Provider Orientation: Care and Treatment of Acute Stroke Patients

Objectives:
• Identify location of Stroke Protocols and facility specific process flows
• Utilize protocols for Stroke Alerts
• Implementation and usage of appropriate Stroke power plans.
• Apply standardized Stroke Assessment tools to assist in the early recognition of Stroke symptoms
• Identification, treatment, and continuous monitoring of an Acute Stroke patient
• Knowledge of Stroke Core Measures and Guidelines
Stroke Practice Guidelines and Facility Specific Process Flows

Clinical Practice Guidelines

Stroke Alert Practice Guidelines are located on the Banner intranet site.

Stroke Resource Material

Stroke Resources are located in the facilities either on the Banner Intranet or in unit Stroke Binder(s)
Stroke Alert Roles and Responsibilities

- Responds to Stroke Alert
- Drives Stroke Alert process forward.
- Assists in NIHSS and VAN assessments.
- Orders appropriate diagnostics.
- Decision Making- IV Alteplase
- Consults/Speaks with Neurology
- Facilitates Transfer when appropriate
Presentation - BEFAST, VAN +/- LKW (actual time)

Assessment - VAN, NIHSS

Diagnostics - CT head/brain w/o for Stroke Alert, CTA head/neck for Stroke Alert, CTP, rapid sequence MRI

Labs - Glucose, PT/INR, PTT, CBC, BMP, troponin

Treatment/management - IV Alteplase, BP management

Mechanical Endovascular Reperfusion Therapy (MER)

Airway management

Stroke Assessment and Diagnostics
Stroke Alert

Process Flow

New Neuro Deficits

Vital Signs, Labs, NIHSS, LKW

VAN Screen

Positive

VAN positive/or NIHSS >6 up to 24 hrs/unknown onset or wake up

Consult Stroke Neuro/Neuro IR & obtain transfer order if IR needed

0-6 hrs

CT head & CTA head/neck with Perfusion

6-24 hrs LKW

VAN negative, NIHSS<6 No CTA needed

Page Neurology

0-4.5 hrs

CT head only-IV Alteplase decision

4.5-24 hrs LKW

Routine admit

VAN Cheat Sheet

*If patient has **any weakness with**
1) Visual Disturbance (field cut, crossed eyes)
2) Aphasia (inability to speak or understand)
3) Neglect (gaze to one side or ignoring one side)
This likely is a large vessel occlusion (cortical symptoms

Hemorrhagic

Consult Neurosurgery STAT

Follow Hemorrhagic Stroke Protocol, possible transfer

Banner Health
## Ordering Medical Imaging

<table>
<thead>
<tr>
<th>Procedure</th>
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<tbody>
<tr>
<td>CT Head/Brain W/+W/O Contrast</td>
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<tr>
<td>CT Head/Brain W/Contrast</td>
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<tr>
<td>CT Head/Brain W/O Contrast</td>
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<tr>
<td>CT Head/Brain W/O for Peds Head Trauma Advisor</td>
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<tr>
<td>CT Head/Brain W/O for Stroke Alert</td>
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<tr>
<td>CT Head/Brain/Cerv Spine W/O Contrast</td>
</tr>
<tr>
<td>CT Head/Brain/Maxillofacial W/O Contrast</td>
</tr>
<tr>
<td>CT Ang Head W+/or WO + Recon Stk Alt</td>
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<tr>
<td>CT Ang Head/Neck W+orW/O+Post Stk Alt</td>
</tr>
<tr>
<td>CT Ang Head/Neck W+orW/O+Rcn+Prf Stk Alt</td>
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<tr>
<td>CT Perfusion Analysis</td>
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Ordering IV Alteplase

Inpatient

Emergency Dept

Patient's weight: 50.3 kg  December 06, 2019 04:44:00 MST

How Dose is Calculated: (Dose will not exceed 90 mg)

Total Dose: Patient Weight kg * 0.9 mg/kg = mg

Bolus Dose: Total Dose * 0.1 = mg

Infusion Dose: Total Dose * 0.9 = mg

Total Dose: 45.3 mg

Bolus Order Dose: 4.5 mg

Infusion Order Dose: 40.8 mg
<table>
<thead>
<tr>
<th>Stroke Power Plans</th>
<th>ED</th>
<th>Inpatient/OBS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• ED Stroke Acute Initial</td>
<td>• Stroke/TIA OBS/IP power plan Admission transfer</td>
</tr>
<tr>
<td></td>
<td>• ED Non-Acute Initial</td>
<td>• OBS-TIA</td>
</tr>
<tr>
<td></td>
<td>• ED Stroke Acute Alteplase (tPA) treatment</td>
<td>• OBS to INP Stroke-TIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stroke TIA INP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ICU post t-PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Admit Stroke post Alteplase (t-PA) ICU</td>
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<tr>
<td></td>
<td></td>
<td>• Admit intracerebral Hemorrhage (ICH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Admit Subarachnoid Hemorrhage (SAH)-BUMC-P, BUMC-T, BTMC, BDMC only</td>
</tr>
</tbody>
</table>
Monitoring of an Acute Stroke Patient

Blood Pressure parameters for both ischemic and hemorrhagic stroke patients:

- Hemorrhagic Stroke BP parameters:
  - ICH-SBP <140
  - SAH-SBP >120 and <140 pre-treatment (aneurysm not secured)

- Ischemic Stroke BP parameters (no IV alteplase):
  - Permissive HTN for 24 hours or per Neurology

- Ischemic Stroke BP parameters (IV alteplase):
  - 185/110 to start, then <180/100 for 24hrs post alteplase

- NIHSS Assessment
<table>
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<th>Core Measure/Guideline</th>
<th>Key Points</th>
<th>Provider Responsibilities</th>
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<tr>
<td>STK 1 VTE PROPHYLAXIS given by end of day 2.</td>
<td>Ischemic or hemorrhagic stroke patients who receive VTE Prophylaxis OR</td>
<td>Use the VTE advisor and order prophylaxis for patient. ➤ If no prophylaxis is ordered then both forms of prophylaxis needs to be addressed (Pharmacological &amp; mechanical) or</td>
</tr>
<tr>
<td></td>
<td>Documentation of a reason why no prophylaxis was given the day of, or the Day after hospital admission</td>
<td>Example: “Bleeding, no pharmacologic prophylaxis, no mechanical prophylaxis.” “Active GI bleed – lovenox contraindicated, no mechanical prophylaxis needed.”</td>
</tr>
<tr>
<td>STK 2 Discharged on Antithrombotic Therapy</td>
<td>Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge</td>
<td>Prescribe antithrombotic at discharge when completing Depart Med rec</td>
</tr>
<tr>
<td>STK 3 Anticoagulation Therapy for Atrial Fibrillation/Flutter</td>
<td>Ischemic stroke patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge</td>
<td>Prescribe anticoagulation therapy at discharge when completing Depart Med rec if applicable. OR Provide a reason for not prescribing anticoagulation therapy at hospital discharge.</td>
</tr>
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<td>Core Measure/Guideline</td>
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<tr>
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| STK 4 Thrombolytic Therapy                      | Looking at acute ischemic stroke patients who arrive at the hospital within 2 hours of time last known well  
Also looking for IV t-PA initiated at this hospital within 3 hours of time last known well | Order IV Thrombolytic if appropriate: ED Stroke Acute Alteplase (tPA) Treatment [cs]  
• If there is a delay in initiating thrombolytic- delays in thrombolytic therapy need to be explicit.  
• If not initiating thrombolytic documentation needs to be explicit.                                                                                      |
| STK 5 Antithrombotic Therapy By End of Hospital Day Two | Ischemic stroke patients administered antithrombotic therapy by the end of hospital day 2 as long as no contraindications exist.                                                                 | Order antithrombotic prior to end of hospital day 2 so it has time to be administered prior to the end of hospital day 2 OR provide a reason for Not Administering Antithrombotic Therapy by End of Hospital Day 2 |
| STK 6 Discharged on Statin Medication            | Ischemic stroke patients are prescribed a statin medication at hospital discharge.  
(Age <75 require an Intensive Statin if discharged on Statin medication. Age >75 require a mod/int Statin medication at discharge) | Prescribe appropriate statin therapy at discharge when completing Depart Med rec if applicable OR provide a reason for not prescribing statin at hospital discharge.  
Lipid profile ordered on admission or < 48 hours of patient arrival.                                                                                     |
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<td><strong>STK 8 Stroke Education</strong></td>
<td>Ischemic or hemorrhagic stroke patients or their caregivers were given educational materials during the hospital stay.</td>
<td>Ensure medication reconciliation is complete and accurate and make sure discharge summary and medication reconciliation match</td>
</tr>
<tr>
<td><strong>STK 10 Assessed for Rehabilitation</strong></td>
<td>Ischemic or hemorrhagic stroke patients were assessed for rehabilitation services.</td>
<td>Document order/assessment for rehab. IF patient has returned to baseline it <strong>can not</strong> be assumed that this is the reason no Rehab assessment was ordered it must be clear: <strong>Example</strong> &quot;Patient has returned to baseline no need for REHAB at this time&quot;, must be in provider note.</td>
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| **New Diabetic Measure**            | Diabetic patients or newly diagnosed diabetics receive diabetes treatment in the form of glycemic control (diet or medication) or follow up appointment for diabetes management scheduled at discharge | Prescribe antihyperglycemic medication at discharge.  
**OR**
TLC diet (Low sat. fat, low cholesterol, high fiber, and reduced sodium)  
Weight management  
**OR**
Follow-up appointment scheduled for Diabetes management |
Thank you.

**Primary Stroke Centers:**
- BBMC
- BBMWMC
- BDMC
- BDWMC
- BEMC
- BTMC
- NCMC

**Comprehensive Stroke Centers:**
- BUMC-P
- BUMC-T