



Infant and Childhood Stroke Fact Sheet

What Is Stroke?

Stroke is a main cause of hemiplegia (permanent injury to one side of the brain that results in impaired functioning of the opposite side of the body). Stroke occurs when the blood supply to the brain is interrupted.

Do children have strokes?

YES! Children **DO** have strokes. Stroke can occur before birth, at or around the time of birth, or later in infancy or childhood.

In newborns, stroke occurs at a rate of approximately 1 in every 4,000 live births¹ (which approaches the rate of stroke in the adult population!). In children, the rate of stroke is at least 6 in 100,000.² Stroke is one of the top ten causes of death in children; about 10% of children who have a stroke will die from the stroke.²

How is Stroke Diagnosed?

Diagnosis is commonly delayed, particularly in infants.²

Common signs are early hand preference, delayed crawling and walking, abnormal muscle tone, possibly seizures.

Delays in motor skills, speech, etc. tend to be attributed by medical professionals to normal lags in development.

Diagnosis of stroke is usually made by a pediatric neurologist after medical testing, including MRI scans of the brain.

What Is the Outcome for Children With Stroke?

Approximately two-thirds of children with stroke sustain permanent disability.² Most common effects are motor and movement difficulties, speech and vision problems, learning and cognitive difficulties, and behavioral concerns. Some children also develop seizures. Rehabilitation after stroke is a long process requiring hard work from both children and their families.

What Can Be Done?

Raise awareness – earlier diagnosis is possible when parents and medical professionals know what to look for.

Support research into cause and treatment. The causes of childhood stroke are very different than those of adult stroke; and in almost 1/3 of children with stroke, no cause is found.²

Identify causes and risk factors that are easily preventable, particularly for in-utero stroke, which is less understood.

Where Is Additional Information Available?

www.cshconnections.org
www.pediatricstrokenetwork.com
www.kidshavestrokes.org

¹Lynch JK, Hirtz DG, DeVeber G, Nelson KB. Report of the National Institute of Neurologic Disorders and Stroke Workshop on Perinatal and Childhood Stroke. *Pediatrics*. 2002; 109: 116-123. <http://pediatrics.aappublications.org/cgi/content/abstr/act/109/1/116>

²Friedman NR. Pediatric Stroke: Developing Evidence-Based Clinical Care. © 2003 Cleveland Clinic. <http://www.clevelandclinic.org/health/health-info/docs/4000/4048.asp?index=13069>



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New Treatments for Childhood Stroke

Many new treatments exist today to help a child affected by stroke achieve the best life possible. Effective care for childhood stroke includes a team of people – family, therapists and physicians - working together and communicating with each other to help the child maximize function so they can participate as fully as possible in each stage of their development.

Early Intervention Is Critical

The State of Illinois offers an Early Intervention Program that enables physical and occupational therapists as well as speech-language pathologists to get involved in the child's care from the very beginning. This involvement is critical as an integrated therapy program enhances movement and sensory experiences for the child.

New Treatment: Constraint-Induced Therapy

The use of constraint-induced - or forced use – therapy, developed by Dr. Edward Taub, has been shown to improve arm and hand function. Instead of verbal “nagging” to use the affected hand, a constraint-induced therapy system forces the hemiplegic arm and hand to be used. In constraint-induced therapy, the child's high functioning arm and hand are gently restrained so the child has no option but to use their affected limb. By using their affected arm and hand for daily tasks, the child can regain strength and function. Physical therapists and occupational therapists guide this therapy approach and great care must be taken to not frustrate the child beyond their capabilities.

New Treatment: Electrical Stimulation

Electrical stimulation is another promising treatment. It works by using very mild electrical impulses to activate the muscles when complete muscle control is not present. The electrical stimulation strengthens the muscles to the point where they are usable and able to participate in therapy. Electrical stimulation treatment is monitored and introduced in therapy.

New Treatment: Botulinum Toxins

Splinting has been a mainstay treatment for the prevention of limb deformity. Now, when combined with the use of botulinum toxins, the amount of time the limb is splinted and even the extent of the splinting is reduced. Botulinum toxin is an injectable neurolytic, which is a nerve block that is temporary but may allow a window of time to improve strength and motor control.

Information

For more information about physical medicine and rehabilitation treatments for childhood stroke, contact Deborah Gaebler-Spira, MD, at 312-238-1149. Dr. Gaebler is a board-certified specialist in pediatric physiatry. She is an attending physician at the Rehabilitation Institute of Chicago.

About the Rehabilitation Institute of Chicago

Rehabilitation Institute of Chicago is dedicated to helping people with all levels and types of physical disabilities regain or improve their physical functions and empowers them to participate more fully in family, social, vocational and leisure time pursuits.

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