(Patients 6–18 years)



**Aim:** To standardize evaluation and management of suspected stroke.

#### Suspicion for stroke:

Acute onset hemiparesis, aphasia, visual field loss, ataxia, dysarthria, hemisensoryloss, new-onset focal seizures with > 2 hr post-ictal paralysis

## Evaluate emergently in ED (see note 1)

Determine last known well (LKW) time, page Pediatric Neurology (and Heme if patient has Sickle Cell Disease)

- Get STAT CT
- NPO, Place PIV, bed rest, keep O2 sats > 95%
- · HOB flat for acute ischemic stroke
- HOB up 30–45 for CSVT or intracranial hemorrhage
- Obtain CBC with diff, PT/PTT/Fib, CMP, POC glucose, EKG (do not delay imaging)
- Acetaminophen Q6 hours for temp > 37 deg C

## Go to MRI [Quick Brain (QB) Preferred Acutely] (see page 3 for contact info.)

- LKW time < 4.5 hrs: QB MRI immediately
- LKW 4.5–24 hr: QB MRI urgently or immediatelyif close to 24 hour window and endovascular therapy considered LKW > 24 hr: Discuss with Peds Neuro, routine MRI (see note 2)

### Off guideline Evaluate for other causes

# Transfer to PICU Consult Pediatric Neurosurgery (if bleed)

Keep glucose50–150 Load with fosphenytoin 20 mg/kg

CT shows

bleed?

Yes

Give Aspirin 3–5 mg/kg x 1, max dose 325 mg

- Follow tPA protocol (page 2, note 3 and note 4)
- If major artery occlusion and LKW < 24 hours call IR to discuss endovascular options

Meets tPA criteria? (See page 2, note 3)

MRI positive for

stroke

Transfer to PICU

#### NOTE1

Do complete evaluation in ED of presentation. If being transferred from outside ED or via EMS, divert to MPLS ED if possible if stroke suspected.

Guideline does not apply to patients < 6 yr age, however, consider diverting to MPLS ED if arriving from outside ED/EMS if stroke suspected.

#### NOTE2

CT does not definitively rule out stroke.
All patients should have MRI obtained as quickly as possible. Patients who are having stroke ruled out should be admitted to PICU unless an MRI has excluded stroke.



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#### NOTE3

**tPA Protocol** (Adapted from CHOP and TIPS trial study criteria) **Inclusion Criteria: Age 6–18 years** 

- Clinical diagnosis of ischemic stroke with onset within 4.5 hours of treatment initiation
- Confirmed restricted diffusion on MRI
- Symptoms indicate evolving major disabling stroke

#### **Exclusion Criteria:**

- Stroke due to: endocarditis, sickle cell, bilateral Moyamoya
- Stroke or head trauma within past 3 months
- Any prior intracranial hemorrhage which might increase risk recurrenthemorrhage
- Major surgery within 14 days
- · GI or GU bleeding within previous 21 days
- Arterial puncture at non-compressible site within 7 days
- Lumbar puncture within 7 days
- Rapidlyimproving strokesymptoms
- CT or SWI MRI with evidence of hemorrhage
- Presentation consistent with acute myocardial infarction (MI) or post-MI pericarditis (requires cardiology evaluation)
- Persistent SBP or DBP ≥ 10 mmHg above the 95%ile for norms\*\*
- Platelets < 100.000</li>
- Glucose < 50 or > 400
- INR > 1.7 if on warfarin
- On heparin therapy within 48 hours and with elevated PTT
- Pregnant or lactating female
- CT with evidence of hypodensityand/or effacement of cerebral or cerebellar sulci in > 33% of MCA territory (relative contraindication)

#### NOTE4

#### tPA administration:

- Total dose 0.9 mg/kg (Max dose 90 mg)
- Administer 10% of the dose as an IV bolus over 5 minutes.
   Infuse remainder over 1 hour via dedicated IV line
- · Hold other anticoagulation xat least 24 hours
- · Monitor in ICU at least 48 hours
- Avoid invasive procedures (e.g., blood draws, catheters, lines, NG placement) x at least 24 hours

** BP Normative values: 95% average 24-hr values for children according to age		
Age	Boys	Girls
5	116/74	115/74
6	118/75	116/74
7	119/75	118/74
8	120/75	119/74
9	121/75	120/74
10	123/75	121/75
11	125/76	122/75
12	127/76	123/76
13	130/76	124/76
14	133/77	125/76
15	136/77	125/77
16	138/78	126/77





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**Contact information: Minneapolis** 

Pediatric Neuro On-Call: Amion: Noran/Children's

PICU Attending: 612-813-8563 or Amion CVCC Attending: 612-813-8411 or Amion Neuroradiology: 612-813-8200 or Amion Sedation Coordinator: 612-813-8285 Abbott Neuro Interventional Radiology: 612-863-4359, ext. 3; if unsuccessful,

612-863-1000 will page the on-call radiologist.

Contact information: St. Paul

General Imaging Department: 651-220-6147

Pediatric Neuro On-Call: Amion: Noran/Children's

PICU Attending: 651-220-8563 or Amion Neuroradiology: 651-220-7125 or Amion

Neuro Interventional Radiology: 651-241-8256

#### **Outpatient Stroke Clinic**

2530 Chicago Avenue South, Suite 267

Minneapolis, MN 55404

651-220-5230

#### Workgroup:

Wexler, Garland, Sencer, Sicoli, Asaithambi (Allina), Torok