

Predictors of cough and wheeze at school-age: 3rd survey of the Leicestershire cohort

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Aims to determine:

- 1) the prognosis of pre-school wheeze
- 2) the prognosis of pre-school chronic cough: is chronic cough without wheeze a precursor of later wheeze ("cough variant asthma")?
- 3) The pre-school risk factors for symptoms at school age

Background

- there are few population-based studies of the long-term prognosis of pre-school wheeze and cough
- most cohorts were first recruited at school age
- it has been suggested that chronic cough in childhood may represent a variant of asthma

Methods

- In 1990, a standardised questionnaire was sent to a population-based, age-stratified, random sample of 1650 children living in Leicestershire, UK¹. The children were aged 0-5 years (350 per age group).
- The parent-completed questionnaire comprised questions on respiratory symptoms, family history and environmental exposures.
- A stratified random sample of 488 children (aged 4-8) was followed up 1992-94².
- 1998, a third questionnaire survey was performed including all 1650 children now aged 8-13.

¹ BMJ 1993; 306: 1386-90
² Am J Respir Crit Care Med 1995; 152: 1872-8

Results ⇒ 1. ⇒ 2. 2. Natural history of wheeze

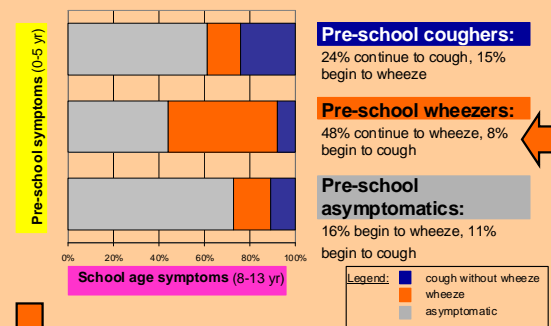
1. Response rates

Survey	Age (yr)	N	Response rate
1) 1990	0 to 5	1422	86%
2) 1992-94	4 to 8	488 ^a	61%
3) 1998	8 to 13	1187	89% of those with valid address (1330)

^a the 2nd survey addressed only a stratified sample of the cohort

3. Are coughers turning to wheezers?

Prognosis of pre-school symptoms



4. Multivariate predictors of wheeze and cough

Pre-school risk factors for later wheeze

	OR ¹	p
Wheeze: 1-5 attacks/year	3.2	<0.0001
6-20 attacks/year	7.3	
Eczema	2.0	<0.0001
Parental atopy	1.3	0.016
Cough with colds	1.1	0.011
Cough without colds	0.86	0.5

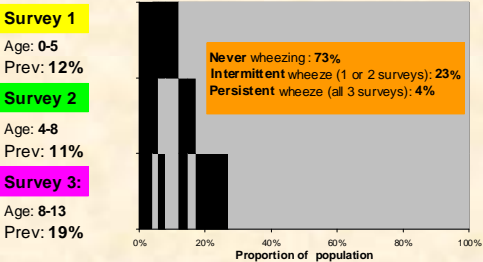
¹ OR: Odds ratios from multiple logistic regression model, adjusted for all the above factors and for age

Pre-school risk factors for later cough¹

	OR ²	p
Pre-school cough apart from colds	2.4	0.0002
Lower social class	2.2	0.0006
Pre-school Wheeze	0.6	0.09

¹ e.g. cough without wheeze

² OR: Odds ratios from multiple logistic regression model, adjusted for all the above factors and for age



Legend:
This figure shows the natural history of wheeze in the children who took part in all 3 surveys.

black: Children with current wheeze (last 12 months) at the time of the survey
gray: Children without current wheeze

The fate of each child can be followed vertically

Conclusion

- About half of pre-school wheezers continue to wheeze as schoolchildren.
- Those children with chronic cough (without wheeze) at pre-school age are no more likely to wheeze later, than are their asymptomatic peers.
- Those children with wheeze at pre-school age are no more likely to report chronic cough (without wheeze) later, than are their asymptomatic peers.
- Pre-school risk factors for later wheeze are different from risk factors for later chronic cough.
- Pre-school wheeze and pre-school chronic cough (without wheeze) seem to be totally independent clinical entities.