Education and Child Health Insights from Linked Data – England
Research Themes
ADR UK Research Fellowships 2023

The ECHILD (Education and Child Health Insights from Linked Data) research database can be used for the following specific research themes.

1. Informing preventative strategies by healthcare and education services

The ECHILD research database will facilitate research exploring whether certain types of schools or local authorities are associated with increased or decreased rates of hospital contacts for children with particular health conditions. These insights will have the potential to inform healthcare and education services.

For example, ECHILD could be used to explore whether children with serious learning impairing conditions may have lower rates of emergency hospital admission if they attend a special school than if they attend a mainstream school. Studies could investigate whether school type or area affects rates of emergency admissions and A&E attendance for adversity-related conditions (for example, self-harm, violence or mental health conditions). The data will generate hypotheses about how interventions in schools, or improved feedback from hospitals, could improve the health and wellbeing of children and adolescents.

Wider social determinants of health, such as education and adverse childhood experiences, are a key focus of ongoing work within the Department of Health and Social Care and across government. This is part of a new strategy for health promotion, focused on the prevention of poor health. Understanding drivers of poor health at a young age is critical to achieving government ambitions to improve the health of the nation.

Potential research questions:

• What are the characteristics and health outcomes for children placed in social care out of their local authority area compared with those placed closer to home?
• Do children with serious learning impairing conditions have lower rates of emergency hospital admission if they attend a special school than if they attend a mainstream school?
• Does school type or area affect rates of emergency admissions and A&E attendance for adversity-related conditions (for example, self-harm, violence or mental health conditions), after adjusting for underlying chronic conditions, previous admissions, age, and socioeconomic factors such as maternal country of birth?
• Which maternal factors (including education history and contact with social care services) mediate the effect of health visiting on child health outcomes?
• Does early provision of special educational needs support for children with chronic conditions improve their participation in school, and reduce behaviour or mental health
problems in adolescence and adulthood?
• Do frequent absences or poor school attainment during adolescence predict risk-taking behaviour, or early pregnancy?
• How do hospital contacts for health problems during pregnancy affect child health and education outcomes?
• Does exposure to different aspects of children’s social care modify the associations between childhood adversity and later health and educational outcomes?
• How does parental health and contact with social care services affect childhood health and educational outcomes?
• What is the impact of the policy changes to Healthy Start vouchers on children’s health and developmental outcomes?
• What is the association between young people’s relative academic position within their school and the development of mental health problems, spanning from the end of primary school through to early adulthood?

2. Informing children and their parents
Research using ECHILD data will provide useful information for children and their parents, which is relevant to the promotion of their health and wellbeing and to clinical practice. The data will show how school achievement and absence varies between children with and without particular health conditions, across the age range and between local areas.

Potential research questions:
• What are the long-term educational outcomes for children who were born preterm (under 37 weeks of gestation)?
• What are the long-term health outcomes for care leavers?
• What are the long-term health outcomes for children with special educational needs provision?
• For young people living with diabetes (compared to peers without diabetes), what are the associations between child health outcomes (hospital admissions) and educational outcomes (absence and achievement) while school-aged? To what extent do these determine subsequent health outcomes after compulsory schooling is complete?

3. Informing clinical and educational practice
Better understanding of variation across England in associations between health and school attainment can be used to inform clinical practice. Insights could help services to identify potentially better practices (e.g., to reduce school absence for children with chronic conditions) that could be adopted more widely.

Potential research questions:
• What is the best timing of liver transplantation, based on variation in educational outcomes for children with chronic liver disease?
• Does treatment for childhood cancer affect children’s function in the longer term, for example, their cognitive ability, risk of mental health conditions, or their fertility?
• Do children born to women who were treated for cancer in childhood have increased rates of
a congenital malformation?

4. Identifying the characteristics of groups who may benefit from intervention

The data will facilitate examination of whether indicators at school, such as absenteeism and low attainment, can identify the characteristics of children and young people at risk of poorer outcomes (e.g., those with particular health conditions), who could benefit from proactive or preventive healthcare input. This in turn might reduce emergency use of hospital services, and improve health and educational outcomes.

Potential research questions:

• How many children experiencing child abuse and neglect are known to healthcare services, based on comparing coding in de-identified health records with recorded contacts with children’s social services?
• What are the long-term health outcomes for mothers who are care leavers?
• What are health and education outcomes for children born to care-experienced mothers?
• What are the trajectories of unaccompanied asylum seekers through the social care and health systems?
• Can schools be characterised as more or less stressful, measured through special educational needs support, rates of school absence and exclusion, and stress-related or mental health contacts with healthcare in adolescence?
• Are markers of stressful schools associated with risky behaviour and mental health conditions in adolescence and adulthood, compared with less stressful schools?
• What are the early health, education and social care patterns of children who develop mental disorders in adulthood?
• What proportion of children experiencing school exclusion, repeated absence or off-rolling have underlying chronic mental or physical health conditions?
• Do children in contact with social care, or exposed to adverse childhood experiences, have increased risks of admissions for serious mental disorder in adulthood?
• What is the association between different dimensions of childhood adversity and later health and educational outcomes?
• How does mental health need and service use amongst looked after children and children in need compare to that of other children?
• Can we model differential trajectories of school performance that indicate high likelihood for adolescent or adult inpatient psychiatric admission?
• What are the potential moderating and mediating effects of school performance outcomes for those with pre-existing vulnerabilities? For example, what is the potential impact of school absence on recurrent self-harm, eating disorder readmission, or young people admitted with psychosis?
• What is the influence of school-level factors on patterns of health outcomes for young people with mental health conditions?
• Can we identify and estimate peer contagion effects on health and educational outcomes?
• What maternal health factors are associated with both educational outcomes and health outcomes, such as diagnosis, service use patterns, mental health admissions, treatment and treatment response?
• What proportion of the variation in health outcomes for children with diabetes can be accounted for by families and family structure?

5. Understanding the most effective methods for working with linked health and education data

Working with data on the large number of individuals included in ECHILD is challenging, and becomes more complex as the number of datasets increases. Methods to effectively work with this data need to be developed, so that the full potential of the linked data can be realised.

Potential research questions:
• How can we use sibling control analyses to better understand the relationship between shared familial exposures such as maternal education and deprivation, and health outcomes?
• What are the optimal ways of selecting control or comparison groups for population health research?
• How can we account for clustering of health conditions within families when evaluating the association between individual-level exposures and health outcomes?
• How can causal inference methods be best applied in linked administrative data?
• How do we best evaluate and account for linkage quality to ensure that analyses of linked data are unbiased?

Key stakeholders

These themes, and the proposed research questions within each theme, have been collated by a number of stakeholders, including the Department for Education and the Department of Health and Social Care, economists at the Centre for Health Economics, and researchers from:

• University of Bristol
• Institute for Fiscal Studies
• York University
• Cardiff University
• Swansea University
• Imperial College London
• King's College London
• Applied Research Collaborations (ARCs), including major National Institute for Health and Care Research research groups working on applied health informatics (ARC West), and maternal and child health (PenARC, Exeter).