CorHealth Ontario

Advancing cardiac, stroke and vascular care

Ontario Telestroke Report Addendum

Refresh with FY 2020-21 Data

November 2021

Ontario Telestroke Report
Refresh with FY 2020-21 Data

OVERVIEW

The Ontario Telestroke Report refresh with fiscal year 2020/21 data, leverages the inaugural report which was released in June 2021 with fiscal year 2019/20 data. This report provides insight into the performance of the Ontario Telestroke Program with respect to twelve key performance indicators which focus on access, timeliness, and patient outcomes.

OBJECTIVE

The long-term objective of this report has not changed from the inaugural report. When paired with stakeholder engagement, it is to establish a performance measurement and monitoring system which can be used by CorHealth Ontario and stroke system stakeholders to monitor and drive quality improvement at the site and provincial program level; however, **due to data quality challenges, the primary objective is to socialize the indicators that will be used to monitor and track performance in the future and to highlight the data quality challenges that were identified throughout the report development process.** Although results have been included in this report, it is strongly recommended that caution be used when interpreting key findings.

SUPPLEMENTARY FILE

In addition to this report, a supplementary data file has been provided to all Telestroke Referral Sites to enable a more detailed review of performance. This supplementary file includes provincial and site level results for all performance and data quality indicators included in this report, as well as the numerator and denominator used to calculate these results.

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Data Quality Update

Data Quality Update

BACKGROUND

The Ontario Telestroke Report leverages the Canadian Institute for Health information' (CIHI) Special Project 640 (SP 640) to identify patients who received a telestroke consultation (i.e., SP 640, Telestroke consultation fields). Prior to the Ontario Telestroke Report, data captured in CIHI's Special Project 640 had not been used by CorHealth Ontario for the purposes of measurement and reporting. Due to the novelty of this data, CorHealth Ontario completed a data quality assessment to determine the completeness of the *telestroke consultation* field in CIHI's Special Project 640 and its ability to accurately capture Telestroke utilization.

To quantify the completeness of SP 640, Telestroke consultation fields, CorHealth Ontario compared the number of unique patients captured in CIHI's SP 640 to the number of unique patients with Telestroke consults captured by CritiCall Ontario's Telestroke Case Facilitation and Documentation System, the reference standard (i.e., Data Quality Indicator 1 (DQI 1): Ratio of Unique Telstroke Consult Patients Based on SP640 and CritiCall Ontario)

Findings from this analysis revealed, at the program level, poor agreement between CIHI's SP 640 and the reference standard (1847 consults recorded in SP 640 versus 2841 consults captured by CritiCall; 65% agreement, FY 2019/20), as well as significant variability between sites.

Although the findings suggested poor data quality in terms of the completeness of CIHI's SP 640, Telestroke consultation fields and its ability to capture Telestroke Consultations, other factors unrelated to data quality were identified as potentially influencing indicator results. Specifically, the completion guidelines for CIHI's SP 640 were noted to be more restrictive than those used by CritiCall Ontario's Telestroke Case Facilitation and Documentation System. These differences, made it challenging to draw like-to-like comparisons and to fully attribute the discrepancy to poor data quality; however, it was noted to be unlikely that the completion guidelines alone would result in the magnitude of inconsistencies observed.

In the absence of fully understanding the factors contributing to the discrepancy, a data quality threshold of 60.0% was adopted in the FY 2019/20 report to mitigate the risk of data quality issues on indicator results, while at the same time accommodating for the potential impact of the CIHI SP 640 completion guidelines on DQI:1 results. Additionally, to minimize the impact of completion guidelines on DQI 1 and, in turn, enable a better understanding of the data quality, the following recommendations were included in the inaugural report based on 2019/20 data:

- Recommendation #1: Complete SP 640, Telestroke consultation fields for any patient that receives a Telestroke Consult irrespective of ICD-10-CA code (*note: This recommendation was subsequently put on hold due to feedback obtained from stakeholders, see "Update on Recommendations" (next page))*
- Recommendation #2: Complete SP 640, Telestroke consultation fields for cases where the patient *is transferred* to another ED facility after receiving a Telestroke Consult

To learn more about data quality within the Ontario Telstroke Report, refer to the special focus chapter, "Data Quality" included in the inaugural report (i.e., Ontario Telestroke Report 2019-20)

UPDATE ON RECOMMENDATIONS

After releasing the inaugural FY 2019/20 report, CorHealth Ontario consulted with a group of decision support representatives from select Telestroke sites to obtain feedback on the feasibility and perceived impact of the two recommendations put forward in the inaugural report:

- Recommendation #1: Complete SP 640, Telestroke consultation field for any patient that receives a Telestroke Consult irrespective of ICD-10-CA code
- Recommendation # 2: Complete SP 640, Telestroke consultation field for cases where the patient ***is transferred*** to another ED facility after receiving a Telestroke Consult

During these consultations, concerns regarding the feasibility of the first recommendation, as well as the value of implementing the recommendation, beyond informing data quality, were raised. Instead, it was suggested that an audit be completed to better understand the factors contributing to the discrepancy between CritiCall's Telestroke Case Facilitation and Document System and the CIHI Special Project 640 volumes. Regarding the second recommendation, no concerns were raised, and several sites indicated that this practice had previously been implemented at their site to support their own analytical and reporting needs.

In response to this feedback, **CorHealth Ontario issued a communication to all telestroke sites requesting that recommendation #1 be put on hold until further notice. Sites were strongly encouraged to continue with the implementation of recommendation #2.** Additionally, CorHealth Ontario, enlisted Telestroke sites to participate in a voluntary audit of Special Project 640, Telestroke consultation fields.

SPECIAL PROJECT 640, TELESTROKE CONSULTATION FIELDS AUDIT

In October 2021, CorHealth Ontario initiated an audit of the *Telestroke Consultation* field in CIHI's Special Project 640 to understand the factors contributing to the discrepancy between the number of Telestroke consults captured in CritiCall Ontario's Telestroke Case Facilitation and Documentation System and CIHI' Special Project 640, Telestroke consultation fields. Findings from this audit will be used to:

- adjust the data quality cut-off used in the Ontario Telstroke Report to better reflect the true impact of the completion guidelines on DQI:1 results
- identify the need to develop Telestroke jurisdictional specific completion guidelines for Special Project 640 and/or adjust the methodology used for indicator calculation in the report to ensure that the cohort of interest is being accurately captured and/or mitigate the impact of completion guidelines on performance results
- inform data quality improvement efforts at the site level

The audit will occur between the months of October and January (2021-2022) and will leverage data from the first two quarters of fiscal year 2021/22. Participation in the audit is voluntary. Currently, nine Telestroke sites have agreed to participate in the audit. Findings from the audit will be incorporated in the Spring Data Quality Refresh. **In the interim, a 60% Data Quality Cut-Off will continue to be used in the FY 2020/21 Ontario Telestroke Report.**

FY 2020/21 Data Quality Results
Indicator DQI 1: Ratio of Unique Telestroke Consult Patients Based on SP640 and CritiCall Ontario

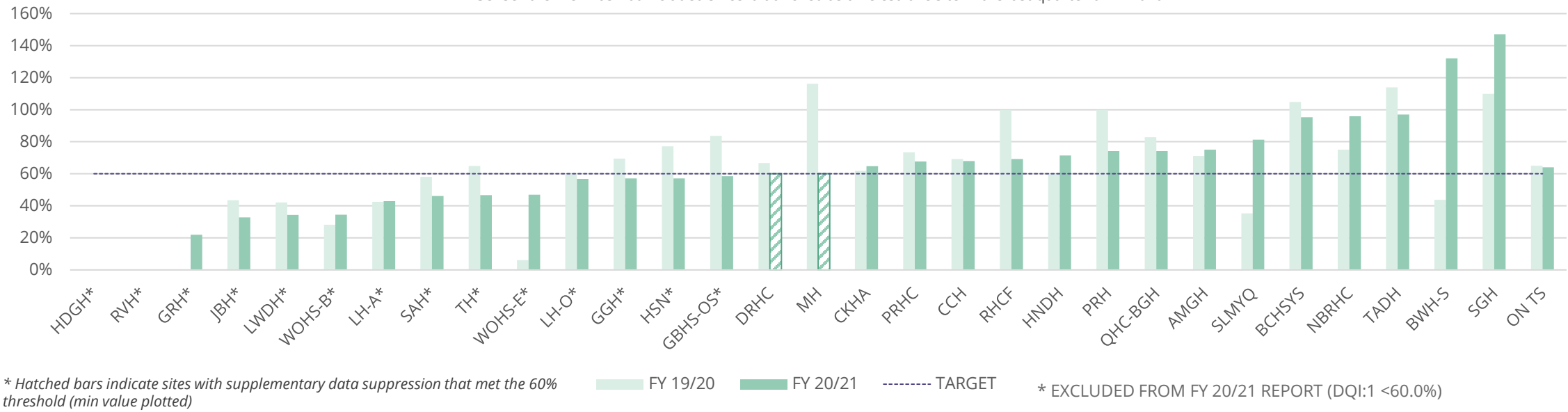
Indicator Description:

This indicator compares the number of unique patients with Telestroke consults captured by CritiCall Ontario's Telestroke Case Facilitation and Documentation System to the number of unique patients captured in CIHI Special Project 640 Telestroke consultation fields and is used to quantify the completeness of Special Project 640 Telestroke consultation fields. CritiCall Ontario's Telestroke Case Facilitation and Documentation System is the gold standard.

Site Level Results (FY 2019/20, FY 2020/21)

Data Source: CIHI DAD/NACRS. CritiCall Ontario's Telestroke Case Facilitation and Documentation System

Sensenbrenner was not included since it launched as a Telestroke site in the last quarter of FY 2020/21



** Hatched bars indicate sites with supplementary data suppression that met the 60% threshold (min value plotted)*

* EXCLUDED FROM FY 20/21 REPORT (DQI:1 <60.0%)

Interpretation Considerations

- FY 2020/21 data continues to demonstrate poor agreement between SP 640 and the reference standard (1696 consults recorded in SP 640 versus 2633 captured by CritiCall; 64% agreement).
- Although the overall agreement appears to have improved, a greater number of sites failed to meet the DQ cut-off in FY 20/21 as compared to FY 19/20 (14 and 12, respectively).
- Across sites, agreement ranges from 0% to 147.1%. Predominately, where inconsistencies existed, lower consult counts were captured in SP 640; however, two sites recorded a higher number of consults in SP 640 than what was captured in CritiCall Ontario's Telestroke Case Facilitation and Documentation System (i.e., over-reporting of Telestroke Consults).
- The data quality cut-off does not mitigate the impact of over-reporting on indicator results. Over-reporting is a data quality issue and should be taken into consideration when interpreting indicator results (i.e., patients that did not receive a telestroke consult are being captured as receiving a consult).

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Indicator Results

Chapter 1: Telestroke Initiation

This chapter focuses on the pathways that lead up to the first connection between the referring physician and the Telestroke Neurologist.

KEY HIGHLIGHTS:

- The proportion of stroke patients presenting to a 24/7 Telestroke Site that received a Telestroke consult increased from 20% to 26% over the past four years (FY 2017-2020).
- In fiscal year 2020/2021 the median time from stroke symptom onset to Telestroke initiation (i.e initial call to CritiCall Ontario) was 140 minutes.
- The average response time for Telestroke Neurologists in fiscal year 2020/2021 was 3 minutes (target ≤10 minutes).

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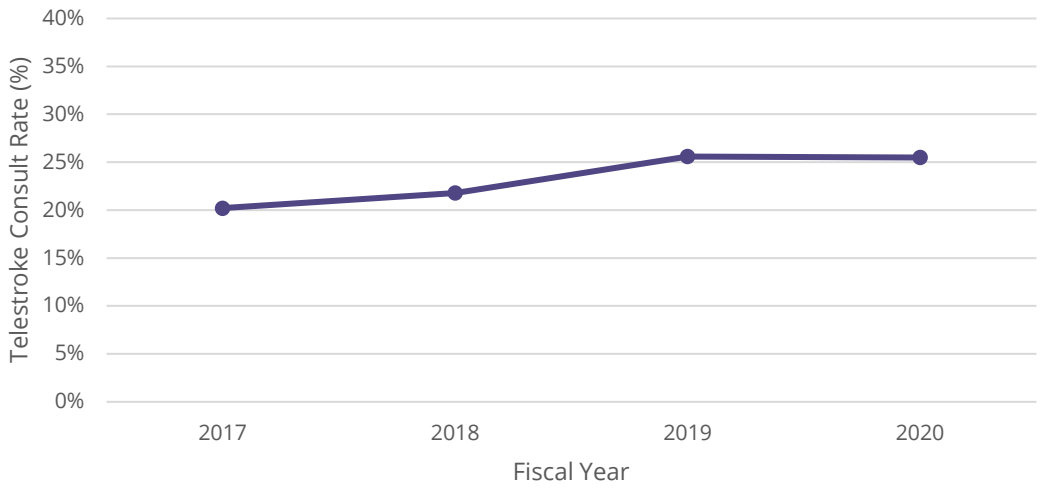
Chapter 1: Telestroke Initiation
Indicator 1.1: Proportion of Stroke/TIA Patients at Telestroke Sites who Received a Telestroke Consult

Indicator Description:

This indicator reports the proportion of Stroke/TIA patients that received a Telestroke Consult after presenting to a 24/7 Telestroke Site.

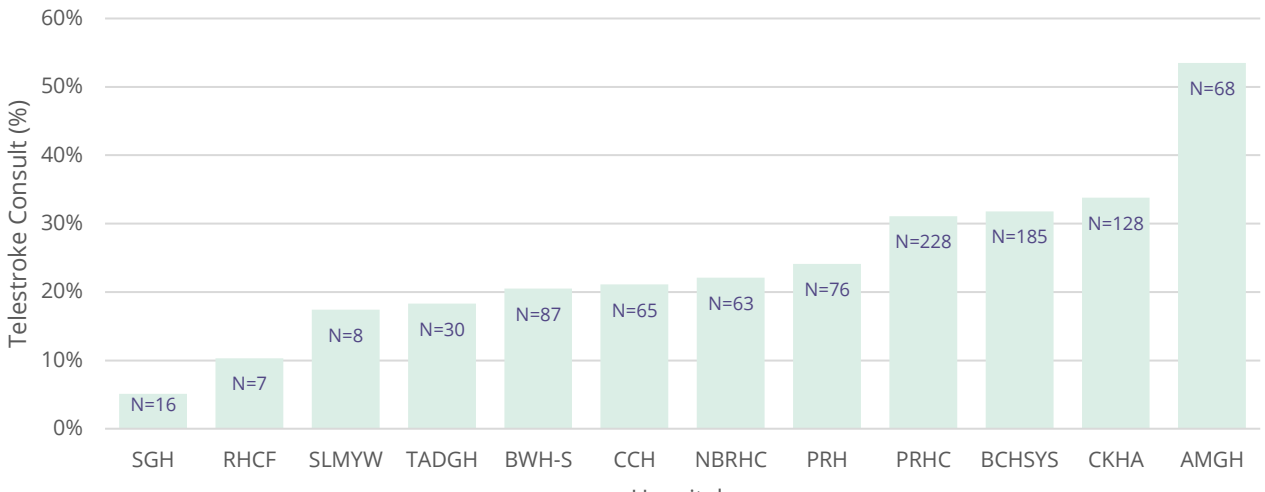
Ontario 24/7 Telestroke Sites

Chart Notes: Provincial results only include sites that met the DQ-Cut Off
Data Source: CIHI DAD/NACRS



Site Level Results- 24/7 Telestroke Sites (FY 2020/21)

Chart Notes: HNDH and DRHC are not included due to case counts between 1-5 and supplementary suppression, respectively
Data Source: CIHI DAD/NACRS



Data Label: N= Number of Consults

Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1: *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations.
- This indicator is exploratory (and there is currently no set target); a higher proportion of consults may reflect overuse and/or inappropriate referrals, whereas a lower proportion may reflect underuse of the service. Sites should be utilizing the Telestroke Referral Worksheet to identify Telestroke eligible patients.
- Referring physicians at 24/7 Telestroke Sites rely on Telestroke to deliver tPA and/or access EVT 24 hours a day, 7 days a week; however, this indicator does not take into consideration stroke symptom onset (SSO) time and may include patients presenting greater than 24 hours post SSO. These patients are not appropriate for Telestroke consultation; a consult rate of 100% is not expected.
- The increased proportion of stroke/TIA patients receiving Telestroke consultations over time may reflect the advent of EVT and subsequent expansion of the treatment time window to 12 hours in 2019 and 24 hours in early 2021 provincially. The full effects of the expanded EVT treatment window implementation is not fully realized in the current results.

Chapter 1: Telestroke Initiation
Indicator 1.2: Stroke Symptom Onset to Telestroke Initiation (Minutes)

Indicator Description:

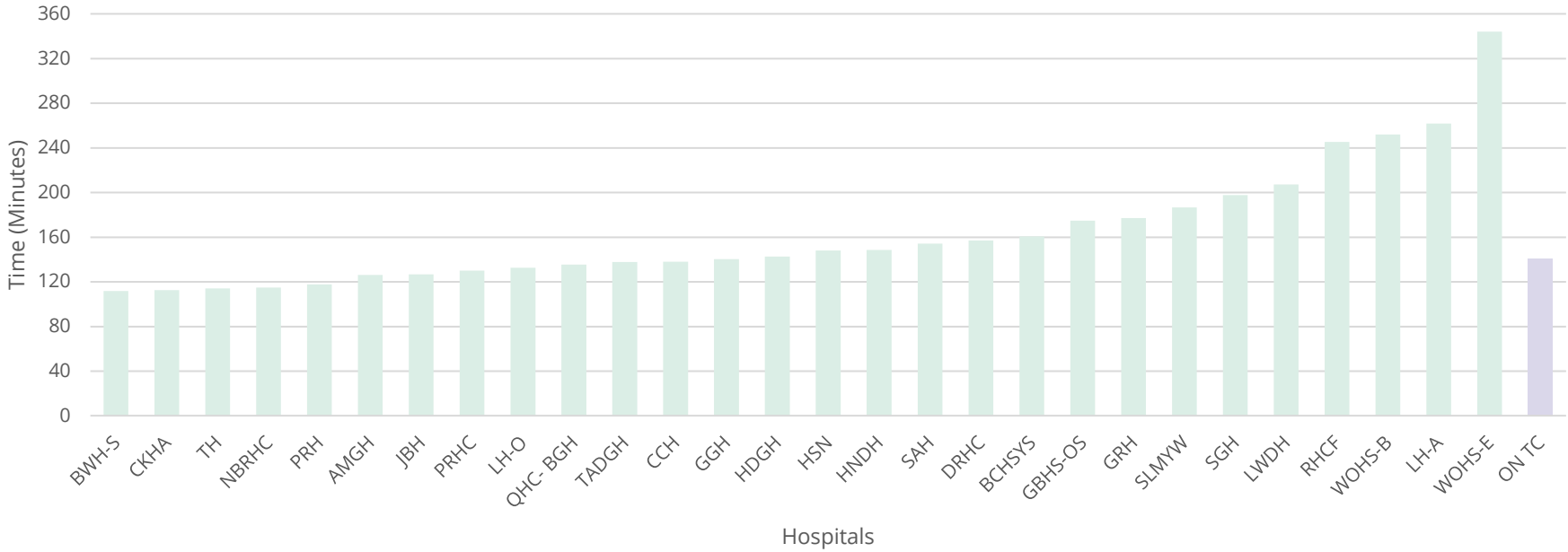
This indicator reports the median time, in minutes, from stroke symptom onset to the start of the initial call with CritiCall Ontario (i.e., Telestroke initiation).

Events and Care Processes Captured by Indicator

- Stroke Symptom Onset
- Call Placed to 911
- Patient Arrival at ED
- Patient sent for CT/CTA while ED Physician Calls CritiCall
- Start of Initial Call With CritiCall (Telestroke Initiation)

Site Level Results (FY 2020/21)

Chart Notes: MH and RVH are not included due to case counts between 1-5 and supplementary suppression, respectively
Data Source: CritiCall Ontario, Telestroke Case Facilitation and Documentation System
Glossary: ON TC- Ontario Telestroke Consults



Interpretation Considerations

- This indicator was calculated using data from CritiCall Ontario's Telestroke Case Facilitation and Documentation System; the 60% Data Quality cut-off has **not** been applied.
- The stroke symptom onset time used to calculate this indicator reflects the verbal report provided to the CritiCall agent by the ED physician (or delegate) during the initial call. In some instances, this time may be an estimate and/or the last known well time.
- Currently there is no validated target for this indicator; a lower value is desired.
- Site performance may be influenced by patient behaviour (e.g., delays in seeking medical attention) and/or distance to hospital; hospitals need to take into consideration pre-hospital factors that may be influencing results. Ideally, this indicator would start at patient arrival (i.e., door time); however, this data is currently not linkable (i.e., CIHI and CritiCall data).
- Site performance may be influenced by access to 24/7 onsite CT/CTA personnel.

Chapter 1: Telestroke Consultation
Indicator 1.3: Time to First Consult (Minutes)

Indicator Description:

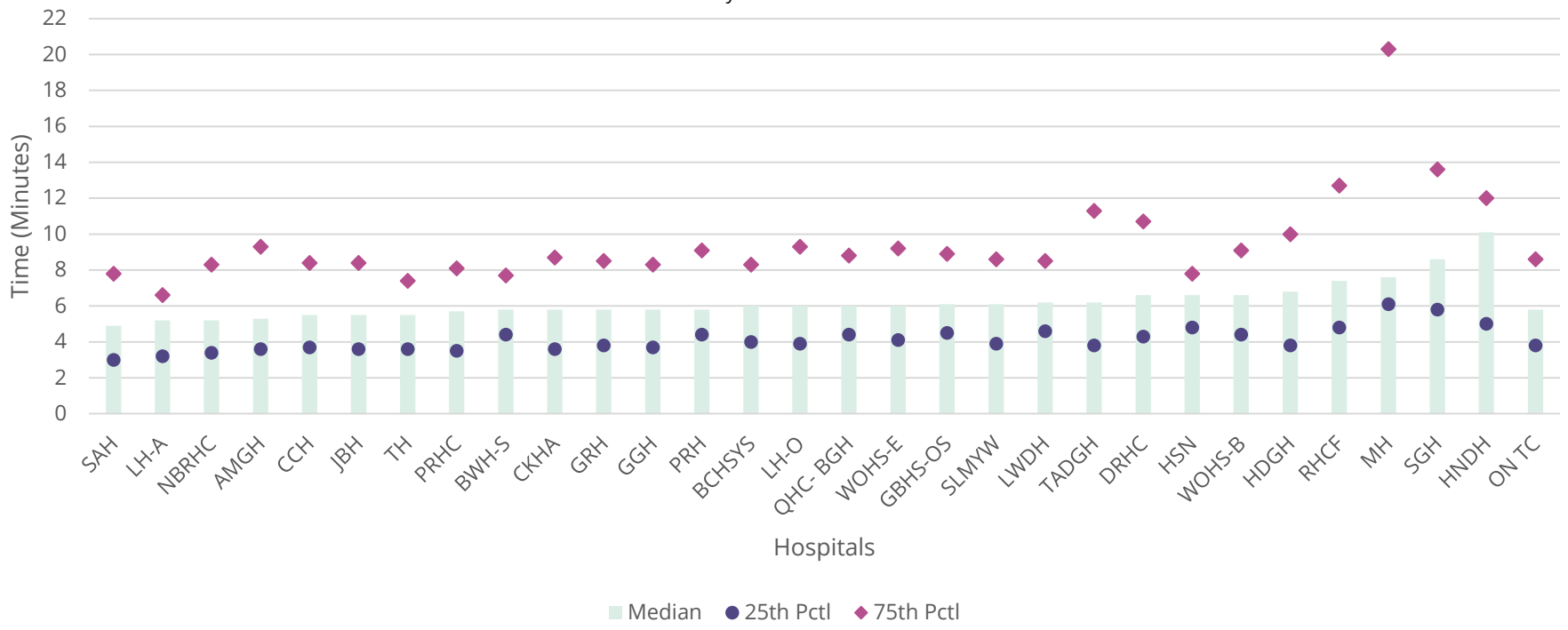
This indicator reports the median time, in minutes, from **the end** of the initial call to CritiCall to **the start** of the first call/connection between the referring physician and Telestroke Neurologist.

Care Processes Captured by Indicator

- Referring Site Requests Telstroke Consult (Initial Call)
- CritiCall Agent Obtains Call Back Number (Initial Call Ends)
- CritiCall Agent Pages Telestroke Neurologist
- Telestroke Neurologist Calls CritiCall Ontario
- CritiCall Agent Calls Back Referring Physician
- Connection Between Referring & Consulting Physician

Site Level Results (FY 2020/21)

Chart Notes: RVH is not included due to case counts between 1-5
Data Source: CritiCall Ontario, Telestroke Case Facilitation and Documentation System
Glossary: ON TC- Ontario Telestroke Consults



Interpretation Considerations

- This indicator was calculated using data from CritiCall Ontario's Telestroke Case Facilitation and Documentation System; the 60% Data Quality cut-off has **not** been applied.
- Currently there is no validated target for this indicator; a lower time is desired.

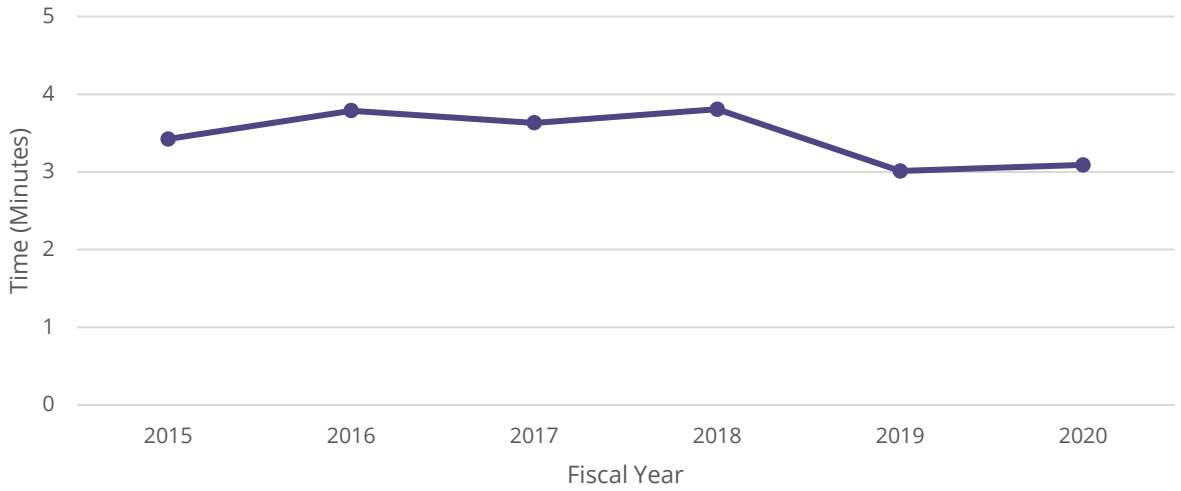
Chapter 1: Telestroke Consultation
Indicator 1.4 & 1.5: Average Response Time (Minutes) & Proportion of Cases where Response Time was Greater than 10 Minutes

Indicator Description:

- Average Response Time: This indicator reports the average (mean) time, in minutes that it takes the Telestroke Neurologist to respond to the page from CritiCall Ontario.
- Proportion of Cases where Response Time was Greater than 10 minutes: Number of Telestroke cases where the stroke specialist was delayed (response time was greater than 10 minutes).

Ontario Telestroke Consults Average Response Time

Data Source: CritiCall Ontario, Telestroke Case Facilitation and Documentation System



Ontario Telestroke Consults- Highlights from FY 2020/21

Data Source: CritiCall Ontario's Telestroke Case Facilitation and Documentation System

Average (Mean) Response Time for All Consults (Minutes)	**3.09**
Proportion of Cases with Response Time > 10 Minutes	**10%**

Interpretation Considerations

- This indicator was calculated using data from CritiCall Ontario's Telestroke Case Facilitation and Documentation System; the 60% Data Quality cut-off has **not** been applied.
- Telestroke Neurologists are expected to respond to pages from CritiCall Ontario in less than 10 minutes.
- A Primary/Secondary call model is used to support the Ontario Telestroke Program (i.e., there are two Telestroke Neurologists on call for the province, a primary and a back-up). CritiCall Ontario will not page the primary Telestroke Neurologist if they are already attending to a call. Instead, the back-up Telestroke Neurologist will be paged. The response time reported includes a mixture of primary and secondary responses.
- Some Telestroke cases have more than one consult and more than one response time; all response times are included.
- The average response time reports the mean and may be influenced by outlier values.

Chapter 2: Treatment

This chapter focuses on timely access to life-saving hyperacute stroke treatments: tissue plasminogen activator (tPA) and Endovascular Thrombectomy (EVT).

KEY HIGHLIGHTS:

- The proportion of Telestroke consults that received tPA decreased from 38% to 27% over the past four years (FY 2017-2020)
- In fiscal year 2020/2021, the Median Door to Needle time for Telestroke patients was 59 minutes (target 30 minutes)
- In fiscal year 2020/2021, 14% of all Telestroke consults were referred for EVT. Of those referred, 78% were accepted
- In fiscal year 2020/2021, the Median Door In Door Out time for Telestroke patients transferred to an EVT site was 124 minutes (target 45 minutes)

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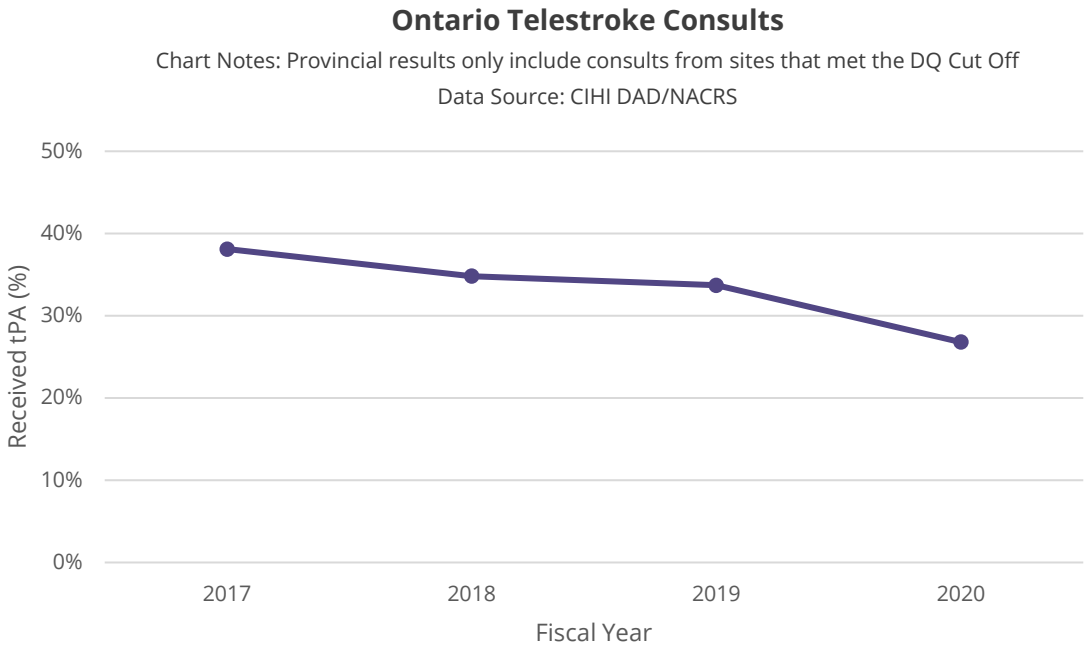
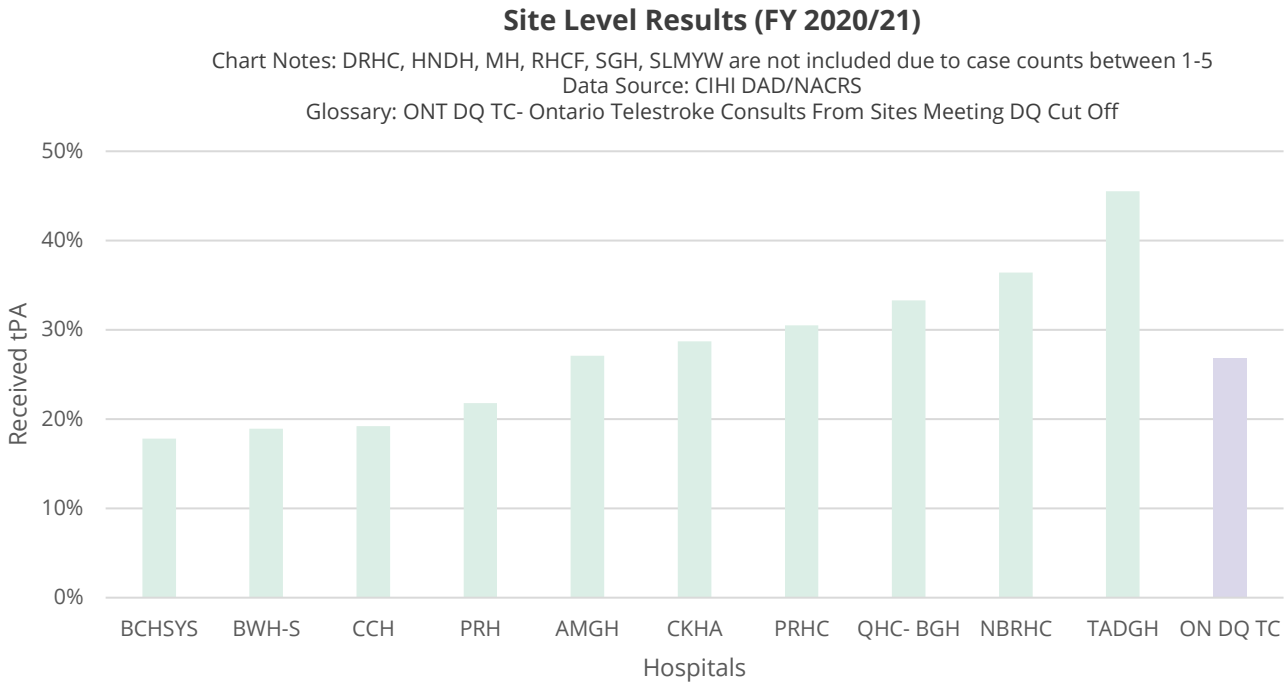
Chapter 2: Treatment
Indicator 2.1: Proportion of Ischemic/Unspecified Telestroke Consults Treated with tPA

Indicator Description:

This indicator reports the proportion of ischemic/unspecified Telestroke consults that received Tissue Plasminogen Activator (tPA).





Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1: *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations.
- Currently there is no validated targets for this indicator; a higher treatment rate is desired.
- This indicator does not take into consideration the 4.5-hour treatment window. Site performance may be influenced by patient behaviour (e.g., delays in seeking medical attention). Hospitals need to take into consideration pre-hospital factors that may be influencing results. Sites should be utilizing the Telestroke Referral Worksheet to identify Telestroke eligible patients.
- This indicator does not take into consideration patient factors which may influence tPA eligibility (e.g., prescribed and using direct non-vitamin K oral anticoagulants).
- PRN Telestroke Sites may have a lower rate if Telestroke is leveraged for EVT only.
- A decrease in the proportion of Telestroke consults receiving tPA over the last three years is expected given the expanded scope of Telestroke to support EVT referral (i.e., Telestroke is now used to support patients who may be ineligible for tPA).

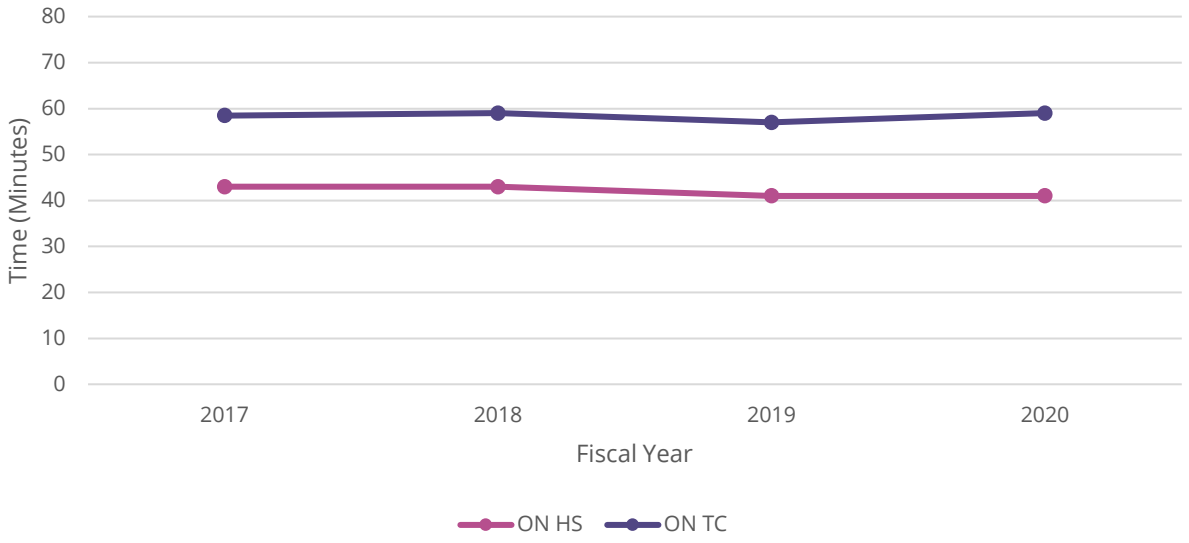
Chapter 2: Treatment
Indicator 2.2: Door to Needle Time (DTN) for Telestroke Patients (Minutes)

Indicator Description:

This indicator reports the median time, in minutes, between a stroke patient's registration/triage in the emergency department and the time intravenous thrombolysis with tissue plasminogen activator (tPA) was administered.

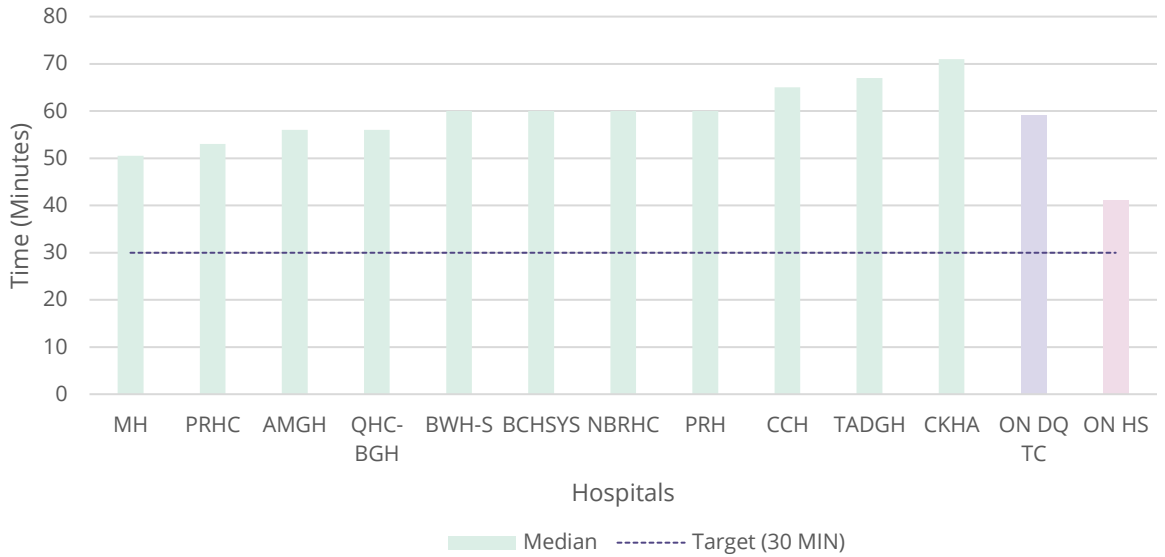
Ontario Telestroke Consults and Ontario Hyperacute Sites

Data Source: CIHI DAD/NACRS
Glossary: ON TC- Ontario Telestroke Consults from Sites Meeting DQ Cut Off |ON HS- Ontario Non-Telestroke Hyperacute Sites



Site Level Results (FY 2020/21)

Chart Notes: DRHC, HNDH, RHCF, SGH are not included due to case counts between 1-5
Data Source: CIHI DAD/NACRS
Glossary: ON TS- Ontario Telestroke Consults From Sites Meeting DQ Cut Off | ON HS- Ontario Non-Telestroke Hyperacute Sites



Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1: *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations
- For this indicator, a lower value is desired; the target of 30 minutes has been adopted from the Canadian Stroke Best Practice Recommendations.
- Ontario Hyperacute Sites include all non-Telestroke sites that administer tPA (as indicated by CorHealth Ontario's 2019/20 Hospital Resource Inventory). A list of these hospitals can be found in the appendix (Appendix-Table 8). It should be noted that Telestroke Consults represent only a select group of ischemic/unspecified stroke patients from the Telestroke site. In contrast, all ischemic/unspecified patients presenting to the non-Telestroke hyperacute site are included in the comparator. Ideally, when data quality improves and Telestroke Consults can be identified with more accuracy, Telestroke Consults would be compared to non-Telestroke consults at both Telestroke and Non-Telestroke Hyperacute Sites.

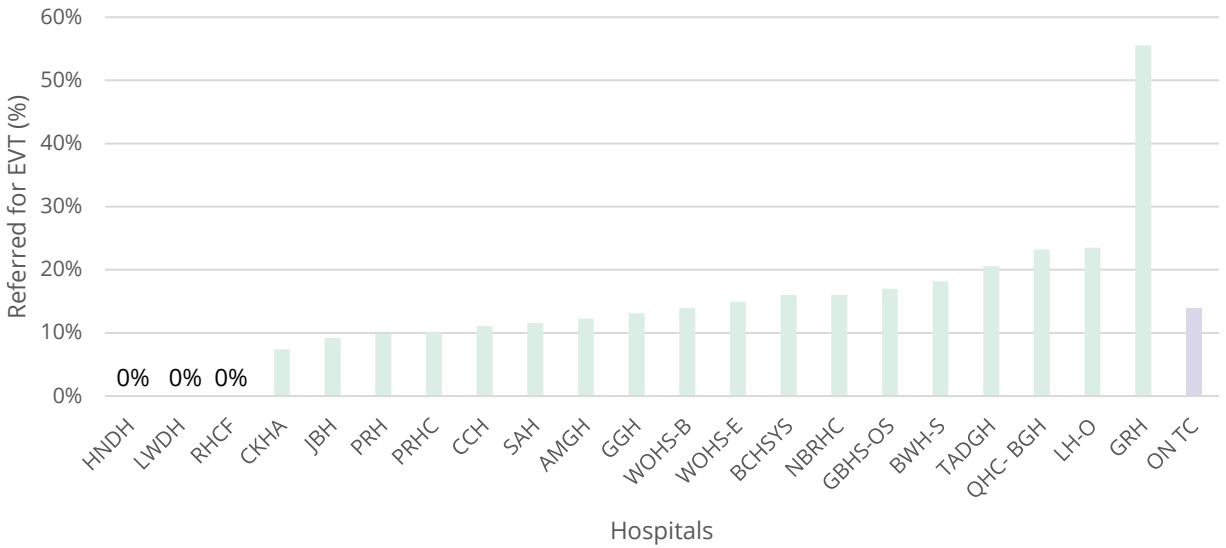
Chapter 2: Treatment
Indicator 2.3 & 2.4: Proportion of Telestroke Consults Referred for EVT & Proportion of EVT Referrals Accepted

Indicator Description:

- Proportion of Telestroke Cases Referred for EVT: This indicator reports the proportion of Telestroke consults where the Telestroke Neurologists called CritiCall back and requested an EVT Consult.
- Proportion of EVT Referrals Accepted: This indicator reports the proportion of Telestroke EVT Referrals where the EVT Team accepted the patient for transfer.

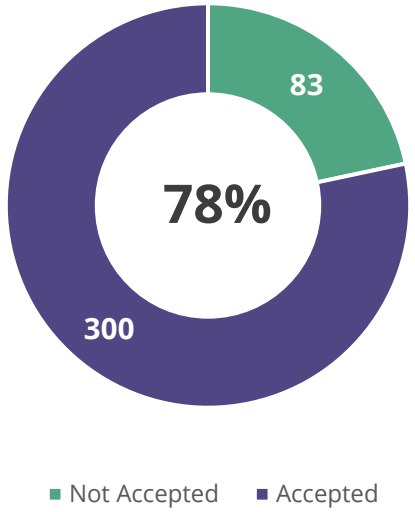
Proportion of Telestroke Consults Referred for EVT- Site Level Results (FY 2020/21)

Chart Notes: DRHC, HDGH, HSN, LH-A, MH, RVH, SLMYW, SGH, TH are not included due to case counts between 1-5 Data Source: CritiCall Ontario, Telestroke Case Facilitation System
Glossary: ON TC- Ontario Telestroke Consults



Ontario Telestroke Consults- Proportion of EVT Referrals Accepted (FY 2020/21)

Data Source: CritiCall Ontario, Telestroke Case Facilitation System



Interpretation Considerations

- These indicators were calculated using data from CritiCall Ontario's Telestroke Case Facilitation and Documentation System; the 60% Data Quality cut-off has **not** been applied.
- Currently there are no validated targets for either of these indicators.
- As per CorHealth Ontario's FY 20/21 EVT Report, 5.9% of **all** ischemic stroke patients (Telestroke and non-Telestroke) received EVT. It should be noted that patients receiving Telestroke consults represent a subset of all ischemic stroke patients; therefore, the proportion eligible may be higher than that observed in the broader acute ischemic stroke population due to pre-screening.
- Although the patient was accepted for EVT the ultimate outcome (i.e., whether the patient received EVT) is not captured by this indicator.

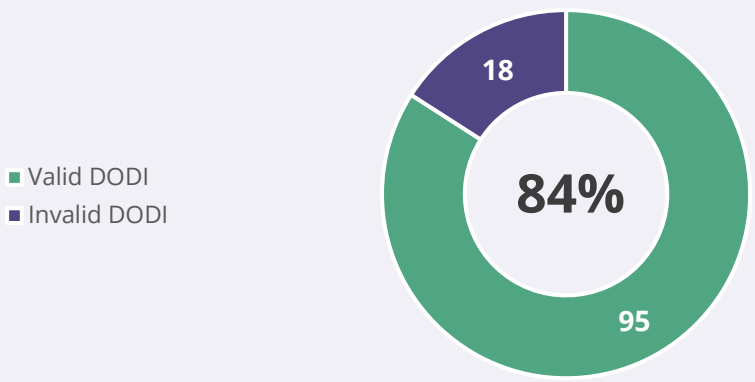
Chapter 2: Treatment
Indicator 2.5: Door in Door Out (DIDO) Time (Minutes)

Indicator Description:

This indicator reports the median time, in minutes, between the entry time and discharge time in the emergency department (ED) at a Telestroke site among ischemic/unspecified Telestroke consult patients transferred to an EVT site.

Data Quality Check: **Proportion of ED Ischemic/Unspecified Consults Transferred to EVT sites with Valid DODI (FY 2020/21)**

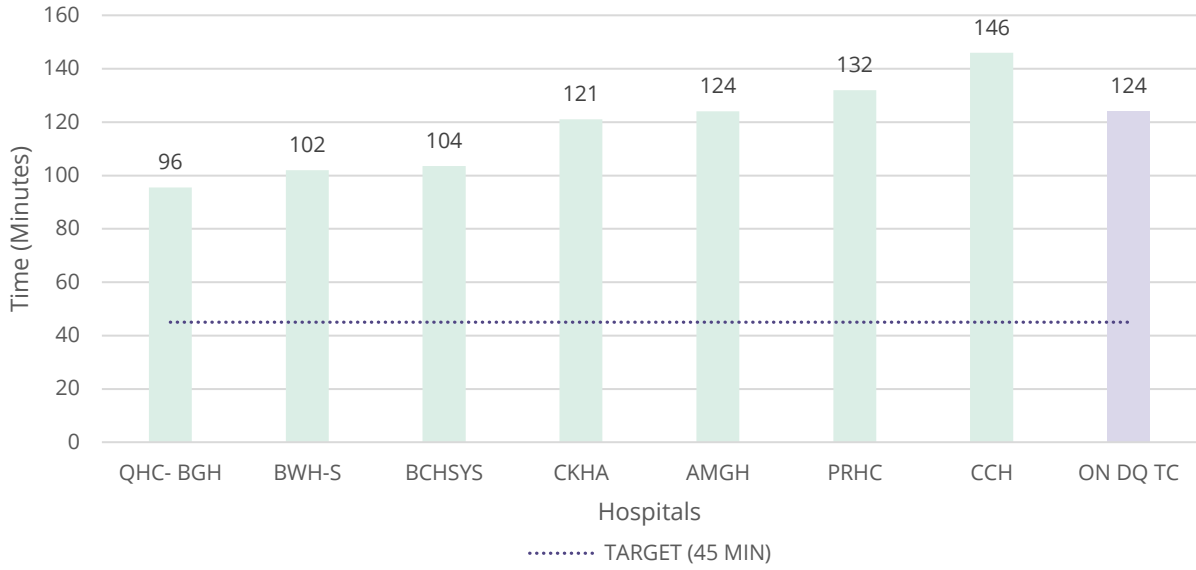
Data Source CIHI DAD/NACRS



Indicator Description: Proportion of ischemic/unspecified Telestroke consult patients presenting at the ED of Telestroke sites and transferred to an EVT site who have **Door-out/Door-in** time in proper sequence (i.e., door out at the Telestroke Site is **before** door in at the EVT site). **This is a companion indicator to DIDO** and is meant to evaluate the quality of door out time data.

Ontario Telestroke Sites- Door in Door Out Time (FY 2020/21)

Chart Notes: DRHC, NBRHC, PRH, RHCF, SGH, SLMYW, TADGH are not included due to case counts between 1-5
Data Source: CIHI DAD/NACRS
Glossary: ON DQ TC- Ontario Telestroke Consults from Sites Meeting DQ Cut-Off



Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1: *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations
- Records with invalid **DODI** time have been excluded from results (i.e., Telestroke ED door-out time is **after** entry time at EVT Site). This data quality issue may reflect coding at the Telestroke or EVT site.
- For this indicator, a lower value is desired; the target of 45 minutes is adopted from the Canadian Stroke Best Practice Recommendations, Key Performance Indicators.
- Rapid door in door out times are critical for patients being transferred for EVT. Patient-level data for transfer purpose, however, is currently not available to CorHealth. As such, all Telestroke consults transferred to an EVT site are considered transfers for EVT; it is possible that transfers may be for reasons other than EVT (e.g., stroke unit care) where time may not be as critical.
- There has been a slight methodological change to this indicator. Please refer to the Appendix or Technical Specifications document for details.

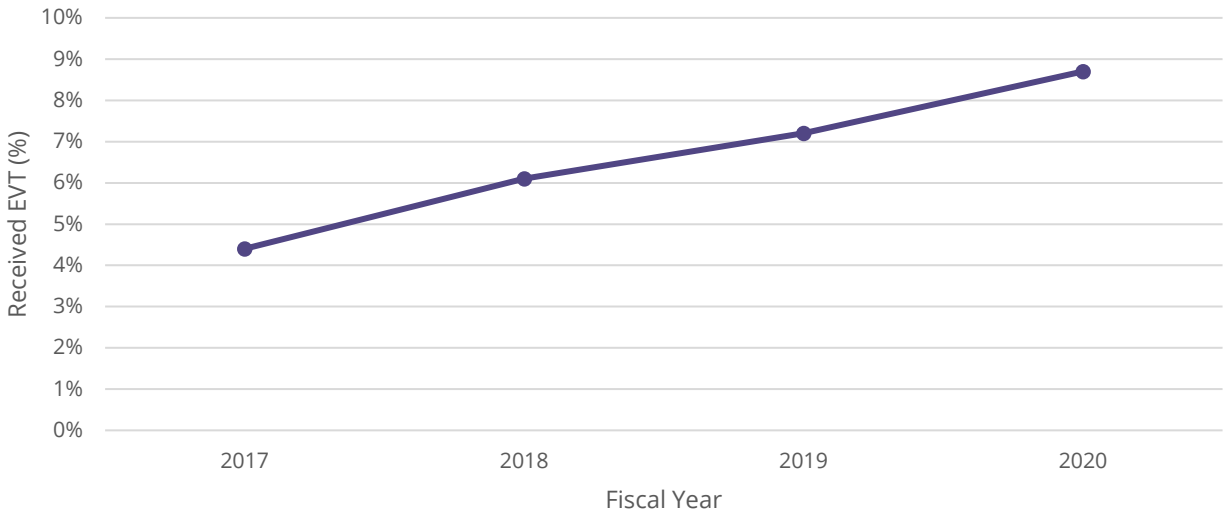
Chapter 2: Treatment
Indicator 2.6: Proportion of Telestroke Consults that Received EVT

Indicator Description:

This indicator reports the proportion of Telestroke Consults that resulted in Endovascular Thrombectomy Treatment (EVT).

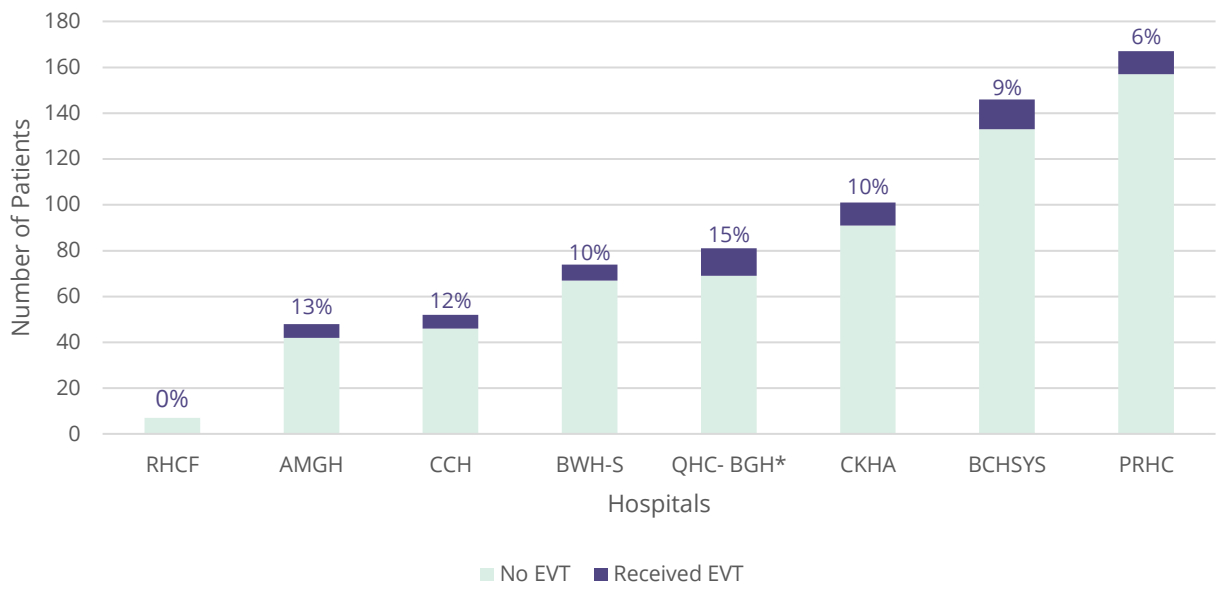
Ontario Telestroke Consults

Chart Notes: Provincial results only include sites that met the DQ-Cut Off
Data Source: CIHI DAD/NACRS



Site Level Results (FY 2020/21)

Chart Notes: DRHC, HNDH, NBRH, PRH, SLMYW, TADGH, MH*, SGH are not included due to case counts between 1-5
* Denotes PRN Telestroke Site- see interpretation consideration related to PRN sites
Data Source: CIHI DAD/NACRS



Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1: *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations
- This indicator uses a different data source than that used to calculate the proportion of Telestroke Consults referred and accepted for EVT (indicators 2.3 and 2.4); therefore, the results may not align and should be considered independently.
- PRN Telestroke sites (e.g., QHC-BGH is noted with a * in the graph) use Telestroke as needed depending on patient complexity and human resource capacity to provide services; therefore, these percentages do not represent overall access to EVT for these sites since pathways other than Telestroke are also used to access EVT.
- Low volume and site geographic location should be taken into consideration when interpreting indicator results.
- As per CorHealth Ontario's EVT Report, 5.9% of **all** ischemic stroke patients (Telestroke and non-Telestroke) received EVT in FY 20/21. It should be noted that patients receiving Telestroke consults represent a subset of all ischemic stroke patients; therefore, the proportion eligible may be higher than that observed in the broader acute ischemic stroke population due to pre-screening.

Chapter 3: Patient Outcomes

*This chapter focuses on the effectiveness of the Ontario Telestroke Program by exploring the In-Hospital Mortality Rate for patients who received a Telestroke Consult**

KEY HIGHLIGHTS:

- Over the past four years (fiscal year 2017-2020) the provincial mortality rate for patients receiving Telestroke Consults decreased from 9.2% to 8.8%
- Four-year aggregate (fiscal year 2017-2020) in-hospital mortality rate for patients receiving Telestroke Consults was highest in those experiencing a hemorrhagic stroke (30%) and lowest in those experiencing a Transient Ischemic Attack (1%)

**While discharge disposition is an indicator of interest for future reporting (i.e., proportion of Telestroke Consults Discharged from Acute Care to Complex Continuing Care/Long-Term Care), small cell counts currently influence results and may mislead interpretation, hence this outcome indicator has not been included in this report. Individual sites may view their results in the supplementary data file. Caution should be exercised when interpreting results.*

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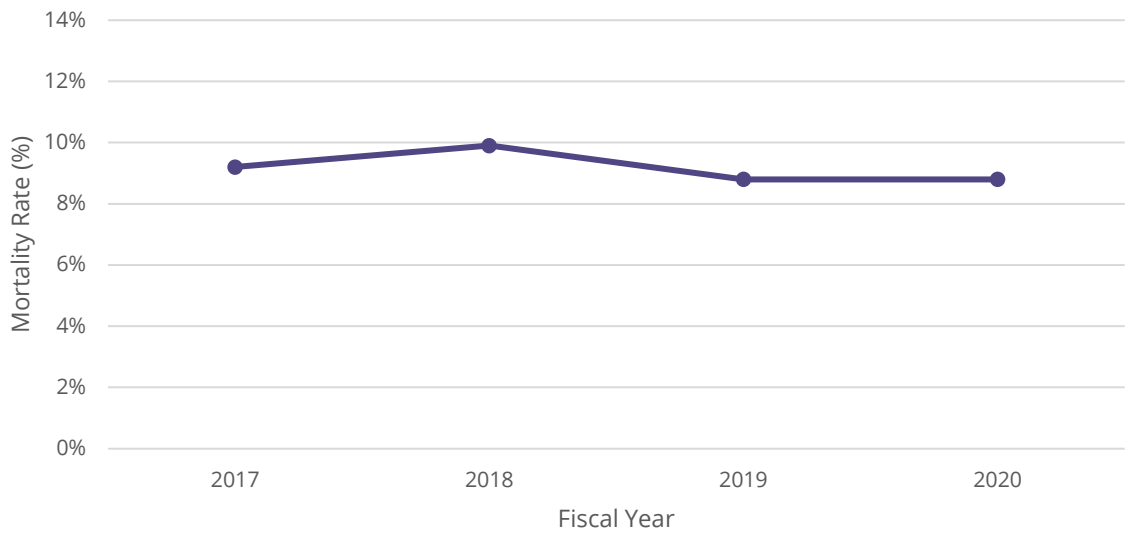
Chapter 3: Patient Outcomes
Indicator 3.1: In-Hospital Mortality for Patients that Received a Telestroke Consult

Indicator Description:

In-Hospital Mortality: This indicator reports the proportion of Telestroke consults who died in-hospital during their episode of care

Ontario Telestroke Consults In-Hospital Mortality Rate

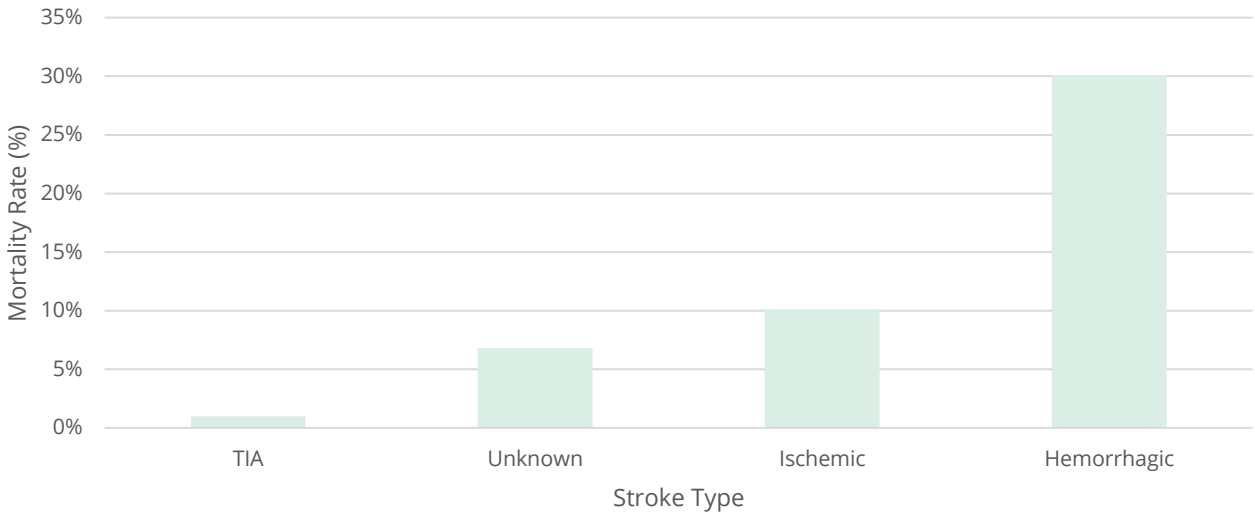
Chart Notes: Provincial results only include Telestroke Consults from sites that met the DQ-Cut Off
Data Source: CIHI NACRS/DAD



Four Year Aggregate In-Hospital Mortality Rate for Telestroke Consults Stratified by Stroke Type

Chart Notes: Provincial results only include Telestroke Consults from sites that met the DQ-Cut Off

Data Source: CIHI NACRS/DAD (FY 2017-2020)



Interpretation Considerations

- Only sites that achieved ≥60.0% for the DQI 1; *Ratio of Unique Telestroke Consult Patients Based on SP 640 and CritiCall* have been included in the provincial results and data visualizations.
- The Telestroke outcome indicators are not risk adjusted. Therefore, patient characteristics such as age, stroke severity, and comorbidities may contribute to explaining some of the observed variation year over year.
- Due to a high proportion of small cells (i.e., values between 1-5), site level outcome data has not been included in this report. Individual sites may view their results in the supplementary data file.

Acknowledgements

- CorHealth Ontario wishes to acknowledge the Telestroke hospitals and Telestroke Neurologist Group for their dedication to providing access to high quality stroke care to all Ontarians.
- CorHealth Ontario provides system implementation support to the Ontario Ministry of Health (MOH), Local Health Integration Networks (LHINs) and care providers and is dedicated to improving quality, efficiency, access and equity in the delivery of adult cardiac, vascular and stroke services in Ontario. CorHealth Ontario is funded by the MOH.
- CorHealth Ontario wishes to acknowledge CritiCall Ontario, Ontario Health - Ontario Telemedicine Network (OH-OTN) and the Hyperacute Performance Measurement and Monitoring Task Group for their help in developing the performance indicators contained in this report.
- Administrative datasets were provided by the Ontario Ministry of Health (MOH). The views expressed in this report are views of CorHealth Ontario and do not necessarily reflect those of the MOH.
- Telestroke Case Facilitation and Documentation System data and the associated indicators were provided by CritiCall Ontario. The views expressed in this report are views of CorHealth Ontario and do not necessary reflect those of CritiCall Ontario.

Abbreviations and Definitions used in Report

ABBREVIATION	DEFINITION
24/7 Telestroke Site	Referring site physicians rely on Telestroke to delivery tPA 24 hrs./day, 7 days per week
CCC	Complex Continuing Care
CIHI	Canadian Institute for Health Information
CT	Computerized Tomography Scan
DAD	Discharge Abstract Database
DIDO	Door in Door Out
DODI	Door Out Door In
DQ	Data Quality
DQI 1	Data Quality Indicator 1: Ratio of Unique Telstroke Consult Patients Based on SP640 and CritiCall Ontario
DTN	Door To Needle
ED	Emergency Department
EVT	Endovascular Thrombectomy
FY	Fiscal Year
LTC	Long-Term Care
MIN	Minutes
NACRS	National Ambulatory Care Reporting System
NR	Not Reportable
ON DQ TC	Ontario Telestroke Consults from Sites Meeting the Data Quality Cut-Off
ON HS	Ontario Hyperacute Sites
ON TC	Ontario Telestroke Consults
PRN Telestroke Site	Telestroke is only used when required (e.g., gaps in local coverage, complex/EVT patients)
SS	Complementary Suppression
TIA	Transient Ischemic Attack
tPA	Tissue Plasminogen Activator

Hospital Abbreviations used in Report

HOSPITAL NAME	ABBREVIATION
Alexandra Marine And General Hospital	AMGH
Bluewater Health - Sarnia General	BWH-S
Brant Community Healthcare Sys - Brantford	BCHSYS
Chatham-Kent Health Alliance - Chatham	CKHA
Cornwall Community Hospital	CCH
Dryden Regional Health Centre	DRHC
Grand River Hospital Corp - Waterloo	GRH
Grey Bruce Health Services - Owen Sound	GBHS-OS
Guelph General Hospital	GGH
Hawkesbury And District General Hospital	HDGH
Health Sciences North - Laurentian	HSN
Huron Perth Healthcare Alliance - Stratford General Hospital	SGH
Joseph Brant Hospital	JBH
Lake-Of-The-Woods District Hospital	LWDH
Lakeridge Health - Ajax	LH-A
Lakeridge Health - Oshawa	LH-O
Mackenzie Health - Richmond Hill Hospital	MH
North Bay Regional Health Centre	NBRHC
Notre Dame Hospital (Hearst)	HNDH
Pembroke Regional Hospital	PRH
Peterborough Regional Health Centre	PRHC
Quinte Healthcare Corporation - Belleville	QHC- BGH
Riverside Health Care Facilities (La Verendrye)	RHCF
Royal Victoria Regional Health Centre	RVH
Sault Area Hospital - Sault Ste Marie	SAH
Sioux Lookout Meno-Ya-Win Health Centre (District)	SLMYW
Temiskaming Hospital	TH
Timmins & District General Hospital	TADGH
William Osler Health System - Brampton (Civic)	WOHS-B
William Osler Health System - Etobicoke	WOHS-E

Sensenbrenner was not included since it launched as a Telestroke site in the last quarter of FY 2020/21

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Appendix

Update to Methodology of ED Transfers

- Previously, transfers were identified but *directionality* was not considered
- Transfers that were included were from a Telestroke site to another hospital

- **New Methodology:**
  - ED registration **date** at receiving hospital must be within one calendar day of ED registration **date** at Telestroke site
  - ***Additional consideration*:** ED registration **time** at receiving hospital must be **after** ED registration **time** at Telestroke site