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Connecting data for better outcomes 9

Kent integrated Database – using the UPRN to support health and care providers

The Kent Integrated Databset (KID) is a whole population pseudonymised person level linked dataset based on data flows from hundreds of local health and care providers in Kent & Medway.

KID is making increasing use of unique property reference numbers (UPRNs) as a link between datasets at household level, and NHS numbers to link data at person level.

Governance is through a local data partnership between Kent County Council Public Health and Kent and Medway Clinical Commissioning Groups. The work evolved from Kent's participation into national integration programmes over the last four years. Datasets from hundreds of local health and care provider organisations flow into a local data warehouse which is the deemed 'third party data processor'. Data is routinely accessed by Kent County Council's Public Health Intelligence for population health analytics purposes. It contains three types of data:

- Demographics: a dynamic list of patient population information comprising of age, gender and LSOA. This dataset is derived from monthly updates

of the registered patient list for Kent & Medway population known as the 'Patient Master Index' from NHS Digital. This set of information represents the 'hub' of the KID in which all other datasets are linked to each other, using the pseudonymised NHS Number of each registered patient and the UPRN, based on national IG rules and guidelines

- Structured activity and cost data from up to 250 local service providers, mainly GPs as well as acute, community and mental health, adult social care, hospice, fire & rescue, etc. The estimated total value of health and social care services reflected in the KID is at least £3.5 billion
- Segmentation tools: Such as:
 - Index of Multiple Deprivation, reported at LSOA
 - Combined Predictive Model (local risk stratification tool developed by HISBi)
 - MOSAIC, a system for classification of UK households from Experian
 - ACORN, a consumer classification tool from CACI's that segments the UK population
 - Electronic Frailty Index.



How is the data connected?

The UPRN is the 'golden thread' that enables addresses to be easily referenced against each other, linking information held in one system to another.

Along with the NHS number, it provides a linkage point for the patient population data within KID. This makes it possible to identify where data from different sources relates to an address, and thereby begin to identify any patterns, without revealing the identities of the relevant individuals. This is especially important given the data protection considerations when accessing and analysing person level datasets to assess population health risks and inequalities in health and care provision.

Because so much of what Kent does is based around a location, by adding a single field containing the UPRN it makes it possible to link matching records in different databases together for analytical purposes. It's ability to bring datasets together geographically, at a LSOA level, enables visualisation of where things are in the real world, vital when trying to understand where resources need to be deployed.

What are the outcomes?

1. Long term residential care: county council commissioning requires detailed understanding and regular research of the care home market and bed availability, both from geographical as well as a population needs perspective. A cross-sectional analysis was carried out in an attempt to quantify and understand the distribution of total care home residents in Kent, including self-funders. This was done using the UPRN and an updated list of care homes derived from local and national sources to create care home 'flags' for each person in the KID. Preliminary results indicated only a third of estimated care home residents (~6000) could be identified. Most of them were already known to adult social care. Further work is planned to investigate the reasons behind this.

2. Fire as a Health Asset - This is a national initiative, supported by Public Health England and NHS England, where Fire Authorities across England are delivering 'Safe and Well' visits to each household to improve health and wellbeing, reduce social isolation and risk of unintentional injuries in the frail or elderly. Following on previous successful attempts to link historical

home safety visit data from Kent Fire & Rescue, with hospital data in the KID using probabilistic matching, substantive arrangements have now been made to link these datasets using UPRN. This project will help towards setting up a robust evaluation framework to assess the ongoing impact of KFRS visits on health care demand and the wider system.

3. Vulnerable Families - Developmental analyses carried out the Public Health Intelligence team to support commissioning of Children & Young People services focused on the use of UPRN to develop robust samples of families with single and multiple vulnerabilities such as single parents, teenage parents, mental health issues, learning disabilities. Such work will help towards modelling the progression of need in the adults and children and young population cohort model.

4. Effect of household type on health care demand - This refers to categories such as living alone, single parent, communal establishment, carers etc. Previous ecological studies looking at variation in health care use by deprivation masks out the effect of specific factors such as household type. Recent analyses of the KID showed increase in emergency admission rates by household type using UPRN, particularly in: single parent families; living care homes and living alone in own house.

5. Section 136 - A cohort sample of 820 individuals was identified through the secondary mental health services dataset who were 'sectioned' and referred by Kent Police to a place of safety for specialist mental health assessment by Kent Police. Profiling of this cohort involved the use of the UPRN to identify what proportion of them lived alone.

Overall the UPRN is a great asset in linking data from NHS, local authority and other sources to explore public health; and can provide the scope for innovation around the linkages. This use of the UPRN can be replicated by other public authorities as they all have access to it from AddressBase, which is available from Ordnance Survey under the Public Sector Mapping Agreement.



GeoPlace is a public sector limited liability partnership between the Local Government Association and Ordnance Survey

