



Central South Regional  
**StrokeNetwork**

## **CHIM Workshop**

February 17, 2022

# Workshop Resources and Video


csnstroke.ca/past-educational-event-resources/


Apps Free Hotmail GL Report Home Patterned Absentee... Suggested Sites World Stroke Camp... Imported From IE Imported From IE (1) Reading li

Central South Regional **StrokeNetwork**

About Professional Development Clinical Resources Canadian Stroke Best Practices Stroke Evidence and Tools Patient Stories & Public Awareness

The Signs of a Stroke [Read More](#) | Stroke Services Directory Find the stroke services in your area by searching our directory. [Read More](#)



 Upcoming Events

**17**  
FEBRUARY

Health Information Management Webinar

**26**  
FEBRUARY

Taping the Hemiplegic Shoulder and more....The Level 1 Neuro Focused Taping Course

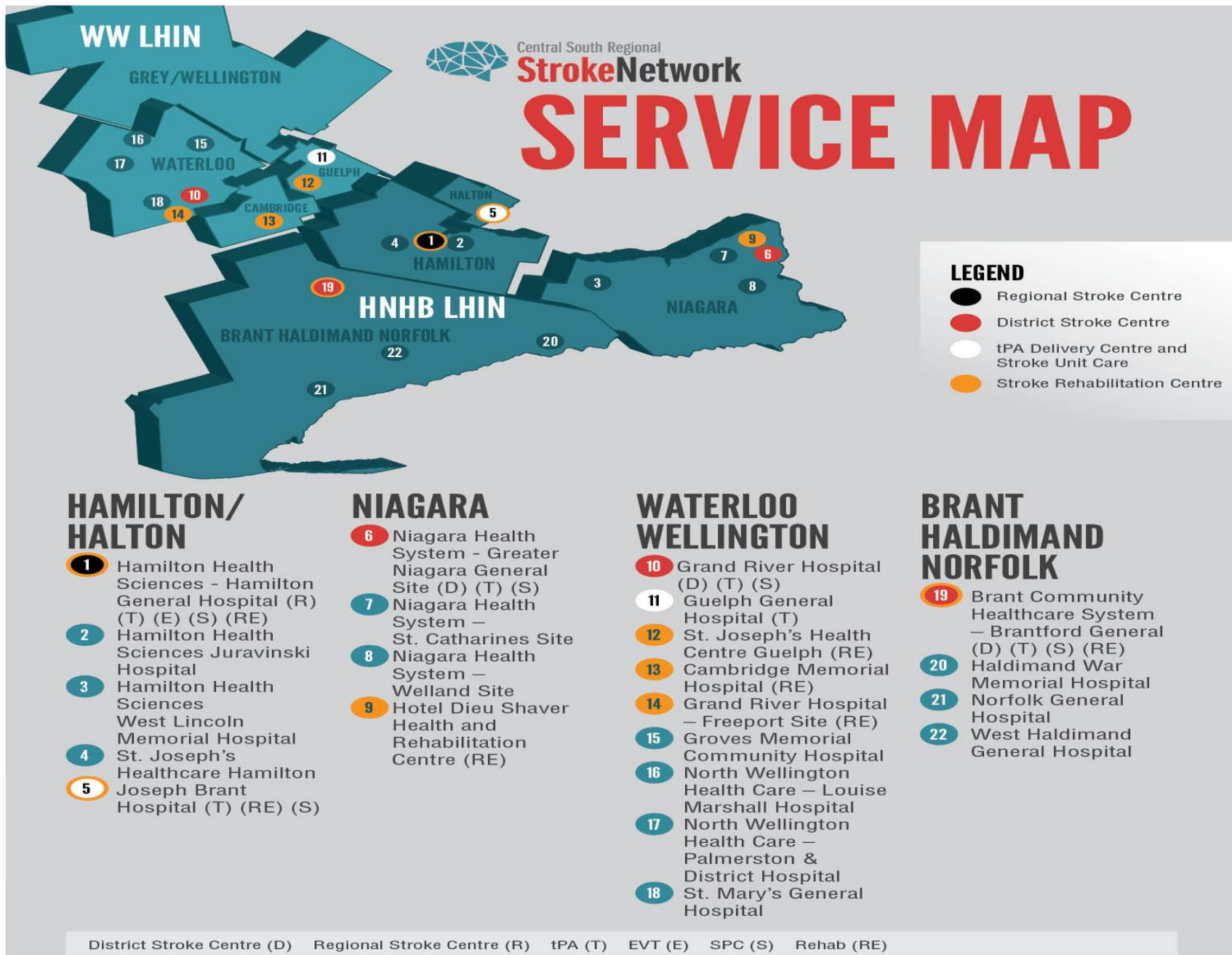
# **OVERVIEW OF CENTRAL SOUTH REGIONAL STROKE NETWORK**

# Objectives

- Describe Provincial and Regional Structure of Stroke Care and Best Practice Implementation
- High level Review of Regional Models impacting stroke care
  - Hyperacute Stroke Care Models
  - Bypass Models
  - Telestroke Models
  - Acute Stroke Unit Transfer Models
  - Stroke Rehabilitation Sites
- Questions/Discussion

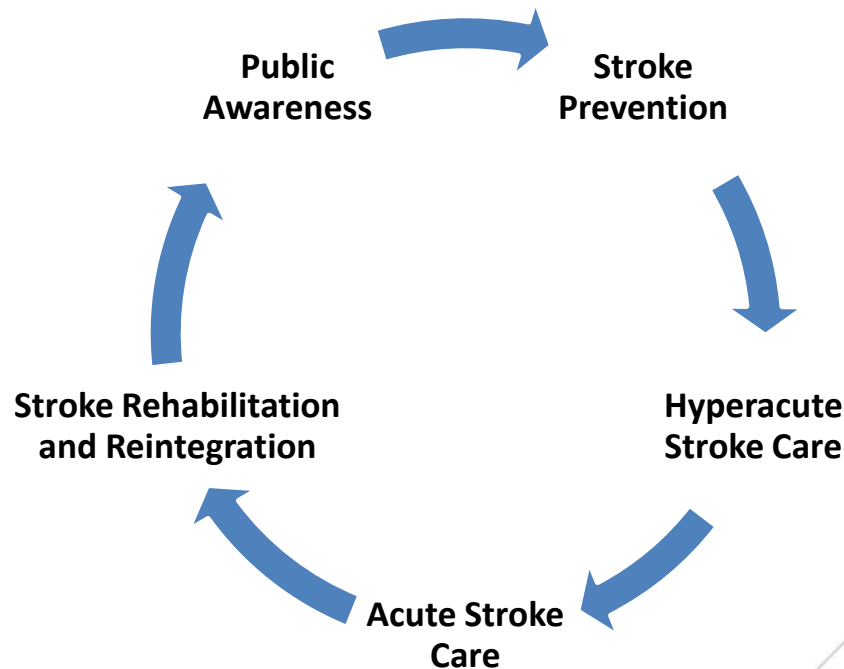
# ***The Ontario Stroke System***





# Mandate of Regional Stroke Network

*To facilitate the implementation of stroke best practices across the entire continuum of care within the Central South Region*



# Central South Regional and District Stroke Team



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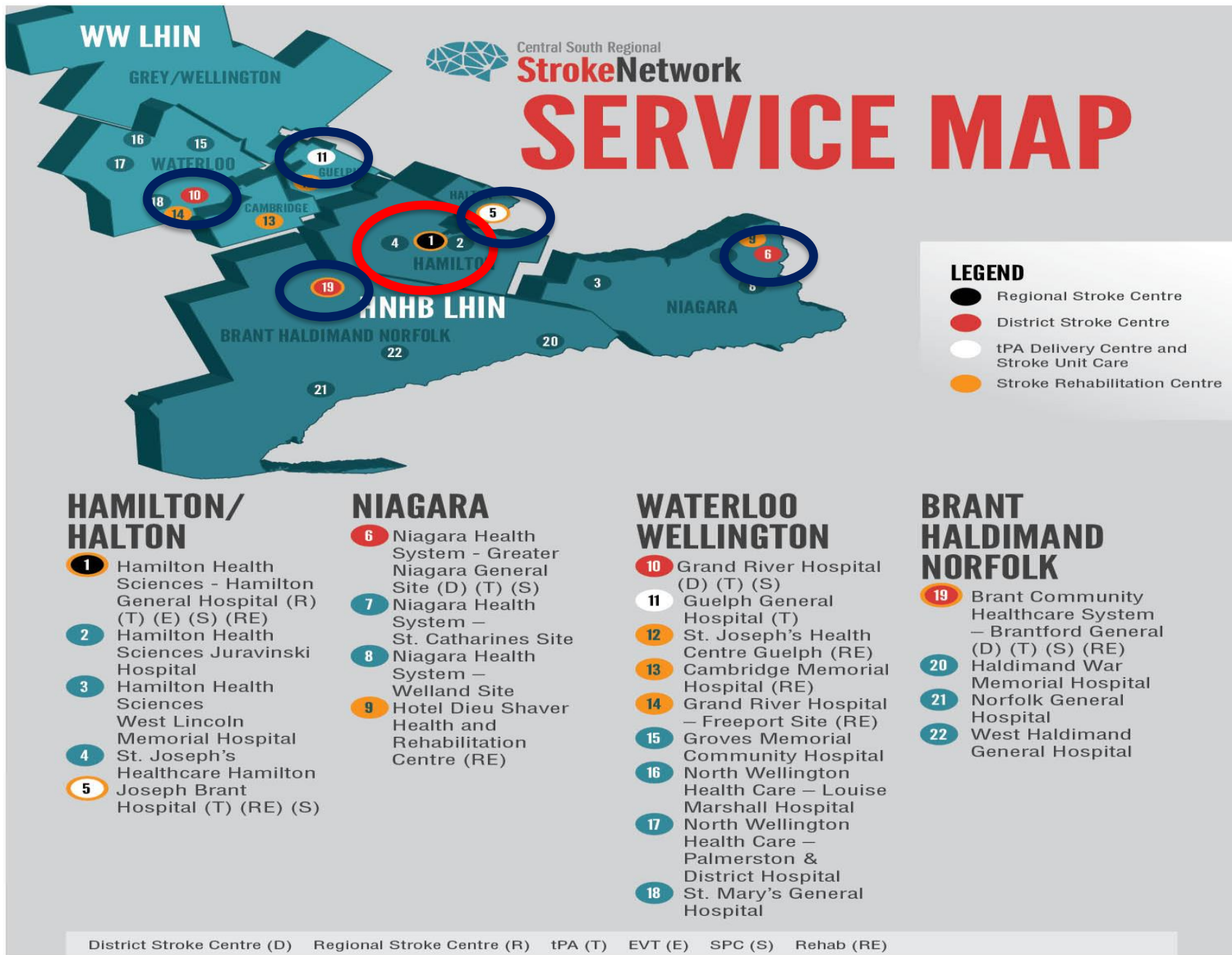
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Endovascular Therapy and tPA

# **HYPERACUTE STROKE CARE CENTRES**



Bypass Models (0-6 Hours)

# **HYPERACUTE STROKE CARE**

# Paramedic Prompt Card for Acute Stroke Bypass Protocol

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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:

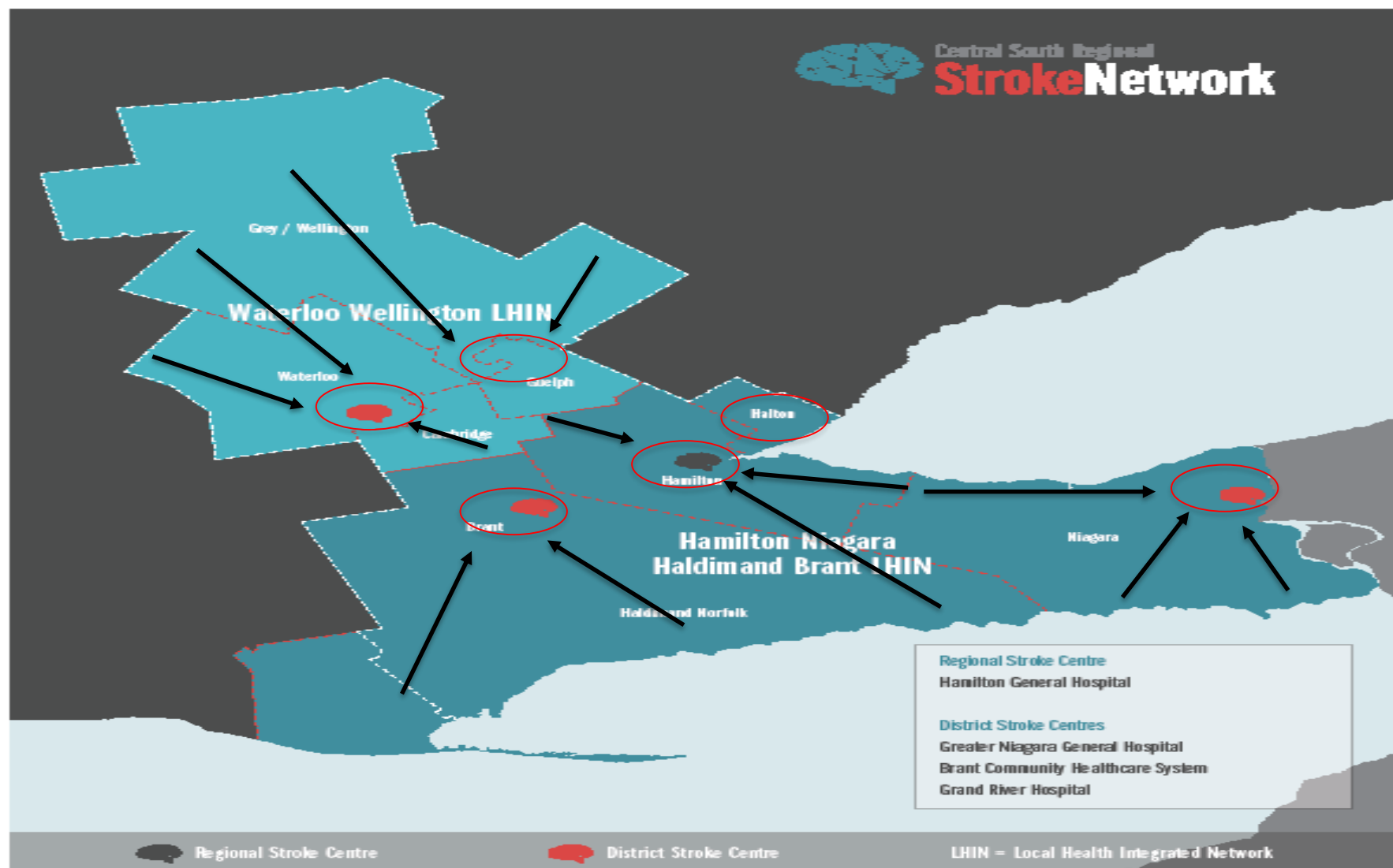
1. CTAS Level 1 and/or uncorrected airway, breathing or circulatory problem.
2. Symptoms of the stroke resolved prior to paramedic arrival or assessment\*\*.
3. Blood sugar <3 mmol/L\*\*\*.
4. Seizure at onset of symptoms or observed by paramedics.
5. Glasgow Coma Scale <10.
6. Terminally ill or palliative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

# 0-6 Hour Stroke Bypass Model



# TELESTROKE SITES

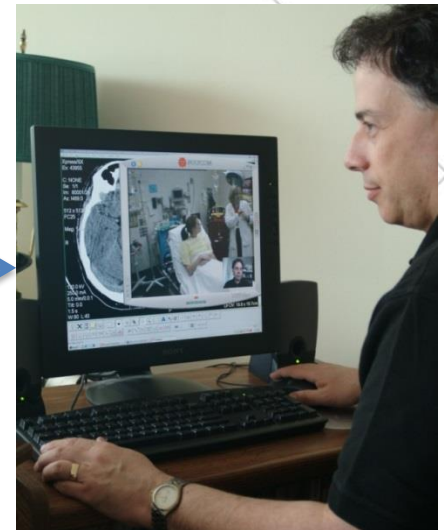


OTN  
Telestroke

ONTARIO  
TELEMEDICINE  
NETWORK

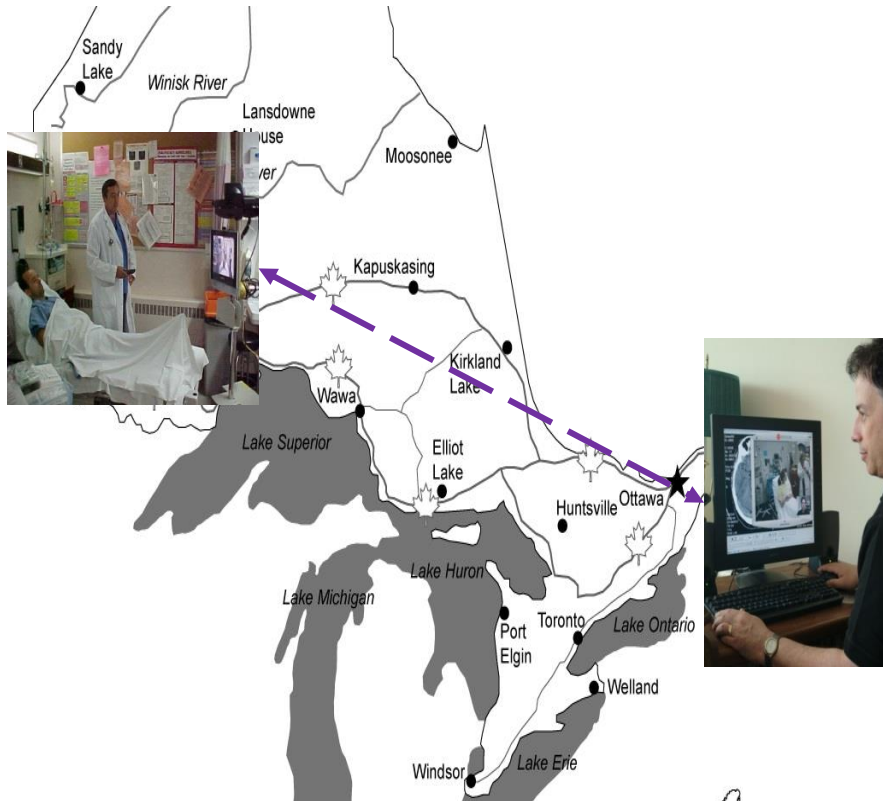


ED in remote area  
connects with a  
Stroke Specialist  
via secure  
videoconference



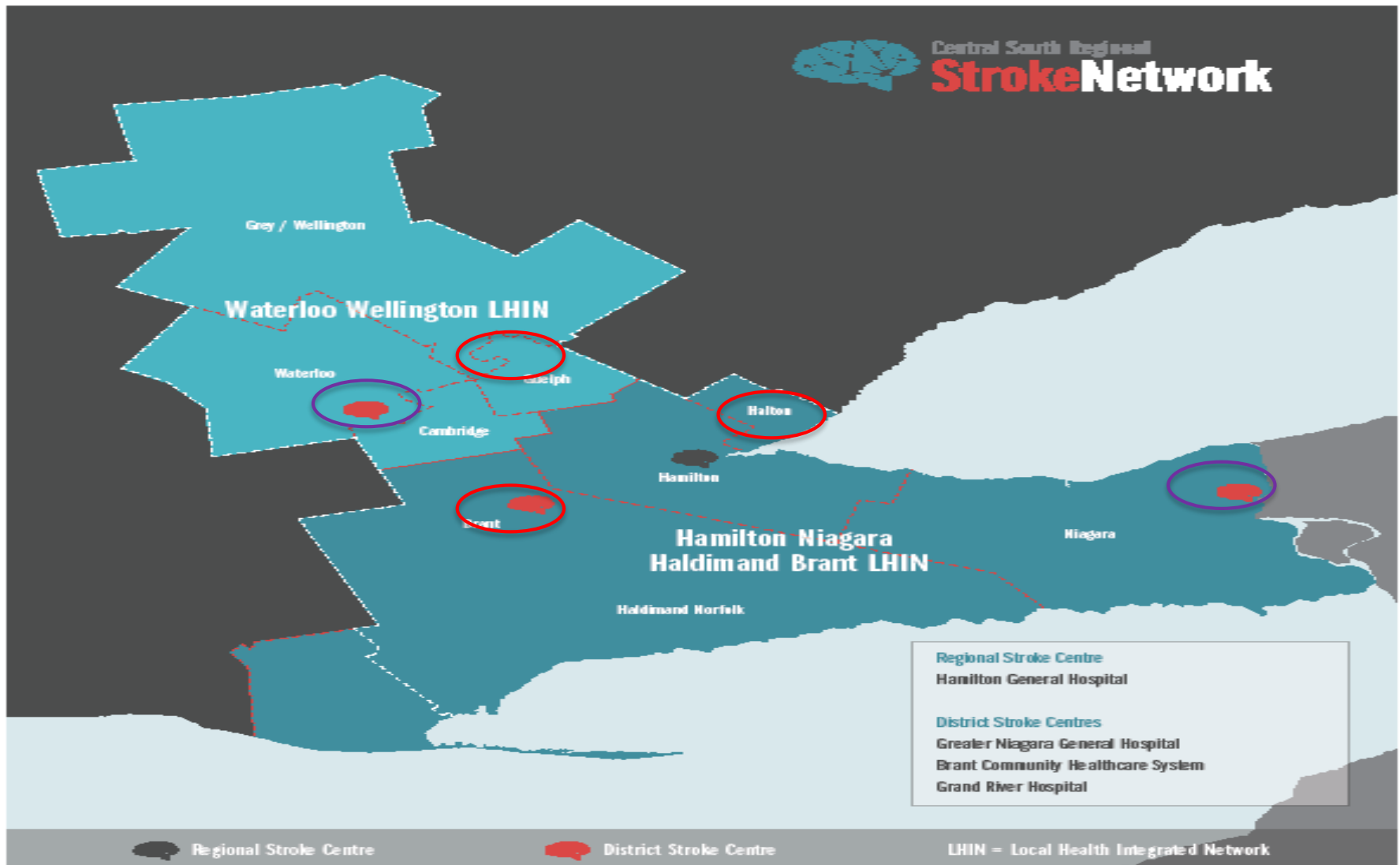
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# Telestroke

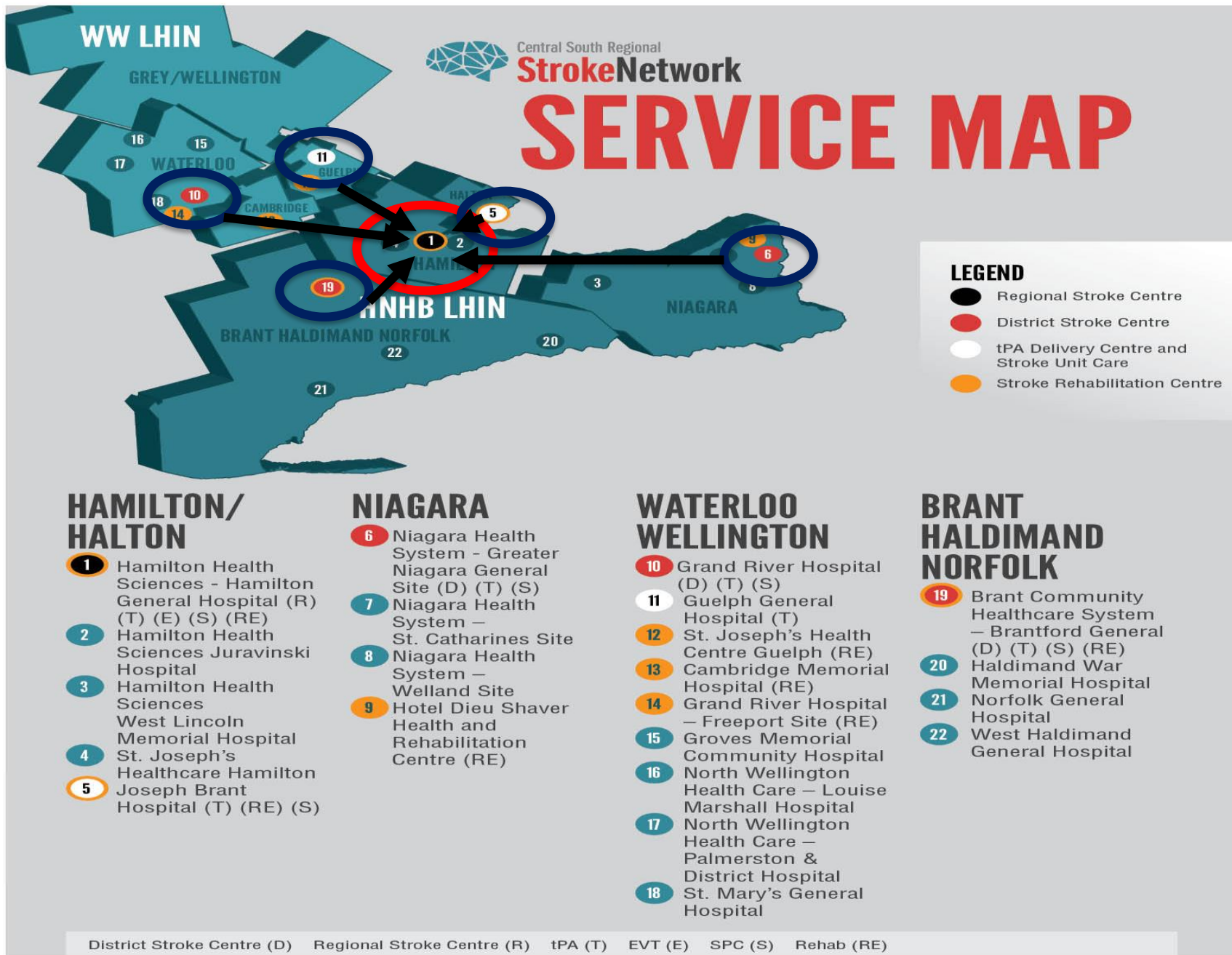


- Allows for access to experts despite distance
- Decreases need for transfers

# Telestroke Sites – 24/7 and PRN



# REGIONAL EVT ACCESS MODEL



# EVT – Early vs Late Window

## Early Window

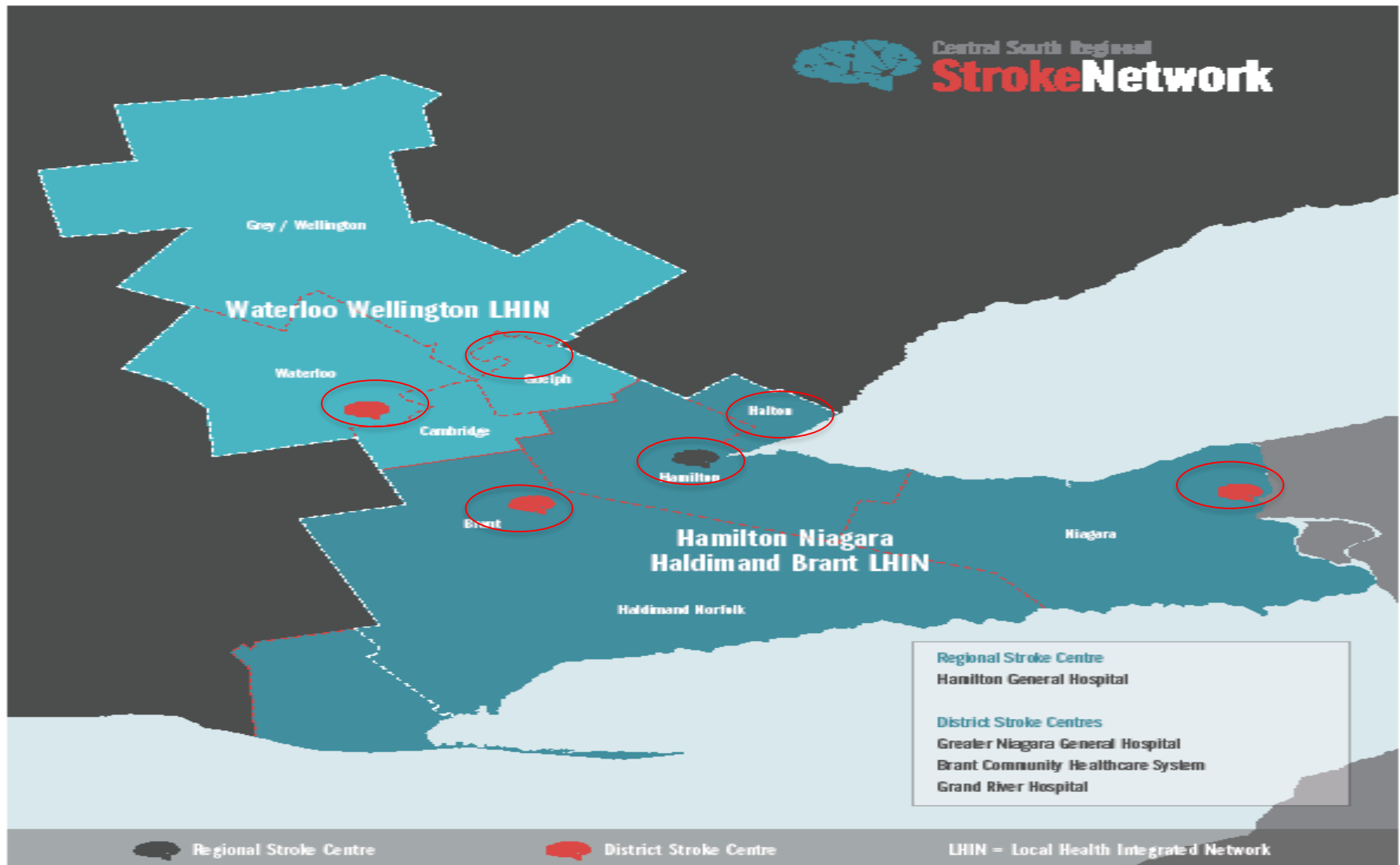
- 0-6 Hours
- Paramedic bypass protocol to bring patient to nearest tPA delivery site
- Imaging Protocol: CT/mCTA

## Late Window

- 6-24 hours
- Patient brought to nearest hospital (no bypass to tPA delivery site/stroke centre)
- Imaging Protocol: CT/CTP/CTA

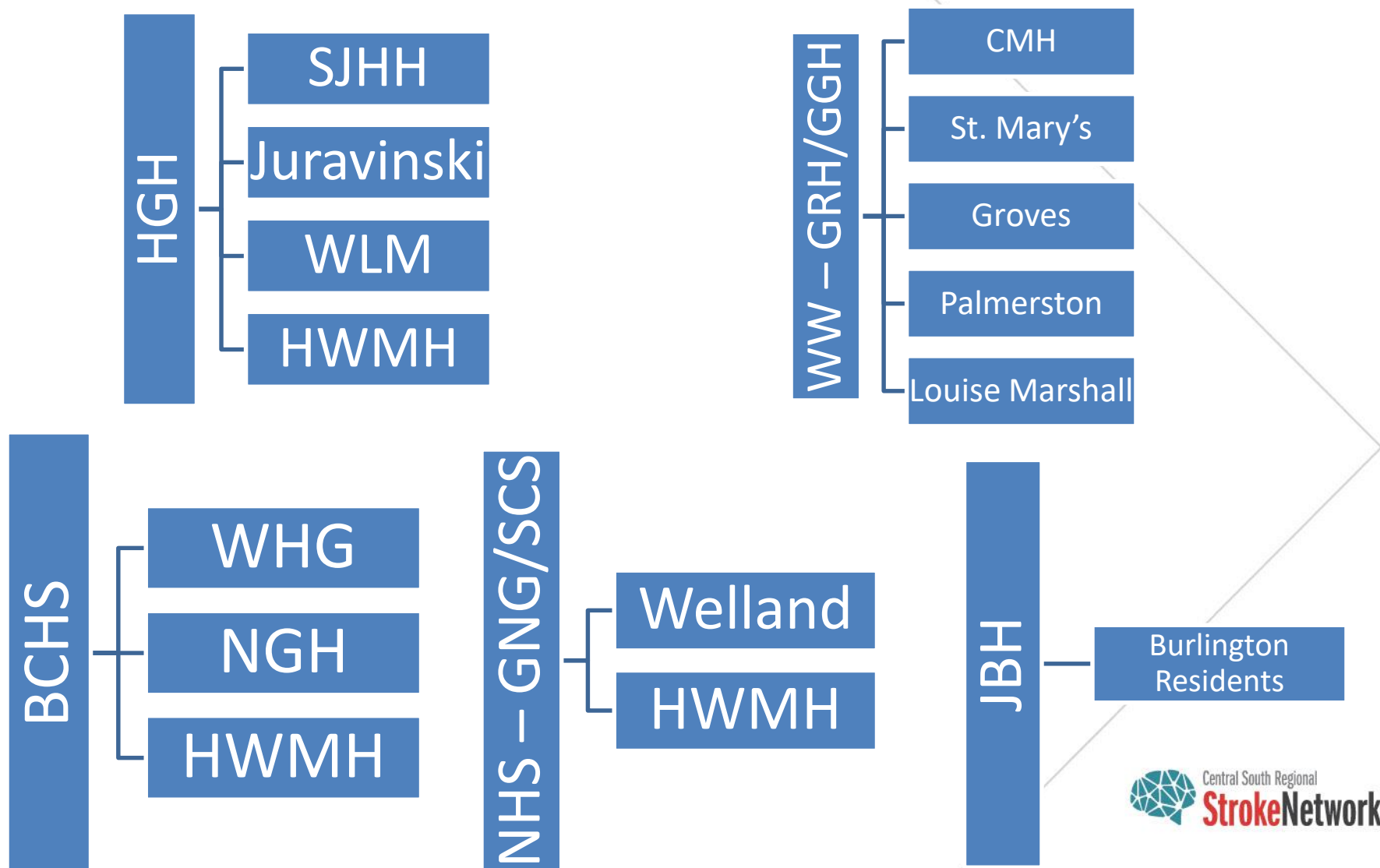
# **STROKE UNIT CARE MODELS**

# Acute Stroke Unit Care Access

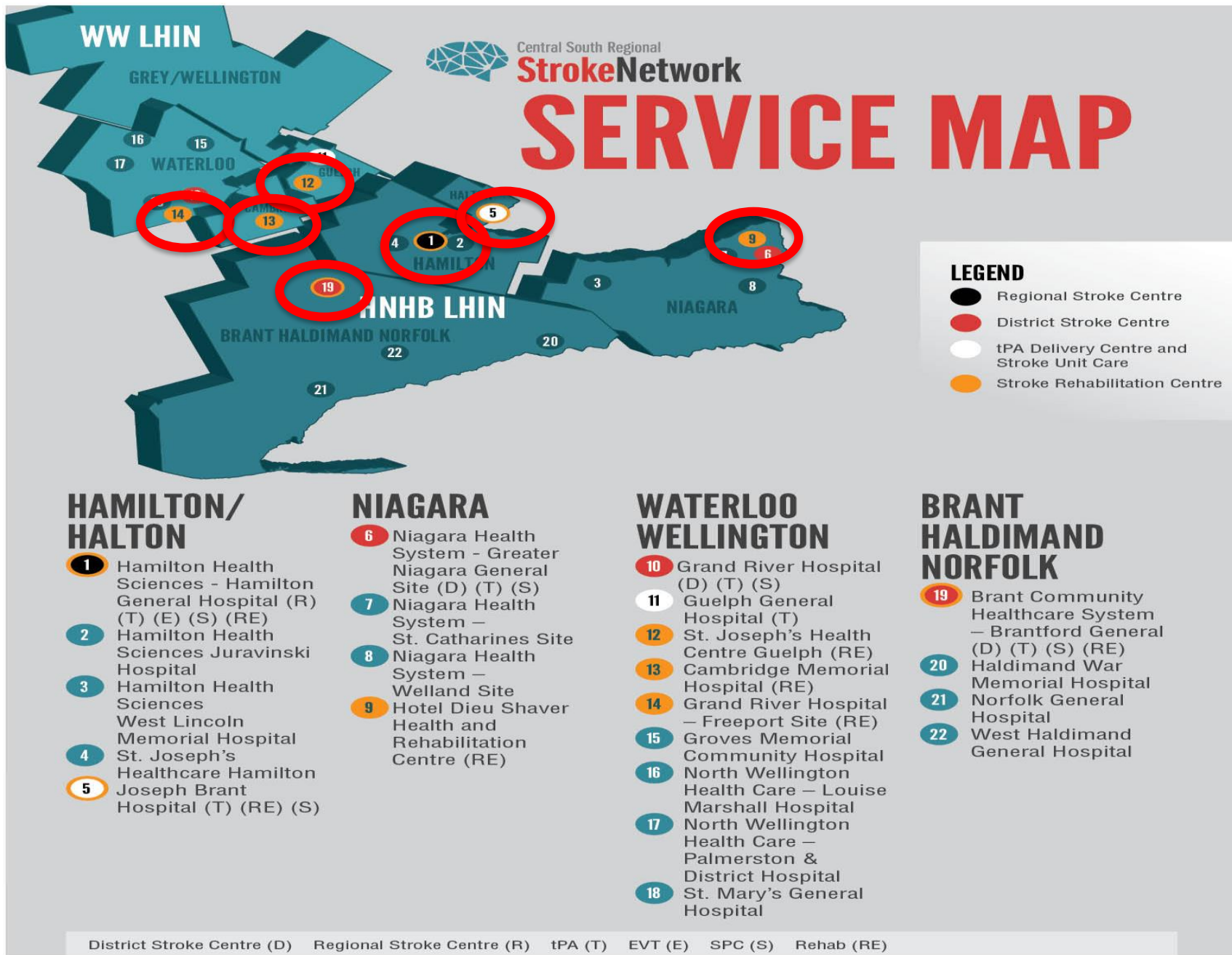


# Central South Integration

## No Matter What Door You Enter....



# **STROKE REHABILITATION SITES**





# How Data Drives Best Practice and Funding

Eley Wisniewski and Stefan Pagliuso



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# Health Services Funding Reform and Stroke QBP

# Health Services Funding Reform

## Ontario Funding Formula in Ontario

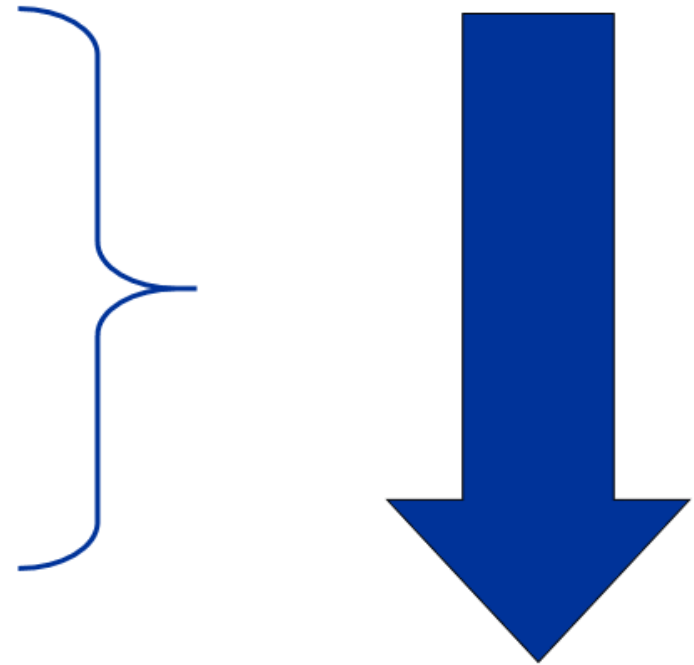
### Ontario Ministry of Health and Long Term Care

#### Operating Funding

- Base Funding
- Priority Program Funding
- Protected Programs
- Waitlist Funding
- CCO Funding
- "One-time recurring" Funding

#### Other Funding

#### Capital Funding (Bricks & mortar)



# Vision: Right care, Right time, Right place

## Global Funding



**A historical approach where health service providers received lump sum funding**

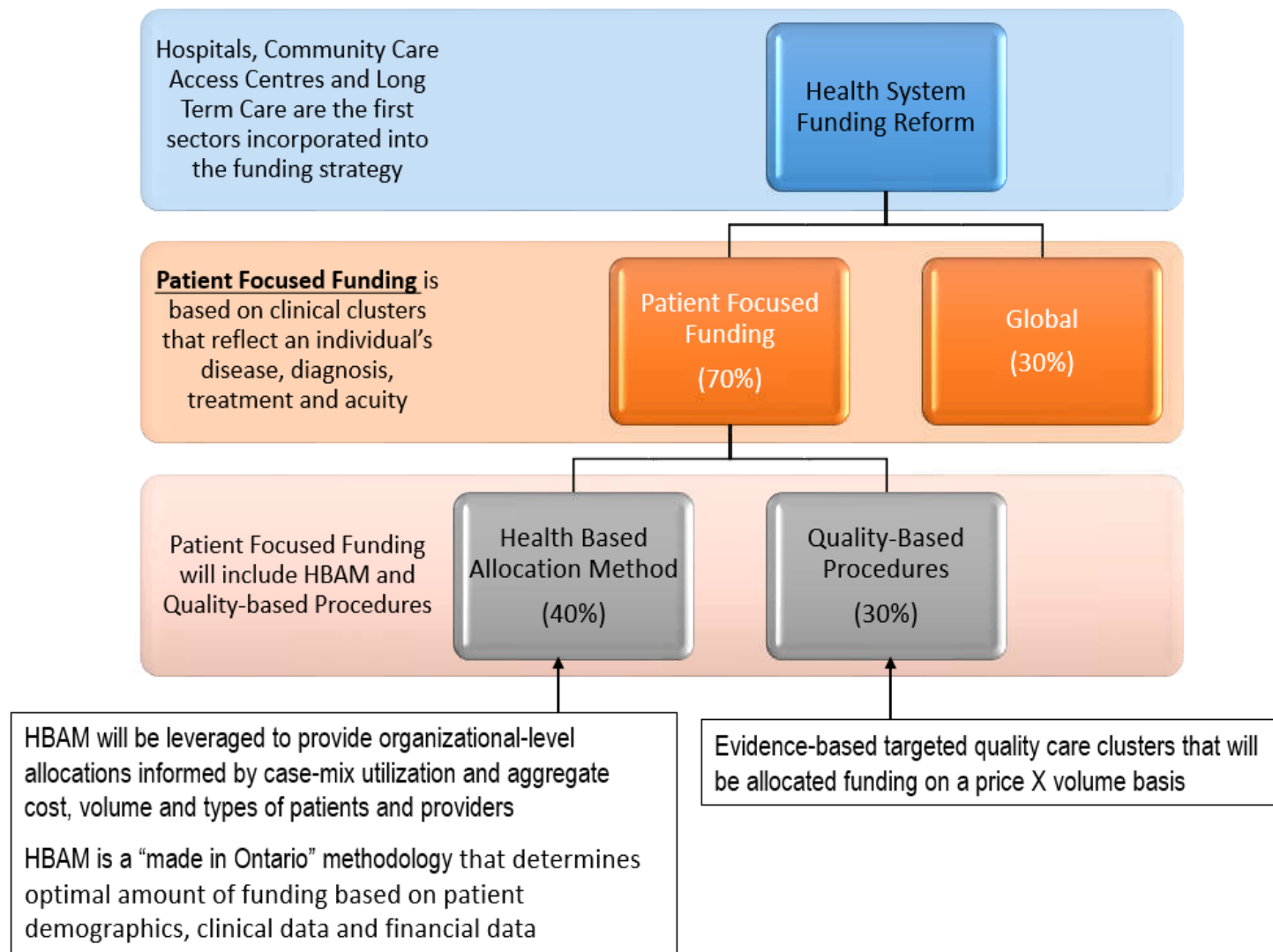
## Health System Funding Reform



**An evidence-based approach with incentives to deliver based on:**

- Number of patients
- Services delivered
- Best available evidence and best practices
- Needs of the population served

# Health System Funding Reform (HSFR): The Journey?

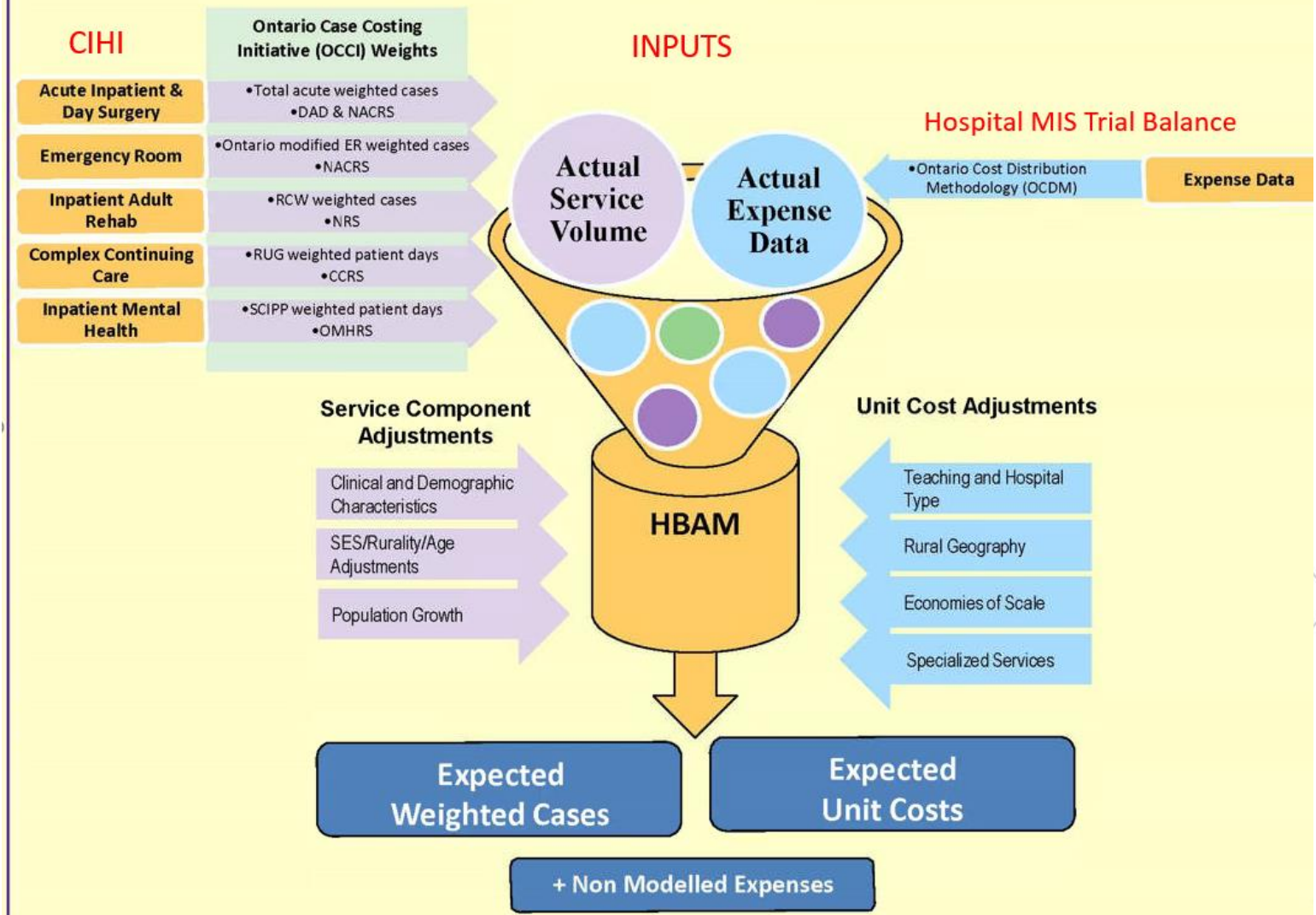


# Coding is a Strategic Asset at HHS

Coders tell the patient's story by converting clinical documentation into standardized codes.

From this coding Resource Intensity Weights (RIW) and Ontario Hospital Inpatient Group Weights (HIG Weights) are calculated and used in the HBAM Funding Model.

# The Health Based Allocation Model



# HBAM Detail

- Actual Cost per Weighted Case and Actual Service
  - What HHS spent as reflected in their Year End Trial Balance (cost) and what service HHS provided (weighted cases using CMG+ converted to Ontario HIG weights)
- Expected Cost per Weighted Case and Expected Service
  - Expected Service is the Service HHS provided forecasted with population growth of the region the patient came from
  - Expected Cost is calculated by taking the Provincial Trial Balance Costs divided by the Provincial Service to create a **"BASE RATE"** for all Hospitals (Academic and Community). To this "Base Rate" HBAM Adjustment factors called **"cost modifiers"** are added at a Hospital Specific level based on:
    - Medical Trainee Days create the **"teaching factor"**
    - Specific Tertiary CMGs (cases), defined by the MOH Level of Care list, generally done by few hospitals create the **"tertiary factor"** (previously called acute specialization index ASI), for high cost infrastructure specialized needs
    - **"Distance factor"** for geographical reasons such as rural, etc.
    - For non acute (rehab, complex care) there are other factors such as size, rehab index, ABI adj and CC Index

## Quality-Based Procedures – funded IN YEAR

- Healthcare providers will be reimbursed for the types and quantities of patients they treat, using rates based on efficiency and best practices that are adjusted for each procedure
- The Quality-Based Procedures target a set of clinical areas that demonstrate significant opportunity to introduce evidence into clinical pathways; reduce practice variation; attain cost efficiencies; and catalyze alignment of quality with funding
- Fixed PRICE X VOLUME = \$\$ (Direct Costs only)
- An evidence based framework is used to determine Quality-Based procedures



Strokes were introduced in Year 2 of this new funding model (F15/16)

# Clinical Handbook Definitions – Stroke Categories

## Stroke (Hemorrhagic)

### From DAD:

General inclusion criteria:

- Patient age >=18

General exclusion criteria:

- Diagnosis type 2 is G45\*, I61\*, I63\*, I64\*, H34.1

Additional inclusions:

- MRDx is I61\*

Additional exclusions:

- MCC partition is "I" (surgical) – excludes all surgical cases

## Stroke (Transient Ischemic Attacks)

### From DAD:

Same general inclusion and exclusion criteria as 6.32 Stroke (Hemorrhage).

Additional inclusions:

- MRDx is G45\* (excluding G45.4)

Additional exclusions:

- MCC partition is "I" (surgical) – excludes all surgical cases

## Stroke (Ischemic or Unspecified)

### From DAD:

Same general inclusion and exclusion criteria as 6.32 Stroke (Hemorrhage).

Ischemic stroke:

- MRDx is I63\* (Excluding I63.6) OR H34.1

Unable to determine stroke:

- MRDx is I64\*

Additional exclusions:

- MCC partition is "I" (surgical) – excludes all surgical cases

## Stroke (Endovascular Treatment)

### From DAD:

Same general inclusion criteria as 6.32 Stroke (Hemorrhage), but not the same general exclusion criteria.

Additional inclusions:

- Any intervention is on the list (1JE57GQ\*, 1JW57GPGX (if using 2017/2018 or earlier data), 1JW57GQ, 1JX57GP) and it is not abandoned or out-of-hospital
- MRDx is I63\* OR I64\* (excluding I63.6)
- MCC partition is "I" (surgical) – includes all surgical cases
- Facility number is in (933, 935, 936, 942, 947, 953, 958, 959, 975, 978, 980)

Exclusion criteria:

- Diagnosis type 2 is G45\*, I61\*, H34.1 except any diagnosis type 2 in I63\*, I64\* (excluding I63.6)

# Monthly Reconciliation Process

QBP	Funding Comparison		Fiscal Year Volume		21/22 Forecasted
	20/21 Rate	21/22 Rate	20/21 Actuals	21/22 Period 8 (Nov discharges) from CIHI	
Stroke Hemorrhage	\$ 10,000	\$ 10,000	102	80	120
Stroke Ischemic or Unspecified Volumes	\$ 7,000	\$ 7,000	620	400	600
Stroke Transient Ischemic Attacks (TIA)	\$ 3,000	\$ 3,000	120	100	150
Clot Retrieval	\$ 30,000	\$ 30,000	150	75	113

QBP	Fiscal Year Volume					
	21/22 Budget = 20/21 Actuals	21/22 Forecasted	Variance	21/22 Budgeted Funding based on 20/21 volumes	21/22 Funding based on 21/22 Actuals	Funding Clawback
Stroke Hemorrhage	102	120	18	1,020,000	\$ 1,200,000	\$180,000
Stroke Ischemic or Unspecified Volumes	620	600	(20)	4,340,000	\$ 4,200,000	(\$140,000)
Stroke Transient Ischemic Attacks (TIA)	120	150	30	360,000	\$ 450,000	\$90,000
Clot Retrieval	150	113	(38)	4,500,000	\$ 3,375,000	(\$1,125,000)

Funding clawback – if in red, must give back to MOH. If in black, no guarantee of extra funding as the provincial pie is only so large.

Data Quality on Coded data is critical for funding and maintain 30 day TAT  
Case Costing data is used to help the MOH establish the funded rate price



Central South Regional

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**Data and Quality Improvement:  
Better Patient Outcomes**

# Objectives

- Review the impact of data on QI in the Region
- Review key data utilizations
  - Accreditation Canada – Stroke Distinction
  - Ontario Health/CorHealth Annual Stroke Report
  - Regional Stroke Monitoring and Evaluation
- Current Provincial Data Focus
  - Stroke Symptom Onset
  - Alpha FIM

# Quality Improvement

- Process for quality improvement strategies regionally begins with analysis of current state which requires fulsome data analysis
- Evaluation of quality improvement strategies utilizes data to ensure implementation has been successful and has had a positive impact on patients
- All QI begins and ends with the need for accurate data and has significant impact on persons with stroke in our Region

Accreditation Canada

# **STROKE DISTINCTION**

# Stroke Distinction

**DISTINCTION  
AWARD**



**ACCREDITATION  
AGRÉMENT  
CANADA**  
**Distinction**



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## Hamilton Health Sciences earns Distinction in Stroke Services

JANUARY 17, 2020

Accreditation Canada, the accreditation body that evaluates Canadian hospitals to ensure national standards are met or exceeded, has awarded Hamilton...

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**DISTINCTION  
AWARD**



**ACCREDITATION  
AGRÉMENT  
CANADA**  
**Distinction**

## CORE INDICATORS

### Fiscal Year 2021-2022

*Quarters rolled together as per Portal Requirement for Q1/Q2 and Q3/Q4.*

**\*\*NOTE\*\*** Percentages shown reflect the calculation done automatically by the Accreditation Canada Website and are rounded to w

INDICATOR	Threshold	FY 21/22 Q1/Q2	FY 21/22 Q3/Q4	Status
1 STROKE/ TIA 30 DAY IN HOSPITAL MORTALITY RATES	<22%			
2 PROPORTION OF ALL ISCHEMIC STROKE PATIENTS WHO RECEIVE ACUTE THROMBOLYTIC THERAPY (TPA)	>7%			
3A MEDIAN TIME FROM PATIENT ARRIVAL IN THE EMERGENCY DEPARTMENT TO ADMINISTRATION OF ACUTE THROMBOLYTIC AGENT	< 60 minutes			
3B PROPORTION OF ISCHEMIC STROKE PATIENTS WHO RECEIVE IPA WITH A DOOR TO NEEDLE TIME LESS THAN 60 MINUTES	50% have DTN <60 minutes			
4 PROPORTION OF ALL STROKE PATIENTS TREATED ON A STROKE UNIT ACUTE <sup>1</sup>	≥75%			
5 TOTAL HOSPITAL LENGTH OF STAY ACUTE (ACTIVE + ALC = TOTAL)	Median ≤14 days			
6 PERCENT OF READMISSIONS TO ACUTE FOR STROKE RELATED CAUSES AT 90 DAYS	≤12%			
7 PROPORTION OF ACUTE PATIENTS DISCHARGED TO INPATIENT REHABILITATION	≥15%			
8 PROPORTION OF ISCHEMIC STROKE / TIA PATIENTS PRESCRIBED ANTITHROMBOTIC THERAPY ON DISCHARGE FROM ACUTE CARE <sup>2</sup>	≥90%			
9 PROPORTION OF PATIENTS WITH INITIAL DYSPHAGIA SCREENING DURING ADMISSION TO ED OR INPATIENT CARE <sup>2</sup>	≥85%			

#### Notes:

1 – Stroke Unit -Excludes SAH- Managed in Level II Step Down/Neurosurgery Unit.

INDICATOR	Threshold	FY 21/22 Q1/Q2	FY 21/22 Q3/Q4	Status
10 PROPORTION OF ALL STROKE PATIENTS TREATED ON A STROKE UNIT REHAB	≥80%			
11 TOTAL HOSPITAL LENGTH OF STAY REHAB (ACTIVE + ALC = TOTAL)	Median ≥14 days			
12 PROPORTION OF ISCHEMIC STROKE / TIA PATIENTS PRESCRIBED ANTITHROMBOTIC THERAPY ON DISCHARGE INPATIENT REHABILITATION <sup>4</sup>	≥90%			
13 PROPORTION OF PATIENTS WITH INITIAL DYSPHAGIA SCREENING DURING ADMISSION REHAB <sup>3</sup>	≥85%			

## OPTIONAL INDICATORS

INDICATOR	Threshold	FY 21/22 Q1/Q2	FY 21/22 Q3/Q4	Status
14 PROPORTION OF STROKE /TIA PATIENTS WHO RECEIVE BRAIN CT / MRI WITHIN 24 HOURS	≥90%			
15 NUMBER OF DAYS FROM STROKE ONSET TO ADMISSION TO INPATIENT REHABILITATION (MEDIAN)  ** NEW IN FY2014-15 – MEDIAN IS PREFERRED METRIC TO USE FOR ONSET DAYS PER ACCREDITATION GUIDELINE MANUAL.	≥ 75% Within 10 days			

# Ontario Stroke Report FY 2019-20

Release Date: June 2021

# Stroke Care in HNHB 2019/20

## STROKE IS A MEDICAL EMERGENCY



**60.2%**

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

84.9% of patients were referred to secondary prevention services after discharge from the emergency department\*

## TIME IS BRAIN



**13.6%**

of ischemic stroke patients received hyperacute therapy

10.9% tPA (tissue plasminogen activator) (Target: >12%)

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

5.0% EVT (Endovascular therapy)

## STROKE UNIT CARE IMPROVES OUTCOMES



**1.62** per 1000

Acute inpatient admission for stroke/TIA

40 hospitals in Ontario have a stroke unit

61.1% of stroke patients treated on a stroke unit (Target: >75%)

*Secondary Prevention of Stroke Begins*

## REHABILITATION OPTIMIZES RECOVERY



**34.8%\*\***

of patients accessed inpatient rehabilitation

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

## STROKE JOURNEY CONTINUES AFTER DISCHARGE



**54.6** days \*\*

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

- 30.5%\*\* received home-based rehabilitation\*
- 8\*\* median number of visits

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

**8** days \*\*

Median time from acute admission to inpatient rehabilitation

## PATIENT OUTCOMES

7.2% of stroke/TIA patients were readmitted within 30 days

13.4% of stroke/TIA patients died within 30 days

9.2%\*\* 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.

\*\* 2019/20 Q2 (YTD)

# **REGIONAL STROKE MONITORING AND EVALUATION COMMITTEE**

Provincial Focus

# **STROKE SYMPTOM ONSET & ALPHAFIM<sup>®</sup> COMPLETION**

# Stroke Symptom Onset/AlphaFIM®

- Provincial focus on accurate capture of stroke symptom onset and AlphaFIM
- Analysis of proportion of missing SSO cases and Proportion of Unknown/Missing Alpha FIM at each acute site

# Stroke Symptom Onset (SSO)

- Time is Brain – each minute 1.9 million neurons are lost in a stroke
- SSO incredibly important for understanding time to hyperacute treatment
- Allows local and provincial analysis of:
  - Equitable access to hyperacute stroke care
  - Evaluation of access in the expanded window (>6hrs)
  - Outcomes in the expanded window

# AlphaFIM®

- AlphaFIM® is a validated assessment tool that is completed on (or as close to) day 3 as possible for stroke patients
- Tool helps determine the type of rehab a patient may need
- Assists greatly with local triage decisions
- Helps the province validate rehabilitation requirements in Ontario through the data

Questions and Discussion

**THANK YOU!**