Annual Report 2013-2014
The Farr Institute’s Vision

To harness the knowledge from health records data and other sources to improve the health of patients and communities by establishing a pre-eminent interdisciplinary UK health informatics research institute.
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WHO WE ARE

The Farr Institute aims to deliver high-quality, cutting-edge research linking electronic health data with other forms of research and routinely collected data, as well as build capacity in health informatics research.

The Farr will do this by providing physical and electronic infrastructure to facilitate collaboration across its four nodes, support their safe use of patient and research data for medical research, and enable partnerships by providing a physical structure to co-locate NHS organisations, industry and other UK academic centres.

The Farr Institute comprises four nodes (Centres) distributed across the UK and led from the University College London (Farr Institute London), University of Manchester (Farr Institute@HeRC), Swansea University (Farr Institute CIPHER), and the University of Dundee (Farr Institute@Scotland).

The Farr includes researchers from 24 UK Universities, as well as seven Universities and research institutes in Canada, Australia and Finland. These researchers work closely with a range of NHS organisations and industry partners to deliver on the Farr’s priorities.

The Farr Institute’s funders
The Farr is funded by a £17.5m research award from a 10-funder consortium, plus additional £20m capital funds from the Medical Research Council.
OUR PRIORITY AREAS

1. Cutting-edge research
   - Undertaking research in health informatics and development of e-health applications

2. Building the UK’s capacity in health informatics research
   - Creating a physical infrastructure
   - Developing training & career development opportunities

3. Improving scalability of data
   - Harmonising e-infrastructure
   - Enabling datasets
   - Advancing proportionate information governance
   - Developing innovative methods (e.g. for linking data)

4. Engaging, collaborating and communicating
   - Strengthening public engagement
   - Promoting collaborative leadership
   - Building industrial partnerships
   - Communication

Who was William Farr?
The Farr Institute is named after the British epidemiologist, William Farr (1807-83). One of the “founding fathers” of medical statistics, Farr’s most significant contribution to public health was setting up a system that routinely recorded the causes of death. Such detailed statistics provided the raw data which allowed a far more detailed analysis of death within the general population.

“Diseases are more easily prevented than cured and the first step to their prevention is the discovery of their exciting causes.” (William Farr)
The Farr Institute has had a very busy and successful first year, both in establishing itself as a functional Institute and starting to deliver against its Priority Areas.

The following pages outline a selection of some of the Farr’s achievements during its first year.

The Farr Institute’s first year: Key Metrics

During its first year, the Farr Institute...

- Generated a total of 259 research publications
- Secured 82 further grant awards - worth a total of over £114 million
- Recruited 57 researchers and other staff
- Presented at over 140 conferences, seminars and other events
- Compares care and outcome of heart attack in the UK and Sweden, demonstrating the potential of national scale data to reveal differences in results and trends between two medical systems.

- Outlines how the Secure Anonymised Information Linkage System (SAIL)’s ability to anonymise data at both household address and individual levels has allowed previously unfeasible research to be undertaken successfully.

- Analysis of routine data provides an efficient way of exploring health risks and outcomes. Researchers aimed to undertake the first Scotland-wide linkage of children’s health and education data to show the feasibility of such cross-sectoral linkage for research.

- Developed a computational model that increases detection of missed opportunities for healthcare improvement by contrasting observed with expected care in pathway searches of coded electronic health records.

- Beneficial and adverse effects of interventions / real world effectiveness of zoster vaccine based on US Medicare data that confirmed the efficacy previously seen in randomised trials (Langan et al. 2013).
- This directly informed the UK Joint National Committee on Vaccination & Immunisation decisions around this vaccine.

Warren-Gash et al. (2013). Influenza-like illness in acute myocardial infarction patients during the winter wave of the influenza A H1N1 pandemic in London: a case control study. (BMJ open 3:f1936)

- This work on the link between influenza and cardiovascular disease informed US National Stroke Association guidelines.

Recent grant awards: highlights

MRC Dementias Research Platform (2014, £4.5m)
- Includes researchers from Farr Institute CIPHER and Farr Institute London. Researchers from Farr Institute @HeRC formed part of a subsequent related bid.

MRC Medical Bioinformatics (2014)
- Medical Bioinformatics Initiative (eMEDLAB) (£8.9m)
- The MRC Consortium for Medical Microbial Bioinformatics (CCMB) (£8.5m)
Creating a physical infrastructure
The Farr Institute is creating six interconnected physical locations around the UK, to provide dedicated spaces to support partnerships by co-locating academia, industry & NHS organisations.

Locations: Edinburgh & Dundee
Progress: Farr Institute@Scotland moved into its Dundee office in March 2014, and its Edinburgh office (shown right) in April 2014.

Locations: Manchester & Liverpool
Progress: Farr Institute@HERC moved into its Manchester office (shown right) in August 2014. Due to move into Liverpool office in November 2014.

Location: Swansea
Progress: Farr Institute CIPHER is due to move into a new Data Science building in June 2015 (illustrated right).

Location: London
Progress: Farr Institute London moved into its new office (above) in April 2014.

Creating training & career development opportunities
A number of courses, modules and events have been created, including:
- Two new MSc courses in Health Data Science courses have been launched within Farr Institute CIPHER and HeRC, and an MSC in Global eHealth created within Farr Institute@Scotland (all started in September 2014). An MSc in Data Science course is also being developed in Farr Institute London.
- A range of short courses (including CPD courses) have been delivered at different Farr Centres (e.g. on Biomedical modelling for health data; Missing data; Introduction to health data analysis; and Concepts & methods in causal inference).
- A variety of conferences, seminars and workshops have also been delivered (e.g. the Scottish Health Informatics Conference, and seminars/workshops on handling textual data and providing an introduction to healthcare apps).
- A number of Farr-wide initiatives are also being developed, including a Summer School (for 2015), a Farr Institute curriculum for a training course on using routinely collected data; and an international cohort-based programme for mid-career researchers to identify and develop them as new leaders of informatics research.

As part of establishing the Farr Institute, 57 individuals have been recruited to the Farr Institute in its first year, including 43 academics/researchers, four educators and ten operational/technical staff members. This will also serve to boost the UK’s capacity in health informatics research.
Priority Area 3: Improving scalability of data

Harmonising e-Infrastructure

- A number of data “safe havens” have been created, including havens in each of the Farr Centres.
- Considerable investment has been made in regional infrastructure projects (e.g. integrating primary and secondary care data across the North of England).
- The Farr held a series of workshops with the Janet network, the Medical Bioinformatics Centres and the Administrative Data Research Centres to develop common e-Infrastructure to enable secure data transfer and sharing of resources between centres.

Enabling Datasets

A number of new datasets have now become available for research, for example:

- Scotland’s national Prescribing Dataset.
- Extended educational attainment and attendance data from the Welsh Government’s National Pupil Database.
- Home Energy Efficiency database.
- Microbiology data (including blood and urine cultures) from Public Health Wales.
Advancing Proportionate Governance

- An IT Infrastructure and associated management processes for the Farr Institute have been created that are designed to meet NHS security and information governance requirements.

- Joint research conducted for the Nuffield Trust/Wellcome Trust by Farr Institute researchers in Scotland and Wales reviewed harms resulting from health data security breaches.

- A one-day course in Information Governance is being created.

- A new web app has been developed to help researchers make decisions about data use and sharing that are compliant with legal and institutional policy requirements.

Developing Innovative Methods

- A methodological toolkit has been developed to use primary care data for surveillance of prescribing.

- Partnerships have been established with MRC Bio-statistics aimed at developing methodology, including propensity scores.

- Research Object specifications are being developed, with the aim of enabling Research Objects to be exchanged between research platforms across the Farr Institute.

- A Research Council funding bid has been submitted on the development of a principled and scalable privacy methodology for data sharing in safe havens.
Priority Area 4: Engaging, Collaborating & Communicating

**Strengthening Public Engagement**

- Training and support is being provided to researchers across the Farr to facilitate effective Public Engagement (PE) (e.g. training events, PE clinics).
- Public/Patient panels and PE ambassadors have been established within various parts of the Farr.
- Patient and Public Engagement Co-ordinators are now in place in each Farr Institute Centre.
- Farr PE work on cardiac surgery has been adopted by NHS England across non-cardiac surgical specialties (Farr Institute London/Farr Institute@HeRC collaboration).
- A PhD studentship in PE and a Research Officer in Public & Patient Involvement have been created/recruited.

**Promoting Collaborative Leadership**

- The Farr Institute’s work to develop the UK Health Informatics Research Network has provided a platform for UK academia, the NHS, industry, government and others to come together to discuss and address key strategic opportunities and challenges facing the UK Health Informatics Research community.
- The Farr is appointing a Chief Scientific Officer to provide a strategic focus at the interface between the Farr, the NHS, industry and other research centres.
- A Farr Institute Expert Advisory Board has been established to provide the Farr with a global perspective and help it assess in which areas the Farr (as part of the wider UK Health Informatics Research community) can become a world leader.
Building Industrial Partnerships

• The first Farr Industry forum was held in December 2013. The next one will be held in December 2014.

• New relationships between the Farr Institute and industry have been developed (e.g. with Alere, Deloitte, Hitachi and TPP).

• Existing partnerships have been further extended (e.g. with GSK on the evaluation of the Salford Lung Study).

Communication

A range of ways for the Farr Institute to communicate with different audiences has been developed, including:

• A Farr Institute website (pictured below)

• Presentations from the Institute at over 140 events across the UK and further afield

• Dedicated Farr Institute events, including the Farr Inaugural lecture and the first Farr Industry Forum

• A sophisticated Institute-wide Telepresence system, helping Farr researchers from across the UK to work together effectively

• Farr Centre-level newsletters

The Farr Institute website: www.farrinstitute.org
The Farr Institute acts as the nexus of the wider UK Health Informatics Research network (UK HIRN).

The Institute will co-chair a number of UK HIRN working groups, that will act as a vehicle for progressing several of the Farr’s Priority Areas during 2014/15 and beyond.

The Farr Institute going forward

The Farr Institute has spent much of its first year working to establish its external presence, its physical & electronic infrastructure and internal processes, as well as securing grants to take forward its research programme.

The coming year will see the Farr focusing more on delivering research impact, and at scale; with projects increasingly being carried out collaboratively across several Farr Institute Centres.