

## Rapid Evaluation of Kids' Stroke Symptoms



New research from Monroe Carell Jr. Children's Hospital at Vanderbilt (Nashville, TN) finds that an emergency room rapid response plan for children can help diagnose stroke symptoms quickly. While quick response processes have been established for adult stroke patients, researchers say paediatric acute stroke teams are a new phenomenon. The research is published in the American Heart Association journal *Stroke*.

A rapid response process for children with a possible stroke should include expedited evaluation and imaging or rapid transfer to a medical centre with paediatric stroke expertise, according to senior author Lori Jordan, MD, PhD, assistant professor of paediatrics and neurology at Vanderbilt. "We need the emergency department, radiology, critical care medicine and often many other specialists to work quickly and efficiently together to treat paediatric patients," she points out.

The study reviewed quality improvement data from Vanderbilt's paediatric stroke programme. Researchers created a "stroke alert" plan in the emergency room which requires a neurology resident to see a child with stroke symptoms within 15 minutes and for most children, quickly obtain an MRI. The method was used for 124 children (average age 11) with stroke-like symptoms between April 2011 and October 2014. Dr. Jordan et al. reported these key findings:

- 24 percent suffered strokes and 2 percent had transient ischaemic attacks (TIA)
- 17 percent had complex migraine (associated with neurological symptoms)
- 15 percent suffered seizures
- 14 percent were diagnosed with critical illnesses such as encephalitis, meningitis or tumours.

Of the confirmed stroke/TIA patients, 13 percent had sickle cell anaemia or congenital heart disease. The most common presenting symptoms were weakness (65 percent), altered mental status (44 percent) and headache (37 percent).

Data analysis also revealed that the median time between emergency department arrival and neurology consultation was 28 minutes, and the median time from consultation to neurologist at bedside was 7 minutes. About 94 minutes elapsed between emergency department arrival to MRI and 59 minutes between arrival and CT.

"Rapid evaluation and appropriate testing is critical," says Dr. Jordan, who also is director of the Vanderbilt Paediatric Stroke Programme. "Prior studies have suggested that stroke in children often takes a long time to diagnose due to delays in imaging." She cites a recent Canadian study that reported in-hospital delay of 12.7 hours for children with stroke.

In the Vanderbilt study, "we were able to initiate the most accurate type of brain scan, a MRI of the brain, within 94 minutes on average," Dr. Jordan notes.

Source and image: [American Heart Association](#)

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