



The Madonna Minute

A briefing about the programs and innovations at Madonna Rehabilitation Hospital

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Pediatric rehabilitation offers brighter futures for children with brain injury

March is Brain Injury Awareness month, bringing attention to the types of brain injuries that occur in children and adults, as well as injury prevention education and rehabilitation services required for those who have suffered a brain injury. The Centers for Disease Control and Prevention report that 1.4 million people sustain a traumatic brain injury (TBI) each year. Of that number, children ages 0-14 account for 435,000 emergency room visits annually. Children are at highest risk to sustain a brain injury during the ages of 0-4 because of abuse or accidents and the ages of 15-19 as they start driving and increase participation in contact sports.

“Children are at highest risk to sustain a brain injury during the ages of 0-4 because of abuse or accidents...”

In the 1970s, healthcare professionals coined the term, “Shaken Baby Syndrome” or “Non-Accidental Trauma,” as a result of the growing number of children requiring medical attention due to caregiver maltreatment. The term “Shaken Baby” can be misleading, as children up to age



Toddler Chase Junck suffered severe injuries consistent with Shaken Baby Syndrome at a day care. Chase made substantial progress during his therapy sessions at Madonna Rehabilitation Hospital.

four have been reported as victims. The average age for a child injured by Shaken Baby Syndrome is six months old; and one out of four children injured dies because of complications from the brain injury.

This type of brain injury can be mild to severe and have long-lasting debilitating affects on the child and family. Typically the injury is a result of caregiver frustration with the child, most likely due to the child's excessive crying.

Younger children between the ages of 0-4 years have large heads

and small neck muscles. During shaking or impact, the neck muscles are unable to support the weight of the head and put the child at greater risk for injury. Without neck stabilization, the brain rotates within the skull, damaging brain tissue. In addition, blood vessels to the brain and retina are highly susceptible to damage, causing internal bleeding. These secondary bleeds significantly impact long term outcomes of rehabilitation and independence for the child.

The rehabilitation programming

continued on reverse

Now you can.

offered to these children is critical to minimize the disabling affects and help the child reach developmental milestones. Once the child is medically stable, an intense rehabilitation program is required to address the effects of the injury on developmental milestones. Infants who survive this injury often have difficulty sucking and eating, which requires an intense rehabilitation effort to prevent the child from developing an oral aversion to food.

Toddlers, who survive severe injuries, often experience a hemiparesis that is a direct result of the bleeding in the brain. This physical impairment requires an intense rehabilitation program that coordinates neurological rehabilitation techniques, while fostering the development of normal milestones.

Most children that survive this injury have visual deficits ranging from blindness to mild visual perceptual loss. Vision therapy is a crucial component to their rehabilitation program as vision is a primary skill for motor development and learning.



Alexis Verzal sustained brain trauma and injuries consistent with Shaken Baby Syndrome at a day care facility. After months of intense therapy and her sheer determination, Alexis cruises the Madonna hallways in a specially designed walker.

Unfortunately, children with mild brain injuries because of Shaken Baby Syndrome often go undiagnosed since they do not present in the emergency room or physician office after injury. Often, children with mild injuries demonstrate symptoms of their injury once they start school. These

symptoms can include language deficits, decreased problem solving, attention disorder, decreased cognitive processing speed, and visual perceptual deficits. This is an unfortunate situation, because the long term outcome for the child is significantly reduced because of the passage of time without rehabilitation.

The CARF-accredited Adolescent and Child Rehabilitation Program at Madonna Rehabilitation Hospital offers multiple therapeutic interventions to address all of the potential long-standing symptoms of the injury. To learn more about Shaken Baby Syndrome and other types of brain injury, including military combat-acquired brain injury and sports related injuries, please visit our exhibit at the Strategic Air and Space Museum during Brain Injury Awareness Month — March 2009. Special demonstrations and staff will be available every Saturday and Sunday throughout the month.

For more information about Madonna's Pediatric Rehabilitation Program, contact Holly Schifsky, OTR/L, at 402-486-9697.



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