Team Name: Critical Care and Medicine Team Lead: Regional Director - Acute Care Approved by: Executive Director - Acute & Chief Nursing Officer	Reference Number: CLI.4110.PL.013 Program Area: Across Care Areas Policy Section: General
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POLICY SUBJECT:
Stroke Care

PURPOSE:
To standardize evidence-informed best practices related to stroke care across the continuum in Southern Health-Santé Sud through:

- Access to stroke prevention clinics.
- Early recognition of stroke irrespective of where in the continuum of services the patient accesses care.
- Timely access to a stroke centre for key assessments and interventions.
- Effective post-stroke care aimed at rehabilitation to maximize recovery and potential.
- Facilitated reintegration into the community.

BOARD POLICY REFERENCE:
Executive Limitation (EL-01) – Global Executive Restraint and Risk Management
Executive Limitation (EL-02) – Treatment of Clients

POLICY:
Southern Health-Santé Sud is committed to providing a coordinated regional approach to meeting the needs of clients who require stroke care.

Strategies are designed to optimize access to appropriate care, provided at the right time, in the most appropriate setting, by the most appropriate providers, for the right length of time.

Bethesda Regional Health Centre, Boundary Trails Health Centre, and Portage District General Hospital are the designated stroke centres within Southern Health-Santé Sud.

The goal is for any person with stroke symptoms to have timely access to these Southern Health-Santé Sud sites or other provincial designated locations.

Southern Health-Santé Sud designated stroke centres provide care for patients with strokes who present to the site or transferred in during and post the hyperacute state, within their scope of services.

DEFINITIONS:

Cincinnati Stroke Scale (CSS): a scale used to diagnose a potential stroke. It tests three signs for abnormal findings which may indicate that the client is having a stroke.

Hyper-acute stroke care: the healthcare actions that take place between the time of initial contact with a potential stroke patient and either admission to hospital or outpatient management in the community.

Los Angeles Motor Scale (LAMS): a validated tool for assessment of stroke severity. It requires generating a LAMS score. A LAMS score of 4 or greater is indicative of a more severe stroke.

National Institute of Health Stroke Scale (NIHSS): an internationally recognized systematic assessment tool which provides a quantitative measure of stroke-related deficits**.**

Stroke: a sudden, rapidly evolving syndrome, with a non-epileptic neurological deficit associated with a well-circumscribed volume of infarcted brain tissue within a discrete vascular territory. It is caused by an insufficient supply of blood to a portion of the brain.

Telestroke: real-time telecommunication linkage between two (2) sites that facilitates rapid transmission of imaging and access to neurology and radiology services that direct stroke care of a patient from a distance.

Transient Ischemic Attack (TIA): a brief episode of neurological dysfunction caused by focal brain or retinal ischemia with complete resolution of symptoms in less than one hour and without evidence of an infarction on computed tomography (CT).

IMPORTANT POINTS TO CONSIDER

Acute stroke is a time sensitive medical emergency. Time matters in response to stroke. The therapeutic window from the onset of symptoms for thrombolytics is 4.5 hours and for endovascular interventions is 6 hours.

PROCEDURE:

Non Stroke Centres:

1. For decision making in the community, follow *S*troke/Transient Ischemic Attack (TIA) Algorithm for Responses in Community (CLI.4110.PL.013.SD.01).
2. Accessing a stroke centre:
   2.1. Primary call - 911: MTCC dispatches EMS.

- EMS assess patients by using the Cincinnati Stroke Scale (CSS) and Los Angeles Motor Scale (LAMS), and follow EMS stroke protocols.

2.2. Non-stroke centres emergency departments (ED): follow Acute Stroke Care Map for Emergency Department in Non- Stroke Centres (CLI.4110.PL.013.FORM.01).

- Triage the acuity level of patients presenting to the ED with stroke symptoms as Canadian Triage and Acuity Score (CTAS) level 1.
- A patient who presents to a non-stroke centre (or is an in-patient in a non-stroke centre) and meets the CSS and LAMS criteria for hyper-acute stroke care, and the timeline is less than 6 hours from onset of symptoms:
  - Call Manitoba Transportation Coordination Centre (MTCC) at 1-800-689-6559 to arrange for an immediate transfer to a stroke centre.
  - MTCC dispatches EMS for immediate interfacility transfer of the patient to the closest open hyperacute stroke centre.
- For a patient who presents with stroke symptoms (as per CSS and LAMS criteria) but does not meet timeline criteria of 6 hours from onset of symptoms, and after the physician has connected with the neurologist:
  - Book Computed Tomography (CT) scan at the closest stroke centre. Inform Diagnostic Imaging (DI) that this appointment requires to be booked within 24 hrs. of onset of symptoms as per Stroke Care.
  - Once the appointment is made, notify MTCC to book an interfacility transfer to the stroke centre for CT scan as a high priority, explaining that the CT needs to occur within 24 hours of onset of symptoms.
  - Follow Stroke Standard Orders: No Alteplase (tPA) / Post Alteplase (tPA) (CLI.4110.PL.013.FORM.02) and develop an individualized patient care plan, which may include stroke rehabilitation.
- For patients who presented with stroke signs and symptoms but CT results were negative for stroke or the signs and symptoms of neurological dysfunction completely resolved within one (1) hour or less from onset, follow Minor Stroke/Transient Ischemic Attack (TIA): Risk Assessment and Standard Orders (CLI.4110.PL.013.FORM.03).

Stroke centres:

1. Persons with signs of stroke may present to the ED directly from the community or via EMS.
   - Triage patient as CTAS 1 acuity level.
2. Follow the Hyperacute Stroke Algorithm for Stroke Centres (CLI.4110.PL.013.SD.02) which includes:

2.1. Notification by ED registration clerk: follow site specific notification guidelines.

- Registration Clerk Notification Guideline – Bethesda Regional Health Centre (CLI.4110.PL.013.FORM.04)
- Registration Clerk Notification Guideline – Boundary Trails Health Centre (CLI.4110.PL.013.FORM.05)
- Registration Clerk Notification Guideline – Portage District General Hospital (CLI.4110.PL.013.FORM.06)
  - Place form in patient's health record.

- Initiate Stroke Centres Emergency Standard Orders (CLI.4110.PL.013FORM.07).
- Complete Stroke Centres Emergency Standard Orders Transcribed (CLI.4110.PL.013.FORM.08).
- Assess neurological status with National Institute of Health Stroke Scale (NIHSS) (CLI.4110.PL.013.FORM.09) or Glasgow Coma Scale (GCS).
  - Note: Use only Glasgow Coma Scale when patient is unresponsive or by staff who is NOT trained in NIHSS.
  - Baseline NIHSS can be completed by neurologist or emergency physician.
  - If NIHSS is completed, record baseline NIHSS total score on the Stroke Centres Emergency Standard Orders Transcribed.

3. Diagnostic services:
   3.1. ED Registration clerk pages "Code 25 Stroke" to alert Diagnostic Imaging (DI) and laboratory (lab) services of an incoming patient with a possible stroke (if DI technologist or lab personnel are on-call, they will be called by ED Registration Clerk).
   - For CT to be performed during regular working hours, follow Shared Health CT Regular Hours Stroke Protocol: BRHC 0745-1600; BTHC & PDGH 0800-1615.
   - For CT to be performed after regular working hours, follow Shared Health CT After Hours Stroke Protocol: BRHC 1600-0745; BTHC & PDGH 1615-0800.
   - If the CT scanner is not available, follow the Shared Health CT Downtime Policy Stroke Protocol.
     - DI technologist informs in-person or telephones the ED at the facility affected by the unavailable CT, and notifies EMS and MTCC.
   - Lab technologists ensure that the centrifuge is made available for processing blood samples.
   - Lab technologists follow the Shared Health Laboratory Stroke Protocol.
4. Diagnosis and Treatment:
   4.1. Use Telestroke equipment to consult with stroke neurologist to arrive at a diagnosis and treatment plans.
   4.2. <u>If telestroke equipment is down</u>, use the emergency department I-phone to communicate with telestroke team.
   - Inform patient/designate that "the telestroke equipment is not available and that the use of an iPhone is the backup process. However, the iPhone is not a secure line and there are risks to Personal Health Information (PHIA) breaches". Document on progress notes.
     - If patient/designate agrees with the use of I-phone, proceed.
     - If patient disagrees with the use of the I-phone <u>but</u> meets the CSS criteria for hyper-acute stroke care <u>and</u> the timeline is less than 6 hours from onset of symptoms to arrival to another stroke centre:
       - Connect with telestroke neurologist by telephone and discuss the situation;
       - Determine the appropriateness of a transfer to another stroke centre;
       - Initiate interfacility transfer if indicated.

   4.3. If patient is diagnosed with Minor Stroke/TIA, initiate Minor Stroke/Transient Ischemic Attack (TIA) Risk Assessment and Standard Orders.

4.4. If intracranial hemorrhage (ICH) is diagnosed on CT:
- Consult neurology and provide recommended care.

4.5. If Alteplase (tPA) is NOT selected for treatment, initiate Stroke Standard Orders: No Alteplase (tPA) / Post Alteplase (tPA).

4.6. If Alteplase (tPA) is the selected treatment:
- Verbal informed consent is obtained by emergency physician and telestroke neurologist.
- Initiate Stroke Centres Alteplase (tPA) Standard Orders (CLI.4110.PL.013.FORM.10).
- Provide patient/significant others with Role of Alteplase (tPA) in Stroke Care: Information for Patients and Families – Bilingual (CLI.4110.PL.013.SD.03).
- Administer Alteplase (tPA) as per drug monograph.
- Monitor for adverse events:
  - Monitor for ICH during and post administration of Alteplase (tPA).
    - If ICH is suspected, follow Stroke Algorithm for Suspected Intracranial Hemorrhage (ICH) During and Post Alteplase (tPA) Infusion (CLI.4110.PL.013.SD.04).
      - Inform neurologist on-call that the patient is exhibiting signs of post Alteplase (tPA) ICH.
      - In consultation with neurologist, determine plan of care.
        - ☐ Administer fibrinogen as per monograph if ordered.
        - ☐ Administer fresh frozen plasma as per monograph if ordered.
      - If patient is to be transferred to tertiary care centre, inform MTCC that the inter-facility transfer is STAT.
  - Monitor for angioedema.
    - If angioedema is suspected, follow Management of Angioedema Caused by Alteplase (tPA) use in Acute Ischemic Stroke (CLI.4110.PL.013.SD.05)
      - Inform neurologist on call that the patient being transferred is exhibiting signs of post Alteplase (tPA) angioedema.
      - Inform MTCC that the inter-facility transfer is STAT.
- If no complications are encountered by patient, initiate Stroke Standard Orders: No Alteplase (tPA) / Post Alteplase (tPA) 24 hours post infusion.

5. Transfer patient to an inpatient unit.
   5.1. Unless alternate prescriber orders have been written, continue with Stroke Standard Orders: No Alteplase (tPA) / Post Alteplase (tPA).
6. For inpatients who develop signs of a stroke, call Code 25 (CLI.4510.PL.003) and follow New Onset of Suspected Stroke Symptoms on Inpatient Units within a Stroke Centre (CLI.4110.PL.013.FORM.11).
7. Refer all patients diagnosed with a stroke to applicable interdisciplinary team members.
8. Provide patient/designate with “Your Stroke Journey” booklet.

Evaluation:
- Regional stroke centres: complete 10 chart audits biannually using the Stroke Care Audit: Stroke Centres Emergency Departments (CLI.4110.PL.013.FORM.12).

- Non-regional centres: complete 3 to 5 chart audits biannually using the Stroke Care Audit: Non-Stroke Centres (CLI.4110.PL.013.FORM.13).
- Review audit results and identify trends to inform quality improvement plans.
- Forward a copy of audit results and quality improvement plans to Regional Director - Acute Care and Regional Acute Care Manager.

SUPPORTING DOCUMENTS:

CLI.4110.PL.013.FORM.01	Acute Stroke Care Map for Emergency Departments at Non-Stroke Centres
CLI.4110.PL.013.FORM.02	Stroke Standard Orders: No Alteplase (tPA)/24-hours Post Alteplase (tPA)
CLI.4110.PL.013.FORM.03	Minor Stroke/Transient Ischemic Attack (TIA): Risk Assessment and Standard Orders
CLI.4110.PL.013.FORM.04	Registration Clerk Notification Guideline – Bethesda Regional Health Centre
CLI.4110.PL.013.FORM.05	Registration Clerk Notification Guideline – Boundary Trails Health Centre
CLI.4110.PL.013.FORM.06	Registration Clerk Notification Guideline – Portage District General Hospital
CLI.4110.PL.013.FORM.07	Stroke Centres Emergency Standard Orders
CLI.4110.PL.013.FORM.08	Stroke Centres Emergency Standard Orders Transcribed
CLI.4110.PL.013.FORM.09	National Institute of Health Stroke Scale (NIHSS)
CLI.4110.PL.013.FORM.10	Stroke Centres Alteplase (tPA) Standard Orders: 1st 24-Hours
CLI.4110.PL.013.FORM.11	New Onset of Suspected Stroke Symptoms on Inpatient Units within a Stroke Centre
CLI.4110.PL.013.FORM.12	Stroke Care Audit: Stroke Centres Emergency Departments
CLI.4110.PL.013.FORM.13	Stroke Care Audit: Non-Stroke Centres
CLI.4110.PL.013.SD.01	Stroke/Transient Ischemic Attack (TIA): Algorithm for Responses in Community
CLI.4110.PL.013.SD.02	Hyperacute Stroke Algorithm for Stroke Centres
CLI.4110.PL.013.SD.03	Role of Alteplase (tPA) in Stroke Care: Information for Patients and Families – Bilingual
CLI.4110.PL.013.SD.04	Stroke Algorithm for Suspected Intracranial Hemorrhage (ICH) During and Post Alteplase (tPA) Infusion
CLI.4110.PL.013.SD.05	Management of Angioedema Caused by Alteplase (tPA) use in Acute Ischemic Stroke

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