Clinical Practice Guideline for Suspected Stroke: Imaging
Scottish Rite and Egleston Only

**INITIAL PROVIDER ASSESSMENT**
- Assess & document time of patient’s last known normal
- History/Risk factors
- Physical assessment (reference NIH Stroke scale)
- Assess MRI eligibility
- Safety (i.e. pacemaker, VAD, metal implants, dental hardware, etc.)
- Assess need for sedation for imaging

**GOALS:**
- Time from Stroke Alert to Imaging Start: ≤45 mins
- Consult Neurology to discuss plan-of-care
- No need for stroke alert

**STROKE ALERT CALL TIER I**
- **Patient’s Attending** calls Transfer Center with Stroke Alert
- Transfer Center conferences in (in this order):
  - Mon-Fri: Neurology Attending On Call, Neuroradiologist On Call (7a-10p), Radiologist On Call (10p-7a), CT Technologist, MRI Technologist (7a-7p only)
  - Sat-Sun: Neurology Attending On Call, Neuroradiologist On Call (7a-7p), CT Technologist, MRI Technologist (7a-7p only)

**STROKE ALERT CALL TIER II**
- Transfer center to send Voalte alert to the following departments/clinicians to notify them that a patient is being worked up for Stroke:
  - CT Team lead, CT Techs, Pharmacist(s), ED Charge RN, ED ANM, PICU Charge RN, PICU Admitting, CICU Float/Call Attending, Hematology Attending On Call, Neurology Resident on call, Stroke Neurologist, CICU Charge RN, Rapid Response Team, and the House Supervisor
  - Cardiac patients to be admitted to CICU instead of PICU

**GOAL OF STROKE ALERT CALL: DETERMINE IMAGING PLAN**
- **If tPA candidate, activate Massive Transfusion Protocol:**
  - CT Head w/o contrast, MRI Brain (Acute Stroke Protocol)

**INCLUSIONS**
- ≥2 years of age

**RISK FACTORS**
- Sickle Cell Disease
- Congenital Heart Disease
- Previous Stroke
- **NOTE:** Lack of risk factors does NOT exclude patients from following this Guideline

**IMAGING GUIDANCE**
- **PREFERRED (if immediately available):**
  - MRI Brain (Acute Stroke Protocol)
  - Contraindications for MRI:
    - Patient requires intubation and/or sedation
    - Patient does not pass MRI Safety Screening
  - ALTERNATE (if MRI contraindicated or Unavailable):
    - Order CT Head w/o contrast + CTA Head and CTA Neck

**INTERVENTIONS**
- Manage ABCs
- Cardiac-Respiratory Monitoring
- Neuro checks w. vital signs q30 min
- O2 PRN to maintain SpO2≥93%
- NPO
- Place 20g IV in AC
- Treat Hypoglycemia

**ACUTE ISCHEMIC STROKE**
- Alert Hematology
- Alert ICU Attending (for Cardiac patients) or PICU Admitting (for non-Cardiac patients)
- Neurology to assess tPA eligibility
- If tPA candidate, activate Massive Transfusion Protocol
- Patient’s Attending to collaborate with Hematology, Neurosurgery, and Neurology to determine treatment plan

**HEMORRHAGIC STROKE**
- Alert Hematology
- Alert Neurosurgery
- Patient’s Attending to collaborate with Hematology, Neurosurgery, and Neurology to determine treatment plan

**NEGATIVE FOR STROKE**
- Consider common Stroke mimics:
  - Migraine
  - Focal seizure with Todd’s paralysis
  - Menigitis
  - Encephalitis
  - Demyelinating Disorder
  - Brain tumor

**LABS**
- CMP
- CBC-Diff
- Dic panel
- Urine Pregnancy Test (for girls of reproductive age) & Drug Screen
- Type & Screen
- GBS
- BG Target 60 – 150 mg/dl

**GOALS: STROKE ALERT CALL**
- Time from Stroke Alert to Imaging Start: ≤45 mins
- Consult Neurology to discuss plan-of-care
- No need for stroke alert

**Activation Stroke Alert By Calling 5-7778**

**SIGNS / SYMPTOMS CONCERNING FOR STROKE**
- Use FASTER to evaluate for Stroke
  - Facial droop
  - Arm and/or leg weakness or tingling
  - Stability-ataxia or coordination
  - Talking-aphasia, inability to speak and/or comprehend
  - Eye/Vision abnormality
  - React
- Consider Stroke for any acute onset altered mental status or new onset focal seizure without a return to baseline

**CT**
- Order: CT Head w/o contrast, CTA Head & CTA Neck

**MRI**
- Order MRI Brain (Acute Stroke Protocol)

**Activating the Stroke Alert**
- Neurology resident to assess patient at the bedside within 30 mins and will determine need for Stroke Neurologist involvement.

**Hypoglycemia**
- Place 20g IV in AC
- Treat Hypoglycemia

**Respiratory Monitoring**
- PRN to maintain SpO2≥93%

**Neurological checks**
- Neuro checks w. vital signs q30 min

**Emergency Department**
- NPO
- Place 20g IV in AC
- Treat Hypoglycemia

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Devised through the efforts of Children’s Healthcare of Atlanta and physicians on Children’s medical staff in the interest of advancing pediatric healthcare. This pathway is a general guideline and does not represent a professional care standard governing providers’ obligation to patients. Ultimately the patient’s physician must determine the most appropriate care. © 2021 Children’s Healthcare of Atlanta, Inc.
### Exclusion Criteria for tPA therapy

- Patient must have NO answered for ALL criteria, if ANY Question is "YES", further assessment is required before tPA.

<table>
<thead>
<tr>
<th><strong>Yes</strong></th>
<th><strong>No</strong></th>
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<tbody>
<tr>
<td>Patient received IV tPA at referring hospital</td>
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<tr>
<td>Intracranial hemorrhage of any type seen on neuroimaging (including parachymal, subarachnoid, other)</td>
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<td>Clinical presentation suggestive of subarachnoid hemorrhage or aortic arch dissection</td>
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<td>Neuroimaging supports multilobar involvement or large volume infarct involving &gt;1/3 of a complete arterial territory</td>
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<td>Head trauma, intracranial or spinal surgery, or prior stroke in the previous 3 months</td>
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<tr>
<td>History of previous intracranial hemorrhage, cerebral AVM, aneurysm, neoplasm, or dissection</td>
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<td>Previous diagnosis of vasculitis of the CNS. <strong>Focal cerebral arteriopathy of childhood (FCA) is NOT a contraindication.</strong></td>
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<tr>
<td>Persistent systolic blood pressure &gt;15% over the 95th percentile ?1hr and unresponsive to treatment; OR systolic BP ?20% over the 95th percentile at any time</td>
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<td>Myocardial infarction in the previous 3 months. Clinical presentation consistent with acute MI or post-MI pericarditis that requires evaluation by cardiology prior to treatment.</td>
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<td>Evidence of active bleeding or acute trauma (fracture) on examination</td>
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<td>Internal bleeding, GI, or urinary tract hemorrhage in the previous 21 days</td>
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<td>Major surgery, major trauma not involving the head, or parenchymal biopsy in the previous 14 days</td>
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<td>Arterial puncture at a noncompressible site or lumbar puncture in the previous 7 days. <strong>(Patients who have had a cardiac catheterization via a compressible artery are NOT excluded)</strong></td>
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<td>Known current malignancy and/or within 1 month of completion of treatment for cancer</td>
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<td>Pregnant</td>
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<td>Stroke associated with any of the following: intracranial arterial dissection; endocarditis; moyamoya; sickle cell disease; CNS vasculitis; meningitis; bone marrow, air, or fat embolism</td>
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### Anticoagulation Issues:

- Platelets <100,000
- INR >1.4, PT >15s, or aPTT >38s
- Current anticoagulation use (warfarin or heparin) and abnormal INR >1.4, PT <15s, aPTT >38s
- Full treatment LMWH within last 24h (does not include prophylactic dose)
- Current use of direct thrombin or direct xa inhibitors within the last 48h (Rivaroxaban, Apixaban, Dabigatran, Argatroban, Bivalirudin)
- Bleeding diathesis

Blood Glucose concentration is < 50mg/dl or >400mg/dL (ok if it can be corrected and exam reassessment unchanged)

### Allergy to tPA

Patient will refuse blood transfusion if indicated

Patient and family refuse to sign consent based on known risks and benefits of treatment of stroke with IV tPA

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**Eligibility Determined**

Patient must have NO answered for ALL criteria, if ANY Question is "YES", tPA is contraindicated UNTIL further assessment is completed.