Future Directions in Stroke Care

Central South Regional Stroke Network
Health Information Management Workshop
February 17, 2022

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Objectives

- To discuss some of the future advances we might see in stroke care that can impact coding:
  - Paramedic Redirection from local Stroke Thrombolysis Centre to Endovascular Centre (Direct Access from the field)
  - Changing in thrombolysis agents
  - Expanding use of Thrombolysis for minor strokes and from 4.5 to 9.0 hours, Wake-Up Stroke or Unknown Time of Onset using CT Perfusion Software
  - Expanded use of Endovascular Therapy for a broader patient group
  - New antithrombotic agents for Stroke Prevention

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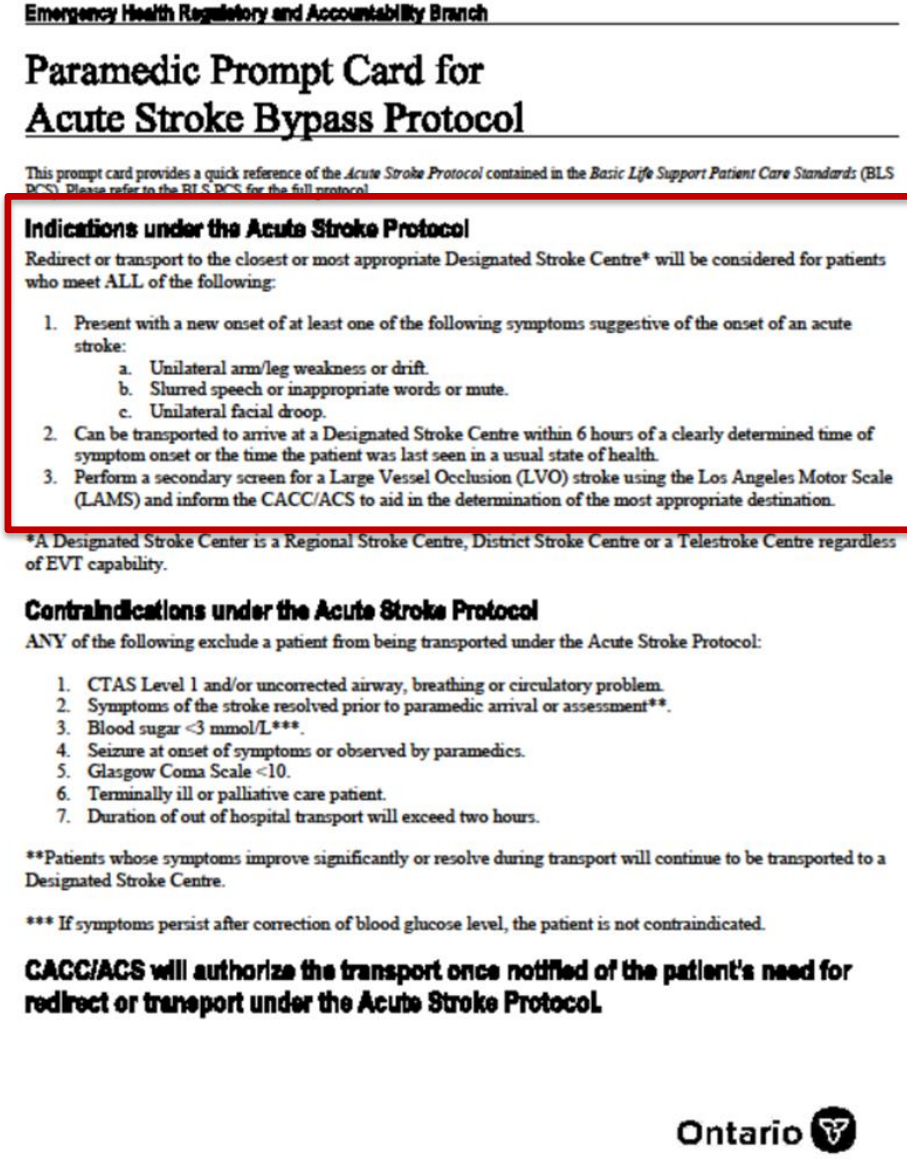

Emergency Health Regulatory and Accountability Branch

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.
3. Perform a secondary screen for a Large Vessel Occlusion (LVO) stroke using the Los Angeles Motor Scale (LAMS) and inform the CACC/ACS to aid in the determination of the most appropriate destination.

*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.

Ontario

Indications for Acute Stroke Bypass Protocol:

- Presents with new onset of at least one of the following symptoms:
  - Unilateral arm/leg weakness or drift
  - Slurred speech or inappropriate words or mute
  - Unilateral facial droop
- Can be transported to arrive at Designated Stroke Centre within 6 hours of time the patient was last seen in a usual state of health
- Perform a secondary screen for Large Vessel Occlusion (LVO) using the Los Angeles Motor Scale (LAMS)

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Los Angeles Motor Scale (LAMS) for Large Vessel Occlusion (LVO)

Step 1 Facial Droop	Step 2 Arm Drift	Step 3 Grip Strength	Step 4 Add the Score
Ask the patient to smile. Is there any weakness or facial weakness?	Bring the person's arms up to 90 ° angle and ask them to hold that position for 10 seconds. Is there any drift or drop of arm?	Ask the person to grip your hands. Does one hand have less power than the other?	Total Possible Score of 5 A score of 4 or 5 is considered positive for Large Vessel Occlusion (LVO) and patient may benefit from Endovascular Therapy
0 Absent 1 Facial Droop Present	0 Absent 1 Drips Down 2 Falls Rapidly	0 Absent 1 Weak Grip 2 No Grip	

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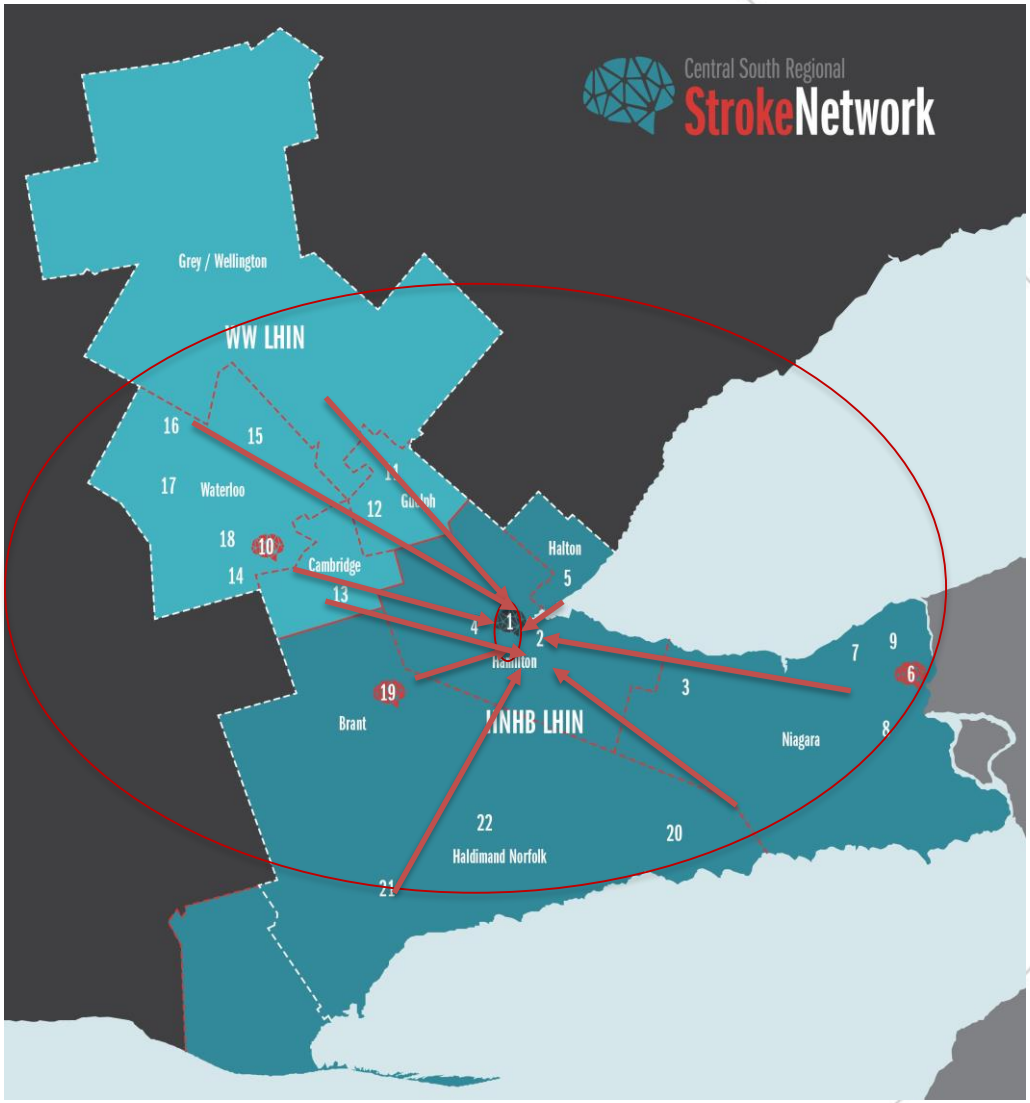
Central South Regional Stroke Network Direct Access to EVT Centre (Mothership)



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Switching from Alteplase (tPA) to Tenecteplase (tNK) for Stroke Thrombolysis

- Tenecteplase is has some of the same pharmacokinetic advantages of alteplase
- Studies have been shown that TNK might be a better thrombolytic agent than tPA:
  - Non-inferior to alteplase
  - Safety outcomes were similar
  - It is easier to administer (one single bolus)
  - Less errors in dosing, less use of infusion pumps
  - May improve functional outcomes
  - Better reperfusion for large vessel occlusion strokes
  - Faster Door to EVT Suite
  - Faster DIDO times at TPA sites

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Thrombolysis with TNK for Minor Stroke with Intracranial Occlusion

- In TEMPO 1 Research Trial, TNK versus Standard of Care (antiplatelet therapy) was studied with Minor Ischemic Stroke (NIH SS $\leq$ 5) within 12 hours of onset of symptom onset with intracranial arterial occlusion
- This preliminary study found TNK was:
  - Feasible
  - Safe
  - Improved Functional improvement
- TEMPO 2 is an ongoing research trial to prove if the treatment is effective. Study closes 2023

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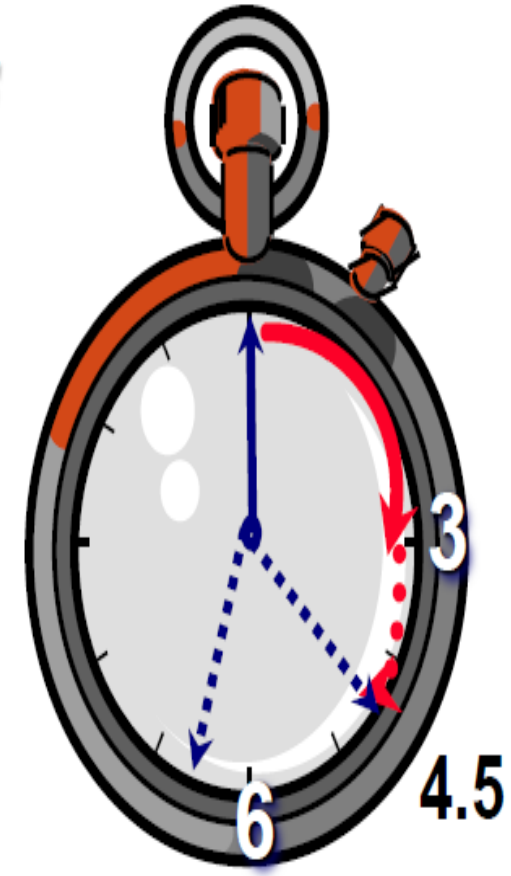
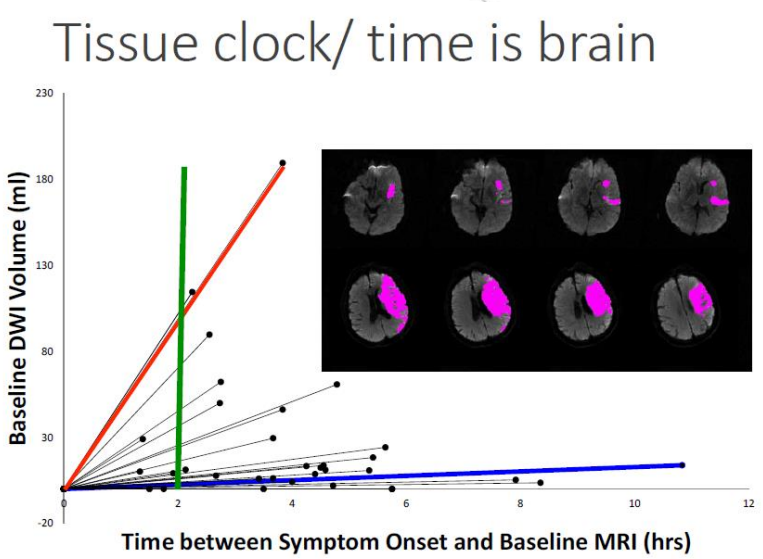
Moving from Time is Brain to Time the Brain

Time is Brain



Tissue Time/Time the Brain



Wheeler HM, et al. Int J Stroke. 2015

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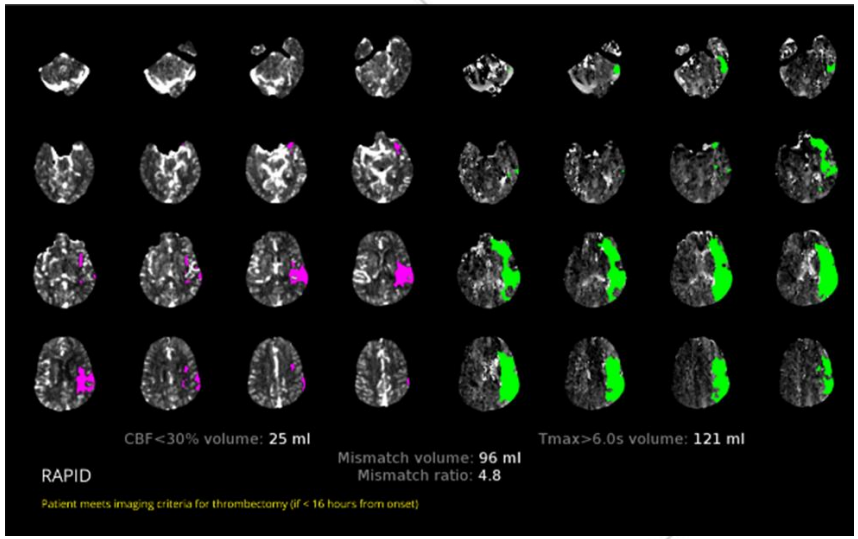
Expanding the Window for Thrombolysis using CT Perfusion

- Using CT Perfusion Software to select Thrombolysis for:
  - 4.5 to 9.0 Hour window
  - Wake-Up Strokes
  - Stroke with Unknown Onset time
- 3 Studies found that patients treated with alteplase versus placebo:
  - Better functional improvement
  - Slightly higher rate of symptomatic Intracranial hemorrhage but did not negate benefit of the treat



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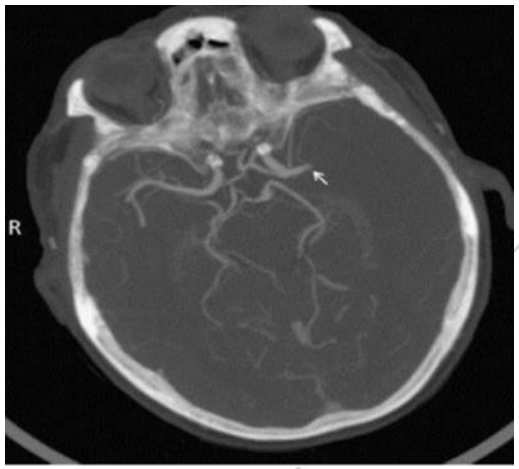
Expanding EVT Eligibility

Current EVT Eligibility Criteria:

- Stroke Symptoms less than 24 hours of time last seen normal
- Disabling Stroke
- Good Baseline Functioning preStroke (mRS 0 – 2)
- Large blood vessel blockage with a reachable clot
- Brain tissue that is still alive (ASPECTS $\geq$ 6)
- Clinical Mismatch on CTP Imaging

Expanded EVT Eligibility:

- Patients with lower ASPECTS Scores
- Patients with low NIHSS but large vessel occlusion
- Patients with tandem occlusion



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Ticagrelor Plus Aspirin for Stroke Prevention

- Thales Trial found that:
  - Patients with TIA or Minor Stroke who were treated with Ticagrelor and Aspirin had significant reduction in disabling stroke or death at 30 days and a reduced the total burden of disability to recurrent ischemic stroke at 30 days
  - Patients received a loading dose of Ticagrelor (180 mg) then a maintenance dose of 90 mg BID in addition to loading dose of 300 – 325 mg of ASA then 75 – 100 mg daily for 30 days

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Questions

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Wrap Up and Evaluation

- Workshop Evaluations:
  - You have been send a link via email to complete your evaluation
  - Please take the time to provide feedback as we use this information to inform our planning

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CME Certificate and Presentations

- Certificate for CME's:
  - After this workshop you will receive an email with the Certificate for your CME's
- Link to Presentations and Recording of the Workshop
  - You will receive an email in the next week with a link to the Workshop Presentation and Workshop Recordings on the Central South Regional Stroke Network Website

  www.csnstroke.ca

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