

IMPROVING DOOR TO NEEDLE TIMES IN STROKE THROMBOLYSIS THROUGH SIMULATION-BASED TRAINING: A QUALITY IMPROVEMENT EXPERIENCE IN A DISTRICT GENERAL HOSPITAL.



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BACKGROUND

Teamwork is crucial in time critical scenarios especially where medical on call teams manage stroke calls in an unselected take.

In addition to technical skills, human factors play a very significant role in meeting a target door-to-needle time.

Baseline Thrombolysis Breakdown Data: Less than 25% of patients had door to needle time of less than 45 minutes.

Pareto chart highlighted that delayed CT imaging to reporting time was the most important factor which had the greatest impact on the door to needle time.

RESULTS

Pre-QI Baseline data from May-22 to October-22 and Post intervention data from November-22 to March-23

Step change noted in December 2022.

Number of patients with Door to needle time 45 minutes or less- 53% (improved from 24%).

Median door-to-needle time improved to 52.2 minutes (from 83.7 minutes).

Median CT imaging to reporting time improved to 19.5 minutes (from 36.2 minutes).

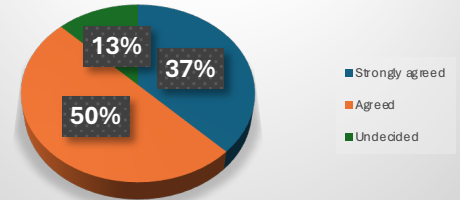
Participants responses were measured before and after attending the sessions to assess improvements.

Educational objectives included knowledge of Stroke pathway, Confidence in participation, Leadership qualities and Delegation of roles.

AIM STATEMENT

Improvement in overall door to needle time and to aim a target of 45 minutes or less in at least 50% patients, in the next 4-6 months (who do not have clinical condition related limiting factors).

Improvement/Positive change in SpR's Leadership Qualities after the session



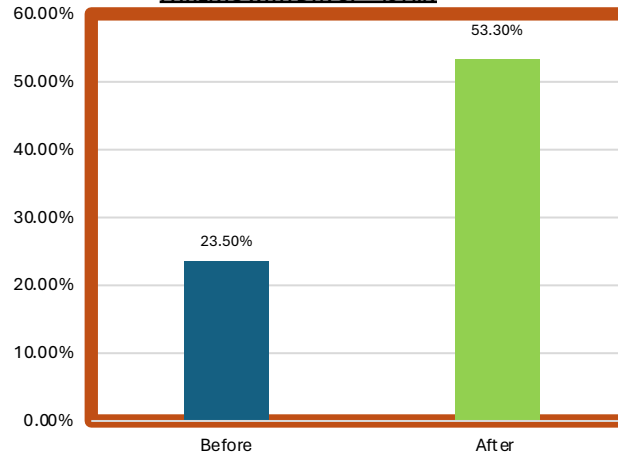
METHODS

Change idea: Simulation sessions with focussed educational objectives (role-playing sessions) targeted for all the team members who participate in stroke thrombolysis calls (to address the technical and human factors).

Educating the team members about robust documentation of the clinical information on the CT Head request form.

Debriefing sessions, where the senior members of stroke team will provide real time input on how the stroke calls were conducted by the team and how the teamwork could be improved.

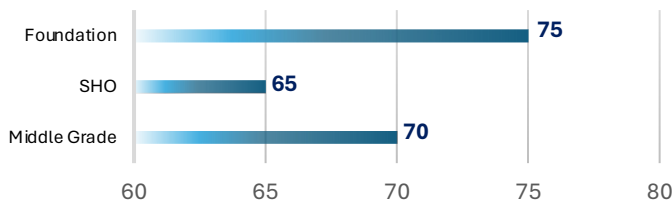
PATIENTS WITH DTN OF < 45 MIN



86% of Foundation doctors strongly agreed that there was improvement in Confidence in participating in the Stroke Thrombolysis Team

76% of SHOs strongly agreed that there was improvement in understanding the time critical nature of stroke thrombolysis calls.

REACH OUT PERCENTAGES



NEXT STEPS

To continue with Simulation sessions and introduce revised CT head request forms.

Pooling of resources, organising simulation days across health boards in Wales

CONCLUSION

Simulation based training brings a sustainable change in the system and change in human behaviour.

Identifying areas of improvement in clinical areas will directly and indirectly improve patient care as we were able to demonstrate statistically significant improvement in door-to-needle time.

References: Svobodová V, Maršáliková H, Volevach E, et al. Simulation-based team training improves door-to-needle time for intravenous thrombolysis. *BMJ Open Quality* 2023;12:e002107. doi: 10.1136/bmjopen-2022-002107. Ajmi SC, Advani R, Fjetland L, Kurz KD, Lindner T, Qvindenland SA, Ersdal H, Goyal M, Kvaloy JT, Kurz M. Reducing door-to-needle times in stroke thrombolysis to 13 min through protocol revision and simulation training: a quality improvement project in a Norwegian stroke centre. *BMJ Qual Saf*. 2019 Nov;28(11):939-948. doi: 10.1136/bmjqs-2018-009117. Epub 2019 Jun 29. PMID: 31256015.