

# Scottish Health Informatics Programme



November 2011

## SHIP Biennial Conference 2011

### Inside this issue:

SHIP Conference 2011	1
National Prescribing Dataset	2
Introducing Craig Reed	2
SHIP Online Toolkit in Testing	3
Training Course: Geographically Weighted Regression	3

Conference delegates gather before the conference dinner and ceilidh.

SHIP biennial conference "Exploiting Existing Data for Health Research". Was held on 9th - 11th September 2011 at the University of St Andrews. The conference was ably organised by the SHIP Researcher Engagement team and was designed for researchers and practitioners interested in record linkage and the use of routine health data in their research. Since we are united by an appreciation of statistics: 119 presentations were given in four parallel sessions. 229 delegates attended, 52 of whom came from out with the UK. An impressive 21 people came all the way from Australia to attend – by far the biggest national group after the British. 17 countries were represented in all.

The keynote speeches were:

- **Sir Harry Burns**, Chief Medical Officer for Scotland spoke on "*Managing the Social Determinants of Health – easier*

*said than done*".

- **Professor Paul Burton** Professor of Genetic Epidemiology, at the University of Leicester spoke on "*Methods and tools for co-analysing biobanks*".
- **Professor Sir Rory Collins**, Chief Executive and PI of UK Biobank and co-director of the University of Oxford's Clinical Trial Service Unit & Epidemiological Studies Unit spoke on "*Effective strategies for identifying and phenotyping health outcomes*".
- **William W. Lowrance** PhD, Consultant in Health Research Ethics and Policy, spoke on "*Privacy and Genomic Research*".

However it wasn't all work - the International Health Data Linkage Network held a social evening and there was a conference dinner and ceilidh held in the beautiful College Halls. Join us for the next conference in 2013.



## Patient-based Community Dispensing Data for Scotland

ISD Scotland holds comprehensive data on prescriptions dispensed in the community in Scotland. Although the data does not cover drugs issued in hospitals and clinics. In recent years CHI has been attached to an increasing proportion of prescriptions, making patient-level analysis possible.

CHI is currently present on around 93% of all prescriptions dispensed in the community in Scotland from August 2009 onwards. For prescriptions prescribed by GPs (i.e. using the GP10 form) the figure is around 96%. These levels of CHI completeness mean that patient level analysis can be carried out with a reasonable degree of accuracy.

Data items which are key to

the contractor remuneration process e.g. drug type (BNF information, approved name), strength, formulation and costs information are recorded with a high level of accuracy.

Where CHI is present, patient demographics such as age, gender, deprivation and a range of geographic residence information are available.

However, the only date which is associated consistently with each dispensed item is the month in which the dispensing pharmacist's claim for payment was submitted ('paid month'). Paid month is closely related to the date of dispensing and is currently the only available proxy.

The dispensing data can be linked via CHI to other data sets such as the hospital admissions

and deaths data mart.

Current analysis is limited to prescriptions which are dispensed. Developments over the coming year should enable better availability of prescribing dates and better linkage between information on prescribing and dispensing.

Over the next year the Scottish Pharmacoeconomics Centre will be developing and streamlining analytical techniques to optimise and widen the scope of patient-based analysis.

Contact Anthea Springbett for linkage questions [anthea.springbett@nhs.net](mailto:anthea.springbett@nhs.net)

Or Steve Kendrick for questions about the prescribing data [skendrick@nhs.net](mailto:skendrick@nhs.net)



## Introducing Craig Reed

Craig Reed is a statistician at the University of Edinburgh. Craig says, "I have always been interested in mathematics and particularly it's applications. I studied maths and statistics at A level and realised that I would like to study it further at degree level."

After obtaining a BSc Honours at Brunel University, he took a PhD in statistics at the same university.

Following it's successful completion, Craig moved to Edinburgh to take up a post a research fellow working with Professor Paul McKeigue.

This current phase of the work uses data from the Scottish Diabetes Research Net-

work and by treating it as a cohort study, the analysis can uncover links between fractures and particular drugs used to treat diabetes.

Craig's role in this job involves a significant amount of computing, as well as making use of Bayesian statistics and machine learning. Most of the computation so far has been data manipulation which has been done in the R programming language. However, he has had to learn Matlab to take advantage of existing code for the machine learning component and will be using C++ later on to speed up the computationally intense calculations.

The goal of this work is to extend the current analysis to produce a tool that can explore

more general healthcare databases and generate hypotheses stating that a certain drug is more likely to cause an adverse event. As well as backing up existing studies, this tool has the possibility to detect new adverse event/drug pairs. Such hypotheses can then be investigated further by additional data collection and/or analysis.

The major obstacle to this goal is that those individuals who go on to a drug are likely to be "different" from those who don't (confounding by indication). The team is currently investigating models that can learn something about how much confounding by indication is present in the data.

Contact Craig at [craig.reed@ed.ac.uk](mailto:craig.reed@ed.ac.uk)



Craig Reed

## SHIP Online Toolkit in Testing

Following a successful demonstration at the SHIP Biennial Conference in St Andrews, the online SHIP Information Governance Toolkit is reaching the final stages of the development process.

The Toolkit is designed to be an easily accessible online facility which assists both researchers and data custodians in navigating and understanding the often complex legal concepts and legal instruments which govern

the use of data. It is primarily designed to be used by researchers and data custodians seeking to use SHIP, however it is envisaged that it will be a useful resource for those involved in healthcare research more generally.

The Toolkit contains information pages on key legal concepts such as confidentiality, consent, anonymisation and the public interest, as well as guidance pages on key pieces of legislation, such as the Data Protection Act 1998, the Human Rights Act 1998 and the Freedom of Information Acts. In addition, interactive 'route-maps' have been created to guide both researchers and data custodians through the SHIP processes and to present the legal concepts and legal framework in a practical and accessible format.

A Distance Learning Module is also being developed alongside the Toolkit as an educational

resource for researchers who are seeking to access data through the SHIP infrastructure. Completion of the module will be a prerequisite for any researcher using SHIP. The module seeks to advance the understanding of information governance gained through use of the online Toolkit and to help develop core skills and an increased awareness in the importance of information governance.

The Toolkit and Distance Learning Module are currently being developed and piloted by members of SHIP and the wider healthcare research community, with the pilot phase being due to be completed by the end of 2011. It is envisaged that both the Toolkit and Distance Learning Module will be launched in spring 2012.

For more information please contact Sarah Sutherland at [s0784445@sms.ed.ac.uk](mailto:s0784445@sms.ed.ac.uk) or N a y h a S e t h i a t [nsethi@staffmail.ed.ac.uk](mailto:nsethi@staffmail.ed.ac.uk).

### A Blueprint for Health Research in Scotland

The SHIP blueprint will shortly be published for consultation on the SHIP website. It follows 18 months of review of international best practice and outlines how a research infrastructure and governance infrastructure can support health records research in Scotland. It is proposed to consult widely with stakeholders across Scotland including the public, Caldicott Guardians, data controllers, researchers and the NHS.

## Training course: Geographically Weighted Regression

**Geographically Weighted Regression:** A Two-day training workshop from the Applied Quantitative Methods Network (AQMeN)

To be held at the University of Dundee on the 8th and 9th December 2011.

The course is presented by Stewart Fotheringham, Professor of Human Geography, University of St Andrews and Dr Urška Demšar, National Centre for Geocomputation, NUI Maynooth

This two-day course introduces the technique of Geographically Weighted Regression (GWR) for modelling spatially-varying relationships in social science data. The course consists of lectures, examples and practical sessions using GWR and ArcGIS. It is intended for those using or considering using regression modelling or relative multivariate methods within social research contexts.

For more details see the SHIP website or contact AQMeN at:

The University of Edinburgh,  
15 Buccleuch Place, 2nd flr  
Edinburgh, EH8 9LN  
tel: 0131 650 2128  
email: [info@aqmen.ac.uk](mailto:info@aqmen.ac.uk)



### Comments to:

Violet Warwick,

SHIP Manager

University of Dundee

Mackenzie Building

Kirsty Semple Way

DUNDEE

DD2 4BF

Tel 01382 420105

Mobile 07751128455

[vrwarwick@dundee.ac.uk](mailto:vrwarwick@dundee.ac.uk)