Air Pollution, housing and respiratory tract Infections in Children: National birth Cohort study (PICNIC)

Pia Hardelid
Population, Policy & Practice
The Telegraph
More than 2,000 children die from pneumonia every day, charities warn

Childhood pneumonia cases up 50% in 10 years, NHS data shows

Poorest areas hardest hit by ‘forgotten epidemic’ of pneumonia putting a child in hospital every 10 minutes
Fig 3. Rate ratio of bronchiolitis admissions <1 year: England, 2012-2016

Ref (1.00)

1.07
1.12
1.22
1.48

Least deprived 2 3 4 5 Most deprived

IMD group

Lewis, De Stavola & Hardelid, (Under review)

Slide courtesy of Kate Lewis
PICNIC Aim:

‘To determine the contribution of exposure to air pollution and adverse housing conditions during pregnancy, infancy and early childhood to hospital admissions for respiratory tract infections (RTIs) in children less than 5 years old in England and Scotland’
2011 Census records
Census conducted 27th March 2011
Mother’s and resident partner’s Census records

Small area-level data (national coverage):
- Dwelling level
- EPC/HEED data
- Postcode level data
- DEFRA annual air pollution data
- 1x1 km grid
- Distance to road/traffic intensity
- Output area level
- Tobacco expenditure data

100x100m daily air pollution data
(postcode level)
Greater London & City of Glasgow

PDS/CHI databases
Address histories for mothers and babies

Validation cohort 1: linked to daily AP data
42,000 children (Glasgow 2009-2014)
432,000 children (London 2010-2014)

Validation cohort 2: Census linked
1.3 million children (England)
110,000 children born (Scotland)
27th March 2010- 27th March 2012

Death registration for mothers and babies
1981-2019 (Scotland)
2005-2014 (England)

Birth registration data linked to:
- NHS Birth Registration (England)
- Maternity records (Scotland)

Babies born in Scotland 1997-2019
Babies born in England 2005-2014

Hospital records for babies and their mothers
1981-2019 (Scotland)
2005-2014 (England)

Vaccination records/Child Health Surveillance data
Project partners

UCL GOS ICH: Pia Hardelid, Bianca De Stavola

London School of Hygiene and Tropical Medicine: Ai Milojevic

University of Edinburgh: Steve Cunningham, Chris Dibben, Tom Clemens

Tampere University: Jonathon Taylor

City, University of London: Alison Macfarlane

Charity collaborators: Shelter, British Lung Foundation/Clean Air Parents Network

Funding: Medical Research Council