Solving the SIDS Mystery

New clues reveal that sudden infant death syndrome may be a disease-not a tragic mistake

By Nancy Shute

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Sudden infant death syndrome, better known as SIDS, is a cruel killer, striking infants as they sleep. More than 2,000 babies in the United States die of SIDS each year. Autopsies reveal no infection or other hidden health problem. Over the years, many suspects have been put forward, as benign as too-soft pillows that smother the child or as sinister as child abuse. Scientists have been struggling for decades to discover a physical cause. Now, they have unearthed the strongest evidence yet that the brain region that controls breathing develops abnormally in many infants who die of SIDS.

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Researchers at Children's Hospital Boston and Harvard Medical School, working with colleagues at the University of California-San Diego School of Medicine and other institutions, autopsied the brains of 31 infants in San Diego who died of SIDS and 10 who died of other causes. They zeroed in on the medulla, an area in the brain stem that controls involuntary actions like breathing, blood pressure, and heart rate and that has been the focus of scrutiny. Their findings, reported in last week's *Journal of the American Medical Association,* showed that the medullas of SIDS babies were far more likely to have abnormalities in nerve cells that respond to serotonin, a chemical that plays a key role in regulating breathing and sleep. "SIDS is not a mystery," says Hannah Kinney, an associate professor of neuropathology at Children's Hospital Boston and Harvard Medical School and coauthor of the *JAMA* study. "It's not something that parents did. SIDS is a disease. It's a scientific problem, and it can be tackled with scientific methods."

The irregularities Kinney and her colleagues found were more extensive than had been discovered in earlier studies. What's more, the SIDS baby boys in the study had more deficiencies than the SIDS girls, which may help explain why boys are twice as likely to die of SIDS as girls. If these flaws do indeed cause SIDS, perhaps a test could be developed to identify babies at risk in the first weeks of life. But any such test is many years away, according to John Kattwinkel, a professor of pediatrics at the University of Virginia, because no one has yet pinpointed an early-warning signal for SIDS. "You've got to figure out how to detect it."

When Kyra Oliver Hitzeman heard news reports about the SIDS study, she was thrilled-and overwhelmed by the memories it revived. Her son Hayes died in 2002, while he took a nap at his day-care provider's home. He was 4 1/2 months old, a chubby, joyful little boy. "He was awesome," says Hitzeman, 39, owner of a graphic design firm near Richmond, Va. "There was no indication that anything was wrong. He was a perfectly healthy baby."

Indeed, no one knows what prompts seemingly healthy babies to suddenly die in their sleep. Most SIDS deaths occur between 2 and 4 months of age. Epidemiological data gathered over the years has shown that babies are more likely to succumb to SIDS if they are put to sleep face down, if they sleep with an adult, or if there are toys or soft bedding in the crib. The thought has been that SIDS babies don't rouse themselves when the bedding traps carbon dioxide near the face, and they suffocate.