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## Editorial: Is 'shaken baby syndrome' shaky science?

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Pamela Jacobazzi of suburban Bartlett has spent the last 14 years in prison for violently shaking 10-month-old Matthew Czapski to death. The 58-year-old former home day care operator is among hundreds of people nationwide convicted in recent decades on the basis of what doctors call "shaken baby syndrome." That diagnosis gained prominence in the 1980s and '90s, as publicity campaigns warned of the dangers of shaking infants.

Lawyers for Jacobazzi argued that her conviction should be set aside because jurors didn't hear evidence of other medical theories on what killed Matthew.

In September, though, DuPage County Judge Robert Kleeman rejected her bid for a new trial. He didn't rule on the validity of shaken baby syndrome. Instead, he said her trial attorneys had possessed all available medical evidence and had presented a reasonable defense.

But a question lingers here and in similar cases across the U.S.: Is shaken baby syndrome based on shaky science?

**You may be surprised** to hear it after so many years of warnings on this, but there's a fierce medical and legal debate over shaken baby syndrome, known as SBS. Critics argue that research doesn't show that the symptoms commonly associated with the diagnosis — bleeding and swelling in the brain and behind the eyes — can be caused by shaking alone.

"Virtually all the hallowed tenets of shaken baby syndrome have been challenged on the basis of scientific principles and have been found wanting or wrong," Dr. Jan Leestma, a former Lurie Children's Hospital of Chicago neuropathologist, wrote in his 2009 textbook, "Forensic Neuropathology."

Leestma tells us that a raft of biomechanical studies cast doubt on the idea that shaking a baby will generate enough force to seriously injure his or her brain or cause other symptoms of the diagnosis. But SBS proponents tell us that those studies are incomplete; they don't, for instance, adequately account for multiple or repeated shakings over time.

Let's stop right here to make one thing clear: Violently shaking a baby *can* lead to serious injuries, particularly if there is neck whiplash or the baby's head strikes a wall or floor. No one,

including those skeptical of the science underlying this diagnosis, suggests that such conduct is anything but dangerous and wrong.

That said, it's also clear that SBS is among the trickiest diagnoses for doctors to reach. Babies can't tell doctors what happened. Some illnesses and simple accidents can mimic the symptoms. In some cases, there are no outward signs of abuse. Often there are no witnesses to suspected abuse. What's more, injured infants may be lucid after whatever incident caused the injury. On occasion, infants may even be lucid for hours before they collapse and die. That expands the pool of potential causes and, if authorities suspect abuse, of potential perpetrators.

Jacobazzi is due to be paroled in 2015. But many other people are in jail across the country, convicted of shaking infants. Are some of them innocent? This complex but out-of-the-limelight debate will be hashed out in courtrooms and research labs. That's healthy for medical science, and for our justice system.

**Decades ago, many doctors** believed that if a child suffered from three symptoms — subdural (brain) and retinal bleeding and brain swelling absent a fracture or bruise to indicate an accident or fall — then the injuries likely happened through vigorous shaking.

In 2009, though, the American Academy of Pediatrics expanded its definition of shaken baby syndrome to stress that while shaking can cause injuries, other factors can be just as important, including the blunt impact of a head against a solid surface like a floor or wall. Researchers also stress that accidents, a child's pre-existing medical condition, medical history and genetic disorders can cause injuries that mimic the effects of abuse. The academy, based in suburban Elk Grove Village, suggested a broader term, "abusive head trauma," to describe the array of injuries abuse can cause.

Dr. Cindy Christian of the academy's committee on child abuse and neglect tells us the medical consensus remains strong around the science of SBS. "Some babies are injured by shaking," says Christian, who co-wrote the 2009 report. "Some by blunt impact. Some by a combination of factors." That report "doesn't say shaking is benign. It doesn't say shaking doesn't harm children. And it doesn't say there is no such thing as SBS."

Expect to hear more about this. Last year the Innocence Network, a group of organizations that provide pro bono legal help for people who claim to be wrongly convicted, brought on a lawyer to pursue claims of innocence in shaken baby cases nationwide. Doctors will continue to refine the SBS diagnosis, evaluating new research and clinical experience.

The stakes here are high: A mistake in judgment can leave an abusive person in charge of a baby. Or it can land an innocent person behind bars.

That should leave us all shaken.