

Ontario Stroke Report

FY 2020-21

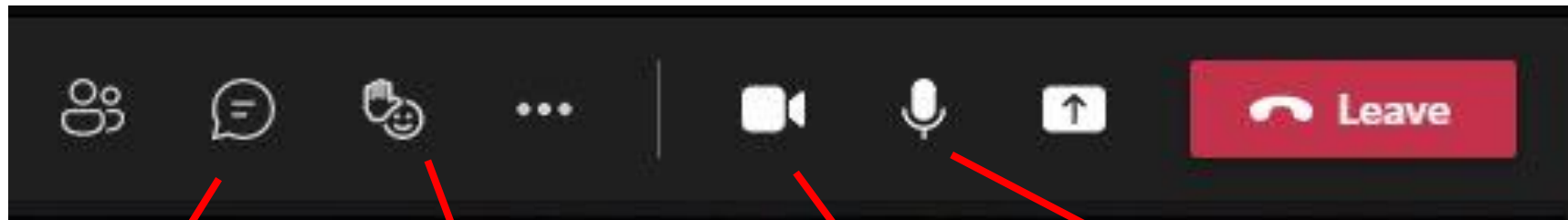
LLG area – Local Performance Indicators
Examples of strengths and areas for improvement

RELEASE DATE: JUNE 2022



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MS Teams reminders



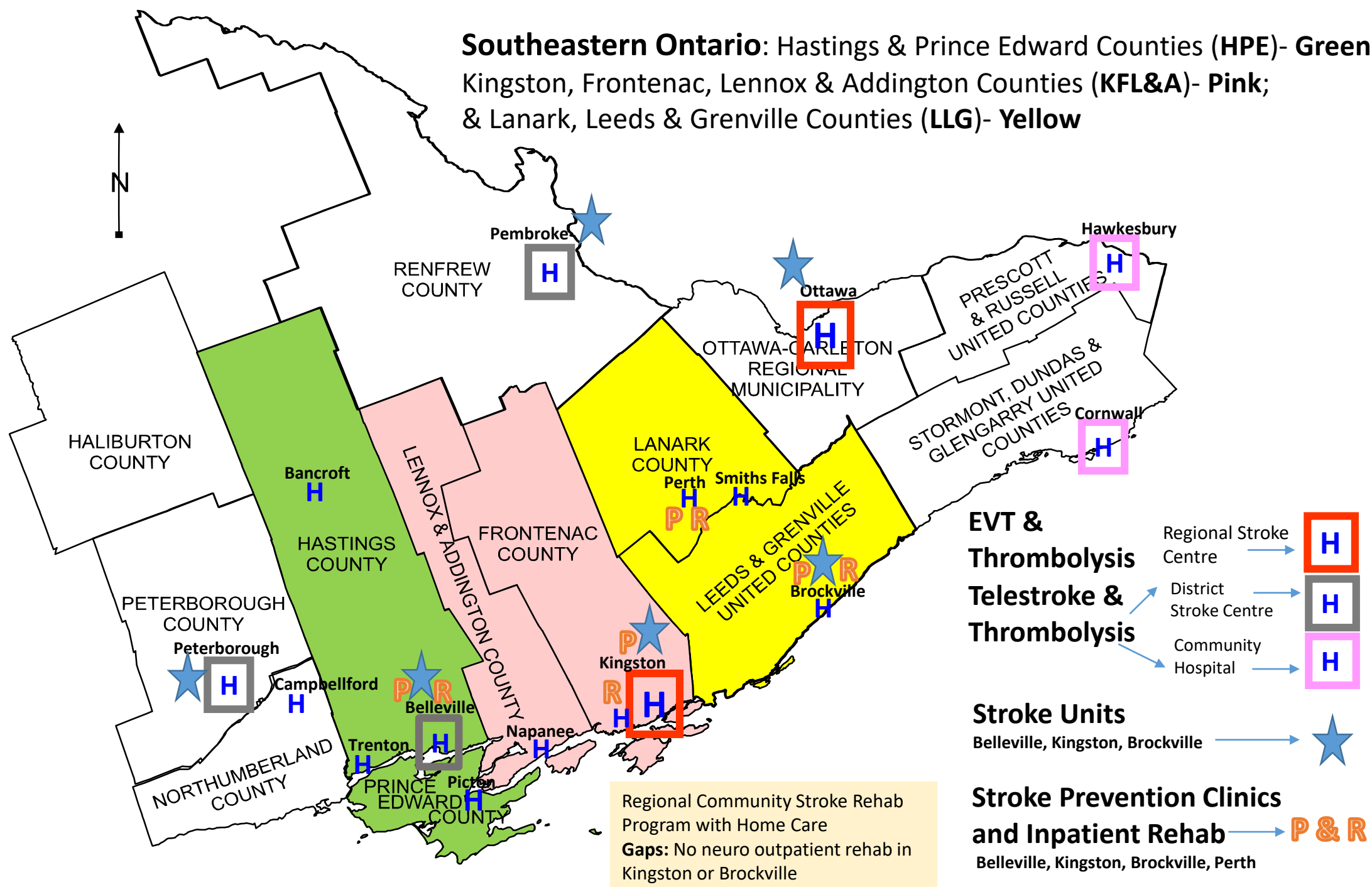
This will open the Chat box: you may enter questions or comments here, and they will be relayed to the moderator as appropriate.

Click here to access the 'Raise Hand' feature if you wish to speak during the meeting.

This button will turn your camera on/off

Microphone: Please remember to mute your mic when not speaking

Southeastern Ontario: Hastings & Prince Edward Counties (HPE)- **Green**;
Kingston, Frontenac, Lennox & Addington Counties (KFL&A)- **Pink**;
& Lanark, Leeds & Grenville Counties (LLG)- **Yellow**



Meeting Objectives

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

Stroke Data Introduction

Ontario Stroke Report FY 2020-21

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STROKE NETWORK of Southeastern Ontario		Regional Stroke Dashboard - Fiscal 2021-22 Q3																																									
Updated May 16 2022																																											
		HPE						KFLA						LLG																													
		QHC	QHC	QHC	QHC	QHC	QHC	KGH	KGH	KGH	KHSC	KHSC	KGH	BGH	BGH	BGH	BGH	BGH	BGH	PSP	PSP	PSP	PSP	PSP	PSP	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22												
Indicator	Indicator Definition	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22	F2018-19	F2019-20	F2020-21	Q1 21-22	Q2 21-22	Q3 21-22												
Hypertension	Volume		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 (Data Unavailable) Time - significantly exceeds ED for admitted patients, requires	7	07.36	06.36	06.42	06.30	09.54	08.52	08.02	06.32	07.14	08.59	16.21	04.37	04.20	04.23	04.47	05.05	04.54	03.26	03.39	03.45	04.02	03.30	03.48																		
	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%	59.6%	64.3%	78.9%																		
	IPA: Median Door-to-Needle Time for IV tPA	30 min	54	46	34	35	37	43	25.5	28	27	25	24	35	IPA for LLG is delivered by KHSC *Imaging occurs at KHSC for BGH transfers																												
Acute Stroke Unit (ASU)	IPA: Proportion of ischemic stroke patients arriving who received IV tPA (%)	17.2%	20.5%	26.9%	14.3%	15.5%	16.3%	23.9%	24.0%	20.9%	14.4%	21.3%	11.7%	IPA for LLG is delivered by KHSC *Imaging occurs at KHSC for BGH transfers																													
	EVT: Volume of patients receiving EVT							30	57	66	21	17	15																														
	Vascular Imaging: Proportion of stroke/TIA patients who receive Brain/Neck CT/A or MRI or Carotid Doppler (mean in ED or after admission to acute care hospital)													N/A																													
	Volume: Volume of stroke/TIA patients admitted to acute care hospital (number)	422	424	442	123	124	111	553	644	648	152	172	177	173	168	142	37	38	42	N/A																							
	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	N/A																							
Prevention	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%	Acute Stroke Unit provided in Brockville effective May 2016																							
	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%	N/A																							
	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%	14.6%	11.3%	12.8%	13.0%	5.8%	5.4%	2.6%	0.0%	2.6%	2.4%	N/A																							
	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%	6.5%	16.2%	18.2%	23.1%	29.3%	N/A																							
	Discharge: Proportion of stroke patients discharged alive to each discharge disposition: home or to a sub-acute setting (%)	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%	N/A																							
Prevention	Vascular Imaging: Proportion of stroke/TIA patients who receive Brain/Neck CT/A or MRI or Carotid Doppler (mean in ED or after admission to acute care hospital)													N/A																													
	Referral from ED: Proportion of stroke/TIA patients discharged from ED who receive a referral 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: 67% Perth SF: 60%	70.4% SF: 60%																					
	Volume: Number of New Patients	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	3.8	5.1	5.3	5.5	7.2	5.8	1.4	1.4	2.8	2.8	3.4	5.9																	
	<div><div></div><div>Green circles - noticeable change in positive direction</div></div> <div><div></div><div>Orange circles - noticeable change requiring attention</div></div>		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 LAAI, LLG: 3 Other: 1 Q3 2021-22: Total Volume 17 By geography: HPE: 5, KFLA 6 (0 LAAI), LLG: 4 Other: 2 Q1 2021-22: Total Volume 21 By geography: HPE: 4, KFLA: 10/LAAI, LLG: 7 FY 2020-21: Total Volume 66 By geography: HPE: 24, KFLA: 27 (8 LAAI), 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%)

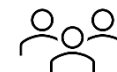
of ischemic stroke patients received hyperacute therapy

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 – LL&G-BrGH 2020/21



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

STROKE IS A MEDICAL EMERGENCY



LL&G: 68.8%↑ (ON 66.2%)

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

BrGH: 82.4%↑ of patients (ON 81.4%) were referred to secondary prevention services after discharge from the emergency department*

TIME IS BRAIN



LL&G: 23.1%↓ (ON 14.1%)

of ischemic stroke patients received hyperacute therapy

By Sub-region: LL&G – 16.5% tPA (ON 10.5%) (tissue plasminogen activator) (Target: >12%)

N/A minutes median door-to-needle time (Target: <30 minutes) – **28 min** at KHSC (ON 44.0)

LL&G: 9.5% 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

BrGH: 65.1%↓ of stroke patients (ON 56.1%) treated on a stroke unit (Target: >75%)

By Sub-region: LL&G – 65.4% ↓

SECONDARY PREVENTION OF STROKE OCCURS ACROSS THE CARE CONTINUUM

REHABILITATION OPTIMIZES RECOVERY



LL&G: 21.6%↑** (ON 31.4%)

BrGH: 17.6%↑**

of patients accessed inpatient rehabilitation

BrGH: 76 minutes↓ per day of (ON 68.9) inpatient therapy was received per patient (Target: 180 minutes)

STROKE JOURNEY CONTINUES AFTER DISCHARGE



BrGH: 60.6 days **↔ (ON 56.4)

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

By Sub-region: **LL&G: 67.5%**↑** received home-based rehabilitation*

LL&G: 10%↓** median number of (ON 9.0) home rehab visits

BrGH: 68.8%-93.8%↑ of patients aged (ON 74.9%) 65 and older with atrial fibrillation

filled a prescription for anticoagulant therapy within 90 days of acute care discharge*

By Sub-region: LL&G – 62.9%-74.3%

PATIENT OUTCOMES

BrGH: 5.3%↓ of stroke/TIA patients were readmitted within 30 days (ON 6.6%)

BrGH: 5.1%↑ of stroke/TIA patients died within 30 days (ON 12.1%)

By Sub-region: LL&G – 8.3%↓;** **By Site: BrGH: 8.9%↓**** of stroke patients were admitted to long-term care within 1-year post discharge (ON 6.3%)

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



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Stroke Care in South East – LL&G-PSFDH, 2020/21

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



STROKE IS A MEDICAL EMERGENCY



LL&G: 68.8%↑ (ON 66.2%)

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

Smith Falls Site: 70.4%↓ (ON 81.4%)

Perth Site: 60.0%↑ of patients were referred to secondary prevention services after discharge from the emergency department*

TIME IS BRAIN



LL&G: 23.1%↓ (ON 14.1%)

of ischemic stroke patients received hyperacute therapy

By Sub-region: LL&G – 16.5% tPA (ON 10.5%) (tissue plasminogen activator) (Target: >12%)

N/A minutes median door-to-needle time (Target: <30 minutes) – **28 mins at KHSC** (ON 44.0)

LL&G: 9.5% 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

N/A% of stroke patients treated on a stroke unit (Target: >75%) – **65.1%** at **BrGH**↓

By Sub-region: LL&G – 65.4%↓

SECONDARY PREVENTION OF STROKE OCCURS ACROSS THE CARE CONTINUUM

N/a days** (ON 8.0)

Median time from acute admission to inpatient rehabilitation

REHABILITATION OPTIMIZES RECOVERY



LL&G: 21.6%↑** (ON 31.4%)

of patients accessed inpatient rehabilitation

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

STROKE JOURNEY CONTINUES AFTER DISCHARGE



PSFDH: NR days** (ON 56.4)

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

By Sub-region:

LL&G: 67.5%↑** received home-based rehabilitation*

LL&G - 10%↓** median number of visits (ON 9.0)

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

By Sub-region: LL&G - 62.9% - 74.3%↑

PATIENT OUTCOMES

Perth Site: 3.1↑ ; **Smith Falls Site: 23.3%↓** of stroke/TIA patients were readmitted within 30 days (ON 6.6%)

LLG Stroke Unit at BrGH: 5.1%↑ of stroke/TIA patients died within 30 days (ON 12.1%)

By Sub-region: LL&G – 8.3%↓** 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

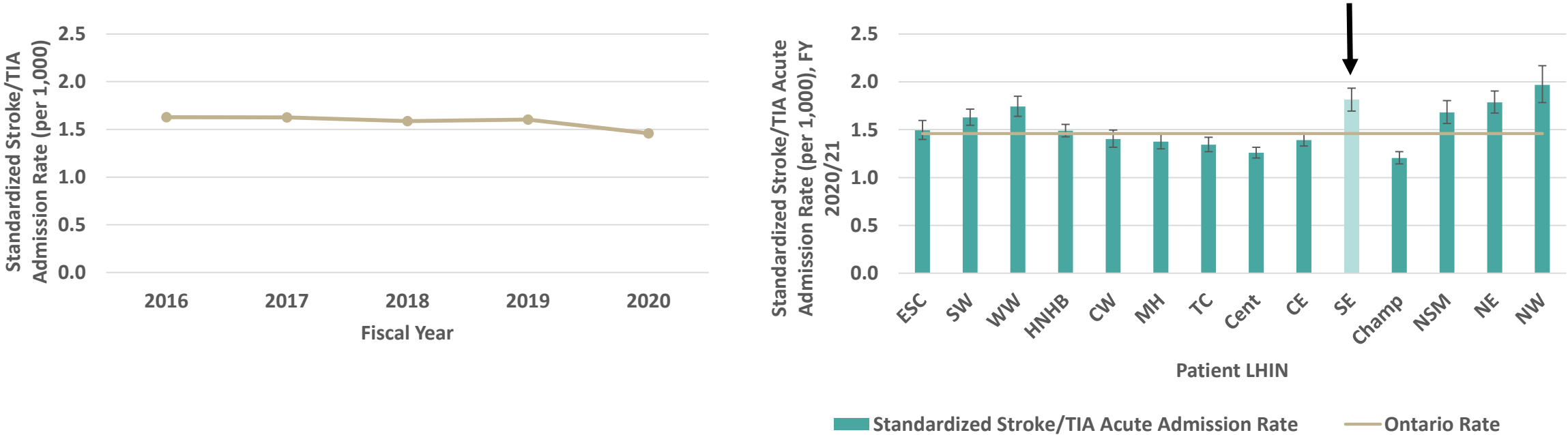


Chapter 1: Prevention and Public Awareness of Stroke and TIA in Ontario

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:

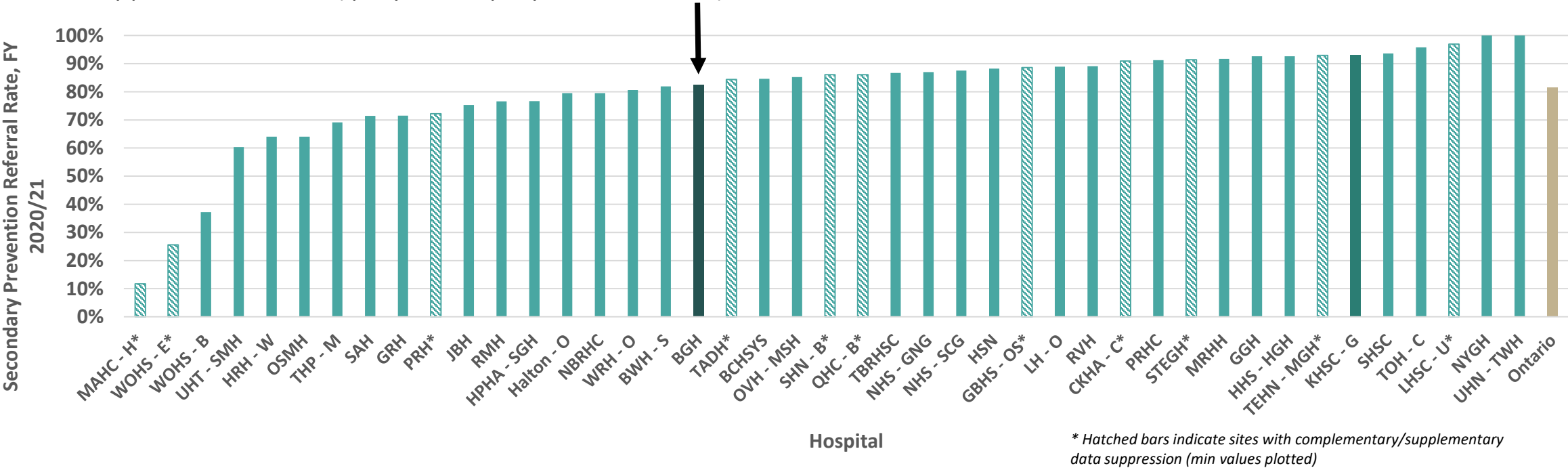
Desired directionality is lower. There was very little movement in the Ontario rate between fiscal years 2016 to 2019, however in fiscal year 2020, there was a noticeable decrease. During the early stages in the pandemic, the number of ED visits for stroke decreased⁴, which may account for some of the 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).



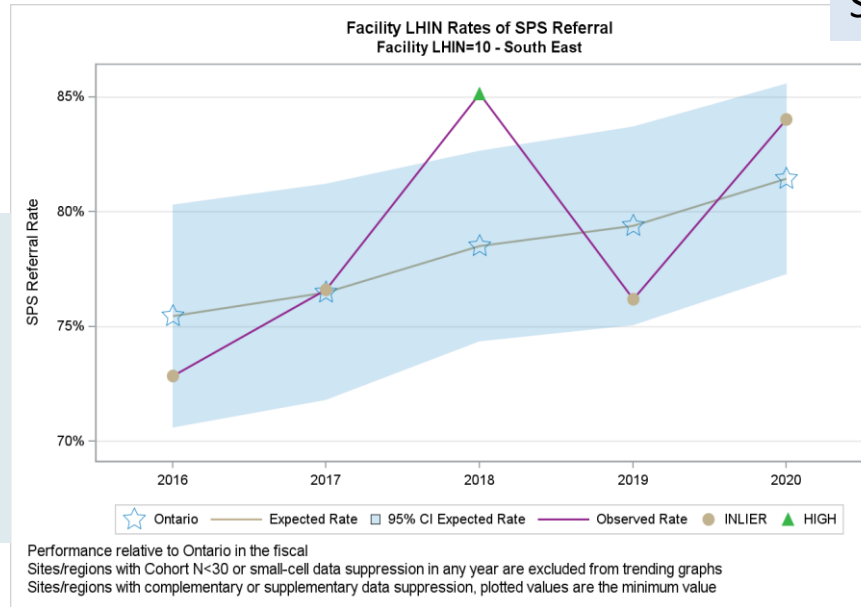
Interpretation Consideration:

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 FY 2020-21

BrGH Rate ↑
to 82.4% vs
previous year
79.0%

PSFDH Smiths Falls site:
70.4% vs
Previous year: 73%
Perth site: 60.0%
Previous year: NR: 6-
29%

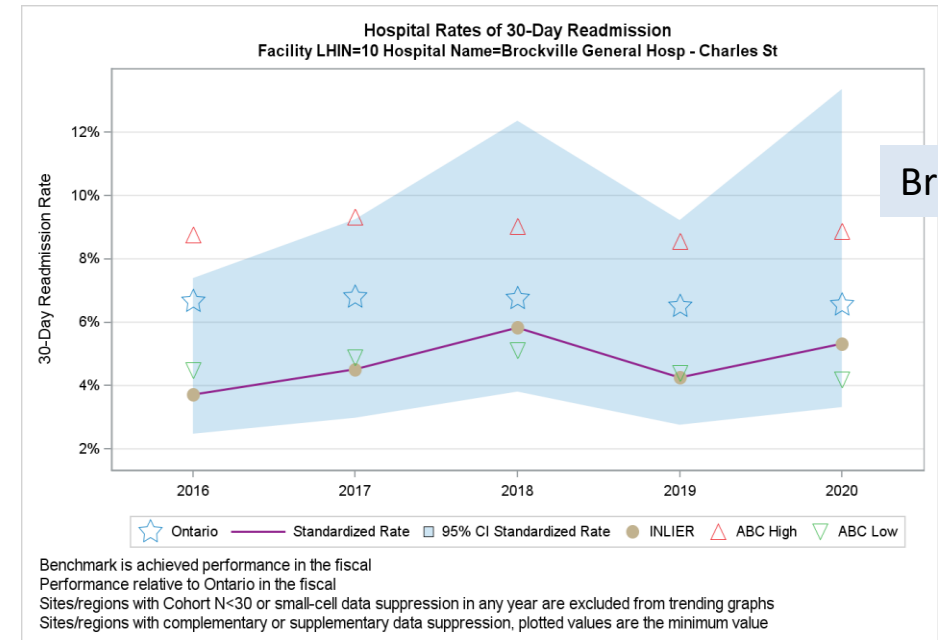


South East

Data reflect
Confirmed TIA
in ED

3-4 Hospital Rates of 30-Day Readmission Stroke Report FY 2020-21

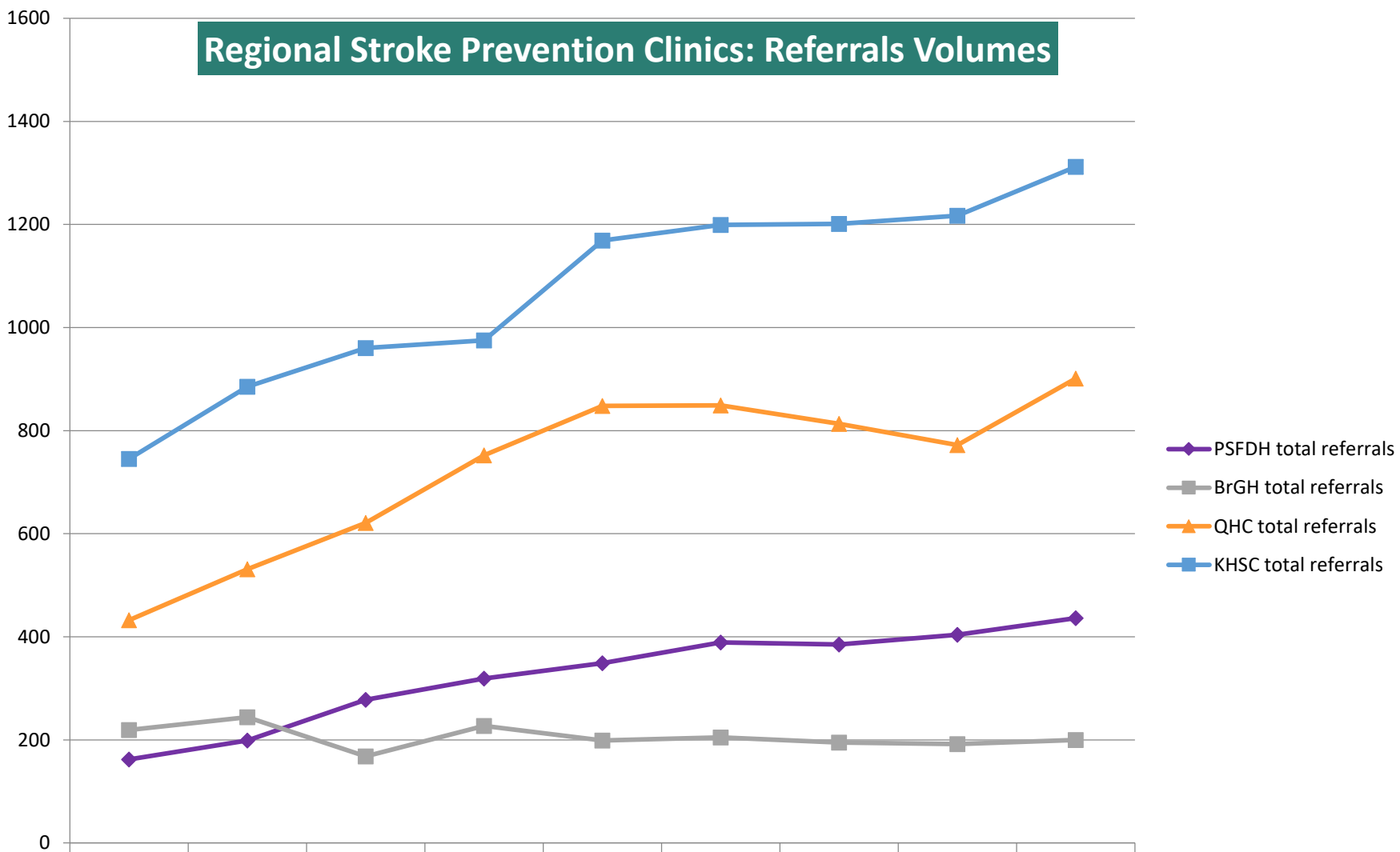
Readmission rate
increased slightly;
however BrGH
still has one of
the lowest rates
in ON



BrGH

↑# Total Referrals over last year and relatively unchanged at BrGH

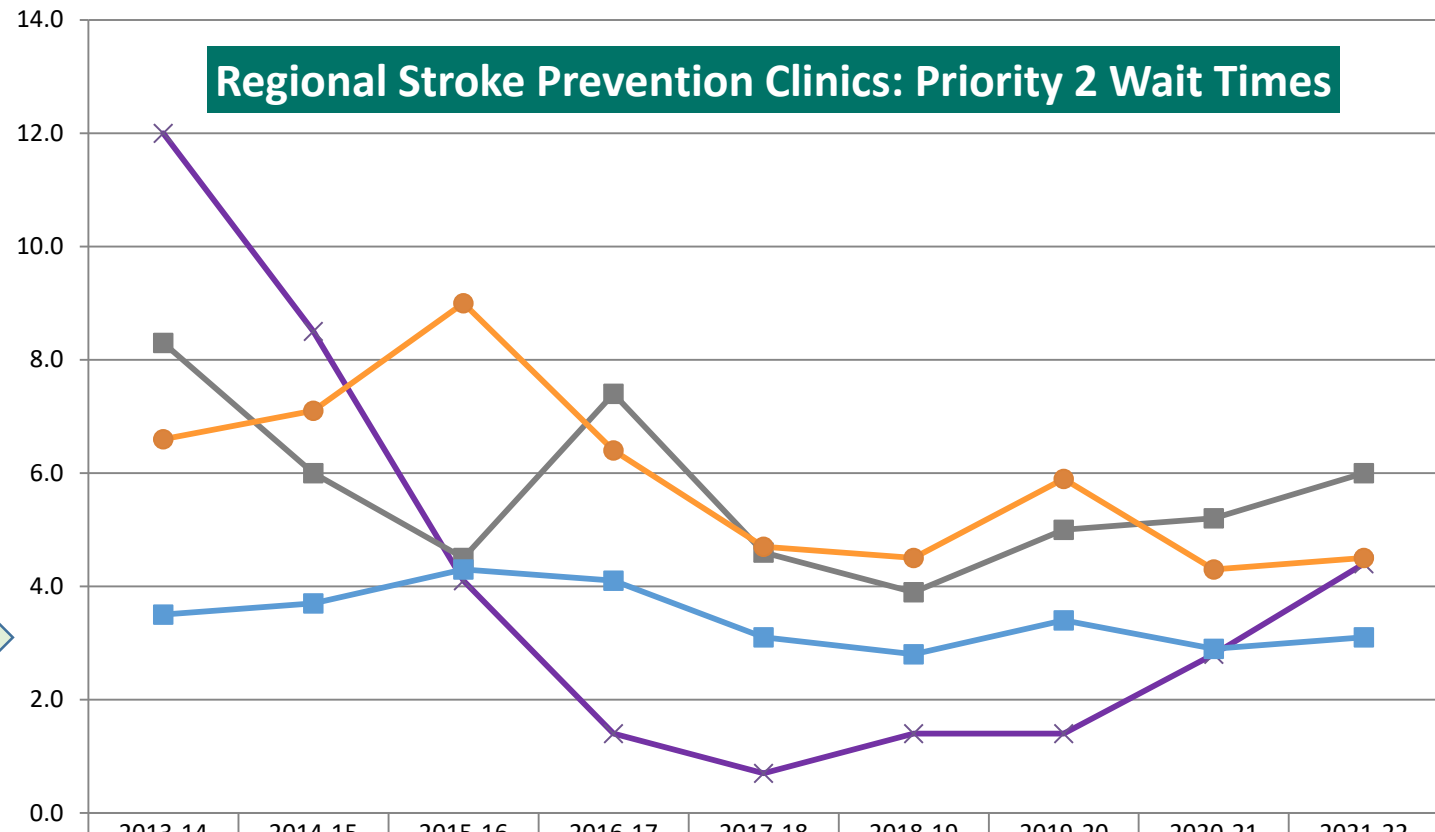
Regional Stroke Prevention Clinics: Referrals Volumes



	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

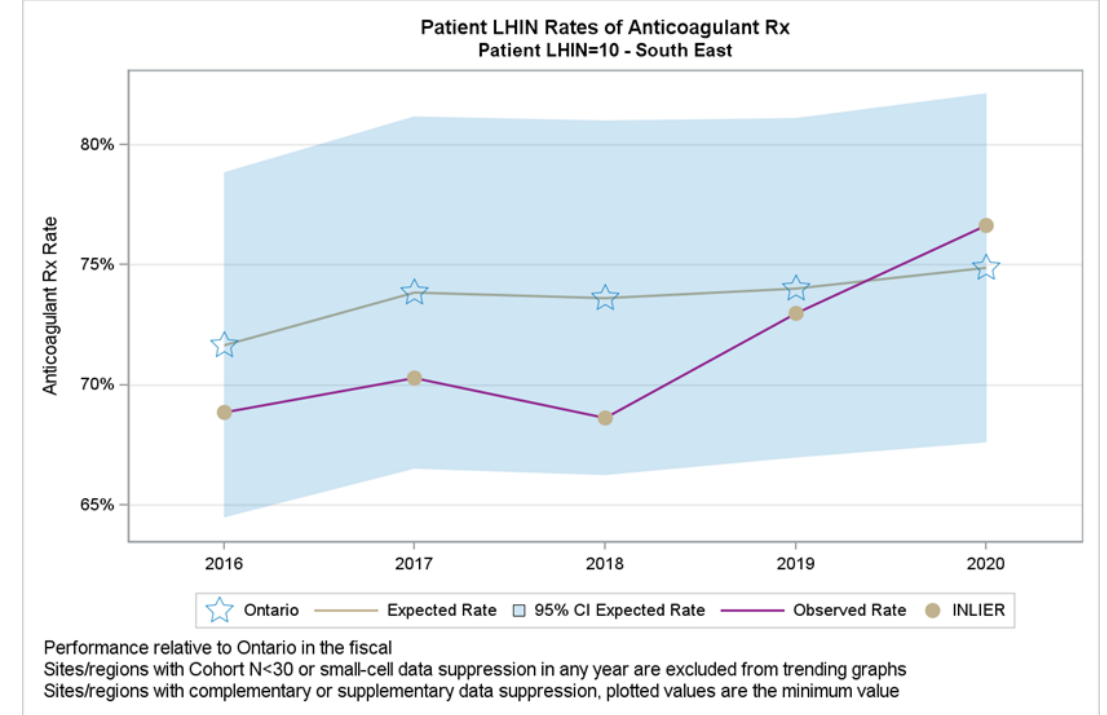
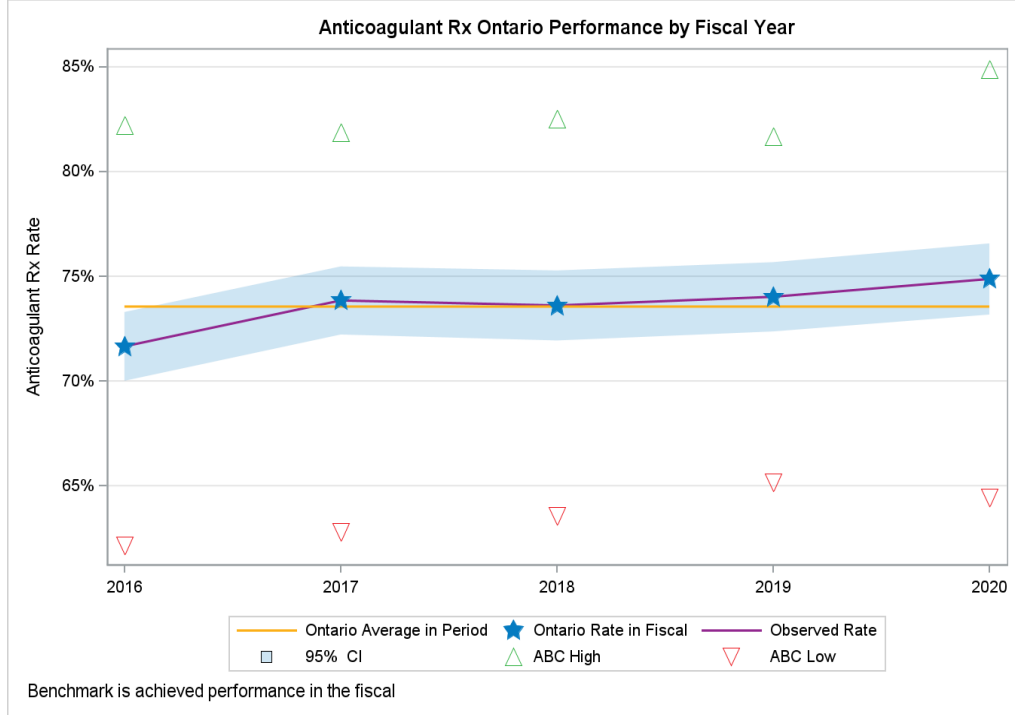
Target is
3 days



× PSFDH P2 wait times
 ■ BrGH P2 wait times
 ● QHC P2 wait times
 ■ KHSC P2 wait times

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PSFDH P2 wait times	12.0	8.5	4.1	1.4	0.7	1.4	1.4	2.8	4.4
BrGH P2 wait times	8.3	6.0	4.5	7.4	4.6	3.9	5.0	5.2	6
QHC P2 wait times	6.6	7.1	9.0	6.4	4.7	4.5	5.9	4.3	4.5
KHSC P2 wait times	3.5	3.7	4.3	4.1	3.1	2.8	3.4	2.9	3.1

1-3 Anticoagulant Rx within 90 days rate for ischemic stroke/TIA patients 65+ with Hx of Atrial Fibrillation - FY 2020-21



Rates for **hospital** current year (last year)

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

Rates for **sub-region** current year (last year)

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

Stroke Prevention (SPC) Discussion

- **Accomplishments**
 - Expansion of **capacity**
 - Increased nursing coverage (BrGH & Perth)
 - Increased physician coverage at Perth
 - **Virtual care** (established telephone visits for follow-ups/discharged inpatients)
 - Infographics for Primary Care about Secondary Stroke Prevention
 - Home **BP checks** at BrGH
 - **TIA Care Pathway** developed at PSFDH
 - Efficient **triage** with updated referral forms in place
- **Ongoing**
 - **Building well-established Referral processes** with EDs & Primary Care
 - Enhancing **physician coverage at BrGH SPC**
- **FUTURE**
 - Apply new provincial **triage algorithm**
 - Use of virtual platform to support health education
 - Other?

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



HyperAcute Stroke Data

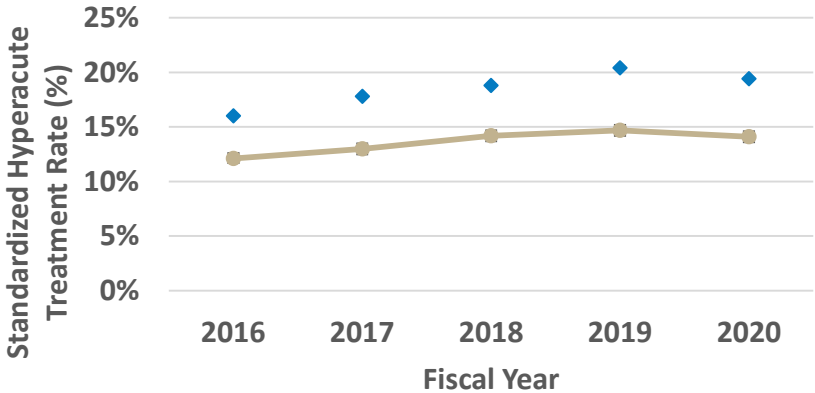


Chapter 2: Hyperacute Care Access and Outcomes for Ischemic Stroke

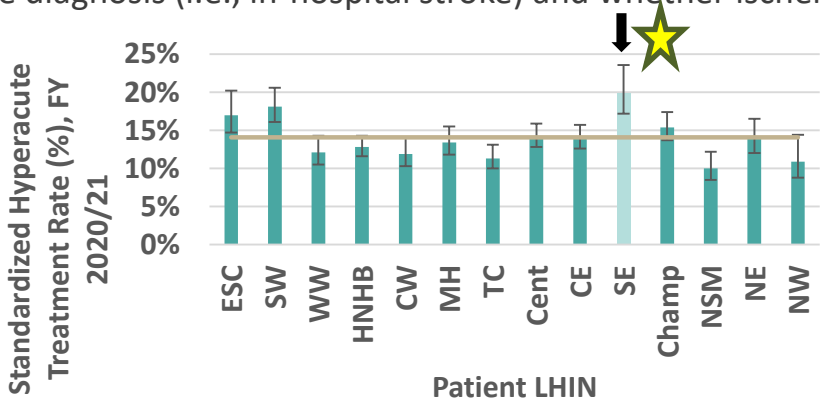
Indicator 2.1.1: Standardized Hyperacute Treatment Rate (tPA and/or EVT), FY 2020/21

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.

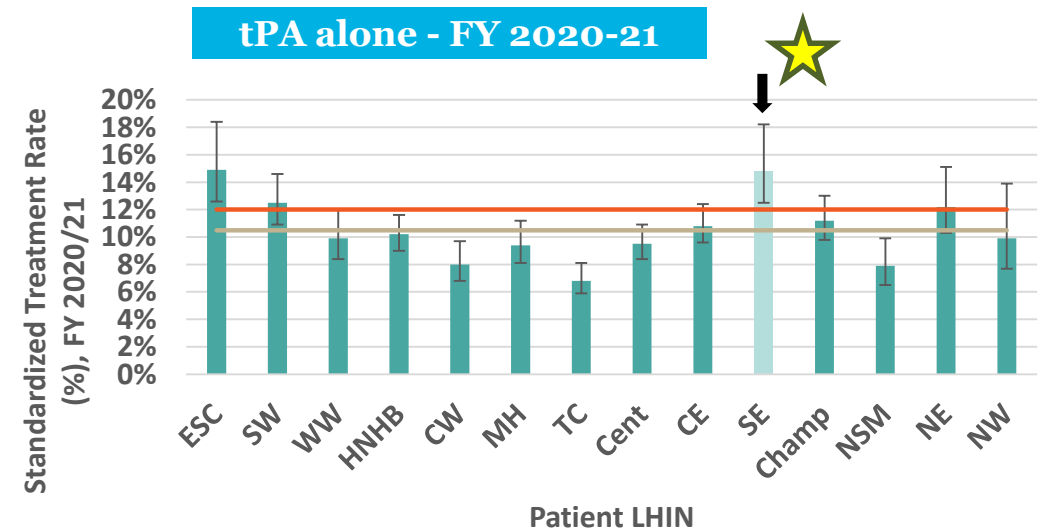


— Hyperacute Treatment Rate ◆ Provincial Benchmark

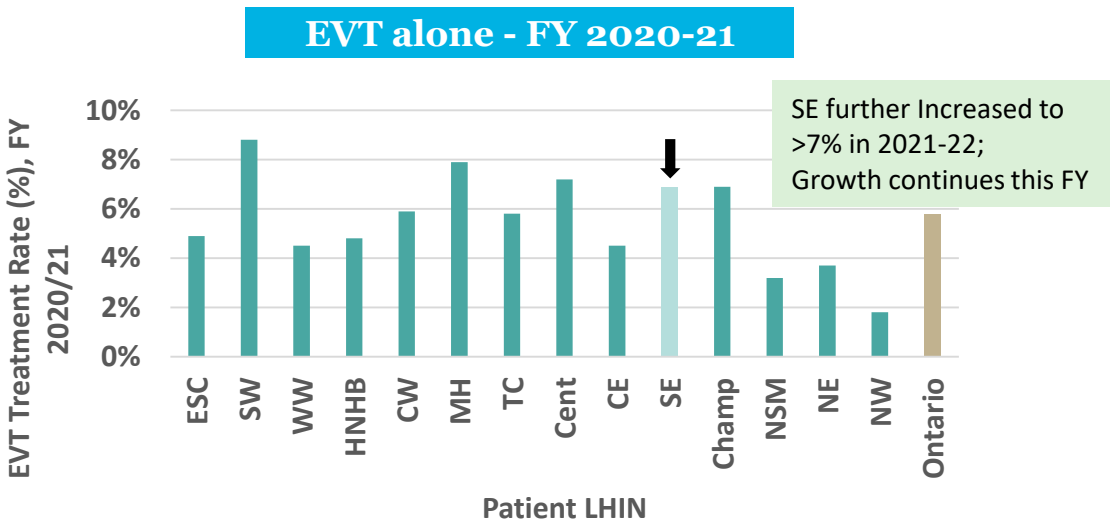


Hyperacute Treatment Rate for LLG patients was even higher at 23.1%

■ Hyperacute Treatment Rate — Ontario Rate



■ tPA Treatment Rate — Ontario Rate — Target >12%



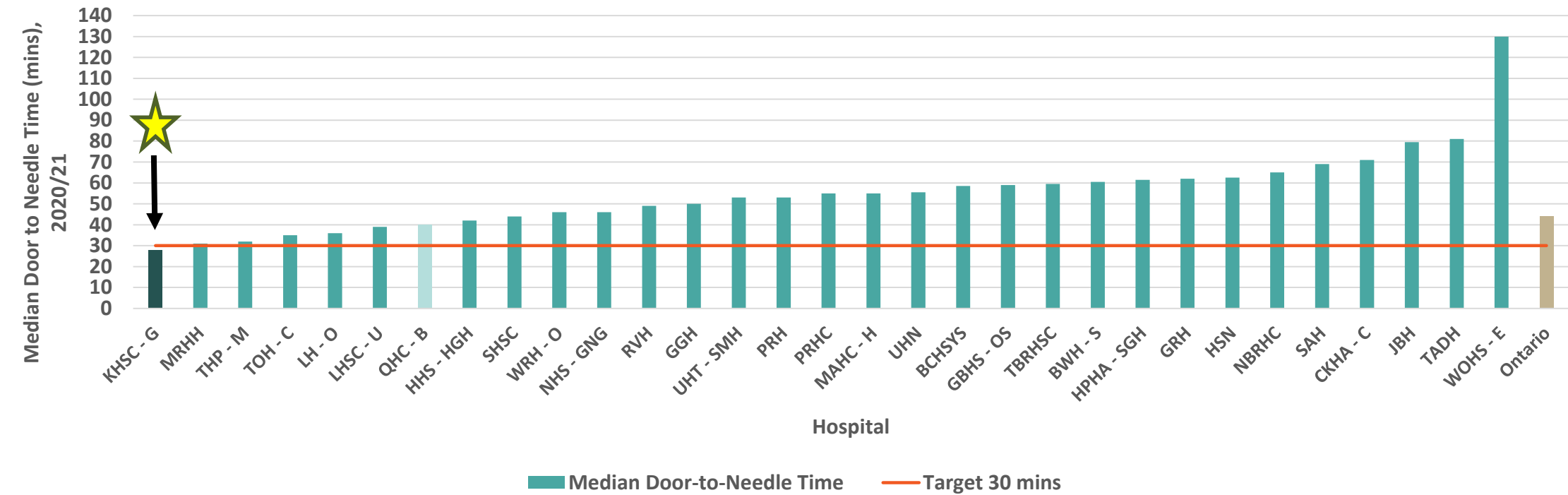
SE further Increased to >7% in 2021-22; Growth continues this FY

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 (which ever 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.

CorHealth Ontario EVT Report

FY 2021-22 – Q1, Q2 (April to Sept)

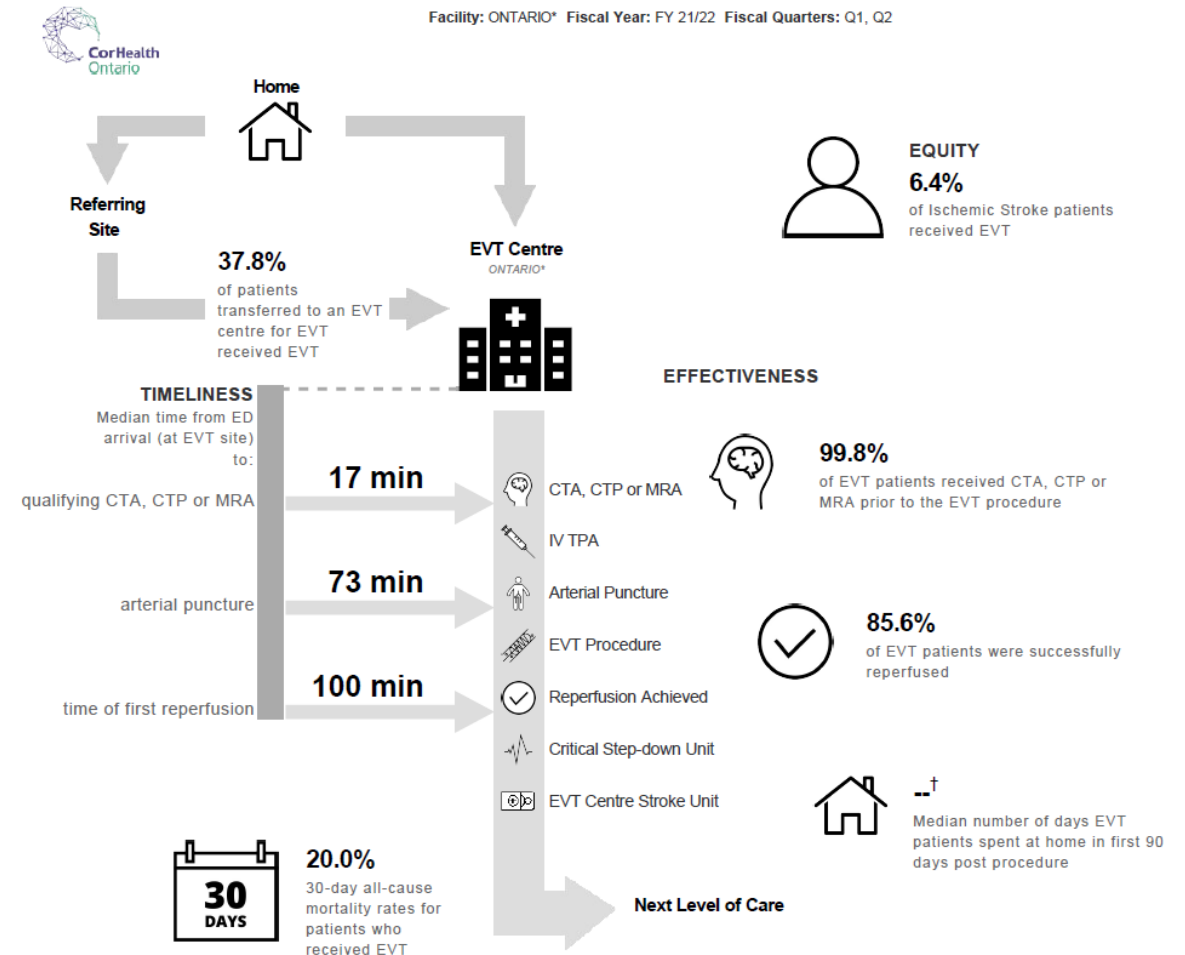
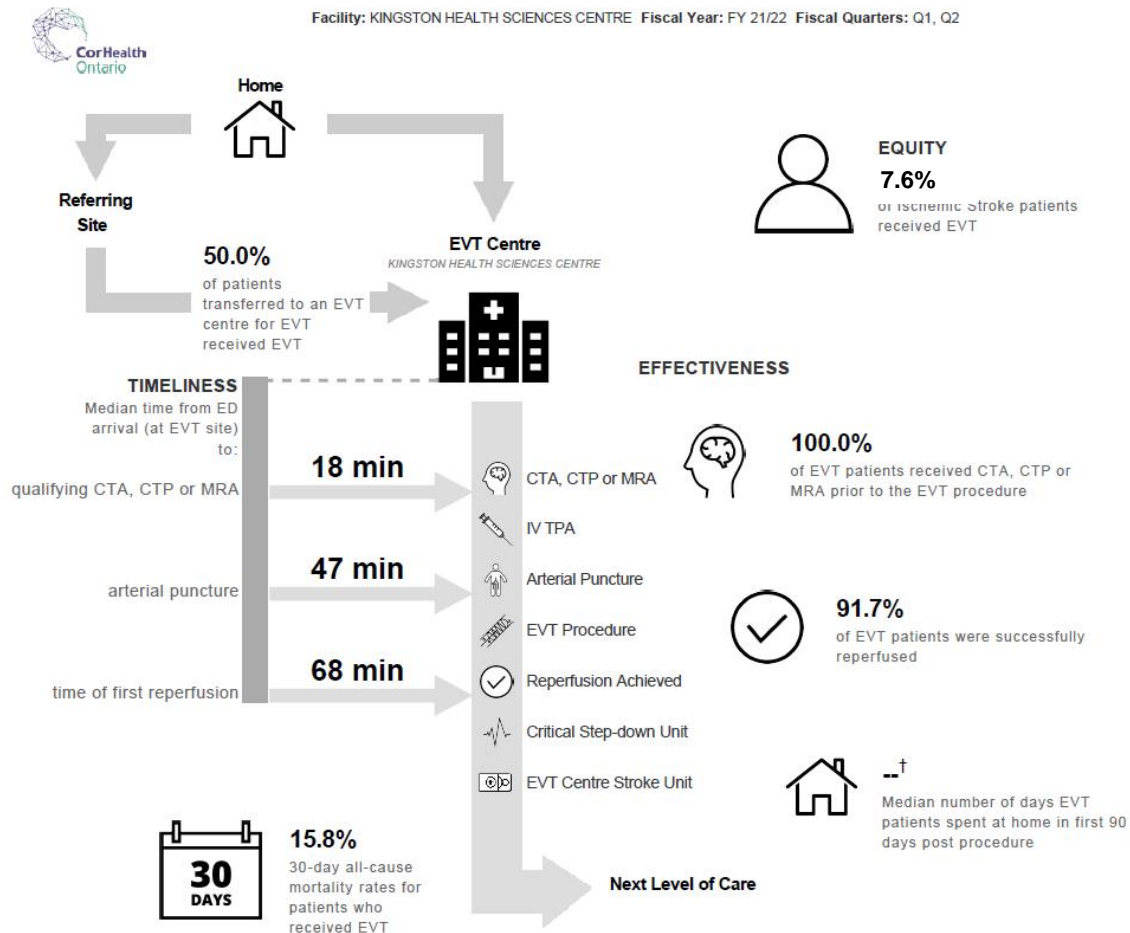
Kingston

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

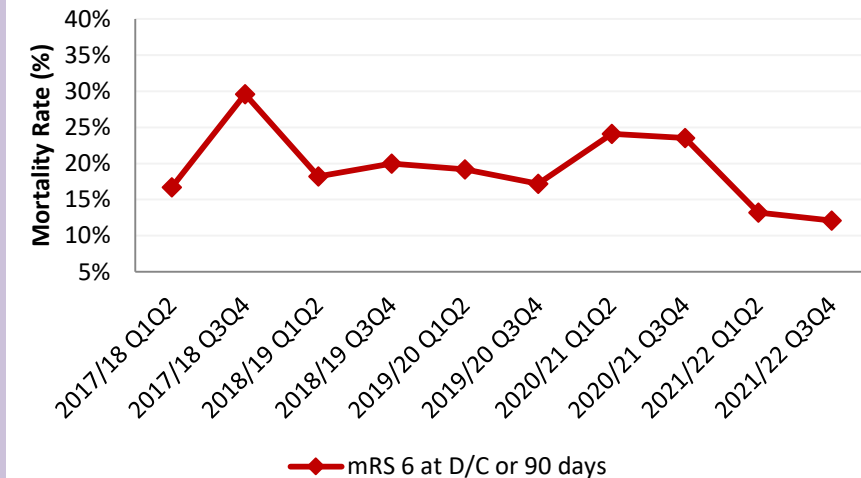
- 31/71 (43.7%) with minimal to no disability MRS ≤ 2
- 22/71 (31%) with moderate disability
- 9/71 (12.7%) with severe disability
- 9/71 (12.7%) mortality

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

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

Outcome Summary for **39** Anterior Circulation Cases

Best Modified Rankin Scale Scores (MRSS)

- 17/39(**43.6%**) Minimal to no disability MRSS ≤ 2 at DC/90dys
- 11/39 (28.2%) Moderate disability MRSS 3 or 4 at DC or FUP
- 7/39 (17.9%) Severe disability MRSS of 5
- 4/39 (**10.3%**) Mortality

Reperfusion Scores for 40 Anterior Circulation Cases (Includes 1 case with repeat EVT while in-hospital)

TiCi2b-3: 37/40 (**92.5%**) achieved reperfusion

TiCi0-2a: 3/40 (**7.5%**) did not achieve reperfusion

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

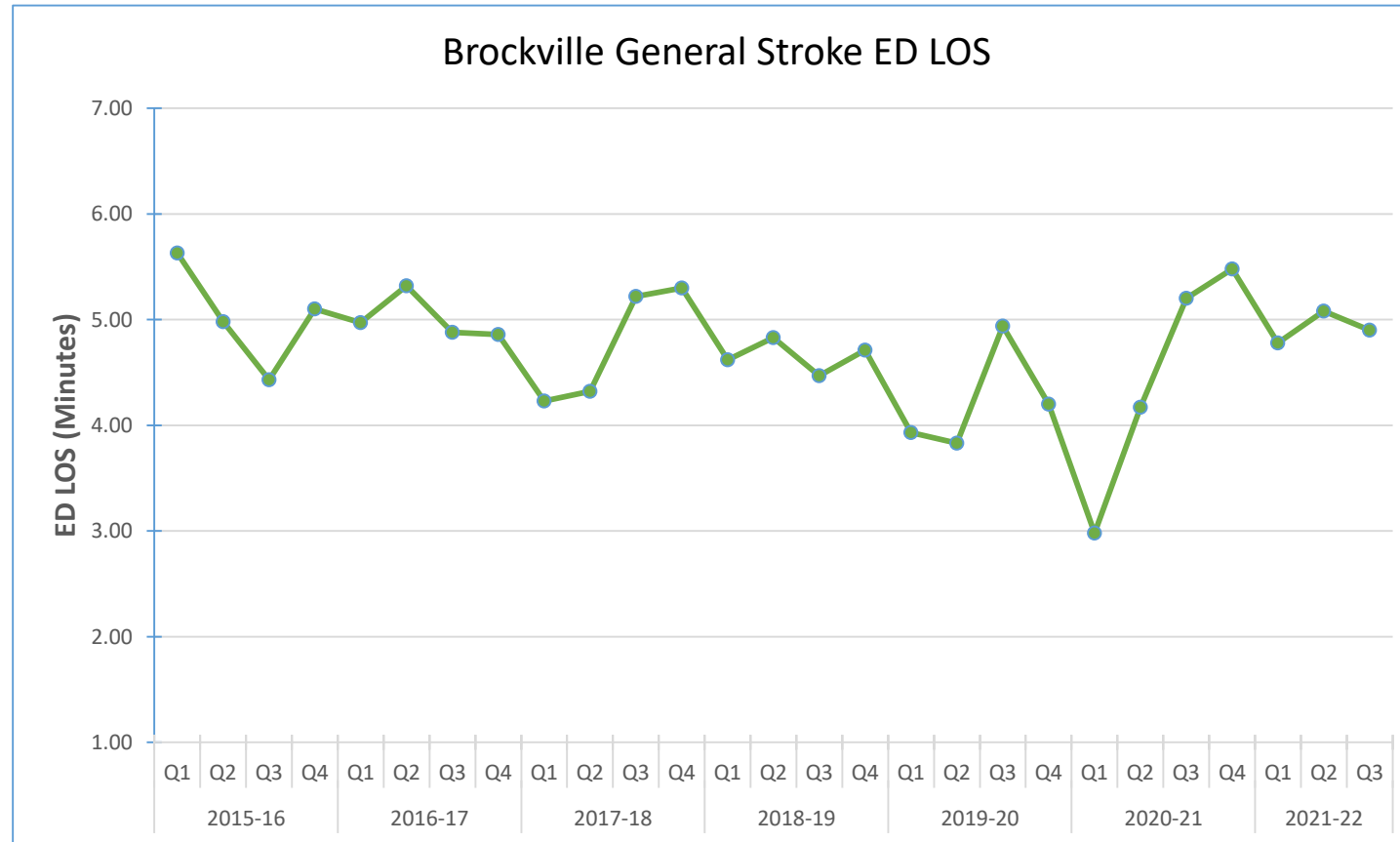
- Door to CT: **13** mins (KHSC target 10 mins; Ontario target 15 mins)
- Door to Needle Time (tPA): **25** mins (n=21) (16 patients were outside time window & 2 on DOAC) (target=30 mins)
- Door to Groin Puncture: **49** mins (target 60 mins)
- Door to First Reperfusion: **72** mins (target 90 mins)

13 Cases treated with EVT Post 6 Hours

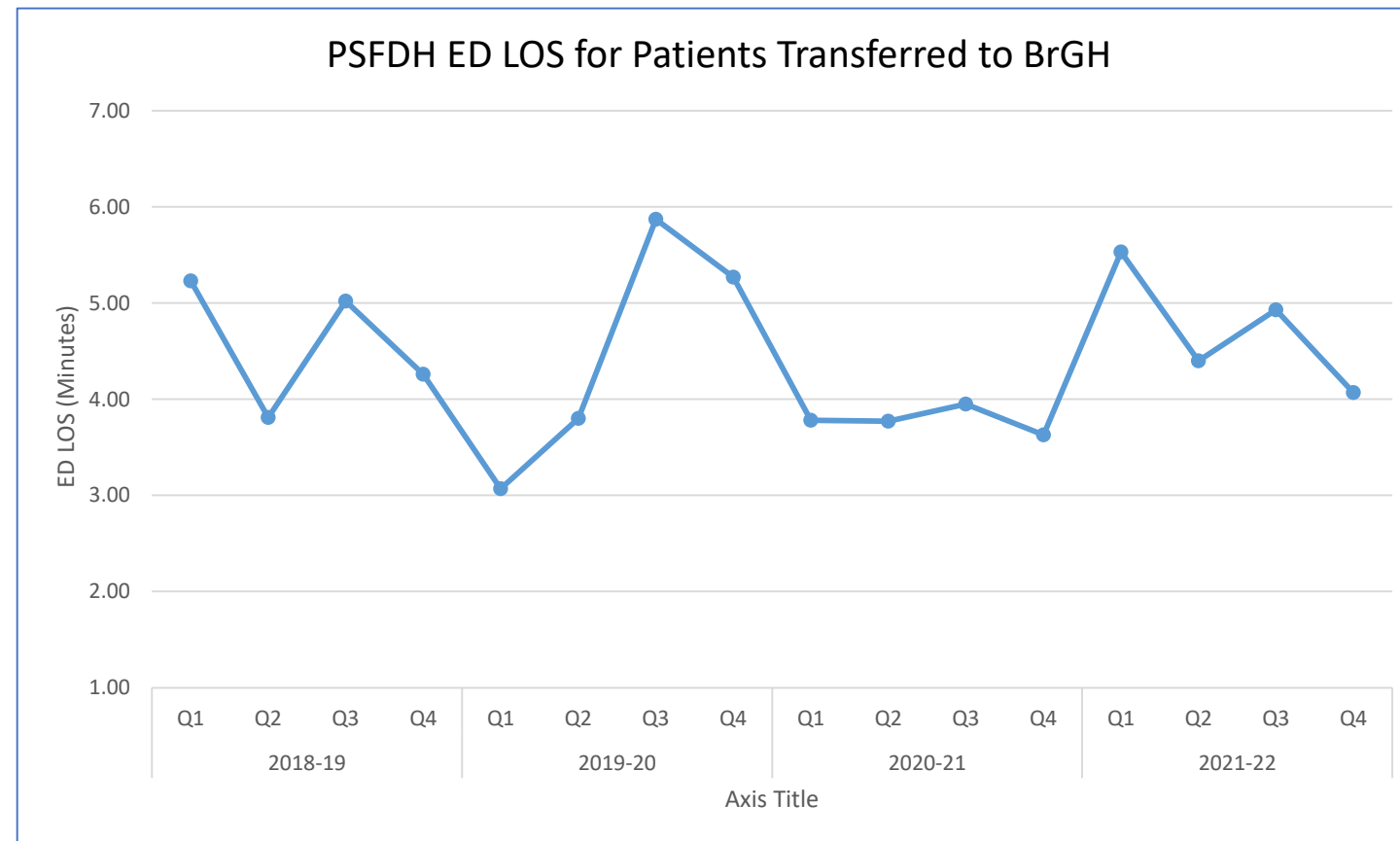
Modified Rankin Scale Scores at DC or 90-day Follow-up for 13 cases

- 6/13 (**46.2%**) Minimal to no disability MRSS ≤ 2
- 1/13 (7.7%) Moderate disability MRSS 3 or 4
- 4/13 (30.8%) Severe disability MRSS of 5
- 2/13 (**15.4%**) Mortality

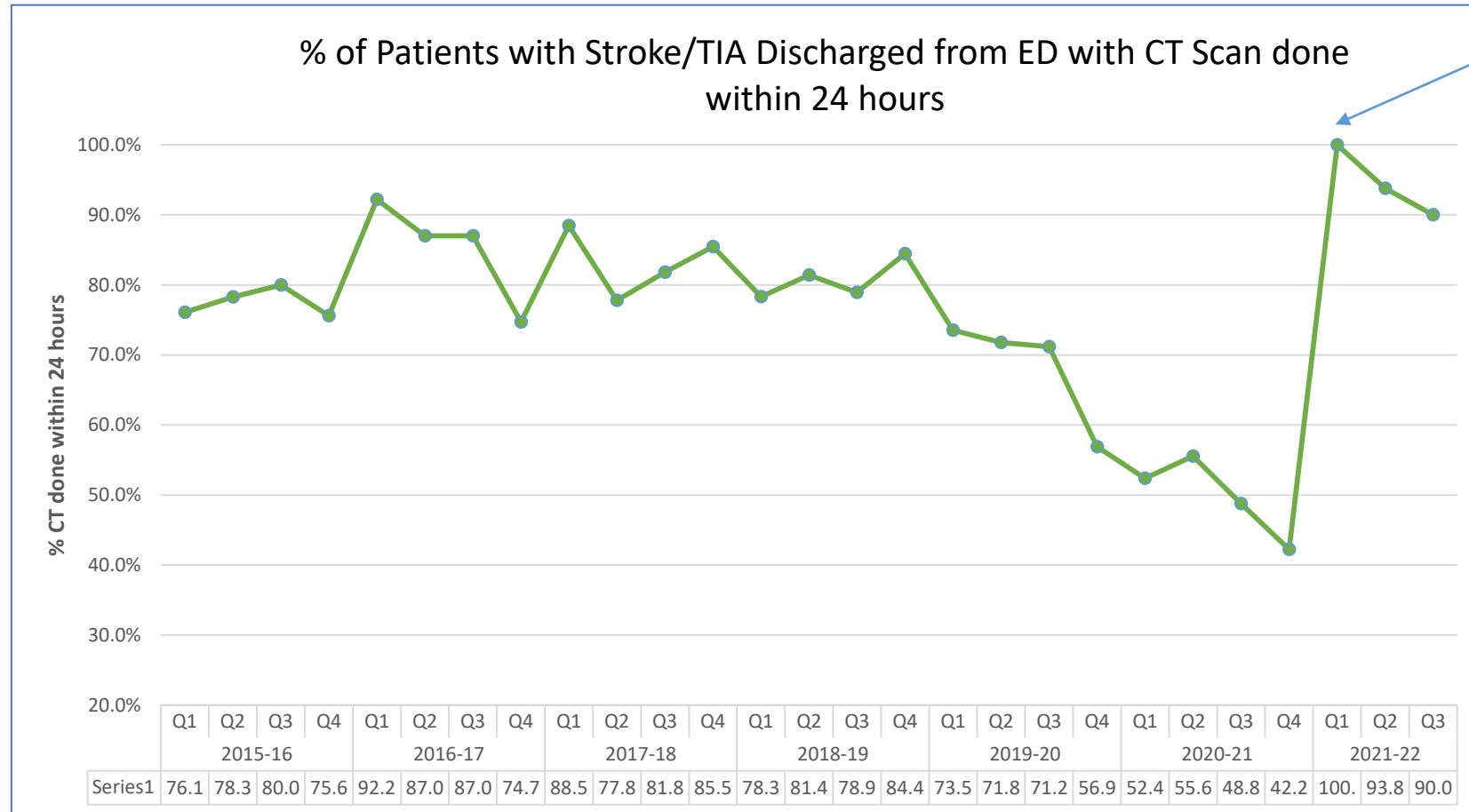
Regional Stroke Dashboard: BrGH ED LOS



Regional Stroke Dashboard: PSFDH ED LOS for Patients Transferred to BrGH

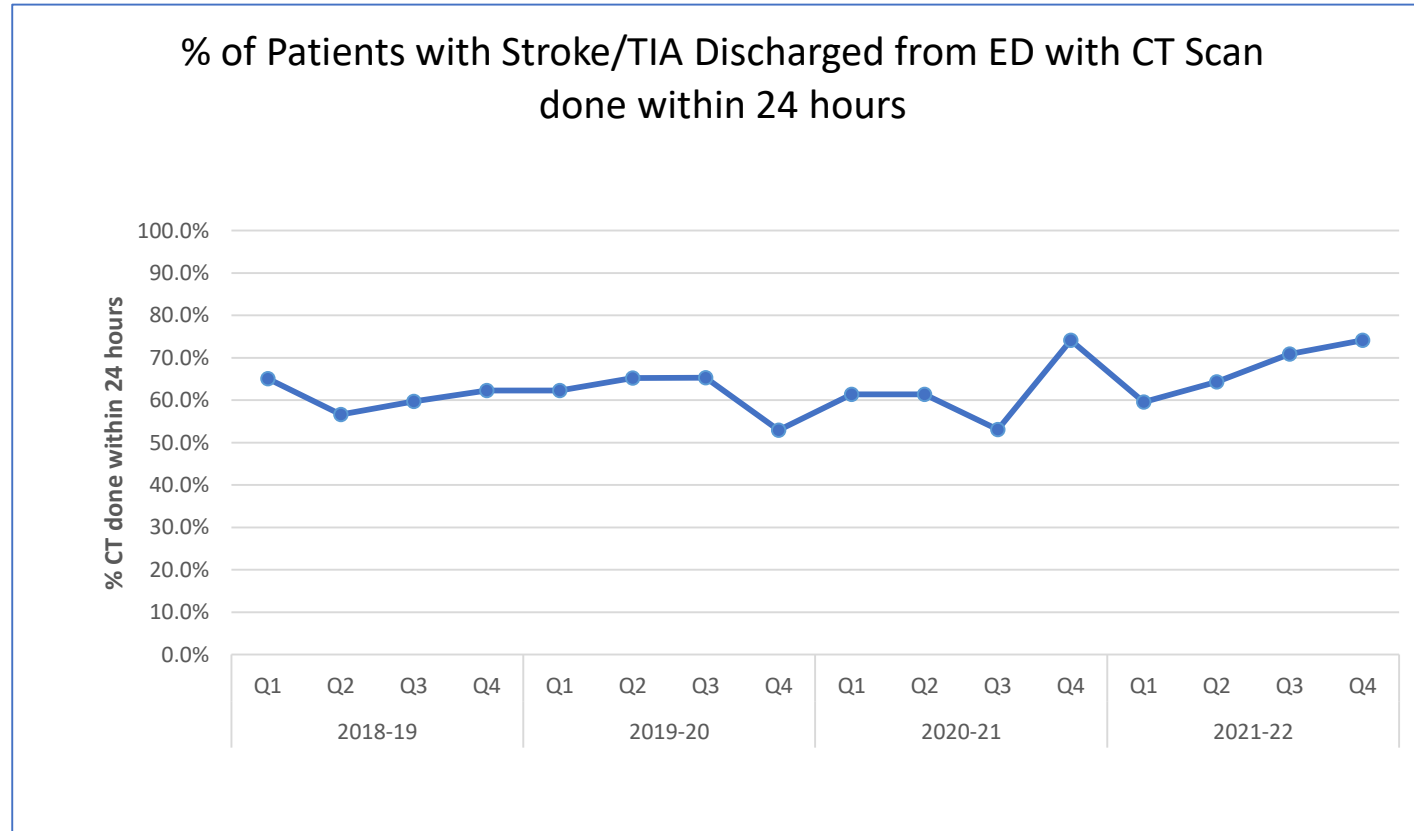


Regional Stroke Dashboard: BrGH % of CT Scan in ED before Discharge



Note: 2021-22- removed cases transferred from BRGH ED to another hospital (e.g., KGH)

Regional Stroke Dashboard: PSFDH % of CT Scan in ED before Discharge



Hyperacute (ED) Discussion

- **Accomplishments:**

- Access: Sustained protocols for 24 hour window – using ACT-FAST (ED and Inhospital stroke)
- Responsive repatriation processes to BrGH Stroke Unit

- **Ongoing:**

- ED LOS, flow from ED to inpatient care
- Sustaining thrombolysis and EVT transfer process times
- Sustaining % of patients with CT done prior to discharge home from ED

- **FUTURE:**

- Continue to explore possibility of Telestroke at BrGH
- TNK versus tPA
- Nurse training in ACT-FAST
- Other?

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



Acute and Rehab Stroke Data

Acute Stroke Unit

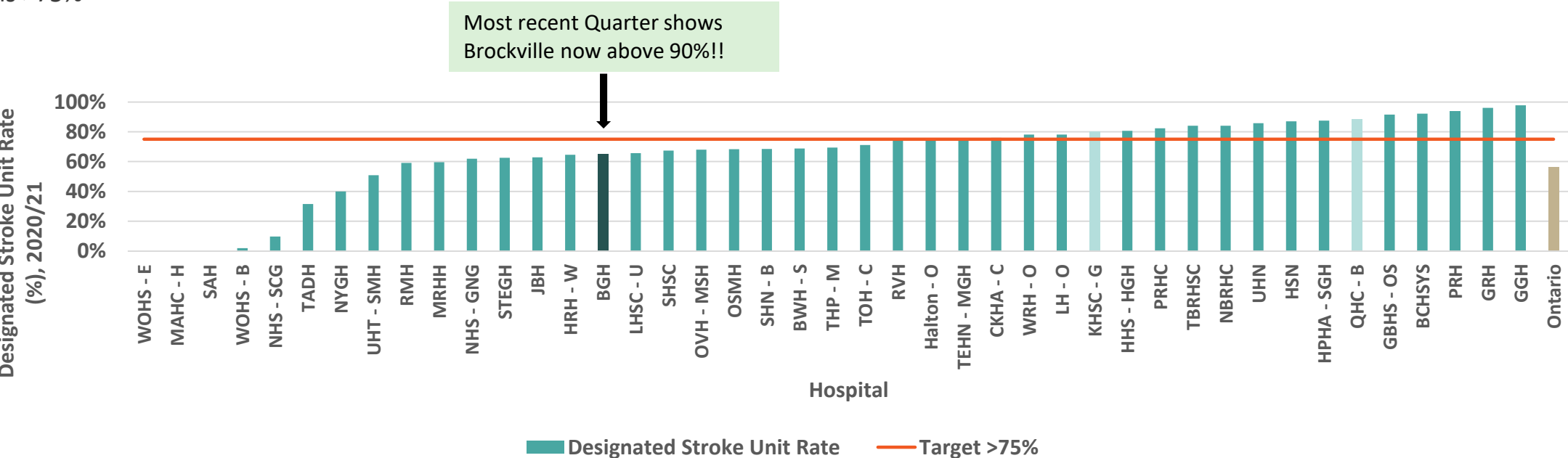


Chapter 3: Acute Care Access and Outcomes for Stroke and TIA

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

Indicator Description:

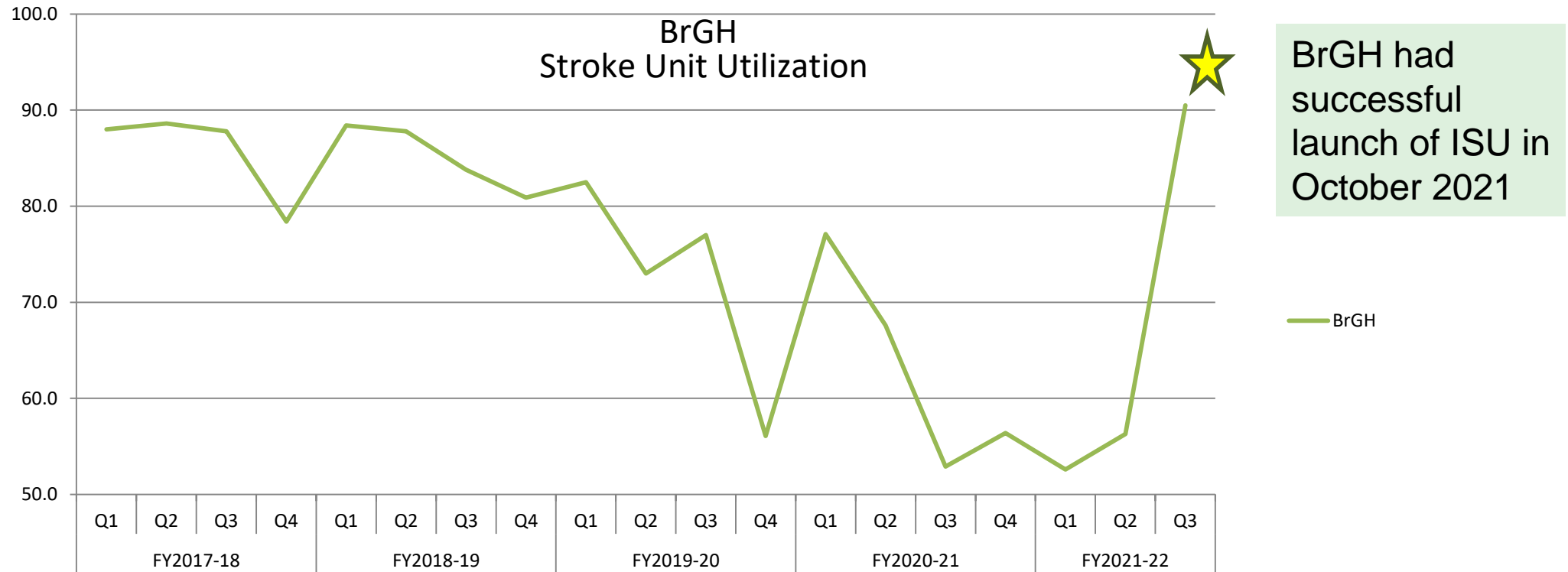
This indicator measures the proportion of stroke/TIA patients treated in a designated stroke unit for any part of their index (first) admission. Target is >75%³



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.

Regional Stroke Dashboard: BrGH Stroke Unit Utilization



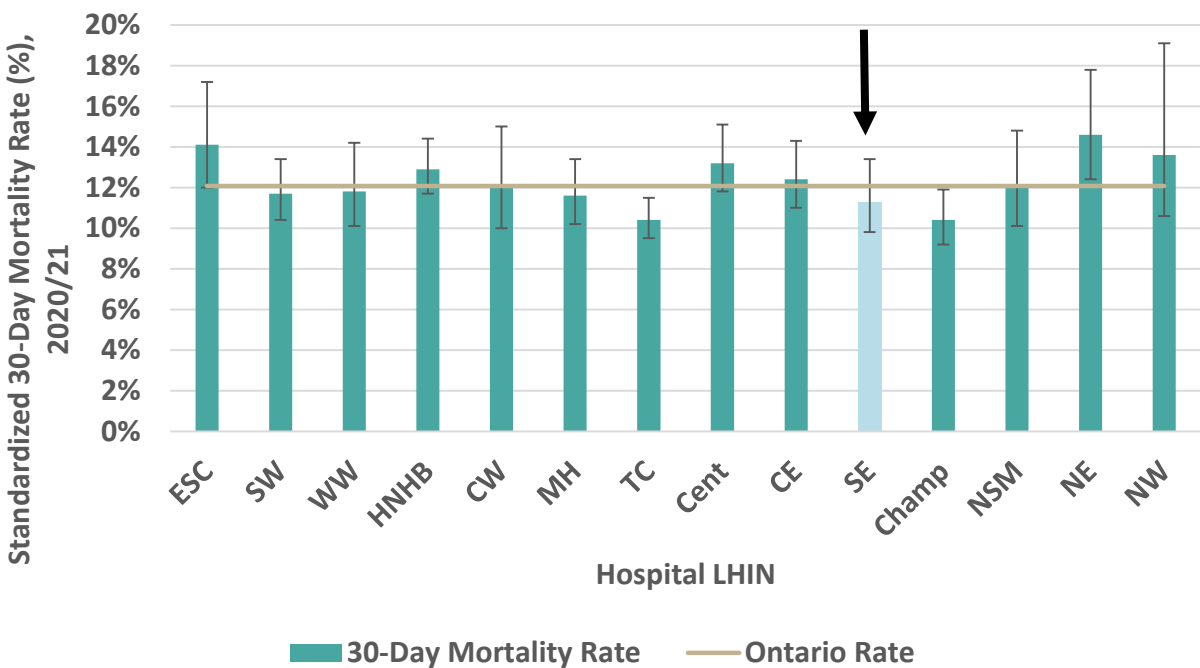
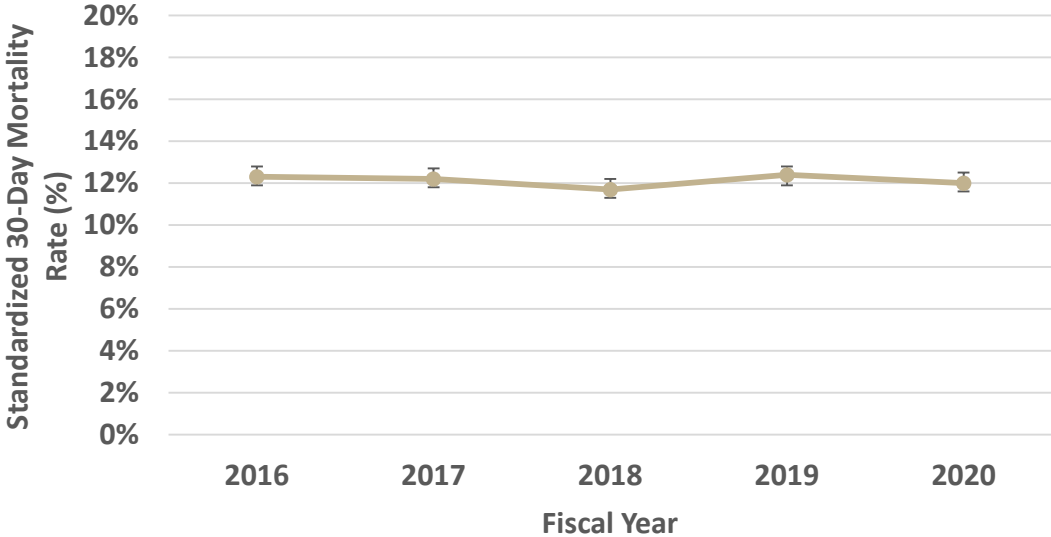
	FY2017-18				FY2018-19				FY2019-20				FY2020-21				FY2021-22		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
KGH	79.0	82.1	70.9	74.6	76.0	73.9	60.4	68.9	65.0	64.4	78.4	73.8	74.8	80.4	70.5	69.7	78.1	70.4	66.0
QHC		87.4	88.8	95.7	61.0	92.6	86.3	88.5	83.4	76.0	79.0	85.0	78.4	85.0	79.0	82.8	90.2	82.3	86.5
BrGH	88.0	88.6	87.8	78.4	88.4	87.8	83.8	80.9	82.5	73.0	77.0	56.1	77.1	67.6	52.9	56.4	52.6	56.3	90.5

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:

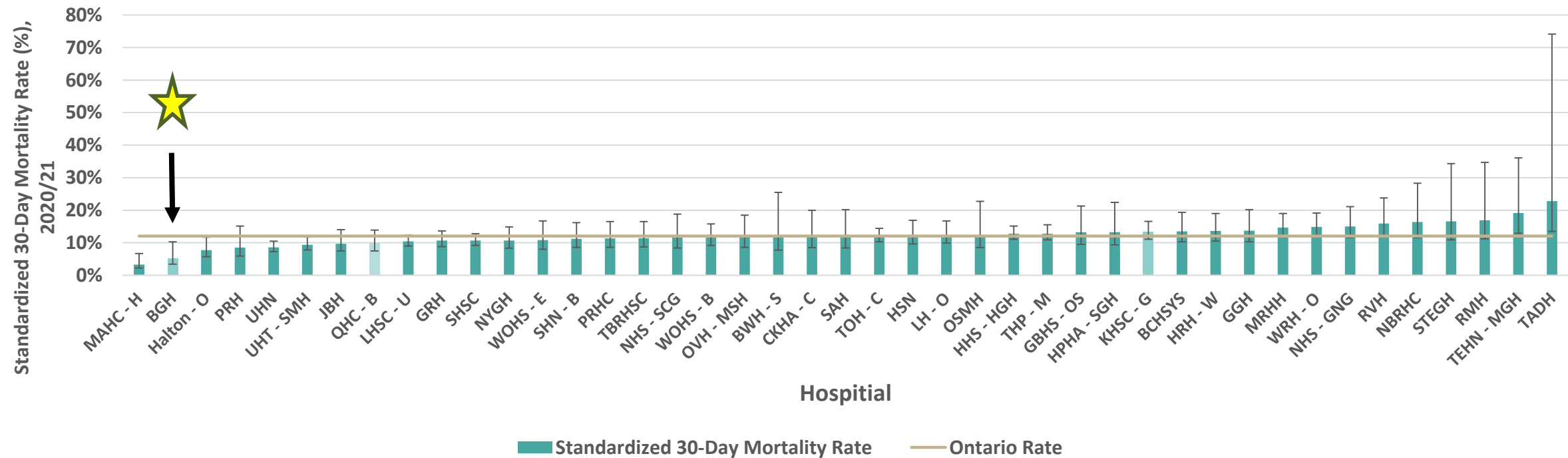
Desired directionality is low. The standardized mortality rate for Ontario has remained relatively flat for the past five years (including the first year of the pandemic) around 12%. There is variation amongst the LHINs, with TC and Champlain LHIN being significantly lower than the Ontario rate. This 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:

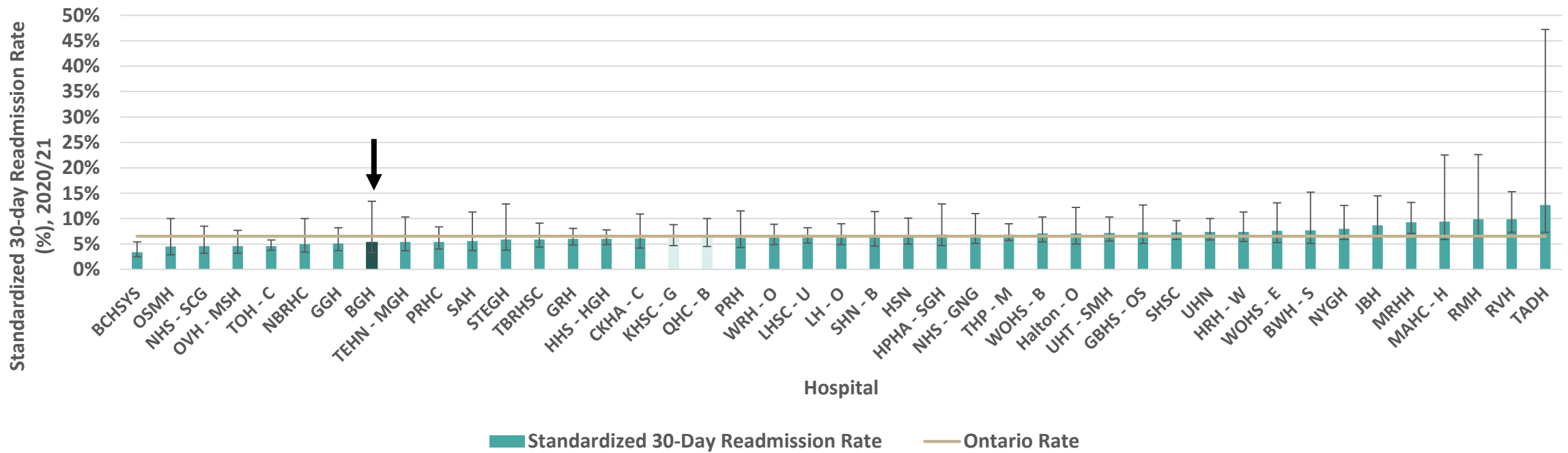
Desired directionality is low. In 2020, most of the hospitals were not statistically different than the Ontario rate, though some show more variance than others. There may be opportunity to improve consistency of outcomes within or across centres. This indicator measures all-cause mortality; therefore, 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.

BrGH Admission per Stroke Sub Type

Stroke Type	2014/15	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Hemorrhagic	11	22	18	10	20	11	8
Ischemic	90	106	105	106	107	101	120
TIA/Other Related syndromes	22	65	58	47	40	29	23
Unspecified	12	18	4	10	1	0	0
Total	135	211	185	173	168	141	151

Acute and Rehab Stroke Data

Inpatient Rehab

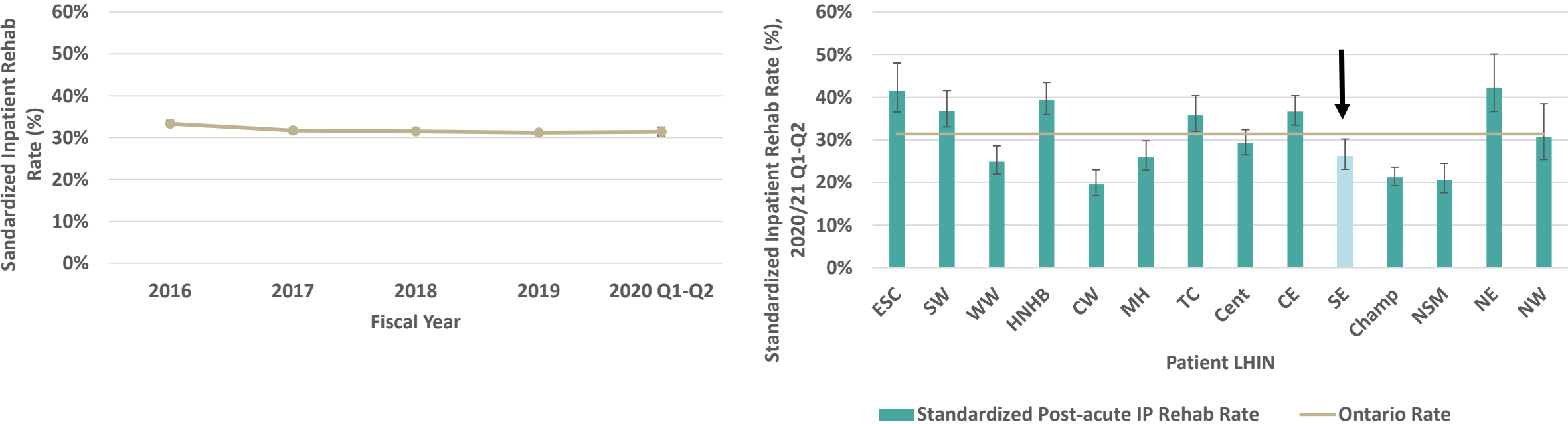


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

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:

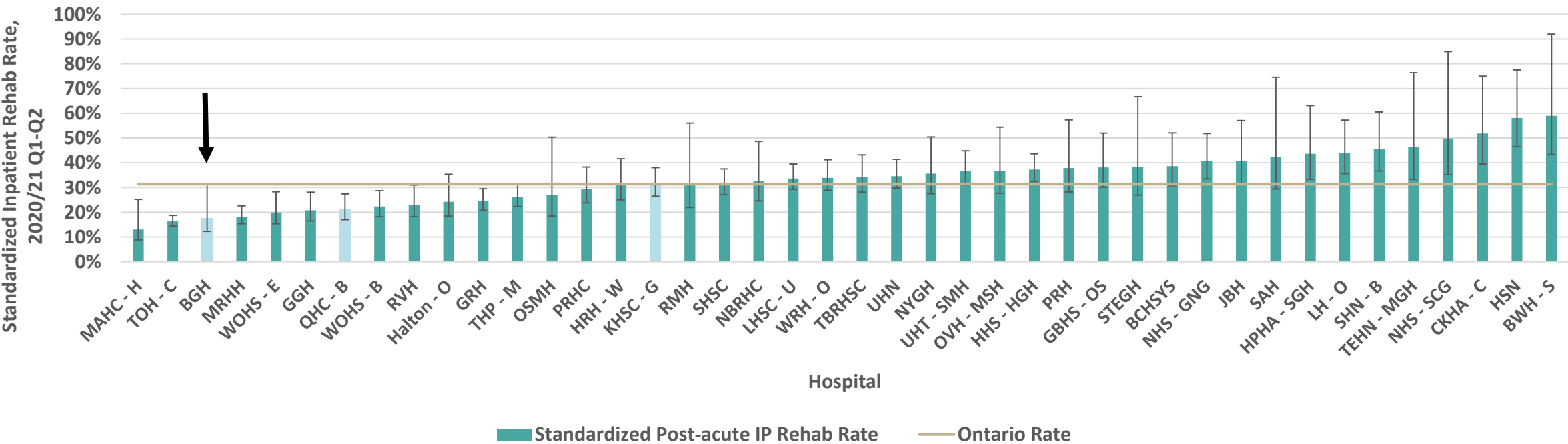
Inpatient rehab is most appropriate for stroke patients with moderate to severe disability. For the last four fiscal years (2017-2020), access to inpatient stroke rehabilitation has been relatively steady at around 31%. Interesting to note, in the early stages of the pandemic, access to inpatient stroke 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:

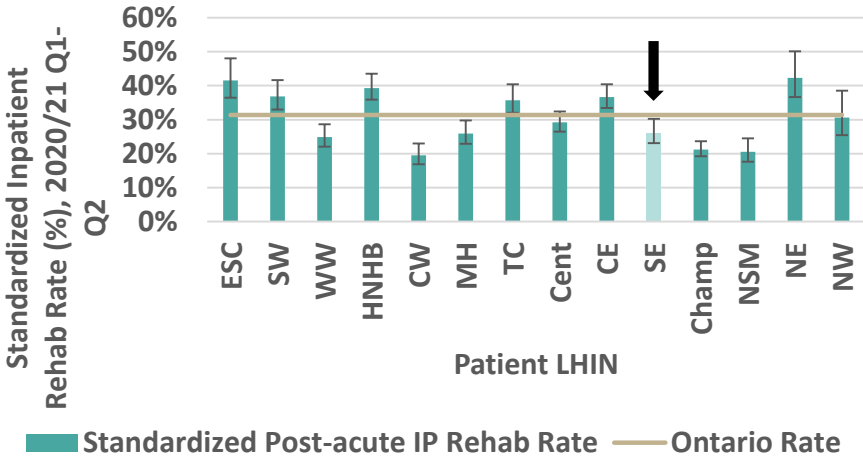
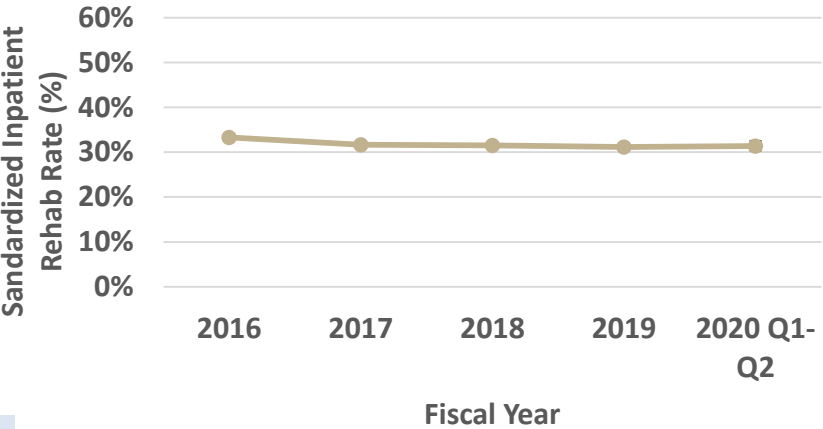
This indicator is reported by index (first) acute hospital i.e., if a patient is transferred from hospital A to hospital B, and is subsequently discharged to inpatient rehabilitation, that patient is attributed to hospital A. Across these acute hospitals there is high variability of access to inpatient 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.

Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

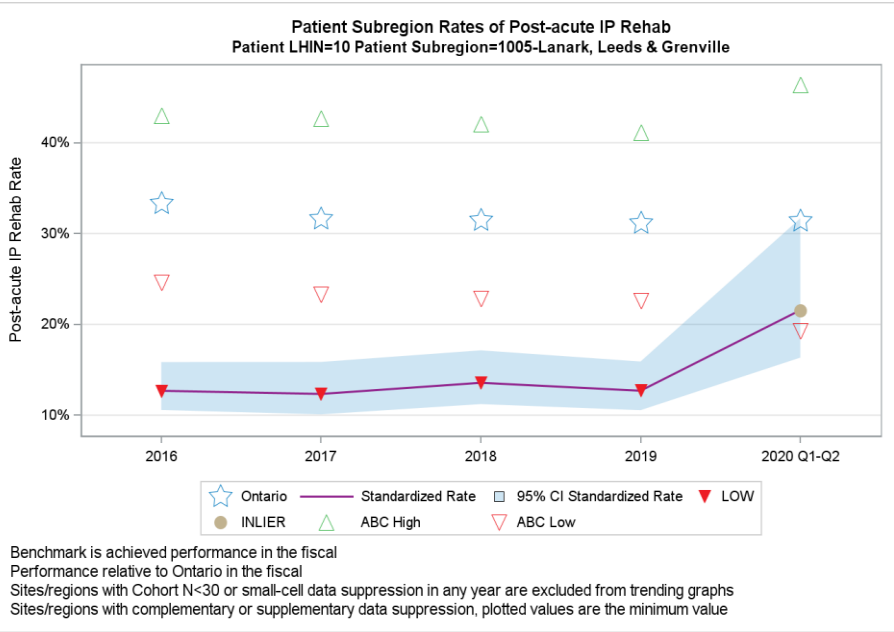
Indicator 4.1.2: Standardized Rate of Access to Post-Acute Inpatient Rehabilitation, FY 2020/21 Q1-Q2

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).



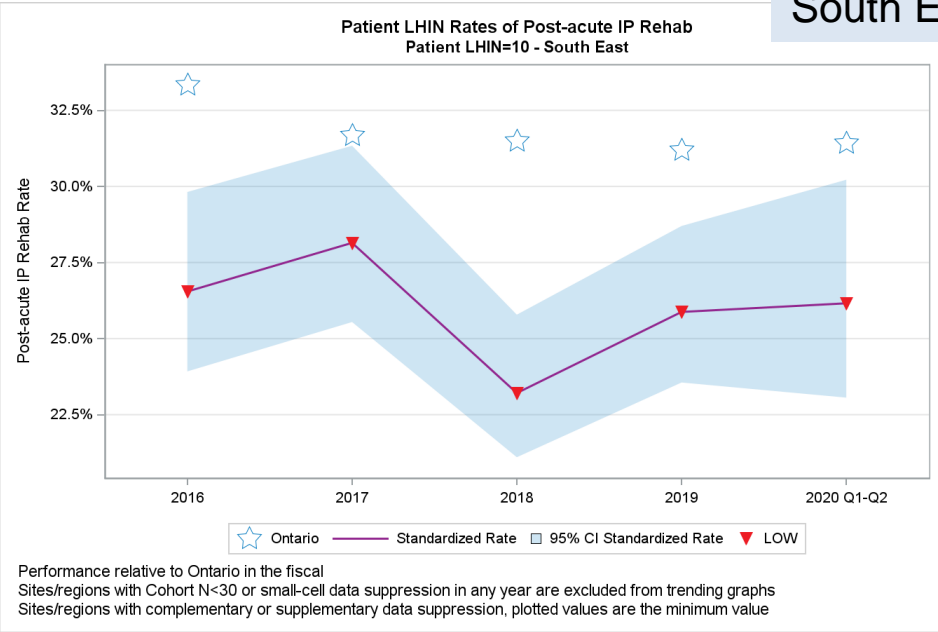
LLG



Brockville - low access but new unit opened Oct 2021

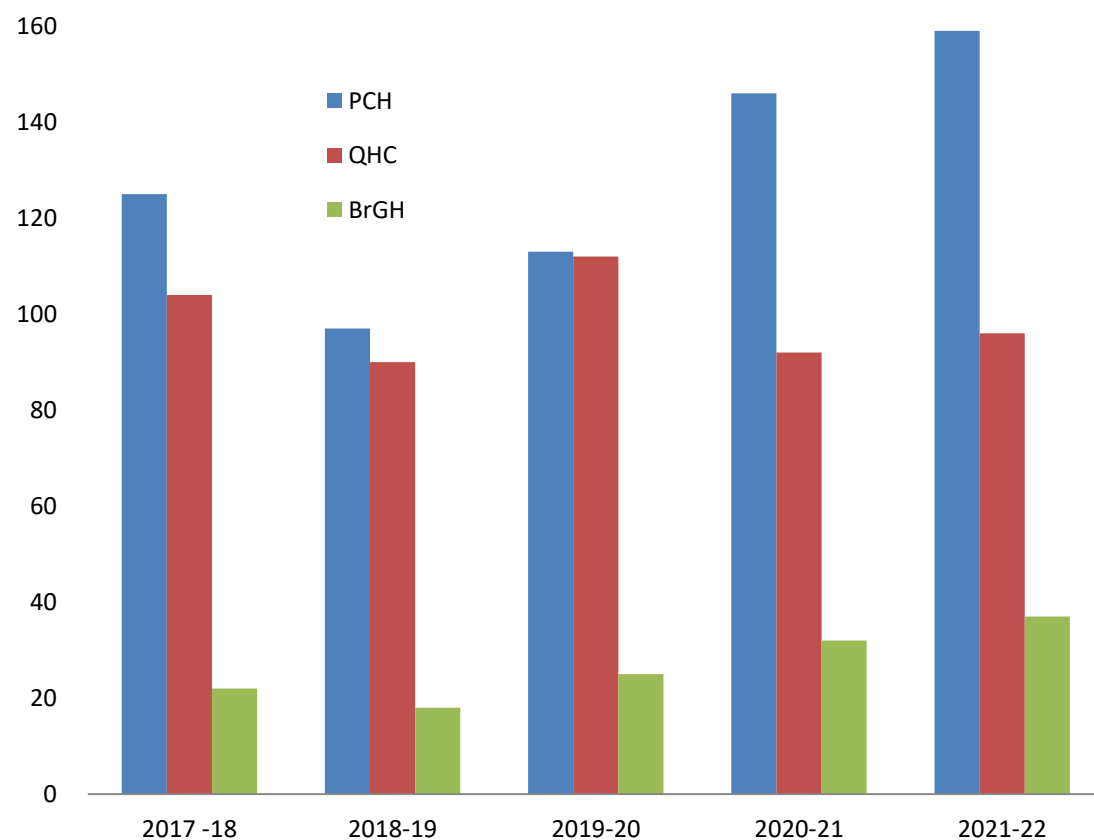
Perth rehab unit not designated so does not submit NRS rehab data (would show as "acute care")

South East

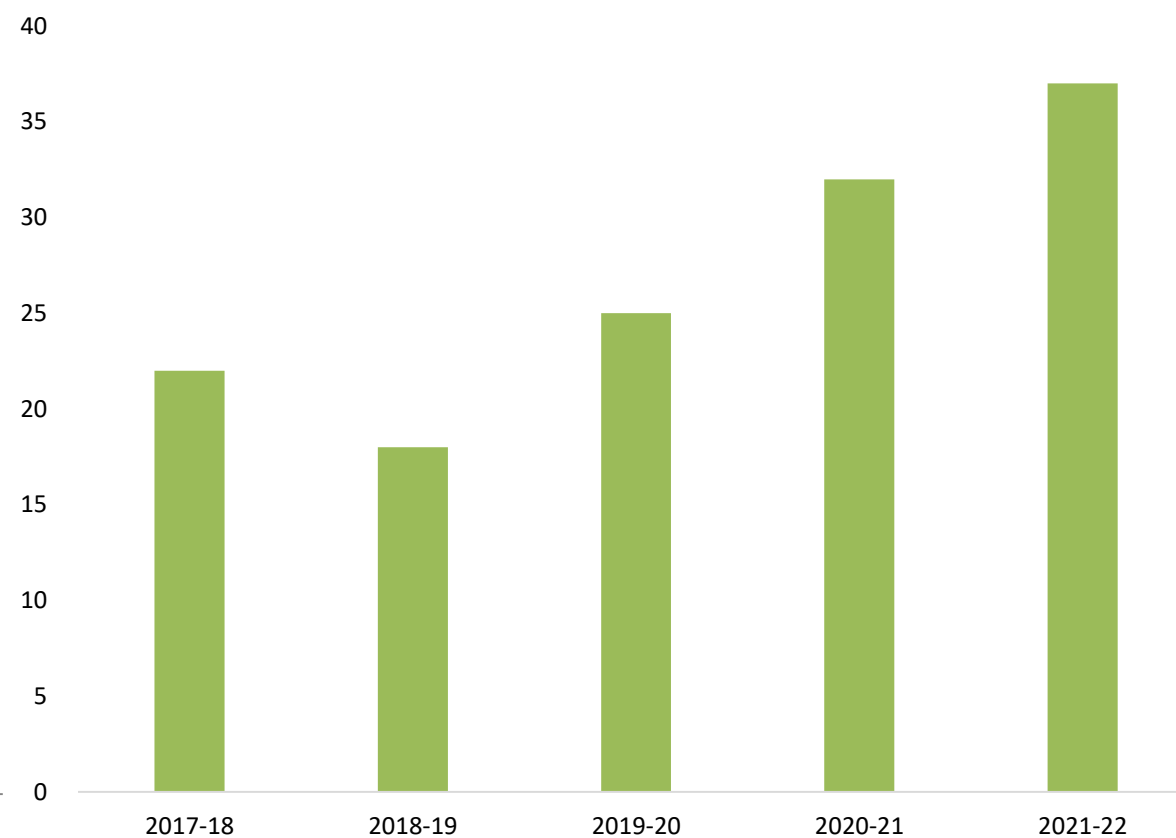


Regional Stroke Dashboard: Stroke Rehab Volumes to 2021-22

CVA Rehab Admissions
(High Intensity)



Brockville CVA Rehab Admissions
(High Intensity)

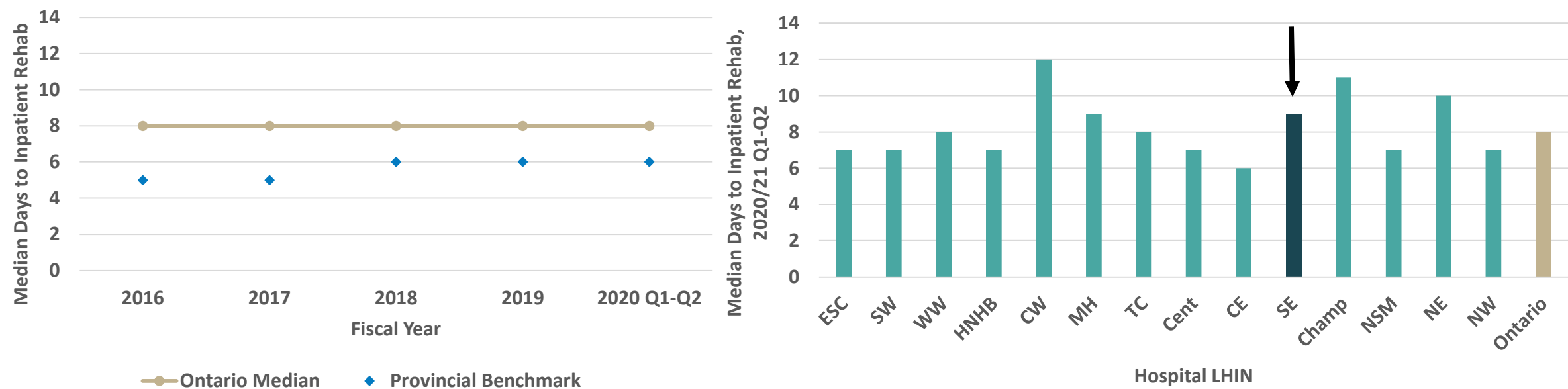


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

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.

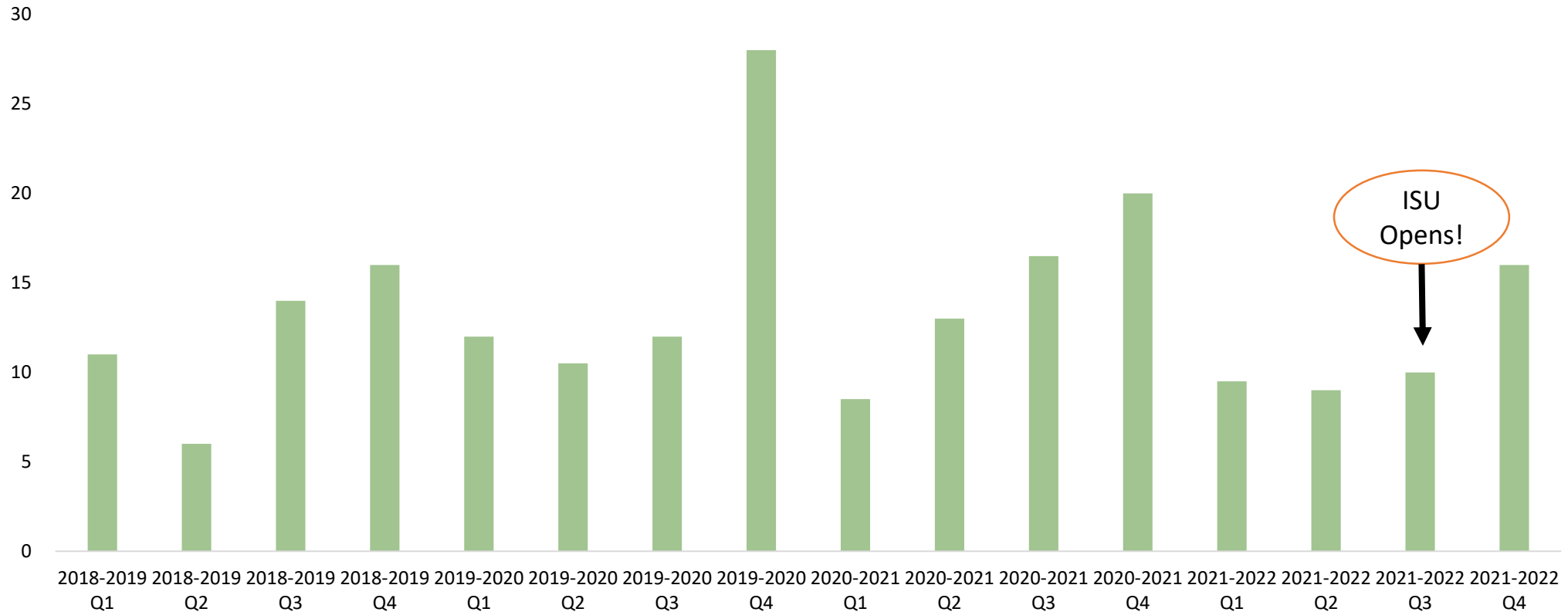


Interpretation Considerations:

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.

Regional Stroke Dashboard: BrGH Median Days Stroke Onset to Rehab 2021-22

Median Days to IP Rehab from Onset

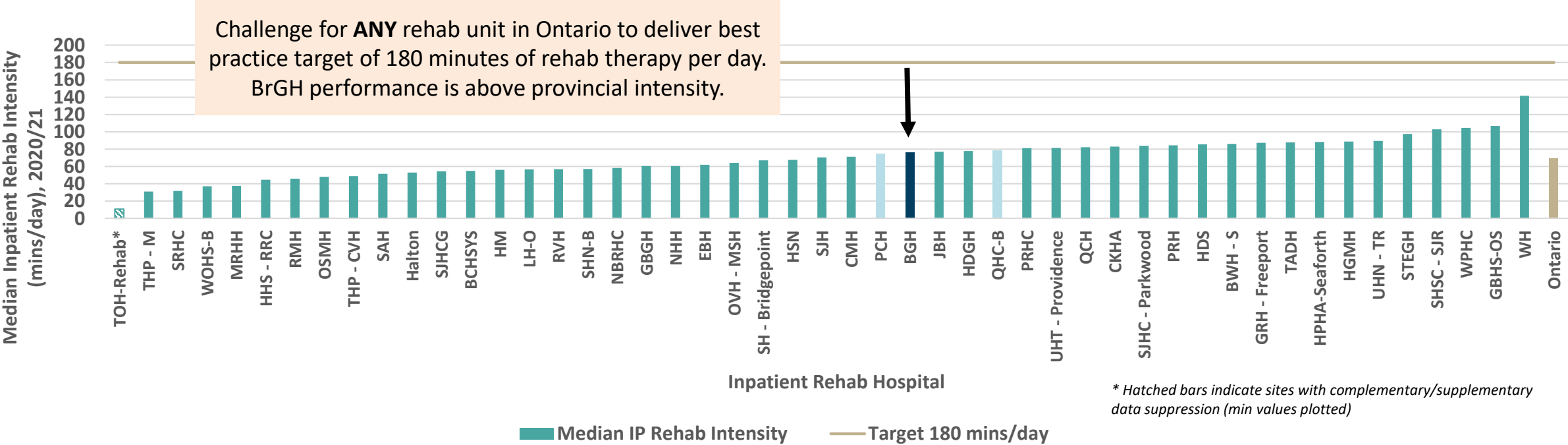


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

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

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:

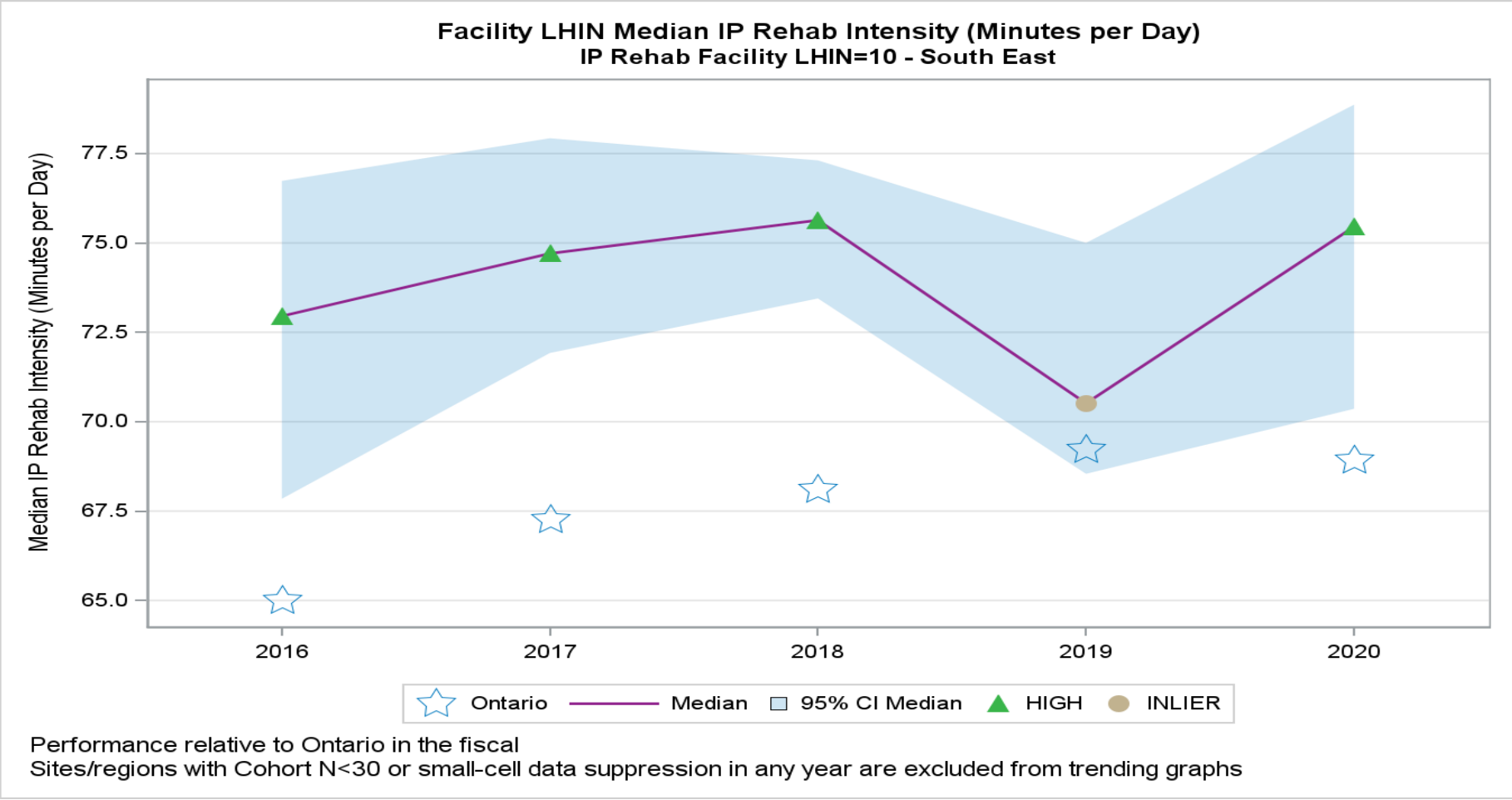
Desired directionality is high. There is wide variation in hospital performance in 2020 from 10.9 minutes per day for TOH-Rehab to 141.7 minutes per day for WH. All inpatient rehabilitation hospitals are below the target of 180 minutes per day of direct inpatient rehabilitation therapy.⁵ Factors influencing 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.

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*

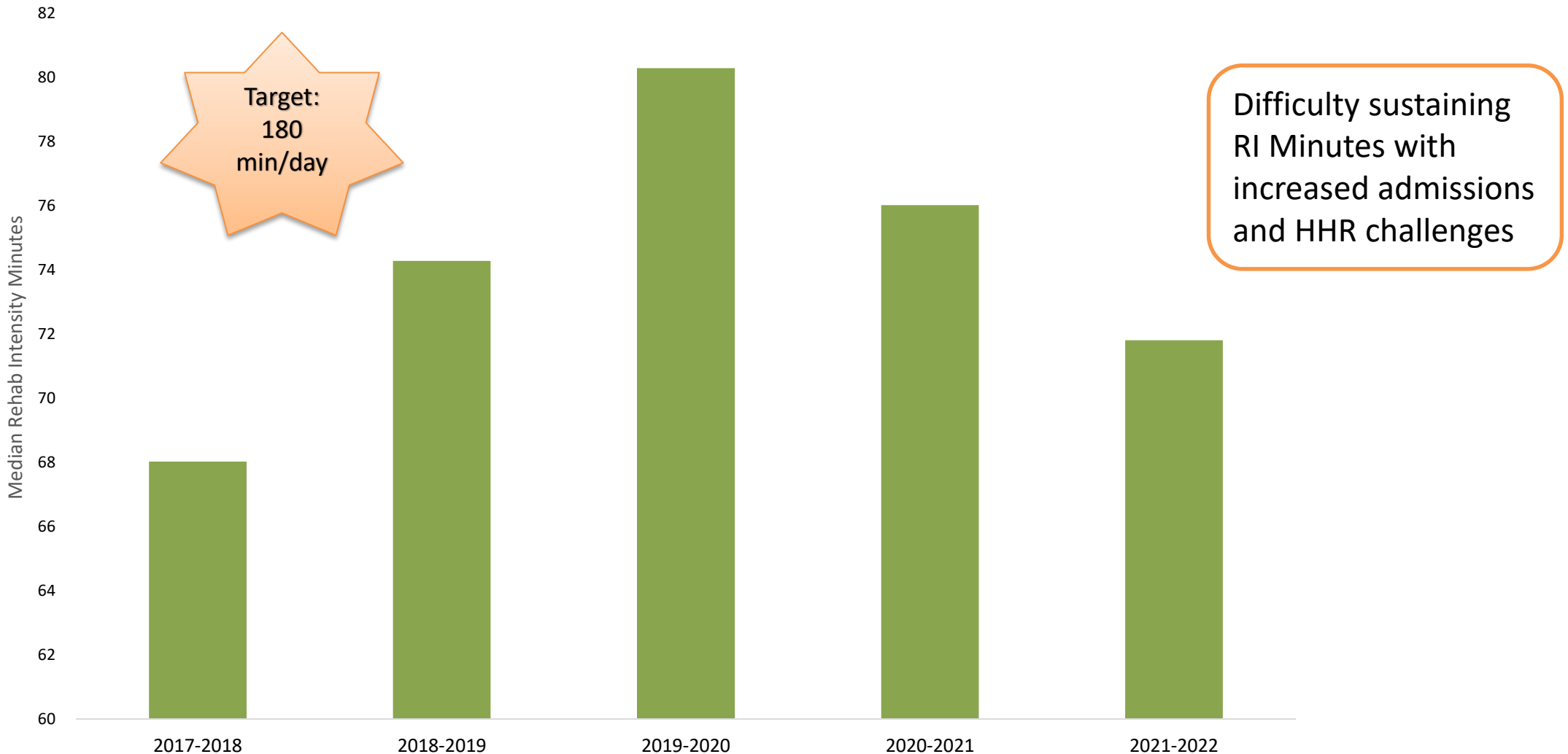
Indicator Description:

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



Regional Stroke Dashboard: BrGH Rehabilitation Intensity to 2021-22

Median Total Rehab Intensity Minutes



Acute and Rehab Stroke Discussion “ONE TEAM”

- **Accomplishments**

- Integrated Stroke Unit LLG
- Interprofessional Teamwork sustained with added Stroke and Rehab Coordinator
- Improved Stroke unit utilization rate
- ISU Welcome Book informed by patients and families
- Enhanced transitions to the community setting

- **Ongoing**

- Sustain stroke unit utilization rate
- Maximizing Inpatient Rehab Intensity: use of Rehab Assistants, scheduling
- Building stroke expertise

- **FUTURE:**

- Collaboration with outpatient rehab (see community rehab section)
- Other?

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



Community Stroke Data

Community Rehabilitation

Community Supports

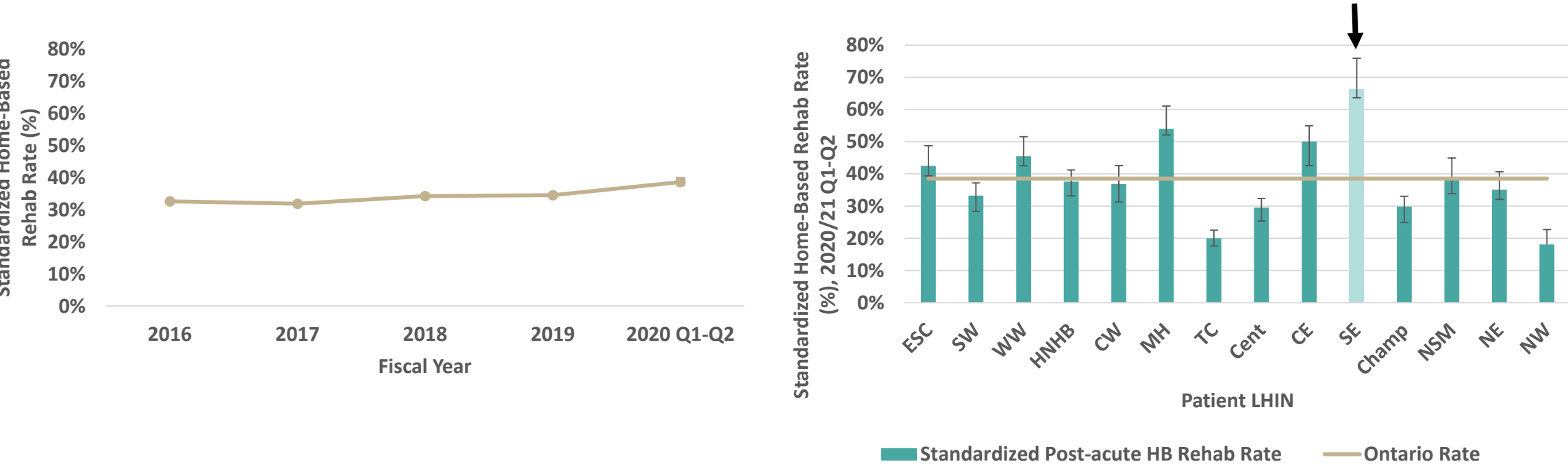


Chapter 4: Post-Acute Stroke Rehabilitation Access and Timeliness

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).

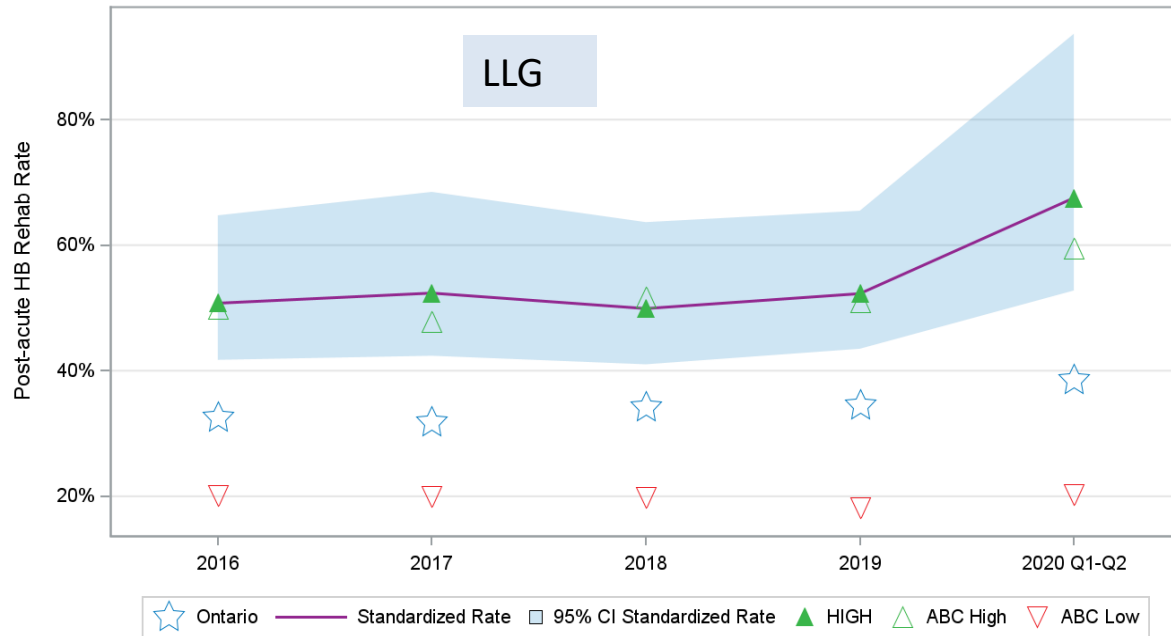


Interpretation Considerations:

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](#).

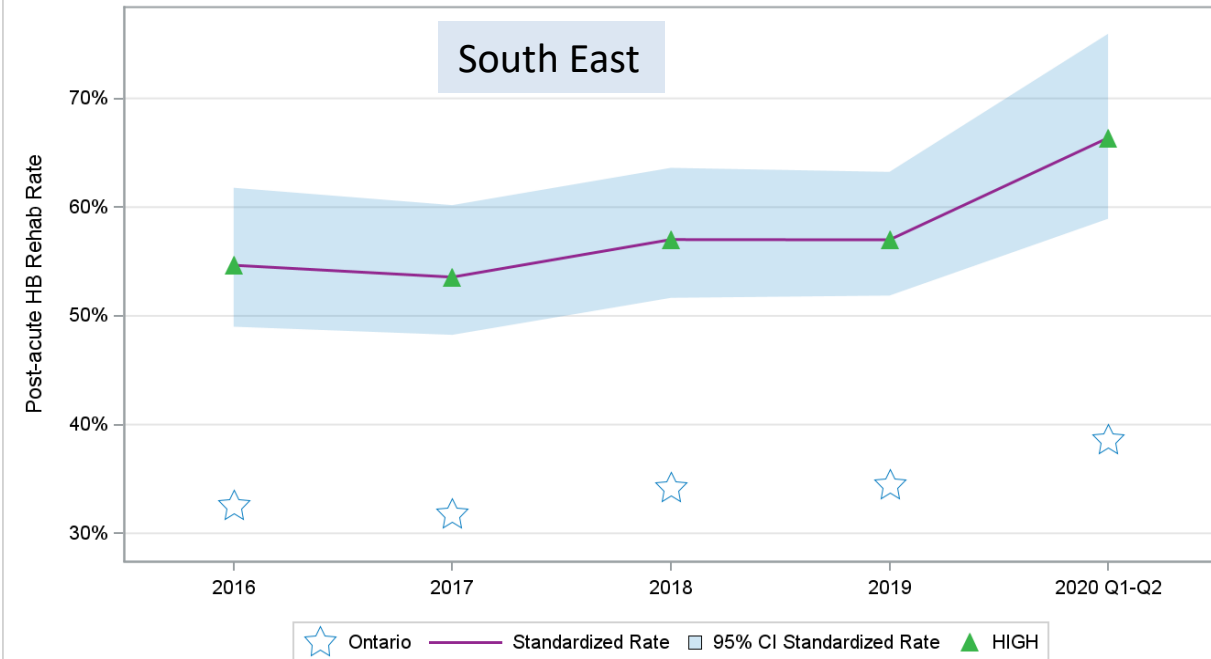
4.1 Standardized Rate of Access to Home-Based Rehabilitation, FY 2020/21 Q1-Q2

Patient Subregion Rates of Post-acute HB Rehab
Patient LHIN=10 Patient Subregion=1005-Lanark, Leeds & Grenville



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

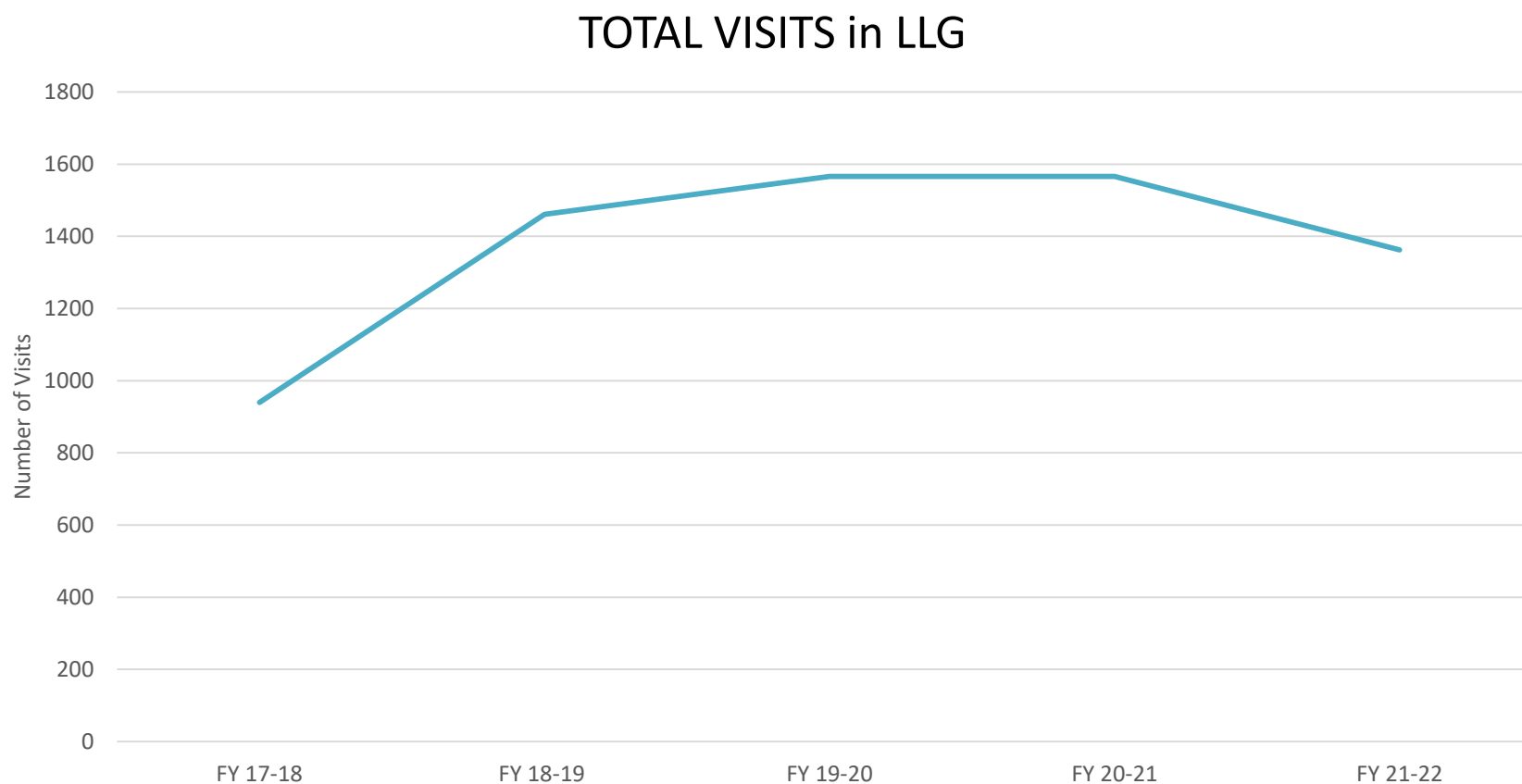
Patient LHIN Rates of Post-acute HB Rehab
Patient LHIN=10 - South East



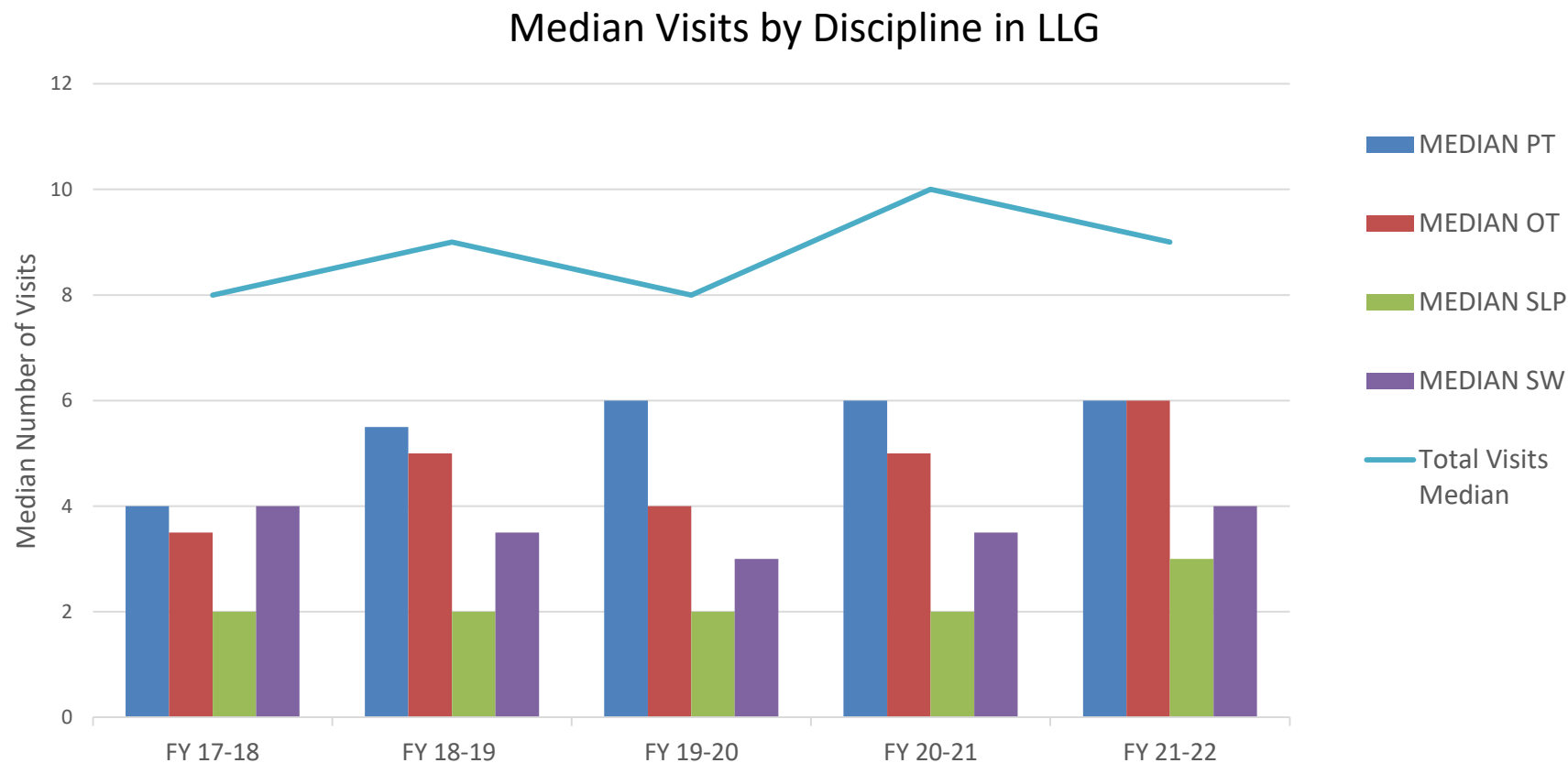
Performance relative to Ontario in the fiscal
Sites/regions with Cohort N<30 or small-cell data suppression in any year are excluded from trending graphs
Sites/regions with complementary or supplementary data suppression, plotted values are the minimum value

High rates of admission to home based rehab services in LLG compared to Ontario – partly explained by lack of OP programs in Brockville

Regional Stroke Dashboard : Community Stroke Rehabilitation Total Therapy Visits LLG – 2021-22

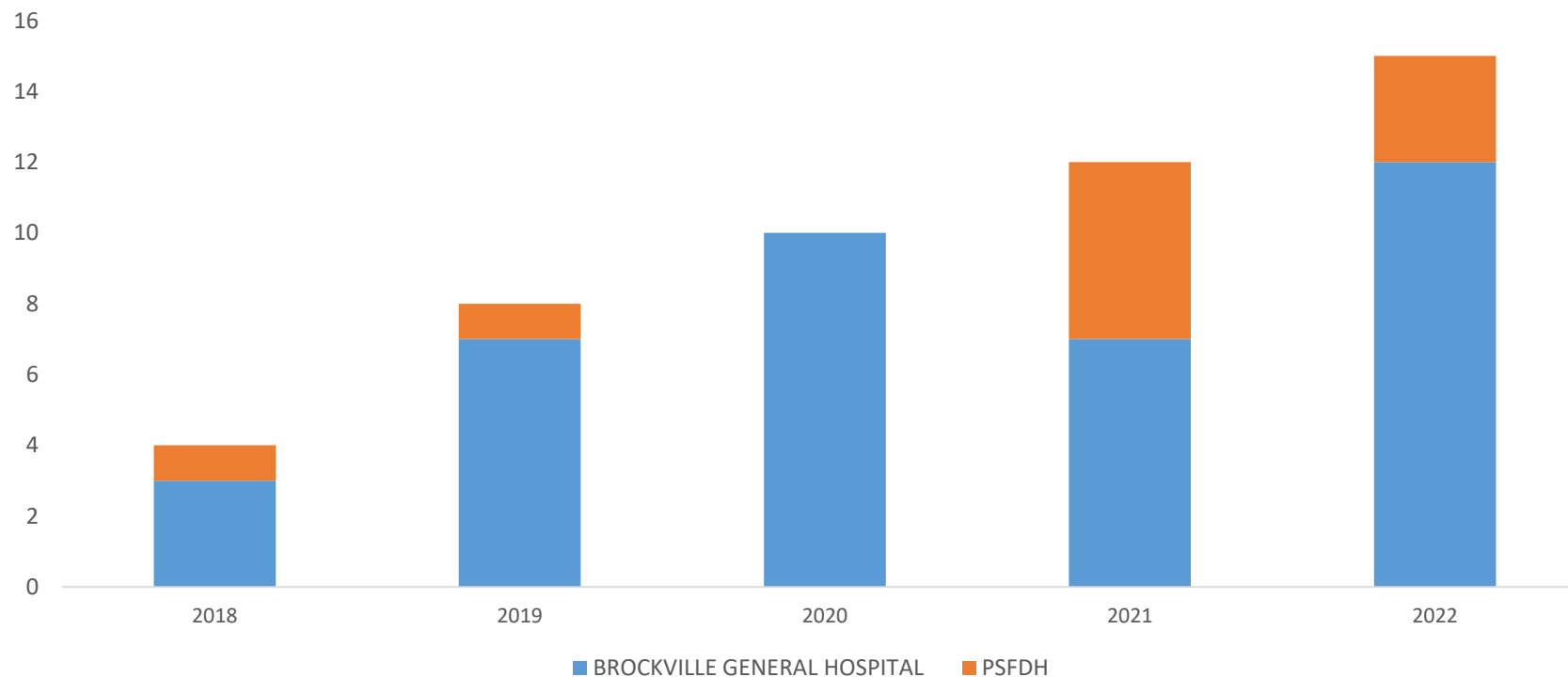


Regional Stroke Dashboard: Community Stroke Rehabilitation Median Visit Intensity per Patient – 2021-22



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

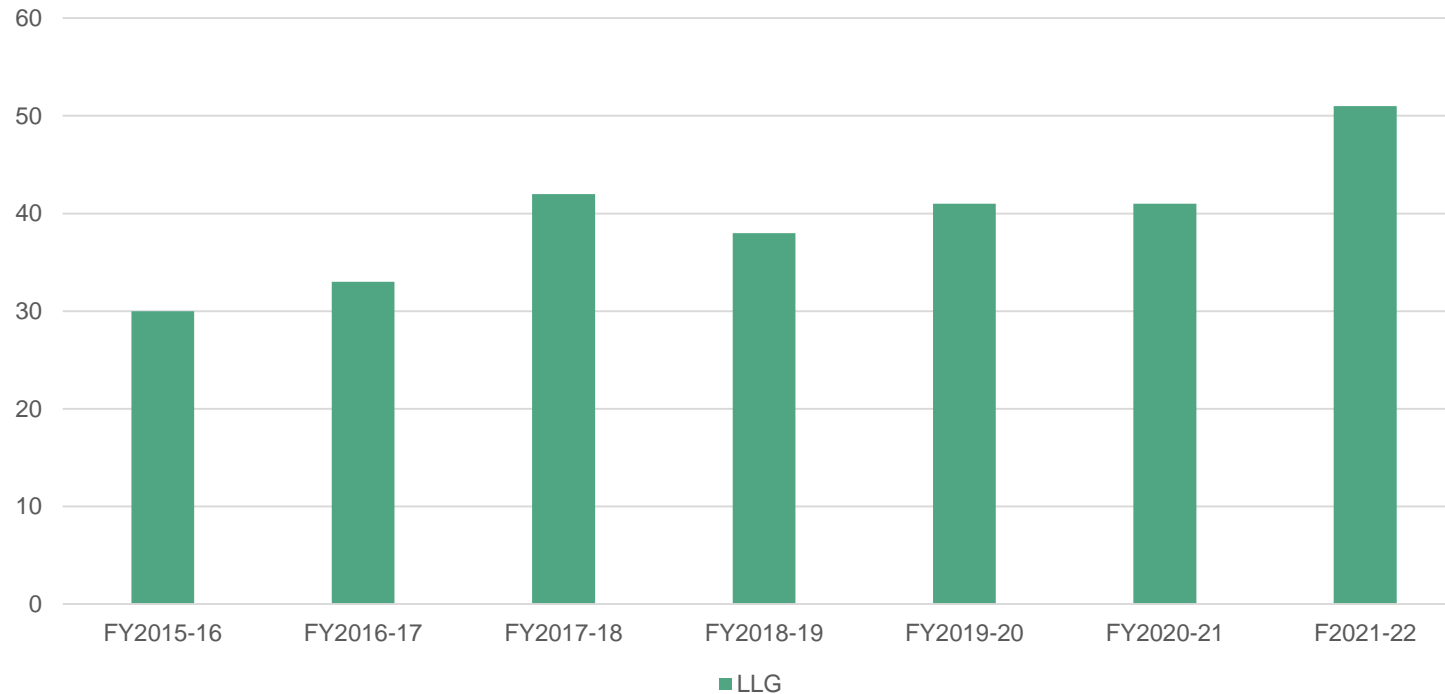
Number of CORP Meetings from BrGH and PSFDH



Regional Stroke Dashboard

Community Stroke Support Group Participation

Annual Participation in Stroke Support Services



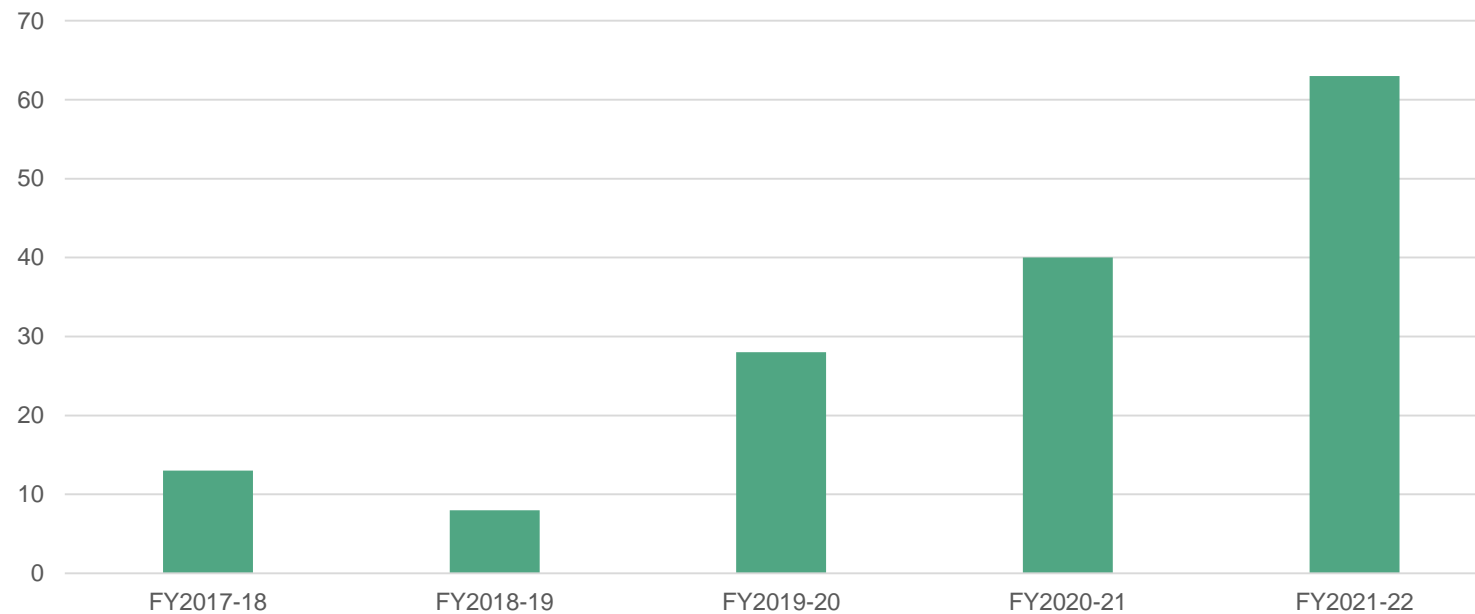
Hospital Community Collaboration has contributed to improved referral rates and participation; virtual connections have strengthened transitions.



Regional Stroke Dashboard

Community Stroke Support Group Participation

Number of New Referrals for Stroke Support Groups in LLG:
Fiscal Year



Data estimated due to missing data



stonenetwork
SOUTHEASTERN ONTARIO

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 – program started in LLG

- **Ongoing**

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

- **FUTURE:**

- Implement a comprehensive neuro outpatient program in Brockville
- Growth in capacity for community rehabilitation
- Community Supports: Consultation Report and Recommendations 2023-24
- Other?

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



LLG STROKE EVALUATION SUMMARY



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