

# Introducing the CUREd+ Health Database and Its Role in Unlocking Healthcare Insights

The CUREd+ database collects a vast range of data covering several different aspects of patient care that researchers can now access via Yorkshire and Humber SDE

## What is CUREd+?

Hosted at the University of Sheffield Delivery Partner, one of the databases accessible for researchers at the Yorkshire and Humber SDE is the **Centre for Urgent and Emergency Care Research Database** (CUREd+).

The CUREd+ database is a **longitudinal database** currently covering the period of April 2011 – March 2023 for a population of 57 million living in England.



CUREd+ collects data from a variety of urgent, emergency and secondary care services and provides research-ready unconsented data enabling researchers to evaluate clinical outcomes, the impact of existing interventions, identify areas for new interventions and create evidence-based solutions to optimise healthcare delivery across a large proportion of the patient pathway. CUREd+ is part of the broader NHS Data for R&D Network Driver Project Programme, which seeks to enhance the accessibility and use of healthcare data for research purposes.

CURED+ team has recently applied to expand our NHS Research Ethics to include ongoing, annual additions to the database, which will allow researchers to track changes in healthcare

patterns over time, allowing for more accurate study outcomes and improved emergency services delivery.

### **What Data Does CUREd+ Hold?**

The CUREd+ database collects a vast range of data covering several different aspects of patient care:

#### **For all of England – population of 57 million:**

- **Urgent and Emergency Care data** – This includes records from hospital emergency departments, urgent care centres, walk-in centres detailing the nature of visits, diagnoses, and treatments. This encompasses both HES A&E data and the newer ECDS dataset.
- **Hospital Admissions** – Data on all patients admitted to English hospitals for various medical and surgical conditions like cardiovascular (heart) disease, stroke, trauma or any illness that requires in-patient treatment.
- **Outpatient Care** – Outpatient consultations or treatments or non-admission services provided by English hospitals.
- **Mental Health Services** – Information from the health records of individual children, young people and adults who are in contact with mental health services in England.
- **Demographic Data** – Basic demographic details, such as gender, age, and postcode district of residence
- **Death Registry Data** – Civil registrations data including date and cause of death

#### **For the Yorkshire and Humber region the team have additionally linked in data that includes:**

**Medicines Dispensed in Community** – Records of medicines dispensed in primary care settings, e.g. GP, community clinics, dentists and nursing services.

- **Historic Addresses** – Information on addresses and for all patients in Yorkshire and Humber enabling us to understand types of residency and to be able to group patients by household
- **Ambulance Data** – Information about 999 calls to and responses from emergency ambulance services, and the electronic patient record information
- **NHS 111 Data** – Records of calls made to the NHS111 telephone service, a non-emergency medical helpline that helps patients access the right care for their needs.

By linking these data sources, CUREd+ enables researchers to track patient journeys from initial contact with urgent or emergency services, through hospital visits, and all the way to outcomes in the healthcare system including death. Data extracts can be prepared for researchers using the database, linking different datasets within it together to address multiple research questions.

## Ensuring Privacy and Security

One of the key priorities of the team managing the CUREd+ database is ensuring robust patient privacy protection. No identifiable information, such as names or dates of birth, is included in the final research database. The data is fully de-identified, ensuring that individual patients cannot be traced from the data provided to researchers.

To further safeguard privacy, the data is stored and accessed at the University of Sheffield Secure Data Service Platform. The Platform is ISO 270001 accredited and NHS DSPT toolkit compliant.

## Why Is CUREd+ Important for Communities?

The CUREd+ database is a resource for improving patient care and outcomes across multiple pathways of care in England. Understanding how patients use the system, whether they seek care through 999 calls, NHS 111, or emergency departments, helps researchers identify inefficiencies, gaps, and areas for improvement in the healthcare system. CUREd+ has already made a significant impact on the healthcare landscape through a series of research findings:



### 1. High Intensity Users of Emergency Department Care

Research using CUREd+ data has shown that a small proportion of patients are responsible for a disproportionate amount of emergency department (ED) usage and costs. Specifically, 2.7% of the sample accounted for 13.7% of total ED costs. These high-intensity users often have a range of complex health issues, and the annual costs per patient are approximately £15,000 compared to just £3,000 for other patients. Much of this cost is driven by inpatient admissions. Understanding the profiles and needs of these patients can help to develop more effective interventions that reduce unnecessary ED visits and improve patient outcomes. Further research is now planned to explore some of these initial findings and how interventions might be implemented to target at-risk groups of the population.

*Relevant publications:*

1. Guthrie E, Burton C, Mason S et al. [Frequent Users of the Emergency Department:](#)

Improving and Standardising Services. NIHR HS&DR Funding Award 132852 (2022-2025)



## 2. NHS 111 Callers and ED Attendances

Research into callers to NHS 111 services reveals that they make up 21% of all ED attendances. Interestingly, 50% of NHS 111 callers are advised not to attend the ED. Of those who do attend, 1 in 6 had an avoidable reason for their visit. A further study has revealed that 21% of adults attend ED with an avoidable reason. This trend is especially prevalent among younger adults under 45 and those who seek care outside of regular hours. This is a significant finding because it shows that a substantial proportion of ED visits could potentially be prevented with changes in patients' management through NHS 111 or alternative services. The algorithms developed and tested to identify an avoidable attendance at the ED has since been adopted and is in routine use by NHSE.

*Relevant publications:*

1. Lewis J, Stone T, Simpson R, Jacques R, O'Keeffe C, Croft S, et al. (2021) [Patient compliance with NHS 111 advice: Analysis of adult call and ED attendance data 2013–2017](#). PLoS ONE 16(5): e0251362.



## 3. Patients with serious mental illness

Patients with serious mental issues have been found to have significantly higher rates of usage across all four UEC services: Ambulance, NHS 111, A&E, and hospital admissions. In fact, these patients can have up to six times higher usage of emergency care services compared to the general population. This highlights the need for tailored interventions and services that better support individuals with mental health conditions and reduce their reliance on emergency care.

*Relevant publications:*

1. Lewis J, Weich S, O’Keeffe C, et al. [Use of urgent, emergency and acute care by mental health service users: A record-level cohort study.](#) PLoS One. 2023 Feb 13;18(2):e0281667

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*If you are interested in learning more about CURED+ or would like to get access to database for your research project, fill in the [Data Availability Form](#) or the [Data Access Form](#), or contact Yorkshire and Humber SDE team at [YHSDE@bthft.nhs.uk](mailto:YHSDE@bthft.nhs.uk) or email Data Connect team at [dataconnect@sheffield.ac.uk](mailto:dataconnect@sheffield.ac.uk)*