The symptoms once seen as evidence of shaken-baby syndrome -- evidence that helped put a Mississippi man on death row -- are not considered as clear-cut now as they once were.

JACKSON, Miss. -- Thousands of Americans are behind bars, convicted of shaking babies to death — and some experts now say the science that put them there is blurry.

Since 2000, at least 11 Mississipians have been convicted in such cases with two of them sitting on death row. Jeffrey Havard is one of them.

It was Feb. 21, 2002, a Thursday night in Natchez, Miss.

Lab technician Shelley Smith dashed into the emergency room of Natchez Community Hospital, holding the limp body of an infant. The skin of 6-month-old Chloe Madison Britt looked blue.

By 10:04 p.m., Chloe’s face had swelled, and so did her brain. By 10:50 p.m., doctors declared her dead.

Nine days before Christmas 2003, prosecutors and defense lawyers selected a jury for the capital murder trial of Jeffrey Havard, the 22-year-old boyfriend of Chloe’s mother, Rebecca. In his opening statement, Assistant District Attorney Tom Rosenblatt told jurors that the pathologist who did the autopsy would “testify for you and how he confirmed the nurses’ and doctors' worst fears this child had been abused and this child had been penetrated, and the child had died (of) what he refers to as shaken-baby syndrome.”

Defense lawyer Robert Clark told jurors the child had slipped from Havard’s arms after giving her a bath, her head striking a toilet. "Jeffrey did not intend to kill this child," he said. "This was an accident."

All the doctors concluded Chloe had died of shaken-baby syndrome, and so did pathologist Dr. Steven Hayne, who performed the autopsy in the case.

"The type of injuries that you can see that parallel these are in motor vehicle crashes, falls from significant heights and the like," Hayne testified.

The jury deliberated 40 minutes before convicting Havard of capital murder. Havard's mother and grandmother begged for jurors to spare his life, but jurors concluded he deserved death.

Pediatric neurosurgeon Dr. Norman Guthkelch had wondered about a medical mystery reported for decades — some babies bleeding atop their brains, despite little outside evidence of head trauma.

When a colleague suffered similar bleeding after riding a roller coaster, Guthkelch suggested whiplash-type injuries were to blame. He published a paper in 1971, warning parents about the dangers of shaking their children.

In the years that followed, shaken-baby syndrome became widely accepted in the medical community, diagnosed through a triad of symptoms: subdural bleeding (blood collecting between the brain and the skull), retinal bleeding (bleeding in the back of the eye) and brain swelling.


In 1987, public questions began to arise when biochemical engineers from Penn State University found shaking alone failed to cause the blood vessels in the brain to rupture. It was only when the head made impact that researchers observed bleeding in the brain.

Despite the findings, shaken-baby syndrome continued to be diagnosed and used to prosecute.
In 1995, prosecutors in Wisconsin charged caregiver Audrey Edmunds with murder, concluding she had shaken 7-month-old Natalie Beard to death — despite no witnesses and no outside evidence of trauma.

The jury convicted Edmunds, who insisted on her innocence, but had no explanation for the injuries. The judge sentenced her to 18 years in prison.

In the years since, medical belief that the shaken-baby syndrome's triad of symptoms provided ironclad proof of homicide has begun to crumble with several studies raising doubts. Some biomechanical studies suggest shaking a baby to death would be impossible without also injuring the child's neck or spine.

In 2008, the Wisconsin Supreme Court granted Edmunds a new trial. The emergence of a "significant dispute within the medical community as to the cause of those injuries … constitutes newly discovered evidence," the court concluded.

Her previous trial and hearing lacked "fierce debate," justices wrote. "Now, a jury would be faced with competing credible medical opinions in determining whether there is a reasonable doubt as to (her) guilt."

After the Wisconsin court's decision, prosecutors dismissed the charges against Edmunds, and the mother of three walked free after 11 years in prison.

Mississippi Democratic state Rep. Kevin Horan said he would like to see a review of the cases in this state that have relied on shaken-baby syndrome.

Horan, a former prosecutor who handled the appeal of a man convicted in a shaken-baby case, said, "Most of the shaken-baby cases are legitimate. They're not really shaken baby, but blunt force trauma."

As for Guthkelch, the pioneer of the shaken-baby syndrome, he now has doubts about the way his theory is being used.

He told the Medill Justice Center that he regrets writing his 1971 paper "because people are in jail on the basis of what they claim is my paper, when in fact it is nothing like it."

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At the request of The Clarion-Ledger, New York pathologist Dr. Michael Baden read the autopsy report in the 2002 death of Chloe Madison Britt and examined other evidence in the case.

"There is no autopsy or scientific evidence to support a diagnosis that Chloe died of shaken-baby syndrome," Baden said.

Havard's description of accidentally dropping the baby is "entirely consistent" with the injuries found, Baden said.

In an interview last week, Hayne, who concluded in his original autopsy that Chloe died of shaken-baby syndrome, acknowledged there is "growing evidence" such a diagnosis "is probably not correct."

In 2001, Minnesota pathologist Dr. John Plunkett conducted a study, examining Consumer Product Safety reports involving falls from playground equipment. He concluded short-distance falls are capable of producing the symptoms identified as shaken-baby syndrome.

"It's clear that low velocity, even a 2- or 3-foot fall can cause serious and fatal brain injury," he told The Clarion-Ledger. "If people had paid attention to the science, it would not have been a mystery."

Asked if a short fall could have caused Chloe Britt's injuries, Ronnie Harper, the prosecutor in Havard's case, said it was impossible for the injuries to have taken place as Havard described.

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Havard is sitting on Mississippi's death row for a crime the state's pathologist believes never took place.

Sexual assault was the underlying felony charge against Havard that enabled authorities to pursue the death penalty against him.

"I didn't think there was a sexual assault," Hayne said of his 2002 autopsy of Chloe. "I didn't see any evidence of sexual assault."

During Havard's capital murder trial, doctors, nurses, the sheriff and others told jurors about evidence they saw of sexual assault.

Harper said he is satisfied abuse took place.
Havard is seeking a new trial, citing scientific studies and new evidence.

“Jeffrey’s death sentence is built on the twin pillars of sexual abuse and shaken-baby syndrome,” said defense lawyer Graham Carner of Jackson, part of a team representing Havard on appeal. “Both of those pillars have crumbled under the weight of objective science and undisputed facts.”

A competent investigation of medical evidence would have revealed the truth about what happened to 6-month-old Chloe Britt, he said. “Her death was a terrible accident, not murder. The tragedy of her death has been compounded by Jeffrey’s unfair conviction and death sentence.”

Havard told The Clarion-Ledger that he hopes he can have a day in court, not just for his sake, but also for the sake of Chloe’s family, the public and the jury.

“I’d like to see the truth come out,” he said. “I want nothing more than to clear my name. It would mean the world for them to know that she didn’t suffer like they’ve been told.”