

Ontario Stroke Report

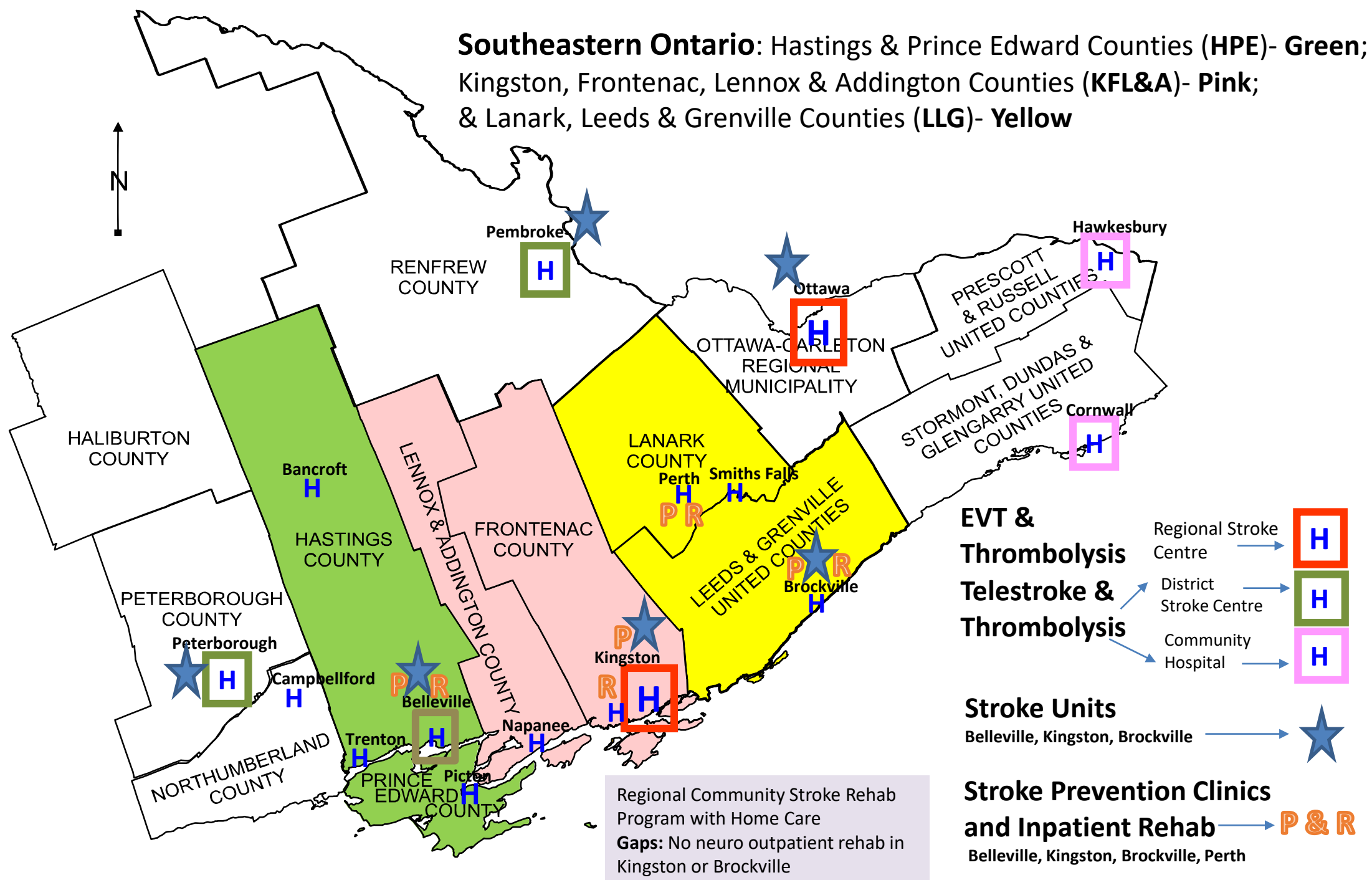
FY 2020-21

Quinte area – Local Performance Indicators
Examples of strengths and areas for improvement

RELEASE DATE: JUNE 2022



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Meeting Objectives

- Enhance knowledge of stroke care performance across care continuum against stroke best practice targets
- Discuss alignment with current workplan (e.g., Quinte stroke workplan 2021-23)
- Discuss alignment with Accreditation Canada Stroke Distinction process
- Consider future areas of opportunity and QI focus

Stroke Data Introduction

Ontario Stroke Report FY 2020-21

RELEASE DATE: JUNE 2022



STROKE NETWORK of Southeastern Ontario		Regional Stroke Dashboard - Fiscal 2021-22 Q3																																				
Update May 16 2022		Target	HPE					KFLA					LLG																									
Indicator	Indicator Definition		F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22	KGH	KGH	KGH	KHSC	KHSC	Q1 21-22	Q2 21-22	Q3 21-22	BGH	BGH	BGH	BGH	BGH	BGH	BGH	BGH	BGH	BGH	BGH	BGH	PSF	PSF	PSF	PSF	PSF	PSF				
Hypertensive	Volumes	Volume of stroke/TIA patients in ED	611	617	173	199	166	856	888	937	234	267	229	205	224	191	46	39	45	231	244	230	52	58	55													
	LOS in ED	Median Length of Stay in ED (Note: Intermediate Time - 10 days) (Note: ED for admitted patients, not ED for transfers)	7	67.36	66.36	66.42	66.30	69.54	68.52	68.02	66.32	67.14	68.59	16.21	64.37	64.30	64.23	64.47	65.05	64.54	63.26	63.39	63.45	64.02	63.30	63.48												
	Brain Imaging	Proportion of patients who received brain CT or MRI (within 24 hours of arrival) at an ED (%)	82.6%	92.4%	92.7%	94.0%	92.0%	90.9%	89.4%	85.7%	95.6%	97.6%	93.7%	96.2%	78.4%	68.3%	50.3%	100.0%	93.6%	90.0%	61%	61.1%	62.6%	62.6%	64.3%	78.9%												
	IPA	Median Door-to-Needle Time for IV tPA	54	46	34	35	37	43	25.5	28	27	25	24	35																								
	IPA	Proportion of ischemic stroke patients arriving who receive IV tPA (%)	17.2%	20.5%	26.9%	14.3%	15.5%	16.3%	23.9%	24.0%	20.8%	14.4%	21.3%	11.7%																								
Acute Stroke Unit (ASU)	EVT	Volume of patients receiving EVT						30	57	66	21	17	15																									
	Vascular Imaging	Proportion of stroke/TIA patients who received Brain/neck CT or MRI or Carotid Doppler (note: in ED or after admission to acute care hospital)																																				
	Volumes	Volume of stroke/TIA patients admitted to acute care hospital (note: ED)	422	424	442	123	124	111	553	644	648	152	172	177	173	168	142	37	38	42																		
	LOS - Total	Median Length of Stay in an acute care hospital setting (stroke cases)	4	5	5	5	5.1	6	6.7	6	7	6.6	10.2	8.4	3	3	3	3	3	4																		
	Brain Imaging	Proportion of patients who received brain CT or MRI (within 24 hours of arrival) at an ED (%)	95.9%	95.9%	97.3%	94.3%	98.4%	95.5%	97.8%	97.7%	97.2%	97.4%	98.3%	98.3%	100.0%	98.1%	98.4%	100%	97%	100%																		
Prevention	ASU utilization	Proportion of patients treated in a designated stroke unit at any time during their inpatient stay	80%	78.9%	80.4%	81.2%	80.2%	86.5%	69.3%	70.7%	73.6%	78.1%	70.4%	66.6%	85.0%	72.6%	63.8%	54.1%	76.3%	90.9%																		
	Mortality	In-hospital Mortality Rate (30 days, all causes) (%)	11.1%	13.0%	11.3%	5.7%	12.1%	9.9%	13.2%	13.5%	14.8%	11.3%	12.8%	13.0%	5.8%	5.4%	2.8%	0.0%	2.6%	2.4%																		
	Discharge	Proportion of stroke patients discharged alive to each discharge disposition (inpatient Rehab, %)	22.6%	25.9%	22.3%	22.4%	21.1%	17.6%	27.3%	24.6%	32.4%	30.1%	33.2%	32.6%	12.6%	6.3%	16.2%	18.2%	23.1%	29.3%																		
	Discharge	Proportion of stroke patients discharged alive to each discharge disposition: home or back into Subacute (%)	65.6%	56.4%	64.2%	59.4%	60.9%	65.6%	53.6%	52.3%	45.9%	43.8%	39.0%	39.4%	59.5%	57.7%	59.9%	54.0%	58.4%	48.8%																		
	Vascular Imaging	Proportion of stroke/TIA patients who received Brain/neck CT or MRI or Carotid Doppler (note: in ED or after admission to acute care hospital)																																				
Referral from ED	Referral from ED to stroke prevention clinic (%) - (Stroke Report Card)	80.4%	70.4%	88.1-87.2%				83.5%	90.0%	93.0%				76.0%	79.0%	82.4%				79.1%	72% SF: 60% Perth	70.4% SF: 60% Perth																
	Volumes	Number of New Referrals	849	813	772	261	235	214	1199	1201	1217	332	364	303	205	251	190	50	42	60	389	383	404	126	104	102												
	Wait time	Wait time for Priority 2 patients (days)	3	4.5	5.9	4.3	6.7	3.7	4	3.3	3.4	2.9	3	3.3	2.9	5.1	5.3	5.5	7.2	5.8	1.4	1.4	2.8	2.8	3.4	5.9												
Several entries missing actual time in Period 340 cases - ED LOS calculated on full date encounters only			Note: Endovascular Thrombectomy Q3 2021-22: Total Volume 15 By geography: HPE: 6, KFLA: 5 (2 LGA), LLG: 3 Other: 1 Q2 2021-22: Total Volume 17 By geography: HPE: 5, KFLA: 1 (1 LGA), LLG: 4 Other: 2 Q1 2021-22: Total Volume 21 By geography: HPE: 4, KFLA: 10 (1 LGA), LLG: 7 P1-3 2020-21: Total Volume 66 By geography: HPE: 24, KFLA: 27 (1 LGA), LLG: 15																																			
Green circles - noticeable change in positive direction Orange circles - noticeable change Orange triangle -			Note: BGH flow to rehab is not accurately reflected by date. 1) Many transfers to CCC lead to small rehab (prior to Dec 2020) 2) PSF patients repatriated to Perth rehab are coded as acute 3) LLG Evaluation results indicated limitations accessing rehab in Perth limits Perth patients																																			

Green circles - noticeable change in positive direction
Orange circles - noticeable change requiring attention

Several entries missing arrival time in Project 340 cases - ED LOS calculated on full date encounters only

Note: Endovascular Thrombectomy Q3 2021-22: Total Volume 15
By geography: HPE: 6, KFLA 5(2 L&A), LLG: 3 Other: 1
Q3 2021-22: Total Volume 17
By geography: HPE: 5, KFLA 6 (0 L&A), LLG: 4 Other: 2
Q1 2021-22: Total Volume 21
By geography: HPE: 4, KFLA: 10(1 L&A), LLG: 7
By geography: HPE: 24, KFLA: 27(8 L&A), LLG: 15

Note: BGH flow to rehab is not accurately reflected by date:
1) Many transfers to CCC lead to await rehab (prior to Q3 2020)
2) FGF patients repatriated to Perth rehab are coded as acute
3) LLG Evaluation results indicated challenges accessing rehab for Perth Smiths Falls patients



Stroke Care in Ontario 2020/21

STROKE IS A MEDICAL EMERGENCY



66%

of stroke/TIA patients arrived at the emergency department by ambulance

81% of patients were referred to secondary prevention services after discharge from the emergency department*

TIME IS BRAIN



14%

of ischemic stroke patients received hyperacute therapy

11% tPA (tissue plasminogen activator) (Target: >12%)

- **44 minutes** median door-to-needle time (Target: <30 minutes)

6% EVT (Endovascular therapy)

STROKE UNIT CARE IMPROVES OUTCOMES



1.46 per 1000 population

are admitted for acute stroke/TIA

41 hospitals in Ontario have a stroke unit

56% of stroke patients treated on a stroke unit (Target: >75%)

SECONDARY PREVENTION OF STROKE OCCURS ACROSS THE CARE CONTINUUM

8 days **

Median time from acute admission to inpatient rehabilitation

REHABILITATION OPTIMIZES RECOVERY



31%**

of patients accessed inpatient rehabilitation

- **69 minutes** per day of inpatient therapy was received per patient (Target: 180 minutes)

STROKE JOURNEY CONTINUES AFTER DISCHARGE



56 days **

Average number of days spent at home in the first 90 days after stroke

39%** received home-based rehabilitation*

- **9**** median number of visits

75% of patients aged 65 and older with atrial fibrillation filled a prescription for anticoagulant therapy within 90 days of acute care discharge*

PATIENT OUTCOMES

7% of stroke/TIA patients were readmitted within 30 days

12% of stroke/TIA patients died within 30 days

6%** of stroke patients were admitted to long-term care within 1-year post discharge

*There is currently no data available for outpatient rehabilitation and secondary prevention clinic.



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Stroke Care in South East 2020/21

NOTE: Arrow indicates how SE is trending from last FY report – improvement indicated by upward green arrow; worsening by downward red arrow



STROKE IS A MEDICAL EMERGENCY



68.6% ↑ (ON 66.2%)

of stroke/TIA patients arrived at the emergency department by ambulance

84.0% ↑ (ON 81.4%) of patients were referred to secondary prevention services after discharge from the emergency department*

TIME IS BRAIN



19.9% ↑ (ON 14.1%)

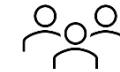
of ischemic stroke patients received hyperacute therapy

14.8% tPA (tissue plasminogen activator) (Target: >12%) (ON 10.5%)

31 minutes median door-to-needle time (Target: <30 minutes) (ON 44.0)

6.9% EVT (Endovascular therapy) (ON 5.8%)

STROKE UNIT CARE IMPROVES OUTCOMES



1.81 ↑ per 1000 population (ON 1.46)

are admitted for acute stroke/TIA

41 hospitals in Ontario have a stroke unit

79.1% ↑ (ON 56.1%) of stroke patients treated on a stroke unit (Target: >75%)

SECONDARY PREVENTION OF STROKE OCCURS ACROSS THE CARE CONTINUUM



9 days ** ↑ (ON 8.0)

Median time from acute admission to inpatient rehabilitation

REHABILITATION OPTIMIZES RECOVERY



26.2% ** ↑ (ON 31.4%)

of patients accessed inpatient rehabilitation

75 minutes per day of inpatient therapy was received per patient (Target: 180 minutes) (ON 68.9%)

STROKE JOURNEY CONTINUES AFTER DISCHARGE



57.2 days ** ↑ (ON 56.4)

Average number of days spent at home in the first 90 days after stroke

66.4% ** received home-based rehabilitation* (ON 38.6%)

12 ** median number of visits (ON 9.0)

76.6% ↑ (ON 74.9%) of patients aged 65 and older with atrial fibrillation filled a prescription for anticoagulant therapy within 90 days of acute care discharge*

PATIENT OUTCOMES – SE rates each similar or improved from last FY

6.2% of stroke/TIA patients were readmitted within 30 days (ON 6.6%)

11.3% of stroke/TIA patients died within 30 days (ON 12.1%)

8.2% ** of stroke patients were admitted to long-term care within 1-year post discharge (ON 6.3%)



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*There is currently no data available for outpatient rehabilitation and secondary prevention clinic.

** 2020/21 Q2 (YTD)

Stroke Care in South East – Quinte, 2020/21



NOTE: Arrow indicates how Quinte is trending from last FY report – improvement indicated by upward green arrow; worsening by downward red arrow

STROKE IS A MEDICAL EMERGENCY



Quinte: 73.1% ↑ (ON 66.2%)
Rural Hastings: 65.4% ↑

of stroke/TIA patients arrived at the emergency department by ambulance

QHC: 86.1%-97.2% ↑ of patients (ON 63.2%) were referred to secondary prevention services after discharge from the emergency department*



Quinte: 16.5% ↑ (ON 14.1%)

Rural Hastings: 14.1% ↓

of ischemic stroke patients received hyperacute therapy

By Sub-regions:

Quinte -11.8% ; Rural Hastings – 12.4% tPA (ON 10.5%)
 (tissue plasminogen activator) (Target: >12%)

QHC: 40 minutes median door-to-needle time (ON 44.0)
 (Target: <30 minutes)

Quinte: 5.8%; Rural Hastings: NR:1.7%-8.3% (ON 5.8%)
 EVT (Endovascular therapy)

STROKE UNIT CARE IMPROVES OUTCOMES



1.81 per 1000 population ↑ (ON 1.46)
 are admitted for acute stroke/TIA

41 hospitals in Ontario have a stroke unit

QHC: 88.1% of stroke patients (ON 56.1%) treated on a stroke unit (Target: >75%)

By Sub regions: Quinte – 84.6% ↑
Rural Hastings – 75.4% ↓

SECONDARY PREVENTION OF STROKE OCCURS ACROSS THE CARE CONTINUUM

REHABILITATION OPTIMIZES RECOVERY



6.5 days ** ↑ (ON 8.0)

Median time from acute admission to inpatient rehabilitation

Quinte: 20.4% ↓ (ON 31.4%)**

Rural Hastings: N/A

QHC: 21.0% ↓

of patients accessed inpatient rehabilitation

QHC: 78.6 minutes ↑ per day of (ON 68.9)
 inpatient therapy was received per patient (Target: 180 minutes)

STROKE JOURNEY CONTINUES AFTER DISCHARGE



QHC: 60.7 days ** ↑ (ON 56.4)

Average number of days spent at home in the first 90 days after stroke

By Sub-Regions: **By site: QHC -69.3% ↑ (ON 38.6%)**
Quinte – 67.4% ↑; Rural Hastings – N/A ****
 received home-based rehabilitation*

By Sub-regions: **By site: QHC: 11%** ↓ (ON 9.0)**
Quinte 12; Rural Hastings: 10****
 median number of visits

QHC: 83.1% ↑ of patients aged 65 and older with atrial fibrillation filled a prescription for anticoagulant therapy within 90 days of acute care discharge* (ON 74.9%)

By Sub-regions: Quinte – 84.0%;
Rural Hastings – 44.4%-88.9%

PATIENT OUTCOMES

QHC: 6.2% ↓ of stroke/TIA patients were readmitted within 30 days (ON 6.6%)

QHC: 9.8% ↓ of stroke/TIA patients died within 30 days (ON 12.1%)

By Sub-regions: Quinte – 8.5% ↑; Rural Hastings - NR%; By Site: QHC – 8.0% ↑** of stroke patients were admitted to long-term care within 1-year post discharge (ON 6.3%)



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*There is currently no data available for outpatient rehabilitation and secondary prevention clinic.
 ** 2020/21 Q2 (YTD)

Common symbols and their meaning

Symbols	Interpretation
◀ West ● Central ▶ Toronto ▶ East ▲ North	The LHIN is a member of the LHIN cluster, aka Super-LHIN
▲	The region or provider is statistically above Ontario performance and high values are preferred
▲	The region or provider is statistically above Ontario performance and low values are preferred
▼	The region or provider is statistically below Ontario performance and high values are preferred
▼	The region or provider is statistically below Ontario performance and low values are preferred
●	The region or provider is within a 95% confidence interval of Ontario performance
△ ABC High ▽ ABC Low	High and low achievable benchmarks for indicators in which a large value is preferred
△ ABC High ▽ ABC Low	High and low achievable benchmarks for indicators in which a low value is preferred
☆ Ontario	Ontario performance in a given fiscal year
Rate	Unless specified otherwise, all rates are per 100 cohort patients
Fiscal Year	Calendar year of the beginning of a fiscal year (for example, 2018 is 2018/19)

Stroke Prevention Data

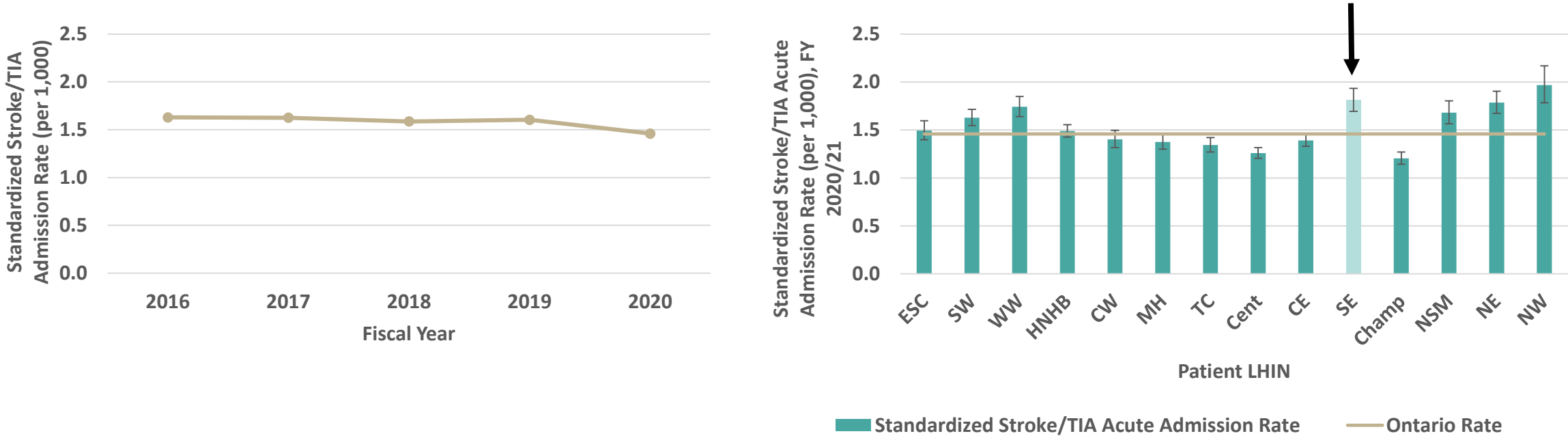


Chapter 1: Prevention and Public Awareness of Stroke and TIA in Ontario

Indicator 1.1: Standardized Stroke and TIA Admission Rate to Acute Inpatient Care (per 1,000), FY 2020/21

Indicator Description:

The population rate of admission to hospital for stroke & transient ischemic attack (TIA) reflects several factors including the effectiveness of primary and secondary prevention efforts such as control of hypertension and smoking cessation programs. The cohort for this indicator is the Ontario adult population in the Registered Persons Database (RPDB). Ontario and LHIN performance are directly standardized to the 2020 RPDB population age and sex profile.



Interpretation Consideration:

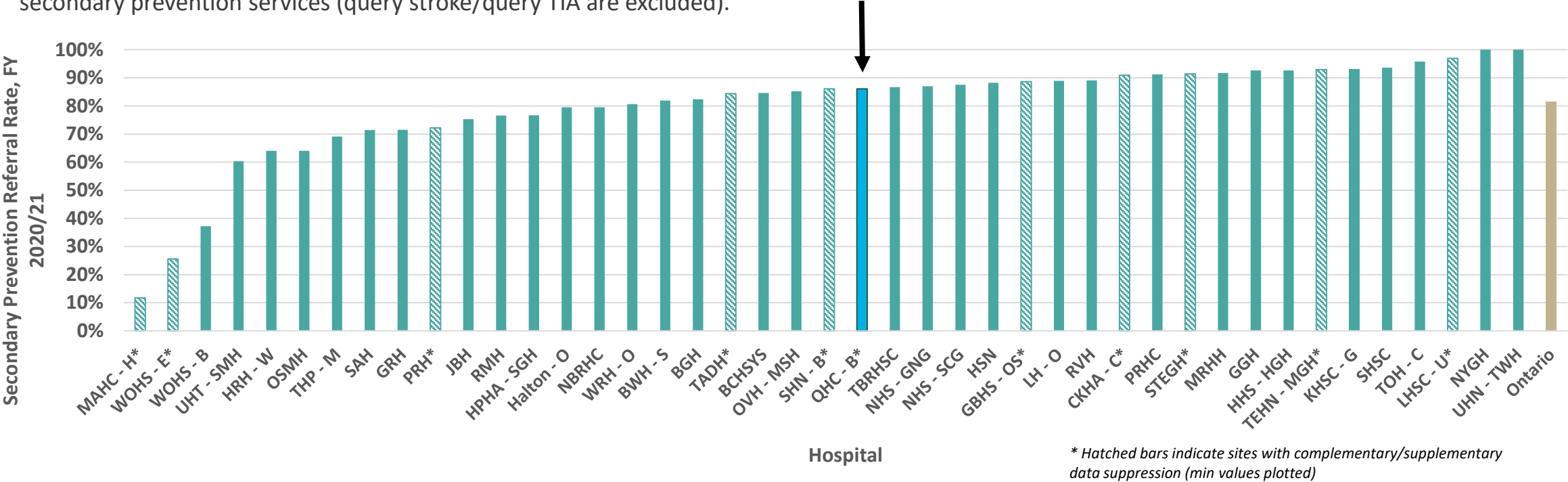
Desired directionality is lower. There was very little movement in the Ontario rate between fiscal years 2016 to 2019, however in fiscal year 2020, there was a noticeable decrease. During the early stages in the pandemic, the number of ED visits for stroke decreased⁴, which may account for some of the decrease in admissions for stroke. Only the first (index) stroke in each fiscal year is included. Factors that may contribute to the LHIN variation observed may be reflective of geographic nuances with respect to social determinants health and health resource equity.

Chapter 1: Prevention and Public Awareness of Stroke and TIA in Ontario

Indicator 1.2: Secondary Prevention Referral Rate of Stroke & TIA Patients Discharged from the Emergency Department, FY 2020/21 – Hospital Level

Indicator Description:

Proportion of ischemic stroke and transient ischemic attack (TIA) patients discharged from the emergency department (ED) who were referred to secondary prevention services (query stroke/query TIA are excluded).

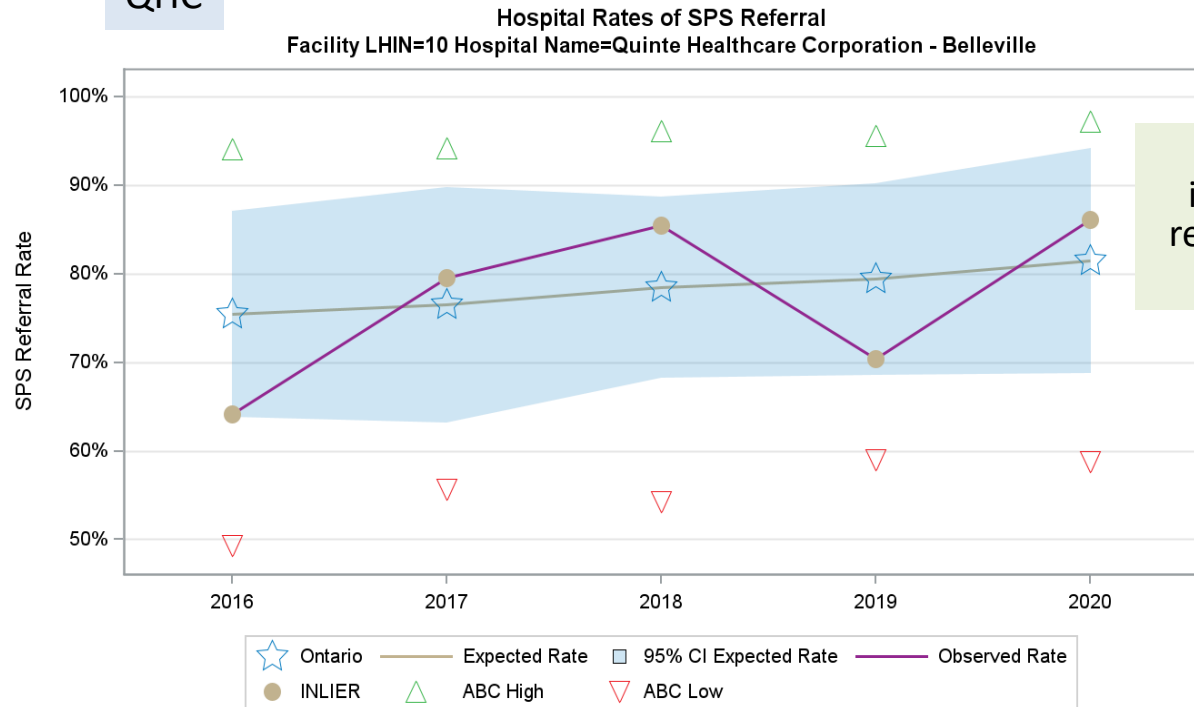


Interpretation Consideration:

Desired directionality is higher. Most of the sites have a rate of 80% or greater for referral to secondary prevention services. The limitation with this metric is, although a patient is referred to a secondary prevention clinic, it is not known whether the patient received services due to a lack of standardized data availability. Additionally, patients discharged from the ED with an unknown diagnosis, may not be captured in the data, and may not be referred yet and still be at risk of stroke. Refer to [Appendix B](#) for hospital abbreviations.

1-2 Secondary Prevention Referral Rate of Stroke & TIA Patients Discharged from the Emergency Department Stroke Report FY 2020-21

QHC

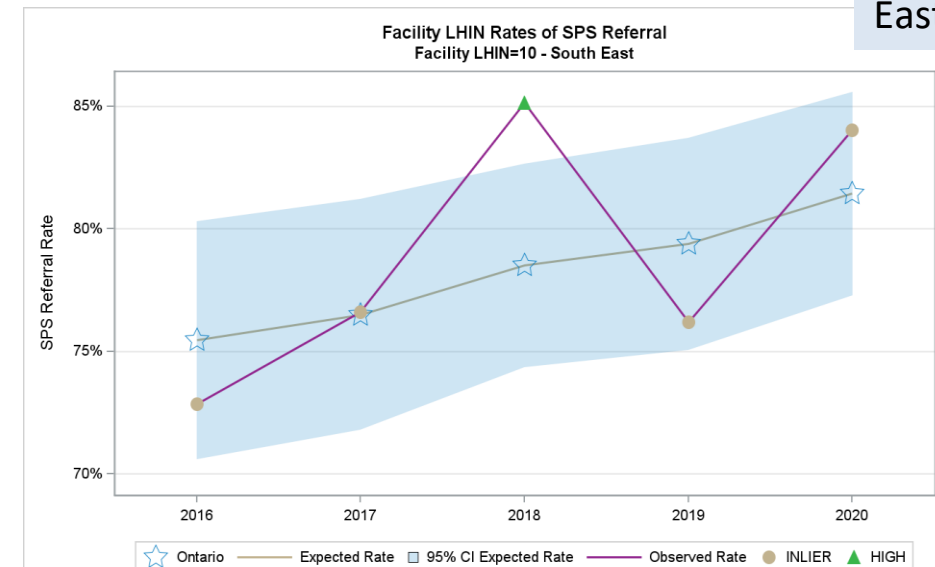


Benchmark is achieved performance in the fiscal
Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs
Sites/regions with complementary or supplementary data suppression, plotted values are the minimum value

QHC -
improved
referral rate
to SPC

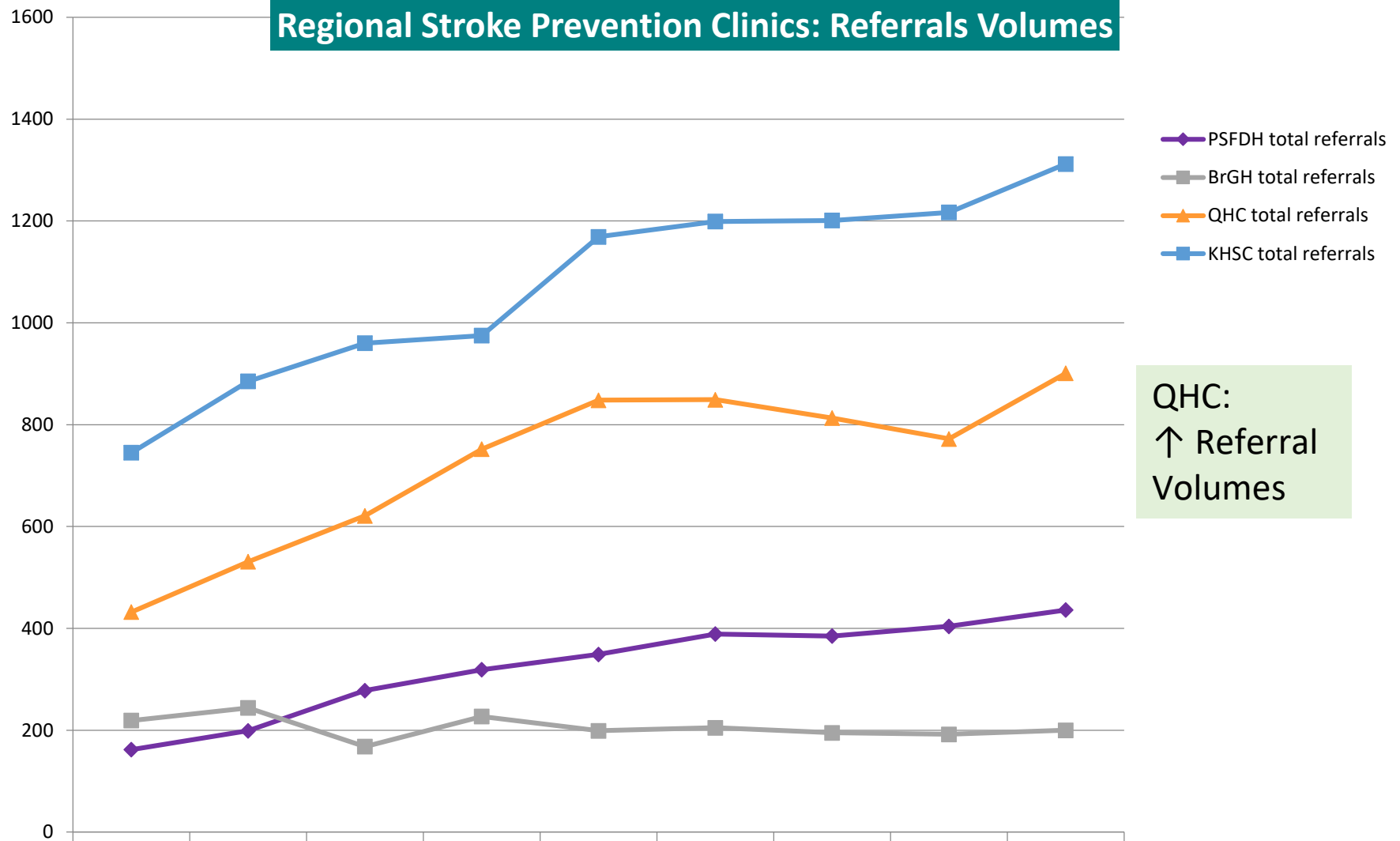
Data reflect
Confirmed TIA
in ED

South
East



Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs
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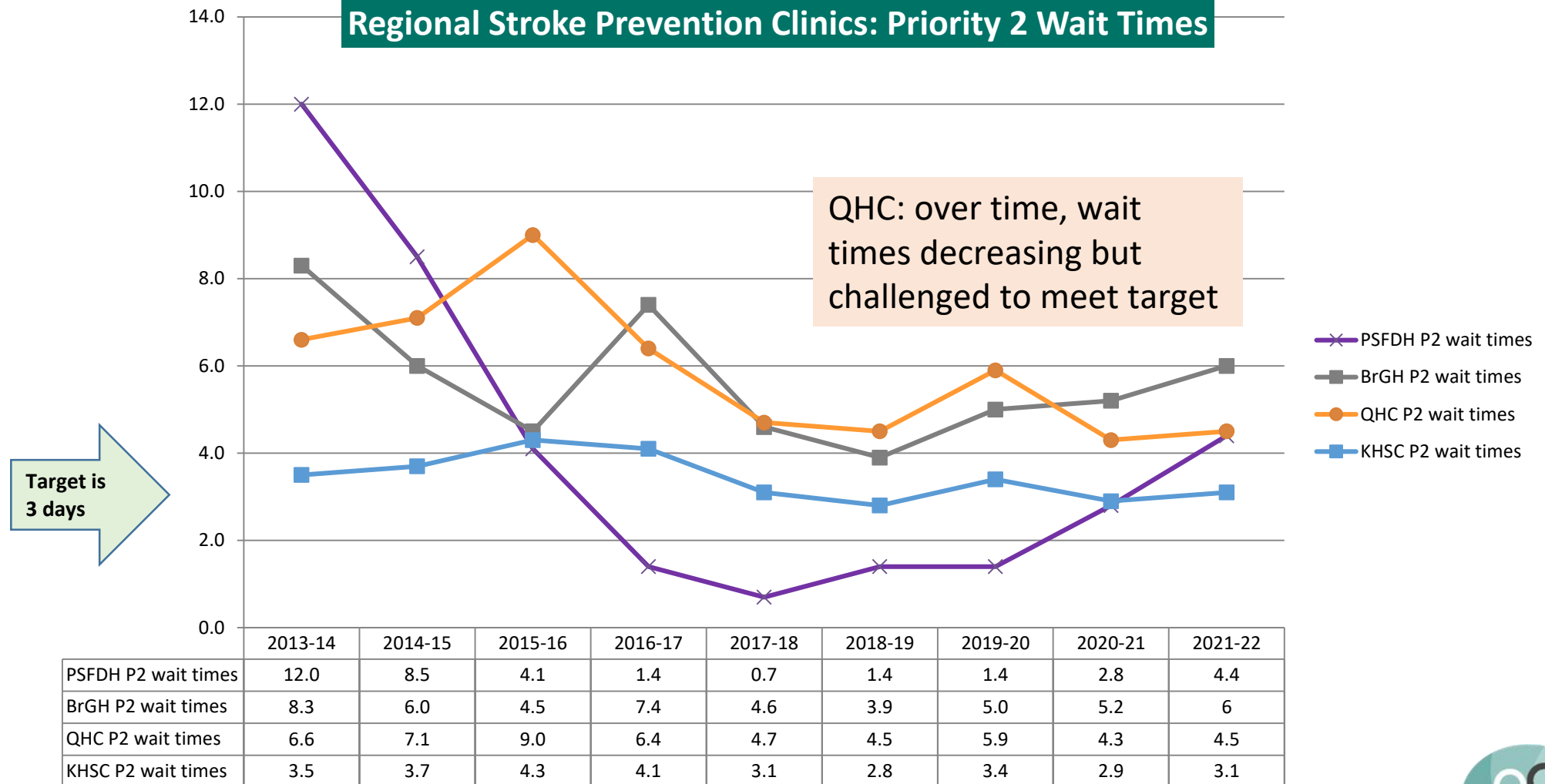
Regional Stroke Prevention Clinics: Referrals Volumes



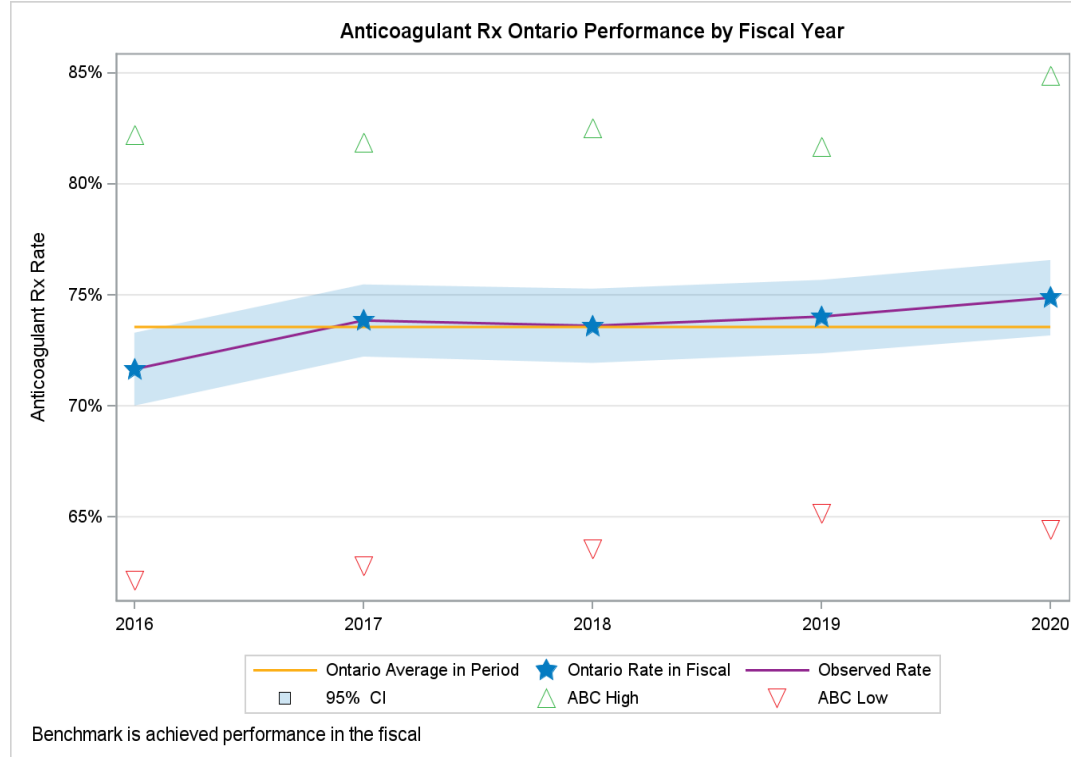
QHC:
↑ Referral
Volumes

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PSFDH total referrals	162	199	278	319	349	389	385	404	436
BrGH total referrals	219	244	168	227	199	205	195	192	200
QHC total referrals	432	531	621	752	848	849	813	772	901
KHSC total referrals	745	885	960	975	1169	1199	1201	1217	1312

Regional Stroke Prevention Clinics: Priority 2 Wait Times



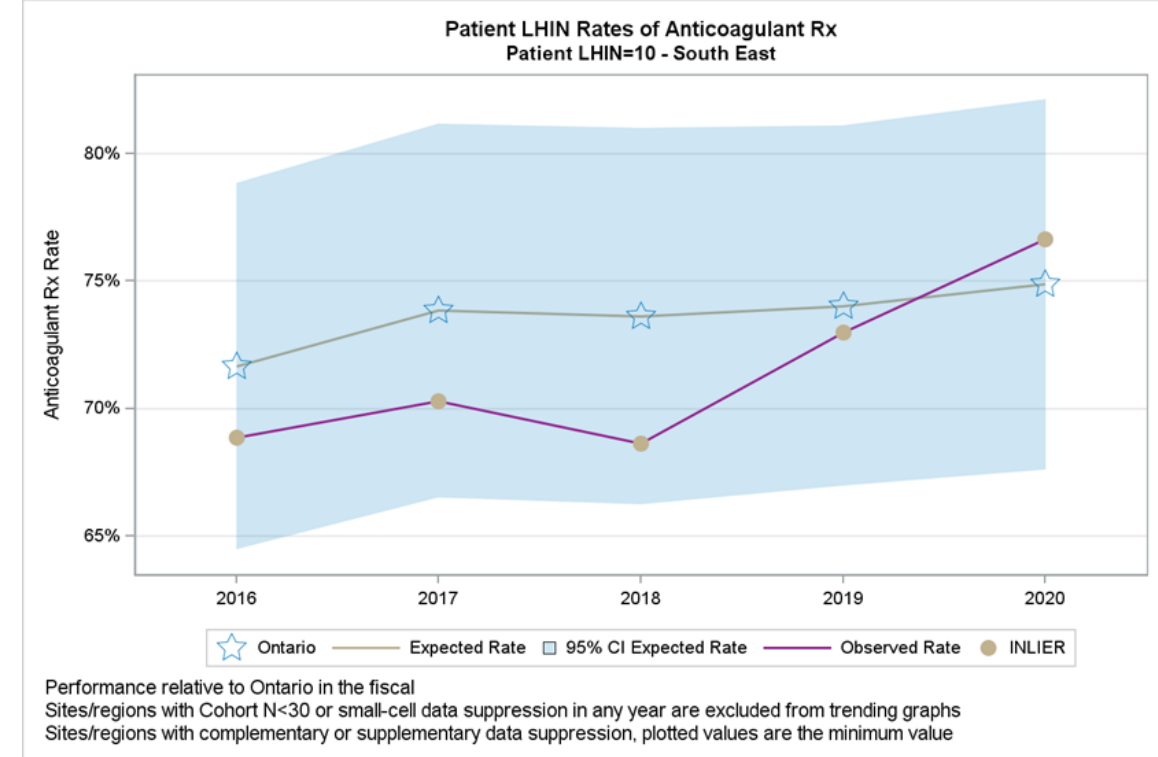
1-3 Anticoagulant Rx within 90 days: Rate for ischemic stroke/TIA patients age 65+ with Hx of Atrial Fibrillation – Stroke Report FY 2020-21



Rates hospital current year (last year)



- **QHC – Belleville – 83.1% (80.4%)**
- KHSC-General 75.4% (73.4%)
- Brockville General – 68.8 to 93.8% (54.5%)
- PSFDH – Not reportable (suppressed)



Rates for sub-region current year (last year)

- **Quinte sub-region 84.0% (78.8%)**
- **Rural Hastings sub-region 44.9 to 88.9% (58.3 to 91.7%)**
- Kingston sub-region 80.0% (84.4 to 96.9%)
- Rural FLA – 61.5 to 92.3% (57.1%)
- LLG sub-region – 62.9 to 74.3% (58.5%)

Stroke Prevention (SPC) Discussion

- **Accomplishments**

- Expansion of **capacity** with increased nursing coverage and virtual care
- **Well-established referral processes** with EDs & Primary Care
- Efficient **triage**

- **Ongoing**

- Work to sustain/build **physician coverage**
- QI initiative re **anticoagulation adherence**: health literacy
- **Indigenous Health** – Deseronto Blood Pressure Screening

- **FUTURE**

- Apply new provincial **triage algorithms**- Meeting in October, 2022
- Further collaboration with HPE OHT on secondary prevention (e.g. Smoking cessation, BP, hypertension)- linkages with primary care

Refer to [SEO Regional Stroke Best Practice Workplan 2021-23](#)

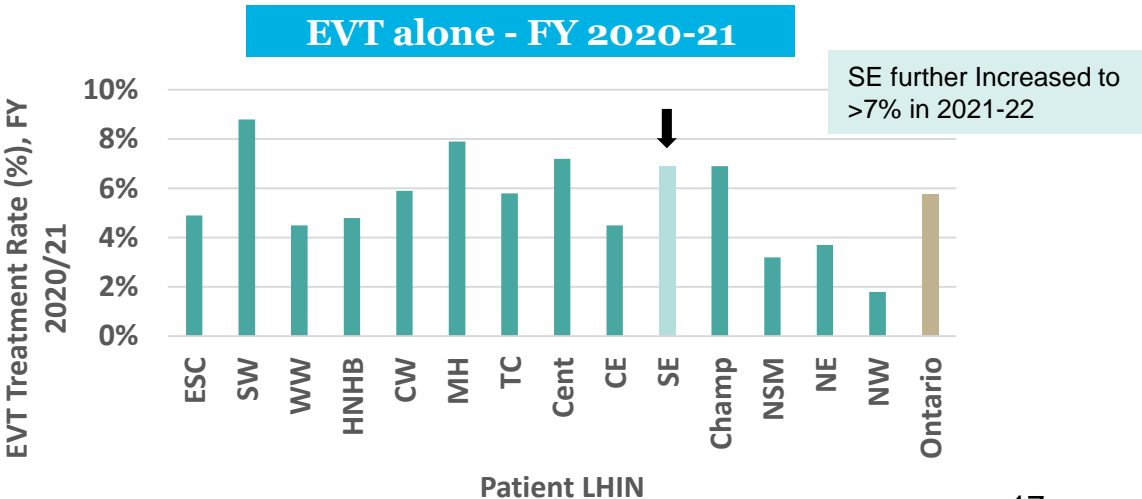
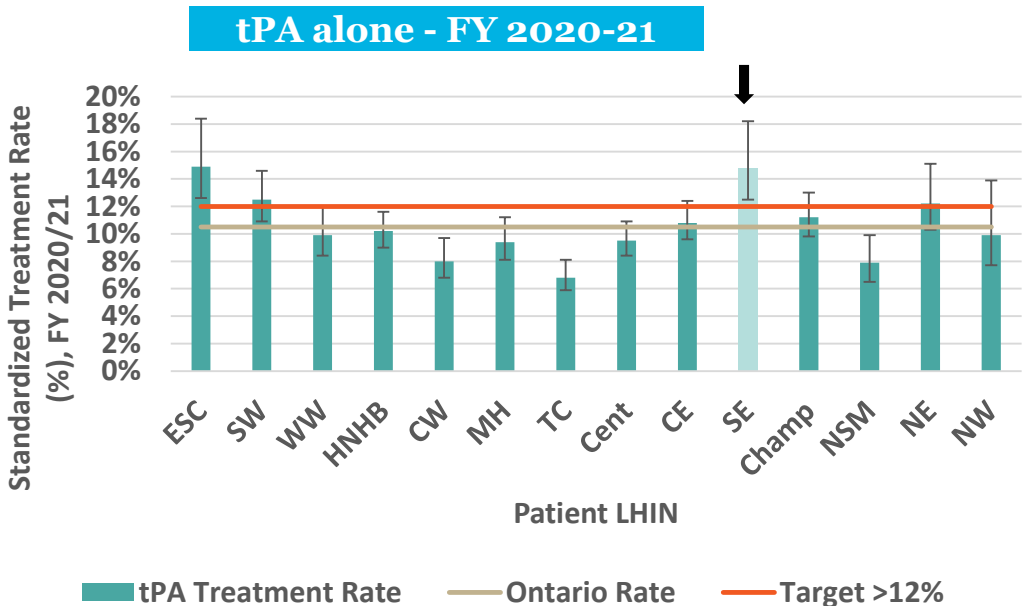
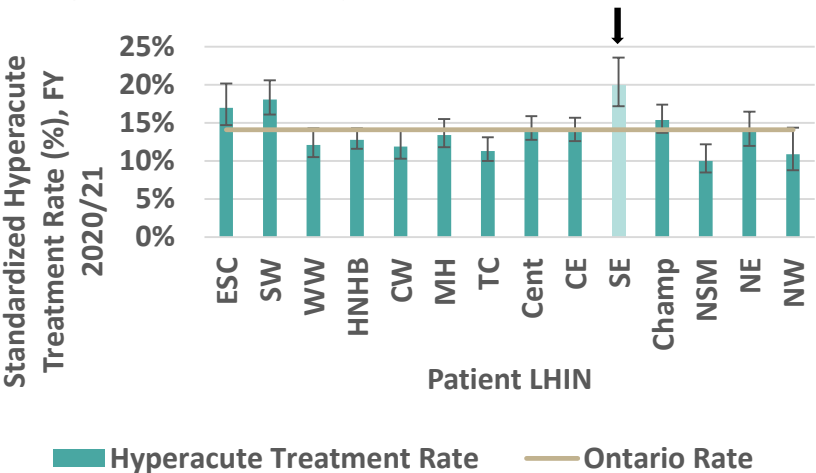
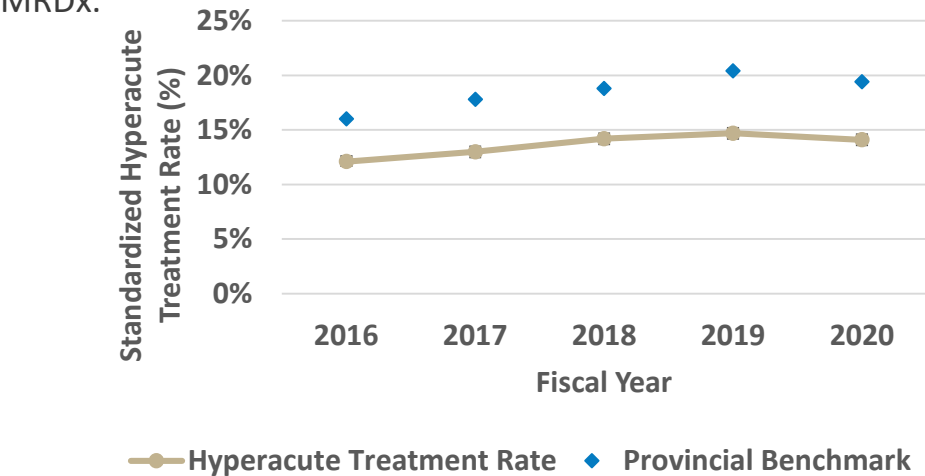


Chapter 2: Hyperacute Care Access and Outcomes for Ischemic Stroke

Indicator 2.1.1: Standardized Hyperacute Treatment Rate (tPA and/or EVT), FY 2020/21

Indicator Description:

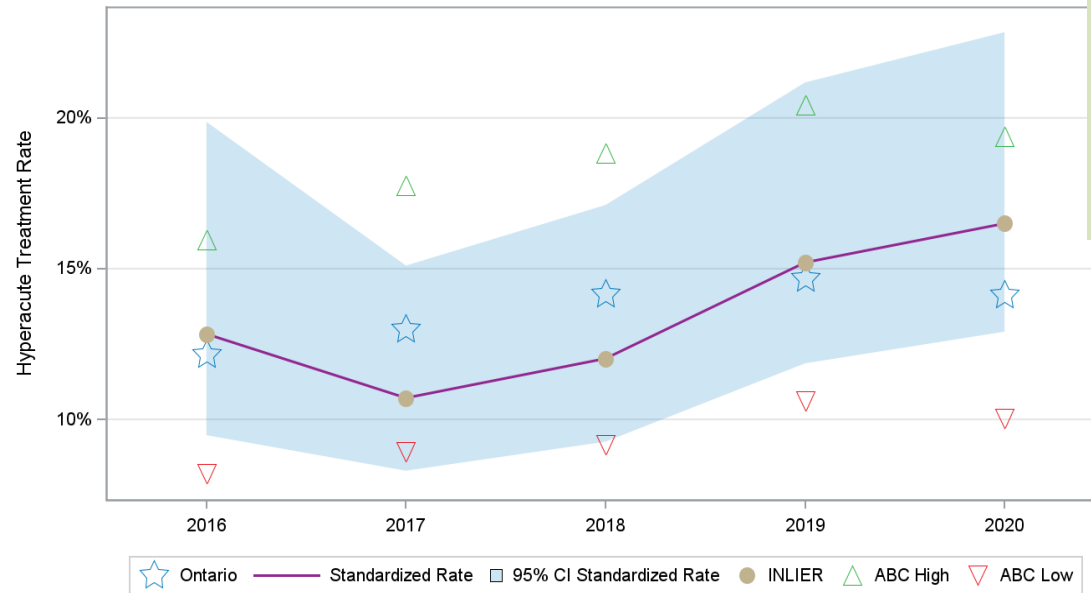
This indicator measures the rate of ischemic stroke patients who received hyperacute therapy which includes endovascular thrombectomy (EVT) and/or tissue plasminogen activator (tPA). The indicator is standardized for type II stroke diagnosis (i.e., in-hospital stroke) and whether ischemic stroke was the MRDx.



2-1 Hyperacute Treatment Rates Stroke Report FY 2020-21

Quinte

Patient Subregion Rates of Hyperacute Treatment
Patient LHIN=10 Patient Subregion=1002-Quinte



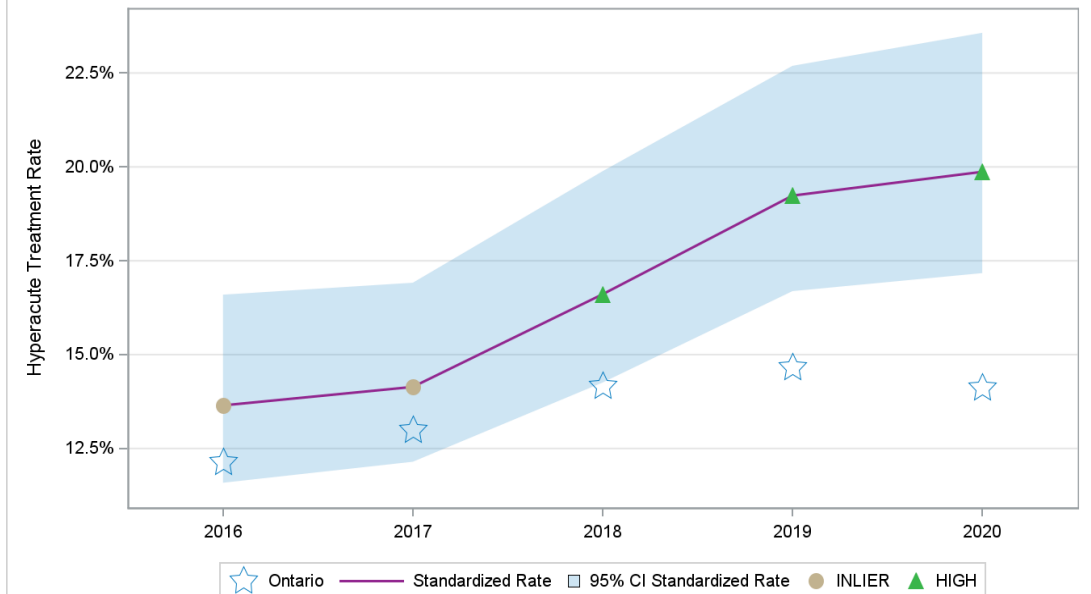
Benchmark is achieved performance in the fiscal
Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs
Sites/regions with complementary or supplementary data suppression, plotted values are the minimum value

Quinte rate of hyperacute RX higher than ON rate at 16.5%
(Note: Rural Hastings rate is same as ON rate at 14.1%)

Excellent rates of hyperacute Rx in SE

SE

Patient LHIN Rates of Hyperacute Treatment
Patient LHIN=10 - South East



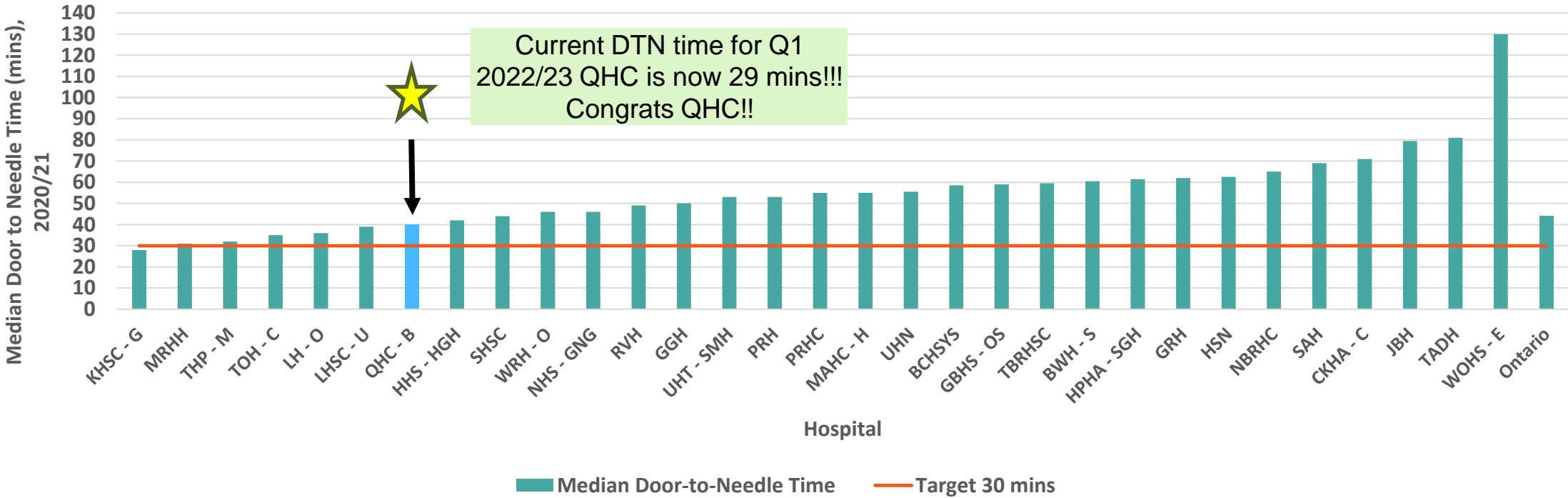
Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs
Sites/regions with complementary or supplementary data suppression, plotted values are the minimum value

Chapter 2: Hyperacute Care Access and Outcomes for Ischemic Stroke

Indicator 2.2: Median Door-to-Needle Time for tPA Treatment (mins), FY 2020/21 – Hospital Level

Indicator Description:

The time, in minutes, between a stroke patient’s emergency department (ED) door time and the time thrombolysis with tissue plasminogen activator (tPA) was administered is referred to as door-to-needle (DTN) time. The target median door to needle time is 30 minutes.³

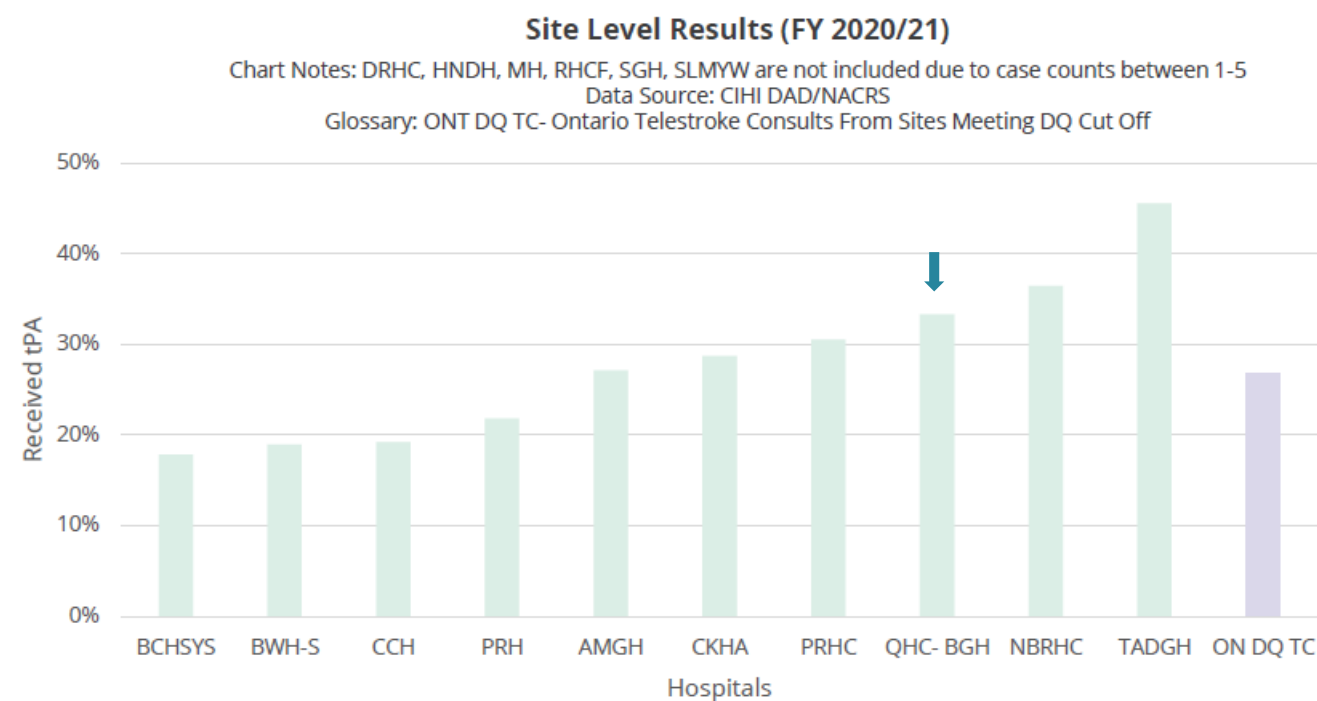
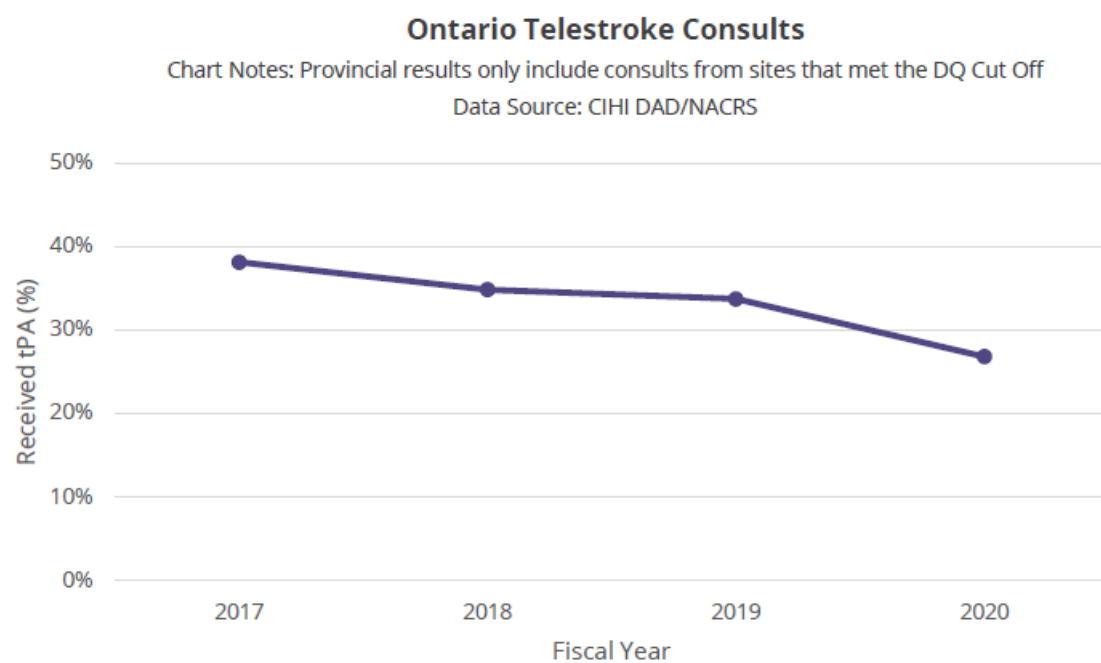


Interpretation Consideration:

Desired directionality is lower. Start of the ED door time is defined as ED triage or ED registration time (whichever comes first). **KHSC-G was the only hospital that achieved target time.** Median door-to-needle time ranges from 28 minutes (KHSC–G) to 130 minutes (WOHS-E). Hospitals should be reviewing their processes of care to drive quality improvement on access to this time dependent treatment. Refer to [Appendix B](#) for hospital abbreviations.

Indicator Description:

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



Interpretation Considerations

- Only sites that achieved $\geq 60.0\%$ 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

Ontario Telestroke Report 2021-22

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

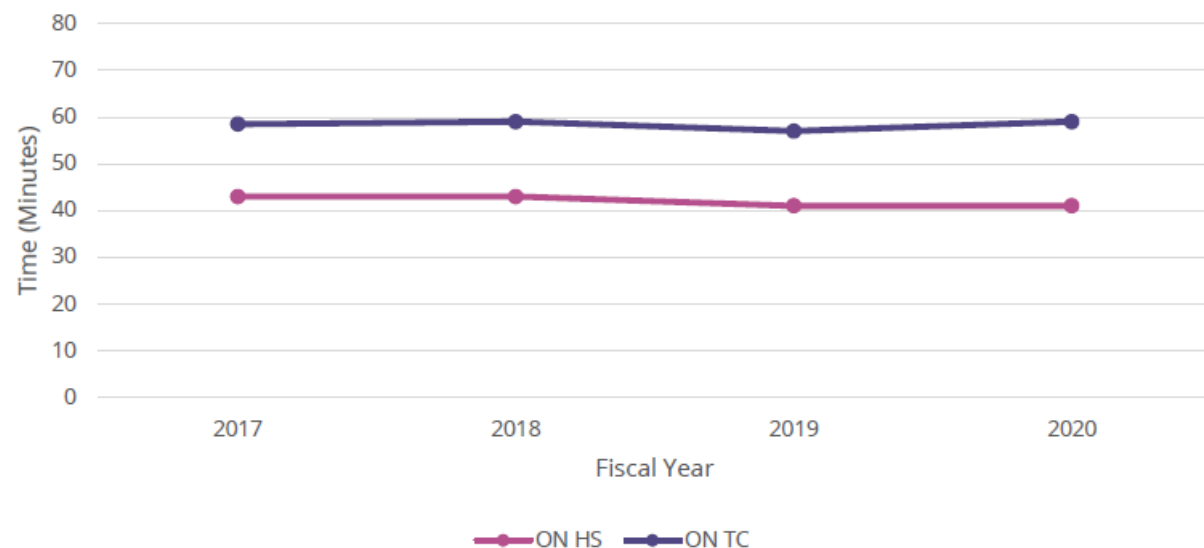
Indicator Description:

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

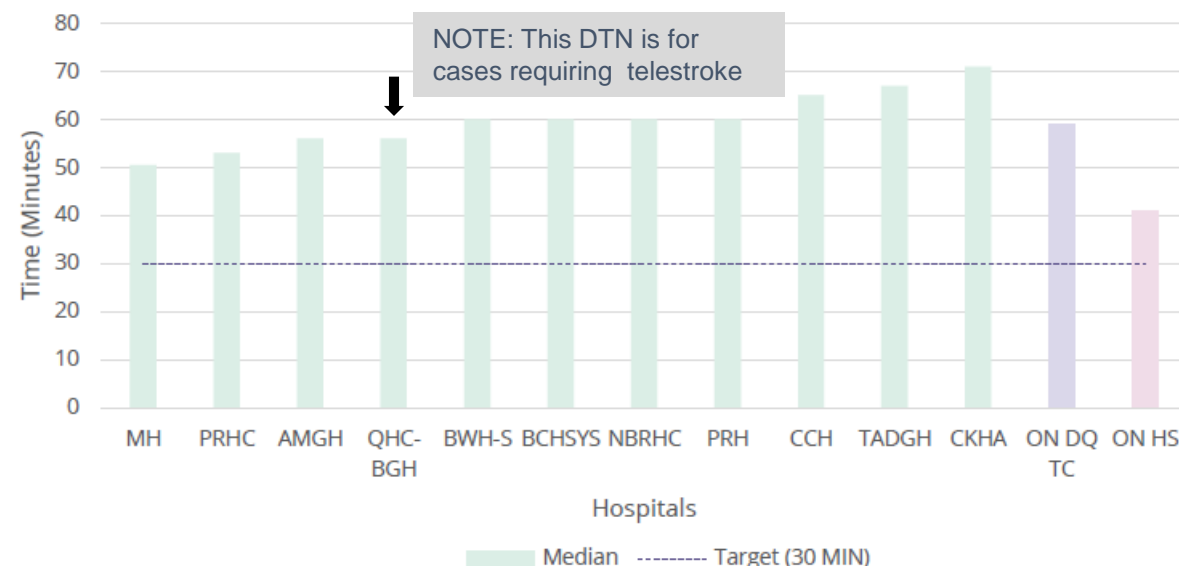


Site Level Results (FY 2020/21)

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 $\geq 60.0\%$ 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 2.5: Door in Door Out (DIDO) Time (Minutes)

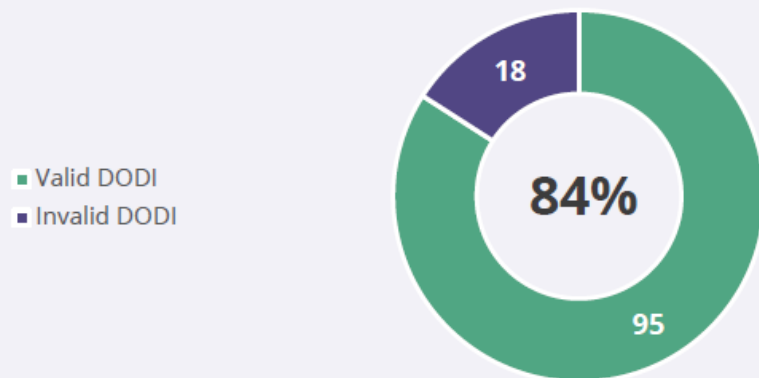
Indicator Description:

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



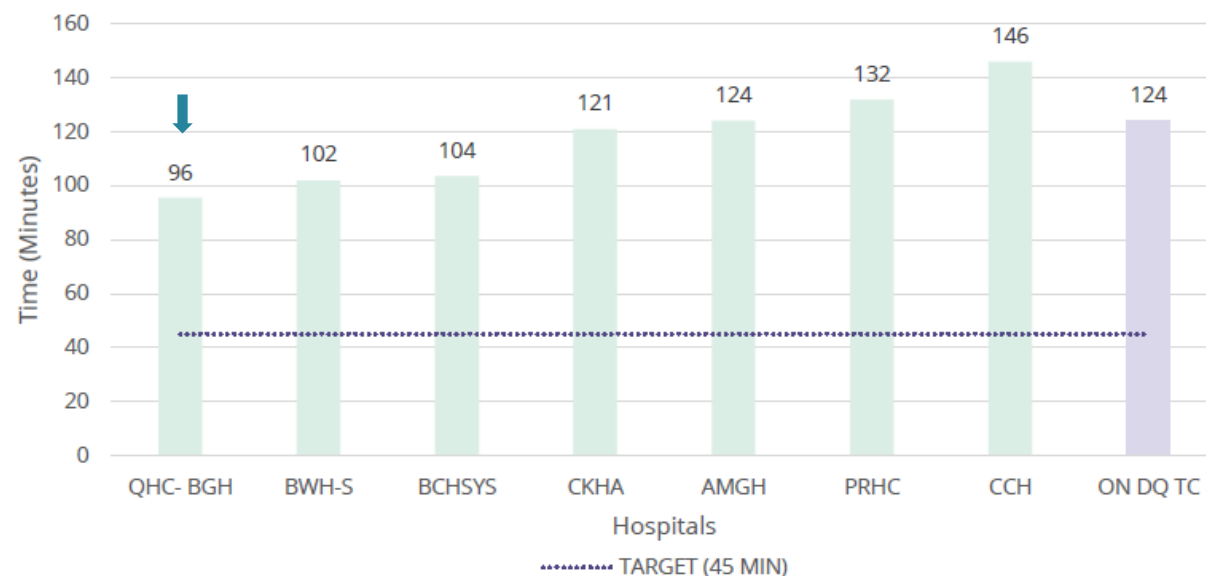
Indicator Description: Proportion of ischemic/unspecified Telestroke consult patients presenting at the ED of Telestroke sites and transferred to an EVT site who have **Door-out/Door-in** time in proper sequence (i.e., door out at the Telestroke Site is **before** door in at the EVT site). **This is 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 $\geq 60.0\%$ 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.

CorHealth Ontario EVT Report

FY 2021-22 – Q1, Q2 (April to Sept)

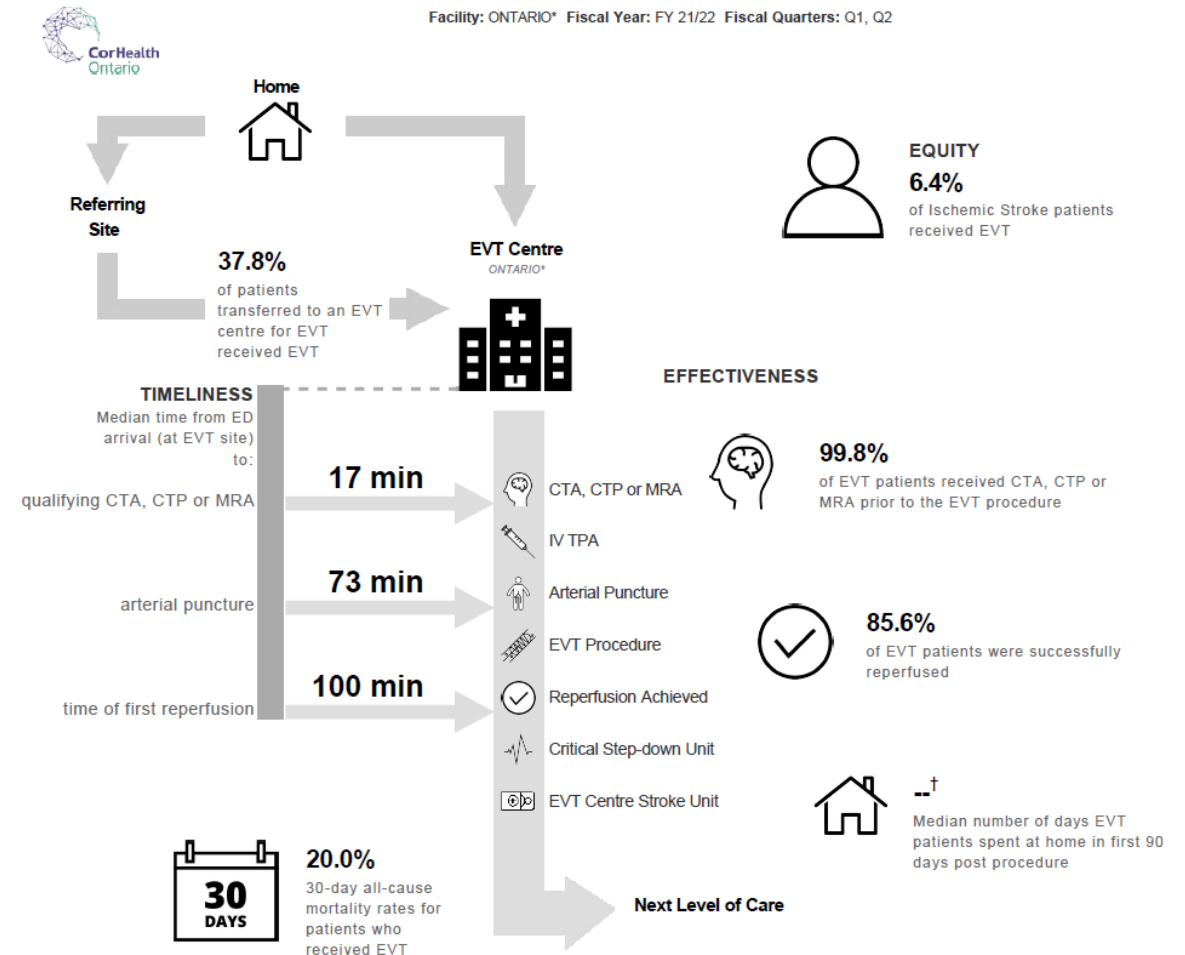
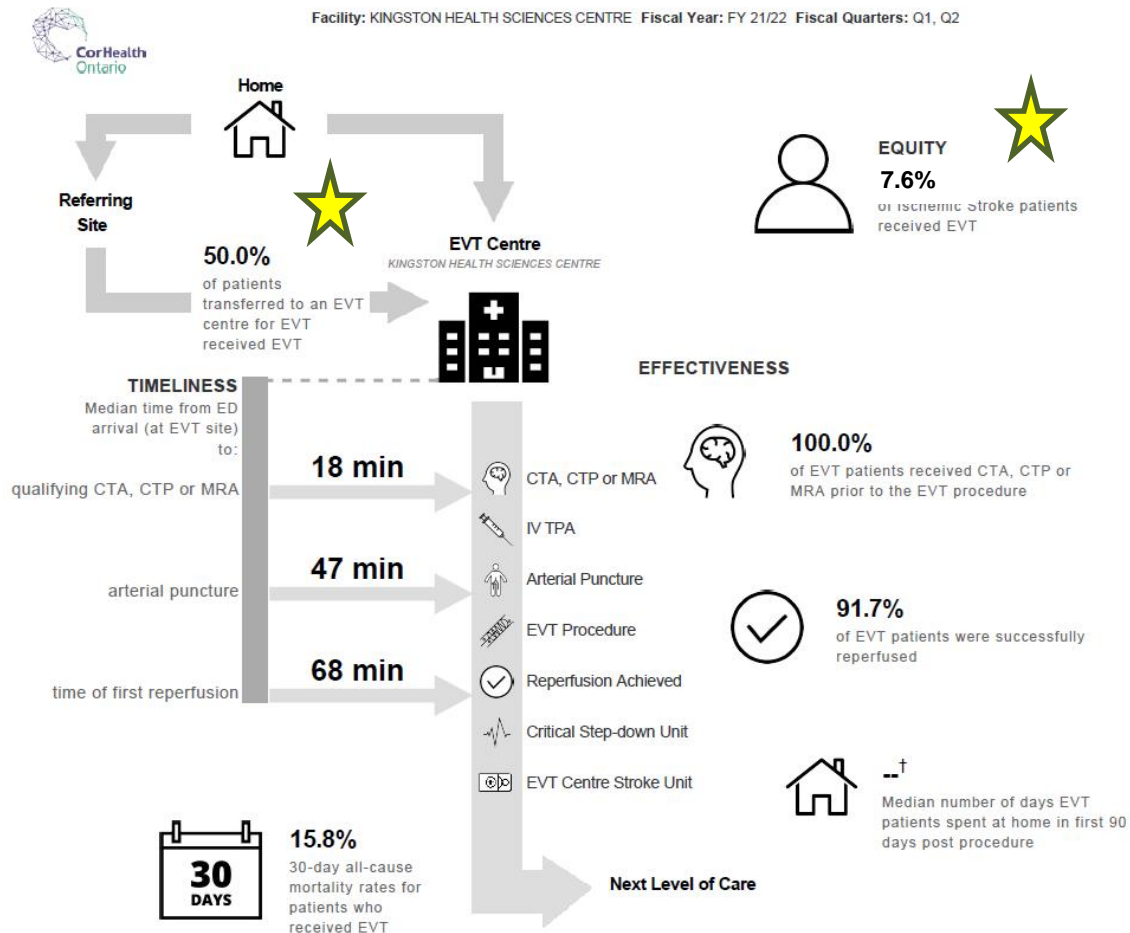
Kingston

Ontario



Facility: KINGSTON HEALTH SCIENCES CENTRE Fiscal Year: FY 21/22 Fiscal Quarters: Q1, Q2

Facility: ONTARIO* Fiscal Year: FY 21/22 Fiscal Quarters: Q1, Q2



KHSC EVT Current Outcomes

Target*: 46% with 90 day Modified Rankin Scale (MRS) score of ≤ 2 (minimal to no disability)

*based on Hermes Meta-Analysis

Over 250 anterior and 15 posterior cases to March 31, 2022

Most recent analysis FY 2021-22 :

72 anterior, 4 posterior circulation cases completed

- ongoing growth from last fiscal
- Geographic distribution: HPE – 24; KFLA – 32 (5 from L&A); LLG – 18; 2 out of region
- 36 female/40 male

For the 71 anterior cases – using Best MRS score – some still improving

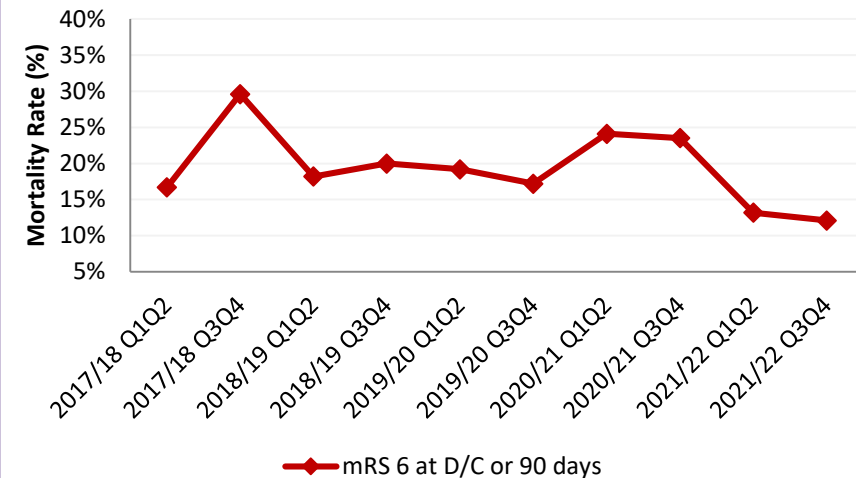
- 31/71 (43.7%) with minimal to no disability MRS ≤ 2
- 22/71 (31%) with moderate disability
- 9/71 (12.7%) with severe disability
- 9/71 (12.7%) mortality

Times: 13 min D to CT; 23 min DTN; 39 min D to Groin puncture, 57 min D to Reperfusion

27 cases treated between 6 and 24 hours in FY 2021-22

- 24 Anterior cases & 3 Post cases: HPE - 10; KFLA - 8 (4 L&A); LLG – 8; 1 other region
- Disability Outcomes:
 - 12/27 (44.4%) minimal to no disability
 - 8/27 (29.6%) moderate disability
 - 1/27 (3.7%) severe disability
 - 6/27 (22.2%) mortality – provincial mortality rate for ALL cases is 20%

EVT Mortality Rate (Anterior Cases)



Kingston Health
Sciences Centre

Centre des sciences de
la santé de Kingston

Belleville EVT Outcomes/Process Times FY 2018/19 to FY 2021/22

Outcome Summary for **67** Anterior Circulation EVT Cases Transferred from Belleville Best Modified Rankin Scale Scores

- 31/67 (**46.3%**) Minimal to no disability MRSS ≤ 2 at DC/90dys – NOTE: some cases likely to improve by 90 days
- 17/67 (25.4%) Moderate disability MRSS 3 or 4 at DC or FUP
- 10/67 (14.9%) Severe disability MRSS of 5
- 9/67 (**13.4%**) Mortality

Reperfusion Scores for 30 Anterior Circulation Cases

TiCi2b-3: 61/67 (**91.0%**) achieved reperfusion

TiCi0-2a: 6/67 (**9.0%**) did not achieve reperfusion

Median Process Times for Anterior Circulation Cases (Door=KHSC-KGH ED Door)

- Door to CT: **10** min (target 15 mins)
- Door to Groin Puncture: **19** min (target 60 mins)
- Door to First Reperfusion: **39** min (target 90 mins)

25 Anterior Cases treated with EVT Post 6 Hours

Modified Rankin Scale Scores at DC or 90-day Follow-up for 25 cases presenting with stroke symptoms > 6 hours

- 12/25 (48.0%) Minimal to no disability MRSS ≤ 2
- 9/25 (36.0%) Moderate disability MRSS 3 or 4
- 1/25 (4.0%) Severe disability MRSS of 5
- 3/25 (12.0%) Mortality



Hyperacute (ED) Discussion

- **Accomplishments:**

- Access: Established protocols for 24 hour window – using ACT-FAST
- Well established transfer processes for EVT
- Timeliness: DTN times improved to reach target!!

- **Ongoing:**

- Continue to implement strategies to keep DTN at provincial target and decrease Door-IN-Door-OUT times

- **FUTURE:** TNK versus tPA

Refer to [SEO Regional Stroke Best Practice Workplan 2021-23](#)



Acute and Rehab Stroke Data

Integrated Stroke Unit

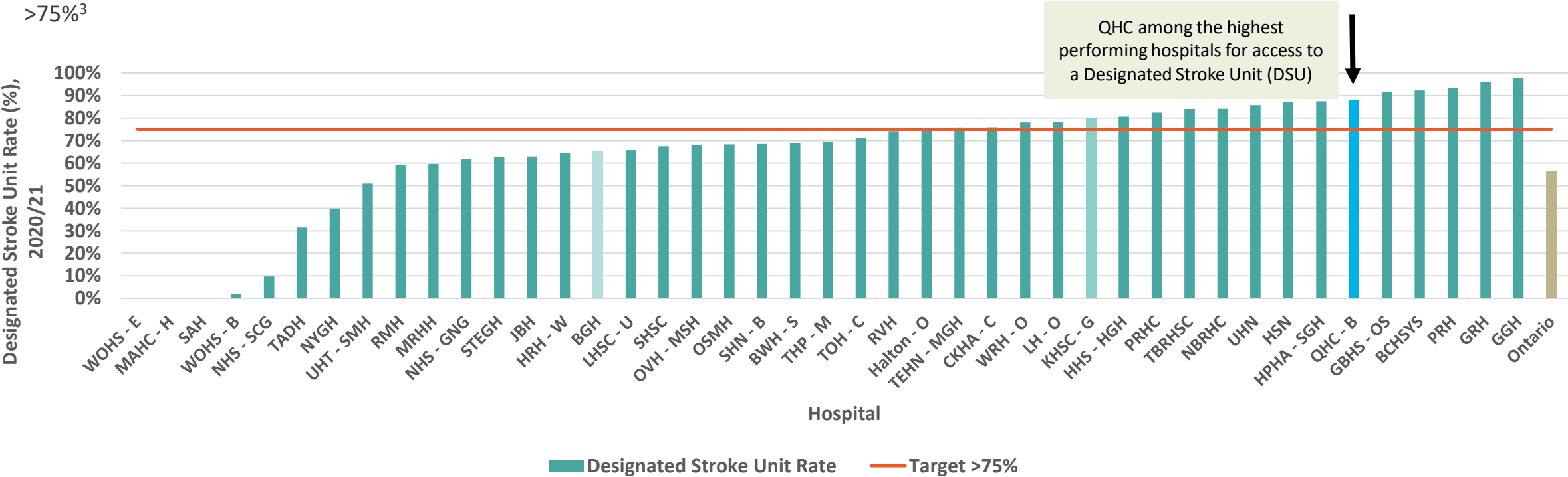


Chapter 3: Acute Care Access and Outcomes for Stroke and TIA

Indicator 3.1: Designated Stroke Unit Rate for Stroke/TIA Acute Patients, FY 2020/21 – Hospital Level

Indicator Description:

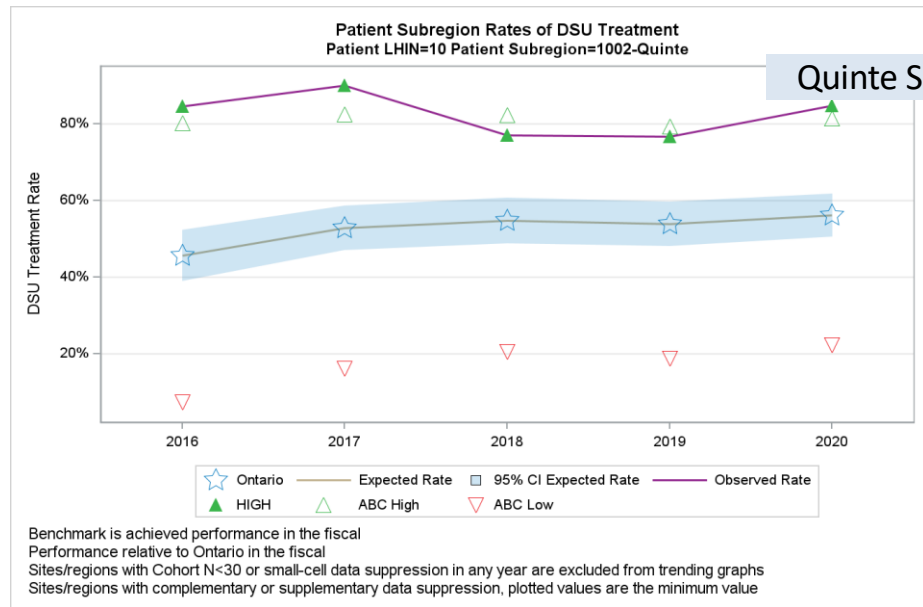
This indicator measures the proportion of stroke/TIA patients treated in a designated stroke unit for any part of their index (first) admission. Target is >75%³



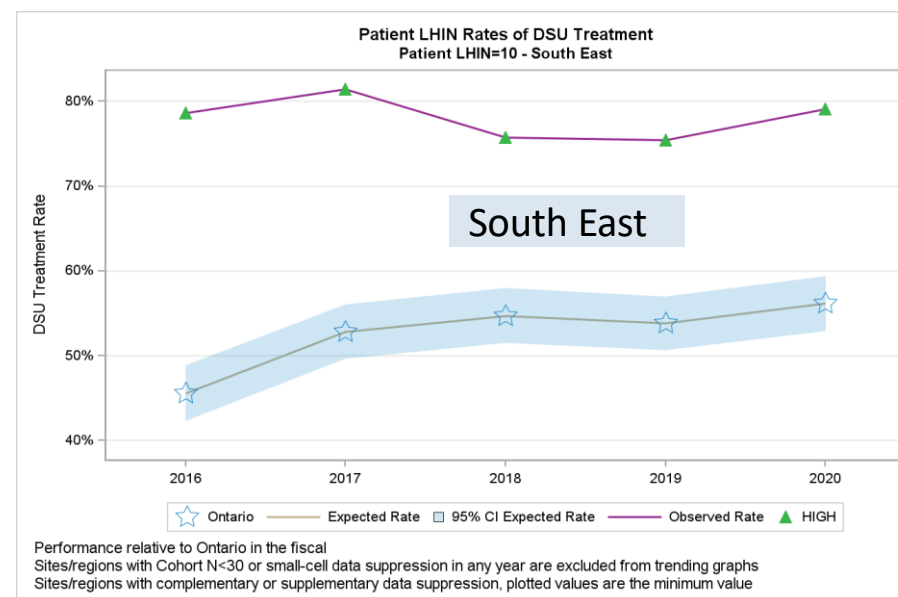
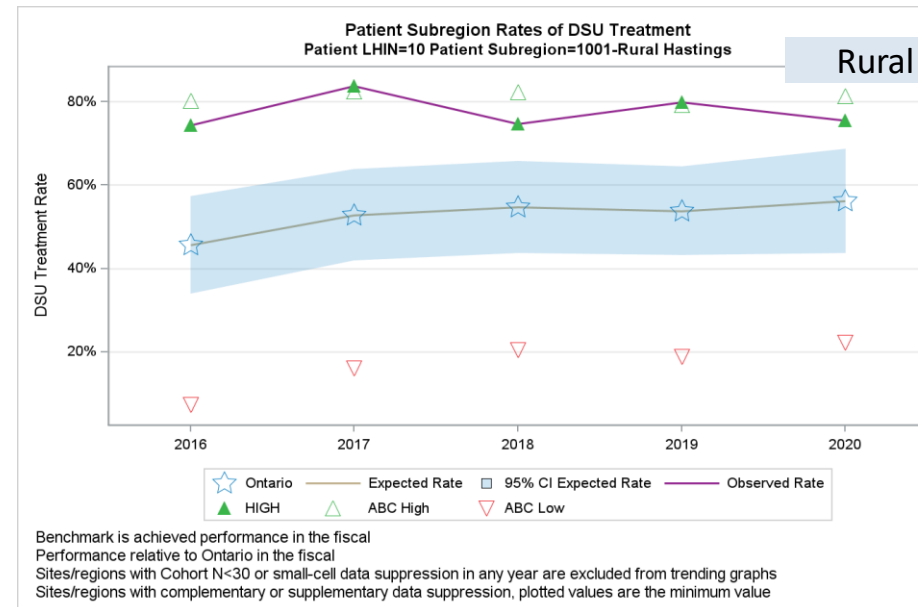
Interpretation Consideration:

Desired directionality is high. Patients who receive stroke unit care are more likely to survive, return home and regain independence compared to patients who receive generalized care.² To optimize access and improve outcomes to this specialized care, consideration will need to be given to hospital (local) and regional level barriers and enablers. In addition, review and update of the indicator methodology may be helpful to ensure that measurement is reflective of the true performance within the system (e.g., patients not treated in a stroke unit at the index hospital, but are transferred and treated in a stroke unit at the receiving hospital are currently not counted). Refer to [Appendix B](#) for hospital abbreviations.

3.1 Designated Stroke Unit Rate for Stroke/TIA Acute Patients



★
Excellent
access to
QHC
Stroke
Unit for
HPE
sub-
regions



SE and QHC
consistently
performing
better than
the ON rate

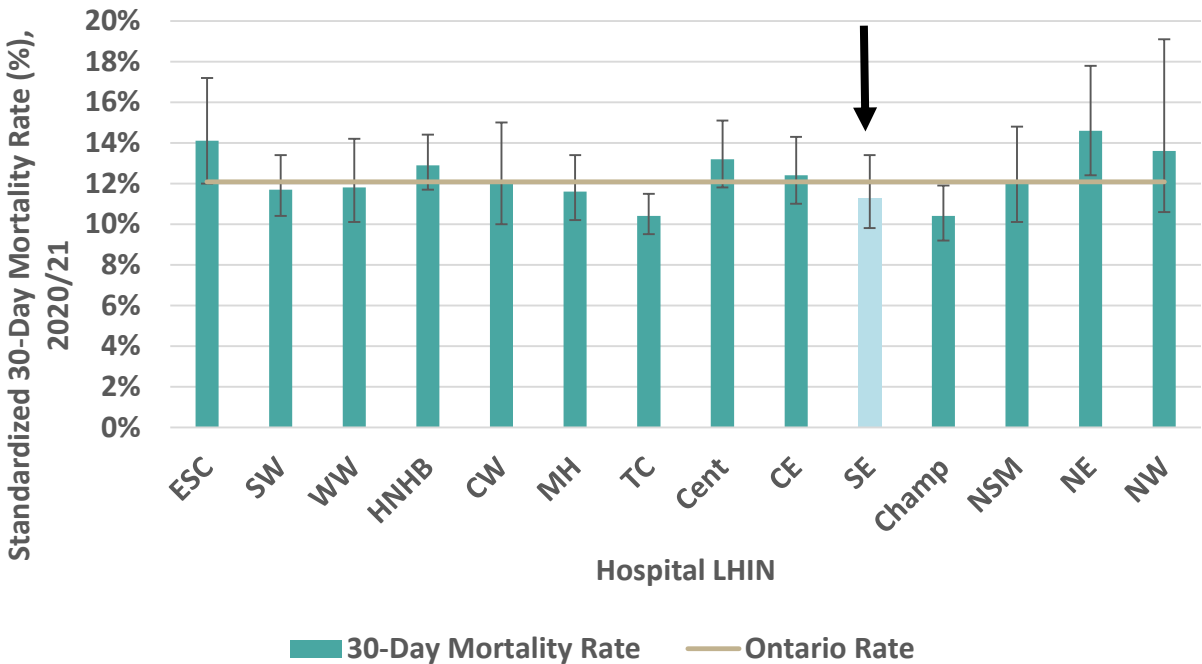
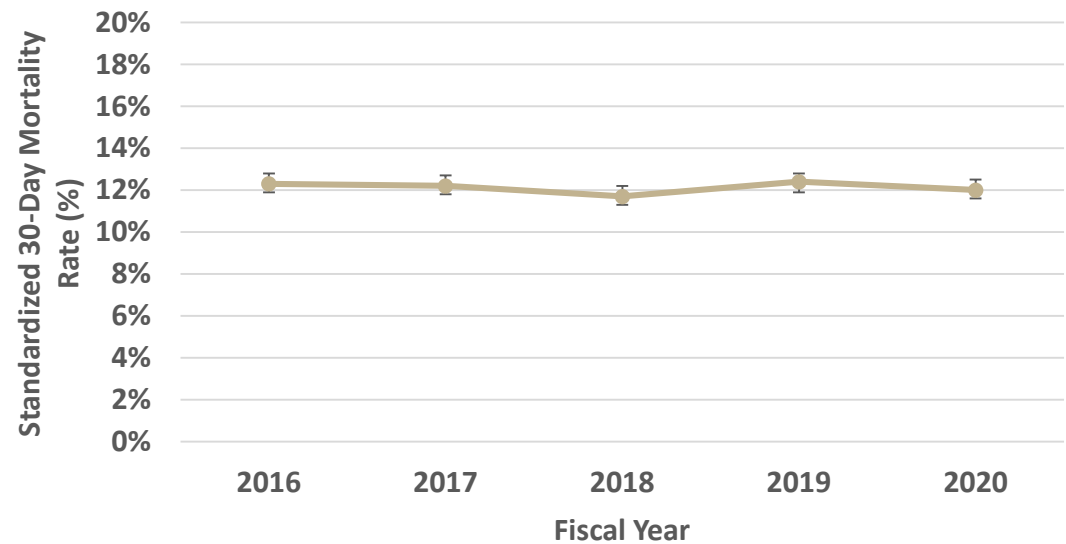
Mortality is known
to be related to
ASU rate

Chapter 3: Acute Care Access and Outcomes for Stroke and TIA

Indicator 3.3: Standardized 30-Day All-Cause Mortality Rate of Stroke and TIA Admissions to Acute Care, FY 2020/21

Indicator Description:

This indicator measures the all-cause mortality rate in the 30-days following admission for stroke or TIA. This indicator is adjusted for patient age, stroke type, ambulance arrival and medical history factors including hypertension, atrial fibrillation, and a Charlson Comorbidity Index Score of 7+.



Interpretation Consideration:

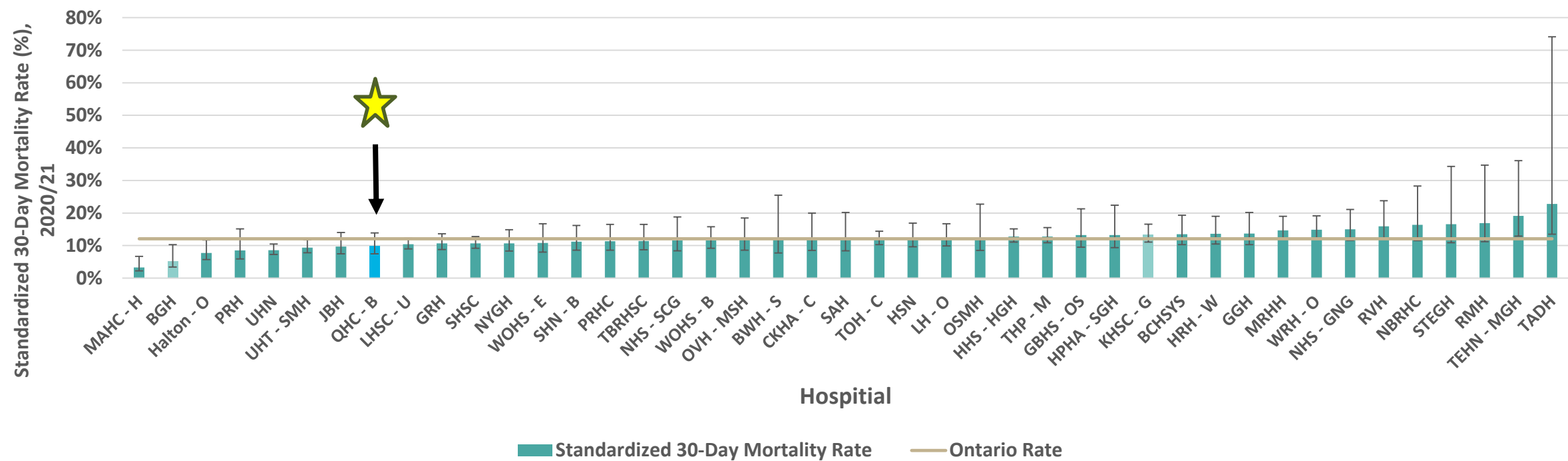
Desired directionality is low. The standardized mortality rate for Ontario has remained relatively flat for the past five years (including the first year of the pandemic) around 12%. There is variation amongst the LHINs, with TC and Champlain LHIN being significantly lower than the Ontario rate. This indicator measures all-cause mortality; therefore, death may not be related to the stroke event.

Chapter 3: Acute Care Access and Outcomes for Stroke and TIA

Indicator 3.3: Standardized 30-Day All-Cause Mortality Rate of Stroke and TIA Admissions to Acute Care, FY 2020/21 – Hospital Level

Indicator Description:

This indicator measures the all-cause mortality rate in the 30-days following admission for stroke or TIA. This indicator is adjusted for patient age, stroke type, ambulance arrival and medical history factors including hypertension, atrial fibrillation, and a Charlson Comorbidity Index Score of 7+.



Interpretation Consideration:

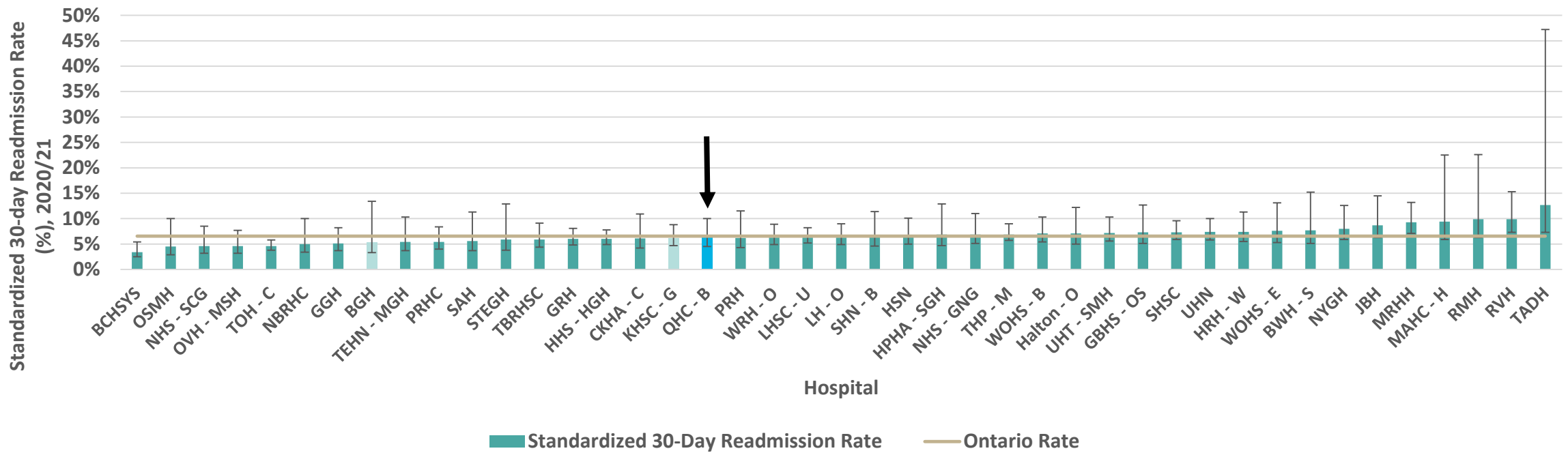
Desired directionality is low. In 2020, most of the hospitals were not statistically different than the Ontario rate, though some show more variance than others. There may be opportunity to improve consistency of outcomes within or across centres. This indicator measures all-cause mortality; therefore, death may not be related to the stroke event. Refer to [Appendix B](#) for hospital abbreviations.

Chapter 3: Acute Care Access and Outcomes for Stroke and TIA

Indicator 3.4: Standardized 30-Day All-Cause Readmission Rate, FY 2020/21 – Hospital Level

Indicator Description:

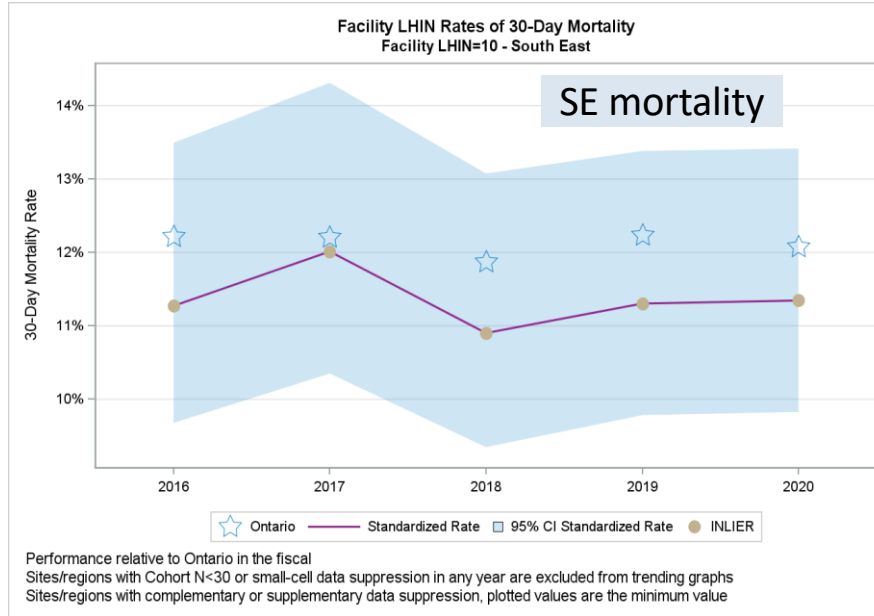
This indicator measures the rate at which TIA and stroke patients are readmitted for any cause in the 30-days following discharge from acute care or the emergency department. This indicator is adjusted for patient age and stroke type.



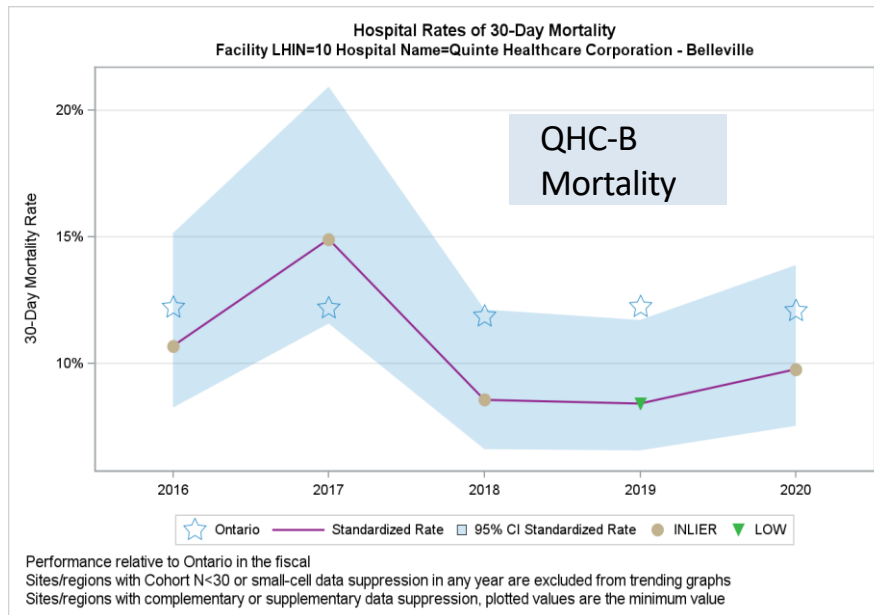
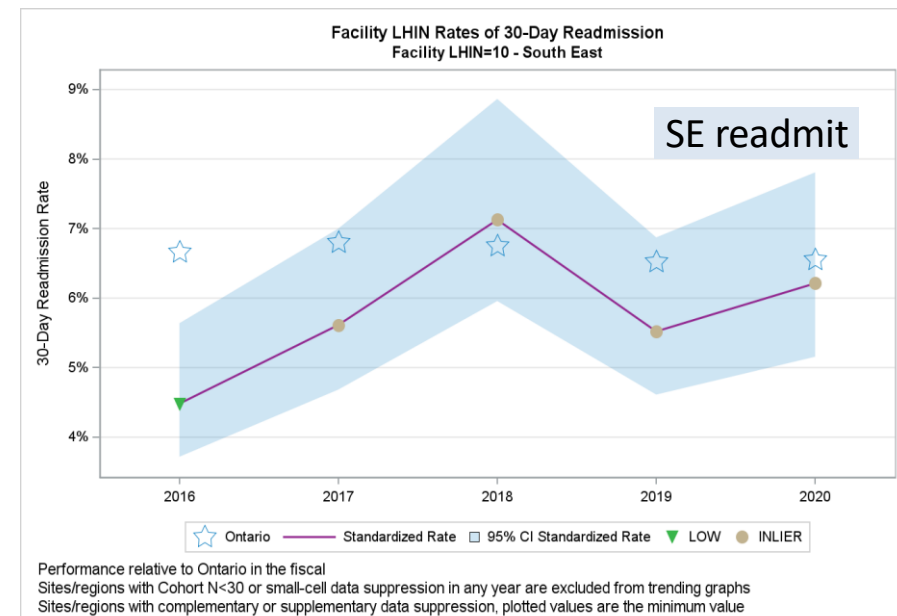
Interpretation Consideration:

Desired directionality is low. This indicator is for all-cause readmission; therefore, a patient can be readmitted due to non-stroke related causes. In 2020, BCHSYS and TOH-C were the only two hospitals that were statistically lower than the Ontario rate. Some show more variance than others. There may be opportunity to improve consistency of outcomes within or across centres. Refer to [Appendix B](#) for hospital abbreviations.

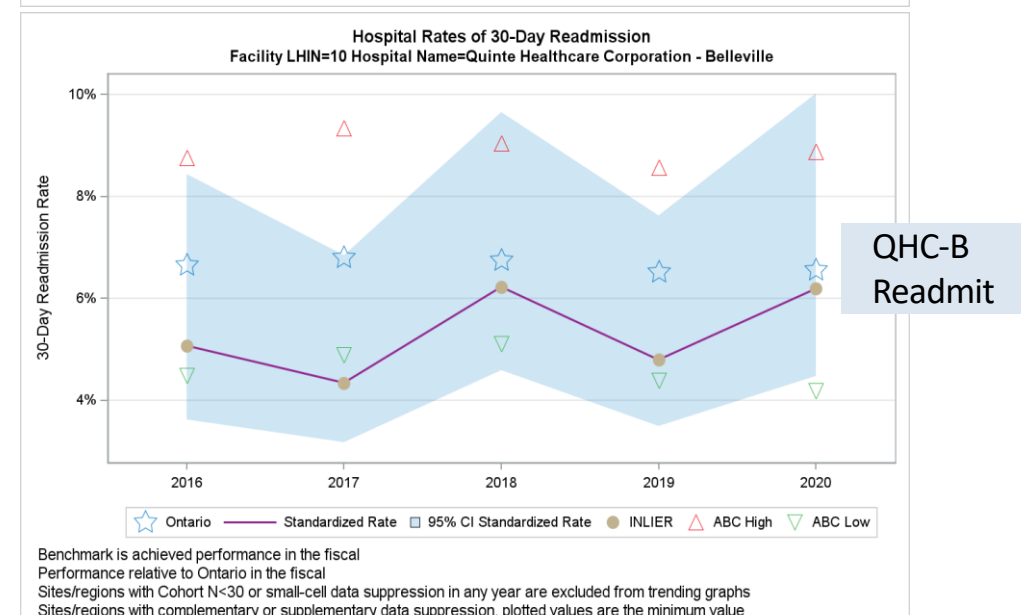
3.3 and 3.4 Outcomes – 30-day Stroke Mortality Stroke Report FY 2020-2021 and 30-day Readmission Rate for all causes FY 2020-2021



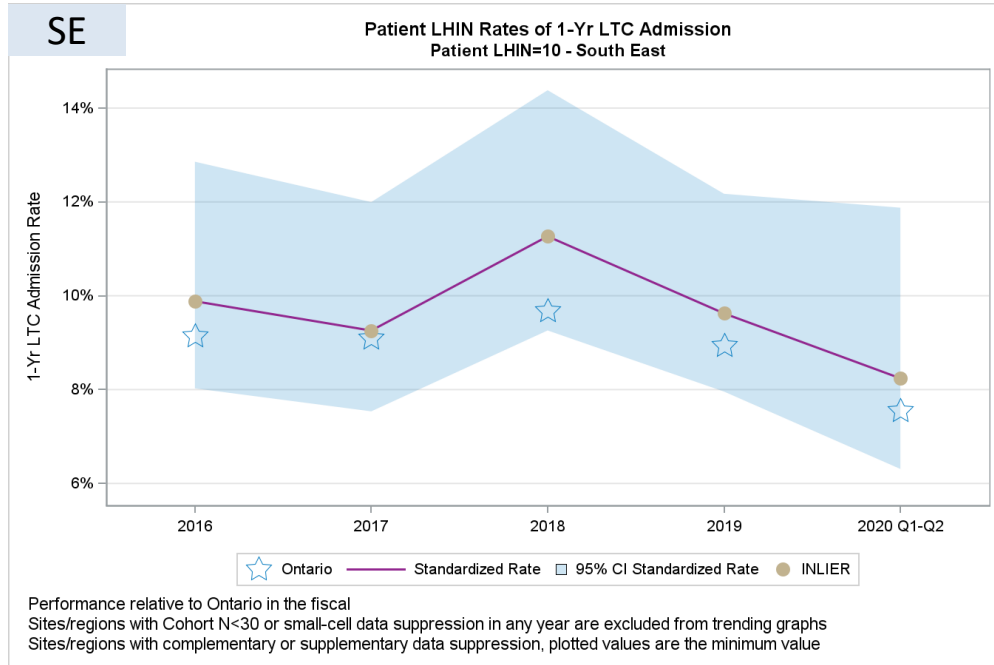
South East
performing
better
(lower)
than the
ON rate



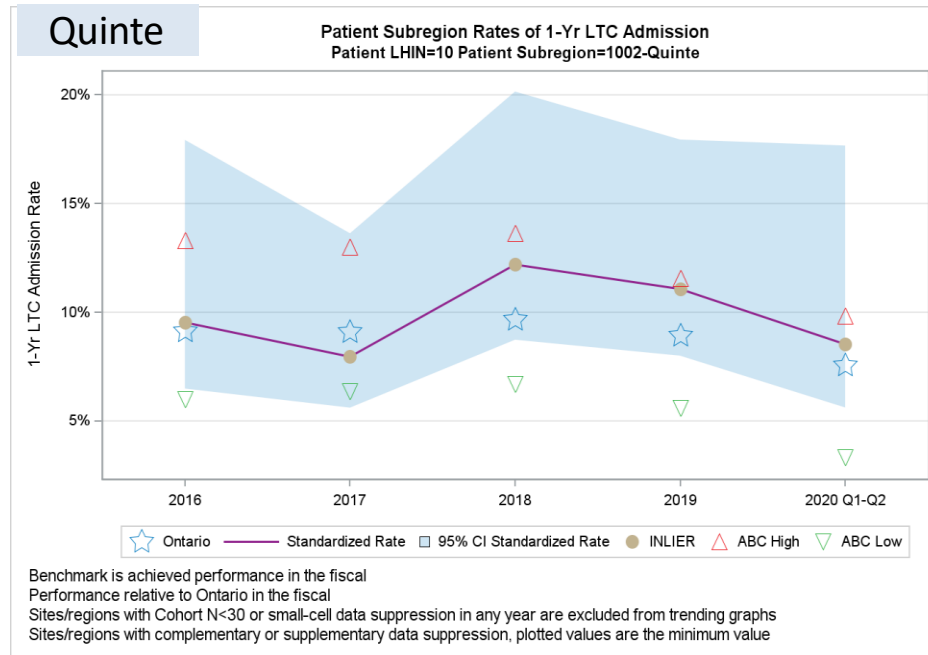
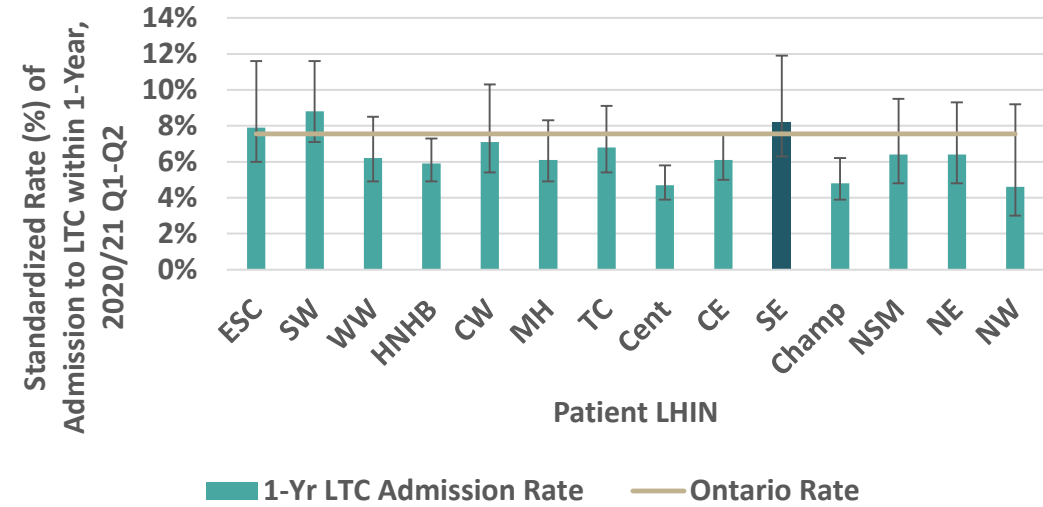
QHC rates also
better (lower)
than ON rates -
climbing slightly



Quinte Stroke Report Acute Care Areas of Concern



SE performing at the ON rate for LTC admissions



Quinte rates are higher than the ON rate for LTC admissions (3 year trend shows improving)

Acute and Rehab Stroke Data

Inpatient Rehab

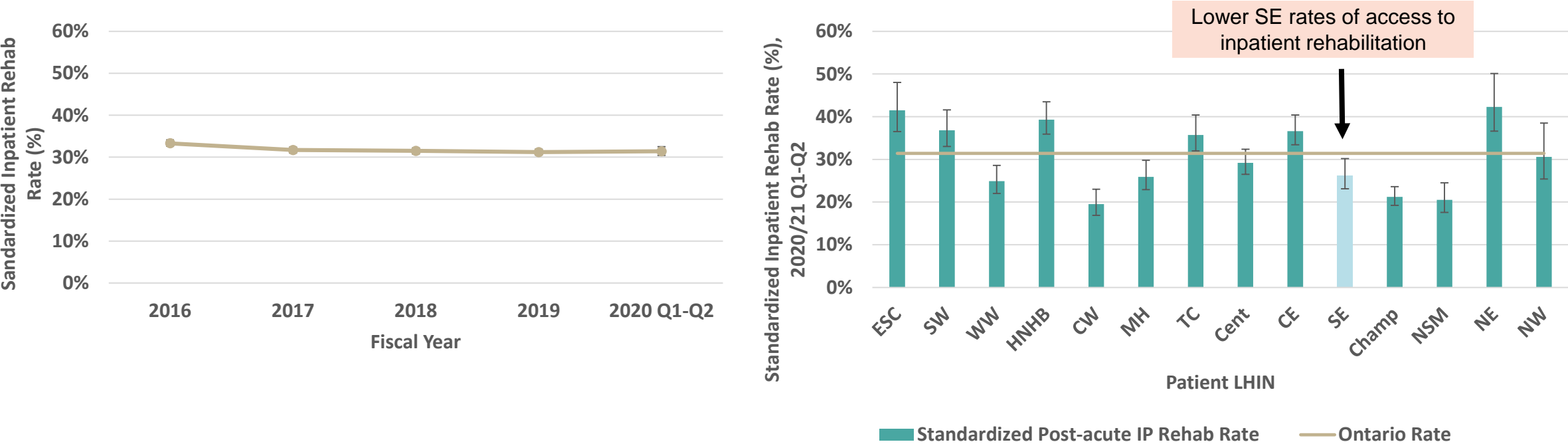


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

Indicator 4.1.2: Standardized Rate of Access to Post-Acute Inpatient Rehabilitation, FY 2020/21 Q1-Q2

Indicator Description:

Proportion of stroke patients discharged alive from acute care who went into inpatient rehabilitation. The indicator is standardized for stroke type and AlphaFIM® instrument (AlphaFIM®) score which provides insight into the stroke severity (level of functional status and disability).



Interpretation Considerations:

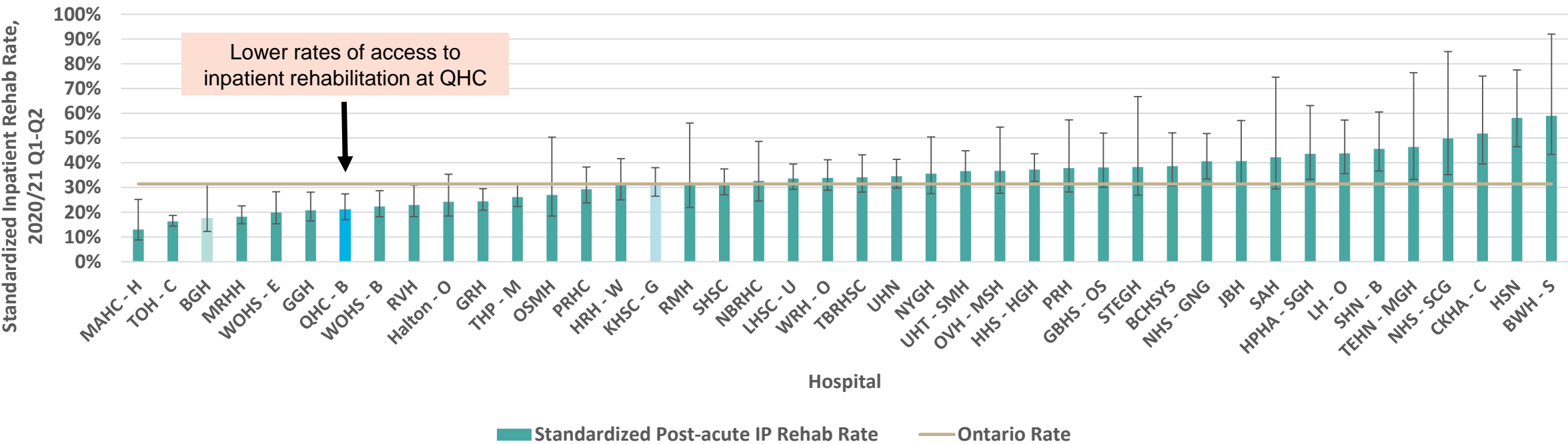
Inpatient rehab is most appropriate for stroke patients with moderate to severe disability. For the last four fiscal years (2017-2020), access to inpatient stroke rehabilitation has been relatively steady at around 31%. Interesting to note, in the early stages of the pandemic, access to inpatient stroke rehabilitation did not change. There is high variability of access to inpatient stroke rehabilitation across the LHINs. High rates may reflect lack of access to community-based rehabilitation, necessitating admission of stroke patients with milder disability to inpatient rehab programs. Regional context and availability of all rehabilitation services should be considered when interpreting this indicator.

Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

Indicator 4.1.2: Standardized Rate of Access to Post-Acute Inpatient Rehabilitation, FY 2020/21 Q1-Q2 – Hospital Level

Indicator Description:

Proportion of stroke patients discharged alive from acute care who went into inpatient (IP) rehabilitation. The indicator is standardized for stroke type and AlphaFIM® instrument (AlphaFIM®) score which provides insight into the stroke severity (level of functional status and disability).

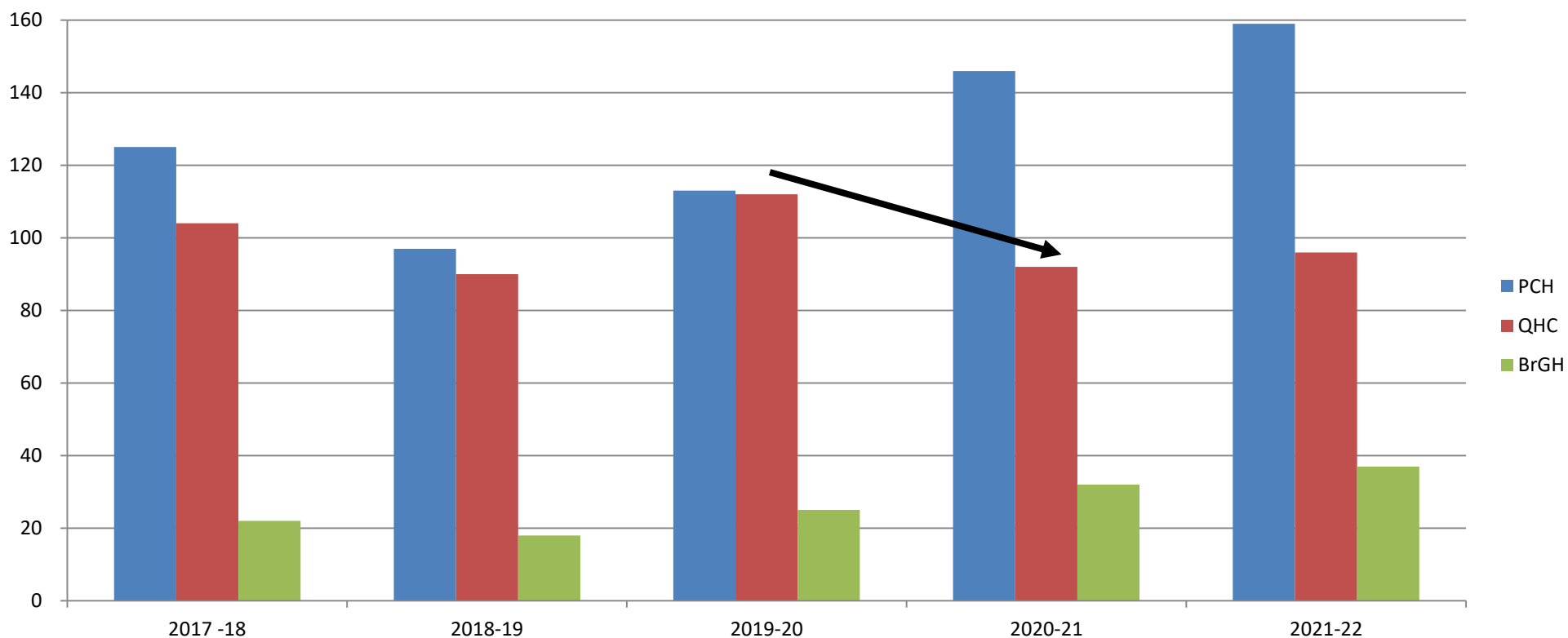


Interpretation Considerations:

This indicator is reported by index (first) acute hospital i.e., if a patient is transferred from hospital A to hospital B, and is subsequently discharged to inpatient rehabilitation, that patient is attributed to hospital A. Across these acute hospitals there is high variability of access to inpatient rehabilitation beds for stroke patients. To optimize access to inpatient stroke rehabilitation care, all hospitals should continue to work with their system partners to ensure services, capacity, resources and pathways are adequate to meet patients’ needs across all rehabilitation settings. Refer to [Appendix B](#) for hospital abbreviations.

Regional Stroke Dashboard: Stroke Rehab Volumes to 2021-22

**CVA Rehab Admissions
(High Intensity)**

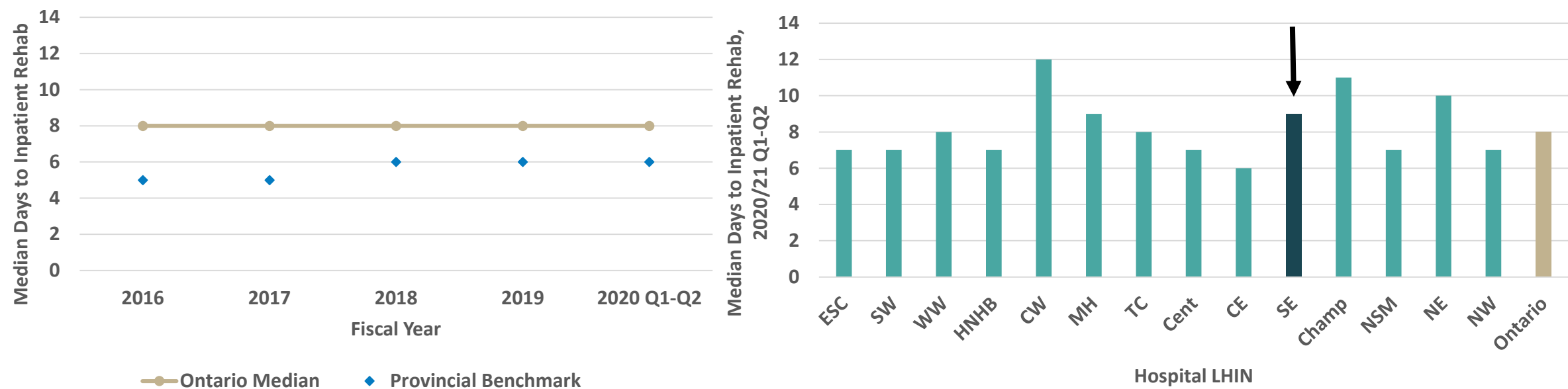


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

Indicator 4.2.1: Median Days to First Post-Acute Inpatient Rehabilitation, FY 2020/21 Q1-Q2

Indicator Description:

Median time (days) from acute admission to post-acute inpatient rehabilitation admission. Metric includes stroke patients that were admitted to inpatient rehabilitation within one calendar day following discharge from acute care.



Interpretation Considerations:

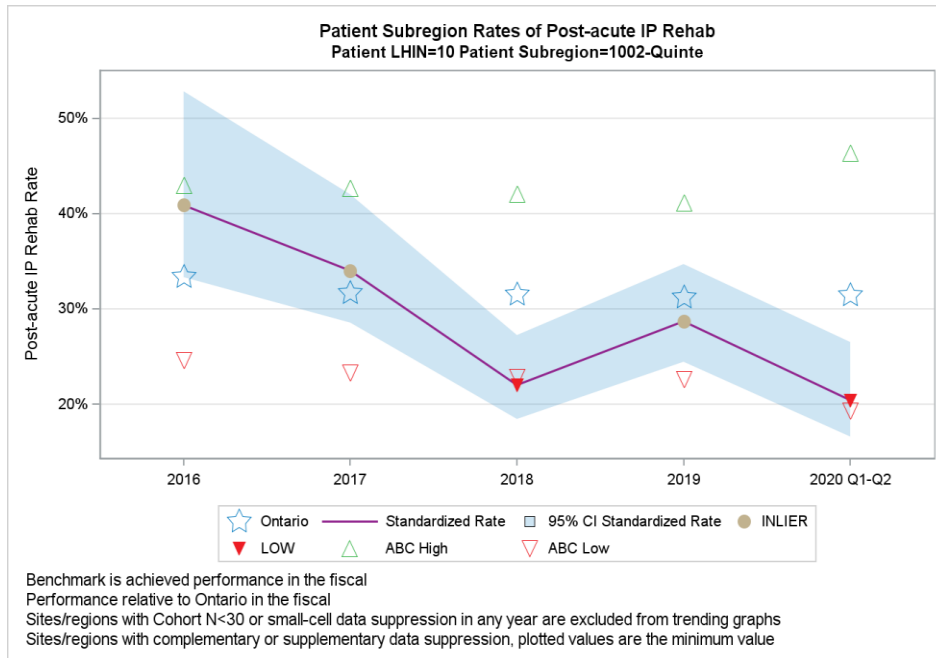
Best practice recommends that ischemic stroke patients should access inpatient rehabilitation by day 6 of acute admission, and hemorrhagic stroke patients should access inpatient rehabilitation by day 8 of their acute admission.⁵ Provincially, median days to inpatient rehabilitation was 8 days for the entire reporting period, and the early stages of the pandemic did not delay access to inpatient rehabilitation. There is regional variability which may reflect various factors e.g., inpatient and community-based rehabilitation capacity, referral processes, stroke type and medical complexities.

Quinte Stroke Report

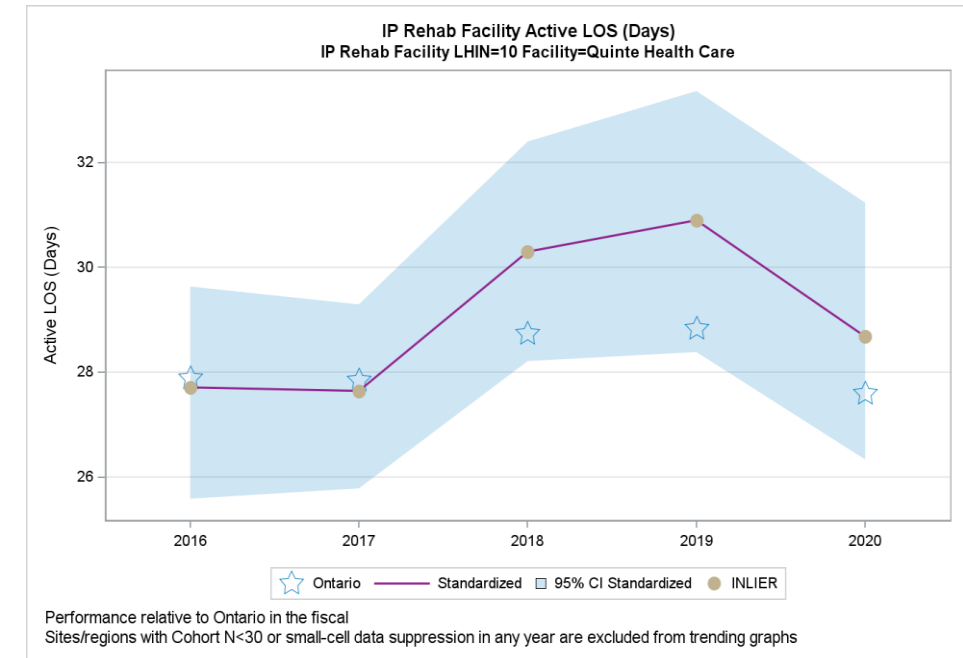
Access to Inpatient Rehabilitation

Fiscal Year	Facility LHIN Cluster	Facility LHIN	Hospital Name	Significance of Difference from Provincial Reference Rate	Cohort N	Median Days to IP Rehab in Fiscal	Lower 95% CI of Median Days to IP Rehab
2016	East	10 - South East	Quinte Healthcare Corporation - Belleville	LOW	65	5.0	4.0
2017	East	10 - South East	Quinte Healthcare Corporation - Belleville	LOW	78	4.0	3.0
2018	East	10 - South East	Quinte Healthcare Corporation - Belleville	LOW	61	5.0	4.0
2019	East	10 - South East	Quinte Healthcare Corporation - Belleville	INLIER	73	7.0	5.0
2020 Q1-Q2	East	10 - South East	Quinte Healthcare Corporation - Belleville		26	6.5	5.0

Days waiting for Inpatient Rehab increased from 2017-18 to 2019-20; Still higher than previous years

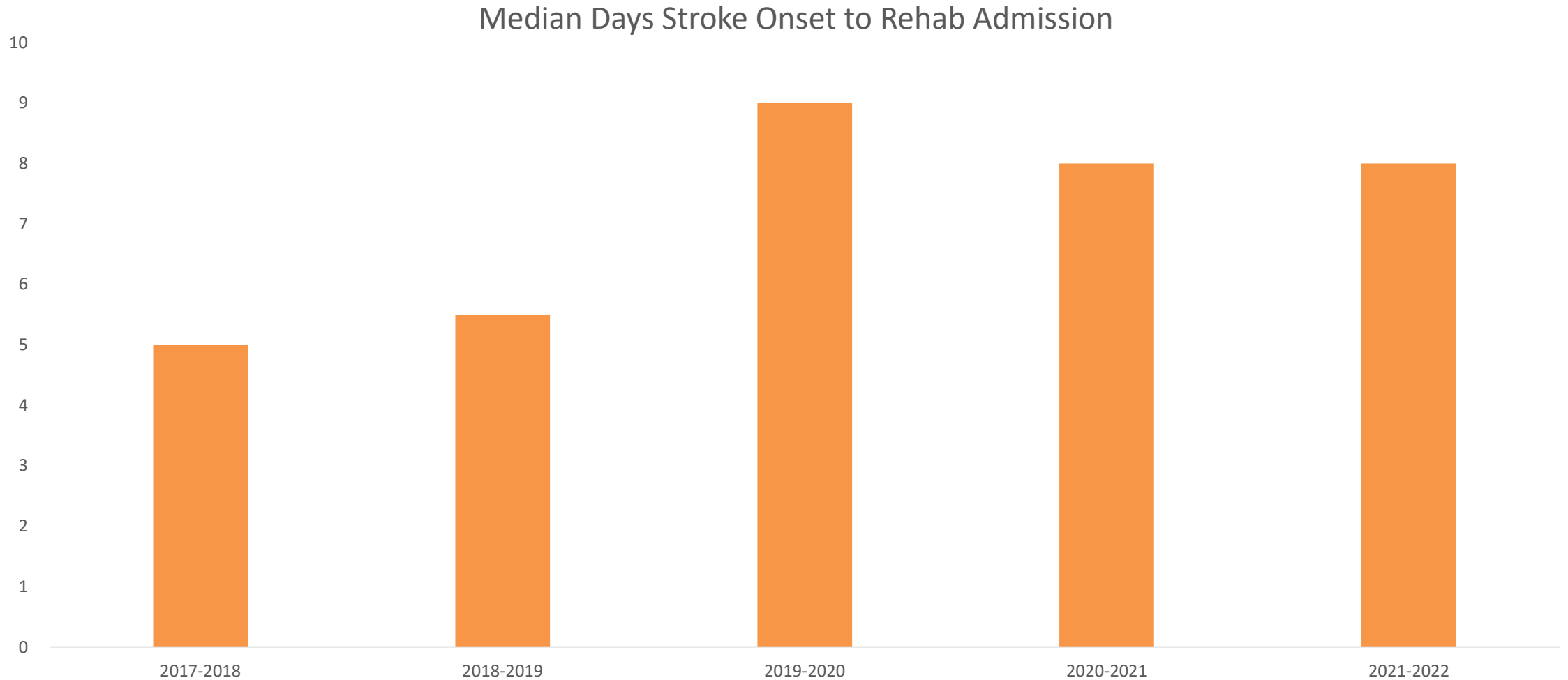


Access to Inpatient rehab decreasing in Quinte



Regional Stroke Dashboard: QHC

Time from Onset to Rehab Admission

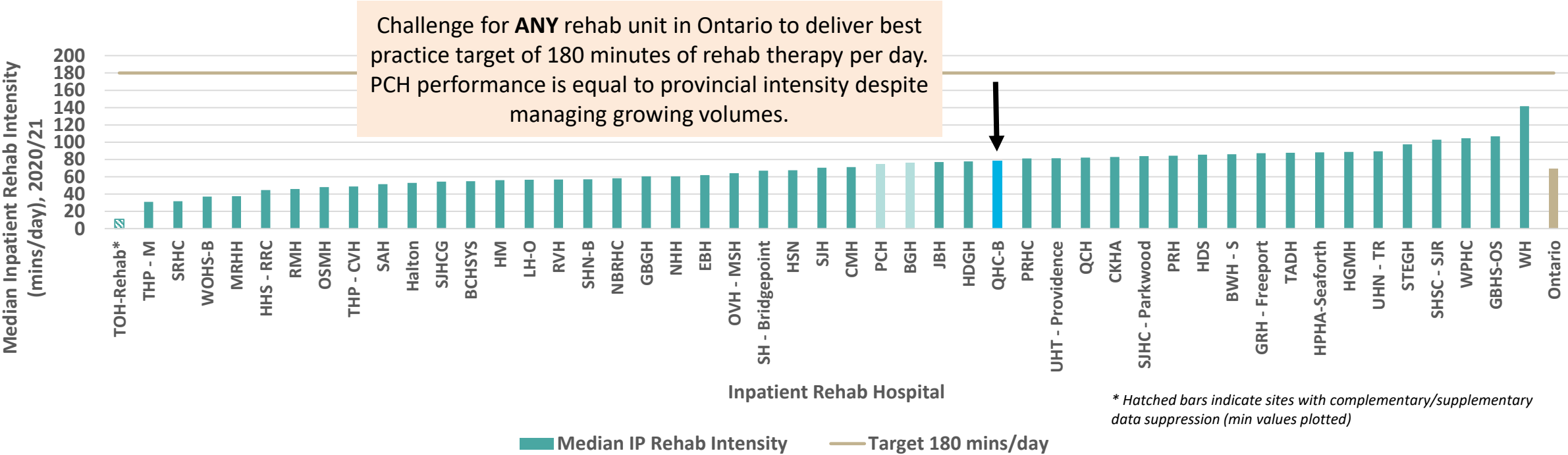


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

Indicator 4.5: Median Minutes per Day of Direct Inpatient Rehabilitation Therapy, FY 2020/21 – *Hospital Level Rehab Intensity*

Indicator Description:

This indicator measures number of minutes per day of direct therapy (OT, PT, SLP) received by stroke patients during their active inpatient rehab stay. Target is 180 minutes/day⁵



Interpretation Considerations:

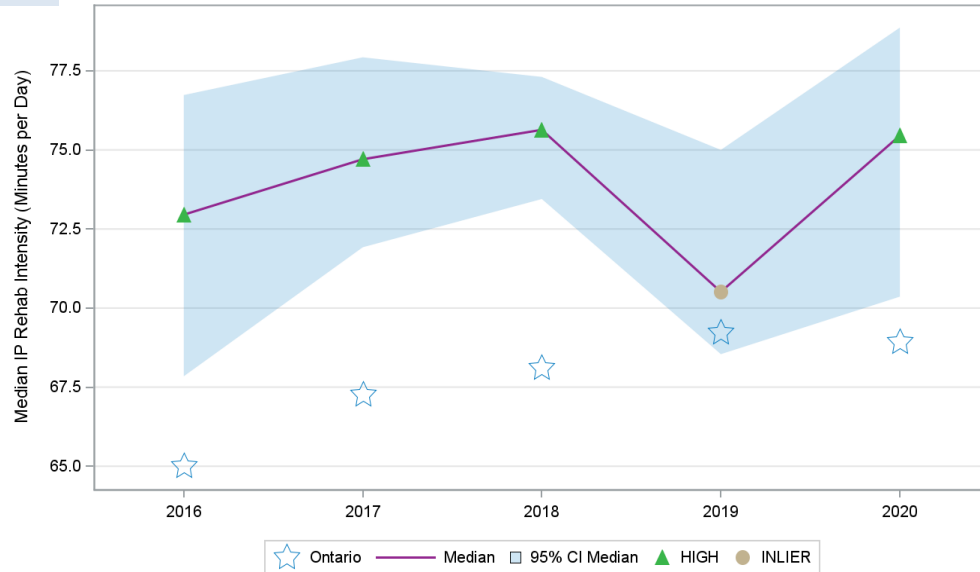
Desired directionality is high. There is wide variation in hospital performance in 2020 from 10.9 minutes per day for TOH-Rehab to 141.7 minutes per day for WH. All inpatient rehabilitation hospitals are below the target of 180 minutes per day of direct inpatient rehabilitation therapy.⁵ Factors influencing rehabilitation time require further investigation. This metric excludes group therapy, and any rehabilitation assistant time that accounts for more than 33% of the total rehabilitation time. Refer to [Appendix B](#) for hospital abbreviations.

Quinte Stroke Report Rehabilitation Intensity

Southeast region above ON expected rate
For median minutes of daily Inpatient Rehab

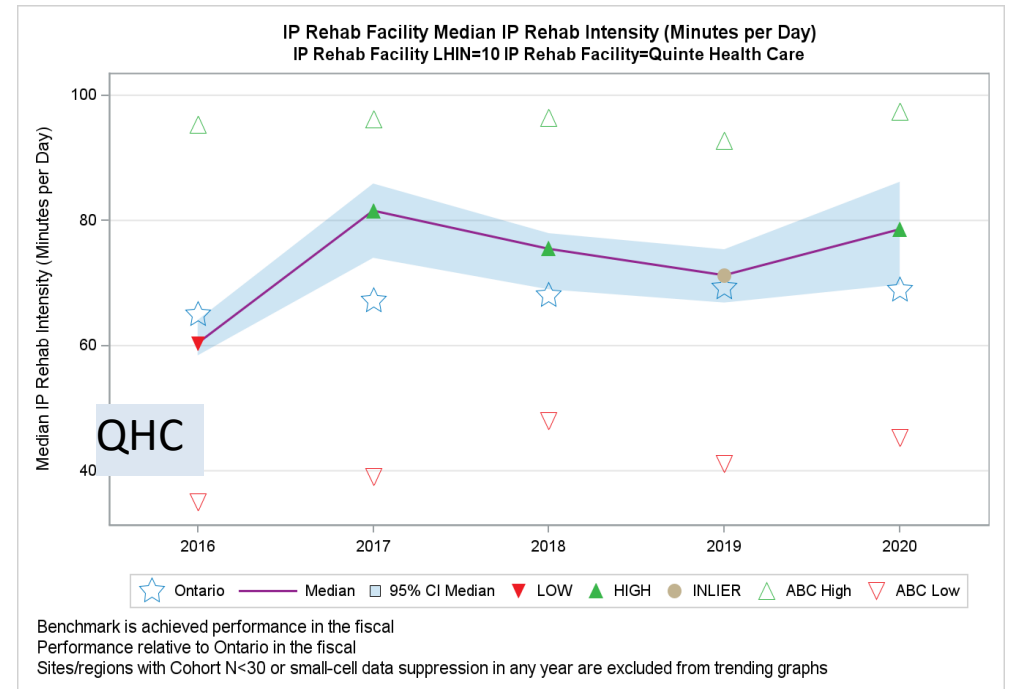
SE

Facility LHIN Median IP Rehab Intensity (Minutes per Day)
IP Rehab Facility LHIN=10 - South East



Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs

QHC above ON expected rate
For median minutes of daily Inpatient Rehab

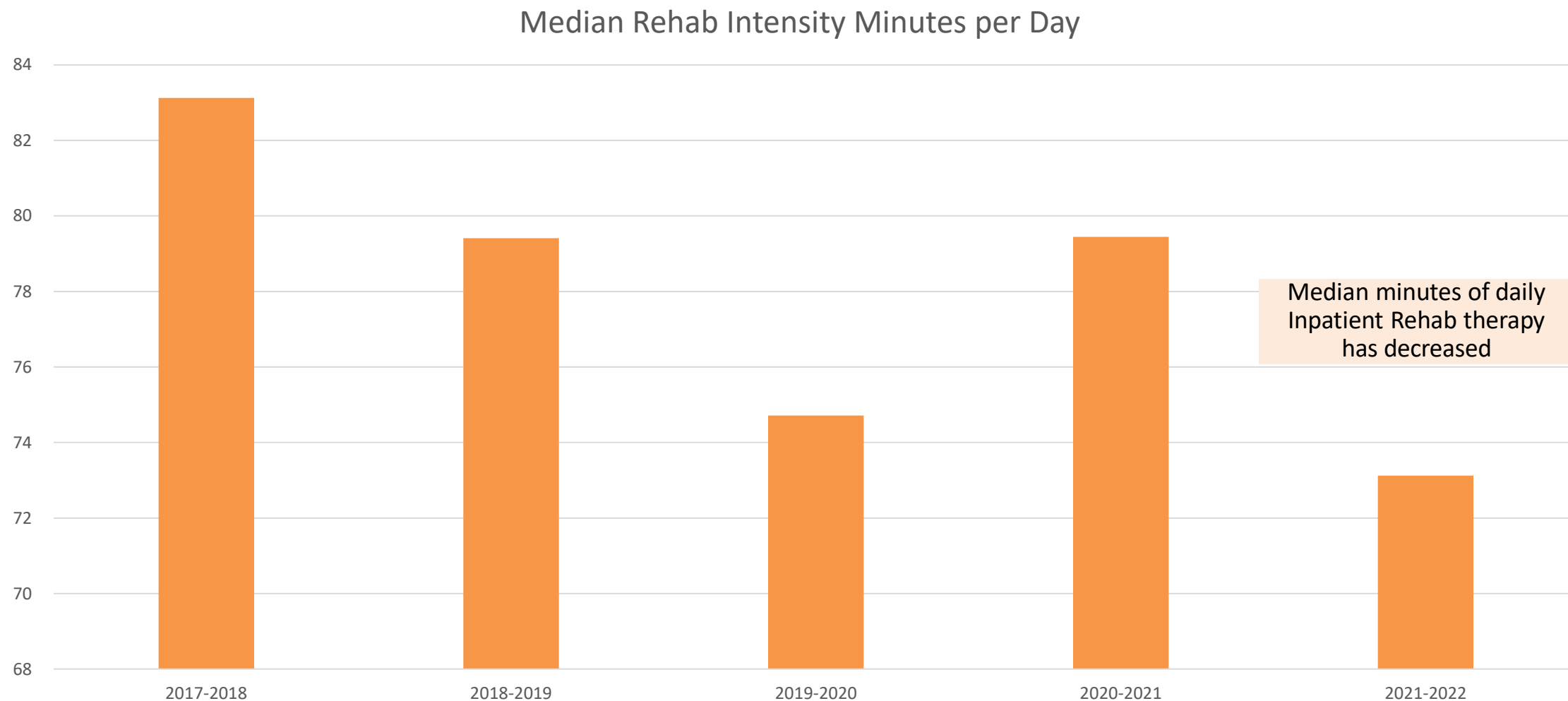


Benchmark is achieved performance in the fiscal
Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs

NOTE:

Median minutes of daily Inpatient Rehab therapy
best practice target = 180 minutes per day
no ON hospital meeting target

Regional Stroke Dashboard: QHC Rehabilitation Intensity



Acute and Rehab Stroke Discussion “ONE TEAM”

- **Accomplishments**

- Sustained Integrated Stroke Unit care and Stroke Unit utilization Rate
- Application for Accreditation Canada Stroke Distinction Program

- **Ongoing**

- Building stroke expertise and interprofessional care processes
- Building interprofessional patient education processes
- Maximizing Inpatient Rehab Intensity: use of Rehab Assistants, scheduling
- Enhancing transitions to the community setting

- **FUTURE:**

- Warm hand-offs to community-increase discharge meetings and more efficient modes of information transfer
- Reduce acute to rehab transition time with new Hospitalist/PA model on S3

Refer to [SEO Regional Stroke Best Practice Workplan 2021-23](#)



Community Stroke Data

Community Rehab
Community Supports

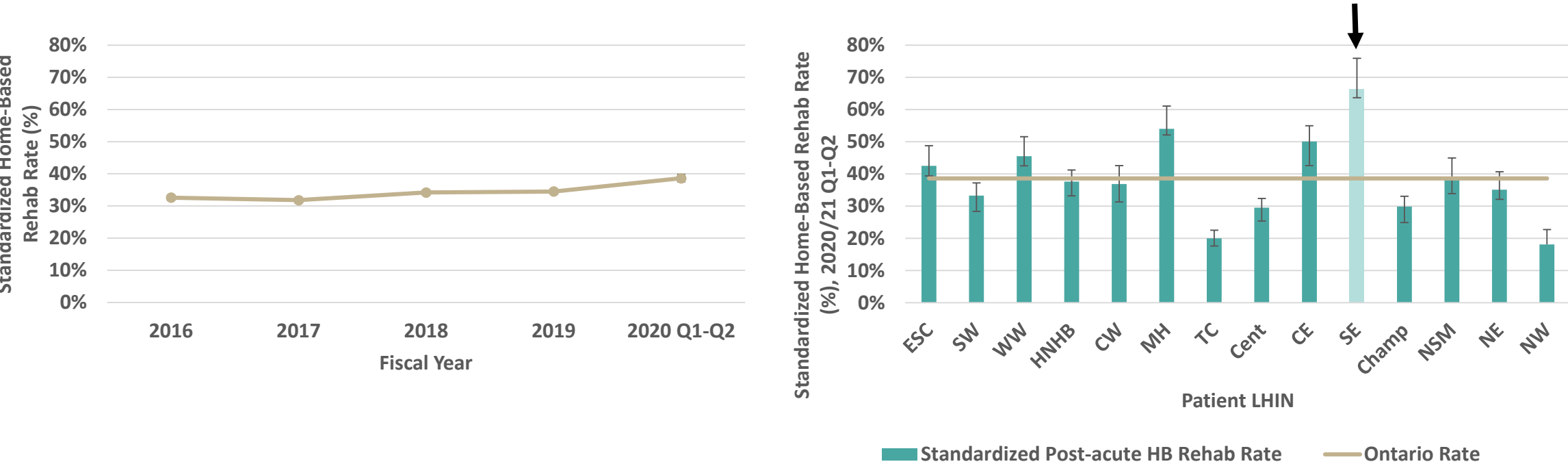


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

Indicator 4.1.3: Standardized Rate of Access to Post-Acute Home-Based Rehabilitation, FY 2020/21 Q1-Q2

Indicator Description:

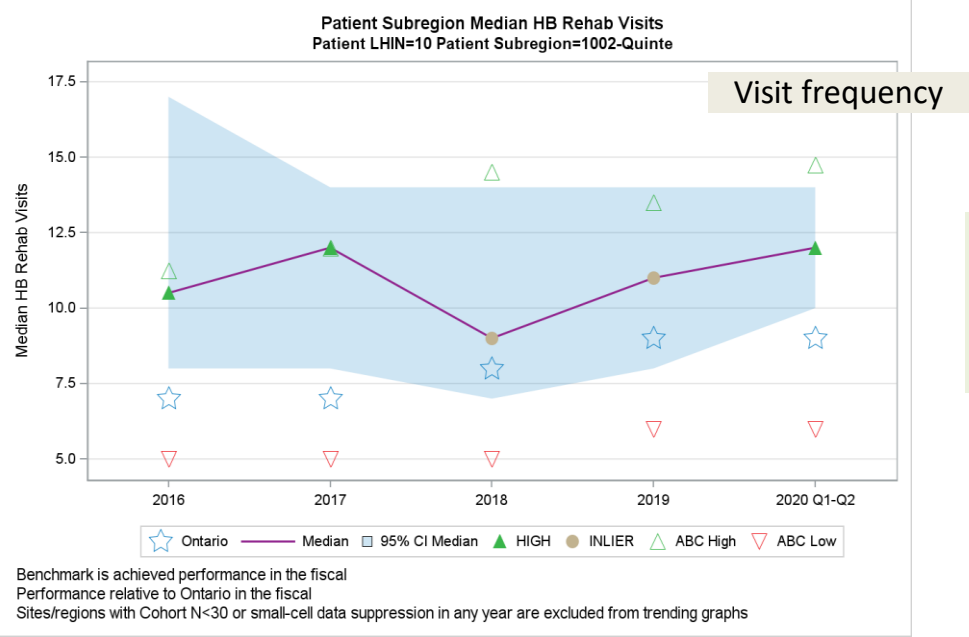
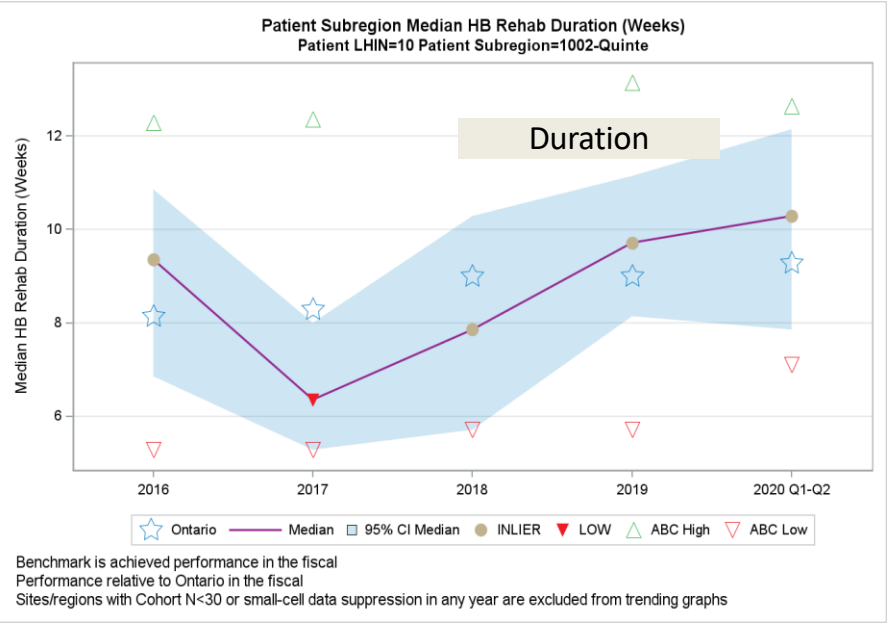
Proportion of stroke patients discharged alive from acute care who received at least 3 home-based rehabilitation visits. The indicator is standardized for stroke type and AlphaFIM® instrument (AlphaFIM®) score which provides insight into the stroke severity (level of functional status and disability).



Interpretation Considerations:

Provincial access to home-based rehabilitation increased from 33% in 2016 to 39% in 2020 Q1-Q2. Access to home-based rehabilitation increased in the first two quarters of the pandemic, and this is likely associated with the pandemic related outpatient rehabilitation closures.¹¹ When data are available for the last two quarters of 2020, it will be interesting to see if this increase is sustained. There is variability within the LHINs which may reflect availability of both inpatient and outpatient rehabilitation services; however, there is no standardized provincial system to capture outpatient rehabilitation data. Furthermore, home-based rehabilitation provided by hospitals, are not captured in the HCD (homecare database). For a listing of in-home Community Stroke Rehabilitation Programs across Ontario, see [Appendix E](#).

Quinte Stroke Report Home-based Rehabilitation



Quinte area
access to IP
rehab higher
than ON rate

Quinte Sub-region

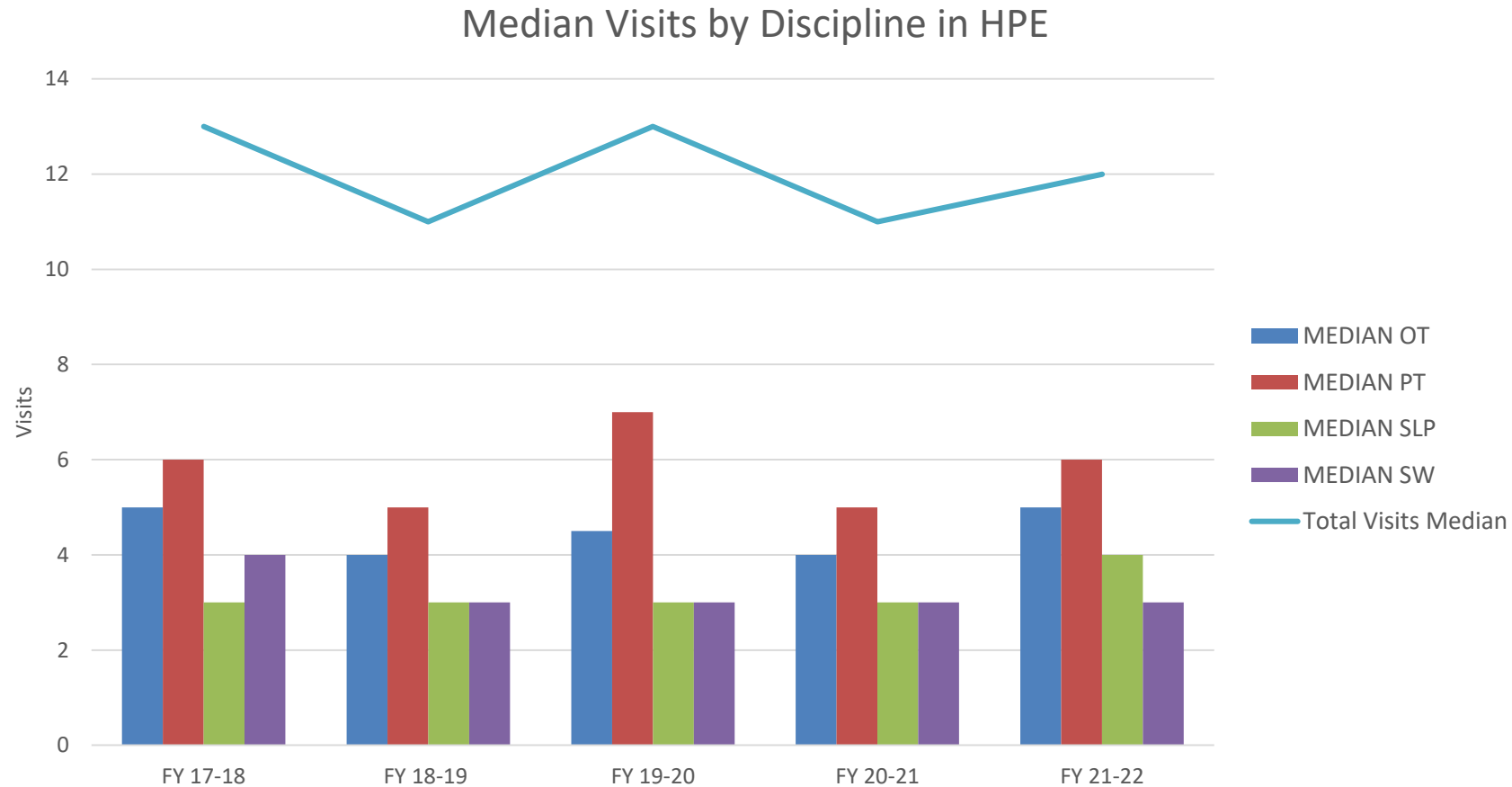
Quinte Sub-region

Fiscal Year	Patient LHIN Cluster	Patient LHIN	Patient Subregion	Significance of Difference from Provincial Reference Rate	Cohort N	Median HB Rehab Visits in Fiscal	Lower 95% CI of Median HB Rehab Visits
2016	East	10 - South East	1001-Rural Hastings	HIGH	30	11.5	10.0
2017	East	10 - South East	1001-Rural Hastings		27	8.0	5.0
2018	East	10 - South East	1001-Rural Hastings	HIGH	34	11.5	10.0
2019	East	10 - South East	1001-Rural Hastings	HIGH	35	14.0	10.0
2020 Q1-Q2	East	10 - South East	1001-Rural Hastings		9	10.0	4.0

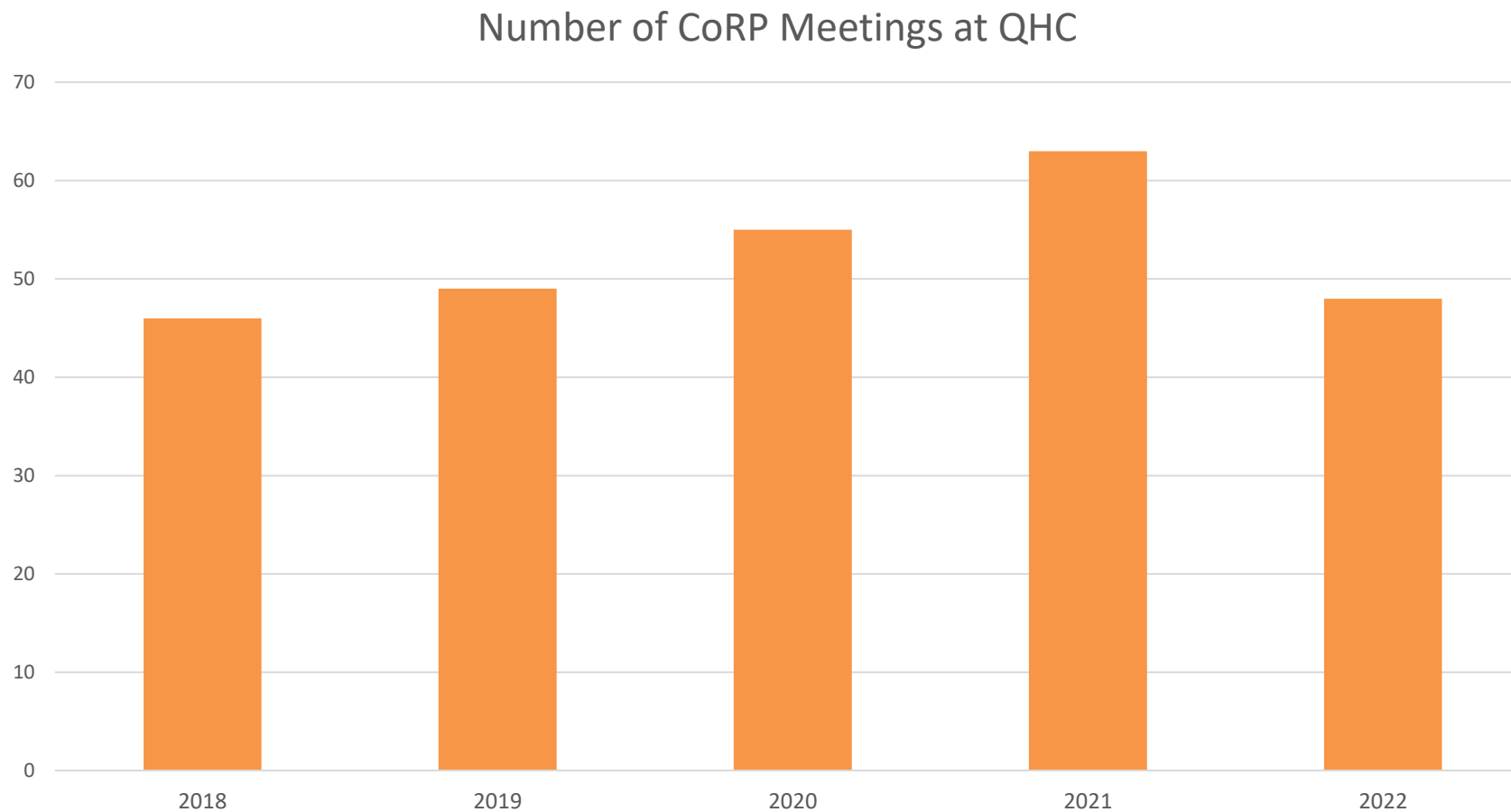
Decreased
home rehab
visit frequency
for the Rural
Hastings area
but N low

Regional Stroke Dashboard: Community Stroke Rehabilitation

Median Visit Intensity per Patient – 2021-22

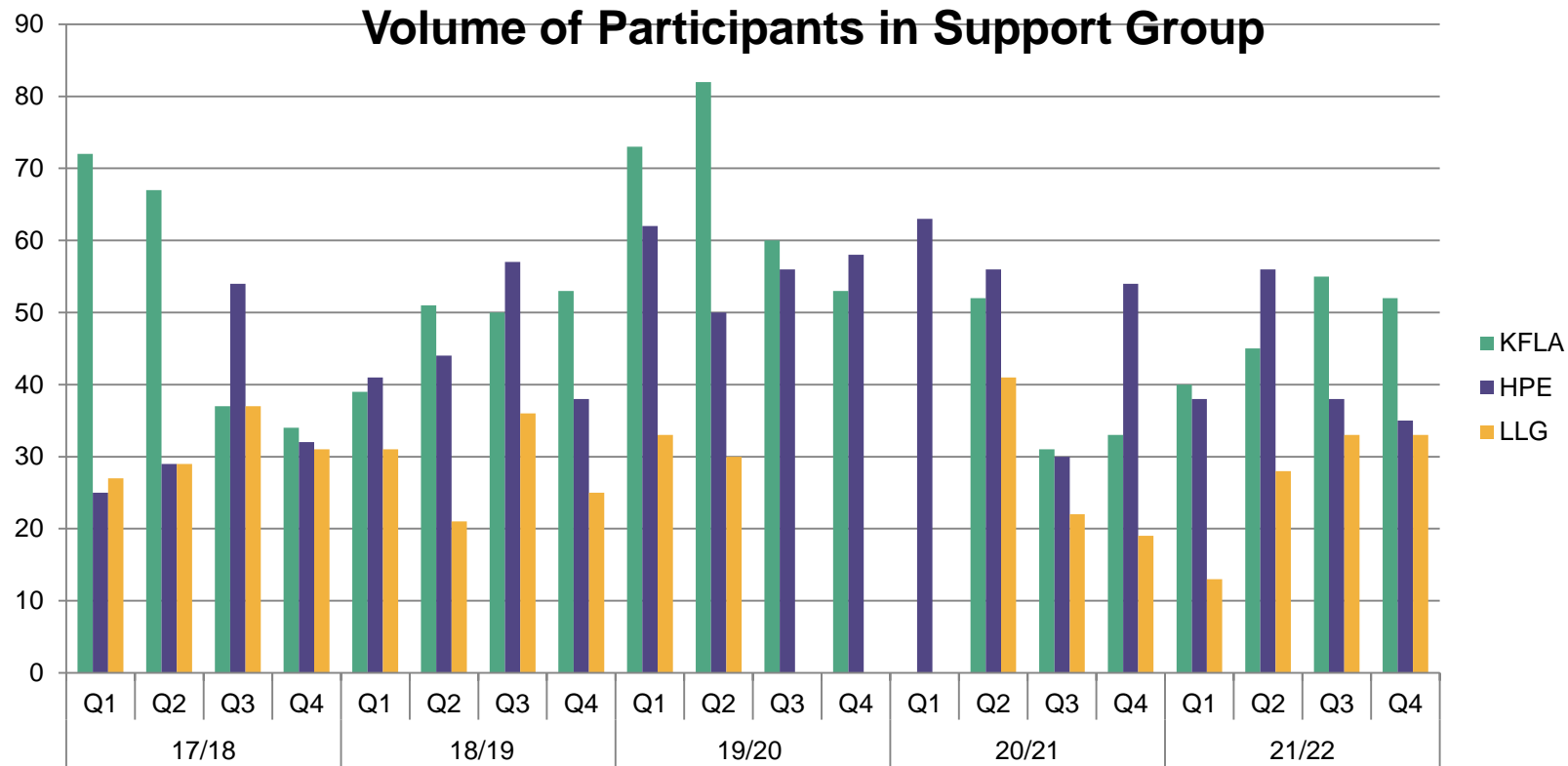


Regional Stroke Dashboard: Number of Community Rehab Planning Meetings– 2021-22



Regional Stroke Dashboard

Community Stroke Support Group Participation

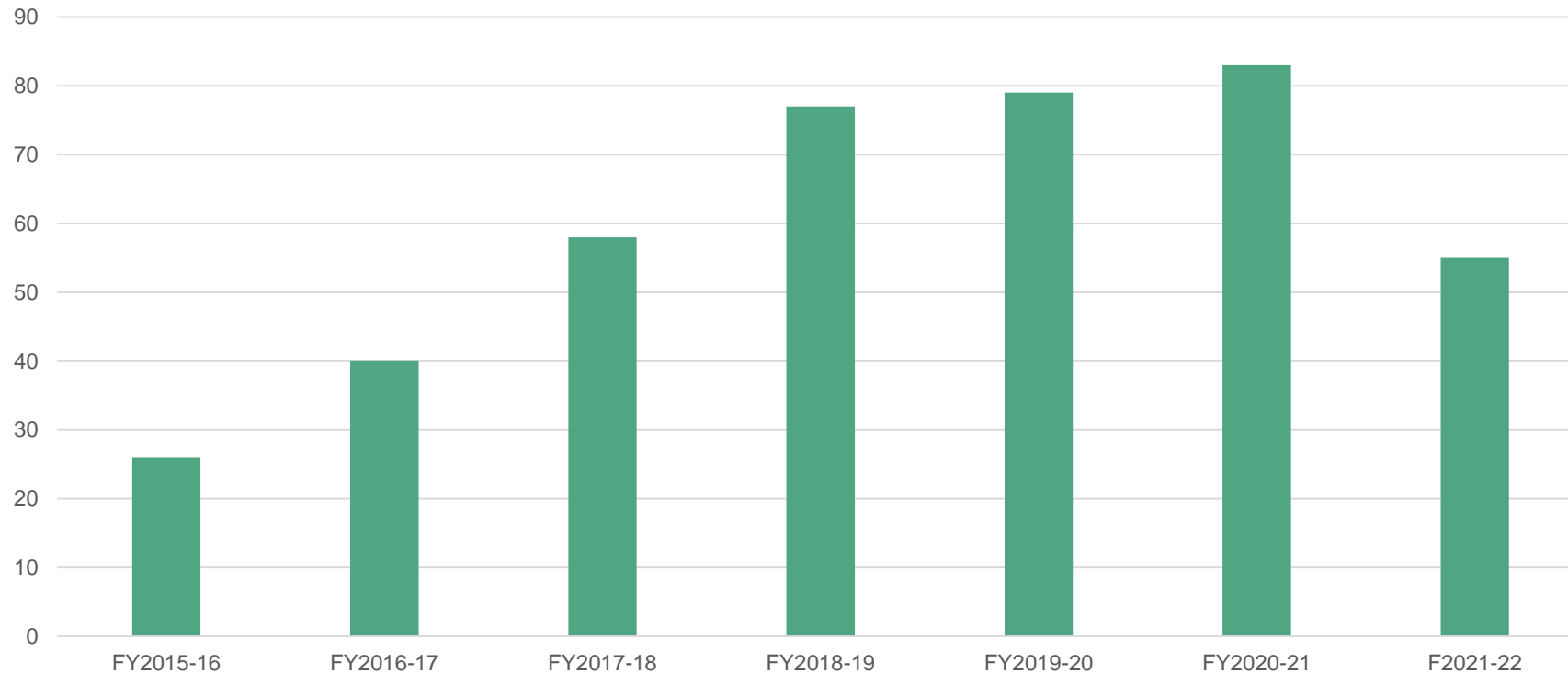


Hospital Community Collaboration can contribute to improved referral rates and participation; virtual connections can strengthen transitions.

Regional Stroke Dashboard

Community Stroke Support Group Participation

Annual Participation in Stroke Support Services for HPE



Hospital Community Collaboration can contribute to improved referral rates and participation; virtual connections can strengthen transitions.



Community Stroke Discussion

- **Accomplishments**

- Largely, sustained Community Stroke Rehab Program despite COVID
- Enhanced Stroke Survivor Support Groups with virtual models and connections
- Growth of Aphasia Conversation Groups region-wide

- **Ongoing**

- Sustaining Rehab Day Hospital
- Maximizing Home-based Community Stroke Rehab Capacity
 - Rehabilitation Assistants; expertise
 - Sustaining and building best practices in CSRP
- Community Supports: Consultation 2022-23

- **FUTURE:**

- Growth in capacity for community rehabilitation
- Grow hospital to community connections
- Community Supports: Consultation Report and Recommendations 2023-24

Refer to [SEO Regional Stroke Best Practice Workplan 2021-23](#)



SE Region EVALUATION SUMMARY

- All measures improved this report over last- CONGRATS!
- Strengths to sustain!!
 - Stroke Prevention Clinic referral rates
 - Ambulance use and Hyperacute treatment access
 - Care in Designated/Acute Stroke Unit
 - Community Home-based Rehab and links to community services
 - Stable outcomes – mortality, readmission, rate of LTC admission
- Challenges – improving; need continued emphasis on ONE TEAM
 - Stroke Prevention (admission rates/volumes; anticoagulation - rural areas)
 - Flow to rehab (stroke onset to rehab admission)
 - Access to designated rehab beds
 - Persisting ALC rates
- Known system gaps
 - No outpatient rehab in Kingston and Brockville; no data
 - Delayed access to thrombolysis in LLG
 - Health Human Resources

QUINTE STROKE EVALUATION SUMMARY



www.strokenetworkseo.ca