Ontario Health
CorHealth Ontario

EVT Quality Performance Discussions

Introduction

In the Summer of 2021, CorHealth Ontario (now Ontario Health-CorHealth Ontario) initiated an annual cycle of EVT Quality Performance discussions with all EVT programs, Regional Stroke Networks, and the Ministry of Health (MOH). These discussions provide a forum for open dialogue regarding Ontario Health-CorHealth Ontario's EVT Report, which now has 4 full fiscal years of data. The most recent reporting period is Q1Q2 of FY 21/22.

This year marked the second round of EVT Quality Performance Discussions (FY 2022/23). To support these conversations, areas of high and low performance were identified for each program and targeted questions were shared in advance. These questions focused on key factors contributing to the program's performance, strategies being used to address low performing areas, and opportunities for sharing across programs.

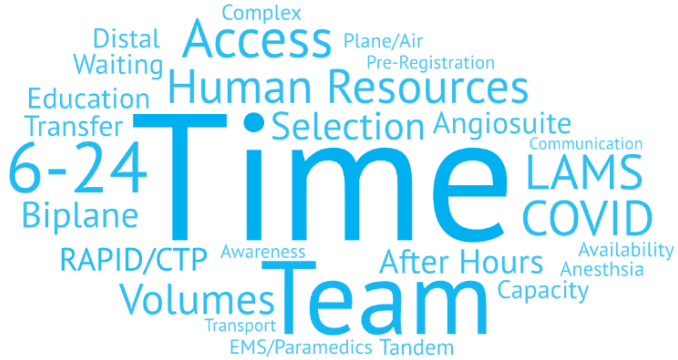
In addition to the EVT performance indicators, referrals to the back up EVT site (i.e., R2 activations) were also discussed. These discussions reflect a new provincial process for monitoring the frequency of these activations, and factors contributing to their occurrence. For more information regarding R2 activations, refer to Ontario Health-CorHealth Ontario's EVT R2 Activation Guidance Document.

Purpose

The purpose of this document is to highlight key issues and common themes which emerged during the EVT performance discussions, as well as strategies being used by programs to address these challenges.

Key Words

To summarize the discussions at a high level, key phrases and meeting notes were compiled and added to a word cloud generator. A word cloud is a visual representation of text data used during discussions. The importance of each key word is show by size- the bigger the word, the more frequently the word was repeated during the discussions.



Provincial Emerging Issues and Themes

Key issues and themes that emerged during the EVT Performance discussions have been captured below. Although captured as distinct ideas, several of the themes are interrelated and reflect common underlying issues. At times, these themes may build upon or reinforce ideas captured during earlier performance discussions (i.e., FY 2021/22). Previous summaries can be accessed on the CorHealth Website.

Optimizing Access
Most programs indicated that access has not yet been optimized, and that volumes will continue to grow over the coming years. This anticipated increase reflects ongoing efforts to implement screening in the 6–24-hour window, adoption of automated CTP software at referral sites, and evolving evidence/technology to treat more difficult/complex cases.

Several programs described a strong focus on increasing access at referrals sites; in particular, education efforts to ensure appropriate patient identification and screening in the expanded treatment window.

Patient Selection
Programs continue to refine their selection criteria based on emerging evidence, performance results and access to advanced imaging software. Some programs indicated more restrictive selection practices in response to observed increases in mortality rates, while others described "pushing the boundaries" in terms of treating patients with distal occlusions, larger core infarcts and/or malignancies.

CT Perfusion software was described by many as a key enabler to appropriate patient selection. Several programs indicated referral site interest in purchasing the software.

Health Human Resources
Several programs described pandemic related staffing challenges, at both the EVT and referral sites, as a key barrier to quality improvement and region-wide implementation of 6–24-hour screening protocols. The need for continuous education and/or delayed implementation of new protocols was described by many.

Pandemic aside, the need for additional resources to support increasing volumes and/or a more fulsome after hour team was also raised by several programs.

Timeliness of Care After Hours
Timeliness of care after hours continues to be a challenge for most programs, largely due to on-call models that require the EVT team to travel into the hospital, as well as reduced staffing complements during these times. Some programs described a cautious approach to "call in," due to concerns of burning out an already stretched team, as further contributing to time delays (e.g., waiting until the repeat scan is completed for patients being transferred).

Transportation Delays
Several programs indicated challenges with respect to timely transportation. Mostly, delays were attributed to lack of availability of a medical escort to accompany the patient and/or decisions to transport by air ambulance (i.e., ORNGE). The need to reinforce the use of land transfer, where geographically appropriate, was emphasized.

In areas where air ambulance is required, timely transport continues to be a challenge.

Capacity at EVT hospital
Many programs described angiosuite and/or post-procedure level II care capacity challenges resulting from increased volumes. Although several programs indicated current and/or planned angiosuite upgrades or renovations, the need for additional and/or reserved Level 2 beds for post-procedure monitoring was emphasized.

Capacity is further stretched when roles and accountabilities of providers are not well understood in the system.

Patient Complexity
Patient complexity was described as a key factor contributing to patient outcomes. Many programs indicated that patients are becoming more complex, including higher incidence of tandem occlusions. The pandemic was noted as potentially contributing to delays in medical management, resulting in disease progression.

Program Sharing

During the meetings, programs described several quality improvement ideas underway. These ideas, including the area of focus, have been captured below to promote cross-program sharing.

Area of Focus	Strategy/Quality Improvement Initiative
Door to Puncture	➢ **London Health Sciences** is using an "all hands-on deck" approach • Each EVT case has an anesthesiologist and anaesthesiologist assistant present who actively support setting up the room. In instances where the second intervention room is unoccupied, members from the team are pulled to support with setup ➢ **Windsor Regional Hospital** is using LAMS to pre-notify the neuro Intervention team • During daytime hours, the team notifies the intervention team that a LAMS positive patient is en route. This information prompts the team to hold the room until the CT is completed ➢ **Sunnybrook Health Sciences Centre** is pre-registering transfer patients • Referral sites are faxing a standard set of demographic information directly to the team at Sunnybrook to support pre-registration. Door times are reviewed by the Acute Stroke Coordinator to ensure accuracy and data quality ➢ **University Health Network** is using a multipronged approach to reduce door to treatment times • Continuing education regarding standard processes in the Emergency Department (ED) • New opportunities with the implementation of a new Health Information System with built in processes designed to support pre-registration of patients in the ED, provision of care and data capture ➢ **Kingston General Hospital** is using a multipronged approach to sustain low door to puncture time 24/7, including after hours • ED nurses leverage a checklist to assist moving patient to the CT suite in a timely fashion with the support of physician residents. This is helpful if waiting for the stroke neurologist team to come in from home after hours for patients arriving with little notice. • The neurology stroke service is quick to respond and actively involved in all cases. There is close communication. Teamwork is well organized between ED, Neurology, CT suite, Interventional Radiology, and Critical Care. • Switchboard contacts interventional radiology for EVT cases. After hours, the Interventional Radiologist then use paging or text messages to call the IVR team into the hospital • Standard procedure at KHSC is that procedural sedation is used for EVT patients presenting at any time of day unless there is a clinical indication that general

	anesthesia may be needed. This mitigates the need to wait for anesthesiology. Procedural sedation and continuous monitoring are managed by the interventional radiology RN with the support of neurology as needed. The IVR nurses are trained and experienced in procedural sedation within medically pre-determined parameters for many procedures in IVR. If critically unstable patients need to be intubated this is usually done in ED prior to proceeding to EVT. General anesthesia is used for cases with basilar occlusion. If the patient has been intubated upon transfer from the district centre, the intensivist and ICU nurse and RT will assist as needed. In rare instances, within the IVR suite a code 99 for anesthesiology can be called.
Door to CT/CTA	➢ **Trillium Health Partners** is working with Diagnostic Imaging (DI) to ensure CT availability • An assistant from DI waits in the Emergency Department, and contacts CT to let them know the patient has arrived, and to hold the table ➢ **Unity Health Toronto** is using a direct to CT "pit stop" model • A quick assessment is done by the Emergency Department nurses, if stable, the patient is taken directly to CT for imaging on the EMS Stretcher ➢ **Windsor Regional Hospital** is working with paramedics to pre-register patients • Paramedics contact the registration clerk to inform them that a probable stroke is en route; door time is subsequently updated when the patient arrives. Data quality is reviewed on a monthly basis to ensure accurate times are captured.
Timeliness of Care After Hours	➢ **London Health Sciences** is preparing for after-hour cases • LHSC is working with Infection Prevention and Control to determine whether it is possible to have all equipment opened and covered on a sterile field between the hours of 1600 and 0700 ➢ **Hamilton Health Sciences** is using a new staffing model to enable better coverage • The Neurointerventional team (Nursing and CT Technologist) is now onsite Monday to Sunday from 0700 to 2300 (previously Monday to Friday 0800-1700 and on call from 1700-0800)
Transport Delays	➢ **Health Sciences North** is collaborating with ORNGE to better understand factors contributing to patient transfer times in the North East • A Data Sharing Agreement is being established to allow for a comprehensive review of all Life and Limb transfer cases from North East pre and post- launch of HSN's EVT Program to gain understanding of any transport-related issues such as delays ➢ **Thunder Bay Regional Health Sciences Centre** is implementing Air Bypass to expedite transfer to the EVT site

	• In select areas where transport to hospital must be by air due to geography, LVO clinical screen positive patients will be transported directly to TBRHSC by air ambulance
Supporting Referral Sites	➢ The **Champlain Regional Stroke Network** is driving access at referral sites through targeted education efforts • Decision algorithms and e-modules were developed to support referral sites with the assessment, consultation, and transfer of EVT eligible patients. The decision algorithm is being implemented at all sites across Champlain via in-person and online in-servicing.
Continuous Feedback Processes	➢ **The Ottawa Hospital** is using a "paramedic feedback loop" to demonstrate the impact of redirect decisions and promote ongoing improvements • For all patients that are redirected to The Ottawa Hospital, paramedics receive a letter from the Regional Paramedic Program of Eastern Ontario that includes information about the final diagnosis and treatment outcome to support self-reflective practice. ➢ **Kingston General Hospital** is letting referral sites know how they made a difference, the importance of ongoing timely activation of the acute stroke protocols, and screening within the 6-to-24-hour time window using the ACT-FAST • Aggregated reports of process times and patient outcomes, including Modified Rankin Scale Scores, are provided back to referral sites to demonstrate the impact of timely identification and transfer of EVT eligible patients

Future Considerations: EVT Reporting and Measurement

Opportunities to evolve the EVT Report to better reflect system changes and patient complexity have been discussed at the Hyperacute Steering Committee and Hyperacute Performance Measurement and Monitoring Task Group. In this regard, the following key considerations were raised by EVT Programs during the performance discussions:

- *Patient Profile:* Several programs highlighted the need to better understand the "types" of patients being treated within and across programs (i.e., age, sex, comorbidities, and clot location). Concerns regarding variation in selection practices and/or patient complexities were raised when interpreting indicator results, in particular mortality, reperfusion and/or access rates.

- *Access Target:* Although sites expect access to increase, several sites expressed concerns regarding the adoption of a provincial target due to geographical nuances and risks of overuse (i.e., treating inappropriate patients).

R2 Activation

In addition to the EVT Report, referrals to the back up EVT site (i.e., R2 activations) were also discussed with programs, as appropriate. These discussions levered CritiCall Ontario's Detail Report to better understand the contributing factors and mitigation strategies.

In general, programs were aware of the activations and the circumstances under which they occurred. Frequently, activations were described as occurring after hours in response to simultaneous EVT cases and reduced staffing complements during these times. Other factors, such as, redirect status, angiosuite capacity (e.g., complex interventional cases occupying suite for prolonged time), post-procedure capacity, and requests for a second opinion by the Telstroke neurologist were also described as contributing to activations.

In terms of strategies to mitigate future occurrences, many programs described increasing awareness of the new provincial guidance document and the circumstances under which R2 activations are appropriate. Additionally, some programs discussed enhancing after-hour staff availability and/or using the single plane angiosuite to manage concurrent cases.

Next Steps

Based on feedback received from these performance discussions, CorHealth Ontario will be engaged in the following activities over the next 6-12 months:

- Exploring the feasibility of developing a patient profile to better understand patient characteristics
- Engaging key partners such as CritiCall Ontario and ORNGE to identify opportunities to reinforce the use of land transfer, where geographically appropriate.
- Update the *Provincial Acute Stroke Patient Referral and Transport Process for Endovascular Treatment (EVT)* to identify opportunities to reinforce land over air, where geographically appropriate
- Clarify roles, responsibilities, and expectations of all the stakeholders in the referral and transport process to strengthen capacity and flow in the system
- Ongoing monitoring of R2 activations to better understand capacity within the system

The next EVT Quality Performance Discussions are planned for July/August 2023/24. Sites will also have the opportunity to provide updates on their quality improvement efforts during the annual volume discussions which take place in January 2023/24. Ongoing monitoring of the system with providers of care to assure quality of services and patient outcomes will remain a key focus for OH -CorHealth in the coming year.