ACUTE STROKE
CLINICAL PATHWAY
The clinical pathway is based on evidence informed practice and is designed to promote timely treatment, enhance quality of care, optimize patient outcomes and support effective transition/discharge planning. These are not orders, only a guide to usual orders.

INCLUSION CRITERIA
• All patients admitted to hospital with a suspected diagnosis of acute ischemic stroke (AIS), non-surgical intracerebral hemorrhage (ICH), post surgical/medical managed subarachnoid hemorrhage, transient ischemic attack (TIA) or venous sinus thrombosis.
• Patients with co-morbid diagnoses where care is focused on non-stroke illness will initially be managed outside the Acute Stroke Clinical Pathway. When appropriate, the patient will be transferred to the Acute Stroke Clinical Pathway.

REMINDER: Please ensure all stroke and TIA patients admitted to hospital are designated as "Stroke Service" in Cerner.

EXCLUSION CRITERIA
• Patients with significant complications where care is focused on their non-stroke illness
• Patients who are palliative, due to the severity of stroke, are generally not included.
• Patients who do not have an acute stroke or TIA.

If patient is excluded please document reason in your notes.

TRANSFERS TO THE PROVINCIAL ACUTE STROKE UNIT
Transfers to the Provincial Acute Stroke Unit (PASU) should be considered high priority as per the Canadian Best Practice Recommendations for Stroke Care. Process is as follows:

• Call QEH Admitting Bed Control @ (902) 894-2238 for physician contact
• Referring physician contacts hospitalist/ GP for possible admission to Provincial Acute Stroke Unit
• Accepting physician advises QEH Admitting Bed Control transfer has been accepted
• QEH Admitting Bed Control contacts Patient Flow Coordinator/ Nursing Supervisor for bed availability.
• Patient Flow Coordinator/ Nursing Supervisor contacts transferring facility to advise of first available bed.

Canadian Best Practice Recommendations for Stroke Care:
www.strokebestpractices.ca
# ACUTE STROKE

## CLINICAL PATHWAY

### PROCESS

#### ASSESSMENT (OBSERVATIONS/MEASUREMENTS)
- Assessment within 10 minutes of hospital arrival. Relevant/emergent co-morbidities documented. MD determination of eligibility for alteplase therapy
- Glasgow Coma Scale on admission; neuro checks q 15 minutes. MD completes NIHSS as per alteplase protocol.
- Initial Vital signs, including SpO2; If Alteplase therapy given assess vital signs q15min x 2hrs then q30min
- Notify Physician if SBP ≥ 220 or DBP ≥ 120 for 2 or more readings 5 - 10 minutes apart
  - Note: Very high blood pressure should be treated in patients receiving thrombolytic therapy for acute ischemic stroke – target below 180/105 mmHg
- Treat temps >37.5° Celsius. Notify MD for Temp > 38.5° C
- Screen for elevated blood glucose, and blood glucose below 4 mmol/L. Hypoglycemia should be corrected immediately.
- Chest assessment
- Pain assessment
- Record height and weight
- Monitor intake/output, document urine color
- Continuous cardiac monitor/rhythm strips interpreted and attached
- Document patient history of irregular heart rate/previous stroke

#### DIAGNOSTICS/LABORATORY
- CT scan of head w/o contrast within 25 minutes of hospital arrival
- ECG – Note: Unless patient is hemodynamically unstable, ECG should not delay CT scan.
- Portable Chest Xray if evidence of acute heart disease or pulmonary disease. Note: Unless patient is hemodynamically unstable, xray can be deferred until after a decision regarding acute treatment; not to delay thrombolytic decision making.
- Blood work (specifically CBC, APTT, INR, Electrolytes, Creatinine, Glucose, Troponin). Consider B-HCG if female <50 years of age.

#### TREATMENTS/INTERVENTIONS
- IV site established/insitu and satisfactory, IV as ordered
- Avoid use of indwelling catheter
- O2 if needed

#### MEDICATIONS
- Medication history
- Acetaminophen 650 mg PO/PR q4hrs for temperature ≥ 37.5° C or for analgesia **(max 4,000 mg in 24 hrs)**
<table>
<thead>
<tr>
<th><strong>MOBILITY/ACTIVITY</strong></th>
<th>Bed Rest</th>
</tr>
</thead>
</table>
| **NUTRITION**        | NPO until TorBSST dysphagia screening completed by trained staff  
Determine alternate routes for meds if NPO |
| **PSYCHOSOCIAL SUPPORT/EDUCATION** | Inform patient and caregiver(s) of diagnosis/ reason for admission  
Advance directive discussion addressed  
Address immediate concerns |
| **TRANSITION PLANNING** | If Alteplase therapy given or patient is medically unstable: Transfer to ICU  
If hemorrhagic or pediatric stroke: consider Out of Province transfer  
All other stroke/TIA admissions transfer to the Prov Acute Stroke Unit; ideally within 3 hrs of hospital arrival  
If staying longer than 3 hrs in emergency department activate ICU or Acute Care Phase  
Designate as "Stroke Service" for all Stroke and TIA hospital admissions |
# ACUTE STROKE CLINICAL PATHWAY

## ICU PHASE (POST THROMBOLY蒂CS: 24 Hours)

### PROCESS

- **Toronto Bedside Swallowing Screening Test (Tor-BSST)** by trained staff if not already done in ER
- **Neurological assessment q1hr x 12hrs, then q 2 hrs X 12hrs. Report any changes in neuro status to MD**
- **Vital signs, including SpO2: Baseline, then q15min x 2hrs; q30min x 6hrs; q1hr x 4hrs; q2hrs x 12hrs**
- **Notify MD if SBP > 180 mmHg OR if DBP > 110 mmHg for 2 or more readings 5 -10 min apart. Avoid BP in arm with IV or venipuncture if possible.**
- **Blood Glucose monitoring q6hrs. Call MD if Blood Glucose is ≥ 12 mmol/L**
- **Record regularity of heart rate (Note if patient aware of any past anomalies)**
- **Temp q4h x 24hrs; treat temps >37.5 Celsius**
- **Chest assessment**
- **Pain assessment**
- **Monitor intake/ output q shift, document urine color. Assess all body excretions for blood**
- **Braden risk assessment completed on admission**
- **TLR assessment completed on admission**
- **Assess Risk/Need for Venous thromboembolism (VTE) Prophylaxis with MD,**

### ASSESSMENT (OBSERVATIONS/MEASUREMENTS)

- **Conley falls risk assessment completed on admission and PRN**
- **TLR cue cards in place in room**

### CONSULTS

- **Provincial Acute Stroke Unit consults to: Neurologist, Physiotherapist (PT), Occupational Therapy (OT), Speech Language Pathologist (SLP), Dietitian and Social Worker initial assessment ideally within 48 hours of hospital admission**

### DIAGNOSTICS/LABORATORY

- **CT scan of head w/o contrast after 24 hours**
- **MRI if ordered**
- **ECG if not already completed in ER**
- **Portable Chest Xray if evidence of acute heart disease or pulmonary disease.**
- **Carotid imaging if ordered**
- **Echocardiogram if ordered**
- **Blood work as ordered if not already done in ER**
| MEDICATIONS | Best possible medication history if not already done  
Determine alternate routes for meds if patient is NPO  
Acetaminophen 650 mg PO/PR q4hrs for temperature ≥ 37.5°C or for analgesia (max 4,000 mg in 24 hrs)  
No antiplatelets or anticoagulants for 24 hours |
| TREATMENTS/INTERVENTIONS | Oxygen to keep SpO2 > 90%  
IV and/or intermittent set observation and site care q 1 hour. Minimize venous or arterial sticks if possible.  
VTE protocol  
Oral Care protocol  
Avoid use of indwelling catheter |
| MOBILITY/ACTIVITY | Bed rest with minimal handling  
Head of bed raised 30-60 degrees, unless contraindicated.  
Use positioning techniques to maintain proper body alignment in bed |
| NUTRITION | NPO until TorBSST dysphagia screening completed by trained staff or SLP assessment  
Avoid NG Tube placement for 24 hours  
Therapeutic diet as per Dietitian and SLP recommendations |
| PSYCHOSOCIAL SUPPORT/EDUCATION | Orientation to unit and procedures, review visiting guidelines  
Introduce patient pathway  
Encourage patient and caregiver(s) to ask questions. Address patient and family concerns |
| TRANSITION PLANNING | Transfer to Provincial Acute Stroke Unit after 24 hours post thrombolytics  
Designate as “Stroke Service” for all Stroke and TIA hospital admissions |
# ACUTE STROKE CLINICAL PATHWAY

## PROCESS

### ACUTE CARE PHASE

- **ASSESSMENT (OBSERVATIONS/MEASUREMENTS)**
  - Toronto Bedside Swallowing Screening Test (Tor-BSST) by trained staff if not already done in ER/ICU
  - Neurological assessment q 4hrs x 48 hrs, then q8 hrs until stable.
  - Vital signs, including Sp02 q4hrs x 48hrs (include ICU time), then QID x 48hrs, then BID when stable
  - Notify MD if SBP ≥ 220 mmHg OR if DBP ≥ 120 mmHg for 2 or more readings 5-10 min apart
  - Record regularity/irregularity of heart rate (Note if patient aware of any past anomalies)
  - Temp q4hrs x 48 hrs (include ICU time), then BID when stable; treat temps >37.5 C
  - Chest Assessment q shift and as needed
  - Pain Assessment using 10 point Likert Analog Scale
  - Height and weight on admission if not already completed
  - Monitor Intake and Output q shift, document urine color
  - Modified Rankin Scale on admission **and** upon discharge from acute care or prior to admission to rehabilitation unit
  - Braden risk assessment on admission and PRN
  - TLR assessment on admission, weekly or PRN
  - Venous thromboembolism (VTE) Prophylaxis assessment
  - Hospital Anxiety Depression Screen (HADS)
  - Alpha FIM assessment on admission **and** upon discharge from acute care or prior to admission to rehabilitation unit
  - Oral Care assessment
  - Bladder and Bowel Assessment
  - Nutritional and hydration status screened within 48 hrs of admission

### PATIENT SAFETY CUES

- Conley falls risk assessment completed on admission and PRN
- TLR cue cards in place in room

### CONSULTS

- Neurologist, Physiotherapist (PT), Occupational Therapist (OT), Speech Language Pathologist (SLP), Dietitian and Social Worker initial assessment ideally within 48 hrs of hospital admission
| **Health PEI**  
<table>
<thead>
<tr>
<th>One Island Health System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rehabilitation consult within 4 days if appropriate (screening tool TBD)</strong></td>
</tr>
</tbody>
</table>
| **DIAGNOSTICS/ LABORATORY**  
| CT scan of head w/o contrast if not already done in ER / ICU  
| MRI if ordered  
| ECG if not already completed in ER/ ICU  
| Portable Chest Xray if evidence of acute heart disease or pulmonary disease.  
| Carotid imaging if indicated  
| Echocardiogram if indicated  
| Blood work as ordered if not already done in ER/ ICU  
| Holter if indicated |
| **MEDICATIONS**  
| Best possible medication history if not already done  
| Determine alternate routes for meds if patient NPO  
| Acetaminophen 650 mg PO/PR q4hrs for temperature ≥ 37.5° C or for analgesia (max 4,000 mg in 24 hrs) |
| **TREATMENTS/INTERVENTIONS**  
| IV care  
| Remove urinary catheter if present  
| VTE protocol  
| Oral Care protocol  
| Bladder/ Bowel protocol  
| Conley Falls Risk interventions  
| Therapeutic activities as per PT, OT and SLP recommendations |
| **MOBILITY/ACTIVITY**  
| Activity as tolerated. Please refer to Canadian Stroke Best Practice Guidelines 4.2.4 for contraindications to mobilization.  
| Head of bed raised 30-60, unless contraindicated.  
| Use positioning techniques to maintain proper body alignment in bed and in chair  
| Use recommended equipment as per PT and OT direction  
| Blood pressure, oxygen saturation and heart rate monitored prior to mobilization for the first 3 days following admission |
| **NUTRITION**  
| NPO until Tor-BSSST dysphagia screening completed by trained staff or SLP assessment  
| Therapeutic diet as per Dietitian and SLP recommendations  
| NG feeding established if ordered |
| **PSYCHOSOCIAL SUPPORT/ EDUCATION**  
| Orientation to unit and procedures, review visiting guidelines  
<p>| Introduce or review patient pathway |</p>
<table>
<thead>
<tr>
<th>TRANSITION PLANNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide “Your Stroke Journey – A Guide for People Living with Stroke” and other educational materials as appropriate. Complete stroke education form on Cerner.</td>
</tr>
<tr>
<td>Encourage patient and caregiver(s) to ask questions. Address patient and family concerns</td>
</tr>
</tbody>
</table>

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing interdisciplinary team discussions regarding appropriateness/readiness for discharge to pre-admission residence. If appropriate target discharge within 10 days</td>
</tr>
<tr>
<td>Ongoing interdisciplinary team discussions regarding appropriateness/readiness for rehabilitation unit and transfer ideally between 5 to 10 days</td>
</tr>
<tr>
<td>Involve patient and family in transition planning and organize family meeting as appropriate. Discuss anticipated discharge date.</td>
</tr>
<tr>
<td>If discharged home ensure patient and caregiver(s) are aware of follow up referrals and applicable appointments (blood work, Ambulatory Stroke Rehabilitation Services, Stroke Prevention Clinic (patients who live within PCH catchment) and community support services.</td>
</tr>
<tr>
<td>Explain medications to patient and caregiver(s)</td>
</tr>
<tr>
<td>Review diet if appropriate, encourage appropriate hydration</td>
</tr>
<tr>
<td>Ensure appropriate equipment has been arranged</td>
</tr>
<tr>
<td>Train caregiver(s) in safe mobility and activities of daily living within functional abilities</td>
</tr>
<tr>
<td>Review driving status</td>
</tr>
<tr>
<td>Review bowel and bladder routine if appropriate</td>
</tr>
<tr>
<td>Complete discharge/transition summaries and ensure family physician is aware of management plans within 24 hours of discharge</td>
</tr>
</tbody>
</table>