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Creating a learning health system to include environmental determinants of health: The GroundsWell experience

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Policies aiming to prevent ill health and reduce inequalities in health need to consider the full complexity of health systems, including environmental determinants. Our objective was to establish privacy-preserving household record linkage for England, ensuring person-level health data remain secure and private when linked with data from households or the wider environment.

We held a stakeholder workshop with participants from the health board, data processor, data provider and academics, where we discussed the risks and benefits of household linkages. This group co-designed actionable dataflows.

A process was defined whereby the Personal Demographics Service dataset, which includes the addresses of all patients registered with a General Practitioner in England, could be used to match patients to a home identifier, for the time they are recorded as living at that address. Discussions with NHS England resulted in secure and quality-assured data linkages and a plan to flow pseudonymised data into regional health boards. We agreed methods for matching algorithms, transfer processes, and information governance approvals. Our collaboration accelerated the development of a longitudinal version of the household linkage system, facilitating future public health intervention evaluations, such as those in GroundsWell.

Establishing a secure method for protecting the privacy of NHS patients in England, while allowing linkage of wider environmental data, enables local health systems to learn from their data and improve health by optimising non-health factors. Proportionate risk-benefit governance of health and linked non-health data is practical in England for incorporating key environmental factors into a learning health system.

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