

A Journey to Acute Ischaemic stroke care excellence at Sunway Medical Centre Velocity (SMCV)

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Introduction:

Timely management of acute ischaemic stroke is essential, as delays in treatment can result in irreversible neurological damage and worsened clinical outcomes. Rapid administration of thrombolysis has been shown to significantly improve both survival rates and functional recovery. In alignment with these principles, Sunway Medical Centre Velocity (SMCV) conducted a quality initiative programme aimed at enhancing stroke care and advancing toward excellence in clinical outcomes.

Objective:

The aim of this study was to measure improvements in door-to-needle time (DNT) following the implementation of a structured stroke protocol at Sunway Medical Centre Velocity (SMCV), with the goal of achieving DNT <45 minutes in at least 50% of thrombolysis cases within 24 months.

Methods:

This was a prospective quality initiative programme conducted at SMCV. Due to limited access to earlier data, the RES-Q registry (in line with the WSO Angels Initiative) was adopted to systematically track stroke cases.

A multidisciplinary stroke team – comprising emergency physicians, neurologists, radiologists, cath lab staff, and nurses – developed a standardised Stroke Code Activation Algorithm to guide timely intervention and facilitate data capture.

All adult patients with acute ischaemic stroke who received intravenous thrombolysis from July 2024 onwards were included. Monthly data were submitted to RES-Q and reviewed by a core team. On-going interventions were focused on delays in activation (e.g. ambulance providers pre-notifications, identification of stroke patients) and neuroimaging (e.g. priority for stroke patients). Annual stroke simulations were conducted to stress-test the pathway and team coordination.

Results:

Approximately 10% of ischaemic stroke patients received thrombolysis. Median DNT improved from 90 minutes (at the beginning of the programme) to 51 minutes (early this year) showed a 43% reduction, and the proportion of cases achieving DNT <45 minutes increased from 0% to 33%. Median door-to-imaging time reduced significantly from 58 minutes to 16 minutes (a 72% improvement). These achievements were recognised with the Angels Gold Award in 2024 and the Platinum Award in 2025.

Discussion:

The introduction of a structured, team-based protocol led to marked improvements in the timeliness of acute stroke care. Enhanced interdepartmental coordination and targeted process refinement were key drivers of success. Although the 50% DNT target has not yet been reached, continued effort shows promising momentum.

Conclusion:

This multidisciplinary initiative has demonstrated measurable progress in reducing DNT and strengthening stroke care delivery, aligning hospital practice with international standards.

Keywords: Acute Stroke, Door-to-Needle Time, Quality Improvement, Thrombolysis

References:

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