

# **PhD projects Greater Manchester Connected Health Cities**

**PhD studentships available to start from April 2017/September 2017**

## **Greater Manchester Connected Health Cities Programme**

**Project 2: Analytical services for health and social care stakeholders in the GM Ark**

**Supervisors: Dr Niels Peek, Dr Matthew Sperrin and Dr Caroline Jay**

### **Background**

Friedman's vision of a rapid learning health system comprises a close collaboration between stakeholders in the health and social care system around the use of data and analytics. In Friedman's vision, organizations that are members of a learning system are eligible to place queries to all other members who would then provide relevant information to address the query. For instance, an institution that is planning a clinical trial for a new intervention to be tested in a specific class of patients wishes to know whether a sufficient number of such patients exists to support the trial as designed. This institution places a query to the learning system: "How many patients who meet these specific eligibility criteria does your institution have?" All members of the learning system would receive the query, and many would reply with an answer expressed as a numerator (the number of patients who fit the criteria) and possibly a denominator (the total number of patients evaluated) as well. This allows the institution that is planning the study to determine whether the proposed sample size is feasible and to develop an appropriately designed strategy for patient recruitment. This type of service already exists in Greater Manchester with the FARSITE software provided by NorthWest EHealth. FARSITE can run queries across federated systems of primary care Electronic Health Record databases.

Building on existing services such as FARSITE and emerging services such as Datawell, the GM Ark aims to establish analytical services that can be used by stakeholders across health and social care to evaluate and improve their services. For instance, the BRIT project aims to give GPs access to online, interactive feedback tools to analyse their antibiotic prescribing data and benchmark it against prescribing data from other practices.

### **PhD project proposed outline**

This PhD project focuses on the design, implementation, and evaluation of online analytical services for stakeholders in the GM health and social care system such as GPs, consultants, public health professionals, patients, and commissioners. Specific attention will be given to the needs of potential users as well as usability of analytical tools from the perspective of users with a non-technical background. There will be four work packages:

- 1 a survey across health and social care stakeholders in Greater Manchester to assess their analytical needs and current use of analytical tools
- 2 a review of online analytical software tools that are publicly and commercially available
- 3 design and implementation of online analytical services provided by the GM Ark
- 4 evaluation of usability and perceived usefulness of the implemented services

**Student background required:** We require a student with a minimum of an upper second class bachelor's degree in computer science, biomedical engineering, or a closely related discipline, with an interest in health informatics and machine learning. Training will be available in learning health systems; epidemiology; and biostatistics.

*Friedman CP, Wong AK, Blumenthal D. Achieving a nationwide learning health system. Sci Transl Med. 2010 Nov 10;2(57):57cm29.*

**CLOSING DEADLINE: FEBRUARY 17<sup>th</sup> 2017**