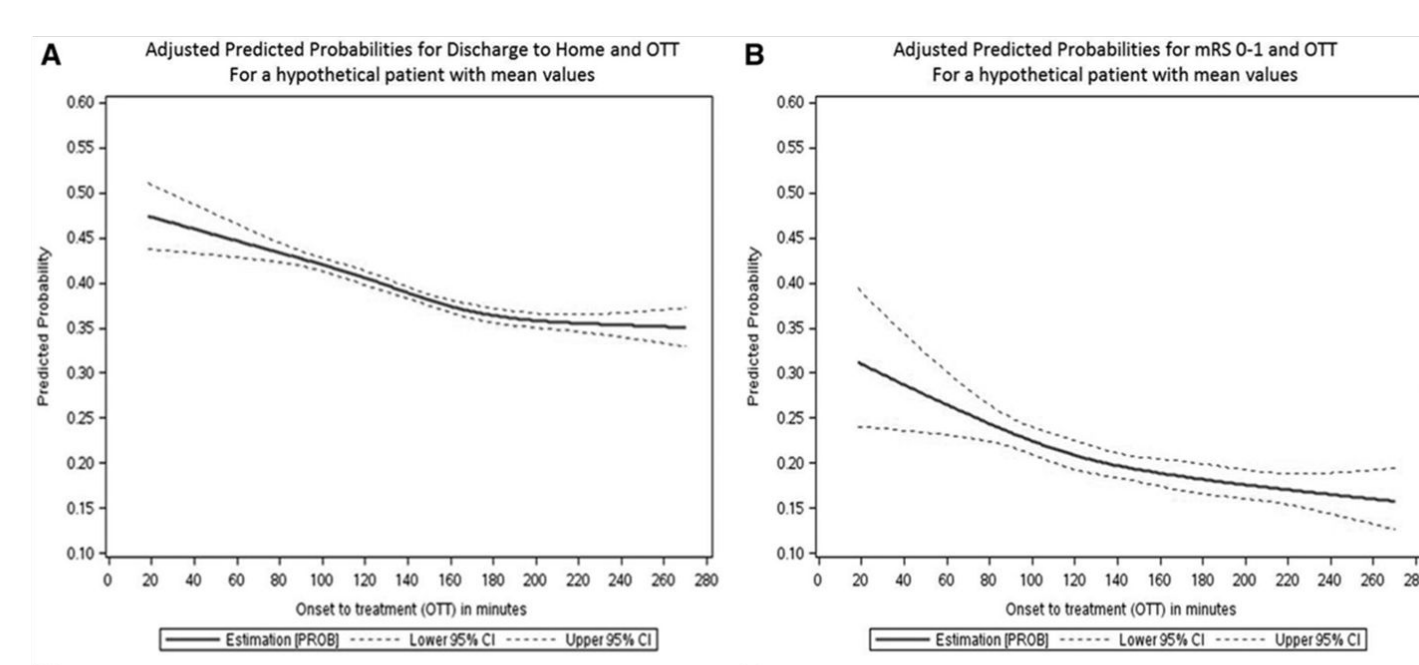


CNS: Anita Florendo-Cumbermack, Jennifer Mandzia
Ivey: Jana Aghili, Elsie Gao, Souraish Mahesh, Julia Nguyen
Centre for Quality, Innovation, and Safety, Schulich School of Medicine & Dentistry, Western University, London, ON, Canada

AIM Statement: By April 2023, for cases of ischemic stroke admitted to LHSC, reduce median door-to-needle time to 30 minutes from the current median of 39 minutes.

PROBLEM DEFINITION

Currently the median DTNT for ischemic stroke patients to receive tPA at LHSC is 39 minutes while Canada Stroke Best Practices recommends 30 minute median. As seen in Figure 1, the faster the onset to treatment, the higher the probability of the patient being able to go home after discharge.



Circulation 2017;135:128-139

Figure 1: Effect of Treatment Delay on Outcome 'Golden Hour'

ROOT CAUSE ANALYSIS

Developing a process flow (Figure 4) and Fishbone diagram (Figure 2) was critical to determine patient throughput and stakeholder activities required to provide tPA treatment. Focus groups were conducted with faculty, resident physicians, and the CNS Quality Specialist resulting in a process map and the following root causes:

- Lack of performance feedback
- Constant training and education due to staff turnover
- Transfer-related delays (patient arrival, EMS stretcher to ED bed, CT transport, tPA)
- Reviewing patient chart and obtaining consent

This information was used to determine possible solutions in a PICK chart (Figure 3)

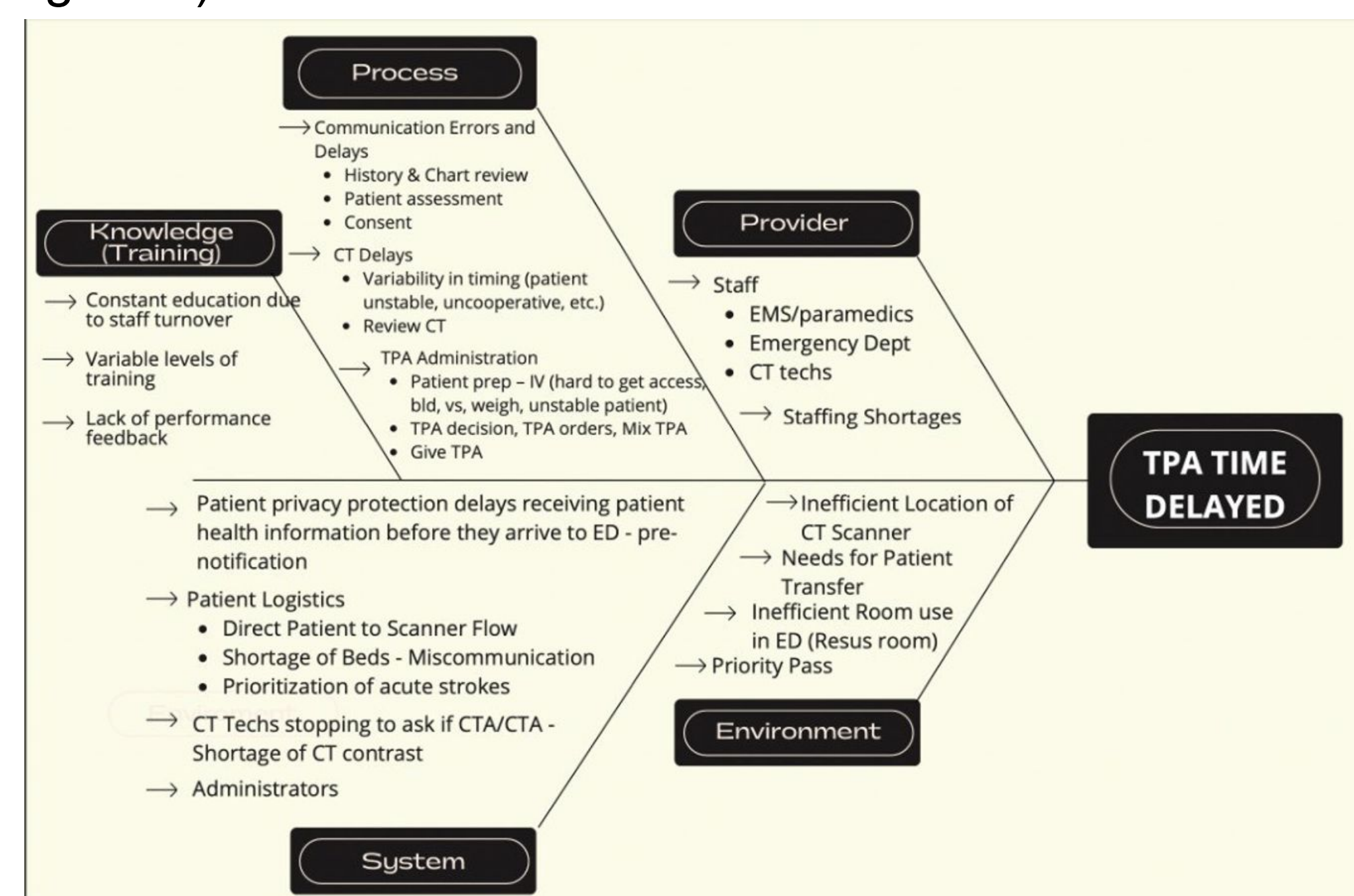


Figure 2: Fishbone Diagram Identifying Possible Root Causes

“Almost all quality improvement comes via simplification of design, manufacturing... layout, processes, and procedures.”

Tom Peters

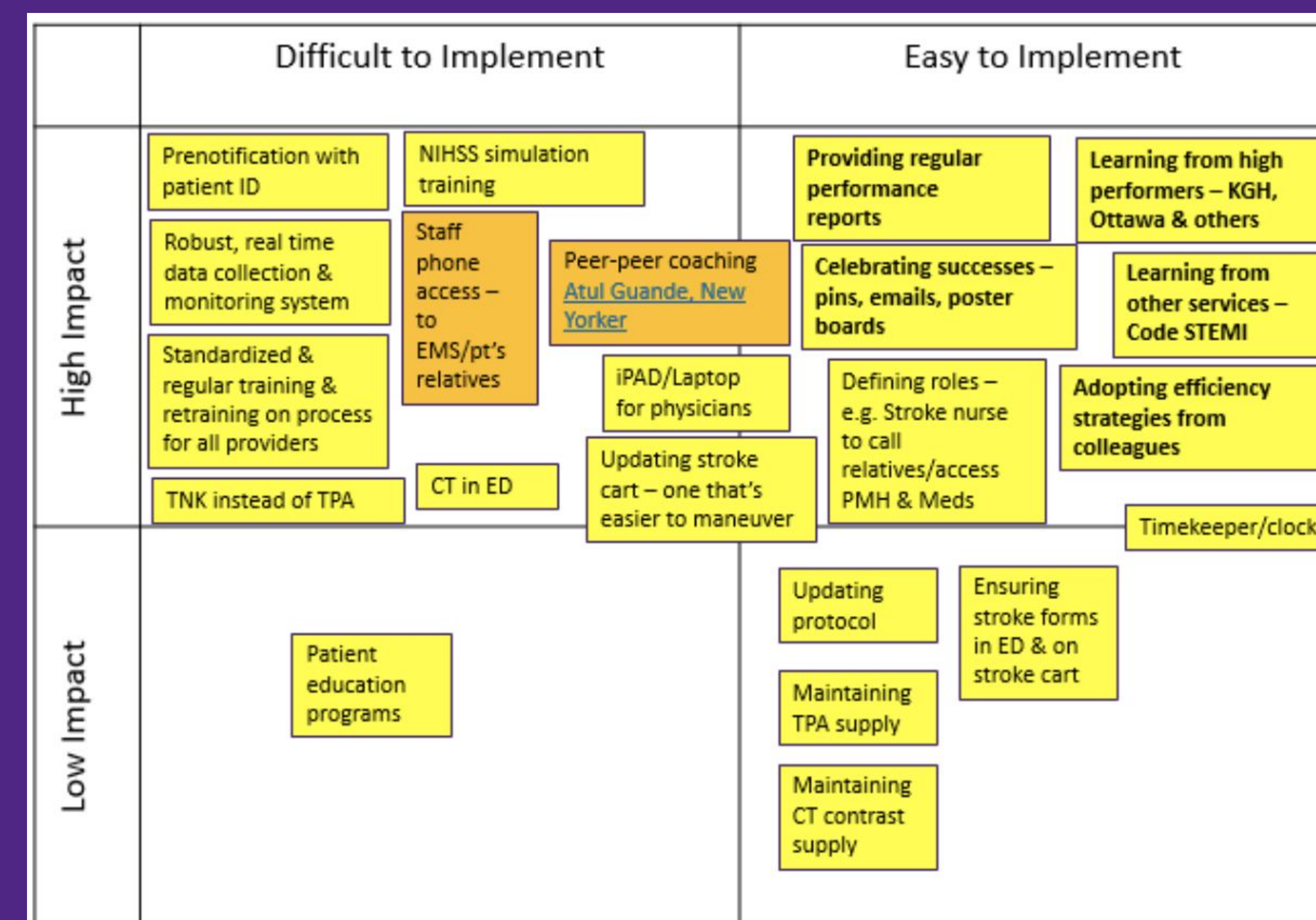


Figure 3: PICK Chart Outlining Potential Solutions

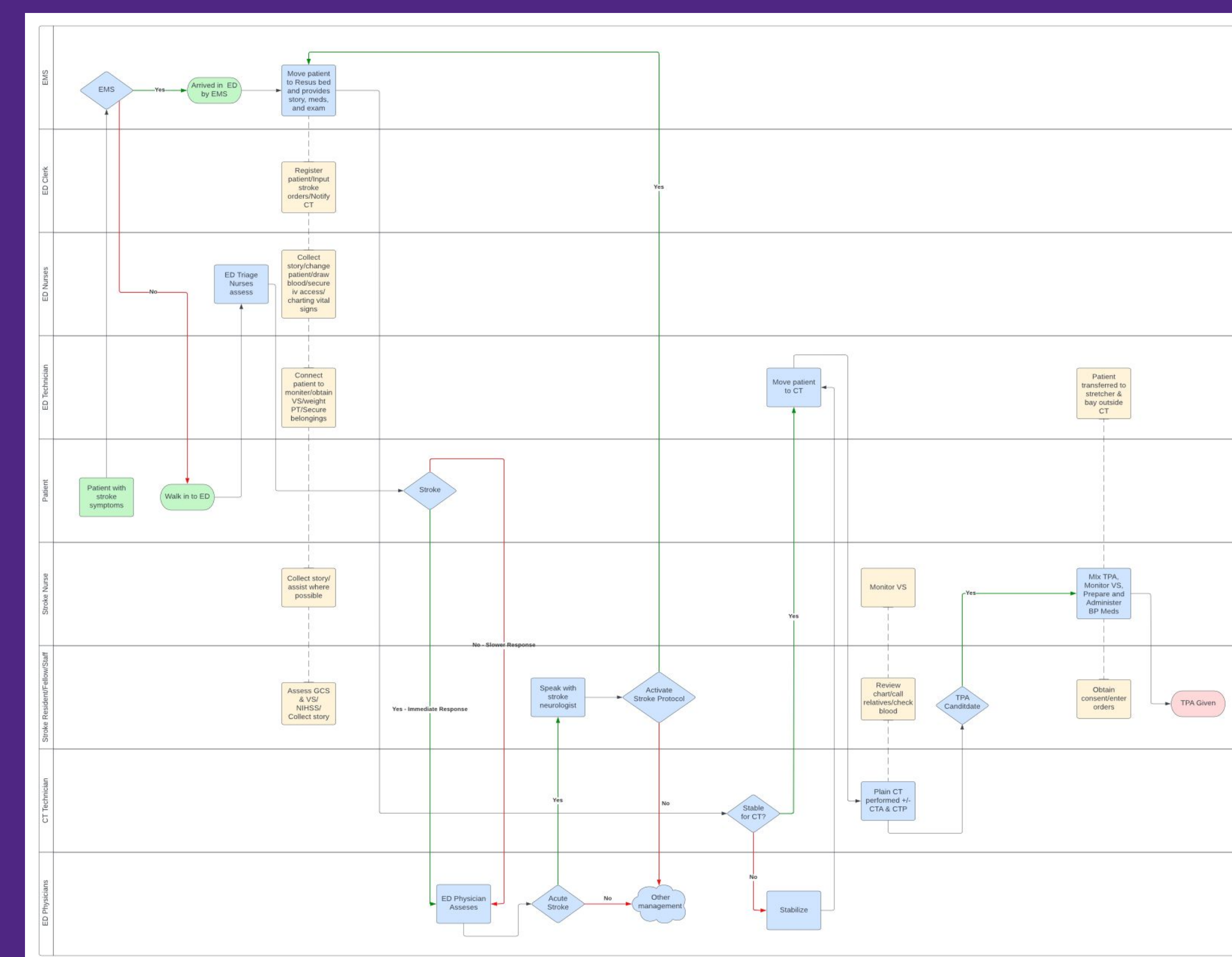


Figure 4: Process Diagram for Acute Stroke Patients (LHSC)

IMPLEMENTATION

Completed cycles:

Cycle 1: Sharing individual and group performance metrics with neurology physician stakeholders, with a focus on the top performers. Focus group to share individual practices for increasing efficiency. Completed - limited observational data, confounding variable of CT machine relocation

Future cycles:

- Cycle 2:** Engaging wider stroke team (e.g., stroke nurses, technicians) in sharing performance metrics and best practices
- Cycle 3:** Peer-to-peer coaching for staff who are interested
- Cycle 4:** Working with EMS to get pre-notification with patient identifiers and contact information of relatives/witnesses
- Cycle 5:** Using TNK takes less time to administer than tPA

MEASUREMENT & RESULTS

DTNT has decreased since the beginning of Cycle 1. However, the sample size is small and the effects of the relocation of the CT scanner need to be considered.

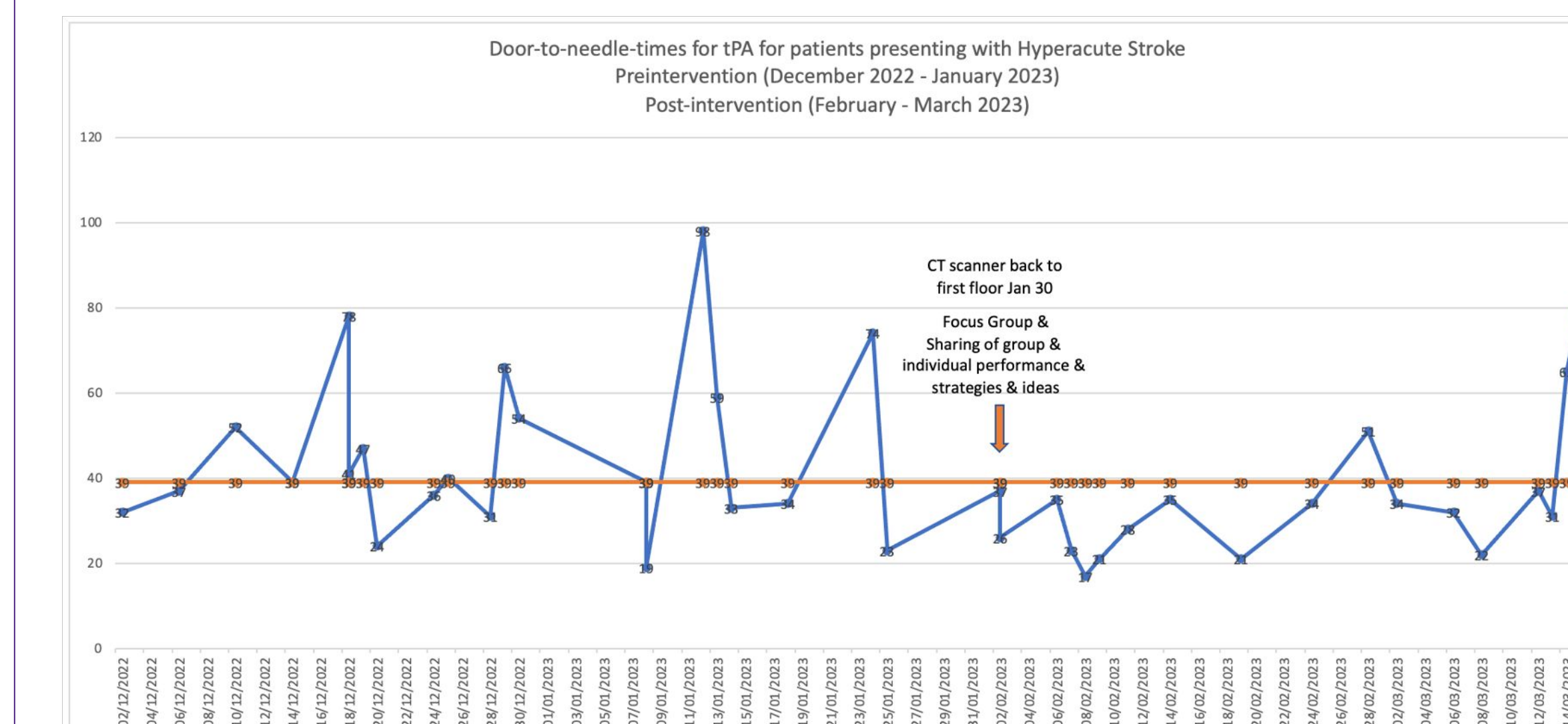


Figure 5: PDSA Cycle 1 Door-to-needle times

SUSTAINABILITY

Process owner: Dr. Jennifer Mandzia (Medical Director SWOSN & LHSC Stroke Program) and stroke group
Documentation: update stroke protocol guideline with additional information

Monitoring plan:

- Provide performance metrics of all team members quarterly
- Review all outliers (e.g. DTNT > 40 minutes)