

International Journal of Population Data Science

Journal Website: www.ijpds.org



Kids' Environment and Health Cohort (KEHC): Linking Longitudinal Health and Environmental Histories for 11 Million Children Born in England (2006-2022)

Beth Allen¹, Esther Lewis¹, Sarah Cummins¹, Pia Hardelid², Joana Pereira Da Cruz², Sarah Barrett¹, and Nathan O'Connor¹

¹Office for National Statistics, Newport, United Kingdom

²University College London, London, United Kingdom

Children are uniquely vulnerable to environmental conditions, yet there is no national infrastructure in England that links environmental exposures to paediatric health outcomes at population scale. The Kids' Environment and Health Cohort (KEHC) is developing a transformative administrative data resource to address this gap. KEHC has established a national spine of over 11 million children born between 2006–2022 using official birth registrations, deterministically linked to 53,445 death registrations. Ongoing linkage to Hospital Episode Statistics (HES), Emergency Care Dataset (ECDS) and the Maternity Services Dataset (MSDS) will provide longitudinal information on childhood health trajectories and maternal health before and after birth. To capture environmental conditions from birth to adolescence, KEHC will link a diverse range of environmental datasets to children's address

histories from the Patient Register (PR) and Personal Demographic Service (PDS). Environmental measures include annual mean concentrations of air pollutants, daily maximum temperature, green space availability, and housing indicators such as energy performance index and overcrowding. Environmental datasets will be deterministically linked using address strings and Unique Property Reference Numbers (UPRNs) derived from the Address Index Matching Service (AIMS), with clerical review to quantify the linkage error. This presentation will describe progress to date, outline methodological challenges and reflect on key lessons learned. The resulting cohort provides an unprecedented opportunity for studying environmental influences on child health and enabling the translation of population data science into evidence-based policy.

