

## **GM Connected Health City Developing a learning system for stroke in Greater Manchester**

### **Workstream 3: Intracerebral haemorrhage**

**Lead:** Dr Adrian Parry-Jones

#### **What are we trying to do?**

The aim of this workstream is to reduce death and disability within patients presenting with intracerebral haemorrhage (ICH) in Greater Manchester.

#### **Why is it important?**

For patients that experience an acute intracerebral haemorrhage (a type of stroke caused by bleeding within the brain tissue itself), a number of measures are considered critical within the acute phase. These include rapid reversal of anticoagulation and the lowering of blood pressure, together with neurosurgical treatment which may be indicated for a small number of carefully selected people. Timely access to these interventions and the relevant services has the potential to improve outcomes and ultimately save lives. A recent audit conducted within Salford Royal NHS Foundation Trust (Greater Manchester's tertiary centre for neurosurgery and neurocritical care) covering a 7 month period showed that only 25% of the 374 referred to the neurosurgical department originally presented at Salford Royal Hospital, with the remaining 75% of referrals coming from the other 11 acute Trusts in Greater Manchester. A separate analysis of 1175 Greater Manchester-wide ICH referrals to neurosurgery at Salford Royal NHS Foundation Trust, found that 12% were transferred to neurosurgery, and that transfer was associated with a lower adjusted risk of death. Given this, it is vital that equitable access to neurosurgery is provided across Greater Manchester.

#### **How will we do it?**

We will establish a large cohort of historic ICH patients presenting at several acute trusts, which will provide detailed patient-level information including pre-morbid health, medication, investigations and outcomes. Using this data, we will identify the factors that predict early deterioration and death within this patient population, as well predictors of prolonged hospital stay in survivors. From this, predictive models will be developed and will be used to refine the existing care pathway, ensuring that patients who are at risk of deterioration are identified early and, where appropriate, are referred in a timely manner for neurosurgical intervention at Salford Royal NHS Foundation Trust. We will also investigate the possibility of linking this data to the existing neurosurgical referral database held at Salford, as well as the Greater Manchester-wide radiology database, to enable us to understand prior referral patterns and decision-making processes.

The above will provide the foundation to develop and test multiple, iterative, changes in practice. This will include implementation of the refined care pathway for patients with intracerebral haemorrhage, but may also include implementation of Greater Manchester-wide ICH multidisciplinary team meetings, and development of a mobile application (app) to support front-line staff to deliver what is known as the 'ABC bundle of care', comprised of rapid reversal of anticoagulation, rapid blood pressure lowering and timely identification of patients who would benefit from referral to neurosurgery and neurocritical care at Salford Royal NHS Foundation Trust.

Throughout this period, data will continue to be collected and analysed prospectively to refine the changes being made and to analyse their impact.

**What data sources will we need?**

- EPR data from Salford Royal NHS Foundation Trust, Fairfield and Stepping Hill Hospitals
- Neurosurgery referral database - Salford Royal NHS Foundation Trust

**Who are the collaborating organisations?**

- Salford Royal NHS Foundation Trust
- Pennine Acute Hospitals NHS Trust
- Stockport NHS Foundation Trust
- Greater Manchester Stroke Operational Delivery Network (ODN)
- University of Manchester/Manchester Academic Health Sciences Centre
- Sentinel Stroke National Audit Programme (SSNAP)