



# Role Based Text Messaging to Enhance Clinical Coordination for Time-sensitive Care

## Background

For time-sensitive clinical interventions, precious time is spent on contacting duty staff. Traditional communication methods include calling departmental hotlines, using on-call phones, or checking the roster on intranets. These methods distract staff from clinical care.

In the example of Endovascular Thrombectomy (EVT), an intervention for patients with acute ischemic stroke, delays in intervention results in worse outcomes<sup>1</sup>.

Once the treatment decision is made for EVT, different clinical roles from 4 departments have to be coordinated to provide prompt intervention.

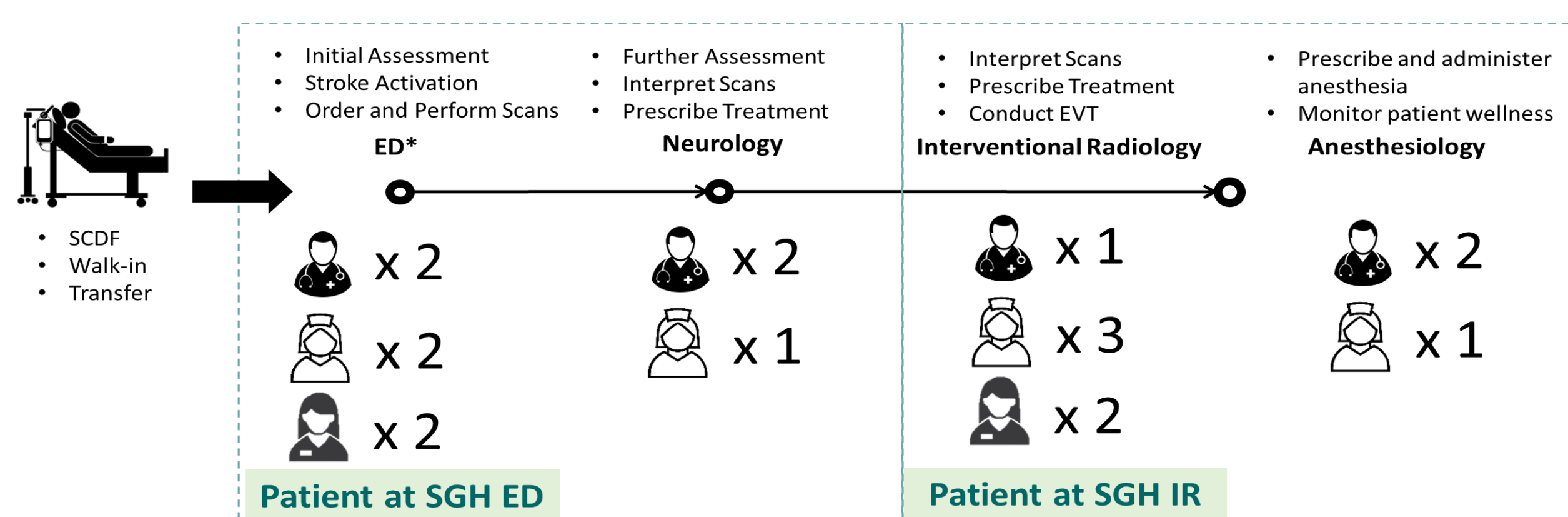


Figure 1. Clinical Roles involved in Patient Care for EVT Stroke Cases

Previously, a large inter-department open messaging group was used to coordinate EVT. This communication method was not ideal due to:

1. Manual identification of duty staff and group administration;
2. Non-targeted broadcast of clinical information raised concerns for patient privacy;
3. Notification fatigue for those not on duty.

## Aims

To reduce time spent on coordinating EVT for stroke patient by enhancing efficiency of communication via targeted messaging.

## Methodology

A Gemba Walk was conducted to map in-hospital communication processes for EVT cases and 4 key pain points were identified.

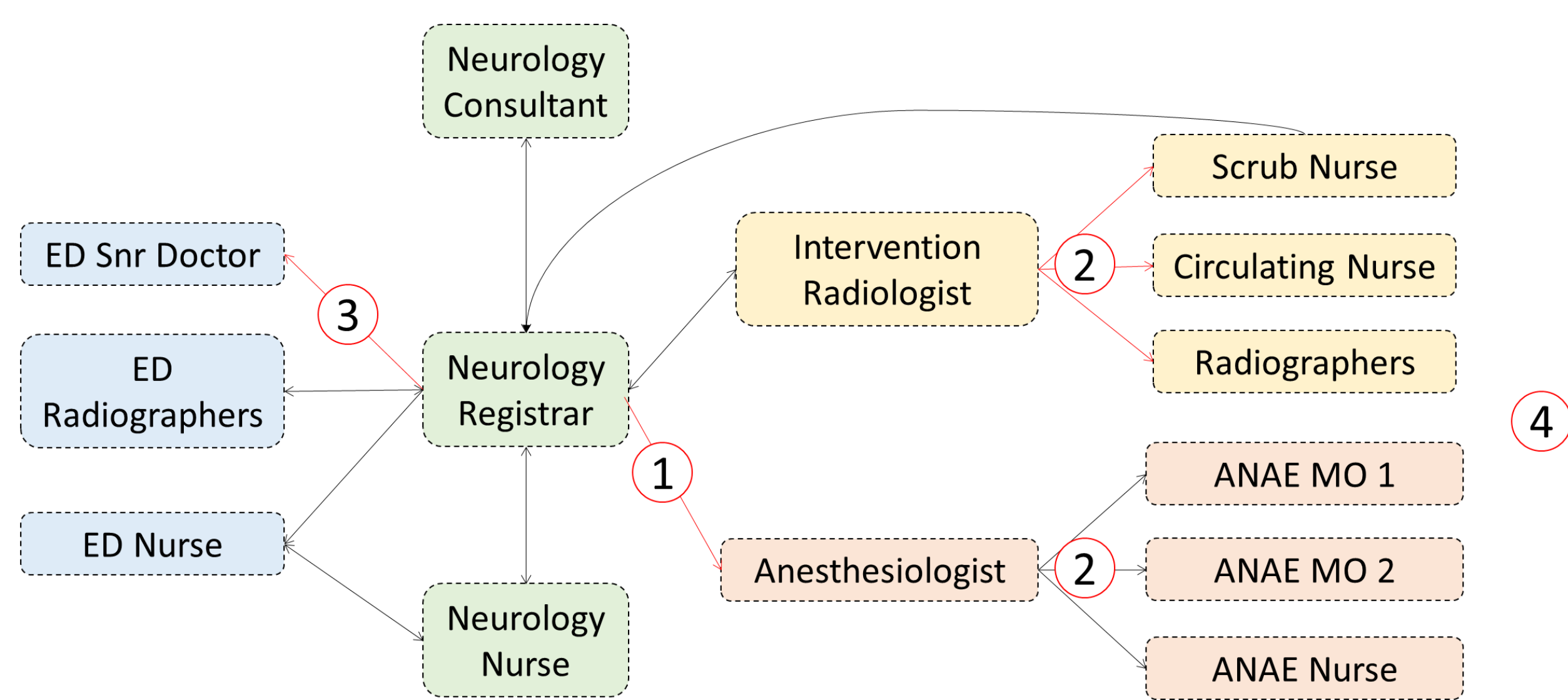


Figure 3. Pain points in the current EVT coordination

1. Neurologist activates anaesthesiologists on-duty via phone call;
2. Intervention Radiologist and Anaesthesiologist activate their teams on a different chat group/via direct messages;
3. ED team is not in the group to receive notification to push patient;
4. Huge group with >100 members, some have left organizations; few check for message conscientiously.

The Roles function in TigerConnect was identified as a suitable solution. Based on pre-submitted rosters, duty staff are automatically assigned into pre-set clinical “Roles” in an EVT messaging group. The dynamic adjustment of the group composition based on roles rather than individual staff’s names ensured that the correct staff were contacted at any time. Outcome measures included the usage of the messaging group and timings taken from EVT initiation to arrival at the EVT angiosuite. User surveys were also administered to elicit feedback.

Prior to inter-departmental implementation for EVT, processes and technical details were ironed out by piloting within Department of Emergency Medicine (DEM) and Cardiovascular Medicine (CVM) first.

## Implementation

### ➤ Preparation and Initial Pilot (Aug 2021 – Sept 2021)

1. Engaged each department to design optimal numbers of and nomenclature of roles;
2. Prepared and disseminated training slides and videos.
3. Pilot in DEM and CVM

### ➤ Implementation for EVT (15<sup>th</sup> Sept 2021 -- Ongoing)

1. Announcement made on the old group one week in advance;
2. Reminded all duty staff daily on the new group and to handover the role in case of last minute change to roster, for the first month after implementation;
3. Active monitoring and trouble-shooting for the first three months.

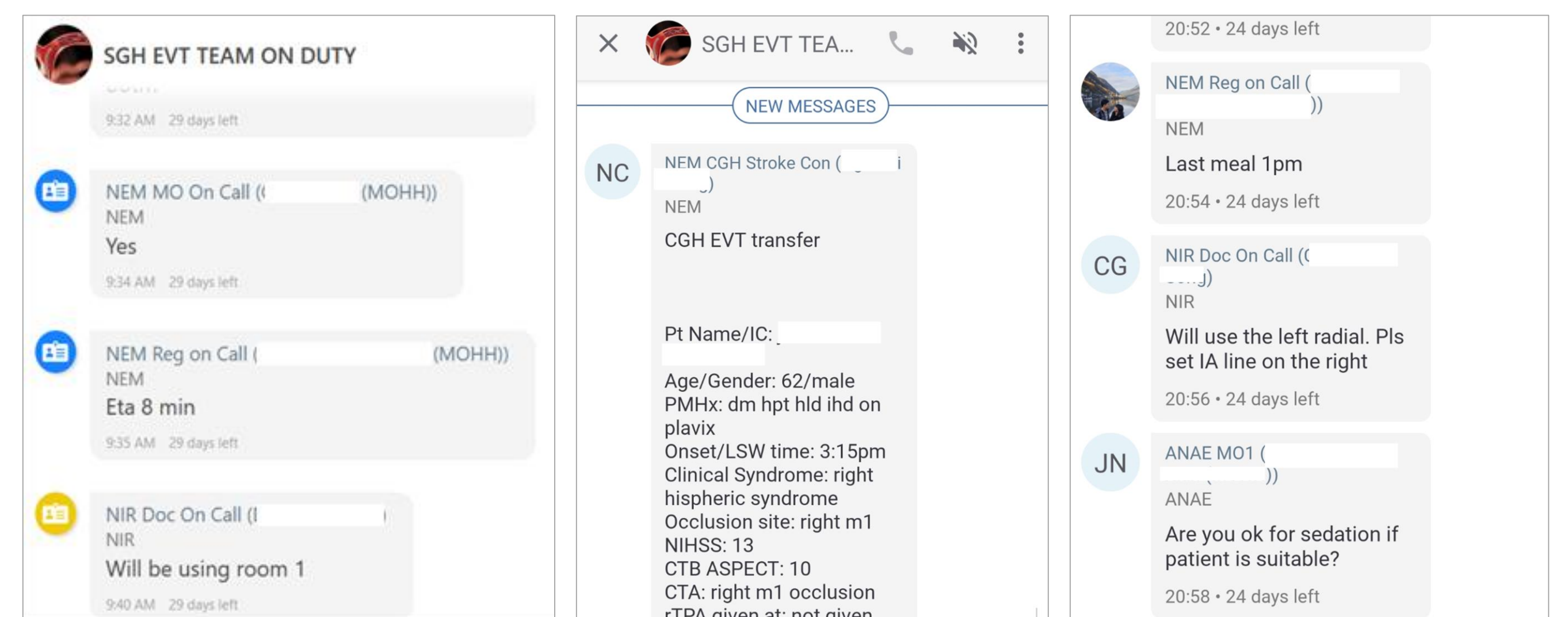


Figure 4. Screenshots of the role-based group, from left to right: SGH Neurologist updates the rest on the estimated arrival time of transferred patient; CGH neurologist activates SGH stroke team directly, sending full case information using “Quick Reply” template; SGH ANAE proposing sedation within 6 minutes of case activation.

## Results

Based on the DEM/CVM pilot, internal processes were improved to streamline the uploading of rosters via the creation of guides and templates. The Roles function became the default way of on call communication and a survey amongst DEM/ CVM users showed that 93% wanted to continue using the function.

The function was then piloted on the EVT team. From 15<sup>th</sup> Sept 2021 to 31<sup>st</sup> Jan 2022, 74 EVT cases are coordinated via the role-based chat group. Out of the 1544 unique messages sent to the group, 34.7% are read by targeted recipients within one minute of sending.

Overall, the time from decision for EVT to arrival at the angiosuite was reduced by an average of **11%**. Roles eliminated the need for manual duty roster checks, addition of new members into the messaging group and calling the duty anesthetist separately.

**96%** thinks that role-based group:

- saves time contacting staff on duty
- meets requirement for coordinating multidisciplinary care
- can be used for other clinical settings
- should stay

**92%** thinks that role-based group reduces unnecessary notifications when off-duty

Roles significantly reduced the number of staff receiving patient information and alerts. The EVT use case saw a reduction of staff notified from over 100 to 21 roles. User surveys point to an overwhelmingly positive response, as shown on the left.

## Sustainability and Spread

Role-based messaging systems optimizes intra-departmental communication in ED and inter-department communication for EVT activations, and shows potential for other applications.

For efficient roster management in the long term, department secretaries are being trained to create and manage rosters for the clinical roles.

The potential of targeted role-based communication is being explored for other clinical user cases such as Pulmonary Thrombectomy (PERT).

### Reference:

1. Saver JL. Time to Treatment With Endovascular Thrombectomy and Outcomes From Ischemic Stroke: A Meta-analysis. JAMA. 2016 Sep 27;316(12):1279-88. doi: 10.1001/jama.2016.13647. PMID: 27673305..