

Infant asthma and later lung function

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Questions



1. How common is early asthma/wheeze?
2. Do children with early a/w grow out of their symptoms?
3. Is early asthma associated with lung function impairments?
4. If so, are lung function impairments progressive or static?

A few asthma birth cohorts



		Subjects	Transient	Persistent
ALSPAC ¹	UK	14541	19%	7%
PIAMA ²	Netherlands	4146	20%	4%
MAS ³	Germany	1314	25%	5%
MAAS ⁴	UK	1184	14%	16%
TUCSON ⁵	USA	1246	20%	14%

1) Henderson et al. Thorax 2009. 2) Savenije et al. JACI 2011. 3) Lau et al. ERJ 2003. 5) Belgrave et al. JACI 2013. 6) Morgan et al. AJRCCM 2005.

BAMSE data collection

1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2007 2012

Exposure questionnaire
 and dust 4,089 - 100%

1 year questionnaire
 3,925 - 96%

2 year questionnaire
 3,843 - 94%

4 year follow up

Questionnaire	3720	91 %
Dust	3610	97 %
PEF	2966	80 %
Blood	2614	66 %

8 year follow up

Questionnaire	3431	84 %
Spirometry	2613	64 %
Blood	2461	60%

12 year questionnaire
 2900 – 71%

16 year follow up

Questionnaire	3200	78%
Spirometry	2400	59%
Blood	2500	61%

BAMSE asthma/wheeze



Wheeze:

one or more episodes of wheeze in the last 12 months

Asthma 0-4 yrs:

- >3 episodes of wheezing in the last 12 months + either with inhaled steroids or signs of hyper-reactivity

Asthma later on:

- >3 episodes of wheezing in the last 12 months or 1 episode + inhaled steroids

How common is early wheeze?



BAMSE 0-4 years

- At least 1 episode of wheeze in **32%**
- Asthma in **12%** of all children

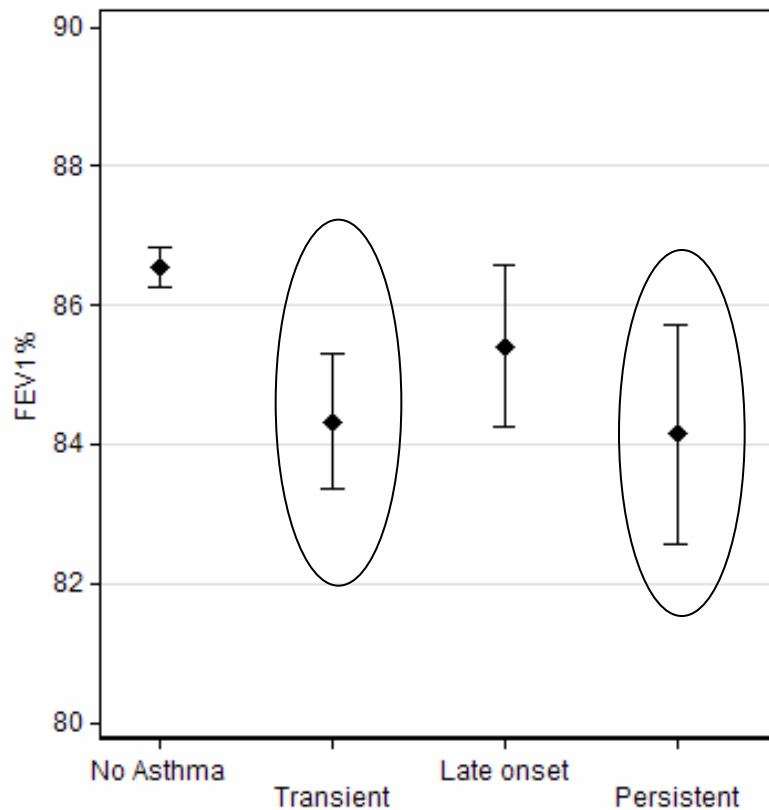
Grow out of symptoms?



Of those with asthma/wheeze 0-4 yrs

- **1/5** of early wheezers had wheeze at 8 yrs
- **1/3** with early asthma had asthma at 8 yrs

Lung function at 8 yrs



Lung function at 16 yrs



	FEV ₁ (ml)			FEV ₁ /FVC		
	Diff.	(95% CI)	P-value	Diff.	(95% CI)	P-value
Never asthma (82%)	3961	3939;3982	-	85.7	85.4;86.0	-
Early transient (6%)	-119	-204;-34	0.006	-2.4	-3.7;-1.2	<0.001
Early persistent (3%)	-410	-533;-287	<0.001	-5.7	-7.4;-3.9	<0.001

Change from 8 to 16 yrs



	FEV1 (ml)		
	Diff.	(95% CI)	P-value
Never asthma	ref		
Early transient	-44	-126;39	0.303
Early persistent	-262	-377;-147	<0.001

Questions and answers



1. How common is early asthma/wheeze? **12-32%**
2. Do early a/w grow out of their symptoms? **1/3-1/5 go on**
3. Is early asthma associated with lung function impairments? **Yes**
4. If so, are lung function impairments progressive or static? **Persistent asthma - decline**

Summary



- Preschool wheeze/asthma is common
- Most children outgrow their symptoms
- Early onset transient asthma
 - low lung function remains
- Early onset persistent asthma
 - ongoing impairments of lung function
 - group at risk

ORIGINAL ARTICLE

The association between childhood asthma and adult chronic obstructive pulmonary disease

Andrew Tai,¹ Haily Tran,² Mary Roberts,³ Nadeene Clarke,² John Wilson,⁴ Colin F Robertson^{2,5}

ABSTRACT

Introduction There is epidemiological evidence to suggest that events in childhood influence lung growth and constitute a significant risk for adult COPD. The aim of the study is to evaluate for an association between childhood asthma and adult COPD.

Methods This longitudinal, prospective study of 6–7-year-old children with asthma has been regularly reviewed every 7 years to the current analysis at 50 years of age. Participants completed respiratory questionnaires and lung function spirometry with postbronchodilator

Key messages

What is the key question?

- ▶ Do children with asthma develop COPD in adult life?

What is the bottom line?

- ▶ Children with severe asthma are at increased risk of developing adult COPD whereas children

Tai A, et al. *Thorax* 2014;69:805–810.