Data Linkage Scotland
Information and case studies about data linkage research and services

www.datalinkagescotland.com
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Preface

Data science is moving rapidly. In Scotland we are keeping pace with the establishment of The Farr Institute of Health Informatics Research, the Administrative Data Research Centre, the Urban Big Data Centre, and Data Safe Havens across Scotland giving us the ability to safely and securely use routinely collected data like never before.

As you will see, these developments are opening up new possibilities to use and link different types of data, and to ask new questions about the influences on our lives and to understand them better. Through the use and linkage of different data we can examine the distribution and development of our populations. We can assess how health, education, social and economic aspects of people’s lives differ between population groups and use this information to provide evidence based policies to improve the way we live. We can also look to see where our policies are working well and where we need to drive improvements or find new solutions. All this work needs to be done in a trustworthy manner, with ongoing public engagement and involvement. Rigorous oversight and governance is essential to make sure our activities are in the public good. This booklet gives a small snap-shot of the work that is going on but I hope you enjoy reading the stories which give you a flavour of the benefits that data science can bring to understanding and improving our lives.

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Introduction to the landscape

Valuable information about us is routinely collected when we engage with certain services or have major life events. Within Scotland, we have made great progress in recent years in building systems to support high quality research using linked administrative data to benefit our population. We only use the minimum information needed to improve public care and services. We have made improvements to the governance arrangements to ensure data is only shared in ways which are ethical and legal. And we have developed the technical capacity to link data securely and efficiently.

This brochure aims to provide an overview of these efforts, including case study examples from key organisations and information on valuable research and services offered in data linkage.

Scottish Informatics and Linkage Collaboration (SILC)
Administrative Data Research Centre - Scotland, Urban Big Data Centre and The Farr Institute are members of the Scottish Informatics and Linkage Collaboration. SILC occupies an important role within the linkage community, by offering a range of services and facilities to its members to enable efficient data linkage.

Through SILC, members benefit from shared office, computing and indexing resources at the BioQuarter safe haven in Edinburgh. SILC does not carry out its own research; rather external researchers access the facilities provided by SILC through one of the partners comprising the broader collaboration.

While partners retain their distinct roles within the linkage community, this arrangement supports the process of knowledge sharing and best practice between partners in key areas such as legal and ethical considerations.

What is data linkage?
Data linkage is the joining of two or more datasets. Data linkage allows for a wealth of information to be brought together to answer a research question or produce statistics, that could not be done using a single data set.

Data linkage is undertaken within a controlled environment to ensure that the research carried out is legal, ethical, secure and efficient. It is important to note that linked research data is only held for the duration of an approved project, following which the research dataset is destroyed.

How is data linked?
Scotland does not have a single database containing all administrative and survey data and there is no intention to create one. Instead, data is collected and held by individual organisations, for example NHS Boards, local authorities and other public bodies, as part of their statutory functions.

Partners will only bring together data from different organisation for clearly specified research and statistical purposes if it is in the public interest to do so. All data controllers involved in a project must approve the linkage of the data they are responsible for. Only the minimum amount of data is linked to answer the specific research or policy question or to produce statistics.

The links between the data are broken as soon as is practical and in accordance with the data controllers’ instructions and only ‘approved researchers’ can access the linked data.

At every step of the linkage process, due consideration is given to the responsible handling of data. As a result, the process of linking data can be complex and takes time. A number of safeguards are in place to ensure privacy is addressed throughout the data linkage process.

How is linked data accessed?
Computing resources are located at a number of secure locations across Scotland. Approved researchers can access data from a secure access point (called a safe haven) at an approved institution. Some of these access terminals have video surveillance facilities to monitor researchers while they use the data. Approved researchers may also be able to access data remotely from a PC using a secure virtual private network. The decision relating to whether the researcher is required to be in an observed environment or has remote access rests with the contributing data controllers.
Administrative Data Research Centre - Scotland

The Administrative Data Research Centre (ADRC) - Scotland provide a safe, secure data linkage service for researchers in Scotland. We enable researchers to carry out social and economic research using administrative data - the information that public organisations collect every day. Based at the Edinburgh BioQuarter, Number 9, we are part of the UK Administrative Data Research Network (ADRN).

We work alongside our sister centres in Northern Ireland, Wales and England, and with the Administrative Data Service. Our Network is a partnership between universities, national statistics authorities, the Economic and Social Research Council, government departments and agencies, and researchers. The ADRN organises an annual conference to showcase administrative data research conducted throughout the UK: adrn.ac.uk/conference

Around 50 colleagues in the ADRC-Scotland work across subjects such as housing, transport, welfare, health, social work, older people’s services, education and criminal justice system. We also want to discover the research potential of Scotland’s rich historical datasets. For further information on ADRC-Scotland visit: adrn.ac.uk/about/research-centre-scotland
The Farr Institute, Scotland

The Farr Institute, Scotland is a collaboration between six Scottish Universities and NHS National Services Scotland. Its aim is to both improve the health of the Scottish population and place Scotland as a global leader in health informatics research.

The collaboration harnesses health data for patient and public benefit by setting the international standard for the safe and secure use of electronic patient records and other population-based datasets for research purposes.

Clinical, population and computer scientists combine their expertise to interpret large and complex health datasets in research environments that safeguard patient confidentiality. Researchers develop methods for safely sharing, combining and analysing diverse datasets across boundaries, enabling new discoveries and validating research findings with a speed and scale not previously possible.

The Institute’s independent research supports innovation in the public sector and industry leading to advances in preventative medicine, improvements in NHS care and better development of commercial drugs and diagnostics. For further information on The Farr Institute visit: farrinstitute.org

Urban Big Data Centre

The Urban Big Data Centre (UBDC) aims to help researchers harness the potential of big data to develop solutions for environmentally sustainable, economically resilient, and socially just cities.

Established by the Economic and Social Research Council, the UBDC brings together interdisciplinary expertise of urban social scientists and data scientists from the University of Glasgow and six partner universities to seek solutions in addressing such challenges.

As a UK-wide data service, the UBDC supports researchers, data owners, policy makers, and everyday citizens in extracting useful information from urban-related data. We do this by providing:

- access to a wide spectrum of data on urban areas in the UK.
- data management support for researchers who want to use our data resources.
- data acquisition services for researchers including data discovery, licensing, capture and extraction.
- consultative support for data owners who wish to share data with our user community.
- training and skills development for different audiences, including technological, methodological, and policy-focused sessions.
- knowledge partnerships and innovation with organisations to scope and develop solutions for substantive urban issues, both local and global.

From open data to more secure or confidential data, the UBDC makes data on transport, housing, economic development, education and the environment easier to access – while always preserving individual confidentiality. We also conduct primary data gathering through our own research projects, and produce new data or estimates using urban models and simulations, including user-generated social media and sensor data. We are also committed to providing useful training and skills development services. We offer training courses in analytic tools and software, and a range of seminars, workshops and other activities to build the skills needed to use urban data and understand its potential for improving city services. More details on how to access UBDC services can be found on our website: ubdc.ac.uk
Available data sources and how to access them

eData Research and Innovation Service (eDRIS) is a service offered with the National Safe Haven. eDRIS aims to support researchers and policy analysts by advising which administrative datasets are available, their data controllers and locations, strengths and weakness (in terms of content and data quality), and the processes required to gain access.

The eDRIS team also provide an analytic and interpretive service when this is required by customers. The eDRIS team ensure that access to national data resources are only provided after ethical and data controller permissions are in place, the researcher has achieved ‘approved researcher’ status, and outputs from analyses are only released from the safe haven after disclosure control procedures have been undertaken.

How to access eDRIS services

A single eDRIS Team supports both the Farr Institute Scotland, ADRC-Scotland, and Urban Big Data Centre and is located at NINE, BioQuarter in Edinburgh. This team also answers customer enquiries and advises external researchers interested in using the collaborative facilities.

An individual wishing to undertake a data linkage project using one of our partner bodies must demonstrate to eDRIS that they are an ‘approved researcher’. This is done through appropriate training which addresses the Guiding Principles for Data Linkage, the legal and ethical concepts governing data linkage, Safe Projects, Safe Data, Safe Outputs and other issues surrounding data linkage, supporting the researcher when considering whether:

- that privacy is considered when linking data.
- that data is secure and can only be accessed under controlled conditions by qualified personnel.
- that there are consequences or sanctions in place if data are not used responsibly.
- organisations are responsible for having qualified individuals in post to ensure that the research being carried out is legal, ethical, secure and efficient.
- every organisation involved in collecting administrative and survey data is classified as a ‘data controller’ and is bound by the Data Protection Act; it is their duty to keep data safe.

Administrative Data Research Centre - Scotland

As our website explains, an Approvals Panel evaluates a researcher’s project application, and considers requests on the basis of their potential benefit to society. A researcher needs to show that the information is not already available elsewhere in a more accessible form and provide convincing evidence that the data is essential to the research aims. A research project will have to show that it needs to access de-identified unit-level administrative data, which may involve more than one source of data. However, not all the data sources have to be administrative records, for example linking administrative and survey data.

A project should be for non-commercial research purposes, demonstrate clear scientific merit and potential public benefit, has ethical approval and shows that it requires unit level administrative data to answer the research question. ADRC-Scotland will check that a project would not be more appropriately served by other existing data services (such as UKDS Secure Lab, Longitudinal Studies, HMRC Data Lab, etc.), and that it isn’t research which a government department or agency would carry out as part of its normal operations. All projects must meet strict criteria to qualify for access to linked, de-identified administrative data. The Approvals Panel, made up of external, independent experts, makes sure the process is fair, equitable and transparent. They will consider aspects of a proposal including if the project is feasible and if there is a demonstrable scientific merit.

To use ADRC-Scotland services, a researcher needs to be from academia, the public sector or a research organisation that is eligible for Research Councils UK funding, be capable of carrying out the research either independently or under the direction of an appropriate supervisor or lead investigator, attend our Researcher training, and sign up to our terms of use and breaches policy. Researchers also need to supply the name of an institutional guarantor affiliated to their institution, who will be required to countersign their application.
The Farr Institute, Scotland

The Farr Institute, Scotland does not hold or own data but facilitates research with data from various sources in secure and trusted environments. Delivering the benefits of data analysis to patients requires collaboration across many fields.

Collaborative programmes and partnerships with healthcare, academia, government and industry are key to delivering the benefits of The Farr Institute’s research to patients and the public. With accreditation in information security management and extensive e-infrastructure underpinning The Farr Institute’s work, our nationwide state-of-the-art super-computing capability can facilitate collaborations in secure and trusted research environments, compliant with all regulatory requirements.

We are committed to developing skills, talent and expertise in the health informatics research community and to providing tools for collaborative working. It is our aim to position Scotland as a leader in health informatics research and we can only do this by supporting the community. We welcome the opportunity to collaborate with new partners and would encourage researchers interested in our work to get in touch.

Urban Big Data Centre

The UBDC offers three distinct services for researchers to enable access to a wide range of data to study urban problems. These are:

Data Collections: We offer a free web-based service for researchers to access open and safeguarded data. Visit our ubdc.ac.uk to view our Data Catalogue and see the data we hold. If you’re a data owner, consider sharing your data with us to make it accessible to our community of researchers.

Data Sourcing Service: We may be able to source and acquire data not already held in our Data Collections for researchers. To access this service, the research project for which the data is needed must be approved by our independent Research Approvals Committee (RAC).

Controlled Data Service: We work with the established and highly respected provider, eDRIS, to provide UK-based researchers access to controlled data.

We aim to provide these services free of charge, but additional costs may be involved for data extraction, cleaning, programming or linkage, especially when sourcing new data.

We welcome applications to use our Data Collections year-round. Applications to use our Data Sourcing Service and Controlled Data Service are reviewed six-monthly. You may apply at any time via a brief web form on our website: ubdc.ac.uk. However, if you only need open data, you can have immediate access to our Open Data Collection: ubdc.gla.ac.uk. Additionally, we offer a range of activities for training, capacity-building, and knowledge exchange. All upcoming training courses and events are listed on our website.
New ways of exploring links between educational and developmental outcomes

Dr Chris Playford, University of Edinburgh

The Challenge
The cognitive & emotional development and the educational outcomes of children growing up in circumstances of socioeconomic disadvantage are likely to be poorer than those of children raised in more advantaged settings. ADRC-Scotland has been pioneering the use of administrative data to explore the links between educational and developmental outcomes, by exploring the extent to which the relationship between family socioeconomic position and educational attainment is moderated by being born small for gestational age and by child development, and in parallel by exploring variation in child development by birthweight and by family socioeconomic position.

Our Approach
We are taking forward previous research in Scotland and the UK more widely as a showcase of the type of question that can be fruitfully addressed in the ADRN. It has been recognised that low birthweight and socio-economic status impacts cognitive development, and previously investigated using the Scottish Mental Health Survey 1932, the Growing Up in Scotland (GUS) longitudinal survey, and the Aberdeen Children of the 1950s study. Scotland is particularly fertile in offering datasets that enable targeting of this topic, and we have linked Scottish datasets with the Scottish Longitudinal Study. This work has been part of a wider collaboration as part of the Scottish Health Informatics Programme (SHIP) Research Programme on Demographic, Socio-Economic and Environmental Data Linkage. The longitudinal linked administrative datasets created in these studies contain information on child birth outcomes, child development measures, child educational outcomes and parental socioeconomic position.

The Benefits
Our research to date has identified that a small part of the differences in educational attainment by family socioeconomic position are explained by the different birth outcomes of advantaged and disadvantaged children. Only a very small part of the differences in educational attainment by family socioeconomic position are ‘explained away’ by differences in child development. This is because the child development measures available indicate quite serious conditions which affect only a very small proportion of children. It was also identified that these child development measures were strongly associated with gestational-age specific birthweight and that fine motor, social and hearing abnormalities were much more likely for children with parents in lower grade occupations or those with parents who were long-term unemployed. These associations were net of other indicators of family socioeconomic position and birth outcomes, suggesting that infants from disadvantaged backgrounds remained more likely to experience these conditions beyond the differences that could be explained by other relevant factors (such as their birth weight). These findings confirm and support previous analysis through the use of administrative data.

The Impact
This is a critical issue for policy affecting children’s educational and wellbeing outcomes. These findings suggest that children growing up in circumstances of severe disadvantage are at higher risk of abnormal or doubtful vision & fine motor, social skills, and hearing & language and that this cannot be explained by differences in birth outcomes. The implication for policy is that these children will require additional support in their early years of development.
Exploring social and spatial mobility: Data linkage of the 1947 Scottish Mental Survey with administrative data

Dr Lynne Forrest, University of Edinburgh

The Challenge
ADRC-Scotland is at the forefront of the linkage of cohort studies with, and the creation of new cohorts from, administrative data, in order to undertake research that would previously have been impossible. The work described here is part of a wider project linking the 1947 Scottish Mental Study (SMS) to other health and social science administrative data to understand what influences people’s social mobility, health and well-being in later life.

Cognitive ability has been previously associated with enhanced social mobility but its relationship to spatial mobility is unknown. The escalator hypothesis suggests that regions which offer positive labour market opportunities may enhance the social mobility of those who move there. Large metropolitan regions of Scotland, such as Edinburgh, may operate as escalator regions. It has also been debated whether social mobility constrains or inflates health inequalities.

Glasgow’s life expectancy is lower than other Scottish cities and comparable English cities. As this is not entirely explained by the high levels of deprivation, a number of theories have been suggested, including that of selective migration, where the upwardly mobile move out of Glasgow, leaving behind those who are more deprived and less healthy.

Our Approach
To determine the drivers of social and spatial mobility and the relationship between social and geographic mobility and health outcomes and premature mortality in later life, the 1947 SMS (a 1936 birth cohort with age 11 cognitive ability test scores) was linked to the Scottish Longitudinal Study (SLS), and backward linked to the 1939 register to obtain parental occupation in 1939 (as a measure of social origin) and forward linked to obtain occupation from the 1991 census (social destination). The patterns of inter-generational social and geographical mobility of this cohort, and how this relates to their cognitive ability, were explored. To determine whether Edinburgh may operate as an escalator region we examined the movement between three geographical areas (Edinburgh, West of Scotland, Other) in Scotland. We also modelled the relationship between social and geographic mobility and health and mortality outcomes in later life.

We are also planning to explore the impact of social mobility and migration to New Towns on health inequalities and premature mortality in Glasgow using 1947 SMS data, with linkage to census and NHSCR data.

The Benefits
The use of administrative datasets to create new cohorts with large sample sizes will allow us to answer research questions that we previously could not, for example around spatial mobility in Scotland. Linkage to historic datasets allows exploration of factors that may be important across the life course.

We found that childhood cognitive ability and achieved education level were significantly associated with intergenerational upward mobility from childhood to middle age. Those who were spatially mobile were more likely to be upwardly mobile than non-movers. Edinburgh does appear to be an escalator region, as those who moved there were more likely to be upwardly mobile than those who remained or moved elsewhere in Scotland.

The Impact
Although these studies examine historical migration, relating individuals’ geographic and social mobility patterns to health outcomes in later life are likely to have current and future policy implications.
Using data to find out about the safety of medicines: Pioglitazone and bladder cancer

Prof. Helen Colhoun and Prof. Tom MacDonald, University of Dundee. Prof. Sarah Wild and Prof. Paul McKeigue, University of Edinburgh. Prof. Iain Buchan and Prof. Andrew Renehan, University of Manchester

The Challenge
It is estimated that 9% of adults in the world are currently living with diabetes and the World Health Organisation predict that the disease will be the 7th leading cause of death in the year 2030.

In the United Kingdom, over 5 million people are living with Type 2 diabetes which can be prevented by simple lifestyle measures such as achieving and maintaining a healthy body weight and staying physically active. However, many people require tablet treatments to lower the level of sugar in their bloodstream. This prevents symptoms and reduces the complications of diabetes including heart disease, blindness and kidney failure.

Pioglitazone is one type of tablet used to lower blood sugar levels. In 2011, a study was conducted in the United States which looked at 30,000 people who were taking pioglitazone for diabetes. The study suggested that taking this drug increased the risk of bladder cancer by 40%. As with all drugs, it is important to fully assess the benefits and potential risks of treatment. It was therefore essential to find out whether this risk of bladder cancer was real to the people taking the drug.

Our Approach
Led by doctors at the University of Dundee, researchers from the UK, including The Farr Institute researchers from Dundee, Edinburgh and Manchester, worked with colleagues from across the world to look more closely at the risk of developing bladder cancer in people who had been taking pioglitazone for diabetes. The study saw countries including Canada, the Netherlands and the UK working together to analyse data from more than a million people over a period of 6 years.

The Results
The bigger data from multiple populations, and bigger analysis from an international team of researchers, showed no increased risk of bladder cancer among people with Type 2 diabetes taking pioglitazone.

The Impact
These results will be useful to the authorities responsible for regulating drugs around the world including the European Medicines Agency and the U.S Food and Drugs Administration. The study provided important information on the safety of commonly used drugs that would not have been available without the ability to link data and information on people living with diabetes, the drugs they are taking and other events affecting their health.
Using data to find out about the mental health of military veterans

Prof. Jill Pell, Dr Beverly Bergman and Dr Daniel Mackay, University of Glasgow

The Challenge

Most research into understanding the health of military veterans compared to the general population looks at the health of veterans who served in a particular conflict or at single medical conditions. The results of such studies can’t always be applied to all military veterans and the results do not take into account factors such as length of service, changes in health promotion within the military and social changes such as attitudes to smoking and alcohol consumption. A more complete picture of the health of military veterans can be achieved by linking multiple NHS Scotland records, allowing researchers to study the health of veterans after their military service.

Our Approach

Researchers from the University of Glasgow were able to identify people in Scotland who had served in the military by the medical records held by their GP surgeries. The team found more than 56,000 veterans who were born between 1945 and 1985. These records were then virtually gathered together to form a subgroup of military personnel from the Scottish population that researchers could study in more detail. To do this, information about hospital admissions, mental healthcare, where people lived and death certificates were linked together in a secure way which protected the identity and privacy of individuals. A larger virtual group was then created including nearly 173,000 individuals who had never served in the military but matched the veterans in age, sex and the area in which they lived. The team then studied and compared the medical histories of both groups, looking at conditions such as mental illness, heart disease and alcohol related illness.

The Results

The Scottish Veterans Health Study has demonstrated that while older veterans (born 1945-1959) may have had overall poorer health than those who had not served in the military, younger veterans had similar if not better overall health than civilians. One of the reasons for this could be due to the military beginning to promote a healthier lifestyle during service years, encouraging a decrease in risk factors such as smoking and alcohol consumption, and increasing the fitness of soldiers. There was no indication that veterans who served their full term in the military suffered from mental illness more than civilians. However, veterans who left the military early were at higher risk of mental illness.

The Impact

The methods used in this research to create a virtual sub-group of the population for scientists to study can be applied to many areas of health research. Studying veterans as a population in this way could help improve our knowledge about the health of military personnel and whether they are at higher risk of developing particular diseases compared to the rest of the population. It is also possible to study the impact that health promotion initiatives such as anti-smoking campaigns and educating about the effects of alcohol misuse have during military training and service. By using data in research, the team has been able improve our understanding of the health of veterans in Scotland and how care can be improved to support them.
The Challenge
In the last 12 years, the private rented sector has doubled in size in Scotland to make up two-fifths of all rented housing. For younger adults (16-34), it is now the largest tenure. It also houses a growing proportion of children: one-in-four households are families.

Across the sector as a whole, conditions are reasonable but parts of the sector, particularly the cheaper end, suffer from poor conditions and poor quality management. It is seen as offering choice and flexibility but also higher costs than social renting and lower security of tenure. In some locations, a concentration of private renting is seen as contributing to wider neighbourhood instability and decline.

Understanding the social consequences of this housing transformation is therefore a priority but the sector remains difficult to study. The Census and conventional household surveys provide useful information but irregularly or with significant delay and, in the case of surveys, only for broad areas. Local authorities, market actors and others increasingly seek to track the development of the sector within small areas.

Our Approach
Our aim is to combine data from a range of sources to provide near-live tracking of the sector down to small area level. This would show the scale of the sector but also rent levels, and potentially other features such as rental yields and rates of turnover. It would offer the potential to support further research on the impacts of private renting on individual opportunities or welfare.

We are working with a range of data owners to secure access to the following datasets at individual and small area levels:
- Rental property adverts
- Landlord registrations
- Tenancy deposits
- Housing Benefits for PRS tenants

The first stage of the work will involve linkage of individual records from these datasets to one or more large household surveys. This will show the extent to which each data source covers all of the private rented sector, and how coverage varies depending on characteristics of the tenant or the property.

The second stage takes aggregated data from each of the sources for units such as Datazones. It combines them, using knowledge about coverage from the first stage, to produce a new dataset which is our best estimate of the scale of the rental sector in each location, and of rents.

The Benefits
The first stage of the work will provide the most comprehensive picture of the extent of compliance with regulations on landlord registration and tenancy deposits. This would enable targeted enforcement activities, as well as supporting any review of existing provisions.

The dataset produced in the second stage will be of use to local authorities who have a statutory responsibility to follow the development of the housing system in their areas, as well as national policy makers, market actors and others interested in understanding the development of the sector. The data may aid in the identification of neighbourhoods where conditions are beginning to deteriorate, acting as an early warning system. They would also help in tracking the impacts of any interventions to stem such declines.

The Impact
By enabling researchers to more reliably identify properties in the private rented sector, we provide the basis for researching the impacts on welfare of the dramatic shift of rental housing from social to private sectors.
Using linked data to understand the relationships between multimorbidity and the use of health and social care

David Henderson, UBDC PhD Researcher, University of Glasgow

The Challenge
As health and social care integration progresses, the benefits of analysing individual-level data of service use is becoming increasingly important. Administrative health data has been regularly used for decades to inform policy and health practice in the NHS. Social care data held by Local Authorities has similar potential but has rarely been used in this way to date. This project aims to link health and social care data in order to understand the relationship between multimorbidity (more than one long-term health condition) and health and social care use. It also aims to describe any sociodemographic differences in the use of services.

Our Approach
We aim to undertake data linkage of a number of sources. The Scottish Government conducts an annual social care census of all 32 Scottish Local Authorities collecting data with variables detailing the type and amount of social care delivered for all individuals in the census week. This information will be linked with numerous sources of health service administrative data held by the Information Services Division (ISD) of NHS Scotland including: hospital episode statistics, community prescribing, primary care out-of-hours information, emergency department use and the General Register Office for Scotland’s death registry.

The Benefits
The research results will have a number of benefits. Firstly, the project will provide insight into the complex relationship between health and social care use. We will describe the effect, if any, that the use of social care has on use of emergency and unplanned health care, particularly for those with multimorbidity. We will also describe if the inverse care law, alive and well in Primary Care in Scotland, is present in the provision of social care.

The Impact
It is hoped findings from recent historical data will inform the debate on the provision of health and social care services at a time of major change. Health and Social Care Integration in Scotland is the biggest structural change to the delivery of health care since the inception of the NHS in 1948. From the 1st of April 2016 Joint Integration Authorities will be responsible for oversight of the integration of services traditionally provided by two distinct bodies under very different models of procurement, payment and delivery. Integration aims to improve care for service users whilst providing efficiencies in budgets. The main mechanism envisaged for improving efficiency is through the reduction of expensive acute hospital use and the increase in cheaper home and primary care options. Results of this project will not only be of academic interest, but have the potential to inform the direction of policy in one of the Scottish Government’s priority budgets.