DATA LINKAGE OF URGENT CARE DATA

OVERVIEW

There is increased demand on emergency departments (ED) across the UK. The services are becoming stretched and as a result waiting times are increasing and patient care is suffering.

By linking together patient data from different hospitals and services across Yorkshire, researchers are able to build a more complete picture of how urgent and emergency care (UEC) services in the region function.

This picture will help researchers understand the flow of patients through UEC services, to understand what the most common health issues are and to better plan community services in the future. The anonymous data can help scientists understand UEC services across an entire region and suggest improvements in a much more synchronised way.

Health service managers will also be able to understand how one ED in Yorkshire compares to another. By re-using existing data researchers will also allow hospitals to learn lessons from each other so that each local service can improve and deliver better care for its patients.

In the future, this information will help researchers to plan ahead and forecast disease outbreaks. The data used will, over time, tell a story that will help deliver better and more targeted care.

WHY IS THIS RESEARCH IMPORTANT?

The aim of the research project is to build a unique database using expertise already being developed across the Yorkshire and Humber region. We will collect routine NHS data from a number of providers of UEC services and link the data to provide a coherent picture of UEC demand. This rich data source will allow the UEC services to be viewed as a whole system, enabling demand on the system by patients to be analysed as well as the flow of patients through the system.

WHAT DATA ARE BEING USED IN RESEARCH PROJECT?

Patient-identifiable data will be collected and linked from numerous providers across the Yorkshire and Humber region including the Yorkshire Ambulance Service, NHS 111, NHS Hospital Trusts and out of hours services (Figure 1).

Identifiable data will need to be used in the first instance to enable linking records together from the different services. This will include patient name, NHS number, date of birth, date of death and postcode. We will be collecting the minimum amount of data that is necessary, and as soon as possible after being linked, all identifiers will be securely deleted and replaced with unique identifying numbers.
HOW WILL THE DATA BE LINKED (METHODS)?

The individual datasets will be cleaned and linked using expertise already tested and established in The Collaboration for Leadership in Applied Health Research and Care, Yorkshire and Humber (CLAHRC YH) theme for Avoiding Attendance and Admission (AAA) in Long Term Conditions.

The large linked dataset expected to contain between 5-8 million episodes of patient care, will then be used to map the UEC system in Yorkshire and Humber, as well as understand:

- Patterns of service use & outcome (mode of access, pathways of care) by different patient and demographic groups
- How groups of patients are utilising services differently, who may benefit from an alternative approach to care
- The use of modelling techniques to design & test novel approaches to delivering care

WHAT GOVERNANCE WILL BE IN PLACE FOR THE RESEARCH PROJECT?

There are likely to be between 5-8 million routine patient episodes that require data linkage from the different UEC service datasets that will be processed and analysed in a short period of time (up to 12 months). Consenting this large number of patients is impractical therefore the project team has applied to the Health Research Authority for ethical approval as well as seeking approval from the Confidentiality Advisory Group (CAG) to use sensitive (patient identifiable) data without consent of patients.

Additionally, throughout the research project the project management group will meet on a monthly basis to review project processes and progress.

In July 2018, the project team sought approval to change the classification of the project to a research database. This allows data to be supplied and used in research projects that will be conducted by researchers and research institutions outside of the project team within the UK.
Researchers will need to go through an application process to obtain data and if successful, will only be supplied with data that does not contain patient identifiers. Strict processes are in place to ensure all project data released is governed correctly and will be used for research purposes only.

**WHO WILL BENEFIT FROM THE RESEARCH?**
The linked dataset will directly benefit NHS organisations, commissioners, clinicians, researchers and NHS England, both in the Yorkshire and Humber region and nationally due to it being such a rich and unique source of information.

The outcomes of work by these individual organisations/ users will be used to identify areas within the UEC system that can be improved allowing targeted interventions, ultimately benefiting patients.

**WHAT WILL BE THE INTENDED OUTCOME OF THE RESEARCH PROJECT?**
There are numerous intended outcomes from the development of a large linked dataset, in the first instance the development and testing of interventions for managing patients attending the ED inappropriately. Analysis of the dataset will provide a greater understanding of the pathways leading to short term avoidable hospital admissions and how these patients managed avoiding the need for admission. Other intended outcomes will include:

- Identifying improved pathways of care for vulnerable patient groups such as the frail elderly, acute mental health problems, social deprivation / isolation
- Developing, modelling and testing hypotheses in order to inform their likely success and future research

**EARLY FINDINGS SO FAR...**
Initial data suggests that there are around 15% of adults attending the emergency department avoidably with conditions that could be easily managed elsewhere. These patients are more likely to attend out of hours, and be younger. Interventions to target at this patient group should be developed and tested in the future.

**WHO IS ORGANISING AND FUNDING THE PROJECT?**
The project is organised by the University of Sheffield, and is funded by Connected Yorkshire – part of the Connected Health Cities (CHC) project. CHC is a new project that unites local health data and advanced technology to improve health services for patients in Northern England.

By making better use of the information and technology that already exists in our health and social care system we can make sure services are more joined-up and improve the health of patients. By working with patients, health practitioners and experts in digital health we can ensure we are delivering research that is relevant, effective and has a real impact on public health.

The research project is being led by Professor Suzanne Mason (Professor of emergency medicine and ED Consultant) and managed by Maxine Kuczawski. A small expert team of data managers and analysts already familiar with this type of work will undertake the data linkage of the various datasets.

Initial funding was provided for 24 months (2 years), this has been extended for a further 12 months (1 year) with the end of December 2019 being the expected end date of the research project.
CONTACT DETAILS
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