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# LONG-TERM FOLLOW UP OF INFANTS AT A HIGH RISK OF ASTHMA FROM A DEPRIVED COMMUNITY IN SOUTH WALES

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January 2015

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## APPENDICES

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Thesis submitted to Cardiff University for the Degree of Doctor of  
Medicine Dr Sadiyah Hand

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## Appendix 1

Registrar General's Social Class based on occupation

Class Description Examples of occupations:

Non-manual

- I** Professional Doctors, chartered accountants, professionally qualified engineers
- II** Managerial & Managers, journalists, school teachers technical/intermediate
- IIIN** Skilled non-manual Clerks, cashiers, retail staff

Manual

- IIIM** Skilled manual Supervisors of manual workers, plumbers, electricians, goods vehicle drivers
- IV** Partly skilled Warehousemen, security guards, machine tool operators, care assistants, waiters and waitresses
- V** Unskilled Labourers, cleaners and messengers

Adapted from

[http://www.statistics.gov.uk/downloads/theme\\_population/Life\\_Expect\\_Social\\_class\\_1972-05/life\\_expect\\_social\\_class.pdf](http://www.statistics.gov.uk/downloads/theme_population/Life_Expect_Social_class_1972-05/life_expect_social_class.pdf)

Last checked 21st February 2010

## Appendix 2a

## FORM 2 : BASELINE INFORMATION

PRINCE CHARLES HOSPITAL, MERTHYR TYDFIL

## ALLERGY PREVENTION STUDY

Name \_\_\_\_\_ Hospital \_\_\_\_\_ Hosp.No. \_\_\_\_\_

Address \_\_\_\_\_

G.P. \_\_\_\_\_ M.W. \_\_\_\_\_ H.V. \_\_\_\_\_

COLS. 1-2 : serial no. starting 001  
4 : Mother's Address ?

1-7	Reference number
0	singleton; 1-1st of twins; 2-2nd of twins, etc.
1	Group: Soga = 1, Control = 2. <i>Notes transcription</i>
2	Card number = 1

## INITIAL INTERVIEW

8-19	Date of birth
	Date when first seen

20-26	EDD
1	EDD definite;
2	EDD uncertain.

## FEEDING INTENTION

27	1. Breast
	2. Bottle
	3. Undecided

## HISTORY OF ALLERGY

28-30	Self.	Hb.	Ch.	
0	0	0	0	None
1	1	1	1	Asthma only
2	2	2	2	Eczema only
3	3	3	3	Hay fever only
4	4	4	4	Asthma & eczema
5	5	5	5	Eczema & hay fever
6	6	6	6	Hay fever & asthma
7	7	7	7	Asthma, eczema & hay fever

## MARITAL STATUS

31	1. Single
	2. Married
	3. Widowed/Divorced

32-33

How many children has she had?

34

## OCCUPATION

Husband's occupation;  
own occupation

## SMOKING HABITS

35

Does mother smoke cigarettes?

0

No

if YES

How many cigarettes per day?

1

&lt;5

2

5-14

3

15-24

4

25+

Did she stop smoking during pregnancy?

36

0

Non-smoker

1

Yes

2

No

37-38

If YES - gestation when she stopped

## Type of Delivery

39

0

S.V.D.

1

Breech

2

Forceps

3

L.S.C.S.

## Complications

40

0

No

1

Yes

Specify \_\_\_\_\_

Form 2 cont

BIRTH, PERINATAL PERIOD AND DISCHARGE

Baby's name \_\_\_\_\_

Hospital no. \_\_\_\_\_

COLS.

41-50


Date of birth

Birth weight

(kg x 100)

SEX

51

1

Male

☐

2

Female

CLINICAL EXAMINATION

52

0

Normal

☐

1

Abnormal - specify

PERINATAL PERIOD

53

0

Normal

☐

1

Abnormal - specify

54-59

--	--	--

Date of discharge

FEEDING ROUTINES

60

Routine followed in hospital

☐

0

Breast only

1

Breast &amp; soya supplement

2

Breast &amp; CM supplement

3

Bottle - Soya

4

Bottle - CM

Specify CM \_\_\_\_\_

Routine followed on discharge:

61

☐

0

Breast only

1

Breast &amp; Soya supplement

2

Breast &amp; CM supplement

3

Bottle - Soya

4

Bottle - CM

Specify CM \_\_\_\_\_

EXCLUSION FROM STUDY

62

☐

0

Not excluded

1

Stillbirth or miscarriage

2

Baby unsuitable\*

3

Mother unsuitable\*

4

Early neonatal death

5

Non-cooperation

6

Other reason\*

\* Specify \_\_\_\_\_

## Appendix 2c

## ALLERGY PREVENTION STUDY : SUMMARY OF FEEDING AND ILLNESS

Baby's Name \_\_\_\_\_ Serial no. 

--	--	--	--	--

 1-5  
 Card 

2
---

 6  
 Information checked with dietitian's card = 1; diary = 2, both = 3; 

7
---

 7  
 neither = 4.

## Milk feeding

Week	Milk (brand)	column	Week	Milk (brand)	column
1			8	14	21
2			9	15	22
3			10	16	23
4			11	17	24
5			12	18	25
6			13	19	26
7			14	20	27
8			15	21	28
9			16	22	29
10			17	23	30
11			18	24	31
12			19	25	32
13			20	26	33

Coding : Breast only = 0; Soya only = 1; Cow's milk only = 2;  
 Br. + soya = 3; Br. + CM = 4; Soya + CM = 5;  
 SMA liq. conc. only = 6; Br. + SMA Lc = 7; Other = 8; NK = 9.  
 Other combinations - code preferentially for (a) CM; (b) SMA l.c.; (c) soya; (d) other.

First given - CM protein (any source exc. SMA LC) 

34	35
----	----

 Cereals 

36	37
----	----

  
 eggs 

38	39
----	----

 beef 

40	41
----	----

 other meat 

42	43
----	----

 fish 

44	45
----	----

  
 fruit/fruit juice 

46	47
----	----

 (code week; not as yet = 99)  
 First immunised for pertussis 

48	49
----	----

 diph. 

50	51
----	----

 tet. 

52	53
----	----

 polio 

54	55
----	----

  
 First suffered from cold 

56	57
----	----

 cough 

58	59
----	----

 wheeze 

60	61
----	----

  
 incl. snuffles & cough under % stated and thrush 

62	63
----	----

 vomiting 

64	65
----	----

 diarrhoea 

66	67
----	----

Treatment by a doctor for :

respiratory condition (incl. cold, sore throat, otitis, cough)

gastrointestinal condition

other condition (viz. *includes myxoma/typical or epithelioma and l.c. base*)

..coding none 0 Vanthibichi = 1 - other treatment = 2

	68
	69
	70

## Appendix 3a

Form 6A

ALLERGY PREVENTION STUDY : EXAMINATION AT THREE MONTHS

Baby's name \_\_\_\_\_

Serial No. \_\_\_\_\_

1-12

Card \_\_\_\_\_

3

Date : \_\_\_\_\_

Age \_\_\_\_\_

13-20

Weight (Kg x 100) \_\_\_\_\_

Length (cm) \_\_\_\_\_

Head circumference (cm) \_\_\_\_\_

Fontanelle: normal = 0 21  
 abnormal = 1 ☐

specify \_\_\_\_\_

Ears: no infection = 0 22  
 infection = 1 ☐

Throat: no infection = 0 23  
 infection = 1 ☐

Nose: no infection = 0 24  
 infection = 1 ☐

Cervical glands: normal = 0 25  
 enlarged = 1 ☐

Chest: normal = 0 26  
 wheeze = 1 ☐  
 other = 2

specify \_\_\_\_\_

Abdomen: normal = 0 27  
 abnormal = 1 ☐

specify \_\_\_\_\_

Rash: absent = 0 28  
 present = 1 ☐

Other abnormality: absent = 0 29  
 present = 1 ☐

specify \_\_\_\_\_

Details of rash

Code as follows :

Normal skin = 0  
 History of eczema = 1  
 Inactive eczema = 2  
 Mild active eczema = 3  
 Moderate active eczema = 4  
 Severe active eczema = 5  
 Non-eczematous rash = 8  
 (specify)

Face (excl. perioral)	<input type="checkbox"/>	30
Ante cubital fossa	<input type="checkbox"/>	31
Wrist	<input type="checkbox"/>	32
Popliteal fossa	<input type="checkbox"/>	33
Ankle	<input type="checkbox"/>	34
Hand	<input type="checkbox"/>	35
Arm	<input type="checkbox"/>	36
Leg	<input type="checkbox"/>	37
Trunk - front	<input type="checkbox"/>	38
Trunk - back	<input type="checkbox"/>	39
Scalp	<input type="checkbox"/>	40
Perioral	<input type="checkbox"/>	41
Post aurial	<input type="checkbox"/>	42
Axilla	<input type="checkbox"/>	43
Neck	<input type="checkbox"/>	44
Napkin area	<input type="checkbox"/>	45

Treatment none = 0  
 for eczema past = 1 ☐ 46  
 present = 2

## Appendix 3 b

FORM 6A

During the last 3 months, has the baby had the following ?

- |            |  |                             |
|------------|--|-----------------------------|
| Cold       | : no = 0; yes = 1.<br>nasal symptoms $\geq$ 2 weeks = 2. | <input type="checkbox"/> 47 |
| Cough      | : no = 0; yes = 1.                                       | <input type="checkbox"/> 48 |
| Wheeze     | : no = 0; yes = 1.                                       | <input type="checkbox"/> 49 |
| Thrush     | : no = 0; Yes = 1.                                       | <input type="checkbox"/> 50 |
| Vomiting   | : no = 0; yes < 2 weeks = 1;<br>yes $\geq$ 2 weeks = 2.  | <input type="checkbox"/> 51 |
| Diarrhoea  | : no = 0; yes < 2 weeks = 1;<br>yes $\geq$ 2 weeks = 2.  | <input type="checkbox"/> 52 |
| Nappy rash | : no = 0; yes = 1.                                       | <input type="checkbox"/> 53 |
| Other rash | : no = 0; yes = 1.                                       | <input type="checkbox"/> 54 |

Do you ever see damp patches on the walls of any room?

no = 0; yes = 1. ☐ 55

Do you ever see patches of mould on the walls of any room?

no = 0; yes = 1. ☐ 56

# Appendix 4a

## ALLERGY PREVENTION STUDY : EXAMINATION AT SIX MONTHS

Baby's name _____		Serial No. <table border="1" style="display: inline-table; width: 100px; height: 20px; vertical-align: middle;"></table>	1-12	
Age _____		Card <table border="1" style="display: inline-table; width: 100px; height: 20px; vertical-align: middle;"></table>		
		Date : <table border="1" style="display: inline-table; width: 100px; height: 20px; vertical-align: middle;"></table>		

  

<table border="0" style="width: 100%;"> <tr> <td style="width: 40%;"></td> <td style="width: 10%; text-align: center;">13-20</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Weight (Kg x 100)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Length (cm)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Head circumference (cm)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Fontanelle: normal</td> <td>= 0</td> <td></td> <td>21</td> <td></td> <td></td> </tr> <tr> <td>                  abnormal</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">specify _____</td> </tr> <tr> <td>Ears: no infection</td> <td>= 0</td> <td></td> <td>22</td> <td></td> <td></td> </tr> <tr> <td>          infection</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Throat: no infection</td> <td>= 0</td> <td></td> <td>23</td> <td></td> <td></td> </tr> <tr> <td>          infection</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Nose: no infection</td> <td>= 0</td> <td></td> <td>24</td> <td></td> <td></td> </tr> <tr> <td>          infection</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cervical glands: normal</td> <td>= 0</td> <td></td> <td>25</td> <td></td> <td></td> </tr> <tr> <td>                  enlarged</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Chest: normal</td> <td>= 0</td> <td></td> <td>26</td> <td></td> <td></td> </tr> <tr> <td>          wheeze</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>          other</td> <td>= 2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">specify _____</td> </tr> <tr> <td>Abdomen: normal</td> <td>= 0</td> <td></td> <td>27</td> <td></td> <td></td> </tr> <tr> <td>          abnormal</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">specify _____</td> </tr> <tr> <td>Rash: absent</td> <td>= 0</td> <td></td> <td>28</td> <td></td> <td></td> </tr> <tr> <td>          present</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other abnormality: absent</td> <td>= 0</td> <td></td> <td>29</td> <td></td> <td></td> </tr> <tr> <td>                  present</td> <td>= 1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">specify _____</td> </tr> </table>		13-20					Weight (Kg x 100)						Length (cm)						Head circumference (cm)						Fontanelle: normal	= 0		21			abnormal	= 1					specify _____						Ears: no infection	= 0		22			infection	= 1					Throat: no infection	= 0		23			infection	= 1					Nose: no infection	= 0		24			infection	= 1					Cervical glands: normal	= 0		25			enlarged	= 1					Chest: normal	= 0		26			wheeze	= 1					other	= 2					specify _____						Abdomen: normal	= 0		27			abnormal	= 1					specify _____						Rash: absent	= 0		28			present	= 1					Other abnormality: absent	= 0		29			present	= 1					specify _____						<p><u>Details of rash</u></p> <p>Code as follows :</p> <table border="0" style="width: 100%;"> <tr><td>Normal skin</td><td>= 0</td></tr> <tr><td>History of eczema</td><td>= 1</td></tr> <tr><td>Inactive eczema</td><td>= 2</td></tr> <tr><td>Mild active eczema</td><td>= 3</td></tr> <tr><td>Moderate active eczema</td><td>= 4</td></tr> <tr><td>Severe active eczema</td><td>= 5</td></tr> <tr><td>Non-eczematous rash</td><td>= 8</td></tr> </table> <p>(specify)</p> <table border="0" style="width: 100%;"> <tr><td>Face (excl. perioral)</td><td style="border: 1px solid black; 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present	= 2																																																																																																																																																																																																																									

# Appendix 4b

FORM 6B

During the last 3 months, has the baby had the following ?

- Cold : no = 0, yes = 1.  
nasal symptoms  $\geq$  2 weeks = 2. ☐ 47
- Cough : no = 0, yes = 1. ☐ 48
- Wheeze : no = 0; yes = 1. ☐ 49
- Thrush : no = 0, yes = 1. ☐ 50
- Vomiting : no = 0; yes < 2 weeks = 1;  
yes  $\geq$  2 weeks = 2. ☐ 51
- Diarrhoea : no = 0; yes < 2 weeks = 1;  
Yes  $\geq$  2 weeks = 2. ☐ 52
- Nappy rash : no = 0; yes = 1. ☐ 53
- Other rash : no = 0; yes = 1. ☐ 54

During the last 6 months, has the baby been treated by a doctor?

no = 0; yes = 1.

☐ 55

If so, what was the matter? \_\_\_\_\_

Results of skin tests (code weal size; 8mm+ = 8; not done = 9)

56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
ok	hives	tye control	needs	sketch	milk	Dipter.	flour	Dry	rit	neg. control	Egg	Tree pollen	Soya		
	fat	fish	milk	fish	Asperg.	Graus pollen									

## Appendix 5a

FORM 6C

## ALLERGY PREVENTION STUDY : EXAMINATION AT TWELVE MONTHS

1-12

Baby's name \_\_\_\_\_

Serial No. \_\_\_\_\_

Age \_\_\_\_\_

Card \_\_\_\_\_

Date : \_\_\_\_\_

1	2	3	4	5	6
				5	

			13-20
Weight (Kg x 100)			
length (cm)			
Head circumference (cm)			
Fontanelle: normal	= 0	21	
abnormal	= 1		
specify _____			
Ears: no infection	= 0	22	
infection	= 1		
Throat: no infection	= 0	23	
infection	= 1		
Nose: no infection	= 0	24	
infection	= 1		
Cervical glands: normal	= 0	25	
enlarged	= 1		
Chest: normal	= 0	26	
wheeze	= 1		
other	= 2		
specify _____			
Abdomen: normal	= 0	27	
abnormal	= 1		
specify _____			
Rash: absent	= 0	28	
present	= 1		
Other abnormality absent	= 0	29	
present	= 1		
specify _____			

## Details of rash

Code as follows :

Normal skin = 0  
 History of eczema = 1  
 Inactive eczema = 2  
 Mild active eczema = 3  
 Moderate active eczema = 4  
 Severe active eczema = 5  
 Non-eczematous rash = 8  
 (specify) ?

Face (exc. perioral)		30
Ante cubital fossa		31
Wrist		32
Popliteal fossa		33
Ankle		34
Hand		35
Arm		36
Leg		37
Trunk - front		38
Trunk - back		39
Scalp		40
Perioral		41
Post aural		42
Axilla		43
Neck		44
Napkin area		45
Treatment none	= 0	
for eczema past	= 1	46
present	= 2	

## Appendix 5b

During the last 6 months, has the baby had the following?

- Cold : no = 0; yes = 1;  
nasal symptoms  $\geq$  2 weeks = 2. ☐ 47
- Cough : no = 0; yes = 1. ☐ 48
- Wheeze : no = 0; yes = 1. ☐ 49
- Thrush : no = 0; yes = 1. ☐ 50
- Vomiting : no = 0; yes < 2 weeks = 1;  
yes  $\geq$  2 weeks = 2. ☐ 51
- Diarrhoea : no = 0; yes < 2 weeks = 1;  
yes  $\geq$  2 weeks = 2. ☐ 52
- Nappy rash : no = 0; yes = 1. ☐ 53
- Other rash : No = 0; yes = 1. ☐ 54
- treatment by a doctor : no = 0; yes = 1.  
If so, what was the matter? ☐ 55

Has the baby been admitted to hospital at any time?

no = 0; yes = 1. ☐ 56

If so, what was the matter? \_\_\_\_\_

Have you had any pets in the house since you had the baby?

no = 0; yes = 1. ☐ 57

cat ☐ 58

dog ☐ 59

other mammal ☐ 60

*bird only* other ☐ 60

*ignore fish*

Does anyone living in the house smoke cigarettes?

no = 0; mother = 1; other person, not mother = 2. ☐ 61

Have you had an open coal fire in the house since you had the baby?

no = 0; yes = 1. ☐ 62

Number of persons now living in house. 9+ = 9; NK = 0. ☐ 63

Number of rooms (incl. kitchen only if used for eating meals) ☐ 64

Skin tests : 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## Appendix 6

Questionnaire completed from 2<sup>nd</sup>-6<sup>th</sup> birthdays.

### CONFIDENTIAL

Name \_\_\_\_\_ Ref. No. \_\_\_\_\_

PLEASE PUT A RING ROUND THE CORRECT ANSWER LIKE THIS

YES ☒ NO

1. Have you consulted a doctor about him/her during the last 12 months?

YES NO

If so, what was the matter \_\_\_\_\_

2. Have you heard a wheeze coming from his/her chest during the last 12 months?

YES NO

(wheeze means a whistling sound whether high or low-pitched, and however faint)

3. Has he/she been treated for eczema by a doctor during the last 12 months?

YES NO

If your address has changed, please give your new address:—

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*This questionnaire was completed annually on about each child's  
2<sup>nd</sup> - 6<sup>th</sup> birthdays.*

Appendix 7- Age 7

ALLERGY PREVENTION STUDY

Name ..... Address .....

Date of birth .....

PLEASE PUT A RING AROUND THE RIGHT ANSWER LIKE THIS -

(YES) or (NO)

Has your child ever suffered from any of the following? (Put a ring around the name of any disease(s) he/she has had).

BRONCHITIS    ASTHMA    HAY FEVER/ALLERGIC RHINITIS

ECZEMA    PNEUMONIA/PLEURISY    HEART TROUBLE

Have you consulted a doctor about him/her during the last 12 months?

YES    NO    As. = 1, Other resp. = 2, Other = 3

If so, what was the matter? .....

Have you heard a wheeze coming from his/her chest during the last 12 months?

YES    NO

(wheeze means a whistling sound, whether high or low-pitched, and however faint).

If YES,

Does it ever disturb his/her sleep? YES NO

Do any of the following bring on the wheeze?

RUNNING    WORRY    EXCITEMENT    COLDS

ANIMALS e.g. ....

FOODS/DRINKS e.g. ....

Any other factor .....

Do colds usually go on to his/her chest? YES NO

Has he/she been treated for eczema by a doctor during the last 12 months?

YES    NO

1 

6				7

M = 1  
F = 2    7 

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8 


  
11 


14 

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15 

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16 

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17 

21				

23 

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24 

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## Appendix 7b

2.

Please record any treatment he/she has taken during the last 48 hours

.....  
Bronchodilator Inh.=1, Oral=2, Both=3

DSCG

Steroid Inh.=1, Oral=2, Both=3

What pets, if any, do you have?

CAT DOG OTHER MAMMAL

BIRD OTHER

Do you ever see damp patches on the walls of any room? YES NO

Do you ever see patches of mould on the walls of any room? YES NO

How many people living in the house smoke cigarettes?

No. persons now living in house? 9+ = 9: NK = 0

No. rooms (incl. kitchen if used for eating meals)?  
9+ = 9 NK = 0

Do you use gas for cooking?

Is the house centrally heated?  
No = 0; Radiators = 1; Ducts = 2

Other forms of heating: Open coal fires

Closed solid fuel stove

Gas fire

Electricity

Other

Occupation of main wage earner .....

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# Appendix 7c

## ALLERGY PREVENTION STUDY: EXAMINATION AT SEVEN YEARS

		Serial no.	1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		Card				6	8	
Name.....		Date of birth	7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Address.....		Today's date	13	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
.....								

  

Rash:	Face (exc. perioral)	19	<input type="text"/>	Normal skin	= 0
	Antecubital fossa	20	<input type="text"/>	History of eczema (past year)	= 1
	Wrist	21	<input type="text"/>	Inactive eczema	= 2
	Popliteal fossa	22	<input type="text"/>	Mild active eczema	= 3
	Ankle	23	<input type="text"/>	Moderate active eczema	= 4
	Hand	24	<input type="text"/>	Severe active eczema	= 5
	Arm	25	<input type="text"/>	Rash, not eczema	= 6
	Leg	26	<input type="text"/>		
	Trunk-front	27	<input type="text"/>		
	Trunk-back	28	<input type="text"/>		
	Scalp	29	<input type="text"/>		
	Perioral	30	<input type="text"/>		
	Postaural	31	<input type="text"/>		
	Axilla	32	<input type="text"/>		
	Neck	33	<input type="text"/>		

  

Inflammation: Conjunct.	34	<input type="text"/>	Norm=0; Mild inj.=1; Infl.=2
Throat	35	<input type="text"/>	Norm=0; Infl.=1
Ears	36	<input type="text"/>	Norm=0; SOM=1; Infl.=2
Nose/Cerv.gl.	37	<input type="text"/>	Norm=0; Infl./Enlarged=1

# Appendix 7d

- 2 -

Chest:	Lungs	39	<input type="checkbox"/>	Normal = 0; Wheeze = 1; Other = 2 (specify)			
	Heart	40	<input type="checkbox"/>	Normal = 0; Abnormal = 1 (specify)			
Clinical asthma		41	<input type="checkbox"/>	Not = 0 Past/mild = 1 Moderate = 2 Severe = 3			
Allergic rhinitis		42	<input type="checkbox"/>	Not = 0 Seasonal = 1 Perennial = 2			
Skin test:	Control	43	<input type="checkbox"/>	Code mean of longest and shortest weal diameters in mm; >8mm = 8			
	Mite	44	<input type="checkbox"/>				
	Grass	45	<input type="checkbox"/>				
	Cat	46	<input type="checkbox"/>				
	Egg	47	<input type="checkbox"/>				
	Milk	48	<input type="checkbox"/>				
	Mould 1	49	<input type="checkbox"/>				
	Mould 2	50	<input type="checkbox"/>				
	Height	51	<input type="text"/>	cm			
	Weight	54	<input type="text"/>	kg			
Exercise test		57	<input type="checkbox"/>	Refused = 0; Not performed (asthma) = 1 Not performed (other reason) = 2 Performed = 3			
Initial PEFR	58	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Post-ex PEFR	73	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**ALLERGY PREVENTION STUDY**  
All answers will be treated as strictly confidential

Name	Address	1
Date of Birth		2

PLEASE PUT A TICK BESIDE THE RIGHT ANSWERS LIKE THIS YES ☒

- 1 Have you heard a wheeze coming from your chest during the last 12 months? Yes ☐ 1 No ☐ 0 3  
 ("Wheeze" means a *whistling* sound, whether high or low pitched, and however faint).  
 If YES,
  - a) In the last 12 months, how often on average has your sleep been disturbed by wheezing? Never ☐ 0 Less than one night per week ☐ 1 One or more nights per week ☐ 2 4
  - b) In the last 12 months, has wheezing ever been severe enough to limit your speech to one or two words between breaths? Yes ☐ 1 No ☐ 0 5
  - c) What do you think brings on the wheezing?  

Cold ☐

Exercise ☐

Emotion ☐

Animals ☐

Smoke ☐

Perfumes ☐

Food ☐

Drink ☐

Other ☐

(please specify .....)

6 -
- 2 In the last 12 months, have you had a dry cough at night, apart from a cough associated with a cold or chest infection? Yes ☐ 1 No ☐ 0 15
- 3 In the last 12 months, how many days have you missed school or stayed indoors because of chest trouble? None ☐ 0 1-3 ☐ 1 4-7 ☐ 2 8 or more ☐ 3 16
- 4 In the last 12 months, have you had a problem with sneezing, or a runny or blocked nose, when you DID NOT have a cold or the 'flu? Yes ☐ 1 No ☐ 0 17  
 If Yes,  
 In the last 12 months, has the nose problem been accompanied by itchy-watery eyes? Yes ☐ 1 No ☐ 0 18
- 5 Have you ever had an itchy rash that was coming and going for at least six months? Yes ☐ 1 No ☐ 0 19  
 If Yes,
  - a) Have you had this itchy rash at any time in the last 12 months? Yes ☐ 1 No ☐ 0 20
  - b) Has this itchy rash at any time affected any of the following places:  
 the folds of the elbows, behind the knees, in front of the ankles, under the buttocks or around the neck, ears or eyes? Yes ☐ 1 No ☐ 0 21

## Appendix 8b

- 6 Have you ever suffered from any of the following?  
 Asthma ☐ Hay fever or Allergic Rhinitis ☐ Eczema ☐ 22-24
- 7 Have you ever been treated for eczema by a doctor? Yes ☐ 1 25  
 No ☐ 0
- 8 Have you ever smoked a cigarette? Yes ☐ 1 26  
 No ☐ 0
- If Yes,  
 Do you smoke cigarettes every day? Yes ☐ 1 27  
 No ☐ 0
- 9 Does anyone else living in your house smoke cigarettes? Yes ☐ 1 28  
 No ☐ 0
- 10 In the last 12 months, have you taken any treatment (tablets, medicines, or inhalers) for chest trouble? Yes ☐ 1 29  
 No ☐ 0
- If Yes, which of the following have you taken and when?

Type of treatment	When taken (tick any answers that apply)		
	At fixed times every day	As needed when wheezy	As needed before exercise
<i>Inhaled Relievers:</i> Ventolin, Bricanyl, Salbutamol, Terbutaline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Inhaled Steroid Preventers:</i> Becotide, Flixotide, Pulmicort, Beclomethasone, Fluticasone, Budesonide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Inhaled Other Preventers:</i> Intal, Cromoglycate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Other inhalers/Nebulisers</i> Give name(s) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Steroid Tablets:</i> Prednisolone, Prednesol,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Other Tablets/Medicine:</i> Give name(s) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix 9a- age 23

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_\_

**The Allergy Prevention Study-Patient Questionnaire**  
Version 2 January 2006

Name	_____	DOB	_____
Address	_____	E/O	_____
	_____		
	_____		

<b>Family History</b>			
Mother	Hayfever <input type="checkbox"/>	Eczema <input type="checkbox"/>	Asthma <input type="checkbox"/>
Father	Hayfever <input type="checkbox"/>	Eczema <input type="checkbox"/>	Asthma <input type="checkbox"/>
Sibling	Hayfever <input type="checkbox"/>	Eczema <input type="checkbox"/>	Asthma <input type="checkbox"/>
Children	Hayfever <input type="checkbox"/>	Eczema <input type="checkbox"/>	Asthma <input type="checkbox"/>

<b>Environmental factors</b>	
Housing	Owner <input type="checkbox"/> Rented <input type="checkbox"/> Council <input type="checkbox"/>
Central heating?	Gas <input type="checkbox"/> Electric <input type="checkbox"/> None <input type="checkbox"/>
Cooking fuel	Gas <input type="checkbox"/> Electric <input type="checkbox"/> Oil <input type="checkbox"/> Other <input type="checkbox"/>
Open fire?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Any damp?	Yes <input type="checkbox"/> No <input type="checkbox"/> DK <input type="checkbox"/>
Do you have children?	Yes <input type="checkbox"/> No <input type="checkbox"/>
House cohabitants?	Yes <input type="checkbox"/> No <input type="checkbox"/> Details _____
Pets?	Yes <input type="checkbox"/> No <input type="checkbox"/> Details _____
Employment history	Yes <input type="checkbox"/> No <input type="checkbox"/> Details _____
	_____
	_____

## Appendix 9b

1. Have you heard a wheeze (a whistling sound, whether high or low pitched, and however faint) coming from your chest in the last 12 months?

Yes ☐  
No ☐

*If yes*

- 1a) In the last 12 months how often has your sleep been disturbed by wheezing

Never ☐  
Less than one night a week ☐  
One or more nights a week ☐

- 1b) In the last 12 months has wheezing ever been severe enough to limit your speech to one or two words between breaths?

Yes ☐  
No ☐

- 1c) What do you think brings on the wheezing

Cold ☐ Exercise ☐ Emotion ☐ Animals ☐  
Smoke ☐ Perfume ☐ Food ☐ Drink ☐  
Other ☐ (please specify) \_\_\_\_\_

2. In the last 12 months have you had a dry cough at night apart from a cough associated with a cold or chest infection?

Yes ☐  
No ☐

*If yes*

- 2a) Do you cough like this on most days for as much as 3 months each year?

Yes ☐  
No ☐

3. Do you usually cough first thing in the morning in the winter?

Yes ☐  
No ☐

*If Yes*

- 3a) Do you cough like this on most days for as much as 3 months each year?

Yes ☐  
No ☐

4. Do you usually cough during the day, or at night, in the winter?

Yes ☐  
No ☐

*If yes*

- 4a) Do you cough like this on most days for as much as 3 months each year?

Yes ☐  
No ☐

5. Do you usually bring up any phlegm from your chest first thing in the morning in winter?

Yes ☐  
No ☐

6. Do you usually bring up any phlegm from your chest during the day, or night, in the winter?  
Yes ☐  
No ☐

*If Yes to Q5 or Q6*

- 6a) Do you bring up phlegm like this on most days for as much as 3 months each year?  
Yes ☐  
No ☐

7. In the past 3 years have you had a period of (increased) cough and phlegm for three weeks or more?  
Yes ☐  
No ☐

*If Yes*

- 7a) Have you had more than one such period?  
Yes ☐  
No ☐

8. Are you troubled by shortness of breath when hurrying on level ground or walking up a slight hill?  
Yes ☐  
No ☐

9. In the last 12 months how many days have you missed work or stayed indoors because of chest trouble?  
None ☐  
1-3 ☐  
4-7 ☐  
8 or more ☐

10. In the last 12 months have you had a problem with sneezing, or a runny or blocked nose, when you DID NOT have a cold or flu?  
Yes ☐  
No ☐

*If Yes.*

- 10a) In the last 12 months has the nose problem been associated with itchy-watery eyes?  
Yes ☐  
No ☐

11. Have you ever had an itchy rash that was coming and going for at least 6 months?  
Yes ☐  
No ☐

*If Yes*

- 11 a) Have you had this itchy rash at any time in the last 12 months?  
Yes ☐  
No ☐

- 11b) Has this itchy rash at any time affected any of the following places:  
The folds of the elbows, behind the knees, in front of the ankles, under the buttocks or around the neck, ears or eyes?  
Yes ☐  
No ☐

Appendix 9d

12. Have you ever suffered from any of the following  
Asthma ☐  
Hay fever/allergic rhinitis ☐  
Eczema ☐

13. Have you ever been treated for eczema by a doctor?  
Yes ☐  
No ☐

14. Have you ever smoked cigarettes?  
Yes ☐  
No ☐

*If Yes*

14a) Do you now smoke cigarettes every day?

Yes ☐  
No ☐

*If Yes*

14b) How much do you now smoke? \_\_\_\_\_

14c) How old were you when you started smoking? \_\_\_\_\_

*If No*

14d) Have you ever smoked for as long as a year?

Yes ☐  
No ☐

15. Have you ever smoked any other form of tobacco eg cigars, pipe?  
Yes ☐  
No ☐  
*If yes please give details?* \_\_\_\_\_

16. Does anyone else living in your house smoke?  
Yes ☐  
No ☐

17. In the last **12 months** have you taken any treatment for chest trouble?  
Yes ☐  
No ☐

*If Yes, please give following information*

Inhaled reliever

*Please list* \_\_\_\_\_

Inhaled steroid

*Please list* \_\_\_\_\_

Inhaled other preventers

*Please list* \_\_\_\_\_

Other inhalers/Nebulisers

*Please list* \_\_\_\_\_

Steroid tablets

*Please list* \_\_\_\_\_

Other tablets/medicine

*Give names* \_\_\_\_\_

18. In the last **48 hours** have you taken any treatment for chest trouble?  
Yes ☐  
No ☐

*If Yes, which of the following have you taken and when?*

Inhaled reliever  
*Please list*

\_\_\_\_\_

Inhaled steroid  
*Please list*

\_\_\_\_\_

Inhaled other preventers  
*Please list*

\_\_\_\_\_

Other inhalers/Nebulisers  
*Please list*

\_\_\_\_\_

Steroid tablets  
*Please list*

\_\_\_\_\_

Other tablets/medicine  
*Please list*

\_\_\_\_\_

---

Appendix 9f

Height \_\_\_\_\_

Weight \_\_\_\_\_

**Skin Prick Tests**

Neg control ☐

Pos control ☐

Mites ☐

Grass ☐

Trees ☐

Moulds ☐

Cat ☐

Dog ☐

**Lung Function Tests**

**Baseline**

FVC \_\_\_\_\_

FEV1 \_\_\_\_\_

PF \_\_\_\_\_

**15mins post ventolin**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Nitric Oxide level

## 8. Study instruments for 6/7 year olds

### 8.1 Instructions for completing questionnaire and demographic questions

Examples of instructions for completing questionnaire and demographic questions are given below.

**The content of the questionnaires is fixed.** (see pages 72–73 for 'office use only' boxes example)

On this sheet are questions about your child's name, school, and birth dates. Please write your answers to these questions in the space provided.

All other questions require you to tick your answer in a box. If you make a mistake put a cross in the box and tick the correct answer. Tick only one option unless otherwise instructed.

Examples of how to mark questionnaires: Age 

6
---

  
years

To answer Yes/No, put a tick in the appropriate box as per example

YES	NO		
<table border="1"><tr><td> </td></tr></table>		<table border="1"><tr><td>✓</td></tr></table>	✓
✓			

SCHOOL:



TODAY'S DATE:

<table border="1" style="width: 40px; height: 20px;"></table>	<table border="1" style="width: 40px; height: 20px;"></table>	<table border="1" style="width: 60px; height: 20px;"></table>
Day	Month	Year

CHILD'S NAME:



CHILD'S AGE:

--

years

CHILD'S DATE OF BIRTH:

<table border="1" style="width: 40px; height: 20px;"></table>	<table border="1" style="width: 40px; height: 20px;"></table>	<table border="1" style="width: 60px; height: 20px;"></table>
Day	Month	Year

(Tick all your answers for the rest of the questionnaire)

Is your child a:

MALE	FEMALE
<table border="1" style="width: 40px; height: 20px;"></table>	<table border="1" style="width: 40px; height: 20px;"></table>

Optional questions on ethnicity here

## 8.2 Core questionnaire for asthma

### 8.2.1 Questionnaire for 6/7 year olds (strongly recommended)

- |   |  |           |  |
|---|--|-----------|--|
| 1 | Has your child <u>ever</u> had wheezing or whistling in the chest at any time in the past? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

IF YOU HAVE ANSWERED "NO" PLEASE SKIP TO QUESTION 6

- 
- |   |   |           |  |
|---|---|-----------|--|
| 2 | Has your child had wheezing or whistling in the chest <u>in the past 12 months?</u> | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|---|-----------|--|

IF YOU HAVE ANSWERED "NO" PLEASE SKIP TO QUESTION 6

- 
- |   |   |   |  |
|---|---|---|--|
| 3 | How many attacks of wheezing has your child had <u>in the past 12 months?</u> | None<br>1 to 3<br>4 to 12<br>More than 12 | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> |
|---|---|---|--|

- |   |  |  |  |
|---|--|--|--|
| 4 | <u>In the past 12 months</u> , how often, on average, has your child's sleep been disturbed due to wheezing? | Never woken with wheezing<br>Less than one night per week<br>One or more nights per week | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> |
|---|--|--|--|

- |   |  |           |  |
|---|--|-----------|--|
| 5 | In the past 12 months, has wheezing ever been severe enough to limit your child's speech to only one or two words at a time between breaths? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

- 
- |   |  |           |  |
|---|--|-----------|--|
| 6 | Has your child <u>ever</u> had asthma? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

- |   |  |           |  |
|---|--|-----------|--|
| 7 | In the past 12 months, has your child's chest sounded wheezy during or after exercise? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

- |   |   |           |  |
|---|---|-----------|--|
| 8 | In the past 12 months, has your child had a dry cough at night, apart from a cough associated with a cold or chest infection? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|---|-----------|--|

## 7. Study instruments for 13/14 year olds

### 7.1 Instructions for completing questionnaire and demographic questions

Examples of instructions for completing questionnaires and demographic questions are given below. The questionnaire content is fixed. (see pages 72–73 for 'office use only' boxes example)

On this sheet are questions about your name, school, and birth dates. Please write your answers to these questions in the space provided.

All other questions require you to tick your answer in a box. If you make a mistake put a cross in the box and tick the correct answer. Tick only one option unless otherwise instructed.

Examples of how to mark questionnaires: Age 

13
----

  
years

To answer Yes/No, put a tick in the appropriate box as per example

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>

SCHOOL:

TODAY'S DATE: 











  
Day Month Year

YOUR NAME:

YOUR AGE: 



  
years

YOUR DATE OF BIRTH: 











  
Day Month Year

(Tick all your answers for the rest of the questionnaire)

Are you: MALE FEMALE

Optional questions on ethnicity here

## 7.2 Core questionnaire for asthma

### 7.2.1 Questionnaire for 13/14 year olds

- |   |  |           |  |
|---|--|-----------|--|
| 1 | Have you <u>ever</u> had wheezing<br>or whistling in the chest<br>at any time in the past? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

---

IF YOU HAVE ANSWERED "NO" PLEASE SKIP TO QUESTION 6

---

- |   |   |           |  |
|---|---|-----------|--|
| 2 | Have you had wheezing or<br>whistling in the chest<br><u>in the past 12 months?</u> | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|---|-----------|--|

---

IF YOU HAVE ANSWERED "NO" PLEASE SKIP TO QUESTION 6

---

- |   |   |   |  |
|---|---|---|--|
| 3 | How many attacks of wheezing<br>have you had<br><u>in the past 12 months?</u> | None<br>1 to 3<br>4 to 12<br>More than 12 | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> |
|---|---|---|--|

- |   |   |  |  |
|---|---|--|--|
| 4 | <u>In the past 12 months</u> , how often, on average, has<br>your sleep been disturbed due to wheezing? | Never woken with wheezing<br>Less than one night per week<br>One or more nights per week | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> |
|---|---|--|--|

- |   |   |           |  |
|---|---|-----------|--|
| 5 | In the past 12 months, has wheezing<br>ever been severe enough to limit your<br>speech to only one or two<br>words at a time between breaths? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|---|-----------|--|
- 

- |   |                                  |           |  |
|---|----------------------------------|-----------|--|
| 6 | Have you <u>ever</u> had asthma? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|----------------------------------|-----------|--|

- |   |  |           |  |
|---|--|-----------|--|
| 7 | In the past 12 months, has your<br>chest sounded wheezy<br>during or after exercise? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

- |   |  |           |  |
|---|--|-----------|--|
| 8 | In the past 12 months, have you<br>had a dry cough at night,<br>apart from a cough associated with<br>a cold or chest infection? | Yes<br>No | <input type="checkbox"/><br><input type="checkbox"/> |
|---|--|-----------|--|

## Module 3.2: Skin prick tests for atopy

### Aims

1. To provide an objective measure of atopy for comparisons within and between centres. "Atopy" may be defined as skin test reactivity to one or more of the following allergens: house dust mites (*Dermatophagoides pteronyssinus* or *Dermatophagoides farinae*); cat fur; mixed grass pollen; mixed tree pollen; and the outdoor mould genus *Alternaria*.
2. To compare the prevalence and degree of sensitivity to individual allergens which are ubiquitous within and between centres (e.g. mites, cat, *Alternaria*).

### Methods

When selecting an appropriate skin prick test method for ISAAC several criteria have been applied: reproducibility under field conditions; simplicity of application; safety; acceptability; quality control; suitability for all ISAAC age groups; low cost; and worldwide availability.

The ALK lancet has been chosen for a number of reasons. Reproducibility and precision with both histamine and allergen extracts has been shown to be good [1]. The application is simple, safe and accepted by children, parents and field workers. There is a good body of knowledge in the medical literature on this skin prick test method and it has already been applied in many surveys. The ALK lancet is available throughout the world.

The "core" allergen extracts to be tested on the *left* forearm are:

Histamine 10 mg/ml (positive control)	Diluent (negative control)
<i>D. pteronyssinus</i>	<i>D. farinae</i>
Cat	<i>Alternaria tenuis</i>
Mixed grasses	Mixed trees

In addition, each centre may add up to eight allergens of their choice by testing them on the *right* forearm. The local relevance of cockroach, artemesia, olive and ragweed should be considered. All of these extracts should be purchased from ALK Denmark. In addition, local allergens that are most prevalent in the respective study area should be included and purchased if possible from ALK, or if not available from ALK, from other companies.

All extracts and the control solutions should be obtained from ALK Laboratories (full address listed on page 65). The allergen extracts are highly standardised and can be delivered throughout the world, including the USA. Histamine 10 mg/ml has been chosen as a positive control solution

because of better reproducibility and precision than alternative positive control solutions [2]. The grass extract is a mixture of commonly occurring grasses in central Europe, i.e.: *Dactylis glomerata*, *Lolium perenne*, *Festuca pratensis*, *Poa pratensis*, *Phleum pratense* and *Avena eliator*. The tree extract is a mixture of commonly occurring tree pollen in central Europe, i.e.: *Betula verrucosa* (birch), *Alnus glutinosa* (alder) and *Corylus avellana* (hazel).

There is a circadian rhythm in the size of skin prick reactions to allergens and histamine [3], so all skin prick tests should be performed in the morning hours (08:00 to 13:00, local time). The site of testing should be free of eczema. An ALK tape with numbers indicating the sequence of allergen extracts is placed in the middle of the volar aspect of the left forearm, 3 cm distal to the elbow crease. One drop of each skin prick solution is placed on the forearm in the above order, on the left and right sides of the tape, respectively. A separate ALK lancet is pricked vertically through each drop with firm pressure. All drops and the tape are removed immediately after the pricks taking care not to contaminate prick points with a different extract.

Reactions to each skin test solution are measured 15 minutes after the pricks. The contours of each wheal are outlined with a fine filter tip pen. The contours are then transferred to the record sheet by means of translucent tape. The size of each wheal is documented as the mean of the longest diameter (a) and the diameter perpendicular to it at its mid-point (b): i.e.  $(a+b)/2$ . Measurements of each diameter are made to the nearest millimetre above.

In dark skin wheals can be recognised more easily under strong oblique light and also by palpating the skin. In persons who spend much time outdoors the thickening of the skin may limit the ability to detect skin prick reactions.

### Training

Field workers should be trained before starting the survey, and their precision retested in the middle and at the end of the survey, since the technique of individual fieldworkers may change over time. Reproducibility should be tested as follows at the start of the survey. At least three series of 16 skin prick tests with histamine 10 mg/ml should be performed by each field worker on the volar surface of the forearm of a volunteer until the coefficient of variation (standard deviation as a percent of the mean) of the last series is less than 20%. Half way through the survey and at the end of fieldwork, each field worker should perform two further

series of 16 skin prick tests with histamine 10 mg/ml on the volar forearm of a volunteer. All results should be documented separately for each fieldworker on the "training" record sheets.

### Validation

Because of difficulties in standardizing the performance of different field workers, validation studies using serum IgE measurements (ISAAC module 3.5) are highly recommended in a subsample of children. Where possible, multi-centre comparisons should adopt a cross-over allocation of fieldworkers to the different study areas, so that approximately equal numbers of children are tested by each observer in each centre. Otherwise, it may become impossible to disentangle differences in the performance of different fieldworkers from real differences in the prevalence of skin test reactivity in the comparison areas.

### Safety

Slight physical discomfort may result from the prick and itchiness of the larger wheals. Systemic allergic reactions have not been reported with prick testing despite extensive use in epidemiological surveys. Among over 16,000 adults and children tested in the United States NHANES II survey, six subjects fainted after prick testing, compared to 26 faints after venipuncture [4]. Reviews of deaths occurring from immunotherapy and skin testing in the USA found no fatalities that could be attributed to prick, puncture or scratch testing in the absence of intradermal tests or desensitisation immunotherapy [5, 6]. Systemic allergic reactions occur rarely (0.02%) with *intradermal* skin testing among allergic patients [7] but this technique will not be used in ISAAC.

### References

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#### **Equipment checklist**

- ALK allergen extracts
- Tray for allergen bottles
- ALK skin prick lancets
- ALK tape
- Swabs or tissues
- Sharps disposal container
- Felt tip pen (e.g. Edding 1800 profipen 0.5)
- Alarm clock
- Ruler
- Record sheets

## FIELD MANUAL FOR SKIN PRICK TESTING

### Allergen solutions

Inner side:

1. Positive control (histamine)
3. *D. Pteronyssinus*
5. Cat
7. Mixed grasses

Outer side:

2. Negative control (glycerin)
4. *D. farinae*
6. *Alternaria tenuis*
8. Mixed trees

- Perform these eight tests on the left forearm. Use a similar technique on the right forearm to test other allergens of local interest.
- Place the allergens on the tray in the same order as they are put on the forearm.
- Store allergen solutions in a refrigerator between test sessions.

### Applying the solutions

- Check that the skin of the forearm is free of eczema. The test should not be performed on inflamed or broken skin.
- Place the left arm palm upwards on the table in front of the examiner.
- Paste a prenumbered ALK tape onto the left forearm, in the middle and with the "+" mark 2 cm from the elbow.
- Open the packaging of the ALK lancets before doing the test. They should be placed ready to be taken out of the package with one hand.
- Open the bottles with the allergen solutions.
- Put one drop of each allergen on the left or right side of the tape. Do this always in the same sequence. Do not use too much allergen and take care that the different allergens do not run together or run off the arm.
- Put the bottle back to its position on the tray. Do not change the order of the bottles.
- Always start applying allergens on the inner side, working from top (elbow) to bottom. The numbers 1, 3, 5, 7 on the tape mark the distance (1 cm) between the allergens. Apply allergens numbered 2, 4, 6, 8 on the outer side also from top to bottom.
- The drops of solution 1 and 2, 3 and 4, 5 and 6, as well as 7 and 8 are now next to each other, at the same height on the left and right side of the tape, respectively.

### **Performing the prick test**

- Always use a new ALK lancet for each allergen.
- Prick the ALK lancet for 2 seconds vertically through the drop into the skin using firm pressure.
- Put the used lancets into the disposable container.
- After pricking wipe the allergens off without mixing them. Use a clean swab or tissue and wipe away from the tape towards the outside of the arm.
- Set the alarm clock for 15 minutes.
- Close the allergen bottles with their own coloured caps.

### **Reading the reaction**

- After 15 minutes outline the contours of the wheal with a thin felt-tip pen (e.g. Edding 1800 profipen 0.5). Do not spread the skin. Hold the pen vertically. Ensure adequate lighting.
- The contour should be drawn at the outside of the wheal. If there is no reaction mark that non-reactive position with a little dot.
- Write "I" on the skin at the top of the inner side and "O" at the top of the outer side, near the "++" mark on the tape.
- Remove the prenumbered tape.
- Paste a transparent tape onto the wheals to transfer the contours.
- Press the tape onto the skin to make sure that the whole contour is transferred to the sticky side.
- Remove the tape from the skin and paste it into the record sheet.

### **Measurement of each wheal**

- Record measurements in millimetres, rounded to the next higher integer, using a flexible plastic ruler (e.g. Mérieux multitest).
- Always measure the inside of the felt-tip pen contour.
- Identify and measure the longest diameter first.
- Then drop a perpendicular line through the middle of the longest diameter and measure the length of this line.
- Calculate the mean of the two diameters.

## SKIN PRICK TEST RECORD SHEET

ID number: \_\_\_\_\_

Area number: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Field worker number: \_\_\_\_\_

VOLAR LOWER LEFT ARM

Fix tape A here      Fix tape B here

Tape A

Tape B

1. +ve control

2. -ve control

3. *D. Pteronyssinus*

4. *D. farinae*

5. Cat

6. *Alternaria tenuis*

7. Mixed grasses

8. Mixed trees

DIAMETERS MEASURED TO THE NEAREST WHOLE MILLIMETRE:

1. Positive control

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

2. Negative control

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

3. *D. pteronyssinus*

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

4. *D. farinae*

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

5. Cat

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

6. *Alternaria tenuis*

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

7. Mixed grasses

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_

8. Mixed trees

Max diam (a)

Min diam (b)

\_\_\_\_\_

\_\_\_\_\_