Inpatient GUIDELINE

Inpatient Suspected Stroke: Initial diagnosis and management

≥2 years age

Children's MINNESOTA

Aim: To standardize evaluation and management of suspected stroke.

Suspicion for stroke (note 1) in inpatient, any of the following:

- Acute onset hemiparesis
- Aphasia
- Visual field loss
- Ataxia
- Dysarthria
- Hemisensory loss
- New-onset focal seizures with > 2 hr post-ictal paralysis

Evaluate emergently: *Call rapid-response or Dr. Blue if significant respiratory or hemodynamic instability*

- Consult Pediatric Neurology ("Noran" under Neurology on Amion, say STROKE)
- NPO, Place PIV, bed rest, keep O2 sats > 95%
- HOB up 30-45 (in case CVST or intracranial hemorrhage)
- Obtain STAT CBC with diff, PT/PTT/Fib, CMP, POC glucose, EKG- *do not delay imaging*
- Acetaminophen Q6 hours for temp> 37 C, NO NSAIDS
- *Plan for PICU transfer- do not delay imaging*

Obtain non-contrast head CT immediately, with plan to go directly to MRI afterwards (do not delay CT)

- If < 3 hours since LKW (last known well), order STAT quick brain MRI
- If LKW between 3-24 hours of LKW, order urgent MRI/MRA
  - *Add MRV if cerebral venous sinus thrombosis is suspected*

MRI positive for stroke acute ischemic stroke?

- No → **Off guideline** *Evaluate for other causes*
- Yes → **TRANSFER to PICU** *(do not delay other consults)* **Is there a large vessel occlusion** (LVO)?**

Is there a large vessel occlusion (LVO)?**

- Yes → **Stat consult to Neuro-interventional Radiologist**
  1. **Abbott Northwestern:** www.anwpaging.com →"Check who's On-Call" → Interventional Radiology → Neuro IR
  2. **United** stroke pager: (612) 740-2222 (also in United Amion under "Radiology" (NIR 1st call and 2nd call)

  Patients who need neuro-interventional radiology at Abbott or United will return to Children's after their intervention.
- No → **Does imaging show a bleed?**

Does imaging show a bleed?

- Yes → **Ongoing management per PICU**
  - Consult neurosurgery
  - Hematology and Neurology consults
  - Keep glucose 50-150
- No → **Meets tPA criteria?** (note 2)

Meets tPA criteria? (note 2)

- No → **Give Aspirin 3-5 mg/kg x 1** (max dose =325 mg)
- Yes → **Follow tPA protocol** (note 3) + initiate orders **Ongoing management per PICU**

Ongoing management per PICU

- Consults: Neurology, Hematology
- Neurosurgery, Neuro-interventional radiologist if applicable
- Consult PT, OT, Speech

EXCLUSION GUIDELINES

- Patients with sickle cell disease
- Patients with known metabolic disorders
- Patients < 2 years age
- **Cerebral venous sinus thrombosis (CVST): See separate guideline
- Moyamoya syndrome

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Inpatient GUIDELINE

Inpatient Suspected Stroke: Notes & tPA protocol

≥2 years age

Children's MINNESOTA

Aim: To standardize evaluation and management of suspected stroke.

Note 1. Stroke types

- **Hemorrhagic**
- **AIS** (arterial ischemic stroke)
- **CVST** (cerebral venous sinus thrombosis)

Contact info: Minneapolis

1. Pediatric Neuro On-Call: Amion: Noran
2. Heme: Amion
3. PICU Attending: x58563 or Amion
4. Neuroradiology: x58200 or Amion
5. Sedation Coordinator: 612-813-8285
6. CVCC Attending: x58411 or Amion
7. Abbott Northwestern: www.anwpaging.com →"Check who's On-Call" → Interventional Radiology → Neuro IR

Contact info: St. Paul

1. Pediatric Neuro On-Call: Amion: Noran/Children's
2. Heme: Amion
3. PICU Attending: x68563 or Amion
4. Neuroradiology: Amion
5. MRI Coordinator: 651-220-6147
6. Neuro Interventional Radiology: stroke pager 612-740-2222 (also in United Amion under "Radiology" (NIR 1st call and 2nd call)

Note 2: tPA (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 recurrent hemorrhage
•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
•Rapidly improving stroke symptoms
•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
•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 hypodensity and/or effacement of cerebral or cerebellar sulci in > 33% of MCA territory (relative contraindication)

Note 3: 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 x at 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

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Inpatient Suspected Stroke: References

≥2 years age

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