

Site Name: Princess Royal University Hospital (PRUH)

The TASC Principle: Using measurement and structured quality improvement methodology to understand and reduce variation in the acute stroke pathway, strengthen multidisciplinary working, increase thrombolysis rates and reduce delays in diagnosis and treatment.

The Challenge

At the start of the TASC programme, PRUH was delivering thrombolysis rates in line with the national average. However, door-to-needle (DTN) times were longer than the national average, particularly out of hours, and pathway performance showed wide variation.

The service faced several contextual challenges that shaped this performance. These included a predominantly junior resident medical workforce, delays in admission to the Hyperacute Stroke Unit (HASU), and a high number of stroke patients being cared for outside specialist stroke beds (outliers). While individual components of the pathway functioned well, the end-to-end journey for patients with suspected stroke was inconsistent.

Crucially, the team had limited shared visibility of where time was being lost across the thrombolysis and wider hyperacute stroke pathway. Delays were often attributed to specific handovers or decisions, but these assumptions were not consistently supported by data. As a result, improvement efforts risked focusing on perceived problems rather than actual system constraints. This created a clear need to understand the thrombolysis pathway as a whole before attempting to change it.

What they did (the process)

The PRUH stroke team worked in collaboration with their local Quality Improvement (QI) team and the NHS Elect clinical, measurement and QI leads involved in the TASC programme. Together, they aimed to develop a system-level understanding of the acute stroke pathway and create a structured approach to improvement. Wider stakeholder groups were actively engaged throughout the project, including Emergency Department (ED) clinicians, administrative staff, radiology colleagues, ambulance services, senior leaders and executives.

The team began by developing a fishbone diagram (Figure 1) to identify and categorise potential causes of delay across the pathway. This informed the creation of a driver diagram (Figure 2), which identified two primary drivers to support their aim of reducing door-to-needle time: reducing time from arrival to CT scan and reducing time from CT scan to thrombolysis. A set of secondary drivers and associated change ideas were then identified. Dot

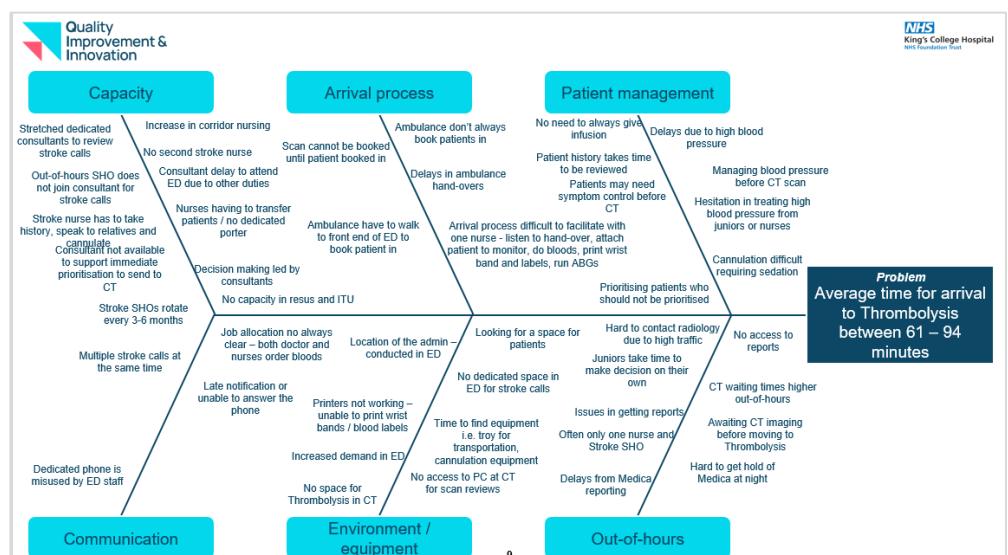


Figure 1: Fishbone diagram, used to identify and categorise root causes of delays



Figure 2: Driver diagram, showing the teams change ideas that they think will influence the primary and secondary drivers to help them achieve their aim

voting (three votes per stakeholder) was used to prioritise where to focus improvement efforts, balancing anticipated impact against feasibility.

Recognising that improvement depended on understanding variation, the team focused early on strengthening measurement and data capability. Statistical Process Control (SPC) charts, using an 80% of variation line (1.5 sigma, representing what happens 'most of the time'), were used to distinguish natural variation from meaningful change. The team used their own Sentinel Stroke National Audit Programme (SSNAP) data to develop time-series SPC charts showing weekly thrombolysis rates and volumes, as well as door-to-scan, scan-to-needle and door-to-needle times at a patient level.

These charts were initially produced by the local QI team to support interpretation and learning, enabling the stroke team to understand current system performance, identify opportunities for improvement, and establish a baseline before testing change ideas. The site's SSNAP co-ordinator took a particular interest in this approach and invested significant time in coaching and mentoring sessions with NHS Elect to strengthen local capability in using data to guide decision-making and testing. This created a rapid feedback loop between data and clinical practice, allowing teams to respond to changes in performance with analysis rather than assumption.

A series of Plan–Do–Study–Act (PDSA) cycles were then used to test prioritised change ideas, primarily focused on the front end of the pathway where the greatest delays were identified. The first PDSA cycle tested pre-registration of patients following London Ambulance Service (LAS) pre-alerts, enabling administrative and clinical preparation before arrival. The second cycle built on this by introducing early CT requesting prior to patient arrival, reducing delays between arrival and imaging. The third cycle focused on clear role allocation during stroke calls, ensuring consistent attendance and clarity of roles and responsibilities across stroke and ED teams.

What was achieved (the outcomes/data)

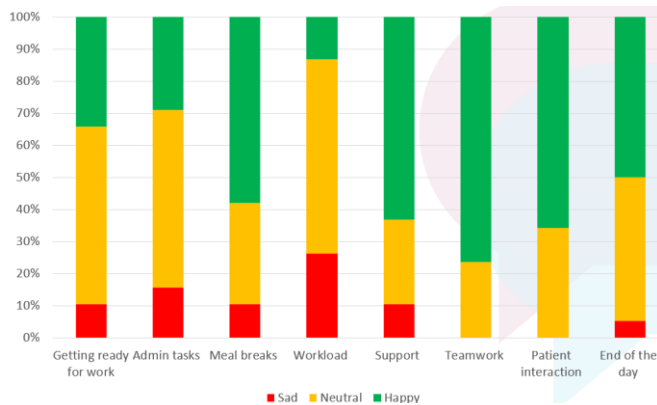


Figure 3: EBD tool, mapping staff emotions and experience across key touchpoints of their working day



Figure 4: Visual management board, sharing improvement work and thrombolysis data

Alongside pathway testing, the team invested in team development and engagement. Regular thrombolysis meetings were established to review data and learning, and a consultant away day focused on team identity, psychological safety and effective team working. Staff experience and emotions were captured using Experience Based Design (EBD) to give insight into how staff feel during their working day (Figure 3). This was captured using an EBD tool and the results were actively considered in the improvement work. ED and radiology colleagues were involved throughout, reinforcing stroke care as a shared system responsibility rather than a single-team task. Improvement activity and progress were shared using a visual management board (Figure 4), supporting engagement and continuous improvement across teams.



Testimonials

“The biggest difference I’ve noticed since working with the TASC is the collaboration of teams in our Trust. We’ve done really well working with ED; before it was ‘us vs them’, but now we’re working as one team, which has really helped our door-to-needle time. We appreciate each other’s work more, and through the data they’ve seen how their support has helped our patients. It’s now teamwork, no longer ‘us’ and ‘them’.

One thing I will take forward from the TASC programme is networking. Being at collaborative events and listening to other hospitals has given us ideas and the confidence to adapt them for our own service. Talking has been really important – it’s enabled us to talk more within our own teams. We’ve been meeting with consultants, discussing cases, and that’s helped decision-making, knowing colleagues do the same. Amongst nursing staff, seeing the benefits of TASC has made them feel more empowered and more confident to trust their instincts and decisions.”

Annis Blake
Clinical Nurse Specialist
Princess Royal University Hospital

TASC is the start of our journey in continuous quality improvement within our stroke service. The methodology learnt through TASC has demonstrated the risks of jumping to solutions without really understanding the problem, it has shown the importance of underpinning everything we do with data and making small scale changes to find out what really makes a difference. Most importantly of all, we have grown as a team.

Nick Yard
Deputy General Manager – Integrated Medicine
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Key system contacts

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