

# Environmental risk factors for injuries in UK primary school aged children

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Parents and children of the ALSPAC study

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# Factors associated with risk of injury in school aged children

## Home

- Poor state of home  
1 cohort ↑
- Frequent house moves  
2 cohorts found conflicting evidence
  - UK adolescents ↑
  - NZ primary school aged children ↔

## Wider environment

- 3 cohorts found no association with injury
- Neighbourhood disadvantage (Canada)
  - Regional disadvantage (UK)
  - Regional disadvantage (USA)

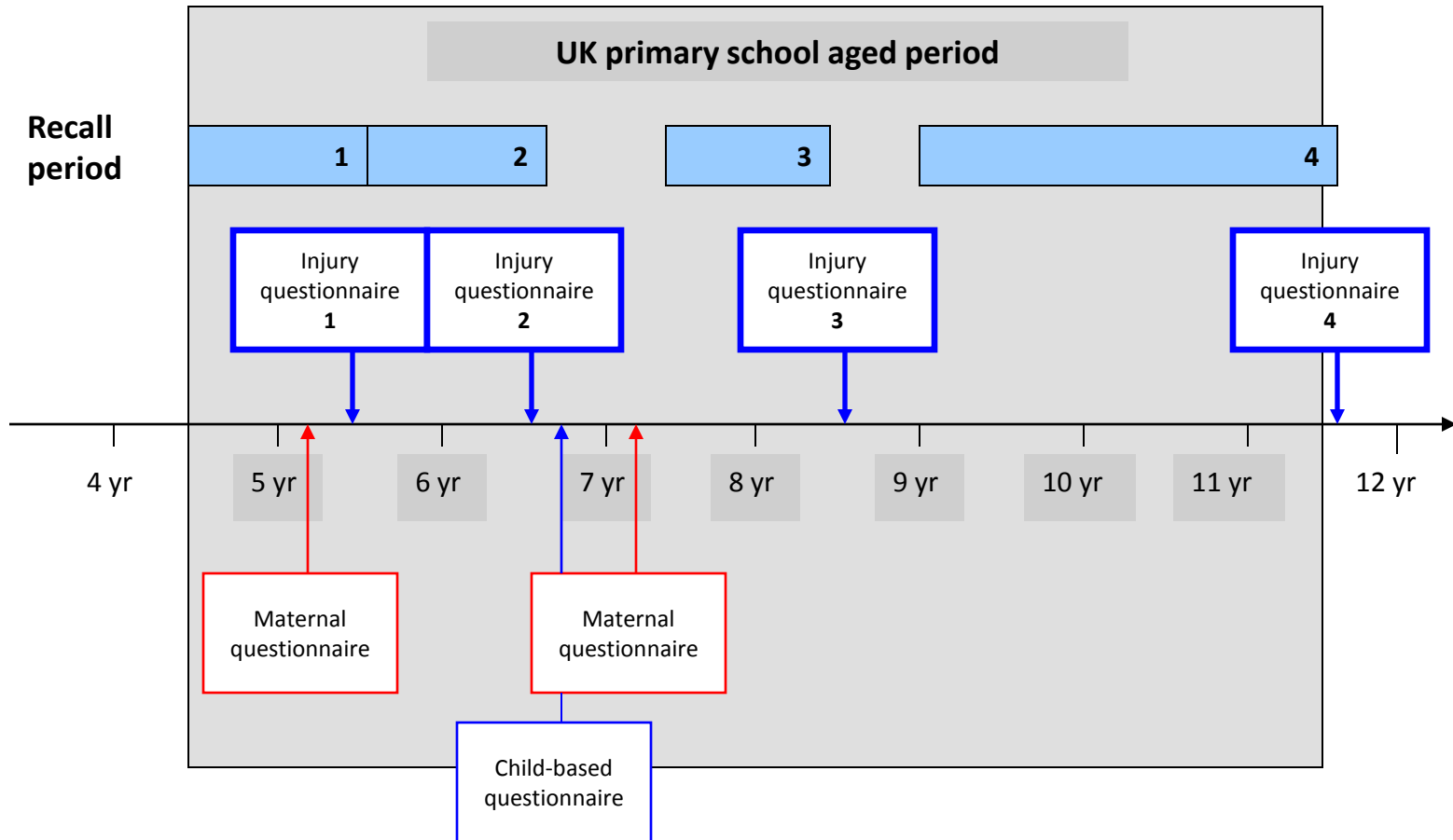
# ALSPAC



- Avon Longitudinal Study of Parents and Children
- Women recruited with an expected delivery date between 1<sup>st</sup> April 1991 and 31<sup>st</sup> December 1992
- 13998 infants live at 12 months
- Parentally reported injuries occurring to children aged 4½-11½ years



# ALSPAC primary school age injury measures



BLUE Questions about child, usually maternal report

RED Questions about mother, asked of mother

A1. a) Has he been **burnt or scalded** since he was 4½ years old?

Yes  No  → If **no**, go to A2a on page 4

If **yes**, b) how many times?

For each burn or scald please describe below what happened:

	1st accident	2nd accident	3rd accident
c) Place accident happened (e.g. kitchen, garden, school) .....	.....	.....	.....
d) What was he burnt with? (e.g. tea, iron, electric fire) .....	.....	.....	.....
e) Date of accident (month, year) .....	.....	.....	.....
f) Injuries caused (if no injury write none) .....	.....	.....	.....
g) Who was with him? .....	.....	.....	.....

# Injury questions

Questionnaire (Age)	Burns & scalds	Falls	Ingest substance or object	Sports injuries	Traffic injuries	Action of another person	Other injuries
1 (5½ years)	✓	✓	✓	x	x	x	✓
2 (6½ years)	✓	x	✓	✓	✓	✓	✓
3 (8½ years)	✓	x	✓	✓	✓	✓	✓
4 (11½ years)	✓	x	✓	✓	✓	✓	✓



# Injury data

<b>Questionnaire (Age)</b>	<b>Questionnaires sent out</b>	<b>Questionnaires returned (%)</b>	<b>Recall period (months)</b>	<b>No. of injury events</b>	<b>No. of children injured (%)</b>
<b>1 (5½ years)</b>	11549	9013 (78.0)	12	2050	1607 (17.8)
<b>2 (6½ years)</b>	10908	8578 (78.6)	12	2882	2019 (23.5)
<b>3 (8½ years)</b>	10981	7996 (72.8)	12	3476	2271 (28.4)
<b>4 (11½ years)</b>	10311	7165 (69.5)	30	4446	2846 (39.7)

Number of families returning all 4 injury questionnaires = 5752

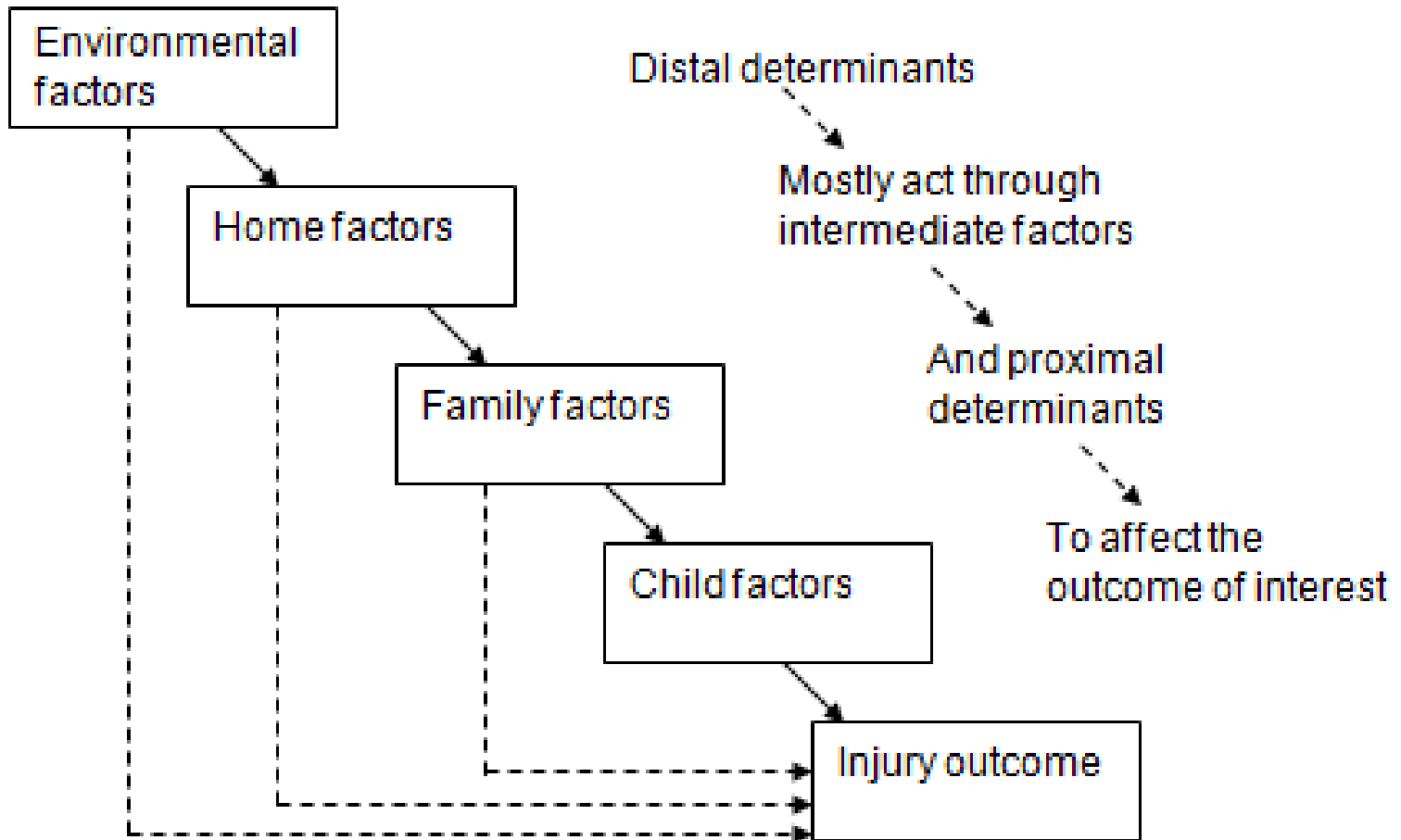
Total reported injury events = 12854



# Multivariable regression of risk factors

- Outcome variable; any injury seen &/or treated in secondary care, n=1877 (32.6%)
- Explanatory factors
  - 4 groups; **Child, family, home and environment**
  - Inclusion criteria; unadjusted univariable OR  $p < 0.1$
- Multiple imputation of missing data
- Analysis by age; early (<7y) & late (>7y) primary

# Hierarchical conceptual framework



Distal determinants may exert some effect directly

# Home factors

Variable	Prevalence	OR (95% CI)	P value
<b>Early primary school aged children</b>			
Over-crowding (>1 person per room)	9.0%	1.19 (0.92, 1.55)	0.188
Mother reported problems with the home	<b>10.2%</b>	<b>1.38 (1.08, 1.77)</b>	<b>0.010</b>
Mother dissatisfied with the home	5.0%	0.92 (0.64, 1.33)	0.658
Living in private rented accommodation	3.6%	0.79 (0.50, 1.27)	0.329
≥1 house move in last 2 years	30.0%	0.98 (0.82, 1.18)	0.851
<b>Late primary school aged children</b>			
Over-crowding (>1 person per room)	7.3%	0.89 (0.69, 1.15)	0.390
Mother reported problems with the home	9.2%	1.00 (0.80, 1.24)	0.977
Mother dissatisfied with the home	<b>3.4%</b>	<b>1.41 (1.02, 1.95)</b>	<b>0.039</b>
Living in private rented accommodation	<b>3.1%</b>	<b>1.42 (1.01, 1.97)</b>	<b>0.039</b>
≥1 house move in last 2 years	25.0%	1.16 (1.00, 1.34)	0.046

# Environmental Factors

Variable	Prevalence	OR (95% CI)	P value
<b>Early primary school aged children</b>			
Deprivation Index of area of residence	n/a	1.03 (0.97, 1.09)	0.374
Strong maternal social networks	28.4%	0.85 (0.71, 1.03)	0.090
Mother has good relationship with neighbours	24.3%	0.92 (0.79, 1.15)	0.622
<b>Late primary school aged children</b>			
Deprivation Index of area of residence	n/a	1.04 (1.00, 1.09)	0.060
Strong maternal social networks	28.4%	1.08 (0.94, 1.24)	0.300
Mother has good relationship with neighbours	<b>24.2%</b>	<b>1.18 (1.02, 1.36)</b>	<b>0.023</b>

# Summary

- Few home or environment factors associated with injury
- Associations were generally weak
- More frequent associations seen for older children than younger children
- More frequent associations were seen for the home than the wider environment

# Interpretation

- Relative contribution to overall injury risk from home or environmental factors is small compared to child and family factors
- In the UK most children live in a relatively safe environment therefore demonstrating difference in injury risk is challenging
- Comparisons between countries may help explore environmental associations