



Emergency Stroke Care

How are we doing?

**Southeast Regional & District
Acute Stroke Protocol Committee
May 2020**

**with thanks to Paramedic Services & Regional Paramedic Program of Eastern Ontario
(S. Duncan) for EMS data collection; QHC and KHSC**

What is included in this slide deck?

- ▶ Due to COVID-19 a decision has been made to cancel the annual Regional Acute Stroke Protocol (RASP) evaluation meeting
- ▶ However, the following evaluation slides have been prepared for your review and cover:
 - Links to COVID-19 stroke care guidelines & resources;
 - Ontario CTAS stroke data before and after COVID-19 Pandemic;
 - Annual data trends from KHSC, QHC and RPPEO on stroke ASP volumes, % treated, DTN times, stroke volumes by paramedic service, transfers etc;
 - Endovascular Treatment (EVT) update & outcomes;
 - Inpatient stroke unit utilization and mortality graphs
 - Reminders regarding changes in paramedic prompt card and walk-in protocols related to extended time window for treatment.
- ▶ If you have any concerns at all about the Acute Stroke Protocol (ASP) processes, please do not hesitate to be in touch – contacts provided on last slide
- ▶ **Thank you** for all you are doing to keep emergency stroke care protocols working well – Dr Jin and Cally Martin.

Stroke Care During COVID-19

<https://www.strokebestpractices.ca/>



Recommendations

Quality

Resources

Events

News

New Guidance on Stroke Best Practices During COVID-19 released!

Evidence-informed stroke best practices and resources to support health care professionals, patients and caregivers.

Stroke Care Resources during COVID-19 Pandemic www.strokenetworkseo.ca

NEW COVID-19 Stroke
Care Resources in use in
Southeastern Ontario

Learn More



NEED FOR Public Awareness during COVID-19

**Stroke is a medical emergency. Do not hesitate.
Call 9-1-1 even during the COVID-19 pandemic.**

Learn the signs of stroke

F **ace** is it drooping?

A **rms** can you raise both?

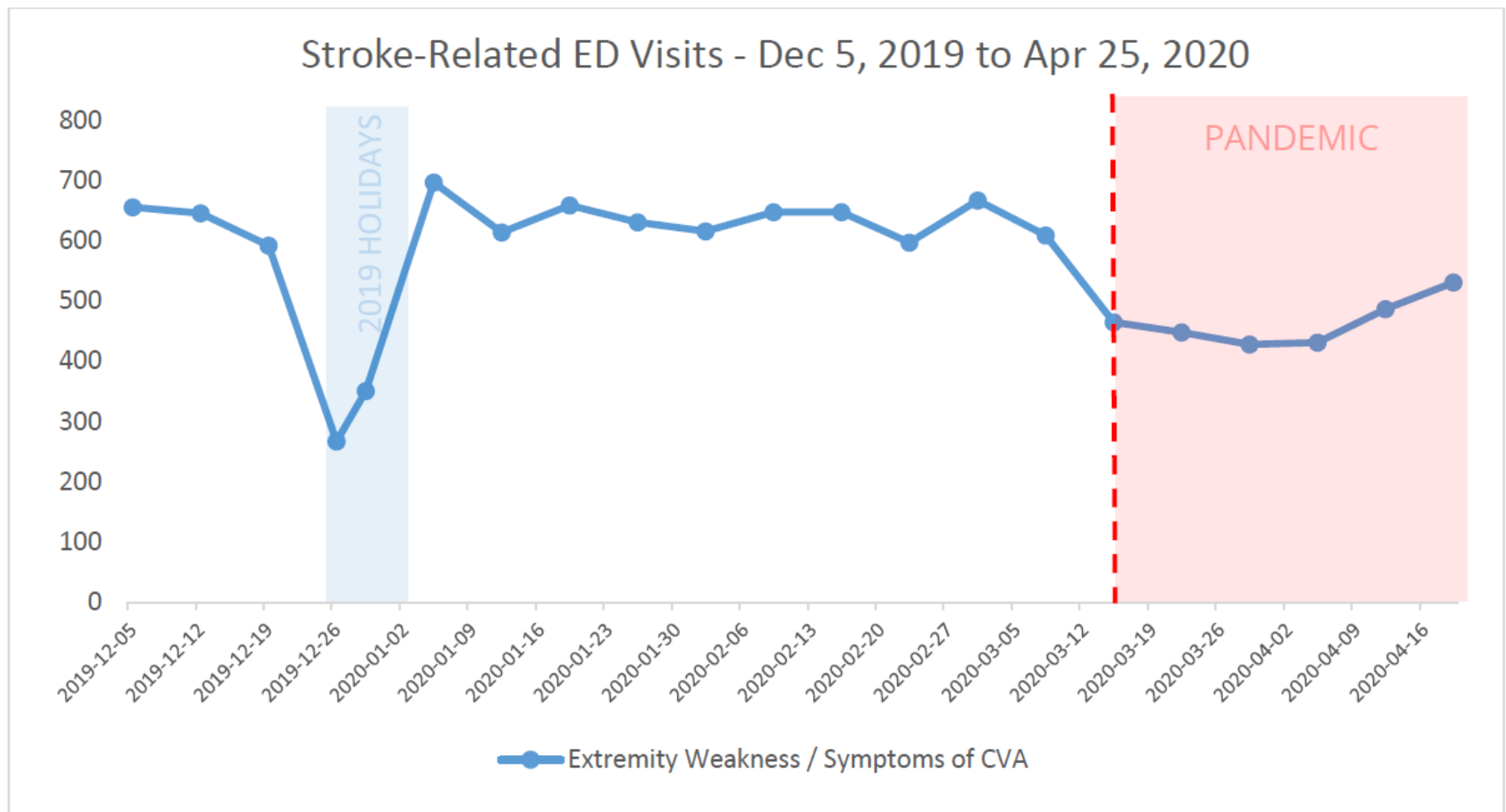
S **peech** is it slurred or jumbled?

T **ime** to call 9-1-1 right away.

heartandstroke.ca/FAST



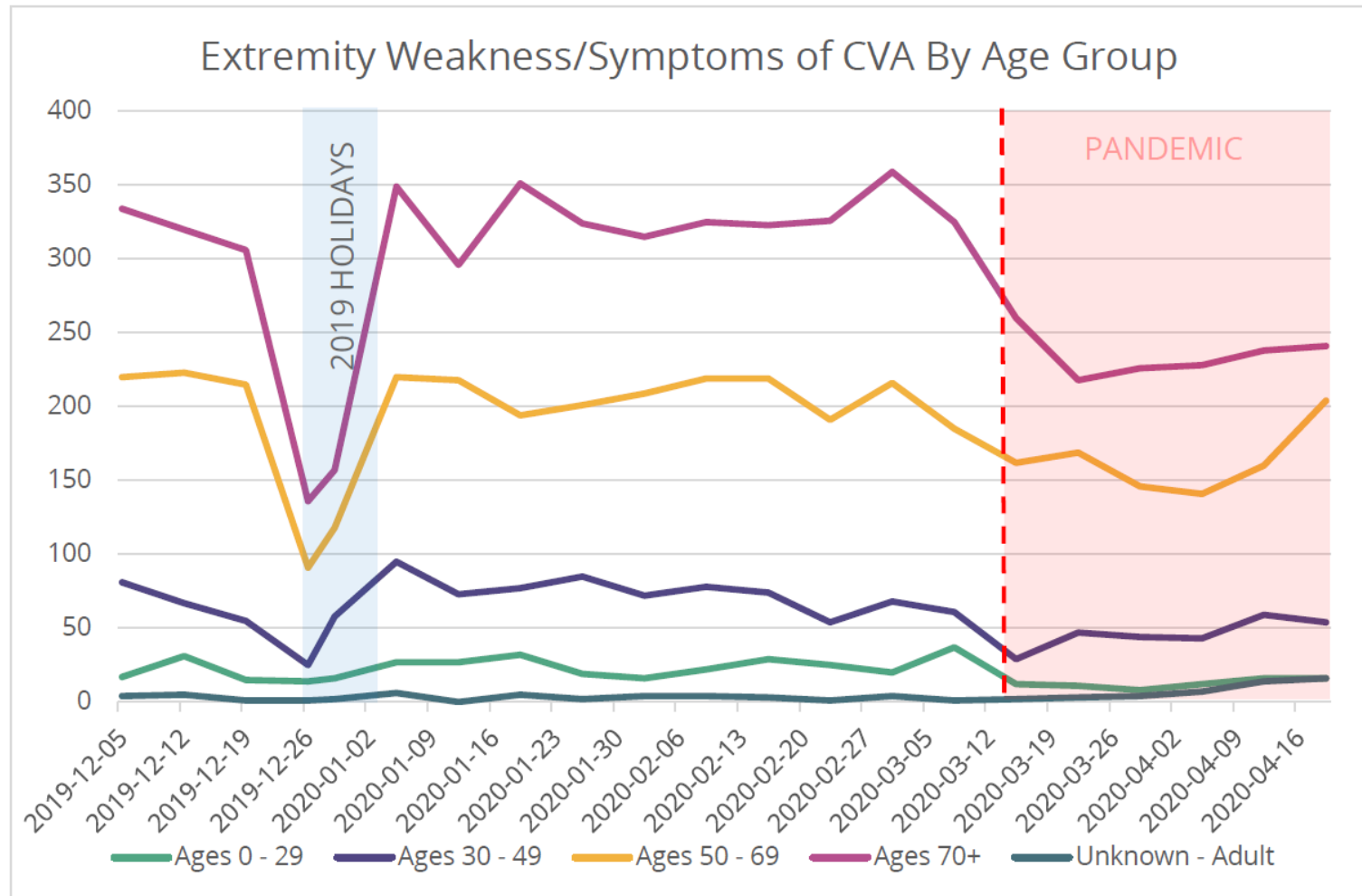
Ontario eCTAS data: Decrease in Stroke-related ED Visits during COVID-19



Data Source: Ontario Health Cancer Care Ontario eCTAS Stroke Analysis - April 27, 2020 using weekly date from December 5 - April 25, 2020

April 30, 2020

Ontario eCTAS Stroke Data by Age

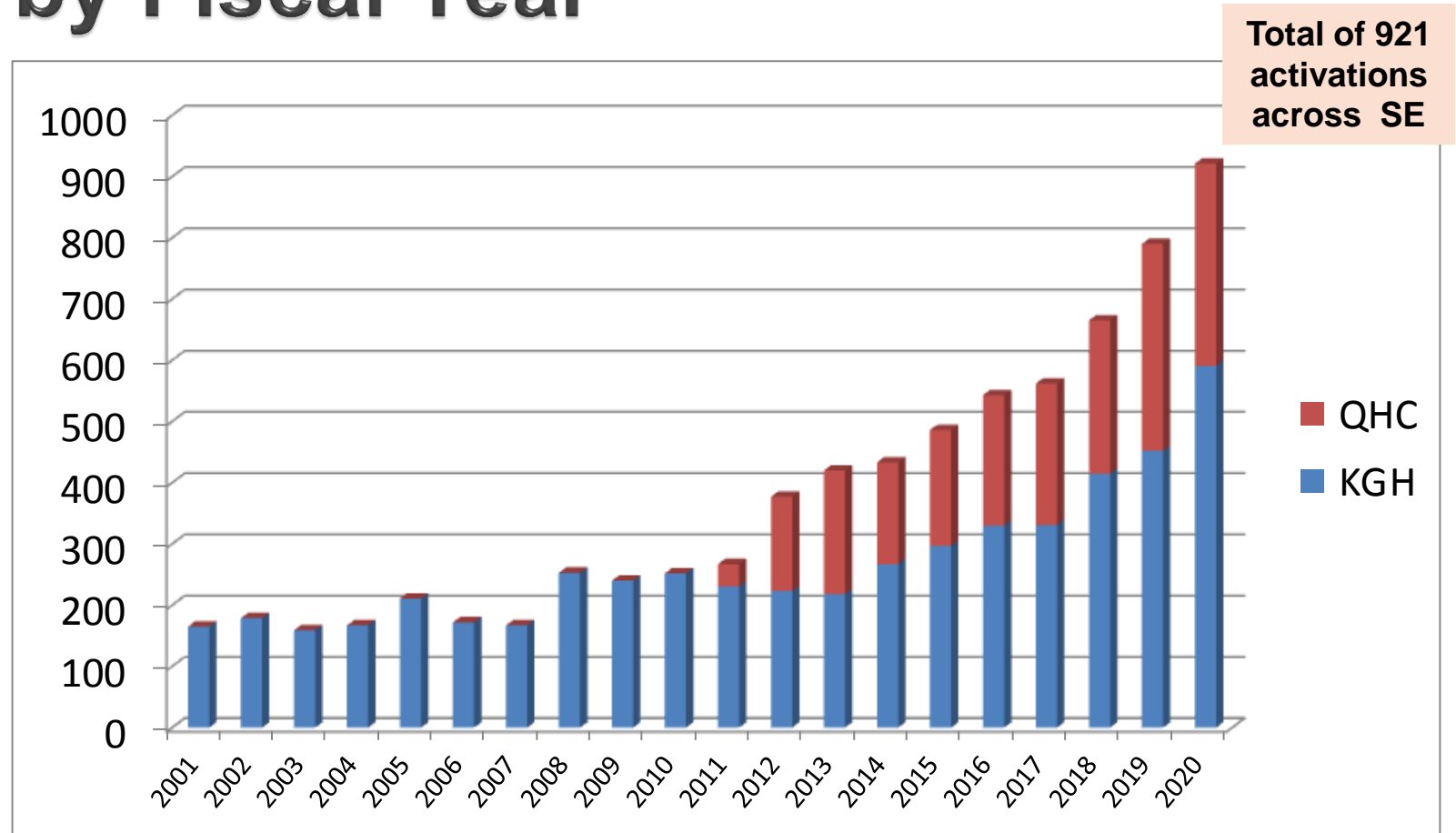


Data Source: Ontario Health Cancer Care Ontario eCTAS Stroke Analysis - April 27, 2020 using weekly date from December 5 - April 25, 2020

KGH + QHC

**stroke protocol activations
and
tPA Volumes**

SEO ASP Activations KGH/QHC by Fiscal Year



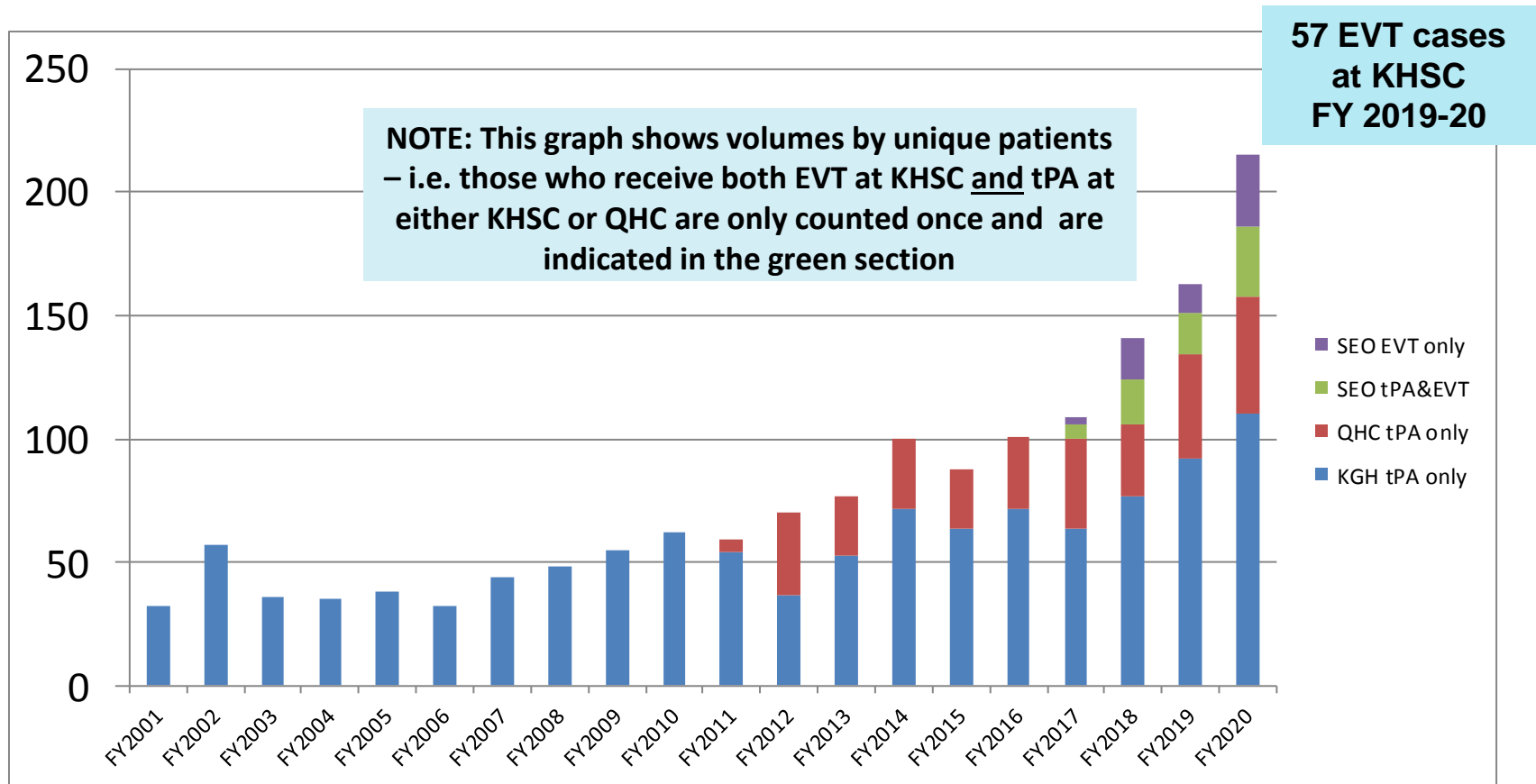
2019-20 – 921 stroke protocol activations

Includes 78 In-hospital stroke protocol activations (up from 64 last FY)

52 at KGH – 10 treated; 26 at QHC – 0 tPA

8.5% of in-hospital activations treated

KGH/QHC tPA and EVT Volumes by Fiscal Year – unique patients

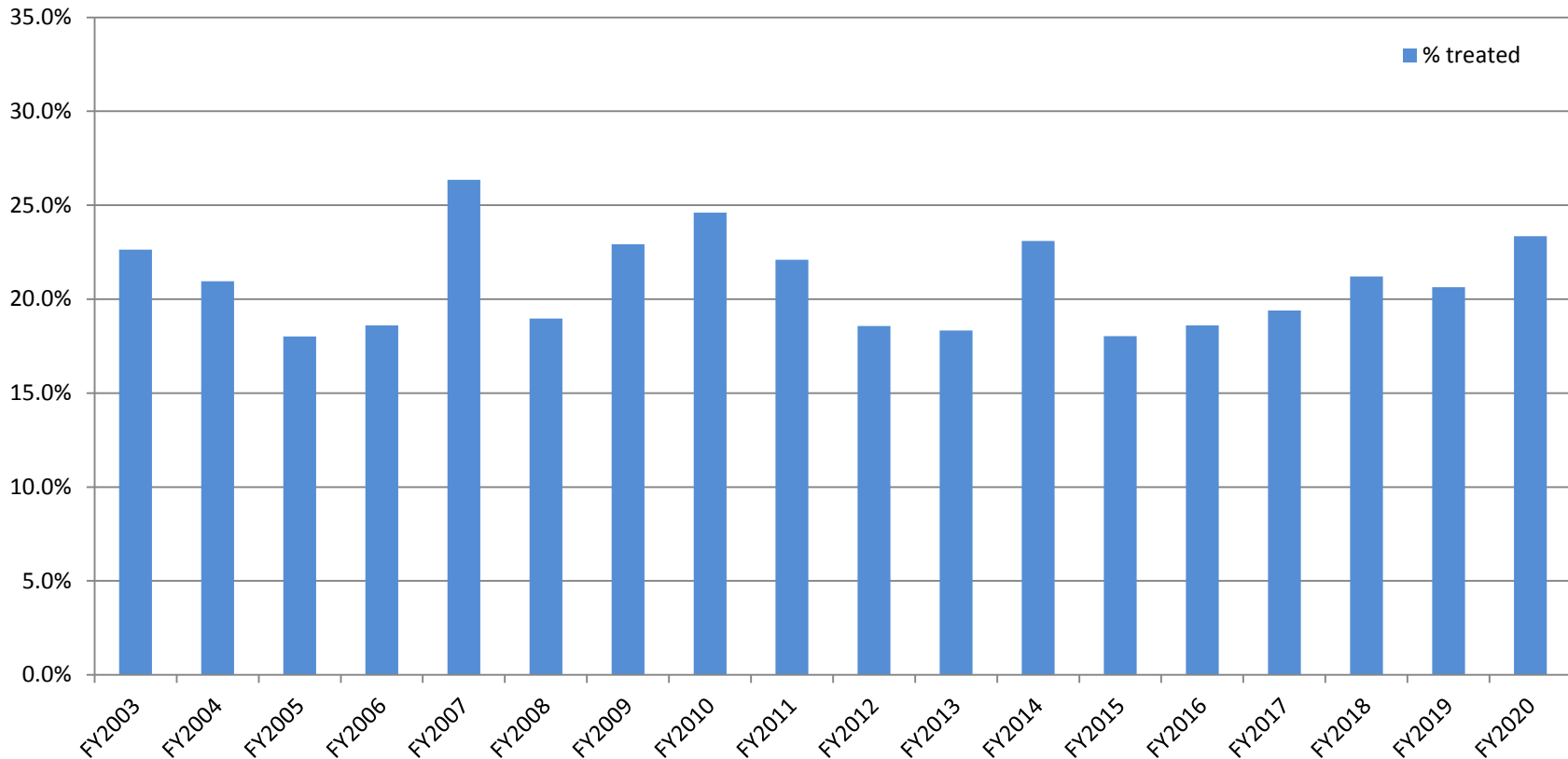


Median Door-to Needle (DTN) times:
2019-20 KGH 28 mins; QHC 46 mins

Key factors: EMS pre-notification; stay on EMS stretcher to CT; tPA in CT suite !!

SE Region: % Stroke Activations Treated with tPA or EVT at KGH & QHC by FY

Hyperacute Treatment Volumes Expressed as % of ASP Activations



Per slide 5 - Volumes of stroke activations have risen each year.

Per slide 6 - Volumes treated have risen each year.

Over past 3 years, across the region, % activations treated with tPA, EVT or both have ranged between 20 and 25%

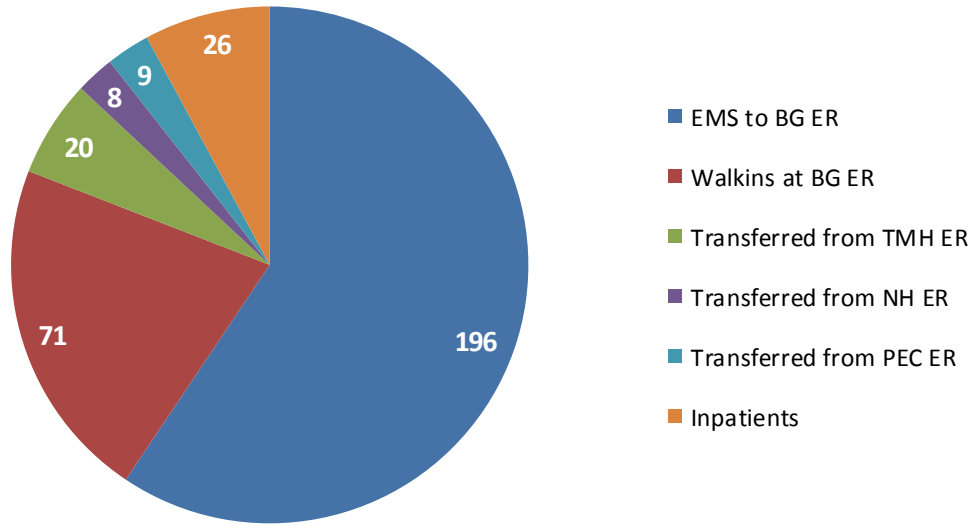
% Ischemic Stroke Receiving tPA

Source: SE Stroke Dashboard CIHI NACRS & 340 2017-2020



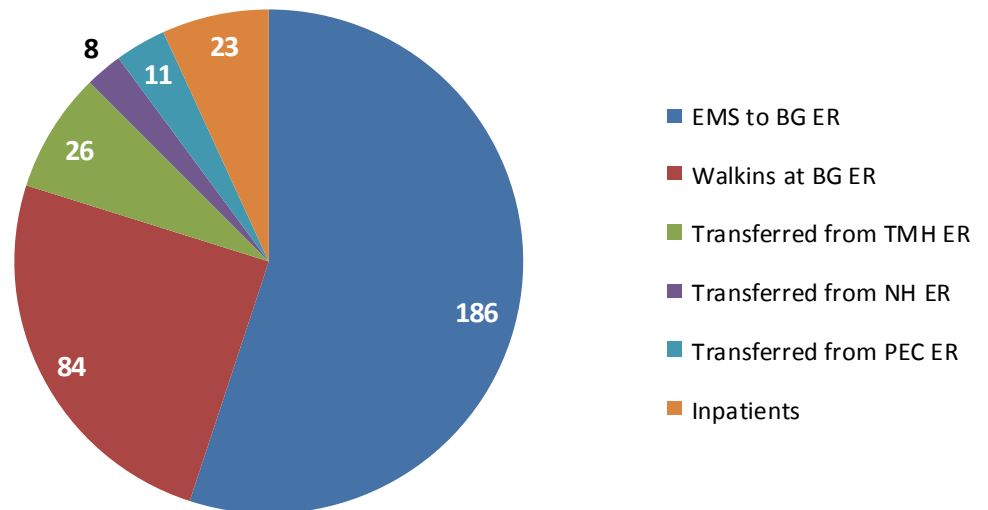
Over past 3 years, % ischemic stroke patients who received tPA has ranged between 20 and 30% at KGH and between 9 and 22% at QHC

QHC Code Stroke Activations (19/20)



QHC Data

QHC Code Stroke Activations (18/19)



QHC Kaizen Event

- ▶ Held July 2019 to target stroke emergency care
- ▶ Focus was to improve 4 key areas:
 - ✓ Reduce practice variation
 - ✓ Improve nursing teamwork in ICU and ED
 - ✓ Renew momentum and ownership for hyperacute care
 - ✓ Reduce door-to-needle (DTN) times for tPA
- ▶ Have reduced median DTN from 60 to **46 mins!**
- ▶ Work is ongoing!





Regional Paramedic Program
for Eastern Ontario

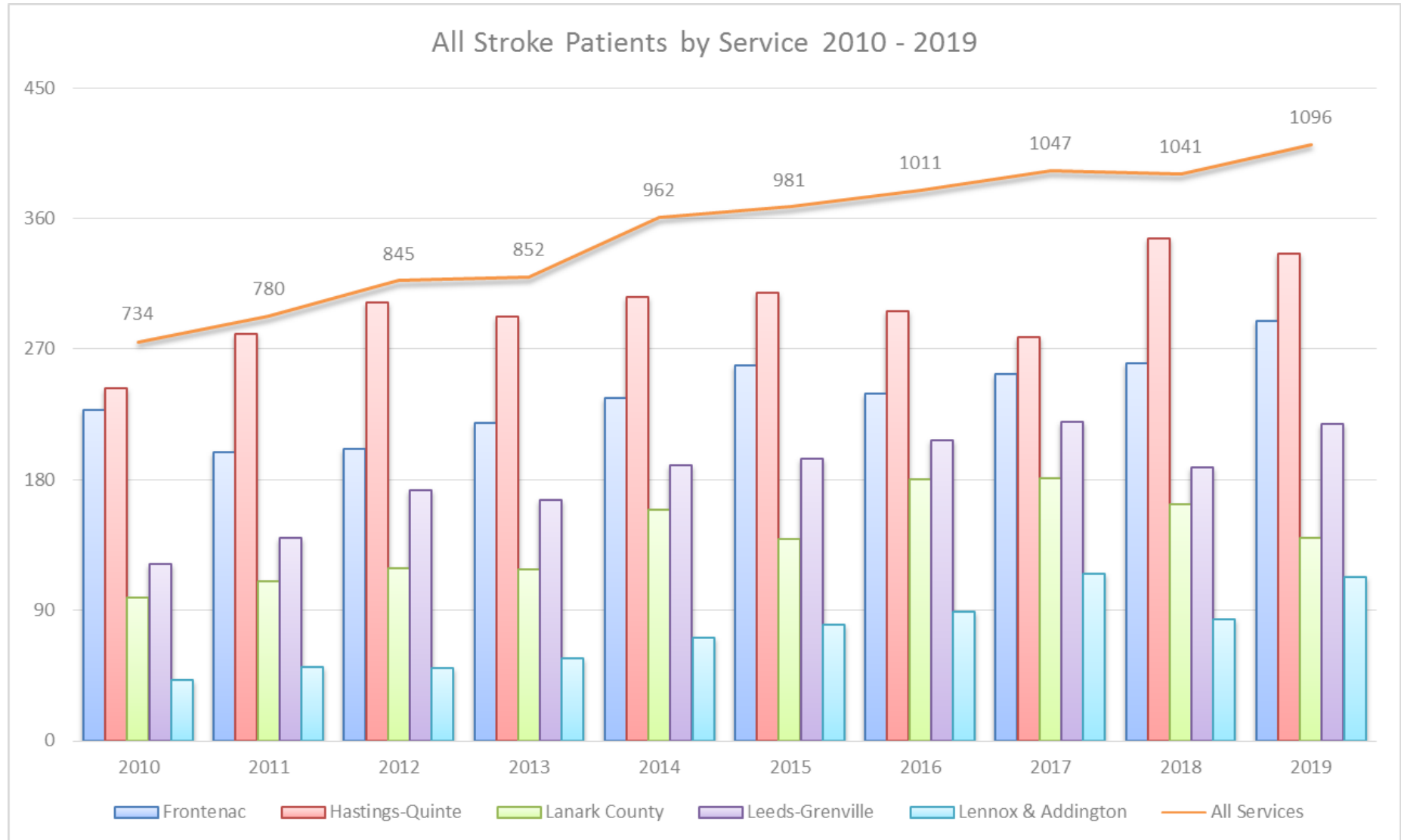
Regional Paramedic Program for Eastern Ontario

Stroke Report 2019

Calendar Year 2019 – with thanks to
Susan Duncan and Ben De Mendonca

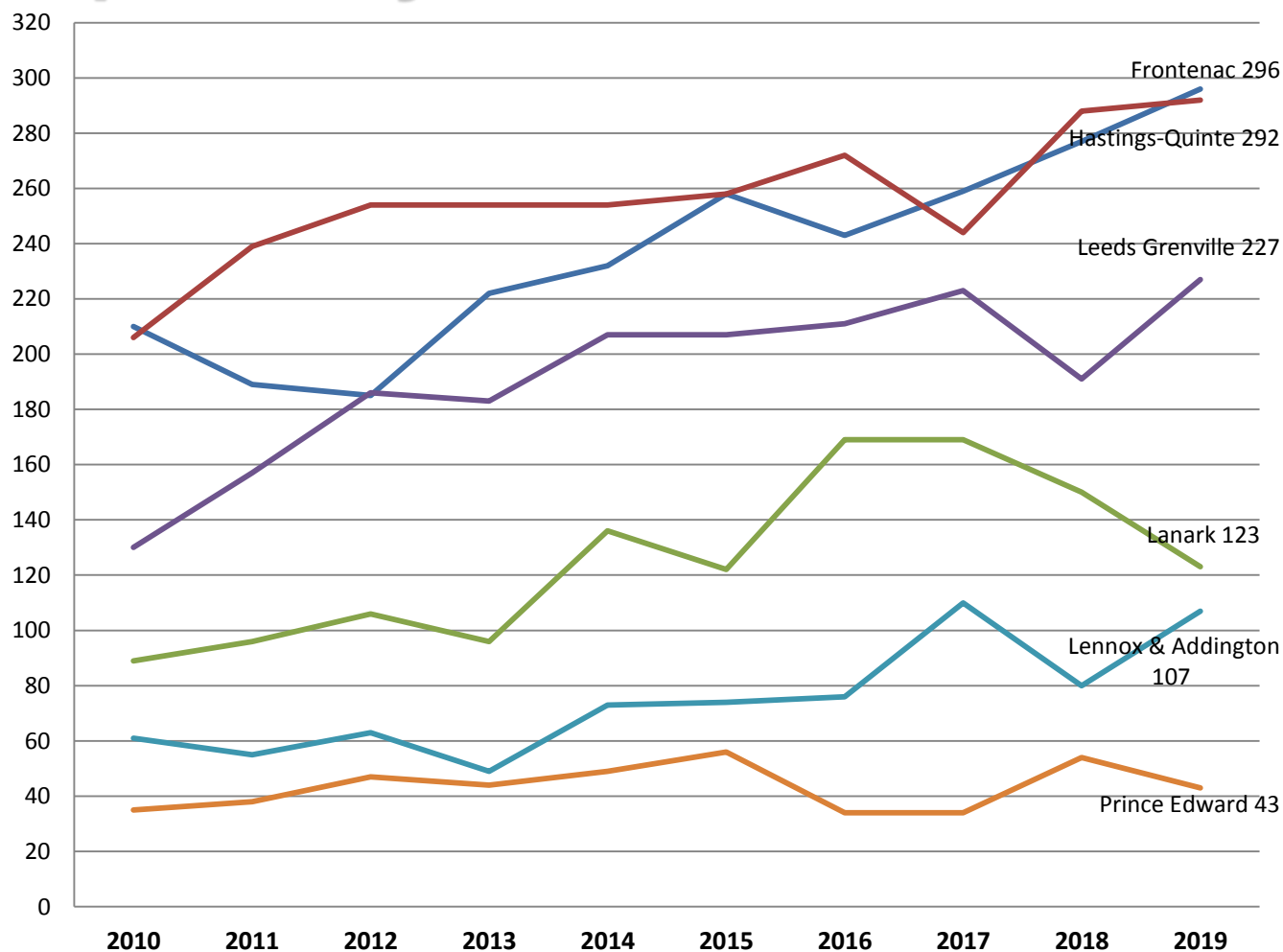
All Stroke Patients by Paramedic Service x 10 yrs

Data Source: RPPEO Stroke Report CY 2019



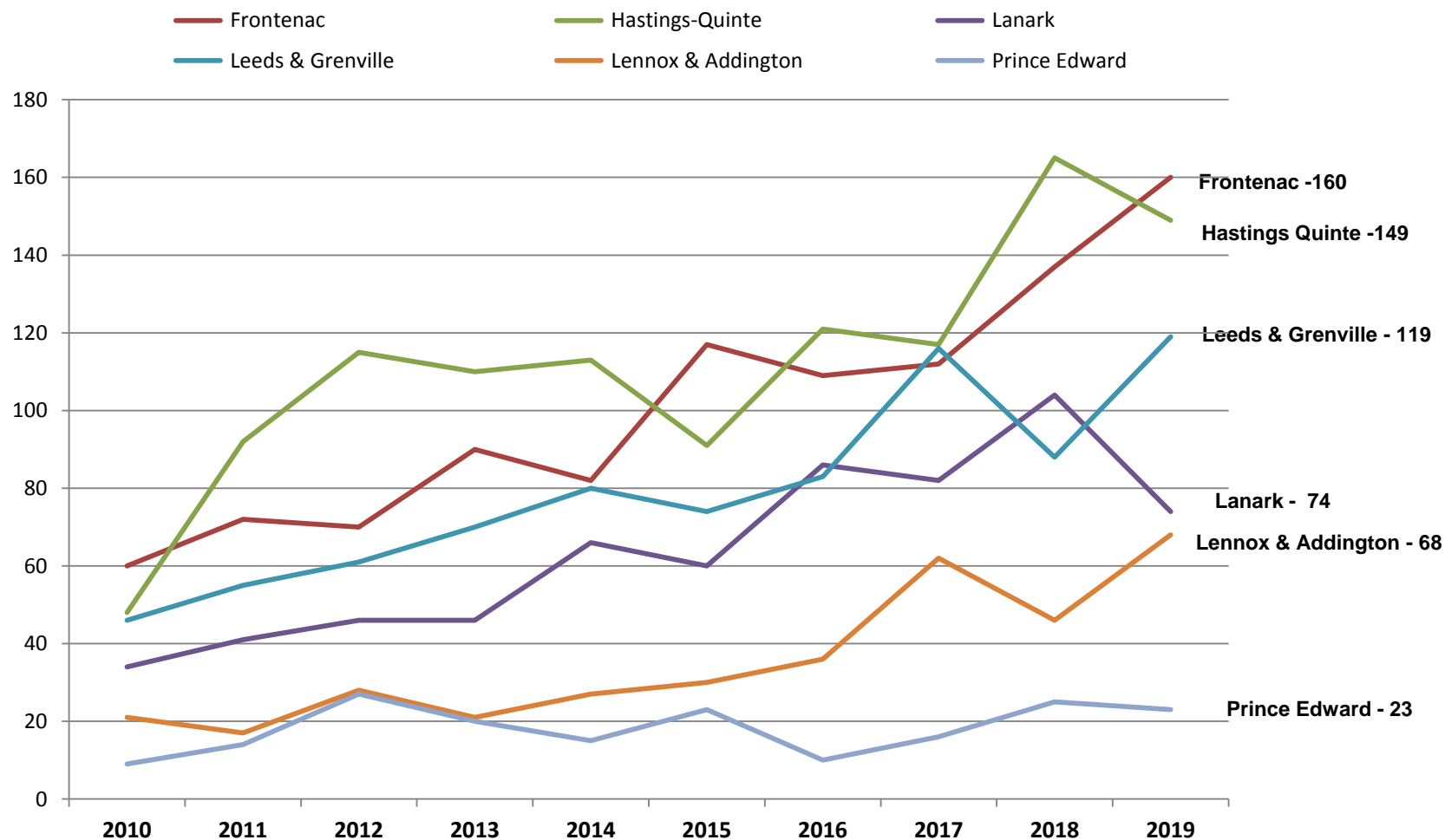
Growth in ALL Stroke Calls by Service over past 10 years

Data Source: RPPEO 2019 Stroke Report



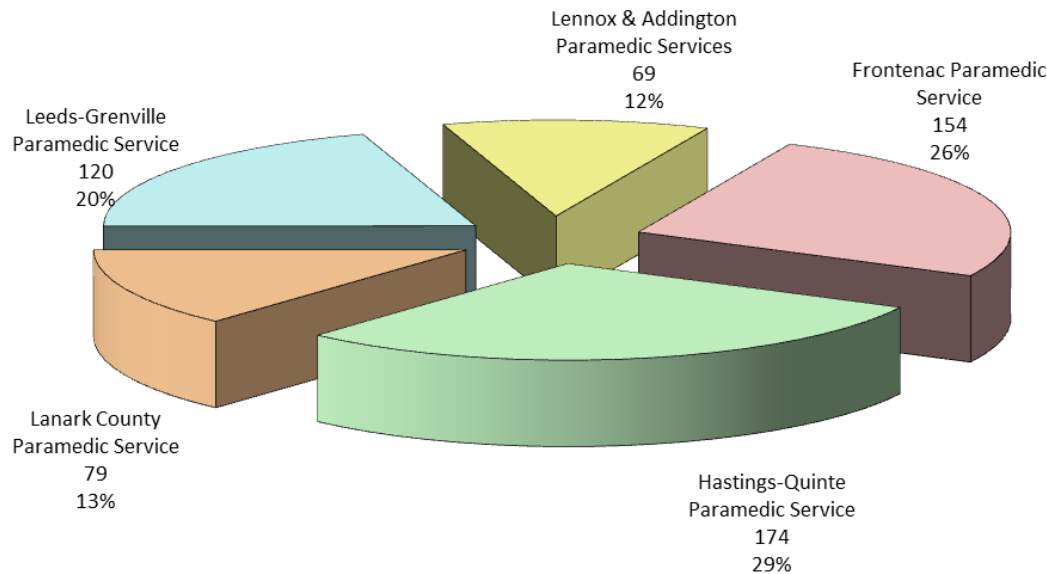
Growth Stroke Protocol Calls by Service over past 10 years

Data Source: RPPEO 2019 Stroke Report



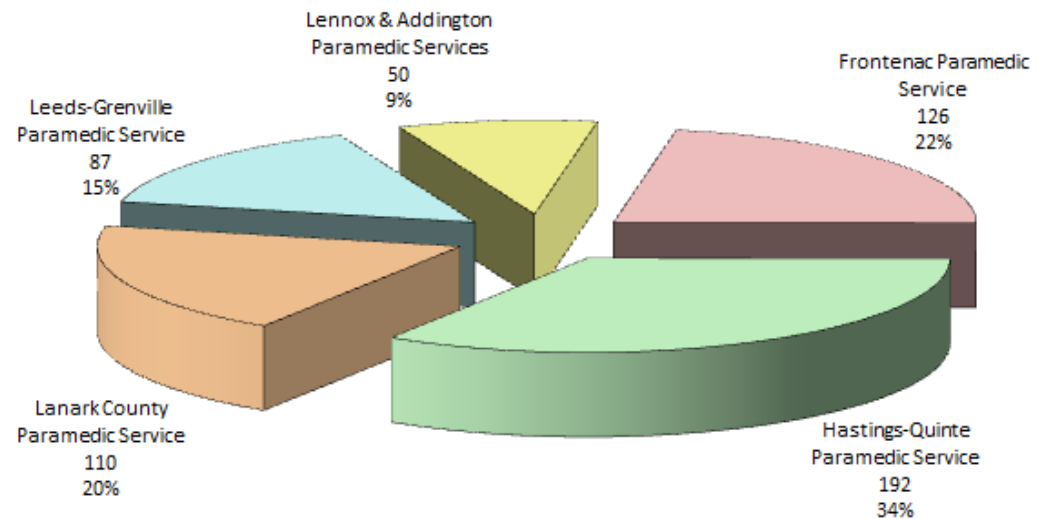
**ACUTE STROKE PROTOCOL (ASP) PATIENTS IN 2019 (N=596)
BY RESPONDING PARAMEDIC SERVICE**

Data Source: RPPEO 2019 Stroke Report



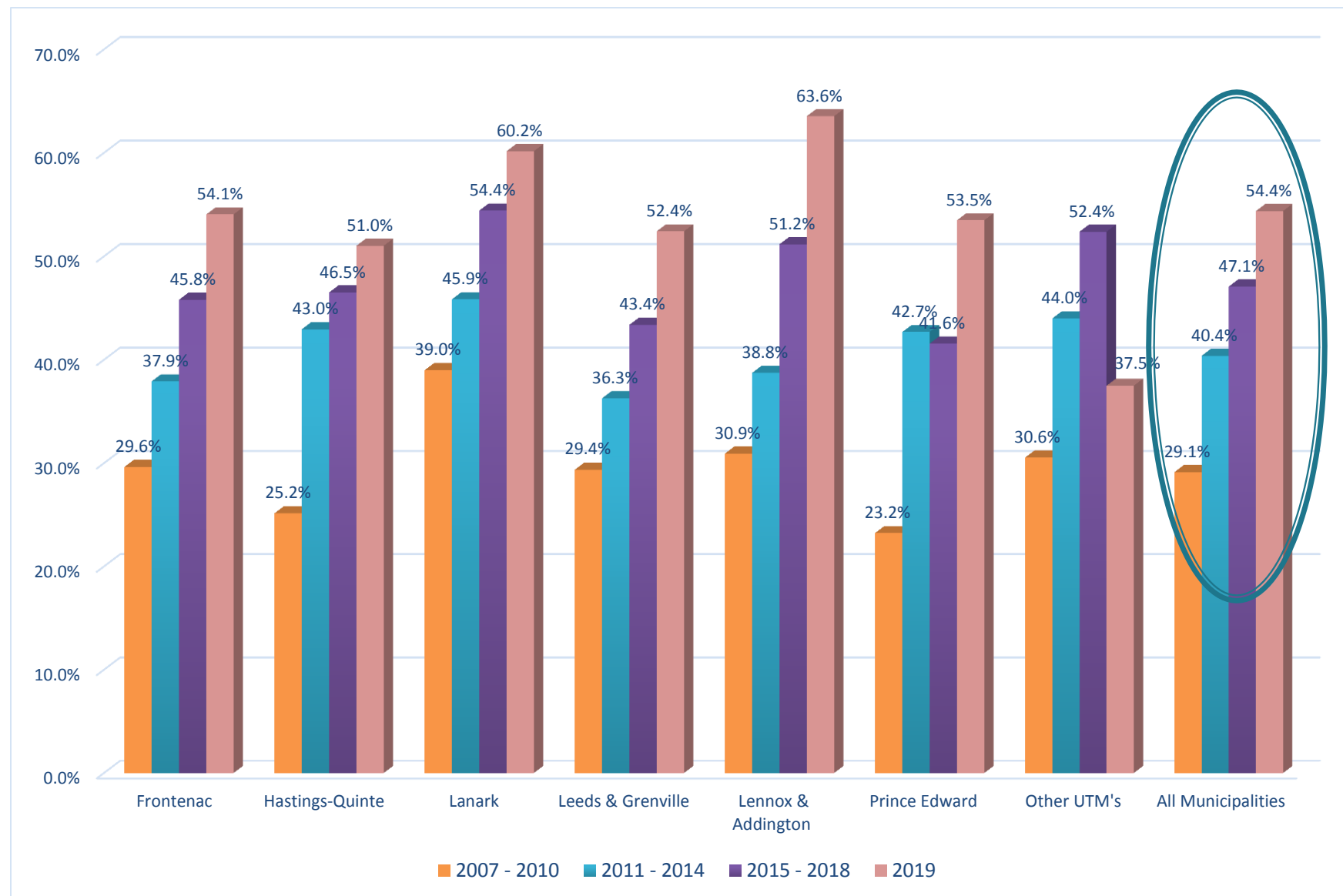
**2019
ASP stroke calls
by service
N=596**

**2018
ASP stroke calls
by service
N=565**



% OF STROKE PATIENTS TRANSPORTED IN EACH COUNTY WHO MET ACUTE STROKE PROTOCOL

Data Source: RPPEO 2019 Stroke Report



Transfers vs Bypass 2011-2019

Data Source: RPPEO 2019 Stroke Report

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Stroke Centre is closest	129 (44%)	161 (46%)	176 (49%)	165 (43%)	165 (41%)	183 (41%)	191 (38%)	220 (39%)	253 (42%)
Bypass	115 (39%)	133 (38%)	146 (41%)	135 (35%)	168 (42%)	183 (41%)	210 (41%)	224 (40%)	237 (40%)
Transfers	49 (17%)	56 (16%)	38 (11%)	86 (22%)	66 (17%)	82 (18%)	107 (21%)	121 (21%)	106 (18%)
TOTAL	293	350	360	386	400	448	508	565	596

Reasons for the transfers in 2019:

- 48 were brought by private car (45%)
- 10 In-hospital strokes
- 40 brought to local ED – 12 were TIA, 13 outside time window
- 6 EVT transfers outside time window



Home location for the 48 patients arriving by car

Brockville 2

Napanee 8

Belleville 1

Perth 9

Carleton Place 6

Picton 1

Kemptville 5

Smiths Falls 5

Kingston 7

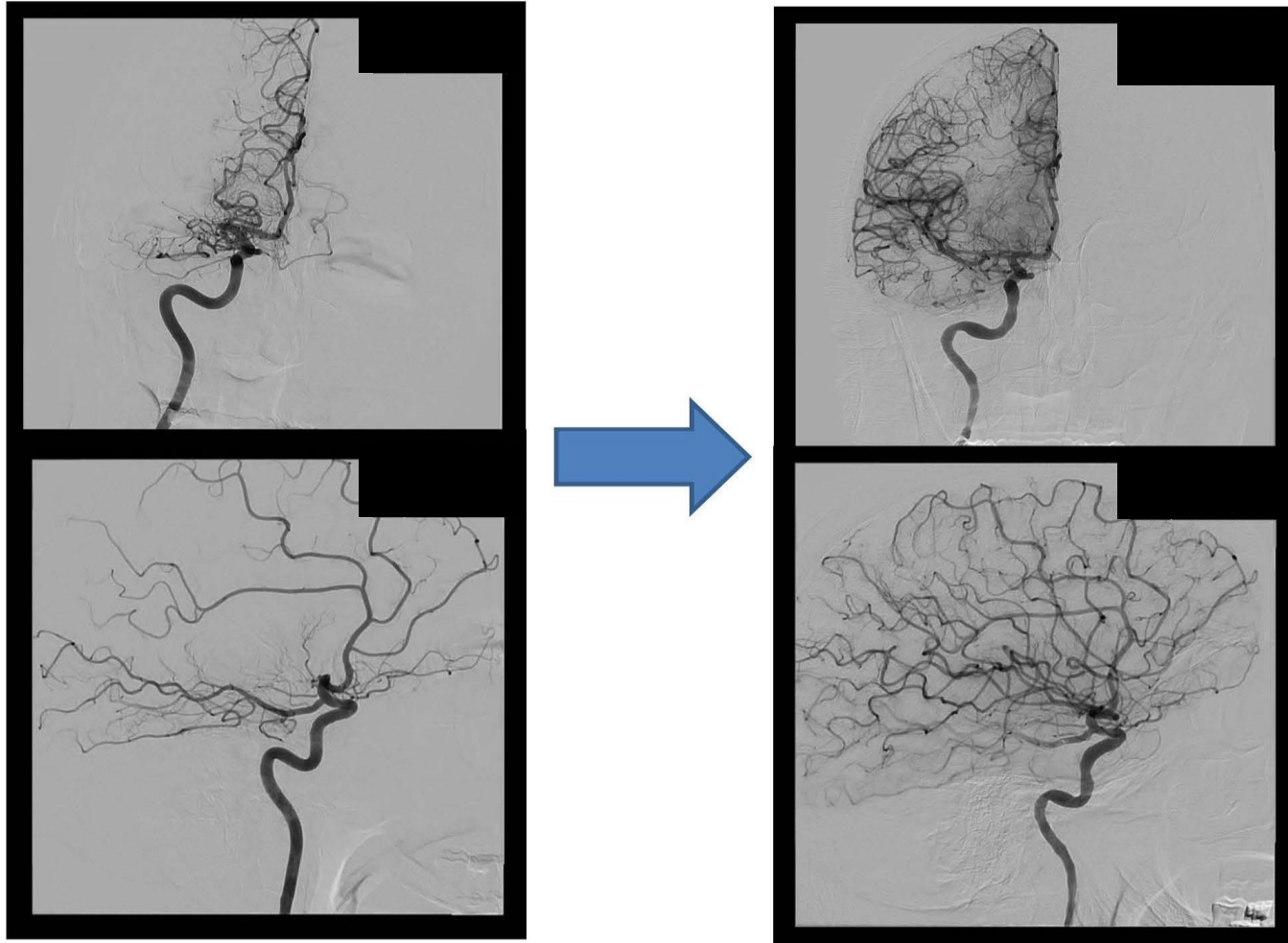
Trenton 4

Contraindications for transport under ASP

Data Source: RPPEO 2019 Stroke Report

Unable to determine when patient last seen normal					54
Unable to deliver patient to stroke centre within timeline					157
	6 – 12 hours		80		
	12 – 24 hours		73		
	greater than 24 hours		4		
Patient was unconscious or unstable					19
Terminally ill or palliative care patient					4
Seizure at onset of symptoms					13
Symptoms resolved prior to paramedic departing scene					248
Symptoms mild					1
Patient refused					2
Should have been ASP					2
Total					500

KHSC EVT Outcomes to Date



KHSC EVT Process Times – 2 yrs

CURRENT - 2019-20

55 anterior and 2 posterior cases

Current KHSC median times for Anterior cases

- Door to CT: **12 mins**
(ON target 15 mins)
- Door to Needle: **22 mins**
(ON target 30 mins)
- Door to Puncture: **41 mins**
(ON target 60 mins)
- Door to First Reperfusion: **58 mins**
(ON target 90 mins)

LAST YEAR - 2018-19

26 anterior and 3 posterior cases

Past KHSC median times for Anterior cases

- Door to CT: **11 mins**
(ON target 15 mins)
- Door to Needle: **32 mins**
(ON target 30 mins)
- Door to Puncture: **37 mins**
(ON target 60 mins)
- Door to First Reperfusion: **55 mins**
(ON target 90 mins)

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

TOTAL of 130 cases to March 31 2020: 122 Anterior and 8 posterior

Most recent analysis FY 2019-20 :

55 anterior, 2 posterior circulation cases

- ~5 cases per month (doubled from last fiscal)
- Geographic distribution: HPE – 13; KFLA – 23 (5 from L&A); LLG – 15
(plus 2 from Campbellford; 1 from Quebec; 1 from Ottawa)
- 26/57 cases treated after hours; 28/57 received tPA
- Average age 71.1 years (45 to 99 years); 18 female/39 male

For the 55 anterior cases

- 25/55 (45.5%) with minimal to no disability MRS ≤ 2 (meets published target)
 - 14/55 (25.5%) with moderate disability
 - 6/55 (10.9%) with severe disability
 - 10/55 (18.2%) mortality (9 stroke-related; 1 withdrew from dialysis)
-
- Both posterior cases had minimal to no disability at DC

NEW! 9 cases treated between 6 and 24 hours:

- 8 Anterior cases & 1 Posterior case – 2 from HPE; 2 from KFLA and 5 from LLG
- Disability Outcomes: 44.4% minimal to no disability; 22.2% moderate; 22.2% severe and one death (11.1% mortality) (also meets target)

CorHealth Ontario EVT Report

March 2019-20 – Q1, Q2

Kingston

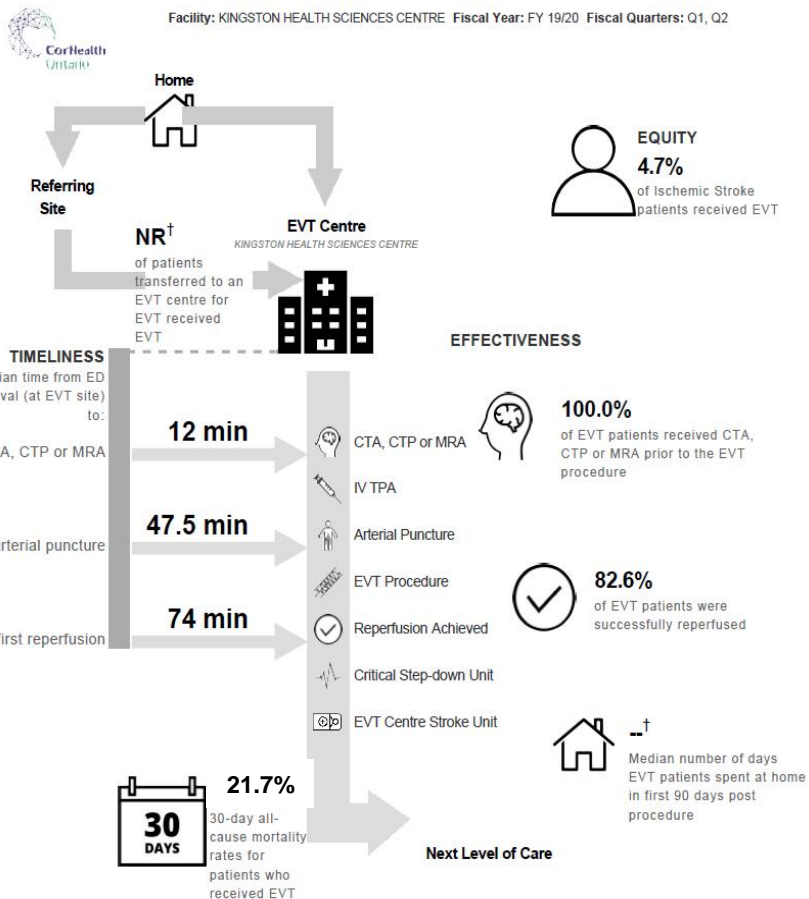
Ontario



Stroke EVT Dashboard

Overview Page

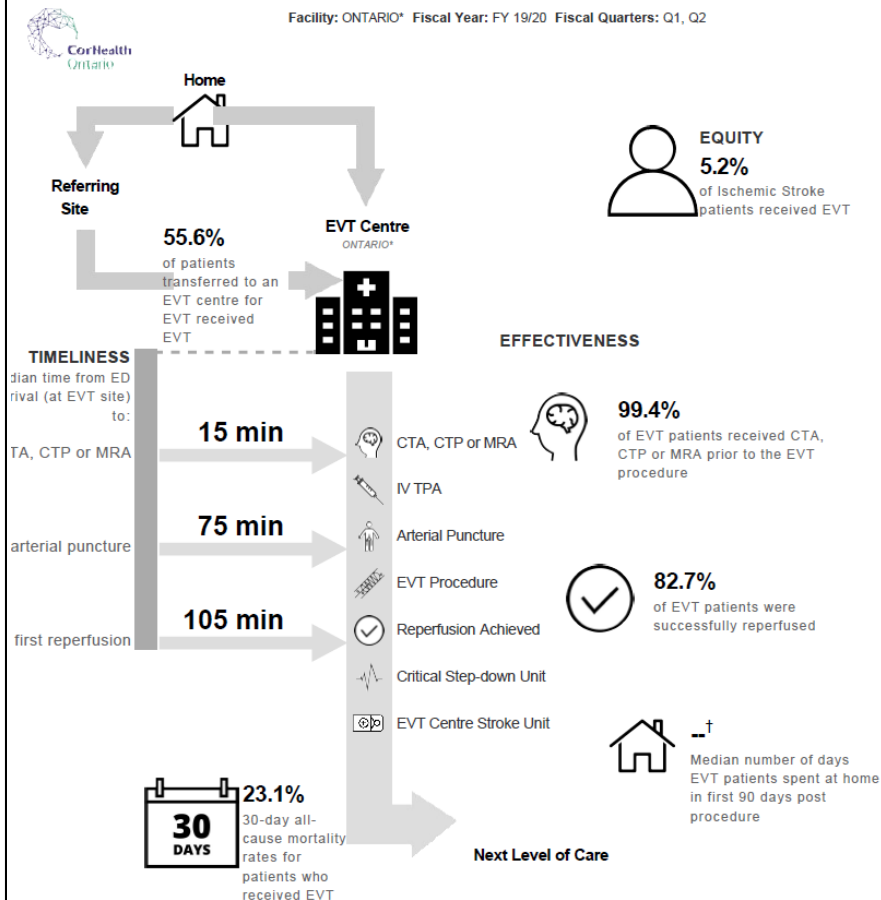
Facility: KINGSTON HEALTH SCIENCES CENTRE Fiscal Year: FY 19/20 Fiscal Quarters: Q1, Q2



Stroke EVT Dashboard

Overview Page

Facility: ONTARIO* Fiscal Year: FY 19/20 Fiscal Quarters: Q1, Q2

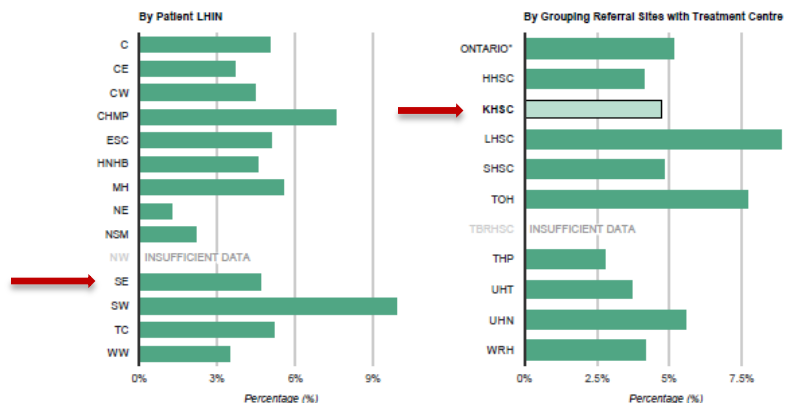


CorHealth Ontario EVT Report

March 2019-20 – Q1, Q2

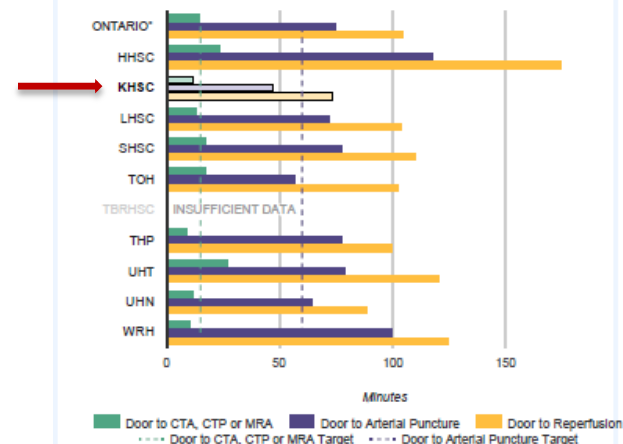
ACCESS

Proportion of ischemic stroke patients who receive an EVT procedure



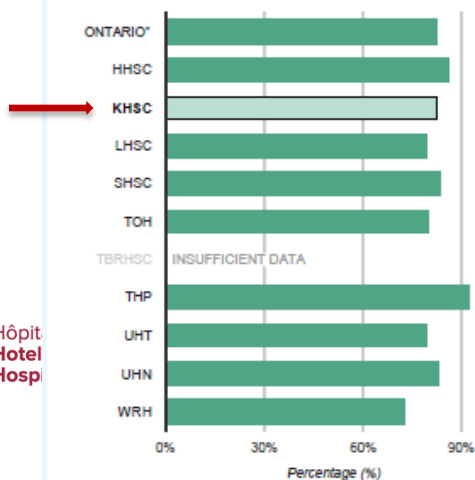
PROCESS

Median time from ED arrival (at EVT site) to qualifying CTA, CTP or MRA, Arterial Puncture

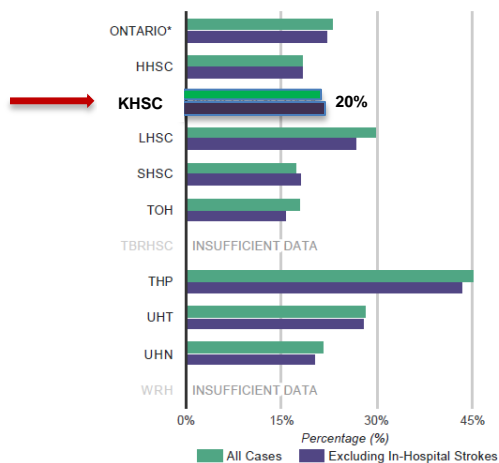


OUTCOMES

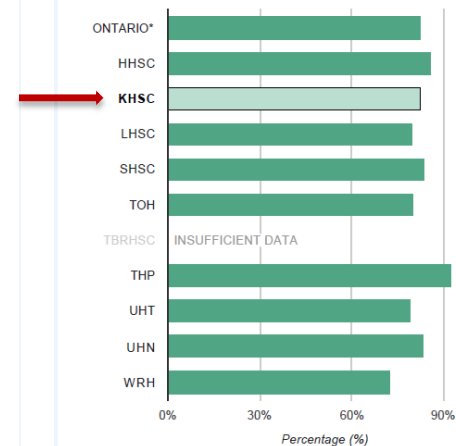
Proportion of EVT patients successfully reperfused



30-day all-cause mortality rates for patients who received EVT



Proportion of EVT patients successfully reperfused

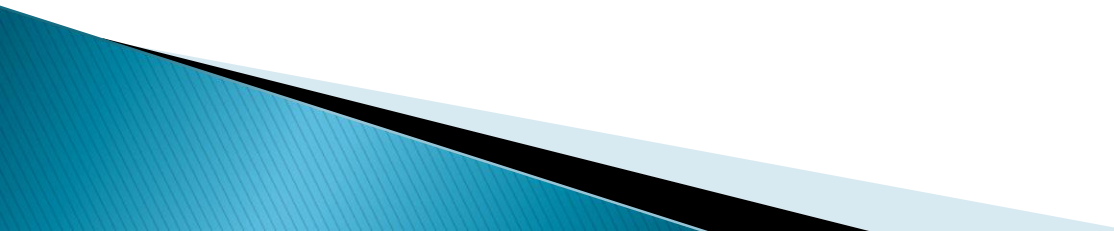


Hôpital
Hotel

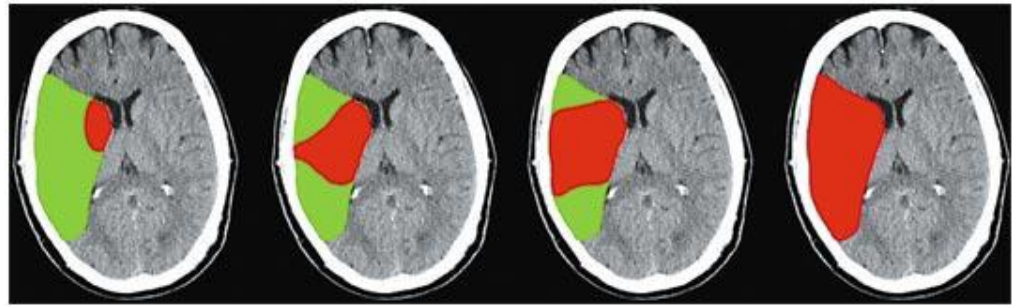
Paramedic Prompt Card Updated Sept 2019

and

**Walk-in Protocols all revised:
“ACT-FAST” screening tools in
use up to 24 hours post onset**



Reminder: Extended time window



- ▶ DAWN and DEFUSE-3 trials supported extended treatment window for EVT beyond 6 hours in **select** cases
- ▶ Hyperacute Best Practice Guidelines summer 2018 included expanded time window for EVT
- ▶ Eligibility based on quantifiable measure of mismatch between ischemic core and penumbra
- ▶ “*RAPID*” advanced CT perfusion software installed KHSC Jan 2019 and QHC Dec 2019 allowing evidence-based approach to patient selection for EVT after 6 hours
- ▶ Cases now selected for EVT up to 24 hours
- ▶ ACT-FAST triage process now in place in all South East EDs to identify and select patients in extended time window

Paramedic Prompt Card for Acute Stroke Bypass Protocol

This prompt card provides a quick reference of the *Acute Stroke Protocol* contained in the *Basic Life Support Patient Care Standards* (BLS PCS). Please refer to the BLS PCS for the full protocol.

Indications under the Acute Stroke Protocol

Redirect or transport to the closest or most appropriate Designated Stroke Centre* will be considered for patients who meet **ALL** of the following:

1. Present with a new onset of at least one of the following symptoms suggestive of the onset of an acute stroke:
 - a. Unilateral arm/leg weakness or drift.
 - b. Slurred speech or inappropriate words or mute.
 - c. Unilateral facial droop.
2. Can be transported to arrive at a Designated Stroke Centre within 6 hours of a clearly determined time of symptom onset or the time the patient was last seen in a usual state of health.

*A Designated Stroke Center is a Regional Stroke Centre, District Stroke Centre or a Telestroke Centre regardless of EVT capability.

Contraindications under the Acute Stroke Protocol

ANY of the following exclude a patient from being transported under the Acute Stroke Protocol:

1. CTAS Level 1 and/or uncorrected airway, breathing or circulatory problem.
2. Symptoms of the stroke resolved prior to paramedic arrival or assessment**.
3. Blood sugar <3 mmol/L***.
4. Seizure at onset of symptoms or observed by paramedics.
5. Glasgow Coma Scale <10.
6. Terminally ill or palliative care patient.
7. Duration of out of hospital transport will exceed two hours.

**Patients whose symptoms improve significantly or resolve during transport will continue to be transported to a Designated Stroke Centre.

*** If symptoms persist after correction of blood glucose level, the patient is not contraindicated.

CACC/ACS will authorize the transport once notified of the patient's need for redirect or transport under the Acute Stroke Protocol.

**BLS 3.2
Stroke
Paramedic
Prompt Card
Sept 2019:
“most
appropriate
centre”**

Poster Presented at Canadian Stroke Congress 2019

STROKE NETWORK
of Southeastern Ontario

Does a Standardized Emergency Triage Protocol for Stroke Patients Arriving between 6 and 24 hours Improve Access to EVT?

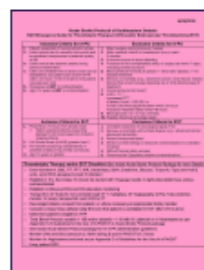
Martin, Cally^{1,2} Barber, David¹ Donaldson, Jacqueline¹ Dube, Anne¹ Gourdi, Sharon¹ Griffin, Monica¹ Jin, Al^{1,2} McDonough, Laura¹ Murphy, Colleen^{1,2}
1. Kingston Health Sciences Centre; 2. Stroke Network of Southeastern Ontario



Background

Highly selected patients who present beyond 6 hours of stroke symptom onset may benefit from Endovascular Thrombectomy (EVT). Tertiary Care Hospital-Kingston Health Sciences Centre (KHSC) Emergency Department (ED) collaborated with Stroke Network of Southeastern Ontario to implement the ACT-FAST, a large vessel occlusion screen to triage patients arriving in KHSC ED between 6 & 24 hours of symptom onset. If patients have "positive ACT-FAST" screen, ED nurses directly activate ASP. ASP team then assesses EVT eligibility using advanced RAPID CT Perfusion software.

KHSC
Posters:
Figure 1



Access to Hyperacute Treatments

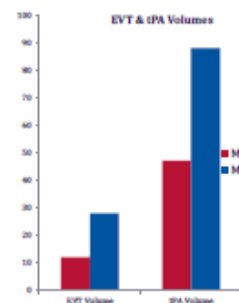
	Mar 18	Mar 19	Apr 18	Apr 19	May 18	May 19	June 18	June 19	July 18	July 19	Aug 18	Aug 19	Sept 18	Sept 19
<6 hrs	12/23	28/45	13/24	20/29	21/29	32/45	17/26	27/41	22/36	27/38	24/35	33/40	17/22	25/35
6-24 hrs	5/23	11/45	11/24	7/29	7/29	9/45	6/26	8/41	10/36	11/38	8/35	7/40	4/22	10/35
>24 hrs	6/23	6/45	0/24	2/29	1/29	4/45	3/26	6/41	4/36	0/38	3/35	0/40	1/22	0/35
ASP Activated	39 (3 Interval)	59 (3 Interval)	29 (3 Interval)	51 (3 Interval)	32 (3 Interval)	58 (3 Interval)	33 (3 Interval)	62 (3 Interval)	41 (3 Interval)	52 (3 Interval)	33 (3 Interval)	43 (3 Interval)	35 (3 Interval)	54 (3 Interval)
EVT	2	2	2	7	0	7	1	7	2	1	3	2	2	2
tPA	3	13	4	14	9	14	9	12	7	13	14	13	1	9
Admitted Stroke Volumes	42	63	46	62	44	64	42	51	55	55	50	58	33	50

Table 1: Data based on CSH DAD (discharged data) except EVT volumes based on procedure data
* 3 Time Windows = difference between acute symptoms onset time & ED arrival time during chart abstraction
* Interval-to-hospital acute stroke protocol activation

Acute Stroke Protocol (ASP) Activations & Time Windows



Figure 2



Results

Access to Treatment Results (See Table 1 and Figure 2)

- # patients presenting < 6 hour time window ↑
- # ASP Activations ↑
- # patients presenting 6-24 hour time window ↔
- Proportion receiving hyperacute EVT treatment ↑

Qualitative Feedback on Use of ACT-FAST and New Process

ED Nurses Comments

- Positive experience using ACT-FAST as part of ASP
- ACT-FAST is simple to use
- ACT-FAST posters were helpful
- Pleased with ability to activate ASP
- Less delay for walk-in activations

Physicians Comments

- Going Well
- Most ASPs being called appropriately
- Called more often for uncertainty re left-sided weakness

Challenges

Uncertainty about:

- Symptom onset time. E.g., if signs resolve then return again-what is the onset time?
- When patient does not meet FAST or ACT-FAST criteria but still suspecting a stroke
- Assessing left-sided weakness for neglect/gaze deviation

Difficult to assess in Triage if previous stroke or confused

Concerned about increasing volume in ED

Requested that paramedics receive communication

Actions

- Refresh of education with a focus on left-sided weakness; more feedback gathered
- Reinforced collaboration with ED physicians when there is uncertainty

- Acknowledged increasing stroke volumes & reassured outcomes being monitored
- Triggers for ASP & FAST/ACT-FAST use uploaded into ED Info System (EDIS) to improve evaluation

Paramedic Services were engaged

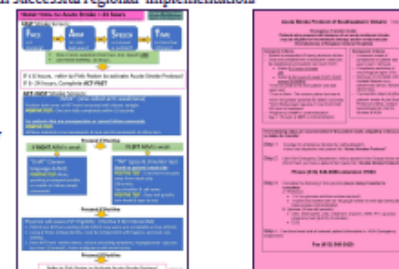
Conclusions

ASP was successfully updated with adoption of ACT-FAST for stroke triage 6 to 24 hours in KHSC ED. A standardized Emergency Triage Protocol for stroke patients improved access to EVT as evidenced by relative increase in ASP activations and EVT volumes.

SPREAD

The learnings were incorporated in spread to all community hospital EDs in Southeastern Ontario (SEO) (see Figure 3). Community hospital ED and Paramedic Service providers collaborated with Stroke Network SEO in successful regional implementation.

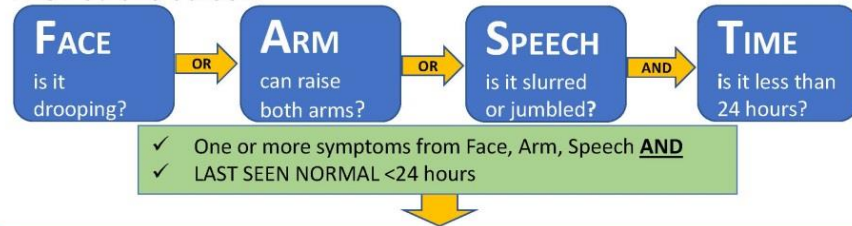
Community
Hospital
Posters:
Figure 3



TRIAGE TOOLS for Acute Stroke < 24 hours

STROKE NETWORK
of Southeastern Ontario

FAST Stroke Screen:



IF ≤ 6 hours, refer to Pink Poster to activate Acute Stroke Protocol
IF 6 -24 hours, Complete **ACT-FAST**

ACT-FAST Stroke Screen:

"ARM" (one-sided arm weakness)

Position both arms at 45° from horizontal with elbows straight

POSITIVE TEST: One arm falls completely within 10 seconds

For patients that are uncooperative or cannot follow commands:

POSITIVE TEST:

Witness minimal or no movements in one arm & movements in other arm

Proceed if Positive

If **RIGHT** ARM is weak

"CHAT" (Severe language deficit)

POSITIVE TEST: Mute, speaking incomprehensible, or unable to follow simple commands

If **LEFT** ARM is weak

"TAP" (gaze & shoulder tap)

Stand on patient's weak side

POSITIVE TEST: Consistent eye gaze away from weak side
Otherwise

Tap shoulder & call name

POSITIVE TEST: Does not quickly turn head & eyes to you

Proceed if Positive

Physician will assess EVT Eligibility (Positive if All Criteria Met)

1. Deficits are NOT pre-existing (mild deficits now worse are acceptable as true deficits)
2. Living at home independently– must be independent with hygiene, personal care, walking
3. Does NOT have stroke mimics: seizure preceding symptoms, Hypoglycemia = glucose less than 2.8 mmol/L, Active malignancy with brain lesions

Proceed if Positive

Refer to Pink Poster to Activate Acute Stroke Protocol

2019-04-29

Additional Tips:

If patient is uncooperative or cannot follow commands & you clearly witness minimal or no movements in one arm and normal or spontaneous movements in the other arm, THEN proceed to next ACT-FAST Step

If both arms are similarly weak, or testing is clearly affected by shoulder problems or pain, notify ED physician

- Try to use clues to guess time last seen well – did someone talk to or call patient?
- For suspected Wake-Up symptoms, did patient get up overnight? Were they normal when first getting up?
- Negative eligibility if time of onset is > 24 hours

- If there is uncertainty as to time of symptom onset or whether a patient meets the ACT-FAST or Acute Stroke Protocol criteria, the ED physician can contact the neurologist on call for stroke for consultation

**Reminder: Sample USED by ED STAFF
in Brockville, Perth & Smiths Falls,
Napanee and HDH**

Adapted from "Ambulance Clinical Triage for Acute Stroke Treatment" Zhao et al. Stroke 2018; 49: 945-951

Walk-in ASP transfer protocol:

- L&ACGH
- Brockville
- PSFDH
- HDH site

Emergency Transfer Guide

Patients who present with features of an acute ischemic stroke may be eligible for thrombolytic therapy and/or endovascular thrombectomy at Kingston General Hospital.

Inclusion Criteria

- Patient is suspected of having ischemic stroke.
 - Clear and credible time of symptom onset can be established and patient can reach KGH:
 - Within 6.0 hours of onset
 - OR
 - Within 6-24 hours of onset if ACT-FAST screen is positive
- *Time of onset is the time patient was last seen well.
*Time is Brain. The sooner patient arrives at KGH, the greater potential for better outcomes.
*KGH Stroke team requires 1 hour from KGH ED door to treatment.
- Pregnancy is **NOT** a contraindication.
 - Age < 18 years is **NOT** a contraindication.

Exclusion Criteria

- Unknown onset of symptoms or patient last seen well > 24hours.
- Complete resolution of neurological signs (TIA).
- Serious co-morbidity with limited lifespan (e.g., advanced cancer, advanced dementia).
- If uncertain about whether patient meets Acute Stroke Protocol criteria, contact Neurologist on Call for Stroke at KGH

The following steps are recommended if the patient meets eligibility criteria and is stable for transfer:

- Step 1** Arrange for ambulance transfer by calling dispatch. Inform the dispatcher that patient fits "Acute Stroke Protocol"
- Step 2** Call KGH Emergency Department. Ask to speak to the Charge Nurse and inform them you have a patient that meets the "Acute Stroke Protocol"

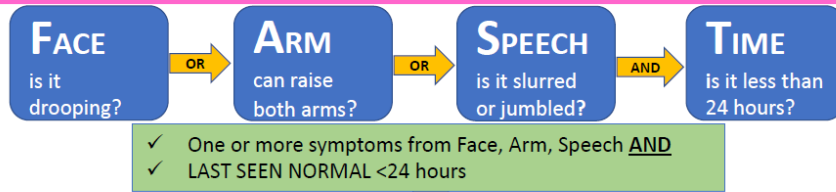
Phone (613) 549-6666 extension 7003

- Step 3** Complete the following if time permits (**never delay transfer to complete**):
- A. Preferred:
- 1 IV (no glucose solutions unless required)
 - 1 saline lock started with an 18 gauge needle in the right antecubital fossa unless contraindicated
- B. Optional (If time still permits):
- CBC, electrolytes, urea, creatinine, troponin, INR, PTT, glucose, pregnancy test (βHCG) if indicated
 - ECG

- Step 4** Fax blood work and all relevant patient information to KGH Emergency Department:

Fax (613) 548-2420

QHC-Trenton Memorial , Prince Edward County Memorial & North Hastings Hospitals- TRIAGE TOOLs for Acute Stroke < 24 hours



IF ≤ 6 hours, activate usual QHC Code Stroke to Belleville General
 IF 6 -24 hours, Complete **ACT-FAST**

ACT-FAST Stroke Screen:

“ARM” (one-sided arm weakness)

Position both arms at 45° from horizontal with elbows straight

POSITIVE TEST : One arm falls completely within 10 seconds

For patients that are uncooperative or cannot follow commands:

POSITIVE TEST:

Witness minimal or no movements in one arm & movements in other arm

Proceed if Positive

If **RIGHT ARM** is weak

“CHAT” (Severe language deficit)

POSITIVE TEST: Mute, speaking incomprehensible, or unable to follow simple commands

If **LEFT ARM** is weak

“TAP” (gaze & shoulder tap)

Stand on patient's weak side
POSITIVE TEST : Consistent eye gaze away from weak side
 Otherwise
 Tap shoulder & call name
POSITIVE TEST : Does not quickly turn head & eyes to you

Proceed if Positive

Physician will assess EVT Eligibility (Positive if All Criteria Met)

1. Deficits are NOT pre-existing (mild deficits now worse are acceptable as true deficits)
2. Living at home independently–independent with hygiene, personal care, walking
3. Does NOT have stroke mimics: seizure preceding symptoms, Hypoglycemia = glucose less than 2.8 mmol/L, Active malignancy with brain lesions

Proceed if Positive

Activate Acute Stroke Protocol to KGH ED. Call Ambulance Dispatch & KGH ED Charge RN (613) 549-6666 extension 7003. Inform them patient meets Acute Stroke Protocol & is ACT-FAST Positive between 6-24 hours

2019-10-17

Sample Poster USED by ED STAFF in Bancroft, Picton and Trenton

Additional Tips for 6-24 hour Time Window:

- Try to use clues to guess time last seen well – did someone talk to or call patient?
- For suspected Wake-Up symptoms, did patient get up overnight? Were they normal when first getting up?
- Negative eligibility if time of onset is > 24 hours

If patient is uncooperative or cannot follow commands & you clearly witness minimal or no movements in one arm and normal or spontaneous movements in the other arm, THEN proceed to next ACT-FAST Step

If both arms are similarly weak, or testing is clearly affected by shoulder problems or pain, the ED physician can contact the neurologist on call for stroke for consultation

If there is uncertainty as to time of symptom onset or whether a patient meets the ACT-FAST or Acute Stroke Protocol criteria, the ED physician can contact the neurologist on call for stroke for consultation

Additional Steps for 6-24 hour Time Window:

If ACT-FAST Positive: Complete the following if time permits in ED (never delay transfer to complete):

A. Preferred:

- 1 IV (no glucose solutions unless required)
- 1 saline lock started with an 18 gauge needle in the right antecubital fossa unless contraindicated

B. Optional (If time still permits):

- CBC, electrolytes, urea, creatinine, troponin, INR, PTT, glucose, pregnancy test (βHCG) if indicated
- ECG

Fax blood work and all relevant patient information to KGH Emergency Department: 613-548-2420

Stroke Units: Impact on Outcome



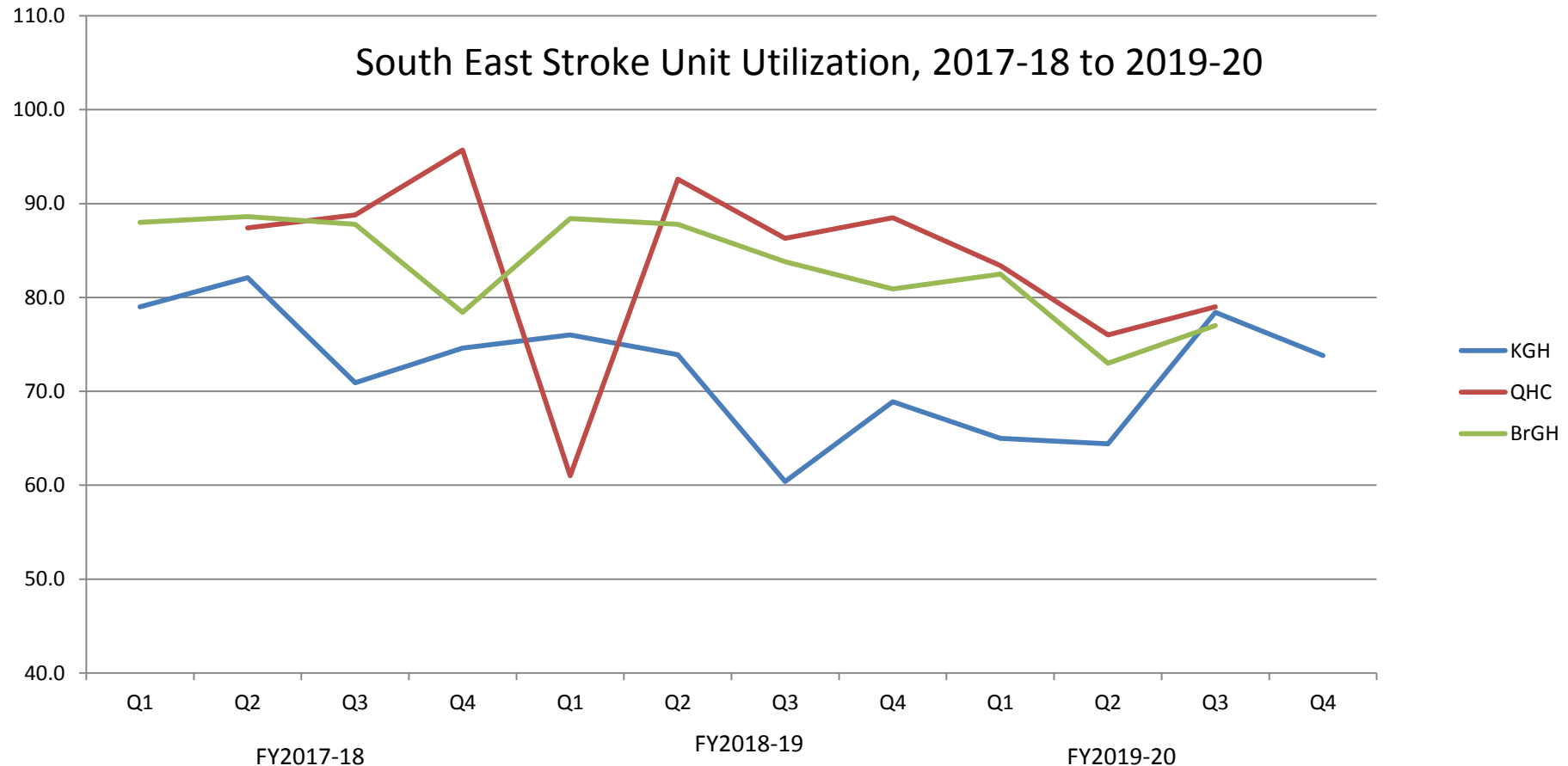
Source: Stroke Network Dashboard

KHSC, QHC and BrGH Hospital Stroke Evaluation Data to FY 19-20

- CIHI administrative data
- CIHI 340 – stroke data

% Accessing Acute Stroke Unit Care

Data Source: Hospital CIHI 340 Stroke Data - FY 2017-18 to 2019-20



Over past 3 years, due to growth, hospitals have struggled to sustain a target of 75-80% stroke unit utilization.

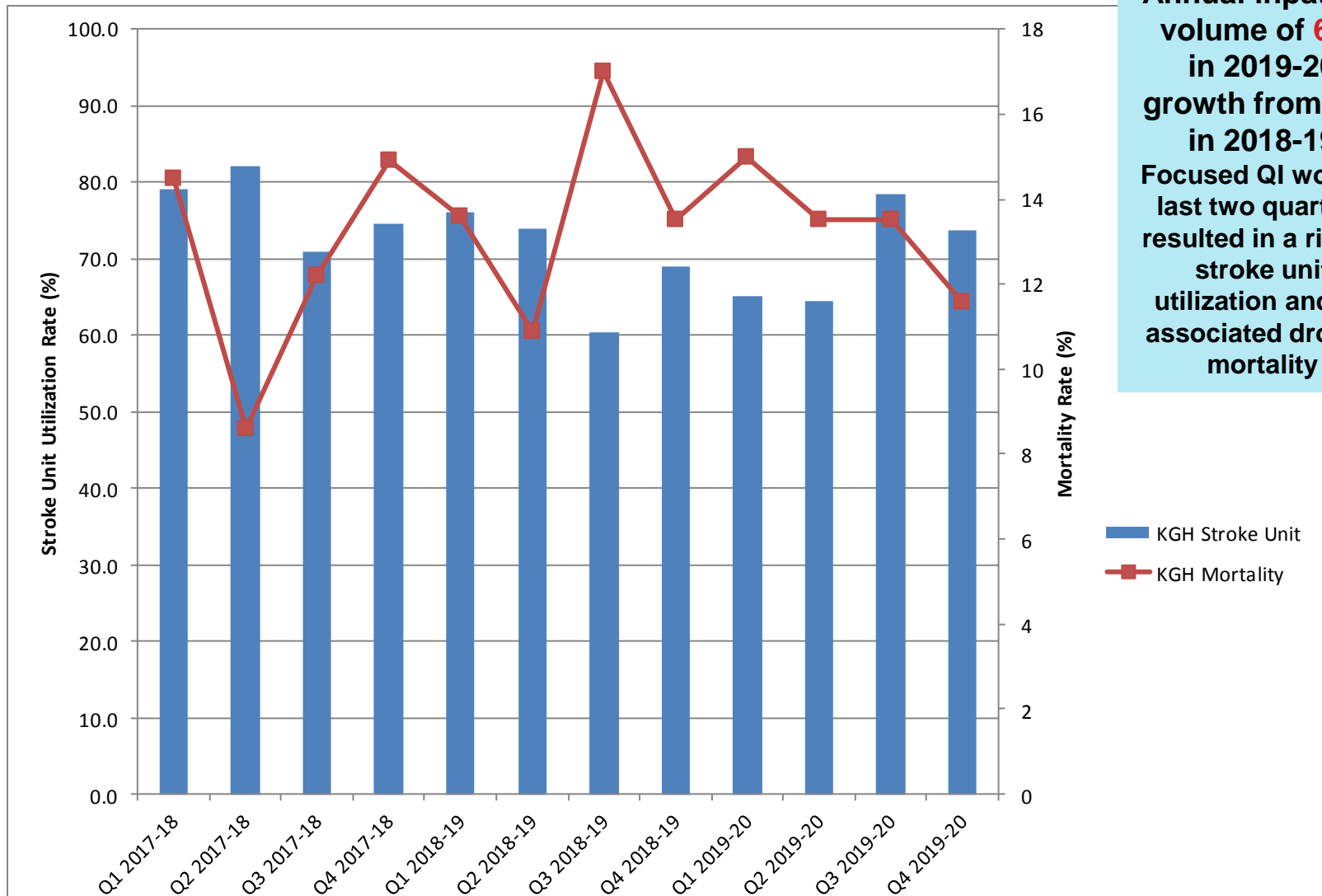
Mortality rates increase when stroke patients do not access stroke unit care.

See next 3 slides showing stroke unit utilization against mortality rates.

% Stroke Unit Utilization vs Mortality- KGH

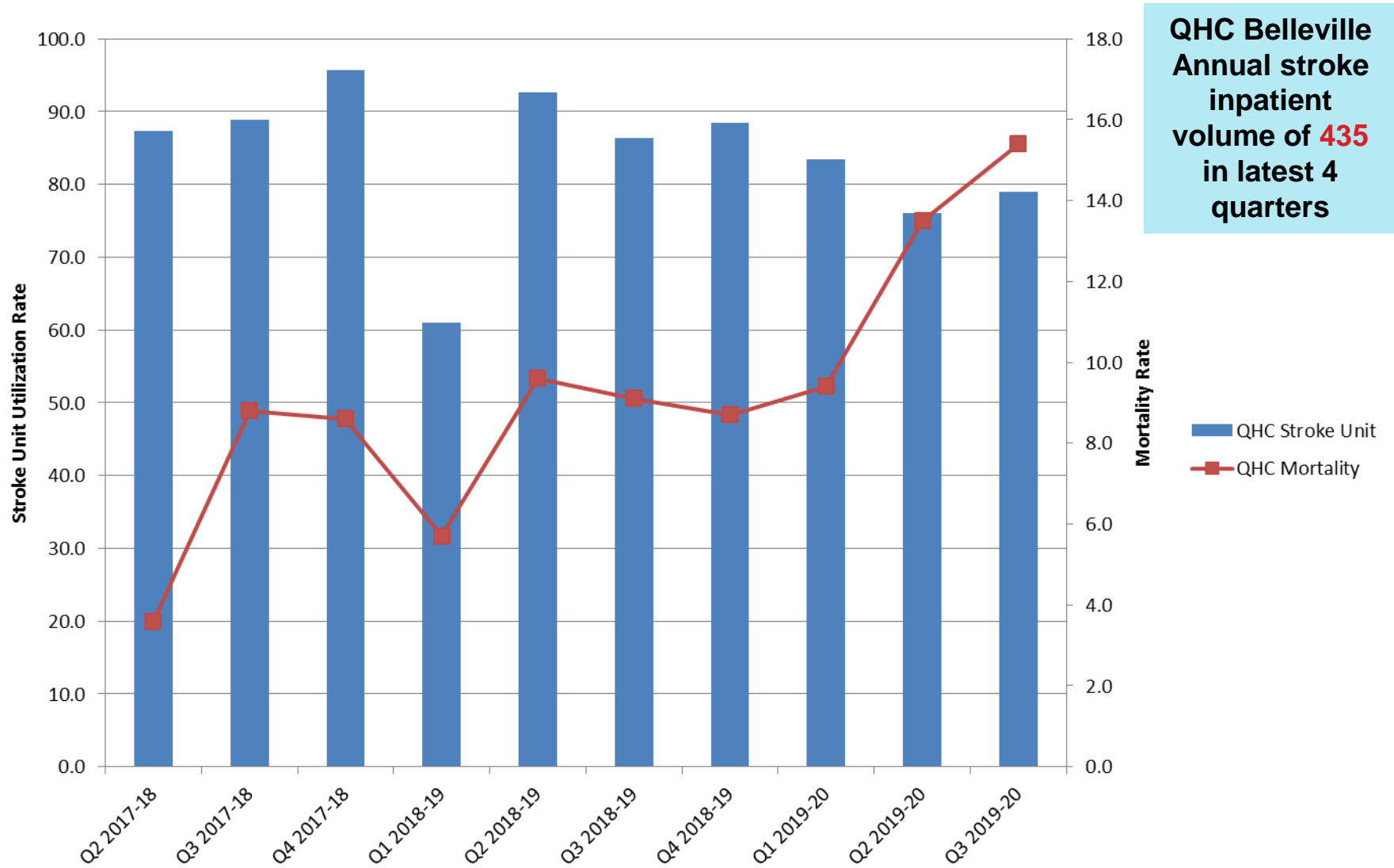
Data Source: Hospital CIHI 340 Stroke Data - FY 2017-18 to 2019-20

Annual inpatient volume of **644** in 2019-20 growth from 553 in 2018-19
Focused QI work in last two quarters resulted in a rise in stroke unit utilization and an associated drop in mortality



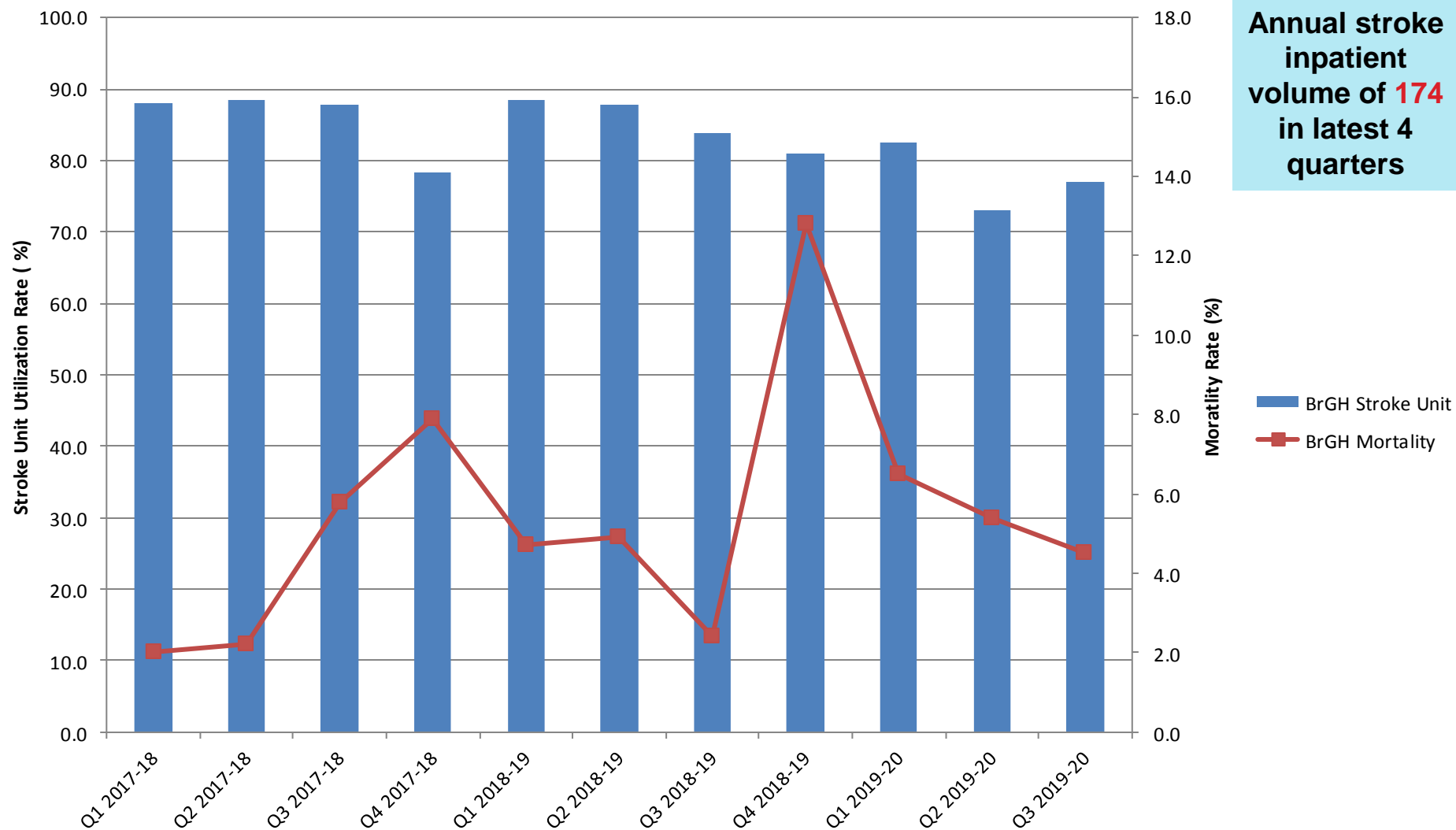
% Stroke Unit Utilization vs Mortality- QHC

Data Source: Hospital CIHI 340 Stroke Data - FY 2017-18 to 2019-20



% Stroke Unit Utilization vs Mortality- Brockville

Data Source: Hospital CIHI 340 Stroke Data - FY 2017-18 to 2019-20



Final reminders!!

- ▶ Feedback and questions welcome- contacts:

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- ▶ Dispatch must be contacted for walk-in transfers on stroke protocol
- ▶ Importance of early pre-notification
- ▶ Importance of access to stroke unit care
- ▶ Encourage public awareness of FAST, especially during COVID-19

STAY WELL!!

THANK YOU!



www.strokenetworkseo.ca