

## **GREATER MANCHESTER CONNECTED HEALTH CITY FINAL REPORT**

**April 1st 2019**

This document describes the end of programme reporting for the Greater Manchester Connected Health City (GM CHC) clinical care pathways, pathfinder projects and working groups.

### **Connected Health Cities**

Connected Health Cities (CHC) is a Department of Health and Social Care funded programme, which aims to improve the health and wealth of the North of England through better use of healthcare data and citizen information. Based across the North of England to establish Learning Health System (LHSs) in four city regions (North West Coast; Greater Manchester; the North East and North Cumbria; Yorkshire and Humber).

A LHS is a socio-technical concept in which, 'science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the care delivery process and new knowledge captured as an integral by-product of the delivery experience'. LHSs therefore, harness rapidly developing opportunities presented by informatics to learn from every patient, analyse the data collected and feed actionable insights back into the health system to drive improvement in care.

Five key pillars underpin the establishment of LHSs across the CHC programme:

- **Records:** A complete electronic health record for all citizens, accessible in real-time during clinical care and in everyday life for self-care.
- **Intelligence:** Deep and current population-wide evidence for more responsive healthcare commissioning and public health measures.
- **Action:** the capability to act on insights from data to change service delivery.
- **Evaluation:** A region-wide learning health system that optimises the delivery of care based on the evidence produced through delivering care.
- **Innovation:** Data-rich observational studies, trials and economic evaluations of medicines, devices and other interventions that can be undertaken across the population, quickly, at low cost.

### **Greater Manchester Connected Health City**

As part of the CHC programme, GM CHC has built an infrastructure to support implementation of the LHS cycle. This includes extraction, linkage and analysis of health data as well as rapid adoption and evaluation of interventions under proper research conditions whilst providing a continuous feedback loop of improvement and support for change.

The core element of the GM CHC infrastructure is the Ark, a research facility that aggregates data from different settings (such primary care, secondary care, and social care) in real time to produce timely, actionable intelligence. The Ark includes the Trustworthy Research Environment (TRE), a data safe haven which enables secure data sharing for research under controlled conditions; as well as an experienced team of specialists in information governance (IG, public engagement, information security, data management, epidemiology, and statistical analysis).

The Ark aims to reduce the existing fragmentation and inefficiency of health data analysis in the region. Infrastructure for, and experience with, accessing and analysing health data is currently distributed across a large number of organisations (such as the NHS, Public Health England, commissioning groups, and the University of Manchester) and people, with limited sharing of knowledge, experience, and tools between them. The Ark is designed to overcome these challenges as a hub for all research with health data in the GM region because it is generic (i.e., it can be used and re-used across different projects and datasets), and is scalable (i.e., it can adapt to novel data sources). Every health researcher in GM can analyse health data through the Ark (provided appropriate IG controls are in place). The Ark team is developing meta-data catalogues and creating a library of sharable data, analysis methods and scripts to help researchers understand the data within Ark. Public engagement is also a key pillar of the Ark in order to build a civic partnership based on trust around data sharing, and so is an open innovation environment to build partnerships with industry.

GM CHC has selected two care pathways to establish the requirements of the Ark and experiment with the infrastructure, which include: (i) reduction of inappropriate antibiotic prescribing in primary care and (ii) the acute and post-acute care for patients with stroke. In addition, three 'pathfinder' projects are defined (assessment of chronic wounds in community nursing; automated coding of clinical texts; and comparative safety of opiates for non-malignant pain) to explore new routes for accessing routinely collected health data for research.

In summary, the GM CHC Ark has:

- Established dynamic, longitudinal and iterative data flows
- Delivered data/knowledge/action cycles for the care pathway projects
- Provided analytical expertise of an international standard
- Contained a trustworthy research environment (or data safe haven) including a system for users to review what data are available and apply for controlled access to analyse discrete research questions
- Established public trust in the use of depersonalised health data
- Developed an industry engagement programme to accelerate growth in healthcare
- Led on proactive engagement with stakeholders, i.e. local government, Mayor, Chief Execs of NHS Trusts, CCG leads, GM Connect, Local Enterprise Partnerships, Public Health, to emphasise the utility of data-driven system wide healthcare change.