

# Best Practices in Birth Injury Litigation

## Timing Hypoxic-Ischemic Fetal Brain Injury

By Jesse M. Reiter, Rebecca S. Walsh, and Emily G. Thomas

“Who will take care of my child when I am gone?”

Parents of children who suffer from birth injuries frequently ask this question—one that haunts their every waking moment. Another commonly heard phrase is, “I am tired and need help!” Caring for an impaired child is an around-the-clock job, and many parents have no nearby family or friends willing to take on the massive responsibility of helping with a special-needs child.

These same concerns commonly weigh heavily on the shoulders of attorneys who take on the risk of birth injury clients. Lawyers must understand the law and know the medicine of birth and what common defenses are so they can be disproved. In addition, birth injury lawyers need to know how to determine the life expectancy of a disabled child and must work hard to make sure all of the child’s needs are taken care of during the child’s lifetime. This type of case is not for the dabbling attorney or the faint of heart.

Birth injuries are among the most complex cases in personal injury litigation, requiring significant medical knowledge in addition to knowing the law. Hypoxic-ischemic encephalopathy (HIE) is a lack of oxygen or blood flow to the brain at or around the time of birth that can result in brain injury.<sup>1</sup> In determining the proximate cause of a baby’s HIE diagnosis and injury, experts in neuroradiology typically offer opinions

as to *when* the baby’s brain injury from oxygen deprivation occurred; it is also necessary for these experts to rule out other causes for abnormal brain function after birth other than HIE, such as infection, trauma, inborn errors of metabolism, and other genetic disorders.<sup>2</sup>

Medical malpractice defense attorneys often rely on publications by the American College of Obstetricians and Gynecologists (ACOG) to assert that an infant’s injuries from HIE occurred outside of labor and delivery.<sup>3</sup> However, this position has become shakier in recent years with the advancement of literature showing that most brain injuries from oxygen deprivation occur *during* labor and delivery and are preceded by recognized warning signs.

### Understanding the defense’s argument of preexisting injury

For more than a decade, ACOG took the position that most cases of HIE occur *before* or *after* labor and delivery. In 2003, ACOG published *Neonatal Encephalopathy and Cerebral Palsy: Defining the Pathogenesis and Pathophysiology (NEACP)*, which established stringent criteria for determining an HIE diagnosis.<sup>4</sup> If the criteria were not met, the argument went, injury must have occurred *outside* of labor.<sup>5</sup> (Emphasis added.)

In *NEACP*, ACOG concluded that 70 percent of HIE “is secondary to events *before* the onset of labor.”<sup>6</sup> (Emphasis added.) Another paper commonly cited by the defense to further support its argument asserted that the causes of HIE were “heterogenous,” with many related to the period before labor and delivery.<sup>7</sup> Thus, even when ACOG’s criteria for HIE diagnosis were met, arguments arose that the baby’s brain injury was caused by factors outside of the period of labor and delivery such as infection, placental

or umbilical cord problems, or unknown genetic syndromes.<sup>8</sup>

However, the ACOG conclusion that most brain injuries occur before birth is substantially flawed. Studies drawing this conclusion used an extremely broad definition of abnormal brain function and brain injury, including infants with genetic, congenital, and developmental anomalies.<sup>9</sup> Recent studies excluding such infants confirm that most infant brain injuries due to HIE or lack of oxygen and blood flow to the fetal brain occur *during labor and delivery*.

### Evidence-based literature supports the prevalence of fetal injury during labor and delivery

Evidence from neuroimaging literature

After the ACOG *NEACP* publication was released, numerous neuroimaging studies demonstrated that most HIE actually occurred during labor and delivery. These studies were then endorsed by renowned textbooks in the field.<sup>10, 11</sup>

Cowan et al established that more than 90 percent of infants with HIE (without major congenital malformations or obvious genetic disorders) had MRI evidence of hypoxic-ischemic lesions acquired around the time of birth—with a *very low rate of established brain injury before labor and delivery*.<sup>12, 13</sup> (Emphasis added.) The data strongly suggested that events in the immediate labor and delivery period are the most important in infant brain injury.<sup>14</sup> This was independently corroborated by multiple researchers, including those using more traditional criteria for HIE.<sup>15, 16, 17, 18</sup>

In 2013, researchers published work finding that HIE strongly correlated with factors during labor and delivery. Certain factors in labor and delivery, alone or in combination

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“Best Practices” is a regular column of the *Michigan Bar Journal*, edited by Gerard Mantese and Theresamarie Mantese for the Publications and Website Advisory Committee. To contribute an article, contact Mr. Mantese at [gmantese@manteselaw.com](mailto:gmantese@manteselaw.com).

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with pre-labor risk factors, were found in 90 percent of infants who had HIE compared with 37 percent of controls.<sup>19</sup>

As this new research emerged, ACOG published an update to *NEACP* called *Neonatal Encephalopathy and Neurologic Outcome (NEANO)*.<sup>20</sup> In *NEANO*, ACOG conceded that 80 percent of HIE, as reported in head imaging studies, occurred in labor and delivery, echoing Cowan et al's 2003 study.<sup>21</sup> ACOG abandoned its strict criteria for HIE and acknowledged that HIE occurred more frequently than originally asserted.<sup>22</sup>

However, in a familiar refrain of ACOG's 2003 publication, *NEANO* attempted to minimize research demonstrating the high incidence of HIE during labor and delivery by stating that there are no studies about the appearance of HIE on imaging 1–2 days before labor.<sup>23</sup> *NEANO* called for further study to rule out HIE occurring before labor and delivery while neglecting existing literature that hypoxic-ischemic brain injury occurring before labor and delivery is a *very small percentage* of neonatal HIE cases.<sup>24</sup> (Emphasis added.)

#### Evidence from fetal monitoring and timely delivery studies

Neuroradiology is not the only field that demonstrates the prevalence of HIE during labor and delivery. An electronic fetal monitor (EFM) measures the baby's heart rate and the mother's uterine activity through two transducers placed on the mother's abdomen. EFM can provide evidence of whether a baby is suffering from a lack of oxygen or blood flow while in utero.

Recent studies based on EFM findings corroborate that most HIE occurs during labor and delivery.<sup>25</sup> Abnormal fetal monitoring results indicate poorer outcomes for infants and are often associated with specific EFM patterns preceding delivery, suggesting that categorizing HIE cases according to their EFM pattern might be useful in understanding the timing of lack of oxygen and blood flow to the fetus in relation to labor and delivery.<sup>26</sup> Recognizing fetal monitoring patterns can enable early identification of HIE that would be avoidable by improved fetal monitoring and caregiver management.<sup>27</sup>

Further recent studies show that timely and appropriate delivery of infants during labor avoids hypoxic-ischemic injury and reduces HIE incidence. A 2014 study finds that hospital education programs regarding fetal surveillance on EFM significantly decreased HIE incidence.<sup>28</sup> This indicates that caregivers informed by EFM surveillance of the fetus before delivery can intervene based on monitor findings evidencing a lack of oxygen to prevent a baby from suffering HIE.

Numerous studies find that nonmedically indicated, elective C-sections at 39 weeks are associated with lower maternal and fetal death and complications than management of expectant labor.<sup>29,30,31</sup> Infant outcomes greatly improved when babies were delivered via elective C-section.<sup>32</sup> Studies on increased fetal monitoring surveillance and appropriate C-section timing demonstrate reduced HIE brain injury after birth. These findings confirm that most HIE occurring during labor and delivery can be avoided with timely elective C-section undertaken before the onset of labor. Specific prenatal maternal risk factors and concerning EFM patterns can warrant earlier caregiver intervention to prevent harm.

#### Conclusion

The most recent literature on infant hypoxic-ischemic brain injury clearly demonstrates that most HIE occurs during the labor and delivery period. Fetal monitoring and neuroimaging are changing the way caregivers diagnose and prevent infant HIE brain injury. Understanding recent medi-

cal literature is key in successfully pursuing obstetrical malpractice cases resulting in hypoxic-ischemic brain injury. Such literature helps combat common defense arguments in birth injury cases that caregivers are unable to intervene to prevent fetal brain injury from lack of oxygen and blood flow.

If a child suffers a permanent brain injury from a medical mistake, the law provides recourse for the future care the child will require. The most gratifying aspects of handling a birth injury case are ensuring that a child's needs are met and being able to give parents peace of mind knowing their child will be cared for when they are no longer around. Providing respite care to tired parents is another goal of every birth injury case. Finally, having a small, disabled child grab your hand, draw you a picture (even if you can't tell what it is), or sit next to you is the greatest feeling. For these children who struggle with profound developmental delays, every small step forward is to be celebrated.

#### Key takeaways

- Children with brain injuries from birth trauma require lifelong care and support.
- Most infants suffer brain injuries from lack of oxygen to the brain during labor and delivery (not before or after). These catastrophic injuries often result from substandard medical care.
- Proving the cause and timing of HIE fetal brain injury requires an intimate knowledge of complex medical issues. ■



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*Jesse M. Reiter is a founding partner of Reiter & Walsh ABC Law Centers and has been practicing law for 30 years. He is a past president of the Michigan Association for Justice and is on the Board*

*of Governors and Publications Committee of the American Association for Justice. Reiter was also past co-chair of the American Association for Justice Birth Trauma Litigation Group (BTLG) and past chair of its Professional Negligence Section, and is on the BTLG Executive Board.*



*Rebecca S. Walsh is a partner at Reiter & Walsh ABC Law Centers. She is active in professional associations including the Michigan Association for Justice where she chairs the Amicus Committee,*

*the American Association for Justice, and the Birth Trauma Litigation Group. Walsh graduated from the Gerry Spence Trial Lawyers College and was asked to join the Melvin Belli Society in 2012. She is a frequent author and lecturer on legal issues including insurance litigation and trial practices.*



*Emily G. Thomas is an associate attorney at Reiter & Walsh ABC Law Centers, focusing her legal career on aiding clients with special needs and disabilities. She is currently chair of the Michigan Association*

*for Justice's New Lawyer Division, Executive Board member of the American Association for Justice Professional Negligence Section, and a member of the American Association for Justice Birth Trauma Litigation Group and the Women Lawyers Association of Michigan.*

## ENDNOTES

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## MONEY JUDGMENT INTEREST RATE

MCL 600.6013 governs how to calculate the interest on a money judgment in a Michigan state court. Interest is calculated at six-month intervals in January and July of each year, from when the complaint was filed, and is compounded annually.

For a complaint filed after December 31, 1986, the rate as of July 1, 2017 is 2.902 percent. This rate includes the statutory 1 percent.

But a different rule applies for a complaint filed after June 30, 2002 that is based on a written instrument with its own specified interest rate. The rate is the lesser of:

- (1) 13 percent a year, compounded annually; or
- (2) the specified rate, if it is fixed—or if it is variable, the variable rate when the complaint was filed if that rate was legal.

For past rates, see <http://courts.mi.gov/Administration/SCAO/Resources/Documents/other/interest.pdf>.

*As the application of MCL 600.6013 varies depending on the circumstances, you should review the statute carefully.*