

Briefing note for eBradford project

The Connected Yorkshire programme has been successful in securing £4 million of funding from the Northern Health Science Alliance to deliver a regional Connected Health City. eBradford will be leading the region to deliver this programme. Our vision is to provide a shared digital platform to harness the potential of big data; by linking multiple large datasets of routinely collected health and social care data to influence how we deliver care to our population while preserving patient privacy.

Connected Yorkshire will provide a population data laboratory by linking data generated in Bradford and Sheffield to demonstrate a large scale collaborative approach to the development of a connected health region. The University of Leeds will provide analytical infrastructure through the Leeds Institute for Data Analytics (LIDA). The University of York will provide epidemiological and health services research expertise.

Bradford holds unique potential for data linkage. Almost all our health and social care providers in use the same informatics platform, SystemOne. A large number of our GP practices are also part of the ResearchOne database. Our city hosts the Born in Bradford and Better Start Bradford programmes which have demonstrated a strong sense of collaboration within our communities. There has also been strong engagement from our local authority, primary and secondary care providers and community leaders. This puts Bradford in a strong position as a pioneer to showcase the benefits of healthcare data linkage.

Benefits

Data linkage, and the advent of big data analytics holds enormous potential for improving and redesigning our local health and social services. Examples of benefits from data linkage and analytics include:

- 1) Evaluation of policy and evidence based pathway changes in our district e.g. Better Start Bradford, West Yorkshire Urgent Care Vanguard, and Airedale Care Homes Vanguard
- 2) Improving public health intelligence by risk stratification and identifying health needs of the population
- 3) Understanding patient flow problems to redesign care pathways and developing quality improvement projects to provide supportive care to patients who most need it

What data do we need?

We will utilise existing datasets to link patient data together, to allow us to tailor our interventions and deliver personalised medicine. We will be able to easily interpret outcomes to know if our interventions work and are cost effective for our population. This data needs to be visualised well so that it is useable by healthcare providers and commissioners. Our aim is to establish a user-friendly data platform which can rapidly evaluate if interventions are effective e.g. health and social care integration programmes, cost effectiveness of interventions such as the virtual ward project, and future projects within the West Yorkshire Urgent Care Vanguard.

Data crucible

We aim to include these datasets to create a new Bradford Data Crucible for large scale data linkage and analytics:

- Primary care (ResearchOne)
- Secondary care
- Community care
- Pharmacy
- Social services
- Education
- Yorkshire Ambulance Service
- Care homes

We will adapt best practice from other UK centres to develop a safe and secure data haven with pseudonymised data, so that no identifiable patient or public information will be accessible.

Proposed therapeutic areas

- 1) **Public health.** We will link research-calibre data from the Born in Bradford (BIB) and Born in Bradford Better Start (BIBBS) cohorts with other datasets e.g. from primary care, pharmacy and prescriptions, risk stratification, and ESRC, to provide public health intelligence on the wider health needs of our population and help evaluate large scale health and policy changes in Bradford (see example 1)
- 2) **Service redesign.** We will focus on understanding problems in patient flow and urgent care which will allow us to focus on redesigning care pathways. We will work closely with the West Yorkshire Urgent Care and Airedale Nursing Homes Vanguard schemes, to produce a rich and detailed picture on healthcare utilisation across the district through linkage of large datasets. By linking data from primary and secondary care, community care, care homes and the ambulance service, we can effectively design and evaluate quality improvement projects to improve the effectiveness of healthcare delivery (see example 2 below).

Next steps

- 1) **Community engagement** is a key part of our programme. We will build on our collaboration with BIB/BIBBS to extend our community engagement from the existing BIB/BIBBS cohort to the whole of Bradford for large scale data linkage and analytics.
- 2) **Identifying best practice.** We are visiting other sites across the country to adopt best practice in information governance. We will combine expertise from experts in the field e.g. Secure Anonymised Information Linkage (SAIL) in Swansea and Datawell in Manchester, to identify and develop best practice in the area of community engagement, data sharing agreements and information governance. We are working with the Bradford Strategic eHealth group to align our programme of work with other existing projects in the district e.g. Integrated Digital Health Records, and Developing Digital Roadmaps.
- 3) **Data safe haven.** We are also working with LIDA and our other partners across Yorkshire to develop a data safe haven with approved data sharing agreements and protocols for pseudonymisation, linkage, analytics and storage of data. We are also working closely with providers and commissioners to develop data sharing agreements to ensure that patient privacy is protected.

Childhood obesity. This is a national public health priority particularly for children of South Asian origin. We will link birth weight, child growth, and National Child Measurement data to provide life course trajectories for growth and obesity. We will use data linkage as a catalyst for change to empower health visitors, GPs, school nurses and teachers to develop early life obesity prevention interventions.

Quality of life in older age. Data linkage will allow us to investigate use of health and social care resources in the frail elderly. We will be able to test how primary care data can be used to develop an electronic frailty index to help target delivery of a supported self-management care pathway for people with frailty. Earlier identification and provision of support will help to improve quality of life in older age, and enable more efficient use of primary care, secondary care and social services.

