

## **A parent-completed respiratory questionnaire for one-year olds: repeatability**

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**Online Table 1** – Source of the questions of our questionnaire.

Sources	Questions
International Study of Asthma and Allergy in Childhood (ISAAC) [1, 2]	1, 2, 6, 9, 10, 18, 19, 20, 23, 24, 31
Earlier questionnaire used in Leicestershire [3], verbatim	7, 14, 28, 29, 37, 38
Earlier questionnaire used in Leicestershire [3], adapted	3, 4, 5, 11, 17, 27, 36, 39-48
Newly developed	8, 12, 13, 15, 16, 21, 22, 25, 26, 30, 32-35, 49, 50

**Online Table 2** - Agreement between answers to repeat questionnaires at 3-month intervals by parents of 413 one-year olds (binary data).

	++	+-	-+	--	P <sub>o</sub>	P <sub>pos</sub>	P <sub>neg</sub>	κ	(95CI)
<b>Wheeze</b>									
Wheeze ever*	95	21	25	272	88.9	80.5	92.2	0.73	(0.65-0.80)
Wheeze last 12 months*	83	27	22	281	88.1	77.2	92.0	0.69	(0.61-0.77)
Wheeze with cold	82	34	19	278	87.2	75.6	91.3	0.67	(0.59-0.75)
Wheeze without cold	25	9	10	369	95.4	72.5	97.5	0.70	(0.57-0.83)
Shortness of breath	39	18	21	335	90.6	66.7	94.5	0.61	(0.50-0.72)
Pattern of wheeze	8	8	6	391	96.6	53.3	98.2	0.52	(0.29-0.29)
Wheeze triggered by exercise	20	16	10	367	93.7	60.6	96.6	0.57	(0.43-0.72)
Wheeze triggered by laugh	17	14	15	367	93.0	54.0	96.2	0.50	(0.34-0.66)
Wheeze triggered by pets	4	1	2	406	99.3	72.7	99.6	0.72	(0.42-1.00)
Wheeze triggered by food	3	3	3	404	98.5	50.0	99.3	0.49	(0.14-0.84)
<b>Cough</b>									
Cough with cold	199	56	51	107	74.1	78.8	66.7	0.46	(0.37-0.54)
Cough without cold	92	38	46	237	79.7	68.7	84.9	0.54	(0.45-0.62)
Cough more than other children	21	14	13	365	93.5	60.9	96.4	0.57	(0.43-0.72)
Cough at night last 12 months*	43	43	38	289	80.4	51.5	87.7	0.39	(0.28-0.50)
Cough triggered by exercise	24	13	22	354	91.5	57.8	95.3	0.53	(0.40-0.67)
Cough triggered by laugh	46	33	32	302	84.3	58.6	90.3	0.49	(0.38-0.60)
Cough triggered by pets	2	2	1	408	99.3	57.1	99.6	0.57	(0.13-1.00)
Cough triggered by food	20	12	11	370	94.4	63.5	97.0	0.61	(0.46-0.75)
<b>Diagnoses</b>									
Diagnosis of asthma	31	8	11	363	95.4	76.5	97.4	0.74	(0.63-0.85)
Pneumonia	5	1	3	404	99.0	71.4	99.5	0.71	(0.44-0.98)
Whooping cough	5	4	4	400	98.1	55.6	99.0	0.55	(0.26-0.83)
Bronchiolitis	35	7	8	363	96.4	82.4	98.0	0.80	(0.71-0.90)
Croup	17	9	5	382	96.6	70.8	98.2	0.69	(0.54-0.84)
<b>Skin</b>									
Itchy rash ever*	47	24	33	309	86.2	62.3	91.6	0.54	(0.43-0.64)
Itchy rash last 12 months*	55	43	31	284	82.1	59.8	88.5	0.48	(0.38-0.58)
Eczema last 12 months*	120	28	33	232	85.2	79.7	88.4	0.68	(0.61-0.76)
<b>Ears, nose and throat</b>									
Chronic rhinitis*	66	58	39	250	76.5	57.6	83.8	0.42	(0.32-0.51)
Snoring	176	54	39	144	77.5	79.1	75.6	0.55	(0.47-0.63)
Chronic otitis	125	32	35	221	83.8	78.9	86.8	0.66	(0.58-0.73)
<b>Treatment and healthcare use</b>									
Referred to a consultant in hospital	10	9	3	391	97.1	62.5	98.5	0.61	(0.41-0.81)
Admitted to hospital	10	6	4	393	97.6	66.7	98.7	0.65	(0.45-0.85)
Attended the casualty department	6	3	5	399	98.1	60.0	99.0	0.59	(0.33-0.85)
Attended the GP in an emergency	26	19	14	354	92.0	61.2	95.5	0.57	(0.44-0.70)
Inhaled bronchodilators	43	8	15	347	94.4	78.9	96.8	0.76	(0.62-0.85)
Inhaled corticosteroids	19	1	8	385	97.8	80.9	98.8	0.80	(0.67-0.93)
Steroids tablets	9	2	5	397	98.3	72.0	99.1	0.71	(0.51-0.92)
<b>Family history</b>									
Paternal wheeze/asthma	69	12	6	326	95.6	88.5	97.3	0.86	(0.79-0.92)
Maternal wheeze/asthma	61	13	9	330	94.7	84.7	96.8	0.82	(0.74-0.89)
Paternal bronchitis	31	11	7	364	95.6	77.5	97.6	0.75	(0.64-0.86)
Maternal bronchitis	32	7	9	365	96.1	80.0	97.9	0.78	(0.67-0.88)
Paternal hayfever	89	11	12	301	94.4	88.6	96.3	0.85	(0.79-0.91)
Maternal hayfever	115	13	12	273	93.9	90.2	95.6	0.86	(0.80-0.91)
Paternal eczema	33	12	14	354	93.7	71.7	96.5	0.68	(0.57-0.80)
Maternal eczema	94	14	10	295	94.2	88.7	96.1	0.85	(0.79-0.91)
<b>Household and environment</b>									

Cooking with electricity	124	15	22	252	91.0	87.0	93.2	0.80	(0.74-0.86)
Cooking with gas	299	7	8	99	96.4	97.6	93.0	0.91	(0.86-0.95)
Central heating	388	2	8	15	97.6	98.7	75.0	0.74	(0.58-0.89)
Heating with coal	23	6	6	378	97.1	79.3	98.4	0.78	(0.66-0.90)
Heating with gas	28	15	12	358	93.5	67.5	96.4	0.64	(0.51-0.79)
Pets	169	7	7	230	96.6	96.0	97.0	0.93	(0.90-0.97)
Dog	85	3	1	324	99.0	97.7	99.4	0.97	(0.94-1.00)
Cat	87	1	6	319	98.3	96.1	98.9	0.95	(0.91-0.99)
Bird	15	2	2	394	99.0	88.2	99.5	0.88	(0.76-1.00)
Maternal smoking	79	5	6	323	97.3	93.5	98.3	0.92	(0.87-0.97)
Other smoking	79	5	16	313	94.9	88.3	96.8	0.85	(0.79-0.91)
Maternal smoking during pregnancy	61	2	4	346	98.5	95.3	99.1	0.95	(0.90-0.99)
Attended nursery	95	20	20	278	90.3	82.6	93.3	0.76	(0.69-0.83)
Breastfed	264	3	4	142	98.3	98.7	97.6	0.96	(0.94-0.99)

++ positive on baseline and repeat questionnaires, +- positive on baseline questionnaire only, -+ positive on repeat questionnaire only, -- negative on baseline and repeat questionnaires.

P<sub>O</sub> proportion of observed total agreement; P<sub>pos</sub> proportion of observed positive agreement; P<sub>neg</sub> proportion of observed negative agreement; κ kappa; 95CI 95% confidence interval of kappa.

Level of agreement indicated by kappa: ≤0.4 poor, 0.41-0.60 moderate, 0.61-0.80 good, >0.8 excellent.

\* Questions from ISAAC core questionnaire modules [1]

**Online Table 3** - Agreement between answers to repeat questionnaires at 3-month intervals by parents of 413 one-year olds (ordinal and quantitative data).

	n	P	ICC	(95CI)
<b>Wheeze</b>				
Frequency of attacks*	337	81.6	0.68	(0.63-0.73)
Sleep disturbed by wheeze*	357	86.4	0.57	(0.51-0.64)
Activities disturbed by wheeze*	367	88.9	0.61	(0.55-0.67)
<b>Other diagnoses</b>				
Rattles	285	69.0	0.57	(0.51-0.64)
Possetting	312	75.5	0.68	(0.62-0.73)
<b>Ears, nose and throat</b>				
Frequency of colds	281	68.0	0.64	(0.58-0.69)
Duration of cold	286	69.2	0.58	(0.52-0.65)
Activities disturbed by chronic rhinitis*	304	73.6	0.45	(0.37-0.52)
Frequency of snoring	269	65.1	0.66	(0.60-0.71)
Sleep disturbed by snoring	340	82.3	0.50	(0.43-0.58)
<b>Healthcare use</b>				
Frequency of GP visits	245	59.3	0.74	(0.69-0.78)
<b>Family history</b>				
No of siblings with wheeze/asthma	392	94.9	0.90	(0.88-0.92)
No of siblings with hayfever	386	93.5	0.72	(0.68-0.77)
No of siblings with eczema	383	92.7	0.73	(0.69-0.78)
<b>Environment</b>				
Maternal cigarettes/day	387	93.7	0.90	(0.89-0.92)
Other household cigarettes/day	377	91.3	0.86	(0.84-0.88)
Duration of breastfeeding	361	87.4	0.95	(0.94-0.96)

P proportion of perfect agreement; ICC intraclass coefficient correlation: 95CI 95% confidence interval of ICC.

\* Questions from ISAAC core questionnaire modules [1]

Agreement represented by ICC:  $\leq 0.4$  poor, 0.41-0.60 moderate, 0.61-0.80 good,  $> 0.8$  excellent

## REFERENCES

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