

Is This a Pediatric Stroke?

IF IT LOOKS LIKE A STROKE...THINK STROKE! THINK F.A.S.T.

Face Drooping
Arm Weakness
Speech Difficulty
Time to Call!

OR

- Sudden severe headache, especially with vomiting, and sleepiness
- Sudden weakness or numbness on one side of the body (face, arm and/or leg)
- Sudden confusion, difficulty speaking or understanding others
- Sudden trouble seeing to one side or loss of vision
- Sudden difficulty walking, dizziness, loss of balance, or coordination
- Seizures with a persistent neurological deficit

Call 1 (800) GO-MERCY

Ask to speak to the Neurologist on call to discuss appropriate time sensitive interventions

AND

Request Critical Care Transport to Children's Mercy Adele Hall for evaluation by the region's only Pediatric Stroke Program

CONSIDER

STROKE MIMICKERS:

- Todd's paralysis
- Hypoglycemia
- Hemorrhagic stroke/subdural
- Traumatic injury/child abuse
- Electrolyte abnormalities
- Complex migraines
- Brain tumor
- Intracranial infection or abscess
- Psychogenic/conversion disorder

WHILE AWAITING TRANSPORT, OBTAIN PERTINENT HISTORY:

- What time was the child last seen well?
- What time did symptoms start?
- Does child take any anticoagulants? (i.e. Aspirin, Lovenox, Coumadin, etc.)
- Major stroke, head trauma or intracranial surgery in the last 3 months?
- History of heart disease, sickle cell and/or seizures?
- GI or urinary bleeding in last 21 days?
- Major surgery within last 10 days?
- What time did the child last eat or drink?

AND



- Prepare a hard copy with any imaging for transport
- Perform neurological checks frequently
- Keep child NPO and initiate NS at 1x maintenance
- Establish at least one large bore antecubital IV (at least 22G for small children)
- Avoid hypotension
- Avoid hypo- and hyperglycemia
- Maintain O2 sats >94%. Administer supplemental O2 prn or for signs of decreased perfusion
- Keep HOB flat and midline to promote cerebral perfusion
- Treat seizures
- Maintain normothermia and treat with rectal Tylenol if febrile
- Labs (time permitting): CBC, BMP, PTT, PT/INR, and fibrinogen, ESR or CRP, Glucose, UCG (females >10)

NOT ALL STROKES ARE CREATED EQUAL

WHY SHOULD ALL CHILDREN GO TO A PEDIATRIC STROKE PROGRAM FIRST?

Stroke in a Child?

A pediatric stroke occurs as often as a pediatric brain tumor. The World Health organization estimates about 2 in 100,000 babies and children will have a stroke. Unfortunately, there is an 11% mortality rate and up to 75% will experience lasting neurological deficits.

Pediatric Acute Ischemic Stroke (AIS)

AIS differ from adult strokes in etiology, physiology and natural history and is therefore often under- or misdiagnosed.

Pediatric Risk Factors

- 24% ARE IDIOPATHIC
- Congenital Heart Disease
- Acute systemic viral illness
- Recent head and/or neck infection
- Prothrombotic state
- Autoimmune disorders
- Arteriopathies
- Unvaccinated

HOW IS A PEDIATRIC STROKE PROGRAM DIFFERENT FROM AN ADULT COMPREHENSIVE STROKE PROGRAM?

Pediatric Standardization of Care and a Collaborative Stroke Alert Plan are in Place 24/7!

24/7 Pediatric specialty care availability:

- Pediatric Neurologists: The Pediatric NIH Stroke Scale is only validated for clinical use by a trained pediatric neurologist.
- Pediatric Radiologist: MRI/MRA is preferred in children for confirmation of a stroke as well as the high likelihood of non-stroke diagnosis. Pediatric Radiologists are immediately available to accurately interpret the images.
- Pediatric Anesthesia: Ability to provide pediatric anesthesia immediately upon arrival.
- Pediatric Hematology: Consultation available for appropriate and safe thrombolysis for pediatric patients.
- Pediatric Rehabilitation: Pediatric physicians, therapists, neuropsychologists, and physiatrists specializing in pediatric stroke recovery with a focus on growth and development.

WHAT HAPPENS NEXT? A STROKE ALERT PLAN.

Children's Mercy is the region's **ONLY** Pediatric Stroke Program.

Upon arrival to the Children's Mercy ED, a patient displaying symptoms of a suspected stroke activates the stroke alert process, mobilizing a multi-disciplinary team of pediatric experts to provide **timely**, **accurate**, and **appropriate** diagnosis and treatment. Pediatric Neurology will perform a Pediatric NIH Stroke Scale assessment and determine what specific type of rapid imaging is needed. Imaging will be reviewed by the pediatric radiologist who is available to make a critical diagnosis.

Stroke in children is extremely rare and **difficult** to diagnose. Most children presenting with a neurological deficit or suspected stroke will actually have another acute process requiring urgent treatment at a pediatric facility.

**TIME is BRAIN...Rapid Identification, Accurate Diagnosis and Appropriate Treatment is Critical.
It is imperative these children are transported to a Pediatric Stroke Program.**

**For any questions or concerns regarding a patient or concerns for stroke, please call
1 (800) GO MERCY / (800) 466-3729 and ask to speak to the neurology provider on call.**

References:

1. Bernard et al. Ann Neuro 2008;63:679-696.
2. Fullerton et al. Neuro 2015;85:1459-1466.
3. Lyle et al. Semin Thromb Hemost. 2011;37(7):786-793.
4. Mallick et al. Lancet Neuro 2014;13:35-43
5. Rivkin et al. Thrombolysis in Pediatrics Study. Stroke. 2015;46:880-885.
6. Rivkin et al. Guidelines for urgent management of stroke in children. PediatrNeurol 2016;56:8-17
7. Ferriero, et al. Management of stroke in neonates and children. A scientific statement from the American Heart Association/ American Stroke Association. Stroke 2019;50:e00-e46.
8. Fullerton, et al. Infection, vaccination, and childhood arterial ischemic stroke. Results of the VIPS study. Neurology 2015;85:1459-66.