the study at any time without giving any reason, without medical care or legal rights being affected. ☐

I understand that relevant sections of his/her care record and data collected during the study, may be looked at by individuals from the University of Leicester, ……, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to the records. ☐

……	……	……
Name of Consultee	**Date**	**Signature**
……	……	……
Relationship to participant	**Date**	**Signature**

……

Participant's unique code

……	……	……
Researcher	**Date**	**Signature**

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

SLIP FOR CONSULTEE TO WITHDRAW INFORMATION (Up to 2 weeks from the date observed):

I no longer wish for the individual identified by the unique code below to participate in this study and I wish to withdraw all of the associated information.

…… …… ……

Name **Date** **Signature**

……

Unique code

……

SLIP TO REQUEST A RESEARCH SUMMARY: PLEASE SEND 2013

I wish to request a copy of the research summary and I have provided my details below:

…… ……

Name ……

……

Address or email address

Appendix 15:

Figure 21- A diagram of the 'How to calculate your unique code' information sheet:

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

How to calculate your unique code:

Your unique code allows you to be identified if you wish to withdraw the information you provide from the study:

Please answer the following questions to produce your unique code:

Note the:

Third letter of your Father's name: e.g. M

The date you were born (date, not month and year): e.g. 16

Answer the question- Do you have a pet: Y/N e.g. Y

Your Mother's initials: e.g. FL

For Example: M16YFL

Appendix 16:

Figure 22- A diagram of a patient demographic questionnaire:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Demographic questionnaire for patients:

Developed from: NHS service Delivery and Organisation National R&D programme (2001) Continuity of Care: patients' and carers' views and choices in their use of primary care services.

Please complete the sections below. All data will remain anonymous at publication and will be kept confidential. Your unique identification code is only noted in case you wish to withdraw.

Identification code: _____ **Hospital:** _____

Gender: Male: ☐ Female: ☐

Age: _____

Please tick boxes as appropriate:

Employment status: Full-time employment ☐

Part-time employment ☐

Retired: ☐

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Ethnicity:

- Prefer not to say ☐
- White British ☐
- White other ☐
- Indian ☐
- Pakistani ☐
- Bangladeshi ☐
- Black Caribbean ☐
- Chinese ☐
- Other ☐

Did you continue with education after the age of 16?

- Yes ☐
- No ☐

Appendix 17:

Figure 23- A diagram of an observation notes sheet:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Unique Identification code:

……

Observational notes (6 double-sided pages provided)

Key parts of NICE falls pathway which should be implemented (for reference tick if observed, alongside making notes of observations):

Older people reporting a fall should:

1. **Be offered an individualised multifactorial falls risk assessment- specialist falls service. This includes:**

   - identification of falls history
   - assessment of gait, balance and mobility, and muscle weakness
   - assessment of osteoporosis risk
   - assessment of the older person's perceived functional ability and fear relating to falling
   - assessment of visual impairment
   - assessment of cognitive impairment and neurological examination
   - assessment of urinary incontinence
   - assessment of home hazards
   - cardiovascular examination and medication review.

2. **Encouraged to participate in a falls prevention programme.**

Researcher notes: ***Page*** ***of*** ***Initials:***

Appendix 18:

Figure 24- A diagram of an observation study patient debrief form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

PATIENT COPY:

DEBRIEF FORM FOR **OBSERVATIONAL STUDY** ***PATIENT*** **VOLUNTEERS**

Date of participation:……..

Thank you for taking part in this study:

This study explores the way that falls in older adults are managed in an Emergency Department. It looks at why and when Healthcare Professionals deviate from and follow the clinical practice guidelines in the management of falls. It looks at whether an intervention can be developed to facilitate following guidelines.

If you wish to ask me any questions about what happens next in the study, I can be contacted at the above address.

You have the right to withdraw your information from this study for up to two weeks from this date by completing the slip on your consent form.

Please sign below to say you have been debriefed. If you have any questions or want to obtain access to the research findings please do not hesitate to contact me.

Helen Lowe

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Please sign below to say you have been debriefed. If you have any questions or want to obtain access to the research findings please do not hesitate to contact me.

I have been debriefed and have been provided with the opportunity to ask questions regarding this study.

Participant Signature: ……..

Researcher Signature: ……

Appendix 19:

Figure 25- A diagram detailing an example of a consultee debrief form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

PERSONAL/NOMINATED CONSULTEE COPY:

DEBRIEF FORM FOR OBSERVATIONAL STUDY *PATIENT* VOLUNTEERS GIVEN ASSENT TO OBSERVATION UNDER SECTION 32 OF MENTAL CAPACITY ACT

Date of participation: ……..……..

Thank you for taking part in this study:

This study explores the way that falls in older adults are managed in an Emergency Department. It looks at why and when Healthcare Professionals deviate from and follow the clinical practice guidelines in the management of falls. It looks at whether an intervention can be developed to facilitate following guidelines.

If you wish to ask me any questions about what happens next in the study, I can be contacted at the above address.

You have the right to withdraw your information from this study for up to two weeks from this date by completing the slip on your consent form.

Please sign below to say you have been debriefed. If you have any questions or want to obtain access to the research findings please do not hesitate to contact me.

Helen Lowe

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Please sign below to say you have been debriefed. If you have any questions or want to obtain access to the research findings please do not hesitate to contact me.

I have been debriefed and have been provided with the opportunity to ask questions regarding this study.

Participant Signature: ……

Researcher Signature: ……

Appendix 20:

Figure 26- A diagram of an observation study healthcare professional debrief form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

RESEARCHER COPY:

DEBRIEF FORM FOR OBSERVATIONAL STUDY HEALTHCARE PROFESSIONAL VOLUNTEERS

Date of participation: .....

Thank you for taking part in this study:

This study explores the way that falls in older adults are managed in an Emergency Department. It looks at why and when Healthcare Professionals deviate from and follow the clinical practice guidelines in the management of falls. It looks at whether an intervention can be developed to facilitate following guidelines.

You have the right to withdraw your information from this study for up to two weeks from this date by completing the slip on your consent form.

If you have any questions or want to obtain access to the research findings please do not hesitate to contact me at the above address.

Helen Lowe

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

I have been debriefed and have been provided with the opportunity to ask questions regarding this study.

Consultee Signature: ……

Researcher Signature: ……

Appendix 21:

Figure 27- A diagram of the clinical data extraction guidance sheet:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Unique Identification code:

……

Was a fall associated with fracture/head injury?:

Does the patient have any other injury from a fall requiring treatment?:

Did the patient have any loss of consciousness associated with a fall?:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Unique Identification code:

……

Is the patient taking four or medications per day?:

Is the patient unable to rise from a chair of knee height and walk 5 m in less than 14 seconds?:

Does the patient have any visual impairment?:

Appendix 22:

Table 61- A table detailing the observation research data collection materials:

Poster advertisements (*Appendices five and six*) *Invite to observation research participation:* -Healthcare professional copy -Patient copy -Nominated consultee copy -Personal consultee copy **Information leaflets:** -Healthcare professional copy -Patient copy -Nominated consultee copy -Personal consultee copy -Patient copy for study where consultee consent was obtained (in case they regained capacity to consent and wished to withdraw their data within the study withdrawal period). **Consent forms:** *Healthcare professional consent form:* -Healthcare professional copy -Researcher copy *Patient consent form:* -Patient copy

-Researcher copy

Nominated consultee consent form:

-Consultee copy

-Patient copy

-Researcher copy

-Patient copy for study where consultee consent was obtained (in case they regained capacity to consent and wished to withdraw their data within the study withdrawal period).

Personal consultee consent form:

-Consultee copy

-Patient copy

-Researcher copy

-Patient copy for study where consultee consent was obtained (in case they regained capacity to consent and wished to withdraw their data within the study withdrawal period).

Clinical data extraction form

Observation notes document-including key pointers regarding guideline recommendations

Demographic questionnaire:

-Healthcare professional copy

-Patient copy

Debrief forms:

Healthcare professional debrief form:

-Healthcare professional copy

-Researcher copy

Patient debrief form:

-Patient copy

-Researcher copy

Nominated consultee debrief form:

-Consultee copy

-Patient copy

-Researcher copy

-Patient copy for study where consultee consent was obtained (in case they regained capacity to consent and wished to withdraw their data within the study withdrawal period).

Personal consultee debrief form:

-Consultee copy

-Patient copy

-Researcher copy

-Patient copy for study where consultee consent was obtained (in case they regained capacity to consent).

Freepost envelope to return withdrawal slip on consent form if participant/s wished to do so.

-Healthcare professional

-Patient

-PERSONAL consultee

Appendix 23:

Figure 28 - A diagram of a semi-structured interview schedule:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Semi-structured interview schedule:

Will be developed further from findings from systematic review of literature and initial observational findings. Questions will also be amended dependent on interviewee responses.

Job role:

1. **Tell me about your job role.**
2. **What is your role with regards to Emergency Department (ED) care?**

Context of ED:

3. **How do you find working within the ED? (*To get a general description with regards to any time pressures etc).***
4. **Is there anything you would change with regards to how care is managed within the ED? (*potential barriers/enablers)***
5. **Do you think/ in what ways do you think working within the ED context influences care?**
   - **As opposed to an inpatient ward**

Guidelines generally:

6. **NICE guidelines are developed to promote good health and patient care. How are guidelines followed within the ED?**

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

NICE Falls guidelines:

7. **What is your role with regards to the management of falls in older adults?**

8. **Specific to falls in older adult guidelines what are the processes that you understand should be in place in ED care?**

9. **Do you think that these falls guidelines are always put in place?**

10. **From your experience/ opinion what facilitates putting these falls guidelines into practice in ED care?**

11. **Do you think there are any barriers to following the falls guidelines with older adult patients? *(Closed ended) but if yes***

    - What are the barriers you have experienced/ witnessed?

Final points:

12. **Have you got any other points you wish to add to this discussion of the management of falls in older adults within the ED?**

Appendix 24:

Figure 29- A diagram of the stages of interview research data collection:

Healthcare professionals provided with information leaflets regarding the study. They have 24 hours to decide if they wish to participate.

↓

If they wish to participate they are asked to provide confidential contact details so an interview can be arranged. When the interview takes place, written informed consent is requested and participants are provided with the opportunity to ask questions.

↓

Interviewees are asked to produce a pseudonym (a false name) to be referred to, in order to provide a personal approach to the quotations used in write-up and to maintain anonymity. The pseudonym-true name association is only noted on their copy of the consent form. It is only be revealed if they wish to withdraw.

↓

The participant is asked to approximate what time they have available so if time limited then the interview can be directed to focus on what are deemed to be the key questions.

↓

The interview begins by the participants' pseudonym being stated at the beginning of the recording, for future reference. The interview is guided by the initial interview structure, but flexibility is allowed based upon participants' responses.

↓

Post-interview, participants are given the opportunity to ask questions and are debriefed, signing a researcher and participant copy of the debrief form. Their right to withdraw up to two weeks after data collection is reiterated.

Appendix 25:

Figure 30- A diagram of an invite to interviews letter:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Invite to Interview study

Dear Sir/Madam,

Helen Lowe, a PhD student, is currently undertaking research into how falls in older adults are managed in the Emergency Department. You are invited to participate in this study which involves semi-structured interviews with staff involved in Emergency Department care with regards to the topic of 'fall management'.

I have attached an information leaflet for you to find out more about this study and to decide as to whether you wish to participate.

You have a minimum of 24 hours from receipt of this invitation to decide if you wish to participate and will then be approached to ask if you wish to participate and to provide your preferred contact details in order to arrange an interview. If you state you do not wish to participate you will not be approached again.

You will be provided with an opportunity to ask any questions and asked to provide informed consent prior to interview. You have the right to withdraw at any point during the interview study or to withdraw your data up to two weeks later.

Please read the leaflet provided for further information and you will be given an opportunity to ask any questions when you are approached to be asked if you wish to take part.

Yours Faithfully

Helen Lowe

Helen Lowe

Appendix 26:

Figure 31- A diagram of a double-sided interview information leaflet:

This leaflet is aimed at providing information and answering questions about this study. It provides information on:

1) **Why this research is being conducted.**
2) **What will happen to any of the information gathered if you decide to take part.**
3) **What will happen to any personal data.**

If you decide you would like to take part:

You will be asked to read and sign a consent form to say you agree with what is stated in this leaflet and on the form.

You will be interviewed for approximately 30 minutes. The interview will be audio recorded.

A unique pseudonym will be generated by you and will be associated with your published transcripts. This would not be associated with your true name.

Researcher's contact details:

Helen Lowe

Address:

Helen Lowe
PhD Student
Department of Health Sciences
University of Leicester
22-28 Princess Road West
Leicester
LE1 6TP

Tel:

0116 252 2522 ext. 5436

Email:

hll15@le.ac.uk

Principal Investigator :

Interviews regarding the management of Falls in older adults in an Emergency Department

Staff
Information Leaflet
June 2011

What is involved?

1) Why is this research being conducted?

It is recognised that a large number of Emergency Department admissions in the over 65s are as a result of a fall.

This research aims to improve the management of falls in an Emergency Department through interviewing Healthcare Professionals and staff involved in falls management.

This research has been given ethical approval by an ethics committee; there are no specific hazards.

We are asking if you would give your consent for a researcher to conduct a recorded semi-structured interview with you regarding falls management, alongside completing a demographic questionnaire.

The aim is to improve the management of falls, and I plan to publish the findings of the study.

The interviews are estimated to last around 30 minutes. It is your decision as to whether you take part in this study.

2) What will happen to any information?

The interviews will be analysed in order to look at the way falls are managed in an Emergency Department. Anonymised transcripts (only associated to a pseudonym) may be published.

Should the researcher observe anything that might be thought malpractice, the researcher will consult the supervisors. The supervisors will consult Trust management as appropriate.

The findings will be used to develop teaching methods to inform staff of effective ways of managing falls. You have the right to request a summary of the research findings (approximate availability 2013), by completing the slip attached to the consent form.

3) Your personal data:

> It will be **anonymous** (nothing will be associated with your real name). Your name is only taken to show you have given **informed consent**.

>**All** personal data will be **confidential** (only the researcher interviewing you will have access to your true name, which will only be noted on a consent form). It will not be associated with the interview transcripts. Consent forms and interview transcripts (although not directly associated) will be stored in separate locked filing cabinets. Any data stored on a computer during stages of analysis will be password protected.

> You will be asked to provide a **pseudonym (false name)**. This would be **published but not associated with your true name**. Your chosen pseudonym would be stated at the beginning of the recording and noted alongside any chosen verbatim quotes in order to give a personal feel to write-up and show a breadth of individuals opinions which contribute to the findings. It will also be used to allow your transcripts to be identified and removed from analysis if you wish.

To reiterate **this will not allow identification of your true name.** The association between the pseudonym and your name will only be noted on **your copy** of a consent form.

> You have the **right to withdraw** from being interviewed at any point **during the study** and can remove your transcripts from analysis up to **two** weeks after the date you are interviewed. You can withdraw your transcripts by contacting me by email, telephone or by post through completing the slip on your consent form (providing me with your pseudonym-name association, this association is confidential and all details and notes will be destroyed), my details are overleaf.

Appendix 27:

Figure 32- A diagram detailing an example of an interview consent form:

HOSPITAL

University of Leicester

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

Centre: University of Leicester

Participant identification pseudonym for this study:

CONSENT FORM- Interview study (Healthcare Professional's copy).

Title of project:
The management of falls in older adults within an Emergency Department

Name of researcher:
Helen Lowe
University of Leicester

Please initial box

I confirm that I have read and understood the information leaflet dated June 2011 (Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

I understand that relevant sections of the data collected during the study, may be looked at by individuals from the University of Leicester, ...Hospital, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to the records. ☐

I give consent to the use of audio taping, with use of verbatim quotation. ☐

.....	.....	.....
Name of participant	**Date**	**Signature**

.....
Participant's Pseudonym

.....	.....	.....
Name of person taking consent	**Date**	**Signature**

Appendix 28:

Figure 33- A diagram detailing an example of an interview debrief form:

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

HEALTHCARE PROFESSIONAL COPY:

DEBRIEF FORM FOR **INTERVIEW STUDY HEALTHCARE PROFESSIONAL VOLUNTEERS**

Date of participation: ……..……..

Thank you for taking part in this study:

This study explores the way that falls in older adults are managed in an Emergency Department. It looks at why and when Healthcare Professionals deviate from and follow the clinical practice guidelines in the management of falls. It looks at whether an intervention can be developed to facilitate following guidelines.

You have the right to withdraw your information from this study for up to two weeks from this date by completing the slip on your consent form.

If you have any questions or want to obtain access to the research findings please do not hesitate to contact me at the above address.

Helen Lowe

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK
hll15@le.ac.uk
0116 252 2522 Ext: 5436

SLIP TO WITHDRAW INFORMATION (Up to 2 weeks from the date observed):

I no longer wish to participate in this study and I would like to withdraw all the information I have provided:

…… …… ……

Name **Date** **Signature**

……

Pseudonym

……

SLIP TO REQUEST A RESEARCH SUMMARY: PLEASE SEND 2013

I wish to request a copy of the research summary and I have provided my details below:

…… ……

Name ……

……

Address or email address

HOSPITAL

Chief Investigator: Helen Lowe PhD student
College of Medicine, Biological Sciences & Psychology
Department of Health Sciences
22-28 Princess Road West
Leicester
LE1 6TP
UK

Please sign below to say you have been debriefed. If you have any questions or want to obtain access to the research findings please do not hesitate to contact me.

I have been debriefed and have been provided with the opportunity to ask questions regarding this study.

Participant Signature: .....

Researcher Signature: .....

Appendix 29:

Table 62- A table detailing the interview research data collection materials:

Poster advertisement
Interview schedule
Invite to interview research participation
Information leaflet
Consent forms:
-Healthcare professional consent form:
-Healthcare professional copy
-Researcher copy
Demographic questionnaire:
-Healthcare professional copy
-Patient copy
HEALTHCARE PROFESSIONAL debrief form:
-Healthcare professional copy
-Researcher copy
Freepost envelope to return withdrawal slip on consent form if they wished to do so.

Appendix 30:

Indexing:

1) Communication:

a) Staff-patient communication

a) Impaired communication
ii) Patient acceptance of staff recommendations

b) Staff-staff communication

i) Lack of support within their role
ii) Senior staffs' adherence
i) Support from seniors

c) Categorisation of patients- what is perceived to be a fall?

2) Complexity of patients' care:

a) Falls history and guideline adherence
b) Prioritisation of care needs

3) Emergency Department care processes:

a) Busyness
b) The ambience of the department
c) Functionality of the Emergency Department
d) Variation in care pathways
e) Targets
f) Access to resources
g) Education

4) Staffing:

a) *Attitudes towards guidelines*
b) *Variation in Emergency Department staff/ staffing levels*

5) Cross-boundary care:

a) *The impact of previous experiences*
b) *Integration with other hospital departments and external healthcare services*

Appendix 31:

An example of indexing (index reference in brackets):

NB: Indexing was completed by hand in the margin of the printed transcripts/ observation notes.

Ok, so interview with Harry

Ok, so can you tell me about your job role then? (1b, 4)

Uhumm, I'm an SHO here, umm, working in the umm A&E department. **(1b)**

Ok, so what's your role involve? (5ab)

Umm, basically at the moment there's been a little bit of a restructuring (uhumm), so **(3cdf)** I- I!!! I don't know what the old system [RATS] **(3c)** (right, yeah) was essentially like. Umm, but umm- I guess there's a couple of areas you can be in. You can be in the RATS area (yep), where um, when patients come in with umm, acute problems or s-serious problems they're been s-seen already by (uhumm), say one physicians umm or nurse practitioners. Um who come up with a reasonable plan (yep) and get the investigations sorted. Then they move the patient thereafter to what we call the Post-RATS area [PRATS] (uhumm), that's where we wait for the blood tests or chest X-rays, or scans like CTs (yep). Umm and I guess that's where most of the decisions make-get made **(3abcdefg, 4).** And that's called like I said the Post-RATS area (yeah). Errm then you've got Resus. obviously (uhumm), where y' know you've got acute serious y'know conditions (yep), or serious things going on, um and I guess that's where you get a lot of medics, surgeons or trauma calls um (uhumm) happening. Umm, and then you've got Minor Injuries which is just across- so people walk in and

potentially can be dealt with in a pretty reasonable way and a quick way (yep) and usually see a nurse. I guess largely I've been in RATS/Post-RATS (yeah) and (so you've been) a little bit of Resus, some Minors but not much. So you'll probably be moving about (Yeah) don't you? Yeah you kind of move around but I think, as an SHO we're focused largely on the RATS and the Post-RATS area (right) so that's kind of how it works. Ok. So. **(3abcdefg)**

Appendix 32:

Table 63- An example of thematic charting:

Theme (each sub-ordinate theme)	**Examples** (N/A= no indexing reference for this topic found in this episode of observation/interview)		**(continued with each interview/observation episode transcript)*
STAFFING:	**Bob**	**Observation episode 1**	
Variation in staff/ staffing levels	*" […] because we have so many doctors and nurses that even the existence of guidelines for two or three years will not guarantee that everybody knows about it (…) […] (P5)."*	Both junior and senior members of staff involved in care.	
Specialist staff and/or departments	*"[…] I think it is realised (…) almost a sub-speciality (…) - geriatric emergency care (…) or sort of emergency care for the older patient may be an area that needs to develop […] (…) (P3)."*	Followed up with Geriatrician assessed and transferred to AMU for further assessments.	
Enthusiasm for job	*"(…) You need somebody with clinical credibility (…) to (…) champion that sort of work […] (P6)."*	N/A	

Appendix 33:

An example case of the care observed at City Hospital's Emergency Department:

11:35- A patient was assessed in the Minor injury department.

The nurse who was assessing them explained what they were doing - a quick assessment so that the patient could be directed to the most appropriate department.

Q-"What happened?"

"I fell yesterday in the bathroom, called for help via lifeline."

The carer had called the patient's relative.

Q-"How did you land?"

"On the floor for 10 minutes."

Q-"Where did you hurt?"

"Were you dizzy before you fell?"

"Did you trip?"

"Not sure how I fell."

The relative thought it could be a TIA (Transient Ischaemic Attack).

Q-"Any past medical history?"

The relative gave a long list including osteoporosis.

Q- "Have you had any pain relief?"

"Yes."

A nurse checked the patient's blood pressure.

Q- "Have you got any allergies?"

"No."

Q- How did you know you were on the floor for 10 minutes?"

The patient did not respond.

An assessment nurse went to the Majors department to discuss their concerns regarding the patient's care.

It was decided that the patient should have an X-ray.

11:45 - *The patient was in the waiting room.*
12:10 - *An ECG was conducted.*
12:30 - *The patient returned to the waiting room.*

It was getting increasingly busy in the Minors sub-department.
1:00- *A second ECG was conducted.*
1:05 - *The patient returned to the waiting room.*
1:45 - *The patient was allocated a cubicle to await doctor's assessment/test results.*
2:00 - *A doctor checked the patient's wrist for a possible injury.*
2:10 – *The doctor assessed the patient's care needs by asking the following questions.*
Q- "What's your name?"
Q- "What's your date of birth?"
Q- "Why are you in hospital?"
The relative explained how the patient could not answer these questions or remember the details surrounding their fall.
The doctor checked the patient's wrist.
The doctor reassured the patient that the ECG cardiovascular assessment was standard (the relative was concerned). The patient's relative spoke about the patient's previous fracture and that their memory was becoming more impaired and that they were visually impaired. The healthcare professional spoke to the patient and found out that the patient required support from carers, but recently had new ones who left them with medication to take on their own when they were unable to do so due to their visual impairment. The patient had missed doses of medication.
Q- "Any other conditions?"
"Osteoporosis.

Possible mini TIAs.

Not as active.

Aneurysm.

Chronic Obstructive Pulmonary Disease (COPD).

Kidney failure."

Q- Do you have a list of meds?

The relative provided a list.

Q- How many carer visits a day?

The patient failed to respond so their relative answered the questions on their behalf:

3 x a day, and relative in evening.

The healthcare professional states that the patient does not seem to cope very well.

The questions below were directed back to patient, but again there was no response so the healthcare professional conduced an assessment in order to try to gain insight.

Q- Where does your wrist hurt? Can you move your wrist?

Can I look at your legs?

The patient had bruises from their fall.

They had no bumps to their head.

The doctor stated that the wrist injury was not much of a worry compared with everything else. They checked if the patient had had an X-ray.

The relative stated how the patient's health fluctuated with memory problems and some chest pain was experienced when the patient got into bed.

Q- Do you have a puffer/ GTN spray?

(Relative) No, they take aspirin.

The doctor stated that the wrist should be ok and the X-ray was only recommended due to the patient's osteoporosis. The main focus was stated as being related to their falls, memory and vision.

2:20- *The doctor left the room.*

2:30- *The doctor returned to try to make a decision alongside the patient's relative, as to whether to admit the patient or to get an assessment to take place at home. The patient was distressed and tried to justify that they did not need to be admitted as they had carers. The doctor and relative supported each other with regards to the decision, with the relative saying that the minor falls that the patient was currently experiencing may get worse.*

The doctor explained that they did not want to keep the patient in hospital, but needed to make them safe. The doctor was very friendly and reassuring.

The relative asked for information regarding the patient's care plan. The doctor stated that the plan would be for the patient to undergo an assessment and possibly receive extra care via an intermediate care team. The patient's relative stated that she had had an assessment before which had not helped as the patient was given a Zimmer frame which was not practical for use in their house. The doctor was honest, stating they did not know all the details and that was the reason why the patient was being referred on.

The relative explained how the patient had had a bad experience within the hospital previously. Both the doctor and relative agreed that the assessment was needed and the doctor reinforced that they did not recommend discharge unless a carer was there full-time.

2:45- *The doctor said to me that they did not like these sorts of situations, where there was a conflict regarding a patient's care needs. The doctor suggested that the patient went to get an X-ray, get out of the Emergency Department environment and have some thinking time.*

3:25- *The doctor returned and said the X-ray was ok and asked the patient and their relative if they had had chance to talk. The relative said it was all dependent on the ward the patient would go to due to past experience.*

3:30- *The relative asked if there was anywhere else they could wait while they were waiting for a bed as they were uncomfortable, they were informed there was not. The relative asked if they could take the patient home and return them when a bed was free. The doctor stated that they were unable to do that as the*

bed would go to the next person instead. The relative decided to call the patient's GP to see if there was anything they could do. Both the patient and their relative were reluctant to accept recommended care. The relative started to make some phone calls about getting leave from work to care for the patient in their home.

Total treatment time –11:30- 3:30・ (4 + hours) within the Emergency Department.

An example case of the care observed at Town Hospital's Emergency Department:

9:55- *A patient arrived complaining of pain across the abdomen due to a fall. The patient was assessed- Abbreviated Mental Test (AMT) – They were asked if they received support in their home. E.g. carers visiting. The hospital contacted the patient's relative.*

10:15- *The patient was seen by a healthcare professional, for a consultation. The healthcare professional asked what name the patient wished to be referred to. They asked the patient what happened (patient bombarded with questions all at once- The healthcare professional spoke in a loud voice as the patient was hard of hearing NB:- I may have missed some answers- focused on the questions):*

Q- "How did you fall?"

"Dizzy."

Q- "Did you feel dizzy before?"

Q- "What were you doing?"

Q- "Did you have any chest pain?"

"Yes." (*The healthcare professional asked for further details*)

Q- "Did you bang your head?"

Q- "Did you lose consciousness?"

Q- "Could you stand up?"

Q- "What has happened since?"

Q- "Is the pain worse or better now?"

Q- "Have you seen your GP/Dr?"

Q- "Have you taken Paracetamol, I have been told you have?"

"No." (*The healthcare professional noted it*).

Q- "Can you describe the pain?"

Q- "Do you live on your own? Home?"

“Alone.”

Q- “How do you cope?”

“Meals.”

Q- “Do people come in? Meals on wheels? Do you get them?”

“Get them on scooter.”

Q-“Do you clean/ dress yourself? Do you do a lot by yourself? Do you get any help?”

“Carer comes.”

Q- “How often?”

“9-4.”

Q- “Everyday?”

“Yes.”

Q- “Do you walk with a stick?”

“Yes.”

Q- “Granddaughter help?”

“Yes.”

Q- “Have you fallen before?”

“Yes.”

Q- “When was your last fall?”

“Four months ago.”

Q- “How many falls have you had in the last year?”

“Two.”

Q- “Including this one?”

“Yes, not bad is it?”

The healthcare professional responded “no”.

Q- “Did your doctor give you Paracetamol or Cocodamol?”

One Paracetamol.

Q- “Can I have a look at your medication?”

“Yes.”

The healthcare professional looked at the patient’s medication list.

Q- “Do you have Asthma? Do you have high blood pressure?”

“Don’t think so.”

Q- “Are you allergic to any meds?”

“No.”

Q- “Do you drink alcohol, do you smoke?”

“No.”

Q- “Do you have any Paracetamol now?”

“No.”

Q- “Can I examine you?”

“Yes.”

The healthcare professional commenced an examination:

They examined the patient’s head, where there was consequential injury.

The healthcare professional got the patient to open and close their mouth.

They checked the patient’s heart.

The healthcare professional asked the patient to sit forward- checked back/ chest- asked them to take a deep breath.

The healthcare professional checked the patient’s stomach.

The healthcare professional was chatty with the patient; I inferred that the intention was to help the patient feel at ease.

The healthcare professional asked the patient to point to where their stomach hurts.

The healthcare professional conducted an examination of this area.

The healthcare professional looked at the patient’s back, and asked the patient if it was sore.

The healthcare professional asked the patient to tell them if it hurt anywhere else.

The patient noted a bruise from where they fell.

Q- “Did you hit your back?”

“It hurts when I walk.”

Q- “Can I look at your back?”

The patient did not hear, the healthcare professional did not repeat what they had said, but asked them to lean forward.

Q- "Is it sore when you breathe in and out?"

The patient was chatty, the healthcare professional helped the patient to get covered up and keep warm.

The healthcare professional informed the patient that they would speak to a senior; the patient was left to rest.

10:55- The healthcare professional returned to patient

Q- "Do you have a cough?"

Q- "Are your waterworks ok?"

The healthcare professional conducted a Neurological examination (they shone a light in the patient's eyes to check their pupil reactions).

The patient's relative was contacted by telephone. The senior healthcare professional spoke to them; the relative informed the healthcare professional that they had been looking at nursing homes as they had been becoming more concerned.

A senior member of staff entered. They told the patient that their relative was worried. They carried out further examinations (as before) and asked further questions regarding their living situation.

Additionally they checked the patient's head, examined their reflexes and checked how the patient was on their feet.

The healthcare professional spoke to the relative on the phone and noted to the patient that it looked like they were having tumbles and falls and that they were worried how they were on their legs. They said to the patient that they wished to keep them in for the day for assessments by the physiotherapist. "You're really good for your age and we want to keep you like that."

The patient was sent for an X-ray of their pelvis, chest, and hip.

The recommended care pathway was for the patient to be seen by the Geriatrician for a frailty assessment; an 'Emergency Frailty Pathway' document was completed in order to refer the patient to the Emergency Decisions Unit

(EDU). The document detailed a referral inclusion and exclusion criteria that the patient presentation characteristics had to be matched against. For example, they were excluded from the EDU referral pathway if they had signs of an acute illness. The document amalgamated details regarding criteria which were required to be met in order for a referral to be made. These documents detailed whether the patient had a fracture, whether a drug chart had been written and whether an 'Assess, Prioritise, Treat' (APT) document had been completed. An APT document was intended to provide a comprehensive checklist to be used in assessing symptoms and tailoring care for older adults who presented to the Emergency Department with a fall. The sheet incorporated an assessment of an individual's cognitive function, risk score (re. severe functional impairment, depression and frequent hospitalisation) and a falls assessment, which directed care to a falls specialist clinic or to a GP for follow up, based upon the healthcare professionals' perceived need.

11:40- *The patient received an ECG assessment and blood tests.*
The patient was found to have loose pills in a pocket; the healthcare professional put them into safe keeping. The patient also had a large amount of money on their person; the healthcare professional recommended that they contacted a relative to collect it.
12:05- *The patient was sent to X-ray.*
The plan was that patient had a 'falls assessment', including occupational therapy and physiotherapy, lying and standing blood pressure, medication review, all to take place in the EDU.
It later emerged that EDU was full so the patient was sent to the Acute Medical Unit (AMU) for assessments.

1:25- *The patient received lunch and was then moved into the holding area out of the bay so it could be used to assess another patient.*
1:45 – *The patient was discharged to the AMU.*

Total treatment time – 9:55 ・ 1:45 (3 hrs. 50 minutes, just within the four-hour target).

Appendix 34:

Interviewee biographies (at the time of data collection):

City Hospital healthcare professional biographies:

Arthur:
A senior nurse.

Barbara:
A senior doctor in the Emergency Department involved in assessing patients, conducting examinations, organising investigations, making diagnoses and sending the patient in the correct direction of care.

Beverly:
A nurse who described her role as looking after a variety of patients through a variety of modes of care. For example, treatments/ medications, ensuring hygiene needs were met.

Bob:
A senior doctor working within a multi-disciplinary team.
He described his role as sharing both managerial and clinical responsibilities, and supporting junior staff.

Brad:
A senior nurse, who described his role as dealing with everyday emergency situations, in the “frontline” of care.
He stated how his role involved streaming patients, dealing with any patient care that required immediate attention, and a role in prioritisation of patient care.

Dan:

A senior doctor who described his role as ensuring a smooth flow through the department, and supervising of junior staff.

David:

A middle grade doctor (how they described themselves) who worked predominately in the Majors department, involved in both supervising staff and seeing patients.

He described his role as involving taking histories, developing a care pathway and diagnosing illness.

Doris:

A senior nurse involved in seeing patients and ensuring they got the right treatment in an emergency, and within the four-hour target.

E:

A senior doctor involved in care on a rotational shift pattern, overseeing and supervising junior staff, consulting with patients and working alongside other seniors.

Helen:

A healthcare assistant who described herself as the first point of contact when a patient presented to the Emergency Department. She conducted observations, ECGs, took bloods and maintained ADLs.

James:

A junior doctor who spent some of his time working within the Emergency Department context.

Jillian:

A healthcare assistant who described her role as providing support to other staff, doing stock checks and making sure all equipment was in place. She also emphasised that her clinical duties involved conducting observations, recording ECGs and overseeing patients' general care.

Margaret:

A healthcare assistant who described her role as "doing everything a nurse could do apart from drug administration."

She described how she conducted observations, recorded ECGs, took blood, fitted cannulas, dressed wounds and provided basic nursing care such as ensuring patients were fed and had been offered drinks.

Ruby:

A healthcare assistant who described herself as a clinical team member who performed a variety of duties, including conducting ECGs, fitting cannulas, taking blood, conducting observations and facilitating ward transfers.

Sam:

A member of staff whose role involved medical care, including triaging, providing assessments and treatments.

He described how sometimes he completed a clerking examination, following the whole patient care pathway within the Emergency Department.

Smith:

A senior doctor who described his role as managerial and clinical- reviewing patients seen by junior doctors, and assisting to help them to make clinical decisions.

Town Hospital healthcare professional biographies:

Abbey:

A healthcare assistant who had the role of supporting nursing staff as part of a multi-disciplinary team.

She described how she performed duties such as conducting observations, recording ECGs, taking blood and wound care.

Adam:

A senior nurse involved in looking after patients and liaising with doctors.

Amanda:

A senior nurse involved in the care of older adults.

Antony:

A senior doctor who described their role as partly managerial and partly clinical.

Aussie:

A senior doctor who described their role in overseeing the department management and evaluating patients' care requirements.

Dave:

A senior nurse who treated a variety of patients, ranging from those presenting with minor illness, to full Trauma patients.

GM:

A senior doctor involved in supervising staff, seeing patients, and stabilising them. In addition they had a role in teaching and management within the department.

Harry:

A senior doctor working across the Emergency Departments.

Joe:

A senior doctor who had both clinical duties and provided supervision to junior doctors, alongside providing managerial support to the department.

John:

A senior doctor within the department who described his role as seeing patients and providing managerial assistance.

Polly:

An individual who worked alongside the medical team clerking and assessing patients as they arrived.

Rosie:

A healthcare assistant who described her role as assisting nurses with observations, recording ECGs and meeting patients' general care needs such as providing them with drinks.

Ruth:

A member of staff who provided managerial support across the Minor injuries department.

Tommy:

A senior doctor who described his role as seeing patients, clerking them, taking their medical history, examining them, producing a management plan based on a provisional diagnosis, and making clinical decisions with regards to care pathways.

Appendix 35:

Table 64- The frequency of each criterion being met when the Emergency Department was busy, and when it was quiet (across both sites):

Frequency of criterion being met at town hospital's and city hospital's Emergency Departments (EDs). (number of episodes of observation in which it was busy or quiet)						
	Site specific					
Criterion number: (total number of times a criterion was assessed)	**Town Hospital's ED 12 episodes of observation**		**City Hospital's ED 15 episodes of observation**		**Across both sites: 27 episodes of observation**	
	Busy (7)	**Quiet (5)**	**Busy (12)**	**Quiet (3)**	**Busy (19)**	**Quiet (8)**
1 (25)	N: 6 86%	N: 5 100%	N: 11 92%	N: 3 100%	N: 17 89 %	N: 8 100%
2 (22)	N: 7 100%	N: 4 80%:	N: 8 67%	N: 3 100%	N: 15 79%	N: 7 88%
3 (6)	N: 2 29%:	N: 0 0%	N: 3 25%	N: 1 33%	N: 5 26%	N: 1 13%

4 (22)	N: 4 57%	N: 5 100%	N: 10 83%	N: 3 100%	N: 14 74%	N: 8 100%
5 (18)	N: 4 %:	N: 3 60%	N: 9 75%:	N: 2 67%	N: 13 68%	N: 5 63%
6 (20)	N: 4 57%	N: 2 40%	N: 12 100%	N: 2 67%	N: 16 84%	N: 4 50%
7 (6)	N: 2 29%	N: 0 0%	N: 2 17%	N: 2 67%	N: 4 21%	N: 2 25%
8 (24)	N: 6 86%	N: 5 100%	N: 10 83%	N: 3 100%:	N: 16 84%	N: 8 100%
9 (27)	N: 7 100%	N: 5 100%:	N: 12 100%	N: 3 100%:	N: 19 100%	N: 8 100%
10 (1)	N: 0 0%	N: 0 0%	N: 1 8%	N: 0 0%	N: 1 5%	N: 0 0%
11 (15)	N: 3 43%	N: 3 60%	N: 7 58%	N: 2 67%	N: 10 53%	N: 5 63%
A) total number of criteria assessed (sum of above) –a	45	32	85	24	130	56
Total number of criteria to be assessed (number of observations x number of assessment criteria per episode of observation)- b	77	55	132	33	209	88
Mean % of criteria assessed per episode of observation (a/b) *100	58%	58%	64%	73%	62%	64%

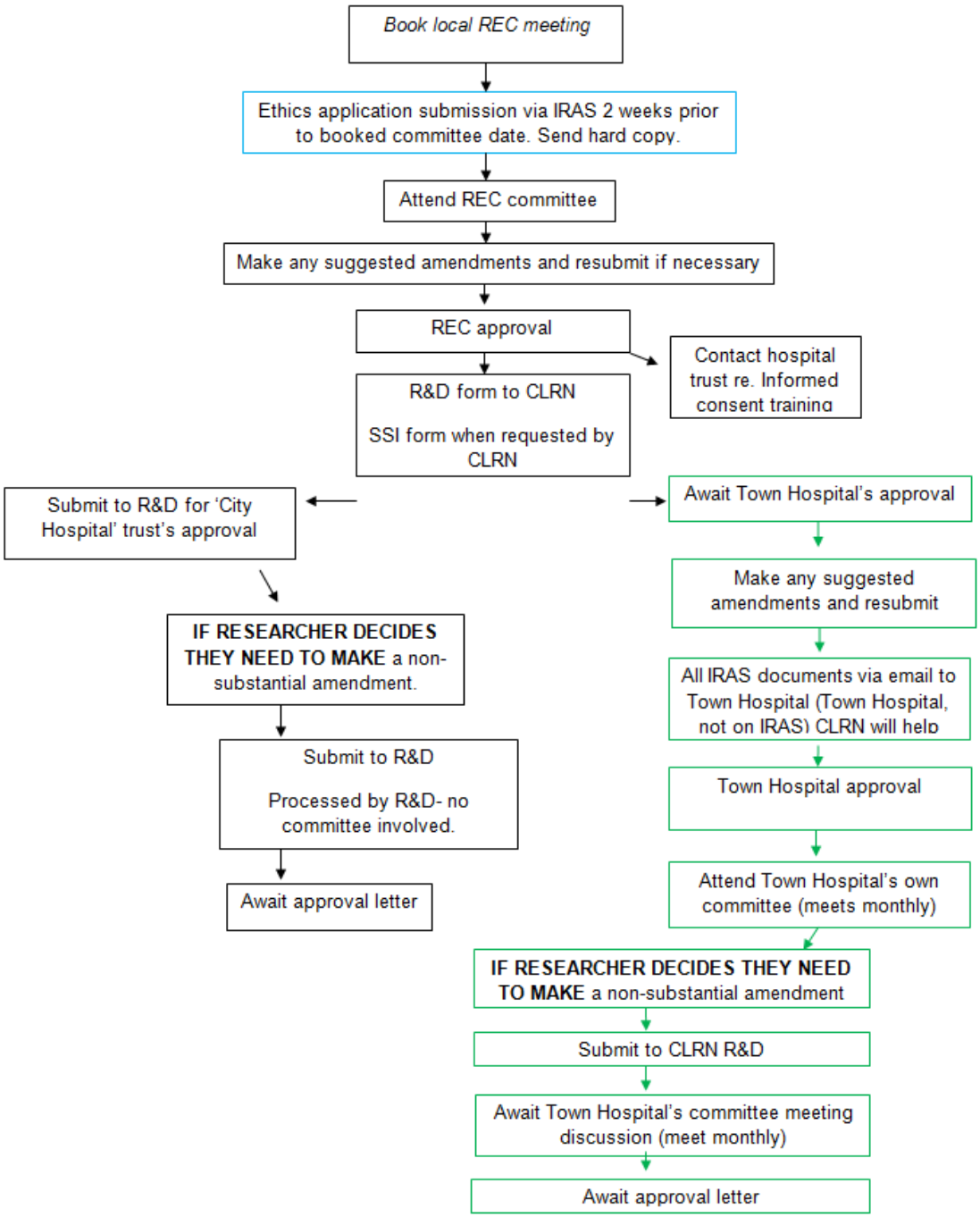
Appendix 36:

The ethics approval process:

Key:

- Informed Consent Assessment - a training session/ assessment of a researchers' ability to obtain informed consent from potential research participants.
- Research Ethics Committee (REC) - The committee who assesses and considers whether to approve the research proposed
- Integrated Research Application Service (IRAS) - an electronic resource that allows integration of applications to both the REC and to hospital research departments
- Research and Development department (R&D) - provides a Hospital Trust specific assessment of the research application, deciding whether to approve the research proposed via the assessment by the Comprehensive Local Research Network (CLRN).
- Site Specific Information (SSI) - the information provided with regards to how research would be conducted at a particular site.

Figure 34- The ethics approval process:



Glossary:

A priori theories/ questions/ issues:	Theories, questions and issues that are considered prior to data collection / analysis. They can be used to identify a thematic framework in which to analyse data (Pope et al., 2000).
Academic teaching hospital:	A university associated teaching hospital.
Active mechanical falls:	See 'Mechanical falls'.
Active recipient of care/ Active patient:	An individual who has a role in directing their own care (Alakeson, 2011).
Activities of Daily Living (ADL):	A measure of activities such as eating, bathing and dressing (Lawton and Brody, 1969).
Acute Care:	"Acute care is where people receive specialised support in an emergency or following referral for surgery, complex tests or other things that cannot be done in the community (The Health Foundation, 2012, P1)."
Acute illness:	Illnesses that are short in duration (Jones, White, Armstrong, Ashworth and Peters, 2010).
Acute Medical Unit (AMU):	First point of entry to a hospital for those who are referred as emergency cases by a GP. Those requiring admission from the Emergency Department are also directed there (University Hospital Southampton, 2013).
Acute Hospital Trust:	Involved in managing hospitals so that they provide high quality of care/ service is improved (NHS Choices, 2012).
Adherence/ non-adherence:	Adherence is the act of doing what is required (Merriam-Webster, 2014a). It is defined in a medical reference encyclopedia (Reference.MD, 2012, P 1) as: "Conformity in fulfilling or following official, recognised, or institutional requirements, guidelines, recommendations, protocols, pathways, or other standards."
ADL:	See 'Activities of Daily Living'.

Advanced Nurse Practitioner (ANP):	A registered nurse with an expert knowledge (Association of Advanced Nursing Practice Educators, 2013).
Ambience:	The character and atmosphere of a place (Collins Cobuild Advanced Learner's English Dictionary, 2006).
Ambulance Trust:	An Ambulance Trust provides the ambulance services that provide emergency access to NHS care (NHS Choices, 2013a).
American Geriatric Society (AGS):	A non-profit organisation who focus on improving health, quality of life and independence of older people (AGS, 2013).
AMU:	See 'Acute Medical Unit'.
Analgesia:	Pain relief (NICE, 2014).
Angina:	"Chest pain that occurs when the blood supply to the muscles of the heart is restricted (NHS Choices, 2013b, P 1)."
ANP:	See 'Advanced Nurse Practitioner'.
Anonymity:	Not letting others know that you have participated (Collins Cobuild Advanced Learner's English Dictionary, 2006).
Aphasia/Aphasic:	A condition where a person cannot use language correctly (NHS Choices 2013c).
Area under the receiver operating characteristic curve (AUC):	See 'Statistics Terminology'.
Arthritis:	An inflammation of a person's joints (Arthritis Care, 2014).
Assess Prioritise Treat (APT) pro-forma:	A pro-forma used within City Hospital's Emergency Department in order to assess an Older Adult's healthcare needs.
Attrition:	Loss of members of a sample (Bowling, 2007).
AUC:	See 'Area under the receive operating characteristic curve' in the 'Statistics Terminology' section .

Audit/ Quality management:	Observing practice with the aim of reporting back the findings and improving performance (NICE, 2007).
Band 5s (Nurse):	A fully qualified Nurse (career level started at Band 5) (NHS Careers, 2013a).
Band 7s (Nurse):	An Advanced Nurse (NHS Careers, 2013a).
Bank staff:	Temporary staff who are called upon to try to ensure that a department is not understaffed (Black Country Partnership NHS Foundation Trust, 2013).
Barrier/s:	"A circumstance or obstacle that keeps people or things apart or prevents communication or progress (Oxford Dictionaries, 2014a, P 1)."
Barthel index measure's score for physical functioning:	Scores physical functioning by looking at measures of self-care and mobility (Radiation Therapy Oncology Group, 2010).
Baseline measure:	"The comparison of conditions against the baseline point. Frequently, this process of measurement will occur between current conditions and a previous condition that serves as a baseline (Survey Methods, 2013 P1)."
Bias: Experimenter bias/ Observer bias Interpretive bias Recall bias Selection bias	Bias is deviation of inferences from research, from that which is true (Hassan, 2006). Experimenter bias/ Observer bias is the notion that a researcher's subjective opinion and expectations influencing the interpretation of results (Shuttleworth, 2009). Interpretive bias is the notion that analysis is never completely objective or independent to a researcher's theoretical viewpoint. It is influenced by a person's pre-conceptions, hypotheses and beliefs. Interpretation can produce either good judgement or error (Kaptchuck, 2003). Recall bias is where results are affected by a person's memory (Hassan, 2006). Selection bias is when papers/ participants are selected in an unreliable manner. Bias can be reduced by more than one researcher matching

	the search results against the inclusion and exclusion criteria (National Centre for the Dissemination of Disability Research, 2007).
Blood vessel:	The channels that are used to transport blood around the body (Gale Encyclopaedia of Public Health, 2002).
Body mapping:	Identifying healthcare problems through a head to toe assessment of patient symptoms (Public and Commercial Services Union, 2013).
Bone changes:	Changes to an older adult's bone structure. For example, arthritis- a general term for diseases that cause pain, stiffness, inflammation and swelling of joints (Health Grades Inc, 2011).
Bone density:	A measure of the amount of bone, used in the diagnosis of Osteoporosis (National Osteoporosis Foundation, 2014).
Boolean Operators:	Used to combine numerous terms into one database search. For example, 'AND' 'NOT' (Web of Science, 2009).
Bottom-up analysis:	When an interpretation is drawn from the data (Dewey, 2007).
BP:	See 'Blood Pressure'
Building infrastructure:	The facilities that allow the building (Hospital) to function (Collins Cobuild Advanced Learner's English Dictionary, 2006).
'Busyness':	How busy the Emergency Department is.
'Buy-in':	How an interviewee describes receiving support from others, for example, buy-in from physiotherapists from outside the Emergency Department.
Cannula:	A flexible tube that is inserted into a vein to give fluids or medication that a patient cannot take by mouth or needs to enter the patient's bloodstream directly (NHS Lanarkshire, 2012).
Cardiac arrest:	A person's heart stops pumping blood around their body (British Heart Foundation, 2013a).

Cardio Pulmonary Resuscitation (CPR):	A "…first aid technique that can be used if someone is not breathing properly or if their heart has stopped… (NHS Choices, 2014a, P1)."
Care home:	A residential home that can provide nursing care or personal care to an older adult (NHS Choices, 2013d).
Cardiac pacing:	Stimulation to treat arrhythmia (UpToDate, 2014).
Care package:	Services that are put together in order to meet an older adult's assessed needs (Social Care Services, 2008).
Care pathway/s:	"…anticipated care placed in an appropriate time frame, written and agreed by a multidisciplinary team (National Leadership and Innovation Agency for Healthcare, 2005, P 10)."
Carer:	Someone who provides support to a person who would be unable to manage without this person's help (Carers' Trust, 2012).
Carotid Sinus Massage:	Massaging of the carotid artery* whilst monitoring a person's blood pressure and heart rhythm. It is used to investigate falls, faints and dizziness (Royal United Hospital Bath NHS Trust, 2007). *Carotid artery- blood vessel that provides the front of the brain with oxygenated blood (Boots WebMD, 2013a).
Casualty Department:	Another name for an Emergency Department/ A&E Department.
CCEU:	See 'Clinical Effectiveness and Evaluation Unit'.
CCG:	See 'Clinical Commissioning Group'
CEC:	See 'Clinical Effectiveness Committee'.
Charge Nurse:	Focuses on the department providing care that is safe, of high quality and is effective in improving patient outcomes and experiences (NHS, 2013).
Clerking:	Finding and recording a patient's medical notes (NHS Careers, 2013b).
Clinical Commissioning Group (CCG):	Groups who replace Primary Care Trusts (PCTs). They plan to meet the local area's healthcare needs and then buy in the services required to

	meet such needs (NHS Leicester City Clinical Commissioning Group, 2013).
Clinical Effectiveness Committee (CEC):	Promotes clinical effectiveness and evidence-based care. It links with collaborative networks that help formulate and facilitate the uptake of policies and strategies (College of Emergency Medicine, 2014b).
Clinical guidelines:	Recommendations on the appropriate care and treatment of people who have specific conditions and diseases (National Institute for Health and Care Excellence, 2011b).
Clinical Validity:	The accuracy of a test in detecting or predicting a clinical disorder (Grosse, Kalman and Khoury, 2010).
Closed-ended questionnaire:	See 'Questionnaire'.
Co-codamol:	(Codeine and Paracetamol)- Used to relieve severe pain (NHS Choices, 2013e).
Co-efficient:	See 'Statistics Terminology'.
Cochrane review:	"Cochrane Reviews are systematic reviews of primary research in human healthcare and health policy, and are internationally recognised as the highest standard in evidence-based health care. (The Cochrane Collaboration, 2014 P 1).
Cognition:	Intellectual function (Tynan, 2012).
Cognitive deficit/ impairment:	A deficit in intellectual functioning (Tynan, 2012).
Cohen's kappa coefficient:	See 'Co-efficient'.
Cohort/ Cohort study/ Cohort sampling	A cohort study is similar to an RCT in that two groups are compared based on a differential characteristics. The group allocation is out of researcher's control however, as a cohort is a pre-defined group (International Agency for Research on Cancer, 2012). For example, comparing a group of older adults to younger adults to look at the influence of age upon fall risk.
Collaborative care:	Where healthcare professionals work together in order to coordinate care delivery (National Institute for Health Research Collaboration for

	Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester, 2013). Collaborative care utilises the services outside the Emergency Department, those that patients may present to independent of receiving Emergency Department care, or those accessed in conjunction with Emergency Department care either before and/or after presenting there for treatment (cross-boundary care).
Collapse/d:	Fainting or falling down (Collins Cobuild Advanced Learner's English Dictionary, 2006).
College of Emergency Medicine:	Formed to advance research and education in Emergency Medicine (The College of Emergency Medicine, 2014).
Combined Amsterdam and Rotterdam Evaluation of FALLs study group CAREFall (CTI):	A questionnaire which assesses modifiable risk factors for recurrent falls (Dutch Falls Prevention Collaboration, 2004).
Community Matron/s:	Senior nurse whose role is to work with patients in order to plan, organise and provide their care. They work in the community with those who have complex conditions or long-term ones (NHS Careers, 2013c).
Co-morbid/ Co-morbidity/ Co-morbidities:	When a disease/condition occurs at the same time as another, for example, heart disease and arthritis (Hall, Lynskey, Teesson, 2001).
Concurrent validity:	See 'Validity'.
Confidence interval:	See 'Statistics terminology'.
Conformity:	A change in a behaviour or a belief in order to fit in with those of a group (Cialdini and Goldstein, 2004).
Consultees: -Personal -Nominated	In a research capacity, a consultee is a person who is approached in order to discuss whether a person can participate in research. A personal consultee is an individual who knows the patient well, but is not at the Emergency Department with them in either a paid or professional capacity (Department of Health, 2008).

	A nominated consultee is someone who has been briefed on the research and is prepared to be consulted, but they have no connection with the research data collection, for example, a healthcare professional that is not recruited to the study (Department of Health, 2008, and Dixon-Woods and Angell, 2009).
Content Analysis:	A narrative synthesis technique that involved categorising data through quantitative methods. E.g. the frequency in which a priori themes are evidenced (Snilstveit et al., 2012).
Content validity:	See 'Validity'.
Continuing Professional Development (CPD):	Combining ideas, techniques and approaches to help an individual manage their own learning and their growth (Chartered Institute of Personnel and Development, 2014).
Construct validity:	See 'Validity'.
Continence:	A person is continent when they have control of their bowel and bladder (SecuriCare Medical Ltd, 2013).
Continuity of care:	The quality of care a person receives over time (Gulliford, Naithani and Morgan, 2006).
Convenience sample/ sampling:	See 'Sampling'.
Conventional care:	The care which is usually received/ mainstream care. Where medicine is practiced by those with medical qualifications (GoToSee, 2013).
Co-ordinated care:	Where a patient's perspective is central to their care (National Voices, 2013).
Correlation:	An illustration of the relationship between two variables. Positive correlation- as one variable increases then so does the other. Negative correlation- as one variable increases then the other decreases. Creative Research Systems (2012).
Cost-effectiveness:	Something is cost-effective when the money input into something leads to a positive outcome. For example, it is cost-effective to invest in

	medical equipment if it reduces a patient's future healthcare requirements (Collins Cobuild Advanced Learner's English Dictionary, 2006).
CPD:	See 'Continuing Professional Development'.
CPR:	See 'Cardio Pulmonary Resuscitation'.
Crisis Response Team:	A team who worked alongside Town Hospital to help people who had experienced a fall to function independently.
Cross-boundary care:	Cross-boundary care refers to the care a patient receives for their fall before and/or after Emergency Department presentation.
Cross-sectional study:	A study that compares participants at one particular time point, it can be looking at one or more variables (Rosnow and Rosenthal, 2005).
CTI:	See 'Combined Amsterdam and Rotterdam Evaluation of FALLS study group CAREFall'.
Culture:	In this case, referring to the way the Emergency Department functions.
Data Saturation:	"The point in data collection and analysis when new information produces little or no change (in the themes detected) (Guest, Bunce and Johnson, 2006, P 65)."
Debriefing:	Providing participants with an opportunity to discuss the research they have just participated in, giving them the opportunity to ask questions and to withdraw their data if they wish to do so.
Deductive analysis:	Testing theory (Gabriel, 2014).
Dementia:	"…a set of symptoms that may include memory loss and difficulties with thinking, problem-solving or language… (Alzheimer's Society, 2014, P 1).
Department of Health (DoH):	"The Department of Health provides strategic leadership for Public Health, the NHS and social care in England (Department of Health, 2012c, P1)."
Dependent variable (DV):	See 'Statistics terminology'.

Determinant of practice:	A factor that may prevent or enable improvements (Flottorp et al., 2013).
Diplopia:	Double vision (NHS Choices, 2013f).
Disciplines/ disciplinary care: Inter-disciplinary Multi-disciplinary Single-disciplinary	Inter-disciplinary care- Healthcare professionals from a variety of disciplines, working together as a team with regards to a consultation. E.g. a mixture of Doctors, OTs and PTs working together. Multi-disciplinary care- Utilisation of the skills of varied healthcare professionals who each approach the patient from an individual perspective. E.g. Doctors individual; assessment, OT individual; assessment. Single-disciplinary care- Utilisation of skills from one healthcare discipline. E.g. Doctors. (Allen, Penn and Nora, 2006, and Jessup,2007).
Discourse Analysis:	A method of analysis that aims to study and to analyse use of discourse (language) (University of Sheffield, 2012).
Documenting:	Recording something in a patient's notes. E.g. documenting their medication.
DoH:	See 'Department of Health'.
Dual function tool:	Something which has more than one function. E.g. a pro-forma which issues guidance and allows documentation.
DV:	See 'Dependent Variable'.
Electrocardiogram (ECG):	A recording made of the electrical activity and rhythm of someone's heart (British Heart Foundation, 2013b).
EBP:	See 'Evidence-based Practice'.
ECG:	See 'Electrocardiogram'.
ED:	See 'Emergency Department'.
EDU:	See 'Emergency Decisions Unit'.

Elderly frailty pathway:	A checklist completed in City Hospital when a patient was being referred to the Emergency Decisions Unit. Information was gathered with regards to the circumstances surrounding the patient's presentation, treatment received and treatment required.
Emergency Decisions Unit (EDU):	An area patients were transferred to when: - Awaiting a test result. - They required further treatment. - They required observation before discharge.
Emergency response catchment area:	The geographic area to which ambulances have to respond to a 999 call and transfer to Town Hospital / City Hospital.
Enabler/s:	Something that enables/helps you to do/change something. "A person or thing that makes something possible (Oxford Dictionaries, 2014b, P 1)." E.g. enable adherence to guidelines.
EP:	See 'Emergency Physicians'.
Evidence-based practice (EBP) / healthcare and guideline adherence	Healthcare based upon evidence generated from research (Bowling, 2007).
Experimenter bias:	See 'Bias'.
External validity:	See 'Validity'.
F2:	Year 2 Foundation Doctor. Foundation Doctors are medical graduates who are working within a transition period between being a student and undertaking specialised training (University Hospital Southampton NHS Foundation Trust, 2013).
FA:	See 'Framework Analysis'.
Fall:	"An event whereby an individual comes to rest on the ground or another lower level with or without loss of consciousness (American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2001)."

Faller/s:	An individual/s that have fallen.
Falls clinic:	A department/ team who assess falls risk factors and discuss preventative techniques.
Falls diary:	A method of recording occurrence of falls and the events surrounding them (Multiple Sclerosis Trust, 2012).
Falls efficacy:	The level of control a person feels they have over whether they will experience a fall, a measure of their fear of falling (Tinetti, Richman and Powell, 1990).
Falls guidelines:	Referring to the NICE 2004 Falls guidelines.
Falls service:	Services that focus on the care of individuals who have fallen.
Falls prevention programme/action plan:	The development of a falls prevention programme/action plan involved data being collected regarding falls risk factors such as confusion, interventions to reduce falls within the Emergency Department, and follow-up direction of care.
Falls Risk for Older People in the Community tool (FROP-Com):	A multi-factorial risk assessment tool (National Ageing Research Institute, 2001).
Foundation Trust:	NHS hospitals which are run locally (unlike Acute Trusts) - run by staff, managers and the public. They are tailored to the needs of the local community (NHS Choices, 2012).
Four-hour target/ rule:	The rule set in the 2000 NHS Plan (Department of Health, 2000), which stated that by 2004 100% of patients who attend an Emergency Department should stay for no longer than four hours. This was adjusted to 98% in 2004 to allow for patients who may be an exception to the rule, for example, those who required resuscitation (Department of Health, 2003, and Letham and Gray, 2012).
Fracture liaison nurse:	A nurse who is dedicated to working with hospitals and GPs in order to identify patients at risk of fractures. They work together with the aim of preventing patients suffering future injuries (Calkin, 2012).

Frail/fragile:	An individual is frail when they have a vulnerability to adverse health outcomes when compared to others of the same age (Lacas and Rockwood, 2012). They may be more likely to obtain a fractured bone.
Frail mechanical fall/s:	See 'Mechanical falls'.
Frame/Zimmer frame:	A walking aid- provides patient with support (Clearwell Mobility, 2013).
Framework analysis:	Framework analysis is an approach to analysis developed by Ritchie and Spencer (1994). It is described as grounded or generative; it is based on and driven by people's accounts and observations (Srivastava and Thomson, 2009). It is dynamic in that it is open to changes, amendment and addition throughout the stages of analysis. It is systematic in having a series of explicit stages and comprehensive in allowing a full review of material that is collected (Lacey and Luff, 2009). Framework analysis allows between and within-case analysis, both comparisons between cases and associations within them can be made. The approach also allows for findings to be sorted according to key issues and themes (Gale et al., 2013, and Ritchie and Spencer, 1994).
Framework Synthesis:	A method of Narrative Synthesis which involves developing themes and coding them based on the developing framework (Snilstveit et al., 2012).
Frenchay Activities Index (FAI):	A scale which is used to measure the level of physical functioning that is required by an individual to maintain their independence (Han, Lee and Kohzuki, 2009).
FROP-Com:	See 'Falls Risk for Older People in the Community tool'.
Functional ability/status:	A person's physical and mental abilities (Accessing Safety Initiative, 2010).
Functional decline:	A reduction in a person's functional ability/status.
Functional reach:	A measure of balance, the difference between an arm's length and reach (Duncan, Weiner, Chandler and Studenski,1990).

Gatekeeping:	A way of controlling access to something, for example, allowing or denying a patient access to a falls service (Holloway and Wheeler, 2002).
GCS:	See 'Glasgow Coma Scale'.
Generalisability/ External Validity:	See 'Validity'.
Geriatric:	An older person (British Geriatrics Society, 2012).
Geriatrician:	Healthcare professionals who provide specialised healthcare for older adults. One of the focuses of care provided is on falls (British Geriatrics Society, 2012).
Geriatric assessment:	A comprehensive assessment of cognition, level of functioning and safety (University of IOWA, 2012).
Geriatric outpatient clinic:	A specialised outpatient clinic where patients are assessed by a team specialising in Geriatric care (Sunnybrook Health Sciences Centre, 2013).
Glasgow Coma Scale (GCS):	A tool used to assess a patient's neurological functioning through assessing their level of consciousness through producing a score between 3-15, 3 being the worst score. The assessment involves measures of verbal and motor responses, as well as eye opening (Headway, 2013).
Global Assessment Tool:	A tool that provides an overall (global) assessment of something, for example, a test of global cognitive functioning- including orientation, attention and language abilities (Rosenweig, 2010).
Glyceryl trinitrate spray (GTN spray):	A medication used by patients with angina. It is used to open up a patient's arteries (the tubes where blood is pumped from the heart) reducing the work the heart has to do (Chest Heart & Stroke Scotland, 2013, and The Franklin Institute, 2013).
GTN spray:	See 'Glyceryl trinitrate spray'

Hand-over:	Delegating a patient's care to someone else. For example, a healthcare professional handing over a patient's care to someone who is about the start their shift.
Hawthorne effect:	Where there are changes in the behaviour of individuals as a result of being observed (Wickström and Bendix, 2000).
HCP:	See 'Healthcare Professional'.
Head-up tilt testing/ Head Upright Titl Test:	A test used to investigate syncope/ falls in older adults (Kenny, O'Shea and Parry, 2000). It measures heart rate and blood pressure while a patient is lifted on a table in a head-up position. The patient is lifted at different angles (Cleveland Clinic, 2013).
Health Visitor:	A nurse who works in a community setting assessing care needs, preventing illness and promoting good health (Hankins, 2011).
Healthcare Assistant:	An assistant to a qualified healthcare professional such as a nurse. Support they provide includes washing and dressing patients, toileting and feeding patients (NHS Careers, 2013d).
Health and Social Care Information Database:	A collection of records that can be searched (University of Greenwich, 2011).
Healthcare Commission's Clinical Effectiveness and Evaluation Unit	"The Clinical Effectiveness and Evaluation Unit (CEEU) of the Clinical Standards Department at the Royal College of Physicians runs projects that aim to improve healthcare in line with the best evidence for clinical practice: national comparative clinical audit, the measurement of clinical and patient outcomes, clinical change management and guideline development (Royal College of Physicians, 2012b, P 1)."
Health Maintenance Organisation (HMO):	"Managed care plans that provide healthcare to their members through contracted networks of doctors and hospitals. HMOs are popular alternatives to traditional healthcare plans because they usually cost less (Texas Department of Insurance, 2012, P 1)."

Healthcare professional (HCP):	Within the context of this research I refer to medically trained individuals who provide a healthcare service.
Heart attack:	See ‘Myocardial Infarction’ or ‘MI’.
Hip protector:	Designed to protect the hip during when someone has a fall (RoSPA, 2014).
HMO:	See ‘Health Maintenance Organisation’.
Home hazards/ assessment of home hazards:	An assessment can be conducted to assess home hazards- products that people live with that may lead to falls (InterNACHI, 2013).
Home health agency nurse:	A nurse whose services are offered via an agency.
Hospital Trust:	An organisation that provides healthcare services (Health and Social Care Information Centre, 2013).
Human Activity Profile Adjustment Score:	A test used to evaluate a person’s physical functioning (Davidson and de Mortan, 2007).
Hypotension:	Low blood pressure (BUPA, 2013). Postural Hypotension- where a person’s body fails to respond quickly enough when they stand up, consequently blood collects in the legs (BUPA, 2013).
Hypothesis:	See ‘Statistics terminology’.
ICT:	See ‘Intensive Care Team’.
Idealistic:	Relating to ‘Idealism’ “the attitude of a person who believes that it is possible to live according to very high standards of behaviour and honesty (Merriam-Webster, 2014b, P1).”
IFEM:	See ‘International Federation for Emergency Medicine’.
Implementation:	In the context of this study- referring to putting guidance into practice (National Institute for Health and Care Excellence, 2013b).
Independent variable (IV):	See ‘Statistics terminology’.

Inductive analysis:	Generating new theory from data (Gabriel, 2014).
Intensive Care Team (ICT):	Healthcare professionals who look after patients who have life-threatening conditions, need constant monitoring and support to keep their body functions going (St Helen's & Knowsley Hospitals NHS Trust, 2013).
Intention to treat analysis	See 'Statistics Terminology'.
Inter-disciplinary care/ working:	See 'Disciplines'.
Intermediate care team:	Provide support to patients and their families at home, for example, supporting a patient through an illness and enabling them to regain confidence and independence. They can provide support with the transfer between hospital and home (NHS Choices, 2013g).
Internal validity:	See 'Validity'.
International Federation for Emergency Medicine (IFEM):	"The International Federation for Emergency Medicine is an international association composed of national emergency medicine organisations that are members of the IFEM as defined by these bylaws. The IFEM represents a coordinating consortium of these organisations (International Federation for Emergency Medicine, 2008, P 1).
Inter-quartile/ inter-quartile range:	See 'Statistics Terminology'.
Internal validity:	See 'Validity'.
Interpretive bias:	See 'Bias'.
Inter-quartile range:	See 'Statistics Terminology'.
Inter-rater reliability:	See 'Reliability'.
Intra-class correlation co-efficient	See 'Statistics Terminology'.
Intra-rater reliability:	See 'Reliability'.
IV:	See 'Independent variable'.

Knowledge translation:	The translation of knowledge from research into practice (Oborn, Barrett and Racko, 2010).
LAT:	See 'Local Area Teams'.
'Lifeline':	A personal alarm that links up with a telephone in order for the user to call for help if required, for example, if they have had a fall (Invicta Telecare, 2013).
Local Area Teams (LAT):	Teams within NHS England which are responsible for contract management in primary care (BMA, 2013).
Logistic Regression:	See 'Statistics Terminology'.
Longitudinal research design/ research study:	Where the same participants are studied over a period of time (Rosnow and Rosenthal, 2005).
Macular degeneration:	Deterioration in vision as a result of changes in the macular (Macular Society 2014a). Macular- involved in central vision, colour vision and fine detail (Macular Society 2014b).
Major illness/injuries department/ 'Majors':	Department specialising in the treatment of patients who are unable to walk and those with potentially serious conditions. Most patients present to a Majors department via ambulance (University Hospitals of Leicester, 2013).
Malnutrition/ malnourishment:	An imbalance of a person's nutrient intake, either resulting in an excess or a deficiency (Maher, 2012).
Manchester Triage System:	A triage system which works by utilising a series of flow charts in order to determine a patient's triage category (Cooke and Jinks, 1999, and Mackway-Jones, 1997).
Matron:	A healthcare professional who performs a leadership role and ensures that high standards of care are maintained within a department (NHS, 2010).
Mean:	See 'Statistics Terminology'.

Mechanical falls: - Active mechanical falls/fallers. - Frail mechanical falls/fallers.	Mechanical falls are accidental falls caused by external factors as opposed to medical reasons, for example, a slip or a trip (Clawson and Patterson, 2003). Active mechanical fallers are individuals who are less likely to have a fall history, and have an active lifestyle (Kingsley, 2004). Frail mechanical fallers are those who are likely to have a walking aid such as a Zimmer frame and are more likely to have a previous history of falls (Kingsley, 2004).
Median:	See 'Statistics Terminology'.
MediCare:	Provide medical and health insurance (MediCare International, 2013).
Medicine Usage Review (MUR):	A free service which involves discussing medication with a Pharmacist. The aim is to make a patient understand why they have been prescribed their medications and how to use them. Patients are given the opportunity to discuss any problems that they may be experiencing when taking the medication (Royal Pharmaceutical Society of Great Britain, 2013).
Mental Capacity Act- 2005:	Legislation regarding the provision of services to individuals who lack capacity (HM Government, 2005).
Mental state questionnaire/score:	A test of global cognitive functioning- including orientation, attention and calculation, word recall, visuo-spatial ability and language abilities (Rosenzweig, 2010).
Meta-analysis:	A statistical technique that provides a means of combining findings from different studies (Crombie and Davies, 2009).
MFES:	See 'Modified Falls Efficacy Scale'.
MI:	See 'Myocardial Infarction'.
Mini-mental state examination (MMSE):	Used in the assessment of memory problems and dementia, in order to decide if medication would be of benefit to a patient. Responses to questions testing language, attention and memory are scored out of 30. A score 27 and over is viewed as normal. If the score is lower

	further assessments are carried out to look at the possibility of dementia or other factors such as hearing impairments hindering an older adult's ability to respond to questions that are posed (Alzheimer's Society, 2013).
Minor illness/injuries department/ 'Minors'	An area in which patients with less serious injuries or illnesses are treated, for example, sprained wrists (University Hospitals of Leicester NHS Trust, 2013).
Minority influence:	Where an individual or minority group is able to make a majority group change their behaviour or beliefs (Moscovici, Lage, and Naffrechoux, 1969)
MMSE:	See 'Mini-mental State Examination'.
Modified Falls Efficacy Scale (MFES):	An assessment of physical and social activities. Original- Tinetti, Mendes de Leon, Doucette and Baker (1994). Modified- 'Confidence' was changed to 'fear of falling' (Drozdick and Edelstein, 2001).
Morbidity:	The rate of incidence of something e.g. the occurrence of a disease (Mercer, Smith, Wyke, O'Dowd and Watt, 2009).
Mortality:	Number of deaths (World Health Organisation, 2012).
Motor response:	A person's ability to obey a command and to assume or withdraw body positions (Adam and Osborne, 2005).
MS:	See 'Multiple Sclerosis'.
Multi-disciplinary working:	See 'Disciplines'
MUR:	See 'Medicine Usage Review'.
Myocardial Infarction:	Medical term for a 'Heart Attack', where blood stops flowing to part of the heart because of a clot (Kenny, Willacy and Cox, 2012).
Narrative Analysis:	Research focusing on individual's stories in order to gain insight into experience and/or social

	phenomena (The John Hopkins University and Katherine Fritz, 2008).
Narrative Synthesis approach to analysis:	Narrative synthesis is an approach that relies on the use of text and words to summarise a synthesis of papers (Popay et al., 2006).
National clinical audit of falls and bone health in older people:	An examination of services provided to older people who have experienced a fall (Royal College of Physicians Clinical Effectiveness and Evaluation Unit, 2009).
National Institute for Health and Care Excellence (NICE):	"NICE guidance helps health and social care professionals deliver the best possible care based on the best available evidence (National Institute for Health and Care Excellence, 2012b, P1)."
National Service Framework for Older People:	A "comprehensive strategy to ensure fair, high quality, integrated health and social care services for older people (Department of Health, 2001, P 1)."
Neck of the Femur (NoF):	The join between the head of the femur (the bone that extends between the knee and hip joint) and the socket of the hip bone, where they work as a 'ball and socket' arrangement (Cluett, 2013, and Cluett, 2005).
Neurocardiovascular examination:	An examination of neurocardiovascular factors that could be related to falls. Neurocardiovascular instability "…Represents abnormal neural (brain) control of the cardiovascular system and presents as dizziness, syncope or falls (Kenny, Kalaria and Ballard, 2002, P 183)."
Neurological examination:	An assessment of neurological functioning.
Neurological functioning:	How the brain and nerves monitor and control how the body works (Systemic Health Institute Inc, 1997).
NHS England:	An organisation that aims to improve health outcomes for people who live in England through providing support to both the public and clinical leaders (NHS England, 2013c).

NICE:	See ‘National Institute for Health and Care Excellence’.
NICE guidelines:	NB: See ‘National Institute for Health and Care Excellence’ for NICE definition.
NoF:	See ‘Neck of Femur’.
Non-clinical staff:	Non-clinical staff are individuals who work in a hospital but do not provide medical treatment (About, 2014).
Non-mechanical falls:	Non- mechanical falls are falls which are not determined by external factors. For example, they may be a consequence of illnesses such as Syncope (Kingsley, 2004).
Normal distribution curve:	See ‘Statistics Terminology’.
Null hypothesis:	See ‘Statistics Terminology’.
Nurse:	Nurses care for people who are injured, ill or have disabilities. For example, they check a patient’s progress, advise and support patients and provide practical care such as measuring blood pressure and administering drugs (National Careers Service, 2012).
Nursing home:	A care home that provides nursing support 24 hours a day (Elderly Accommodation Counsel, 2013).
Observer bias:	See ‘Bias – Experimenter bias / Observer bias’.
Occupational Therapist (OT):	OTs help people with disabilities to carry out tasks independently (Graduate Prospects, 2013).
Odds Ratio (OR):	See ‘Statistics Terminology’.
Open-ended questionnaire/ survey:	See ‘Questionnaire’.
Opportunistic sample:	See ‘Sample’.
Orthogeriatric service:	A shared care service serving the needs of older adults who have an orthopaedic injury (see

	‘Orthopaedic Trauma Case’) (Kammerlander et al., 2010).
Orthopaedic Trauma Case:	An injury to a part of the musculoskeletal system (muscles and skeleton). In the case of Youde et al.’s (2009) research this referred to a fractured Neck of Femur (hip).
Orthostatic blood pressure:	See ‘Hypotension’.
Osteoarthritis:	A condition effecting a person’s joints where they become damaged and do not move as smoothly (Arthritis Research UK, 2013).
Osteoporosis:	When bones become thin meaning they become more fragile and prone to breaking (National Osteoporosis Society, 2013).
OT:	See ‘Occupational Therapist’.
Outcome measures:	See ‘Statistics Terminology’.
‘P’ value:	See ‘Probability Value’.
PA:	See ‘Physician Assistant’.
Paralysis:	Loss of muscle function- where a muscle does not move normally or it may not work at all (Dugdale, 2012).
Parkinson’s Disease:	A progressive neurological condition where there is damage to brain nerve cells and consequently a reduction in the level of the hormone dopamine, meaning that movements become slower (Parkinson’s UK, 2014).
Pass water:	Urinate.
Patient advocate:	A person who acts on a patient’s behalf and works alongside a healthcare team to provide care that is in the best interests of the patient (National Patient Safety Foundation, 2013).
Patient Tracker:	An Emergency Department assistant who keeps a record of the patients’ journey through the Emergency Department.

PCT:	See ‘Primary Care Trust’.
Pearson’s r correlation co-efficient:	See ‘Co-efficient’.
Percentile:	See ‘Statistics terminology’.
Phenomenology: Phenomenological Analysis:	Phenomenology-The study of consciousness as experienced by an individual (Stanford Encyclopaedia of Philosophy, 2013). Phenomenological Analysis-Looking at the meaning individuals give to their experiences (Birbeck University of London, 2011).
Physician Assistant/Physician Associate:	A person who provides support to doctors through fulfilling duties such as taking medical histories, diagnosing illness and managing test results (NHS Careers, 2013e).
Physiological profile approach to falls risk assessment and prevention:	A test that is administered to try to distinguish between those who are and are not at risk of falls. The test involves assessing vision, muscle force, reaction time, sensations and balance (Lord, Menz and Tiedemann, 2003).
Physiotherapist/Physio/PT:	Professionals who help people with physical problems in order to help them to maximise their movement (NHS Careers, 2013f).
Pilot study/ Pilot analysis:	A method of testing your study design, before you implement the larger research study (Rosnow and Rosenthal, 2005).
Polypharmacy:	When an individual takes numerous medications-possibly more than clinically indicated (Haijar, Cafiero and Hanlon, 2007).
Post-Rapid Assessment Triage system department (Post-RAT):	The department that received patients who were viewed by RATs as requiring further treatment and/or assessment before a definitive decision could be made with regards to their care.
Post-RAT:	See ‘Post-Rapid Assessment Triage system Department’.
Postural hypotension:	See ‘Hypotension’.
Power:	See ‘Statistics terminology’.

Predictor:	See ‘Statistics terminology’.
Preliminary Synthesis:	A stage in the Narrative Synthesis Process which involves producing Textual descriptions of studies, organising the studies into smaller groups, tabulation of data and transformation into a common rubric, for example through thematic summaries (Popay et al., 2006).
Primary Care Team/ Trust:	Primary care- the people you first see when you have a problem. E.g. Dr, Dentist. Primary Care Trusts (PCTs) are local organisations which ensure that the health and social care needs are met through managing primary care (NHS Choices, 2012).
Primary outcome measure:	See ‘Outcome measures’.
Probability:	See ‘Statistics terminology’.
Pro-forma/guideline pro-forma:	Standardised documents used within the Emergency Departments in order to record information about patients and their clinical characteristics.
Prospective study:	A study that takes participants of interest and studies them over time, unlike retrospective studies it looks forwards not back (NHS Choices, 2013h).
Psychotropic medication:	Psychiatric medication used to treat mental disorders (National Institute of Mental Health, 2008).
PT:	See ‘Physiotherapist’.
Puffer:	GTN Spray- see ‘GTN spray’
Qualitative research:	Research studies where data is presented in a non-numeric form –Subjective (Rosnow and Rosenthal, 2005).
Quantitative research:	Studies where data is presented numerically- Objective (Rosnow and Rosenthal, 2005).
Questionnaire/ Survey: Open-ended Closed-ended	Questionnaire- A way a researcher can capture a large amount of information without having to be

	present. Data is relatively easy to analyse (Clough and Nutbrown, 2008). Open-ended- Allows an individual to note a free-flow of text in response to the questions. Closed-ended-Only allows an individual to provide a pre-defined response. E.g. a scale with regards to the level of agreement they have with a statement (Rosnow and Rosenthal, 2005).
Randomised Controlled Trial (RCT):	Where individuals are randomly assigned to one of two experimental groups, either an intervention group or a control group. This research is designed to test whether an intervention has a significant effect on the outcome of interest. In the case of non-clinical research the intervention group are the individuals whom the intervention (not drug) is tested on (Rosnow and Rosenthal, 2005). For example, when looking at if follow-up post Emergency Department discharge has a significant influence on the recurrence of falls, the intervention group would be the patients receiving the follow-up visits post-discharge and the control group would receive usual care (e.g. no-follow-up).
Rapid Assessment Triage System (RATs):	A triage system encompassing quick assessment of patients at their presentation and filtrations into other departments as viewed necessary.
RATS:	See 'Rapid Assessment Triage System'.
RCP:	See 'Royal College of Physicians'.
RCT:	See 'Randomised Controlled Trial'.
Realist Synthesis:	A narrative synthesis method that involves synthesising data based on how complex programmes work or fail in different situations. Key theories are explored in the review (Snilstveit et al., 2012).
Realist viewpoint:	Within this thesis I am referring to a realist as someone who focuses on what is happening, not what could be happening.

	A person who focuses on what could happen is an 'Idealist'.
Recall Bias:	Where results are affected by a person's memory (Hassan, 2006).
Refresher/refreshment training:	Referring to training used to jog someone's memory/ remind them of things they have previously been taught.
Registrar:	A senior training grade doctor-below a consultant, and above a F1/F2 (Royal College of Physicians, 2013).
Relative risk:	See 'Statistics Terminology'.
Reliability:	See 'Statistics Terminology'.
Resuscitation:	Resuscitation is the procedure used to restore life, i.e. Cardio Pulmonary Resuscitation- CPR (see glossary) (MedicineNet, Inc, 2012).
Resus Department:	See 'Resuscitation Department'.
Resuscitation Department:	An area allocated to individuals who required a more intensive level of care than those who remained in the 'Majors' department.
Retrospective chart review:	Reviewing previous records which were collected without a research purpose (Hess, 2004).
Role emotional:	One of the measures of the SF36, it focuses on role limitations based on emotional health (Ware and Sherbourne,1992).
Royal College of Physicians (RCP):	A registered charity and a professional membership organisation (Royal College of Physicians, 2012c).
Sample/ Sampling:	See 'Statistics Terminology'.
Sample size calculation:	See 'Statistics Terminology'.
Secondary outcome measure:	See 'Outcome Measures'.
Selection Bias:	See 'Bias'.

Semi-structured:	A way of combining pre-set questions with an exploration of areas of interest which arise within an interview (Hammersley and Atkinson, 2007).
Senior House Officer (SHO):	A Year 1 Senior House Officer is equivalent to an F2 doctor. Whereas a second year senior house officer is equivalent to a Specialist Registrar (Scanloc, 2013).
Sensitivity:	See 'Statistics Terminology'.
Sensory perceptive deficit:	A deficit in someone's sensory perception of things. Sensory perception- a person's attentiveness of their environment, gained through being able to hear, see or become aware of something (Collins Cobuild Advanced Learner's English Dictionary, 2006).
SF36.	See 'Short Form 36 questionnaire'.
SHO:	See 'Senior House Officer'.
Shop floor:	Healthcare professionals referred to working in the clinical areas of the Emergency Department as working on the 'shop floor' I.e. outside the office.
Short-form 36 questionnaire:	A measure of functional-ability, well-being and overall health (Ware and Sherbourne,1992).
Single-disciplinary working:	See 'Disciplines'.
'Slip or Trip':	A mechanical fall- An accidental fall caused by external factors as opposed to medical reasons (Clawson and Patterson, 2003).
Social attributes:	What Person et al. (2012) referred to as a factor that influenced patient care. In the context of their research, the role of different healthcare professionals.
Social work:	Where social workers support people to help them live more successfully by finding solutions to their problems (NHS Careers, 2013g).
Soft tissue:	Structures in the body which connect, envelope, move and/or support the structures that are around them. For example, muscle is a soft tissue that has the role of supporting and moving bones (Asher, 2013).

Spearman's p co-efficient:	See 'Co-efficient'.
Specialist Registrar:	A Specialist Registrar 1 is equivalent to a year two SHO. A new system was introduced where SHO training and specialist registrar training overlapped with SHO year 2 training. Consultant training system as follows (*new system is in italics*): Year 1- House Officer -*F1* Year 2- SHO Year 1 -*F2* Year 3- SHO Year 2 -*Specialist* Consultant 7-9 years training (Scanloc, 2013).
Specificity:	See 'Statistics Terminology'.
Standard deviation:	See 'Statistics Terminology'.
Statistics Terminology:	
Area under the receiver operating characteristic curve (AUC):	A way of determining predictive accuracy, through comparing sensitivity to specificity (Bewick, Cheek and Ball, 2004).
Between case analysis:	Analysis across cases (Ayres, Kavanaugh and Knafl, 2003).
Co-efficient:	A measure of linear correlation. Dependent on the data and the appropriate test of correlation used it can be reported as a 'r' (Pearson's r correlation co-efficient), a 'k' (Cohen's Kappa coefficient) or a 'p' (Spearman's P coefficient).
Confidence interval:	"The upper and lower bands of a statistic" (Rosnow and Rosenthal, 2005). A representation of how confident you are that an effect is due to an intervention, not chance alone.
Dependent variable (DV):	The variable that changes as a result of manipulation of the independent variable.
DV:	See 'Dependent variable'.
Hypothesis:	A prediction that an independent variable has an effect on a dependent variable.
Independent variable (IV):	The variable being manipulated

Intention to treat analysis:	Assessment of the characteristics of a whole sample, not just those that agreed to take part, the aim being to reduce bias in reporting (Hollis and Campbell, 1999).
Inter-quartile range:	The difference between the 25th and 75th percentiles (Rosnow and Rosenthal, 2005).
Intra-class correlation co-efficient:	"...a measure of the reliability of measurements or ratings (MedCalc, 2013 P1)."
IV:	See 'Independent variable'.
Logistic Regression:	Logistic regression is a test used when a dependent variable is categorical in nature. I.e. it has named values such as diseased/not diseased. It allows prediction of group membership based on a variable(s) of interest. For example, can absence or presence of a disease be diagnosed based upon blood pressure.? Where more than one variable is of interest a multifactorial logistic regression test is used (Tabachnick and Fidell, 2007).
Mean:	The average of a group of scores (Rosnow and Rosenthal, 2005).
Median:	The middle number when a group of scores are placed in numerical order (Rosnow and Rosenthal, 2005).
Normal distribution curve:	A curve which represents a mean and the standard deviation from it (Rosnow and Rosenthal, 2005).
Null hypothesis:	The supposition that there is no relationship between the IV and the DV. Results are due to chance alone
Odds Ratio (OR):	"…a measure of association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure (Szumilas, 2010, P 227)." For example, looking at the likelihood of someone having a particular disease based upon an aspect of their medical history.

OR:	See 'Odds Ratio'.
Outcome measure:	A measure of the outcome of the research findings (Rosnow and Rosenthal, 2005) E.g. the rate of recurrent falls may be an outcome measure of the effect of a preventative intervention which is being tested. Primary outcome measure- The outcome of most interest. Secondary outcome measure-Outcome of secondary importance. For example, the primary outcome measure may be whether a drug has an effect on a condition and the secondary outcome measure could be whether there are any side-effects of the drug (Sedgwick, 2010).
Percentile:	The nth percentile of a set of data is the point where n% of the data is below it. For example, the 10th percentile of a set of data is where 10% of the data is below it (Taylor, 2013).
Power:	"The probability of not making a Type 2 error (Rosnow and Rosenthal, 2005 P 437)."
Predictor:	A factor that predicts something occurring, For example, Close et al. (2003) found that falls history was a significant predictor of re-occurent falls.
Probability:	The chance of something occurring, calculated mathematically (Rosnow and Rosenthal, 2005).
Relative risk:	"Rate of poor outcomes in the intervention group/ the rate of poor outcomes in the control group… The relative risk is 1 when the intervention has no effect, below 1 when it does good and above 1 when it does harm… (NCIB, 2014, P 1)."
Reliability:	A measure of consistency (Bowling, 2007). Intra-rater reliability-The level of agreement between results from the same test used at different times by the same rater (Rousson, Gasser and Seifert, 2002).

	Inter-rater reliability- The level of agreement between results collected by different individuals 'raters' (Rousson et al., 2002). Test-retest reliability- Consistency in results when a test is presented to an individual on numerous occasions. A measure of consistency between the findings (Rousson et al., 2002).
Sample:	A portion of a population (Rosnow and Rosenthal, 2005). Convenience/ opportunistic sample- Participants/ data purely because it is available to the researcher (Rosnow and Rosenthal, 2005).
Sample size calculation:	A calculation of the number of participants required for a study to draw conclusions through detecting a statistically significant effect (Cornish, 2006).
Sensitivity:	The accuracy of a test, in terms of the proportion of the number of actual occurrences it detects (Bowling, 2007). E.g. the number of people the test shows to have a reduction in the number of falls after an intervention, out of those who actually do. A test that does not detect all of those who fall would have a false negative; it is not detecting everything that is there (Loong, 2003).
Specificity:	The "…discriminative ability of a measure… (Bowling, 2007, P 152)." The probability of it accurately detecting those individuals who an intervention does not have an effect on, its reliability. With regards to the above example, if a test detects more individuals to have fallen than actually have then it shows a false positive, it is picking up things that are not there. Sensitivity and specificity are similar to Type 1 and Type 2 error. Type 1- false positive Type 2- false negative (Loong, 2003)
Standard deviation:	The variability of data around the mean (Rosnow and Rosenthal, 2005).

Statistical significance	A statistical significance level is usually set as P≤0.05, i.e. there is a ≤5% probability that the results were due to chance alone, there ≤ 95% probability that the results were due to the independent variable (IV) manipulation. The statistical significance which represents the likelihood of Type 1 error.
Type 1 error:	Error caused by rejecting the null hypothesis when it is actually true- a false positive (Loong, 2003).
Type 2 error:	Rejecting the hypothesis when it is true, failing to reject the null hypothesis when it is false- a false negative (Loong, 2003).
Validity:	The extent to which research/ a concept applies to the real-world (Bowling, 2007). Clinical Validity- The accuracy of a test in predicting an outcome and its ability to discriminate between patients (Genomic Health Inc, 2013). Content Validity- The quality of a test or measure. If an exam paper has good content validity then it covers the areas that students have been taught about (Rosnow and Rosenthal, 2005). Concurrent Validity- How well results correlate with a criterion (Rosnow and Rosenthal, 2005). Construct Validity- How well a test measures the theory that is in question (Rosnow and Rosenthal, 2005). Criterion Validity- The degree to which a questionnaire or test is correlated with the outcome criteria (Rosnow and Rosenthal, 2005). Generalisability/ External Validity- How much the research findings can be generalised to the real world (Rosnow and Rosenthal, 2005). Internal Validity- How valid it is to say in an experiment, that the intervention has an influence on the outcome (Rosnow and Rosenthal, 2005).

Within-case analysis:	Analysis of an individual case (Paterson, 2014).
Streaming patients/patient streaming:	Separating patients into streams in order to better handle patient presentations through improving responsiveness and patient safety. For example, streaming patients into a Major injury department or a Resus department dependent upon the seriousness of their presenting characteristics (Hopp, 2003).
Super-ordinate/sub-ordinate themes:	Within the context of this research: Super-ordinate themes are higher level themes/ categories. Sub-ordinate themes are themes that fit into categories (super-ordinate themes).
Syncope:	Fainting (Benditt and Goldstein, 2002).
Target population:	A group of individuals who are the main focus of the research. For, example people aged 65 and over. A sample is drawn from a population. For example, a sample of 100 older adults.
Team-working:	Collaborative working to reach a goal (WebFinance, inc, 2014).
Test-retest reliability:	See 'Reliability'.
Textual description:	A description of a study (Popay et al., 2006).
Thematic summaries:	A way of categorising studies based upon thematic groups that are of relevance to the intended reader (Thomas, Harden and Newman , 2012).
Thematic synthesis:	Synthesising papers (in a review) under individual themes (Thomas and Harden, 2008).
Theme:	In the context of this research, referring to patterns that emerge when looking at the data.
'Think Falls Risk' poster:	A poster used in Town Hospital, which provided pointers with regards to the characteristics a patient may portray that may make them at risks of falls, for example, an adult aged 65 and over, a person with a history of falls.
TIA:	See 'Transient Ischemic Attack'.

Timed Up and Go test (TUG):	Where a patient is observed and timed from standing up, walking 3 metres and then sitting back down (Podsiadlo and Richardson, 1991).
Tonsillitis:	Inflammation of the tonsils (glands in the throat) – (NHS Choices, 2014b).
Top-down analysis:	Where data is analysed with a theory (a priori theory) in mind. A person's expectations influences their perception (Dewey, 2007).
Transient Ischemic Attack (TIA):	"…A manifestation of symptoms that are similar to a stroke, caused by a momentary (transient) lack of blood supply to the brain… (Kenny, 2012, P 1)." Stroke- there is a permanent blockage and a lack of oxygen that leads to brain tissue dying. Symptoms include weakness of one arm/leg, difficulties speaking/swallowing, numbness, brief loss of vision (Kenny, 2012).
Trauma/Trauma patients:	A patient who has experienced a trauma-damage to the body caused by an accident or a physical impact (Collins Cobuild Advanced Learner's English Dictionary, 2006).
Trauma Registry:	A collection of information on patients who present with trauma characteristics. The information is stored as a reference point (National Highway Traffic Safety Administration, 2013).
Trust (Hospital Trust):	A Trust manages the care provided in a hospital (NHS Choices 2013a).
Triage/d:	Managing clinical risk through prioritising patients' treatment based upon the severity of their presentations (College of Emergency Medicine Clinical Effectiveness Committee, Emergency Nurse Consultant Association, Faculty of Emergency Nursing & Royal College of Nursing Emergency Care Association, 2011).
TUG:	See 'Timed Up and Go'.
Type 1 error:	See 'Statistics Terminology'.
Type 2 error:	See 'Statistics Terminology'.

US billing incentive:	A monetary reward.
Validity:	See ‘Statistics Terminology’.
Verbatim:	The written/transcribed version of the interview recordings. Observation note extracts.
Vestibular dysfunction:	Damage to the vestibular functioning areas. The vestibular system includes parts of the brain and inner ear that have the role of processing sensory information in order to control eye movements and balance (Vestibular Disorders Association, 2013).
Viral pharyngitis:	“Viral pharyngitis is inflammation of the pharynx (the part of the throat between the tonsils and the larynx- voice box) (MedinePlus, 2014, P 1)...”
Visual acuity:	Clarity of central vision (distinguishing shapes of objects and their details) (Boots WebMD, 2013b).
Vote counting:	Looking at how often a theme occurs, looking at patterns (Popay et al., 2006).
Waterworks:	A slang term for a person’s urinary system. ‘Trouble with your waterworks’ refers to issues related to the act of urinating.
Zimmer frame:	See ‘Frame/Zimmerframe’

References:[2]

Aamodt, A.M. (1991). Ethnography and Epistemology: Generating Nursing Knowledge. In Morse, J.M. (Eds), *Qualitative Nursing Research: A Contemporary Dialogue* (Revised ed., pp.40-54). London: Sage.

About (2014). *What is the Difference between Clinical and Non-Clinical Medical Jobs?* Available on: http://healthcareers.about.com/od/whychoosehealthcare /f/FAQClinical.htm [Accessed 12th September 2014].

Accessing Safety Initiative (2010). *Functional Categories.* Available on: http://www.accessingsafety.org/?page=130&alert=show [Accessed 1st September 2013].

Adam, S. & Osborne, S. (2005). *Critical Care Nursing Science and Practice (2nd Ed).* Oxford: Oxford University Press.

Age UK (2010). *Stop falling: start saving lives and money.* Available on: www.ageuk.org.uk/Documents/EN-GB/Campaigns/Stop_falling_report_ web.pdf?dtrk=true [Accessed 28th July 2013].

Age UK & The National Osteoporosis Society (2012). *Report to the Minister of State for Care Services: Breaking Through: Building Better Falls and Fracture Services in England.* Available on: http://www.nos.org.uk/document.doc?id=987 [Accessed 10th June 2013].

AGS (2013). *Who We Are.* Available on: http://www.americangeriatrics.org/ about_us /who_we_are/ [Accessed 27th August 2013].

[2] 'NICE' references are listed in the full form- 'National Institute for Health and Care Excellence'.

Aiken, L.H., Sloane, D.M., Clarke, S., Poghosyan, L., Cho, E., FInalyson, M., Kanai-pak, M. & Aungsuroch, Y. (2011). Importance of work environments on hospital outcomes in nine countries, *International Journal for Quality in Health care, 23 (**4**),* 357-364.

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckman (Eds.). *Action-control: From cognition to behaviour* (pp. 11-39). Heidelberg, Germany: Springer.

Alakeson, V. (2011). *Active Patient: The case for self-direction in healthcare.* Available on: http://www.birmingham.ac.uk/Documents/college-social-sciences/social-policy/HSMC/publications/active-patient-paper.pdf [Accessed 29th July 2013].

Allen, D.D., Penn, M.A. & Nora, L.M. (2006). Interdisciplinary Healthcare Education: Face or Fiction? *Am J Pharm Educ, 60 (**2**),* 39.

Alzheimer's Society (2014). *What is dementia?* Available on: http://www.alzheimers.org.uk/site/scripts/documents.php?categoryID=200360. [Accessed 8th December 2014].

Alzheimer's Society (2013). *The Mini Mental State Examination (MMSE).* Available on: http://www.alzheimers.org.uk/site/scripts/documents _info.php?documentID=121 [Accessed 3rd September 2013].

American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention (2001). Guideline for the prevention of falls in older persons, *J Am Geriatr Soc, 49*: 664–672.

American Geriatrics Society, British Geriatrics Society. AGS/BGS (2010). *Clinical Practice Guideline: Prevention of Falls in Older Persons*. Available on:

http://www.medcats.com/FALLS/frameset.htm [Accessed 12th November 2014].

Armellino, D., Quinn, Griffin, M.T. & Fitzpatrick, J. J. (2010). Structural empowerment and patient safety culture among registered nurses working in adult critical care units, *Journal of Nursing Management, 18 (**7**),* 796-803.

Arthritis Care (2014). *About Arthritis.* Available on: http://www.arthritiscare. org.uk/AboutArthritis [Accessed 8th December 2014].

Arthritis Research UK (2013). *What is osteoarthritis?* Available on: http://www.arthritisresearchuk.org/arthritis-information/conditions/osteoarthritis/ what-is-osteoarthritis.aspx [Accessed 28th August 2014].

Asher, A. (2013). *Soft Tissue.* Available on: http://backandneck.about.com/ od/s/g /softtissue.htm [Accessed 8th September 2013].

Association of Advanced Nursing Practice Educators (2013). *Advanced Nursing Practice.* Available on: http://www.aanpe.org/AdvancedNursing %20Practice/tabid/721/Default.aspx [Accessed 19th August 2013].

Ayres, L., Kavanaugh, K. & Knafl, K.A. (2003). Within-Case and Across-Case Approaches to Qualitative Data Analysis, *Qualitative Health Research, 13 (**6**),* 871-883.

Baker, R., Camosso-Stefinovic, J., Gillies, C., Shaw, E.J., Cheater, F., Flottorp, S. & Robertsons, N. (2010). Tailored interventions to overcome identified barriers to change: effects on professional practice and health care outcomes (Review), *Cochrane Database of Systematic Reviews, 3.*

Ball, C. (2009). What is transparency? *Public Integrity, 11 (**4**),* 293-307.

Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.

Banerjee, J., Conroy, S. & Cooke, M.W. (2013). Quality care for older people with urgent and emergency care needs in UK emergency departments, *Emerg Med J, 30 (**9**),* 699-700.

Banerjee, J. et al. (2012). *Quality Care for Older People with Urgent and Emergency Care Needs.* Available on: http://www.bgs.org.uk/campaigns/ silverb/silver_book_complete.pdf [Accessed 26th July 2013].

Banerjee, J., Benger, J., Treml, J., Marttin, F.C., Grant, R., Lowe, D., Potter, J. & Husk, J. (2011). The National Falls and Bone Health Audit: implications for UK emergency care, *Emergency Medicine Journal,* doi: 10.1136/emermed-2011-200501. Available on: http://emj.bmj.com/content/early/2011/10/31/ emermed-2011-200501.short [Accessed 1st May 2012].

Baraff, I. J., Lee, T.J., Kader, S. & Della Penn, R. (1999). Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalisations for injuries, *Acad Emerg Med, 6,* 1224-1231.

Bell, A.J., Talbot-Stern, J.K. & Hennessy, A. (2000). Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis. *Medical Journal of Australia, 173,* 179-182.

Benditt, D.G. & Goldstein, M. (2002). Cardiology patient page: Fainting, *Circulation, 106,* 1048-1050.

Bentley, J. & Meyer, J. (2004). Repeat attendance by older people at accident and emergency departments, *J Adv Nurs, 48,* 149-156.

Bewick, V., Cheek, L. & Ball, J. (2004). Statistics review 13: Receiver operating characteristic curves, *Critical Care, 8 (**6**)*, 508-512.

Birbeck University of London (2011). *Interpretative Phenomenological Analysis.* Available on: http://www.ipa.bbk.ac.uk/about-ipa [Accessed 28th August 2014].

Black Country Partnership NHS Foundation Trust (2013). *Temporary Staff (Bank).* Available on: http://www.bcpft.nhs.uk/working-for-us/temporary-staff-bank [Accessed 27th August 2013].

Bleijenbergh, I., Korzilius, H. & ·Verschuren, P. (2010). Methodological criteria for the internal validity and utility of practice oriented research, *Qual Quant, 45,* 145-156.

BMA (2013). *NHS England sectors and local area teams.* Available on: http://bma.org.uk/working-for-change/the-changing-nhs/commissioning/nhs-england-sectors-and-local-area-teams [Accessed 1st September 2013].

Boele van Hensbroek, P., van Dijk, N, van Breda, G.F, Scheffer, A.C, van der Cammen, T.J.M., Lips, P., Goslings, J.C. & de Rooij, S.E. (2009).The CAREFALL Triage instrument identifying risk factors for recurrent falls in elderly patients. *American Journal of Emergency Medicine, 27***,** 2337.

Boots WebMD (2013a). *Heart disease guide.* Available on: http://www.webmd.boots.com/heart-disease/guide/carotid-artery-disease [Accessed 27th August 2013].

Boots WebMD (2013b). *Eye health guide.* Available on: http://www.webmd.boots.com/eye-health/guide/visual-acuity [Accessed 9th September 2013].

Bowling, A. (2007). *Research methods in health: Investigating health and health services* (2nd Ed). Maidenhead: Open University Press.

Boyle, A., Banerjee, J. & Benger, J. (2010). *Clinical Effectiveness Committee: Dissemination strategy for the College of Emergency Medicine*. Available on: http://www.collemergencymed.ac.uk/Shop-Floor/Clinical%20Guidelines/Implementation/default.asp [Accessed 14th October 2014].

Brazil, K., Wakefield, D.B., Cloutier, M.M., Tennen, H. & Hall, C.B. (2010). Organizational culture predicts job satisfaction and perceived clinical effectiveness in paediatric primary care practices, *Health Care Management Review, 35 (**4**),* 3365-3371.

Brehaut, C.J. & Eva, W.E. (2012). Building theories of knowledge translation interventions: Use the entire menu of constructs, *Implementation Science, 7,* 114.

British Association of Occupational Therapists and College of Occupational Therapists (2013). *Occupational Therapy Evidence: Occupational therapists offer effective and cost effective falls prevention services.* Available on: http://www.cot.co.uk/sites/default/files/commissioning_ot/public/Falls-Evidence-Fact-sheet.pdf [Accessed 28th July 2013].

British Geriatrics Society (2012). *Role and work of the BGS.* Available on: http://www.bgs.org.uk/index.php/about [Accessed 1st September 2013].

British Heart Foundation (2013a). *Cardiac arrest.* Available on: http://www.bhf.org.uk/heart-health/conditions/cardiac-arrest.aspx [Accessed 27th August 2013].

British Heart Foundation (2013b). *ECG.* Available on: http://www.bhf.org.uk/heart-health/tests/ecg.aspx [Accessed 30th August 2013].

Broad, M. (2013). *A&E pressure is the biggest NHS challenge.* Available on: http://www.hospitaldr.co.uk/blogs/our-news/ae-pressure-is-the-biggest-operational-challenge-in-the-nhs [Accessed 19th August 2013].

BUPA (2013). *Low blood pressure (hypotension).* Available on: http://www.bupa.co.uk/individuals/health-information/directory/l/low-blood-pressure [Accessed 1st September 2013].

Burbridge, P., Love, S. & Houston, L. (2013). Ballymena Sloppy Slipper Exchange evaluation, *Podiatry Now, 16 (**3**),* 15*.*

Buxton, M. (2006). Economic Evaluation and Decision Making in the UK. *PharmacoEconomics*, *24*, 1133-1142.

Cabana, M.D., Rand, C.S., Powe, N.R., Wu, A.W., Wilson, M.H., Abboud, P.C. & Rubin, H.R. (1999). Why don't physicians follow clinical practice guidelines? A framework for development. *Journal of the American Medical Association*, *282,* 1458-1465.

Calkin, S. (2012). *More fracture liaison nurses needed.* Available on: http://www.nursingtimes.net/nursing-practice/clinical-zones/older-people/more-fracture-liaison-nurses-needed/5041895.article [Accessed 1st September 2013].

Care Quality Commission (2014). Available on: http://www.cqc.org.uk/ [Accessed 1st May 2014].

Carers' Trust (2012). *What is a carer?* Available on: http://www.carers.org/what-carer [Accessed 27th August 2013].

Chartered Institute of Personnel and Development (2014). *What is CPD?* Available on: http://www.cipd.co.uk/cpd/about/default.aspx [Accessed 28th August 2014].

Chest Heart & Stroke Scotland (2013). *Heart Information: Using GTN.* Available on: http://www.chss.org.uk/heart/living_with_heart_conditions/angina/using_gtn.php [Accessed 1st September 2013].

Cialdini, R. B. & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology, 55*, 591–621.

Clark, E.M., Gould, V.C., Morrison, L., Masud, T. & Tobias, J. (2011). Determinants of fracture risk in a UK-population-based cohort of older women: a cross-sectional analysis of the Cohort for Skeletal Health in Bristol and Avon (COSHIBA), *Age and Ageing, 41 (**1**),* 46-52.

Clawson, J. & Patterson, B. (2003). *NAEMD Case Study: Fall vs. Collapse: A Dilemma in Dispatch Decision-making.* Available on: http://www.naemd.org/articles/911Magz_1103_FallsVsCollapse.pdf [Accessed 12th January 2012].

Clearwell Mobility (2013). *Zimmer Frame Buying Guide.* Available on: http://www.clearwellmobility.co.uk/buying-guides/zimmerframes [Accessed 1st September 2013].

Cleveland Clinic (2013). *Head Upright Tilt Test.* Available on: http://my.clevelandclinic.org/heart/services/tests/electrocard/hut.aspx [Accessed 1st September 2013].

Close, J, M., Ellis, M., Hooper, R., Glucksman, S., Jackson, S. & Swift, C. (2003). Predictors of falls in a high risk population: results from the prevention

of falls in the elderly trial (PROFET). *Emergency Medicine Journal, 20*, 421-426.

Close, J., Ellis, M., Hooper, R., Glucksman, E., Jackson, S. & Swift, C. (1999). Prevention of falls in the elderly trial (PROFET). A randomised controlled trial, *Lancet, 353,* 93-97.

Clough, P. & Nutbrown, C. (2008). *A student's guide to methodology (2nd ed).* London: Sage.

Cluett, J. (2013). *Femoral Neck Fractures.* Available on: http://orthopedics.about.com/cs/hipsurgery/a/brokenhip_2.htm [Accessed 3rd September 2013].

Cluett, J. (2005). *Femur Fracture.* Available on: http://orthopedics.about.com/od/brokenbones/a/femur.htm [Accessed 3rd September 2013].

Cochrane Collaboration Risk of Bias Tool (CCRBT). Available on: ohg.cochrane.org/sites/ohg.cochrane.org/files/uploads/RoB_form.pdf [Accessed 4th January 2010].

College of Emergency Medicine (2014a). *External Guidelines*. Available on: http://www.collemergencymed.ac.uk/Shop-Floor/Clinical%20Guidelines/External%20Guidelines/default.asp [Accessed 14th January 2014].

College of Emergency Medicine (2014b). *Implementation.* Available on: http://www.collemergencymed.ac.uk/Shop-Floor/Clinical%20Guidelines/Implementation/default.asp [Accessed 9th September 2013].

College of Emergency Medicine Clinical Effectiveness Committee, Emergency Nurse Consultant Association, Faculty of Emergency Nursing & Royal College

of Nursing Emergency Care Association (2011). *Triage Position Statement.* Available on: www.collemergencymed.ac.uk/asp/document.asp?ID=5898 [Accessed 9th September 2013].

Collins Cobuild Advanced Learner's English Dictionary (5th Ed). (2006). Glasgow: HarperCollins Publishers.

Conner, M. & Godin, G. (2007). Temporal stability of behavioural intention as a moderator of intention-health behaviour relationships. *Psychology & Health, 22 (***8***),* 875-897.

Cooke, M.W. & Jinks, S. (1999). Does the Manchester triage system detect the critically ill? *J Accid Emerg Med, 16,* 179-181.

Cornish, R. (2006). Statistics: *An introduction to sample size calculations.* Available on: http://mlsc.lboro.ac.uk/resources/statistics/Samplesize.pdf [Accessed 28th May 2012].

Courty, P. & Marschke, G. (2003). Dynamics of Performance-measurement systems, *Oxford Review of Economic Policy, 19 (***2***),* 268-284.

Cracknell, R. (2013). *The ageing population. Key issues for the New Parliament 2010. House of Commons Library Research.* Available on: http://www.parliament.uk/documents/commons/lib/research/key_issues/Key%20Issues%20The%20ageing%20population2007.pdf [Accessed 15th March 2013].

Creative Research Systems (2012 *Correlation.* Available on: http://www.surveysystem.com/correlation.htm [Accessed 24th May 2012].

Creswell, J. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research (2nd Ed).* New Jersey: Pearson Merrill Prentice Hall.

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Creswick, N., Westbrook, J. I. & Braithwaite, J. (2009). Understanding communication networks in the Emergency Department, *Health Sciences Research, 9 (**247**).* Available on: http://dx.doi.org/10.1186/1472-6963-9-247. [Accessed 10th March 2013].

Critical Appraisal Skills Programme (CASP) for Qualitative studies. Available on: www.sph.nhs.uk/sph-files/..appraisal../Qualitative%20Appraisal%20Tool.pdf [Accessed 4th January 2010].

Crombie, I.K. & Davies, H. T.O. (2009). *What is meta-analysis?* Available on: http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/meta-an.pdf [Accessed 28th August 2014].

Daniel, J. (2012). *Sampling Essentials: Practical Guidelines For Making Sampling Choices.* London: Sage.

Davidson, M. & de Morton, N. (2007). A systematic review of the Human Activity Profile, *Clinical Rehabilitation, 21 (**2**),* 151-162.

Davies, A.J. & Kenny, R.A. (1996). Falls presenting to the accident and emergency department types of presentation and risk factors profile, *Age & Ageing, 25,* 362-366.

Davies, E. & LIittlejohns, P. (2002). Views of Directors of Public Health about NICE Appraisal Guidance: results of a postal questionnaire. National Institute for Clinical Excellence. *Journal of Public Health Medicine, 24*, 319-325.

Davison, J., Bond, J., Dawson, P., Steen, I. N. & Kenny, R. A. (2005). Patients with recurrent falls attending Accident & Emergency benefit from multi-factorial intervention - A randomised controlled trial. *Age & Ageing, 34***,** 162-168.

DeAngelis, T. (2003). *Why we overestimate our competence.* Available on: http://www.apa.org/monitor/feb03/overestimate.aspx [Accessed 18th May 2012].

Delamont, S. (2007). Ethnography and Participant Observation. In Seale, C., Gobo, G., Gubrium, J. & Silverman, D. (Eds). *Qualitative Research Practice.* (pp. 205-217). LA: Sage.

Deming, W. E. (2000). *The New Economics: For Industry, Government, Education (2nd Ed).* Cambridge: Mit Press.

Denzin, N.K. & Lincoln, Y.S. (2005). The discipline and practice pf qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds). *Handbook of qualitative research (2nd Ed)* (pp 1-28). Thousand Oaks CA: Sage.

Department of Health (2013). *Speech: Will we rise to the challenge of an ageing Society?* Available on: https://www.gov.uk/government/speeches/will-we-rise-to-the-challenge-of-an-ageing-society [Accessed 19th August 2013].

Department of Health (2012a). *Press Release: Better care to prevent falls and fractures will improve lives and save the NHS billions.* Available on: https://www.gov.uk/government/news/better-care-to-prevent-falls-and-fractures-will-improve-lives-and-save-the-nhs-billions [Accessed 19th August 2013].

Department of Health (2012b). *Liberating the NHS: No decision about me, without me- Government response to the consultation.* Available on: http://www.leicestershirelink.org.uk/uploads/liberating-the-nhs-no-decision-about-me-without-me-government-response.pdf [Accessed 19th August 2013].

Department of Health (2012c). *About Us.* Available on: http://www.dh.gov.uk/health/about-us/ [Accessed 5th June 2012].

Department of Health (2010). *Equity and excellence: Liberating the NHS.* Available on: https://www.gov.uk/government/uploads/system/ uploads/ attachment_data/file/213823/dh_117794.pdf [Accessed 19th August 2013].

Department of Health (2009). *Falls and fractures: Effective interventions in health and social care.* Available on: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@pg/documents/digitalasset/dh_109122.pdf [Accessed 28th July 2013].

Department of Health (2008). *Guidance on nominating a consultee for research involving adults who lack capacity to consent.* Available on: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_083131 [Accessed 1st July 2013].

Department of Health (2004). *Transforming emergency care in England: A report by Professor Sir George Alberti.* Available on: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4091775 [Accessed 15th March 2013].

Department of Health (2003). *Clinical exceptions to the four-hour emergency care target.* Available on: http://webarchive.nationalarchives.gov.uk/+/

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4091871 [Accessed 1st September 2013].

Department of Health (2001). *National Service Framework for Older People in England .* Available on: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4071283.pdf [Accessed 25th August 2011].

Department of Health (2000). *The NHS Plan: a plan for investment, a plan for reform.* Available on: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002960 [Accessed 19th March 2013].

DePaulo, P. (2000). *Sample size for qualitative research.* Available on: http://www.quirks.com/articles/a2000/20001202.aspx?searchID=215035&sort=5&pg=1 [Accessed 13th February 2014].

De Vries, O.J., Peeters, G.M.E.E., Elders, P.J.M., Muller. M., Knol, D.L., Danner, S.A., Bouter, L.M. & Lips, P. (2010). Multi-factorial intervention to reduce falls in older people at high risk of recurrent falls: A randomized controlled trial, *Archives of Internal Medicine, 170*, 1110-1117.

Dewey, R. (2007). *Top-down and Bottom-up processing.* Available on: http://www.intropsych.com/ch07_cognition/top-down_and_bottom-up_processing.html [Accessed 27th August 2013].

Dixon-Woods, M., Leslie, M., Bion, J. & Tarrant, C. (2012). What Counts? An Ethnographic Study of Infection Data Reported to a Patient Safety Program, *The Milbank Quarterly, 90 (**3**),* 548-591.

Dixon-Woods, M. & Angell, E.L. (2009). Research involving adults who lack capacity: how have research ethics committees interpreted the requirements? *J Med Ethics, 35,* 377-381.

Donaldson, M.G., Khan, K.M., Davis, J.C., Salter, A.E., Buchanan, J., McKnight, D., Janssen, P.A., Bell, M. & McKay, H.A. (2005). Emergency Department fall-related presentations do not trigger fall risk assessment: A gap in care of high-risk outpatient fallers. *Archives of Gerontology & Geriatrics, 41*, 311-317.

Downing, A. & Wilson, R. (2005). Older people's use of Accident and Emergency Services, *Age Ageing, 34,* 24-30.

Drew, J.C., Hardman, L. M. & Hosp, L.K. (2008). *Designing and Conducting Research in Education.* Los Angelas, CA: Sage.

Drozdick, L.W. & Edelstein, B.A. (2001). Correlates of Fear of Falling in Older Adults Who Have Experienced a Fall, *Journal of Clinical Geropsychology, 7 (**1**),* 1-13.

Dugdale, D.C. (2012). *Muscle function loss.* Available on: http://www.nlm.nih.gov/medlineplus/ency/article/003190.htm [Accessed 3rd September 2013].

Duncan, P.W., Weiner, D.K., Chandler, J. & Studenski, S. (1990). Functional reach: a new clinical measure of balance, *J Gerontol, 45 (**6**),* 192-7.

Dutch Falls Prevention Collaboration (2004). *CAREFALL Triage Instrument.* Available on: http://www.sciencedirect.com/science/article /pii/S073567 5708001083 [Accessed 25th May 2012].

Effective Public Health Practice Project Quality Assessment Tool (EPHPP) (2009). Available on: www.ephpp.ca/Tools.html [Accessed 4th January 2010].

Eccles, P.M., Grimshaw, M.J., MacLennan, G., Bonetti, D., Glidewell, L., Pitts, B. N., Steen, N., Thomas, R., Walker, A. & Johnston, M. (2012). Explaining clinical behaviours using multiple theoretical models, *Implementation Science, 7 (**99**).*

Elderly Accommodation Counsel (2013). *HousingCare.org Information for older people.* Available on: http://www.housingcare.org/guides-to-elderly-care.aspx [Accessed 3rd September 2013].

Enlightenme (2013). *Welcome.* Available on: http://www.enlightenme.org/ [Accessed 15th September 2013].

Evans, D. & FitzGerald, M. (2002). Reasons for physically restraining patients and residents: a systematic review and content analysis. *International Journal of Nursing Studies, 39* (**7**), 735–743.

Faraquhar, C.M., Kofa, E.W. & Slutsky, J.R. (2002). Clinicians' attitude to clinical practice guidelines: a systematic review. *Medical Journal of Australia, 177*, 502-506.

Flottorp, S.A., Oxman, A.D., Krause, J., Musila, N. R., Wensing, M., Godycki-Cwirko, M., Baker, R. & Eccles, M. P. (2013). A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice, *Implementation Science, 8,* 35.

Folstein, M.F., Folstein, S.E. & McHugh, P.R. (1975). 'Mini-mental state': a practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res, 12*, 189–198.

Forsetlund, L., Bjørndal, A., Rashidian, A., Jamtvedt, G., O'Brien, M.A., Wolf, F.M., Davis, D., Odgaard-Jensen, J. & Oxman, A.D. (2009). Continuing education meetings and workshops: effects on professional practice and health care outcomes (Review), *The Cochrane Library,* Issue 2.

Fortinsky, R.H., Lannuzzi-Sucich, M., Baker, D.I, Gottschalk, M., King, M.B., Brown, C.J. & Tinetti, M.E. (2004). Fall-risk assessment and management in clinical practice: views from Healthcare providers. *Journal of the American Geriatrics Society, 52***,** 1522-1526.

Francis, R. (2013). *Report of The Mid Staffordshire NHS Foundation Trust Public Inquiry* Available on: http://www.midstaffspublicinquiry.com/report [Accessed 10th March 2013].

French, D, S., et al. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework, *Implementation Science, 7(**1**),* 38.

Gabriel, D. (2014). *Inductive and deductive approaches to research.* Available on: http://deborahgabriel.com/2013/03/17/inductive-and-deductive-approaches-to-research/ [Accessed 28th August 2014].

Gale, N.K., Heath, G., Cameron, E., Rashid, S. & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research, *BMC Medical Research Methodology, 13,* 117.

Gale Encyclopaedia of Public Health (2002). *Blood Vessels.* Available on: http://www.healthline.com/galecontent/blood-vessels [Accessed 27th August 2013].

Garg, A.X., Hackman, D. & Tonelli, M. (2008). Systematic Review and Meta-analysis: When one study is just not enough, *Clin J Am Soc Nephrol, 3,* 253-260.

Gavrilov, L.A. & Heuveline, P. (2007). *Aging of population.* Available on: http://longevity-science.org/Population_Aging.htm [Accessed 15th March 2013].

Genomic Health Inc (2013). *Clinical Validity and Utility.* Available on: http://www.oncotypedx.com/en-US/Breast/ManagedCare/Node Negative/ ClinicalValidity [Accessed 9th September 2013].

George, G., Jell, C. & Todd, B.S. (2006). Effect of population ageing on emergency department speed and efficiency: a historical perspective from a district general hospital in the UK, *Emerg Med J, 23,* 379-383.

Gillespie, L.D., Gillespie, W.J., Robertson, M.C., Lamb, S.E., Cumming, R.G. & Rowe, B.H. (2003) 'Interventions for preventing falls in the elderly', (Cochrane review), *The Cochrane Library, Issue 2.*

Godin, G., Bèlanger-Gravel, A., Eccles, M. & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories, *Implementation Science, 3,* 36.

GoToSee.co.uk (2013). *Conventional/ Non-conventional Medicine Healthcare Systems.* Available on: http://www.gotosee.co.uk/healtharticles/conventional-nonconventional-medicine/ [Accessed 30th August 2013].

Graduate Prospects (2013). *Occupational therapist.* Available on: http://www.prospects.ac.uk/occupational_therapist_job_description.htm [Accessed 3rd September 2013].

Graham, I.D., Tetroe, J. & KT Theories Research Group. (2007). some theoretical underpinnings of knowledge translation, *Acad Emerg Med, 14 (**11**),* 936-41.

Grant, S., Spain, D. & Green, D. (1999). Rapid assessment team reduces waiting time, *Emerg Med, 11 (**2**),* 72–77.

Green, B.N., Johnson, C.D. & Adams, A. (2006). Writing narrative Reviews For Peer-reviewed Journals: Secrets of the Trade. *Journal of Chiropractic Medicine, 3 (**5**),* 101-117.

Green, J. & Thorogood, N. (2009). *Qualitative methods for health research* (2nd Ed.). Thousand Oaks, CA: Sage.

Greenhalgh, T., Kristiansson, E. & Robinson, V. (2007). Realist review to understand the efficacy of school feeding programmes, *British Medical Journal*, 335, 858–861.

Griffin, A. & Hauser, J. R. (1993). The voice of the customer, *Marketing Science*, *12 (**1**),* 1-27.

Grimshaw, J., Thomas, R., Maclennan, G., Fraser. Ramsay, C., Vale, L., Whitty, P., Eccles, M., Matowe, L., Shirran, L., Wensing, M., Dijkstra, R. & Donaldson, C. (2004). Effectiveness and efficiency of guideline dissemination and implementation strategies, *Health Technology Assessment, HMSO*. *8*: 6

Grol, R. & Grimshaw, J. (2003). From best evidence to best practice: effective implementation of change in patients' care, *The Lancet, 362,* 1225-1230.

Grosse, S.D., Kalman, L. & Khoury, M.J. (2010). *Chapter 8: Evaluation of the Validity and Utility of Genetic Testing for Rare Diseases.* Available on:

http://link.springer.com/content/pdf/10.1007/978-90-481-9485-8_8.pdf [Accessed 27th August 2013].

Guba, E. & Lincoln, Y.S. (1985). *Effective Evaluation: Improving the Usefulness of Evaluation Results through Responses and Naturalistic Approaches.* San Francisco: Jossey Bass.

Guest, G., Bunce, A. & Johnson, L. (2006). How Many Interviews Are Enough? An Experiment with Data Saturation and Variability, *Field methods, 18,* 59-82.

Gulley, S. & Chan, J. (2013). *An audit of the knowledge of 5 key National Institute of Health and Clinical Excellence (NICE) clinical guidelines relevant to Health Visiting and School Nursing practice- 2012/13.* Available on: https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCMQFjAA&url=https%3A%2F%2Fwww.nice.org.uk%2Fmedia%2Fdefault%2Fsharedlearning%2F732_732supportinginfo.docx&ei=ABFFVNC1HaPm7gan0YGYDg&usg=AFQjCNF3cZWFzk_snXmFY7nXj292DEB8EQ&sig2=NVoEmbVEtsCYkaNITu4V3g&bvm=bv.77880786,d.ZGU [Accessed 20th October 2014].

Gulliford, M., Naithani, S. & Morgan, M. (2006). What is ‘continuity of care’? *Journal of Health Services Research Policy, 11 (**4**), 248-250.*

Haase, A., Follmann, M., Skipka, G. & Kirchner, (2007). Developing search strategies for clinical practice guidelines in SUMSearch and Google Scholar and assessing their retrieval performance, *BMC Medical Research Methodology, 7,* 28.

Haijar, E.R., Cafiero, A.A. & Hanlon, J.T. (2007). Polypharmacy in elderly patients, *Am J Geriatric Pharmacotherapy, 5 (**4**),* 345-351.

Hall, W., Lynskey, M. & Teesson, M. (2001). *What is comorbidity and why does it matter?* Available on: http://www.health.gov.au/internet/main/Publishing.nsf /Content/B199A8A6605D1C54CA25720D002494BF/$File/comwhat.pdf [Accessed 27th August 2013].

Hammersley, M. & Atkinson, P. (2007). *Ethnography: principles in practices (3rd Ed).* London: Routledge, Taylor & Francis Group.

Han, C.W., Lee, E.J. & Kohzuki, M. (2009). Validity and reliability of the Frenchay Activities Index for community-dwelling elderly in South Korea, *Tohoku J Exp Med, 217 (**3**),* 163-168.

Handel, D.A., Hilton, J. A., Ward, M. J., Rabin, E., Zweme, F.L. & Pines, J.M. (2010). Emergency Department throughput, crowding and financial outcomes for hospitals, *Academic Emergency Medicine, 17,* 840-847.

Hankins, K. (2011). *Health Visitor: Job description.* Available on: http://www.prospects.ac.uk/health_visitor_job_description.htm [Accessed 1st September 2013].

Hassan, E. (2006). Recall Bias can be a Threat to Retrospective and Prospective Research Designs, *The Internet Journal of Epidemiology, 3 (**2**).*

Hausdorff, J.M., Rios, D.A. & Edelberg, H.K. (2001). Gait Variability and Fall Risk in Community-Living Older Adults: A 1-Year Prospective Study, *Archives Physical Medicine & Rehabilitation, 82,* 1050-1056.

Headway (2013). *Glasgow Coma Scale.* Available on: https://www.headway.org.uk/glasgow-coma-scale.aspx [Accessed 1st September 2013].

Health and Social Care Information Database (2014). Available on: http://www.hscic.gov.uk/home [Accessed 1st May 2014].

Health and Social Care Information Centre (2013). *NHS Trust.* Available on: http://www.datadictionary.nhs.uk/data_dictionary/nhs_business_definitions/n/nhs_trust_de.asp?shownav=1 [Accessed 6th November 2014].

Health Grades Inc. (2011). *Symptoms of Arthritis.* Available on: http://www.rightdiagnosis.com/a/arthritis/symptoms.htm [Accessed 27th August 2013].

Help the Aged (2005). *'Don't Mention the F-Word'*. Available on: http://www.slips-online.co.uk/downloads/dont-mention-the-f-word.pdf [Accessed 4th January 2010].

Hendriks, M.R, Bleijlevens, M.H, van Haastregt, J.C, Crebolder, H.F, Diederiks, J.P., Evers, S.M., Mulder, W.J, Kempen, G.I., van Rossum, E., Ruijgrok, J.M., Stalenhoef, P.A. & van Eijk, J.T. (2008). Lack of effectiveness of a multidisciplinary fall-prevention program in elderly people at risk: A randomized, controlled trial. *Journal of the American Geriatrics Society, 56***,** 1390-1397.

Hendriksen, H. & Harrison, R.A. (2001). Occupational therapy in accident and emergency departments: a randomized controlled trial, *J Adv Nurs,* 727-732.

Hess, D.R. (2004). Prospective Studies and Chart Reviews, *49 (**10**),* 1171-1174.

Hill, K., Womer, M., Russell, M., Blackberry, I., & McGann A. (2010). Fear of falling in older fallers presenting at Emergency Departments. *Journal of Advanced Nursing, 66***,** 1769-1780.

Hill, K., Schwarz, J., Kalogeropoulos, A. & Gibson. S. (1996). Fear of falling revisited, *Archives of Physical Medicine & Rehabilitation, 77,* 1025-1029.

HM Government (2005) *Mental Capacity Act (2005)*. Available on: http://www.legislation.gov.uk/ukpga/2005/9/pdfs/ukpga_20050009_en.pdf [Accessed 20th August 2013].

Hodkinson, H.M. (1972). Evaluation of a mental test score for the assessment of mental impairment in the elderly, *Age & Ageing, 1,* 233.

Holbrook, A.L., Green, M.C. & Krosnick, J.A. (2003). Telephone versus face-face interviewing of national probability samples with long questionnaires: Comparisons of respondent satisfying and social desirability response bias, *Public Opinion Quarterly, 67.* 79-125. Available on: http://comm.stanford.edu /faculty/krosnick/docs/2003/2003%20NES%20Mode%20Paper.pdf [Accessed 6th June 2012].

Hollis, S. & Campbell, F. (1999). Survey of published randomised controlled trials, *BMJ, 319,* 670-672.

Hopp, W. (2003). *Patient Streaming to Improve Flow and Safety in Hospital Emergency Departments.* Available on: http://www.ucl.ac.uk/msi/research-seminar-announcements/patient-streaming-to-improve-flow-and-safety-in-hospital-emergency-departments [Accessed 8th September 2013].

Howie, J.G.R. (1974). Further Observations on Diagnosis and Management of General practice Respiratory Illness using Simulated Patient Consultations, *British Medical Journal, 2,* 540-543.

Howie, J.G.R. (1973). A new look at respiratory illness in general practice, *Journal of Royal College of General Practitioners, 23,* 895-904.

Huang, D.T., Clermont, G., Kong, L., Weissfeld, L.A., Sexton, J.B., Rowan, K.M. & Angus, D.C. (2010). Intensive care unit safety culture and outcomes: a US multicentre study, *International Journey for Quality in Health Care, 22 (**3**),* 151-161.

Holloway, I. & Wheeler, S. (2002). *Qualitative Research in Nursing*. Oxford: Blackwell Science.

Holmstrom, B. & Milgrom, P. (1991). Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design, *Journal of Law, Economics & Organization, 7 (**1**),* 24-52*.*

Hunt, L.D., Haynes, B., Hanna, E.S. & Smith, K. (1998). Effects of Computer-Based Clinical Decision Support Systems on Physician Performance and Patient Outcomes: A systematic review, *JAMA, 280 (**15**),* 1339-1346.

ICEBeRG (2006). Designing theoretically-informed implementation interventions, *Implementation Science, 1 (**4**),*

InterNACHI (2013). *Home Safety for the Elderly.* Available on: https://www.nachi.org/elderlysafety.htm [Accessed 1st September 2013].

International Agency for Research on Cancer (2012). *Chapter 8: Cohort studies.* Available on: http://www.iarc.fr/en/publications/pdfs-online/epi/cancerepi/CancerEpi-8.pdf [Accessed 25th May 2012].

International Federation for Emergency Medicine (2012). *Framework for Quality and Safety in the Emergency Department.* Available on: secure.collemergencymed.ac.uk/code/document.asp?ID=6803 [Accessed 17th March 2013].

International Federation for Emergency Medicine (2008). *About IFEM.* Available on: http://www.ifem.cc/About_IFEM.aspx [Accessed 13th March 2013].

Invicta Telecare (2013). *Safety alarms: Support for you and your loved ones every minute of every day.* Available on: http://www.invictatelecare.co.uk/safety-alarms?gclid=CIWi08C7qrkCFUXKt AodmVgAuw [Accessed 1st September 2013].

Jessup, R.L. (2007). Interdisciplinary versus multidisciplinary teams: do we understand the difference? *Australian Health Review.* Available on: http://findarticles.com/p/articles/mi_6800/is_3_31/ai_n28446050/ [Accessed 25th May 2012].

Jones, T.V., Gerrity, M.S. & Earp, J. (1990). Written case simulations: Do they predict physician's behaviour? *Journal of Clinical Epidemiology, 43,* 805-815.

Jones, R., White, P., Armstrong, D., Ashworth, M. & Peters, M. (2010). *Managing acute illness*. Available on: http://www.kingsfund.org.uk/sites/files/kf/field/field_document/managing-acute-illness-gp-inquiry-research-paper-mar11.pdf [Accessed 29th July 2013].

Kalula, S. Z., de Villiers, L., Ross, K. & Ferreira, M. (2006). Management of older patients presenting after a fall - An Accident and Emergency Department audit, *South African Medical Journal, 96***,** 718-721.

Kammerlander, C., Roth, M.T., Friedman, S.M., Suhm, N., Luger, T.J., Kammerlander-Knauer, U., Krappinger, D. & Blauth, M. (2010). Ortho-geriatric service- a literature review comparing different models, *Osteoporos Int, 21 (**S1**)* 637-636.

Kaptchuck, T. J. (2003). Effect of interpretive bias on research evidence, *British Medical Journal, 326*, 1453-1455.

Kenny, T. (2012). *Transient Ischemic Attack.* Available on: http://www.patient.co.uk/health/Transient-Ischaemic-Attack-(TIA).htm [Accessed 8th September 2013].

Kenny, R.A., Kalaria, R. & Ballard, C. (2002). Neurocardiovascular instability in cognitive impairment and dementia, *Ann N Y Acad Sci, 977,* 183-195.

Kenny, R.A., O'Shea, D. & Parry, S.W. (2000). The Newcastle protocols for head-up tilt table testing in the diagnosis of vasovagal syncope, carotid sinus hypersensitivity, and related disorders, *Heart, 83,* 564-569.

Kenny, T., Willacy, H. & Cox, J. (2012). *Myocardial Infarction (Heart Attack).* Available on: http://www.patient.co.uk/health/myocardial-infarction-heart-attack [Accessed 3rd September 2013].

Kingsley, S. (2004). A breakdown on Falls in the Elderly, *The Canadian Journal of CME,* 29-61. Available on: http://www.stacommunications.com/journals /cme/2005/April/PDF/059.pdf [Accessed 23rd January 2012].

Kingston, P., Jones, M., Lally, F. & Crome, P. (2001). Older people and falls: a randomized controlled trial of a health visitor (HV) intervention, *Rev Clin Gerentol, 11,* 209-214.

Kiwanuka, S.N., Kinengyere, A.A., Rutebemberwa, E., Nalwadda, C., Ssengooba, F., Olico-Okui. & Pariyo, G.W. (2011). *Dual practice regulatory mechanisms in the health sector: a systematic review of approaches and implementation. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.* Available on: http://eppi.ioe.ac.uk/cms/

LinkClick.aspx?fileticket=0rig59OoMn8%3D&tabid=2963&mid=5551 [Accessed 28th August 2014].

Klotzbuecher, C.M. Ross, P. D., Landsman, P. B. & Berger, M. (2005). Patients with prior fractures have an increased risk of future fractures: a summary of the literature and statistical synthesis. *Journal of Bone & Mineral Research, 15,* 721- 739.

Krause, J., Van Lieshout, J., Kiomp, R., Huntink, E., Aakus, E., Flottorp, S., Jaeger, C., Steinhaeuser, J., Godycki-Cwirko, M., Agarwal, S., Wensing, M. & Baker, R. (2014). Identifying determinants of care for tailoring Implementation in chronic diseases: an evaluation of different methods, *Implementation Science, 9:* 102.

Kusin, S. (2009). Get Out of My Emergency Room: Thirty Years Spent Inside The House of God*, Academic Emergency Medicine, 16 (**6**),* 565-566.

Kvale, S. & Brinkmann, S. (2009). *InterViews: Learning the Craft of Qualitative Research Interviewing.* London: Sage.

Lacas, A. & Rockwood, K. (2012). Frailty in primary care: a review of its conceptualization and implications for practice, *BMC Medicine, 10 (**4**)* 1-9.

Lacey, A. & Luff, D. (2009). *Qualitative Data Analysis.* Available on: www.rds-yh.nihr.ac.uk/wpcontent/uploads/2013/05/9_Qualitative_Data_Analysis_Revision_2009.pdf [Accessed 1st June 2014].

Lang, E.S., Wyer, P.C. & Haynes, R.B (2007). Knowledge Translation: Closing the Evidence-to-Practice Gap, *Annals of Emergency Medicine, 49 (**3**), 355-363.*

Lawton, M.P., & Brody, E.M. (1969) “Assessment of older people: Self-maintaining and instrumental activities of daily living“, *Gerontologist, 9*, 179-186.

Lee, V. M., Wong, T. W. & Lau, C. C. (1999). Home accidents in elderly patients presenting to an Emergency Department. *Accident & Emergency Nursing*, *7***,** 96-102.

Lertsithichai, P. (2005). Waiver of consent in clinical observational research, *J Med Assoc Thai, 88 (**2**0,* 275-281.

Letham, K. & Gray, A. (2012). The four-hour target in the NHS emergency departments: a critical comment, *Emergenclas, 24,* 69-72.

Lightbody, E., Watkins, C., Leathley, M., Sharma, A. & Lye, M. (2002). Evaluation of a nurse-led falls prevention programme versus usual care: a randomized controlled trial. *Age & Ageing, 31***,** 203-211.

London Borough of Hounslow, NHS Hounslow, West Middlesex University Hospitals Trust and West London Mental Health Trust (2009). *Older People’s Falls Strategy.* Available on: http://www.hounslow.gov.uk/older_peoples_ falls_strat.pdf [Accessed 28th July 2013].

Loong, T. (2003). Understanding sensitivity and specificity with the right side of the brain, *BMJ, 327,* 716-719.

Lord, S.R., Menz, H.B. & Tiedemann, A. (2003). A physiological profile approach to falls risk assessment and prevention. *Physical Therapy, 83*, 237–252.

Lugtenberg, M., Burgers, J.S. & Westert, G.P. (2009). Effects of evidence-based clinical practice guidelines on quality of care: a systematic review, *Qual Saf Health Care, 18,* 385-392.

Macular Society (2014a). *Age-related macular degeneration:* Available on: http://www.macularsociety.org/about-macular-conditions/Age-related-macular-degeneration [Accessed 15th September 2014].

Macular Society (2014b). *What is the Macular?* Available on: http://www.macularsociety.org /about-macular-conditions/What-is-the-macula [Accessed 15th September 2014].

Maher, D. (2012). *Malnutrition in the Elderly: An Unrecognized Health Issue,* Available on: http://www.rnjournal.com/journal_of_nursing/malnutrition_in_the_elderly_an_unrecognized_health_issue.htm [Accessed 23rd May 2012].

Mackway-Jones K, K.(1997). *Emergency triage. Manchester Triage Group.* London: BMJ Publishing Group.

MBA (2013). *Features, Advantages and Disadvantages of Observation.* Available on: http://www.mbaofficial.com/mba-courses/research-methodology/features-advantages-and-disadvantages-of-observation/ [Accessed 30th July 2014].

Martin, F., Husk, J., Lowe, D., Grant, R. & Spencer-Williams, M. (2007). *National Report: Clinical Audit of Falls and Bone Health in Older People.* Available on: http://www.rcplondon.ac.uk/clinical-standards/ceeu/Documents/fbhop-execsummary.pdf [Accessed 4th January 2010].

Mason, M. (2010). *Sample Size and Saturation in PhD Studies Using Qualitative Interviews.* Available on: http://www.qualitative-research.net /index.php/fqs/article/view/1428/3027 [Accessed 13th February 2014].

Masud, T. & Morris, O. (2001). Epidemiology of falls, *Age & Ageing, 30 (**S4**),* 3-7.

Mcleod, E., Bywaters, P. & Cooke, M. (2003). Social work in accident and emergency departments: a better deal for older patients' health? *Br J Soc Work, 33,* 787-802.

MedCalc (2013). *Intraclass correlation coefficient.* Available on: http://www.medcalc.org/manual/intraclasscorrelation.php [Accessed 9th September 2013].

MediCare International (2013). *Your MediCare coverage choices.* Available on: http://www.medicare.gov/sign-up-change-plans/decide-how-to-get-medicare/your-medicare-coverage-choices.html [Accessed 1st September 2013].

MedlinePlus (2014). *Pharyngitis- viral.* Available on: http://www.nlm.nih.gov/ medlineplus/ency/article/001392.htm [Accessed 8th December 2014].

MedicineNet Inc. (2012). *Definition of Resuscitation.* Available on: http://www. medicinenet.com/script/main/art.asp?articlekey=21780 [Accessed 3rd December 2014].

Mercer, S.W., Smith, S.M., Wyke, S., O'Dowd, T. & Watt, G.C.M. (2009). Multimorbidity in primary care: developing the research agenda, *Family Practice, 26 (**2**).* 79-80.

Merriam-Webster (2014a). *Adherence.* Available on: http://www.merriam-webster.com/dictionary/adherence [Accessed 14th January 2014].

Merriam-Webster (2014b). *Idealism.* Available on: http://www.merriam-webster.com/dictionary/idealism [Accessed 28th August 2014].

Meterko, M., Mohr, D.C. & Young, G.J. (2004). Teamwork culture and patient satisfaction in hospitals, *Medical Care, 42 (**5**),* 492-498.

Michie, S., van Stralen, M.M. & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions, *Implementation Science, 6 (**1**)*, 42.

Michie, S. & Lester, K. (2005). "Words matter: increasing the implementation of clinical guidelines." *Quality and Safety in Health Care, 14 (**5**),* 367-370.

Miller, E., Wightman, E., Rumbolt, K., McConnell, S., Berg, K., Devereaux, M. & Campbell, F. (2009). Management of fall-related injuries in the elderly: a retrospective chart review of patients presenting to the Emergency Department of a community-based teaching hospital, *Physiotherapy Canada, 61***,** 26-38.

Mitchell, P. & Adekunle, F. (2010). *Fracture Liaison Services Resource Pack.* Available on: http://www.nos.org.uk/document.doc?id=724 [Accessed 19th August 2013].

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. & The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement*. PLoS Med 6 (**7**)*, 1-6.

Mora, M. (2011). What is statistical significance? Available on: www.relevantinsights.com/tag/statistical-significance [Accessed 1st May 2012].
Morse, J, M. (2000). Determining sample size*. Qualitative Health Research*, *10* (***1***), 3-5.

Morse, J. M. (1994). Designing funded qualitative research. In Norman, K, D. & Yvonna, S. L. (Eds.), *Handbook of qualitative research* (2nd ed., pp.220-35). Thousand Oaks, CA: Sage.

Moscovici, S., Lage, E. & Naffrechoux, M. (1969). Influence of a consistent minority on the responses of a majority in a color perception task. *Sociometry, 32 (**4**),* 365-380.

Mulhall, A. (2003). In the field: notes on observation in qualitative research, *Journal of Advanced Nursing, 41 (**3**),* 306-313.

Multiple Sclerosis Trust (2012). *Information, Education, Research and Support: Falls diary.* Available on: http://www.mstrust.org.uk/information/ publications /falls/diary.jsp [Accessed 27th May 2012].

Murphy, E. & Dingwall, R. (2007). Informed consent, anticipatory regulation and ethnographic practice, *Social Science & Medicine, 65 (**11**),* 2223-2234.

National Ageing Research Institute (2001). *Falls Risk for Older People – Community setting (FROP-Com).* Available on: http://www.mednwh.unimelb. edu.au/ research/pdf_docs/FropCom2009/Falls-risk-for-older-people-community-setting-09.pdf [Accessed 25th May, 2012].

National Careers Service (2012). *Job profiles: Adult nurse.* Available on: https://nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/AdultNurse.aspx [Accessed 1st September 2013].

National Centre for Learning (2012). *The framework approach to qualitative data analysis.* Available on: http://www.surrey.ac.uk/sociology/research/ researchcentres/caqdas/files/Session%201%20Introduction%20to%20Framework.pdf [Accessed 18th Jul 2014].

National Centre for the Dissemination of Disability Research (2007). *Appraising the Quality of Systematic Reviews*, *FOCUS, 17.* Available on: http://www.ncddr.org/kt/products/focus/focus17/Focus17.pdf [Accessed 6th June 2012].

National Highway Traffic Safety Administration (2013). *Trauma System Agenda For The Future.* Available on: http://www.nhtsa.gov/people/injury/ems/emstraumasystem03/glossary.htm [Accessed 9th September 2013].

National hip fracture database (2013). Available on: http://www.nhfd.co.uk/ [Accessed 26th July 2013].

National Institute for Health and Care Excellence (2014). *Analgesia-mild-moderate pain.* Available on: http://cks.nice.org.uk/analgesia-mild-to-moderate-pain#!backgroundsub [Accessed 8th December 2014].

National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester (2013). *COINCIDE Collaborative Interventions for Circulation and Depression: What is collaborative care?* Available on: http://clahrc-gm.nihr.ac.uk/coincide/patient-information/what-is-collaborative-care/ [Accessed 27th August 2013].

National Institute for Health and Care Excellence (2013a). *Falls: assessment and prevention of falls in older people.* Available on: http://www.nice.org.uk /nicemedia/live/14181/64088/64088.pdf [Accessed 25th July 2013].

National Institute for Health and Care Excellence (2013b). *Implementation tools.* Available on: http://www.nice.org.uk/usingguidance/implementationtools/ [Accessed 1st September 2013].

National Institute for Health and Care Excellence (2012a). *Osteoporosis: Assessing the risk of fragility fracture.* Available on: http://www.nice.org.uk/guidance/cg146 [Accessed 21st August 2014].

National Institute for Health and Care Excellence (2012b). *About NICE.* Available on: http://www.nice.org.uk/aboutnice/ [Accessed 28th May 2012].

National Institute for Health and Care Excellence (2011a). *Hip fracture Costing report: Implementing NICE guidance*. Available on: http://www.nice.org.uk/nicemedia/live/13489/54928/54928.pdf [Accessed 10th June 2013].

National Institute for Health and Care Excellence (2011b). *Clinical guidelines.* Available on: http://guidance.nice.org.uk/CG [Accessed 27th August 2013].

National Institute for Health and Care Excellence (2007). *How to change practice: Understand, identify and overcome barriers to change.* Available on: http://www.nice.org.uk/usingguidance/implementationtools/howtoguide/barrierstochange.jsp [Accessed 10th May 2012].

National Institute for Health and Care Excellence (2005). *How to put NICE guidance into practice: a guide to implementation for organisations.* Available on: http://www.nice.org.uk/usingguidance/implementationtools/howtoguide/HowToGuideOrganisations.jsp [Accessed 10th March 2013].

National Institute for Health and Care Excellence (2004). *Clinical practice guideline for the assessment and prevention of falls in older people.* Available on: http://www.nice.org.uk/nicemedia/live/10956/29585/29585.pdf [Accessed 4th January 2011].

National Institute of Mental Health (2008). *Mental Health Medications.* Available on: http://www.nimh.nih.gov/health/publications/mental-health-medications/index.shtml [Accessed 3rd September 2013].

National Leadership and Innovation Agency for Healthcare (2005). *Integrated Care Pathways: A guide to good practice.* Available on: http://www.wales.nhs.uk/sitesplus/Documents/829/integratedcarepathways.pdf P1 [Accessed 27th August 2013].

National Osteoporosis Foundation (2014). *Having a Bone Density Test.* Available on: http://nof.org/articles/743 [Accessed 21st October 2014].

National Osteoporosis Society (2013). *What is Osteoporosis?* Available on: http://www.nos.org.uk/page.aspx?pid=247 [Accessed 3rd September 2013].
National Patient Safety Foundation (2013). *Role of the Patient Advocate: A Consumer Fact Sheet.* Available on: http://www.npsf.org/for-patients-consumers/tools-and-resources-for-patients-and-consumers/role-of-the-patient-advocate/ [Accessed 3rd September 2013].

National Voices (2013). *Coordinated Care.* Available on: http://www.nationalvoices.org.uk/coordinated-care-0 [Accessed 30th August 2013].

Nazarko L. (2009). A healthy mind in a healthy body: reducing dementia risk. *Nursing and Residential Care 11* (***4***), 195-9.

NCBI (2014). *Relative risk (RR).* Available on: http://www.ncbi.nlm.nih.gov/ books /NBK63658/def-item/glossary.gl1-d43/ [Accessed 10th September 2014].

NHS (2013). *Career Planner for Nurses: Ward sister/Charge nurse.* Available on: http://nursingcareers.nhsemployers.org/browse-segments/acute-and-critical-care/level-7-management/ward-sistercharge-nurse.aspx [Accessed 27th August 2013].

NHS (2010).*Career Planner for Nurses: Matron (Acute Care).* Available on: http://nursingcareers.nhsemployers.org/browse-segments/acute-and-critical-care/level-8-management/matron-(acute-care).aspx [Accessed 1st September 2013].

NHS Careers (2013a). *Pay for nurses.* Available on: http://www.nhscareers.nhs.uk/explore -by-career/nursing/pay-for-nurses/ [Accessed 27th August 2013].

NHS Careers (2013b). *Medical records clerk.* Available on: http://www.stepintothenhs.nhs.uk/jobdescriptions/Medical-Records-Clerk.aspx [Accessed 27th August 2013].

NHS Careers (2013c). *Community matron.* Available on: http://www.nhscareers.nhs.uk/explore-by-career/nursing/careers-in-nursing/community-matron/ [Accessed 27th August 2013].

NHS Careers (2013d). *Healthcare assistant.* Available on: http://www.nhscareers.nhs.uk/explore-by-career/wider-healthcare-team/careers-in-the-wider-healthcare-team/clinical-support-staff/healthcare-assistant/ [Accessed 1st September 2013].

NHS Careers (2013e). *Physician Associate.* Available on: http://www.nhscareers.nhs.uk/explore-by-career/doctors/careers-in-medicine/physician-associate/ [Accessed 5th September 2013].

NHS Careers (2013f). *Physiotherapist.* Available on: http://www.nhscareers.nhs.uk/explore-by-career/allied-health-professions/careers-in-the-allied-health-professions/physiotherapist/ [Accessed 5th September 2013].

NHS Careers (2013g). *Social worker.* Available on: http://www.nhscareers.nhs.uk/explore-by-career/wider-healthcare-team/careers-in-the-wider-healthcare-team/clinical-support-staff/social-worker/ [Accessed 8th September 2013].

NHS Choices (2014a). *First Aid- CPR.* Available on: http://www.nhs.uk/conditi ons/Accidents-and-first-aid/Pages/CPR.aspx [Accessed 3rd December 2014].

NHS Choices (2014b). *Tonsillitis.* Available on: http://www.nhs.uk/conditions/ tonsillitis/Pages/Introduction.aspx [Accessed 8th December 2014].

NHS Choices (2013a). *The NHS in England.* Available on: http://www.nhs.uk/NHSEngland/thenhs/about/Pages/authoritiesandtrusts.aspx [Accessed 27th August 2013].

NHS Choices (2013b). *Angina.* Available on: http://www.nhs.uk/Conditions /Angina/Pages/Introduction.aspx P1 [Accessed 1st September 2013].

NHS Choices (2013c). *Aphasia.* Available on: http://www.nhs.uk/conditions /aphasia/Pages/Introduction.aspx [Accessed 27th August 2013].

NHS Choices (2013d). *Care homes.* Available on: http://www.nhs.uk/Carers Direct/guide/practicalsupport/Pages/Carehomes.aspx [Accessed 27th August 2013].

NHS Choices (2013e) *Codeine/Paracetamol (Co-codamol 30mg/500mg tablets).* Available on: http://www.nhs.uk/medicine-guides/pages/medicine overview.aspx?condition=pain&medicine=codeine/paracetamol&preparation=C o-codamol%2030mg/500mg%20tablets [Accessed 27th August 2013].

NHS Choices (2013f) *Double vision.* Available on: http://www.nhs.uk/conditions /Double-vision/Pages/Introduction.aspx [Accessed 15th September 2014].

NHS Choices (2013g) *Intermediate Care.* Available on: http://www.nhs.uk/Livewell/Staywellover50/Pages/Intermediatecare.aspx [Accessed 1st September 2013].

NHS Choices (2013h) *Health news glossary.* Available on: http://www.nhs.uk /news/Pages/Newsglossary.aspx [Accessed 3rd September 2013].

NHS Choices (2012). *About the NHS.* Available on: http://www.nhs.uk/ NHSEngland/thenhs/about/Pages/authoritiesandtrusts.aspx [Accessed 3rd June 2012].

NHS Confederation (2012). *Falls Prevention: New approaches to integrated falls prevention services.* Available on: http://www.nhsconfed.org/Publications /Documents/Falls_prevention_briefing_final_for_website_30_April.pdf [Accessed 28th July 2013].

NHS England (2013a). *High quality care for all, now and for future generations: Transforming urgent and emergency care services in England. The Evidence Base from the Urgent and Emergency Care Review.* Available on: http://www.england.nhs.uk/wp-content/uploads/2013/06/urg-emerg-care-ev-bse.pdf [Accessed 19th August 2013].

NHS England (2013b). *NHS England: Improving A&E Performance. Gateway ref: 00062.* Available on: http://www.england.nhs.uk/wp-content/uploads /2013/05/ae-imp-plan.pdf [Accessed 25th July 2013].

NHS England (2013c). *NHS England- About us.* Available on: http://www.england.nhs.uk/about/ [Accessed 3rd September 2013].

NHS Lanarkshire (2012). *Your intravenous cannula.* Available on: http://www.nhslanarkshire.org.uk/Hospitals/Patients%20and%20Visitors/Documents/Your%20intravenous%20cannula/PIL%20VENFLN%2047092%20L%20(3).pdf [Accessed 27th August 2013].

NHS Leicester City Clinical Commissioning Group (2013). *Who we are?* Available on: http://www.leicestercityccg.nhs.uk/who-we-are/ [Accessed 27th August 2013].

Nordell, E., Jarnlo, G. B., Jetsen, C., Nordstrom, L. & Thorngren, K. G. (2000). Accidental falls and related fractures in 65-74 year olds: A retrospective study of 332 patients. *Acta Orthopaedica Scandinavica, 71*, 175-179.

O'Brien, M.A., Rogers, S., Jamtvedt, G., Oxman, A.D., Odgaard-Jensen, J., Kristoffersen, D.T., Forsetlund, L., Bainbridge, D., Freemantle, N., Davis, D., Haynes, R.B. & Harvey, E. (2007). Educational outreach visits: effects on professional practice and health care outcomes (Review), *The Cochrane Library, Issue 4.*

O'Neill, P. (2002). Good intentions and awkward outcomes: ethical gatekeeping in field research. In W.C. van den Hoonaard (Ed.), *Walking the Tightrope: Ethical Issues for qualitative researchers.* Toronto: University of Toronto Press, pp. 17-25.

Oborn, E., Barrett, M. & Racko, G. (2010). *Working Paper Series 5/2010. Knowledge translation in healthcare: A review of the literature.* Available on: http://www.jbs.cam.ac.uk/research/working_papers/2010/wp1005.pdf [Accessed 1st September 2013].

Oxford Dictionaries (2014a). *Barrier.* Available on: http://www.oxforddictionaries.com/definition/english/barrier [Accessed 8th December 2014].

Oxford Dictionaries (2014b). *Enabler.* Available on: http://www.oxforddictionaries.com/definition/english/enabler [Accessed 8th December 2014].

Paniagua, M. A., Malphurs, J. E. & Phelan, E. A. (2006). Older patients presenting to a county hospital ED after a fall: missed opportunities for prevention. *American Journal of Emergency Medicine, 24***,** 413-417.

Parker, M.J., Gillespie, L.D. & Gillespie, W.J. (2003) 'Hip protectors for preventing hip fractures in the elderly' (Cochrane review), *The Cochrane Library*, *Issue 4.*

Parkinson's UK (2014). *What is Parkinson's?* Available on: http://www.parkinsons.org.uk/content/what-parkinsons [Accessed 28th August 2014].

Paterson, B.L. (2014). *Within-Case Analysis.* Available on: http://srmo.sagepub.com/view/encyc-of-case-study-research/n357.xml [Accessed 21st October 2014].

Person, J., Spiva, L. & Hart, P. (2012). The culture of an emergency department: An ethnographic study, *International Emergency Nursing,* Available online: http://www.sciencedirect.com/science/article/pii/ S1755599X12001279 [Accessed 10th March 2013].

Podsiadlo, D. & Richardson, S. (1991). The timed 'Up and Go' Test: a Test of Basic Functional Mobility for Frail Elderly Persons. *Journal of American Geriatric Society. 39,* 142-148.

Pollock, K. (2012). Procedure versus process: ethical paradigms and the conduct of qualitative research, *BMC Med Ethics, 13 (**25**).*

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K. & Duffy, S. (2006). *Guidance on the Conduct of Narrative Synthesis in Systematic Reviews: A Product from the ESRC Methods Programmed.* Available on: http://www.academia.edu/305812/Guidance

_on_the_Conduct_of_Narrative_Synthesis_In_Systematic_Reviews [Accessed 4th June 2014].

Pope, C., Ziebland, S. & Mays, N. (2000). Analysing qualitative data, *BMJ, 320 (**7227**),* 114-116.

Public and Commercial Services Union (2013). *Body mapping.* Available on: http://www.pcs.org.uk/en/resources/health_and_safety/health_and_safety_reps_toolkit/body-mapping.cfm [Accessed 27th August 2013].

QSR (2012). *Support.* Available on: http://www.qsrinternational.com/support_faqs_detail.aspx?view=1056 [Accessed 25th June 2014].

Radiation, Therapy, Oncology Group (2010). *Barthel Index of Activities of Daily Living (ADL).* Available on: http://www.rtog.org/LinkClick.aspx?fileticket=WFmhDMpabFE%3D&tabid=118 [Accessed 25th May 2012].

Reeves, S., Perrier, L., Goldman, J., Freeth, D. & Zwarenstein, M (2013). Interprofessional education: effects on professional practice and healthcare outcomes (update) (Review), *The Cochrane Library, Issue 3.*

Reference.MD (2012). *Guideline Adherence. P1.* Available on: http://www.reference.md/files/D019/mD019983.html [Accessed 7th May 2014].

Ritchie, J., Lewis, J. & Elam, G. (2003). Designing and selecting samples. In Jane Ritchie & Jane Lewis (Eds.), *Qualitative research practice. A guide for social science students and researchers* (pp.77-108) Thousand Oaks, CA: Sage.

Ritchie, J. & Spencer, L. (1994). Qualitative data analysis for applied policy research. In Alan Bryman & Robert. G. Burgess (Eds.), *Analyzing Qualitative Data* (pp.173-194). New York: Routledge.

RJA (2012). *British Geriatrics Society: The Older Person in the Accident & Emergency Department.* Available on: http://www.bgs.org.uk/index.php?option=com_content&view=article&id=45:gpgaae&catid=12:goodpractice&Itemid=106 [Accessed 15th March 2013].

Robertson, N., Baker, R. & Hearnshaw, H. (1996). Changing the clinical behavior of doctors- a psychological framework, *Quality in Health Care, 5,* 51-54.

Robson, C. (1993). *Real World Research: A Resource for Social Scientists and Practitioner Researchers.* Oxford: Blackwell Science.

Rodgers, M., Arai, L., Baldwin, S., Britten, N., Petticrew, M., Popay, J., Roberts, H. & Sowden, A. (2014). *Developing Guidance on the Conduct Of Narrative Synthesis in Systematic Reviews: An ESRC Research Methods Programme project.* Available on: http://www.lancaster.ac.uk/shm/research/nssr/research/dissemination/publications/Narrative%20synthesis%20-%20SSM%2015-09-05.pdf [Accessed 1st July 2014].

Rodgers, M., Sowden, A., Petticrew, M., Arai, L., Roberts, H., Britten, N. & Popay, J. (2009). Testing Methodological Guidance on the Conduct of Narrative Synthesis in Systematic Reviews: Effectiveness of Interventions to Promote Smoke Alarm Ownership and Function, Evaluation, *15 (**1**),* 49-74.

Rosenstock, M.I., Strecher, J.V. & Becker, H.M. (1974). Historical Origins of the Health Belief Model, *Health education & behavior, 2 (**4**),* 328-335.

Rosenzweig, A. (2010). *The Mini-Mental State Exam and Its Uses as an Alzheimer's Screening Test.* Available on: http://alzheimers.about.com/od/testsandprocedures/a/The-Mini-Mental-State-Exam-And-Its-Use-As-An-Alzheimers-Screening-Test.htm [Accessed 28th May 2012].

Rosnow, R.L. & Rosenthal, R. (2005). *Beginning behavioural research: A conceptual Primer (5th Ed)*. London: Pearson Education Ltd.

RoSPA (2014). *Hip Protectors.* Available on: http://www.rospa.com/homesafety /adviceandinformation/olderpeople/hip-protectors.aspx [Accessed 12th November 2014].

Rousson, V., Gasser, T. & Seifert, B. (2002). Assessing intrarater, interrater and test-retest reliability of continuous measurements, *Statist. Med., 21,* 3431-3446.

Royal College of Nursing Research Society (2011). I*nformed consent in health and social care research-RCN guidance for nurses.* Available on: http://www.rcn.org.uk/__data/assets/pdf_file/0010/78607/002267.pdf [Accessed 23rd July 2014].

Royal College of Physicians (2013). *The medical registrar- Empowering the unsung heroes of patient care.* Available on: http://www.rcplondon.ac.uk/sites/default/files/future-medical-registrar_1.pdf [Accessed 5th September 2013].

Royal College of Physicians (2012a). *Hospitals on the edge? The time for action*, Available on: http://www.rcplondon.ac.uk/sites/default/files/documents /hospitals-on-the-edge-report.pdf [Accessed 20th March 2013].

Royal College of Physicians (2012b). *Clinical Effectiveness and Evaluation Unit.* Available on: http://www.rcplondon.ac.uk/clinical-effectiveness-and-evaluation-unit [Accessed 6th June 2012].

Royal College of Physicians (2012c). *Welcome page.* Available on: http://www.rcplondon.ac.uk/ [Accessed 27th May 2012].

Royal College of Physicians (2010). *Falling standards, broken promises: report of the National Audit of Falls and Bone Health in Older People 2010. Commissioned by the Healthcare Quality Improvement Partnership.* Available: http://www.rcplondon.ac.uk/sites/default/files/national_report.pdf. [Accessed on 10th June 2013].

Royal College of Physicians Clinical Effectiveness and Evaluation Unit (2009). *National Audit of the Organisation of service for falls and bone health for older people*. Available on: http://www.rcplondon.ac.uk/resources/national-audit-falls-and-bone-health-older-people [Accessed 4th January 2010].

Royal Pharmaceutical Society of Great Britain (2013). Available: http://www.rpharms.com/health-campaigns/medicines-use-review.asp [Accessed 1st September 2013].

Royal United Hospital Bath (2007). *Carotid Sinus Massage.* Available on: http://www.nhs.uk/Conditions/Supraventricular-tachycardia/ Documents /carotid_sinus_massage_leaflet[1].pdf [Accessed 27th August 2013].

Rubenstein, L.Z., Robbins, A.S., Josephson, K.R., Schulman, B.L. & Osterweil, D. (1990). The value of assessing falls in an elderly population: a randomized clinical trial. *Ann Intern Med, 113*, 308-316.

Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L., Ghurin, L.C. & Dharmage, S. C. (2009). Development of the falls risk for older people in the community (FROP-Com). screening tool. *Age & Ageing, 38***,** 40-46.

Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2008). The reliability and predictive accuracy of the falls risk for older people in the community assessment (FROP-Com) tool, *Age & Ageing, 37,* 634-639.

Russell, M. A., Hill, K. D., Blackberry, I., Day, L. L. & Dharmage, S. C. (2006). Falls risk and functional decline in older fallers discharged directly from Emergency Departments. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 61***,** 1090-1095.

Salter, A.E., Khan, K.M., Donaldson, M.G., Davis, J.C., Buchanan, J., Abu-Laban, R.B., Cook, W.L., Lord, S.R. & McKay, H.A. (2006). Community-dwelling seniors who present to the Emergency Department with a fall do not receive Guideline care and their fall risk profile worsens significantly: A 6-month prospective study. *Osteoporosis International, 17*, 672-683.

Sanders, A.B. (1992). Care of the elderly in emergency departments: conclusions and recommendations, *Ann Emerg Med, 21,* 830-840.

Scanloc (2013). *Doctors Grades and training within the NHS.* Available on: http://www.scanloc.com/doctor/d9.html [8th September 2013].

Schuling, J., de Haan, R., Limburg, M. & Groenier, M.S. (1993). The Frenchay Activities Index assessment of functional status in stroke patients. *Stroke, 24*, 1173–1177.

Scuffham, P., Chaplin, S. & Legood, R. (2003). Incidence and cost of unintentional falls in older people in the United Kingdom, *J Epidemiol Community Health, 57,* 740-744.

SecuriCare Medical Ltd (2013). *Definition of Continence and Incontinence.* Available on: http://www.securicaremedical.co.uk/Menu/Continence-Care/Definition-Of-Continence-And-Incontinence.aspx [Accessed 30th August 2013].

Sedgwick, P. (2010). Primary and secondary outcome measures, *BMJ, 340* Available on: http://www.bmj.com/content/340/bmj.c1938 [Accessed 3rd September 2013].

Shaw, F.E., Bond, J., Richardson, D.A., Dawson, P., Steen, I.N., McKeith, I.G. & Kenny, R.A. (2003). Multi-factorial intervention after a fall in older people with cognitive impairment and dementia presenting to the Accident and Emergency Department: Randomised controlled trial, *BMJ, 326; 73.*

Shekelle, P., Woolf, S., Eccles, M. & Grimshaw, J. (1999) Developing guidelines, *British Medical Journal*, *318*, 593-596.

Sheldon, T. A., Cullum, N., Dawson, D., Lankshear, A., Lowson, K., Watt, I., West, P., Wright, D. & Wright, J. (2004). What's the evidence that NICE guidance has been implemented? Results from a national evaluation using time series analysis, audit of patient's notes, and interviews. *British Medical Journal, 329*, 999.

Shuttleworth, M. (2009). *Research Bias.* Available on: http://www.experiment-resources.com/research-bias.html [Accessed 12th January, 2012].

Smith, J. & Firth, J. (2011). Qualitative data analysis: the framework approach, *Nurse Researcher, 18 (**2**).* Available on: http://rcnpublishing.com/doi/pdfplus /10.7748/nr2011.01.18.2.52.c8284 [Accessed 25th June 2014].

Snilstveit, B., Oliver, S. & Vojtkova, M. (2012). Narrative approaches to systematic review and synthesis of evidence for international development policy and practice, *Journal of Development Effectiveness, 4 (**3**),* 409-429.

Social Care and Social Work Improvement Scotland, and NHS Scotland (2011). *Managing falls and fractures in care homes for older people: Good practice self-assessment resource.* Available on: http://www.scswis.com/index.

php?option=com_docman&task=doc_download&gid=476&Itemid=378 [Accessed 27th July 2013].

Social Care Services (2008). *Care package.* Available on: http://socialcareservices.co.uk/care-package [Accessed 27th August 2013].

Srivastava, A. & Thomson, S.B. (2009). Framework Analysis: A Qualitative Methodology for Applied Policy Research, *JOAAG, 4 (**2**),* 72-29.

Stanford Encyclopaedia of Philosophy (2013). *Phenomenology.* Available on: http://plato.stanford.edu/entries/phenomenology/#1 [Accessed 28th August 2014].

St Helen's & Knowsley Hospitals NHS Trust (2013). *What is Intensive Care?* Available on: http://www.sthk.nhs.uk/pages/Departments.aspx?iPageId=5403 [Accessed 1st September 2013].

Sunnybrook Health Sciences Centre (2013). *Specialized Geriatric Services: Geriatric Outpatient Clinic.* Available on: http://sunnybrook.ca/content /?page=dept-sgs-outpatientclinic [Accessed 1st September, 2013].

Survey Methods (2013). *Baseline Measures.* Available on: http://www.surveymethods.com/glossary/Baseline_Measures.aspx P1 [Accessed 27th August 2013].

Swerissen, H. & Crisp, B.R. (2004). The sustainability of health promotion interventions for different levels of social organization, *Health Promot.Int., 19 (**1**),* 123-130.

Systemic Health Institute Inc. (1997). *Neurological Function.* Available on: http://www.systemichealth.com/whatis/neuro.html [Accessed 3rd September 2013].

Szumilas, M. (2010). Explaining Odds Ratios, *J Can Acad Child Adolescx Psychiatry, 19 (**3**),* 227-229.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using Multivariate Statistics (5th Ed).* Boston: Pearson Education Inc.

Taylor, C. (2013). *What Is a Percentile?* Available on: http://statistics.about.com /od/Descriptive-Statistics/a/What-Is-A-Percentile.htm [Accessed 3rd September 2013].

Texas Department of Insurance (2012). *Health Maintenance Organizations.* Available on: http://www.tdi.texas.gov/pubs/consumer/cb069.html P1 [Accessed 1st September 2013].

The Cochrane Collaboration (2014). *Cochrane Reviews.* Available on: http://www.cochrane.org/cochrane-reviews [Accessed 5th September 2014].

The College of Emergency Medicine (2014). *The College of Emergency Medicine.* Available on: http://www.collemergencymed.ac.uk/ [Accessed 28th August 2014].

The Franklin Institute (2013). *Blood Vessels, Arteries: Arteries Carry Away.* Available on: http://www.fi.edu/learn/heart/vessels/arteries.html [Accessed 1st September 2013].

The Health Foundation (2012). *Acute Care.* Available on: http://www.health.org.uk /areas-of-work/topics/acute-care/ P1 [Accessed 1st July 2012].

The Johns Hopkins University and Katherine Fritz (2008). *Case Study & Narrative Analysis.* Available on: http://ocw.jhsph.edu/courses/qualitative dataanalysis/PDFs/Session4.pdf [Accessed 28th August, 2014].

The University of Sheffield (2012). *What is Discourse Analysis?* Available on: https://sites.google.com/a/sheffield.ac.uk/all-about-linguistics/branches /discourse-analysis/what-is-discourse-analysis [Accessed 28th August 2014].

The W. Edwards Deming Institute (2014). *The System of Profound Knowledge.* Available on: https://www.deming.org/theman/theories/profoundknowledge [Accessed 24th July 2014].

Thomas, J., Harden, A. & Newman, M. (2012) Synthesis: combining results systematically and appropriately. In Gough, D., Oliver, S. & Thomas, J. (Eds). *An introduction to systematic reviews* (pp.179-227) London: Sage.

Thomas, J. & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews, *BMC medical research methodology, 8 (**45**),* 1-10.

Tinetti, M.E., Mendes de Leon, C.F., Doucette, J. T. & Baker, D.I. (1994). Fear of falling and fall-related efficacy in relationship to functioning among Community-living elders. *J Gerontol 49*.

Tinetti, M.E., Richman, D. & Powell, L. (1990). Falls efficacy as a measure of fear of falling, *J Gerontol, 45 (**6**),* 239-243.

Todd, C. & Skelton, D. (2004). *What are the main risk factors for falls among older people and what are the most effective interventions to prevent these falls? Copenhagen, WHO Regional Office for Europe (Health Evidence Network report*; Available on: http://www.euro.who.int/document/E82552.pdf [Accessed 19th August 2013].

Tremblay, K.R., & Barber, C.E. (2005). *Preventing Falls in the Elderly.* Available on: http://www.ext.colostate.edu/pubs/consumer/10242.pdf [Accessed 19th August 2013].

Trinkoff, A.M., Johantgen, M., Storr, C.L., Gurses, A.P., Liang, Y. & Han, K. (2011). Linking nursing work environment and patient outcomes, *Journal of Nursing Regulation, 2 (**1**),* 10-16.

Trochim, W.M.K. (2006). *Qualitative Approaches.* Available on: http://www.socialresearchmethods.net/kb/qualapp.php [Accessed 7th November 2014].

Tsai, Y. (2011). Relationship between organizational culture, leadership behaviour and job satisfaction, *BMC Health Services Research, 11,* 98.

Tynan, W. (2012). *Cognitive Deficits.* Available on: http://emedicine. medscape.com/article/917629-overview [Accessed on: 24th May 2012].

University Hospitals of Leicester (2013). *Our Clinical Areas: LRI Emergency Department.* Available on: http://www.leicestershospitals.nhs.uk /aboutus/ departments-services/emergency-department/our-clinical-areas/ [Accessed 1st September 2013].

University Hospital Southampton (2013). *Acute Medical Unit.* Available on: http://www.uhs.nhs.uk/OurServices/Emergencymedicine/Acutemedicalunit/Acutemedicalunit.aspx [Accessed 29th July 2013].

University Hospital Southampton NHS Foundation Trust (2013). *F1 and F2 doctors.* Available on: http://www.uhs.nhs.uk/Education/Informationforstaff /Doctors/F1AndF2Doctors/F1F2Doctors.aspx [Accessed 30th August 2013].

University of Greenwich (2011). *Databases: Health and Social care.* Available on: http://www.gre.ac.uk/offices/ils/ls/guides/subjects/health/databases [Accessed 29th August 2014].

University of IOWA Geriatric Education Centre (2012). *Geriatric Assessment Tools.* Available on: http://www.healthcare.uiowa.edu/igec/tools/ [Accessed 25th May 2012].

University of Strathclyde (2014a). *Research synthesis in systematic reviews.* Available on: http://www.strath.ac.uk/aer/materials/8systematicreview /unit2/synthesis/ [Accessed 1st July 2014].

University of Strathclyde (2014b). *Advantages and disadvantages of observation.* Available on: http://www.strath.ac.uk/aer/materials/3datacollection /unit5/advantagesanddisadvantagesofobservation/ [Accessed 30th July 2014].

UpToDate (2014). *Temporary cardiac pacing.* Available on: http://www.uptodate.com/contents/temporary-cardiac-pacing [Accessed 12th November 2014].

Vestibular Disorders Association (2013). *Understanding Vestibular Disorders.* Available on: http://vestibular.org/understanding-vestibular-disorder [Accessed 9th September 2013].

Van Boken, A, M., Kok, G. & van der Weijden, T. (2003). Designing a quality improvement intervention: a systematic approach, *Qual Saf Health Care, 12,* 215-220.

Vivanti, A. P., Mcdonald, C. K., Palmer, M. A. & Sinnott, M. (2009). Malnutrition associated with increased risk of frail mechanical falls among older people presenting to an Emergency Department. *EMA - Emergency Medicine Australasia, 21***,** 386-394.

Wang, S. & Wollin, J. (2004). *Falls among older people: identifying those at risk, Nursing older people, 15 (**10**),* 14-16.

Ware, J.E., & Jr Sherbourne, C.D. (1992). The MOS 36 Item Short Form Health Survey (SF 36). 1. Conceptual framework and item selection. *Medical Care*, *30*, 473-483.

Wass, A. & Zoltie, N. (1996). Changing patterns in accident and emergency attenders, *J Accid Emerg Med, 13,* 269-271.

WebFinance, Inc (2014). *Teamwork.* Available on: http://www.businessdictionary.com/definition/teamwork.html [Accessed 15th August 2014].

Web of Science (2009). *Search Operators.* Available on: http://images.webofknowledge.com/WOK45/help/WOS/ht_operators.html [Accessed 3rd June 2012].

Wenger, E. (1998) *Communities of practice: learning, meaning, and identity.* New York: Cambridge University Press.

Wensing, M., Huntink, E., van Lieshout, J., Godycki-Cwirko, M., Kowalczyk, A., Jäger, C., Steinhäuser, J., Aakhus, E., Flottorp, S., Eccles, M. & Baker, R. (2014). Tailored Implementation of Evidence-Based Practice for Patients with Chronic Diseases, *PLoS, 9 (**7**),* 1-8.

White Paper (2009). *Some suggestions for conducting commercial ethnography.* Available on: http://www.greenbook.org/Content/housecalls /ETHNOGRAPHYGUIDELINES.pdf [Accessed 15th July 2013].

Whitehead, C. H., Wunke, R. & Crotty, M. (2006). Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies? *Clinical Rehabilitation,20***,** 536-543.

Whitehead, C., Wundke, R., Crotty, M. & Finucane, P. (2003). Evidence-based clinical practice in falls prevention: a randomised controlled trial of a falls prevention service. *Aust Health Rev, 26 (**3**),* 88-97.

Wickström, G. & Bendix, T. (2000). The "Hawthorne effect"—what did the original Hawthorne studies actually show? *Scand J Work Environ Health, 26 (**4**),* 363-367.

Worcestershire County Council (2013). *Falls prevention,* Available on: http://www.worcestershire.gov.uk/cms/public-health/staying-healthy-and-campaigns/falls-prevention.aspx [Accessed 19th August 2013].

World Health Organisation (2014). *The Process of Obtaining Informed Consent.* Available on: http://www.who.int/rpc/research_ethics/ Process_seeking_IF_printing.pdf [Accessed 23rd July 2014].

World Health Organisation (2012). *Health topics: Mortality*. Available on: http://www.who.int/topics/mortality/en/ [Accessed 25th May 2012].
Yeung, P. Y., Woo J., Yim, V. W. T. & Rainer, T. H. (2009). Heterogeneity of health profiles of older people presenting to an Accident and Emergency Department with a fall. *International Journal of Gerontology, 3***,** 156-162.

Yoshida, S. (2007). *A Global Report On Falls Prevention: Epidemiology Of Falls* Available on: http://www.who.int/ageing/projects/1.Epidemiology%20of%20falls%20in%20older%20age.pdf [Accessed 10th June 2013].

Youde, J., Husk, J., Lowe, D., Grant, R., Potter, J. & Martin, F. (2009). The national clinical audit of falls and bone health: the clinical management of hip fracture patients. *Injury, 40***,** 1226-1230.