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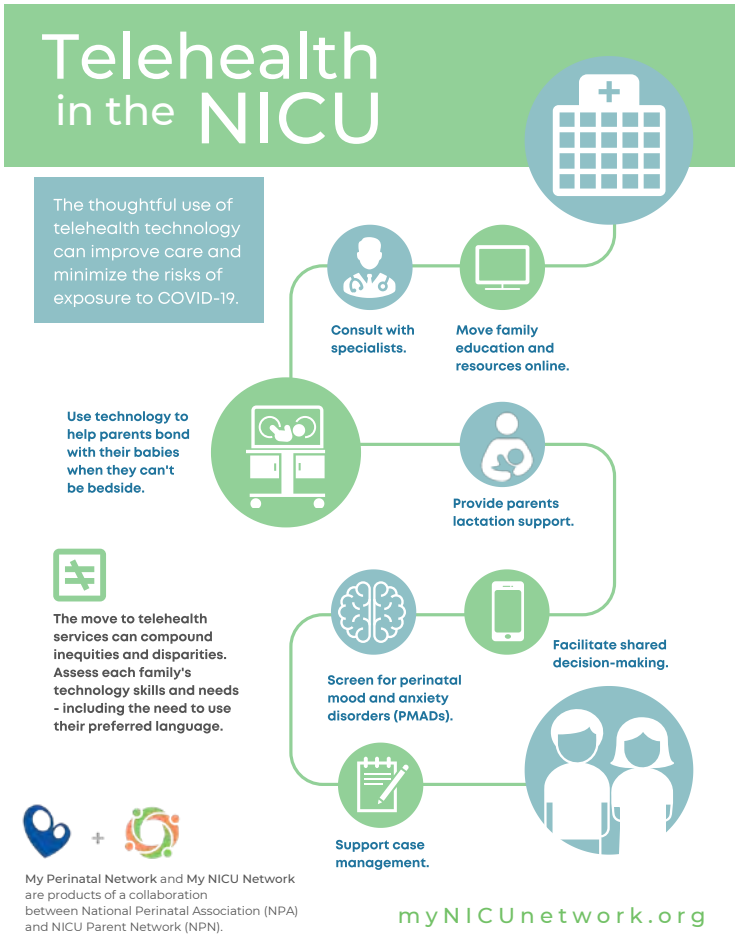
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Pictured: Baby Kole with his Dad

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Pioneer Profile – L. Joseph Butterfield, M.D.

Joseph B. Philips, III, M.D., FAAP



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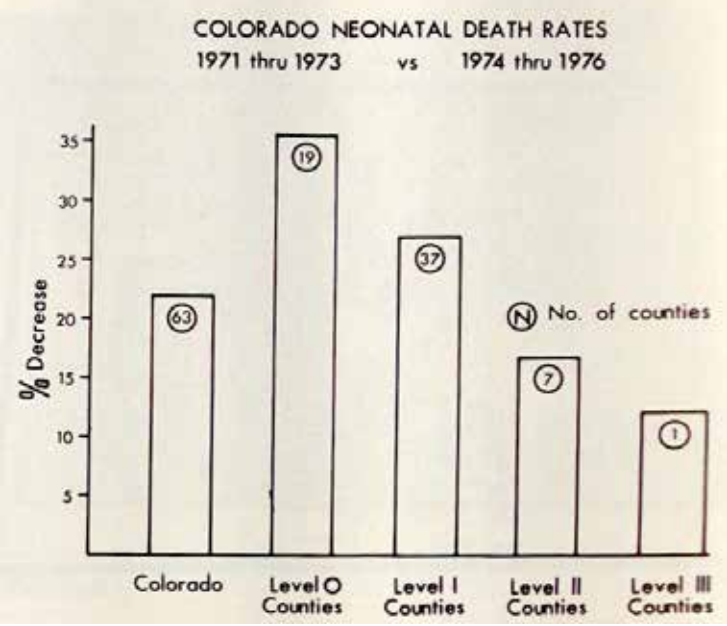
Leroy Joseph Butterfield, who went by the professional name L. Joseph Butterfield, MD, and was known to friends and colleagues as Joe, was born in Terre Haute, Indiana, in 1926 but grew up in Illinois. (1) He obtained his undergraduate and master's degrees from the University of New Mexico before attending the University of Colorado Medical School, graduating in 1955. He began his lifelong career at Children's Hospital in Denver as a pediatric resident before joining the faculty, working with the legendary Lula O. Lubchenko, MD. (2) In 1965, he was asked by the hospital administration to establish and direct the Children's Newborn Center, and the rest is history.

Dr. Butterfield is perhaps best known as a pioneer in the regionalization of newborn intensive care. He described the development and structure of the system he developed, which ultimately became known as Children's One, in an extensive manuscript published in 1972. (3, 4) Butterfield advocated for and was a major factor in the federal legislation that established national standards for emergency medical services (EMS) and their regionalization in 1973. (5) He subsequently reported on the politics, policies, and progress of EMS services for newborns in Colorado, citing significant improvements in survival, especially for babies born in counties with no obstetric or newborn services. (6) He then reviewed a decade of progress in many regionalized programs across the United States. (7)

"Dr. Butterfield is perhaps best known as a pioneer in the regionalization of newborn intensive care. He described the development and structure of the system he developed, which ultimately became known as Children's One..."

A 1975 manuscript reported on the outcomes of 105 newborns air transported over 14 months from 1972 to 1973 into three Denver hospitals, with a map showing the coverage area. (8) These transports comprised 6% of admissions to these hospitals. Another report stressed the importance of physician leadership in establishing and maintaining a regionalized system of neonatal-perinatal care. (9) A reporter for *The Sun* in Colorado Springs coined the term "Newborn Country USA" to describe the regional system with four level III nurseries serving the 223 regional referral hospitals in portions of 10 states and some 500,000 square miles. (10) Dr. Butterfield wrote that "The Department of Perinatology of the Children's Hospital in Denver has adopted the theme of Newborn Country USA in an effort to sublimate corporate and professional egos to a common commitment to a regional perinatal care system." The article then described the system and laid out the requirements for level I and level II nursery staffing and equipment. A follow-up report entitled "Newborn country USA revisited" highlighted the striking improvements in neonatal mortality rates produced by this system, with "an inverse relationship between the availability of maternal/newborn hospital services and the neonatal mortality rate decrease" (Figure 1). (11)

Figure 1. Percent decrease in in neonatal mortality rates by counties with no perinatal care, level I, II, and III perinatal care before and after implementation of a regionalized neonatal-perinatal care system. Used with permission. (11)



In 1994, Dr. Butterfield reflected on the first three decades of Newborn Country USA and the prospects of the future. (12) In this article, Butterfield mentioned his rather cynical editorial concerning what he called deregionalization, which was the trend for each hospital to have its own perinatal center rather than participate in a regionalized system. (13) This, in part, remains in effect today, but, as mentioned in the editorial, the formation of networks of hospitals has partially ameliorated this problem as babies are transported within the networks to the proper level of care. This was emphasized in an extensive historical perspective of neonatal transport published by Dr. Butterfield in 1993, which included a

figure showing the dramatic rise and fall of neonatal transports by the Denver, Colorado Children's Emergency Transport Service (Figure 2).(14) As a result of his deep involvement in securing legislative support for regionalization of neonatal-perinatal services, Dr. Butterfield became an expert in dealing with the intricacies of the legislative process and educated and mentored many medical practitioners in how to secure legislative success. (1)

Figure 2. The rise and fall of neonatal transports by the Denver, Colorado, Children's Emergency Transport Service. Used with permission. (14)



A pair of studies published back-to-back in the American Journal of Obstetrics and Gynecology in 1989 evaluated outcomes of infants born in a tertiary hospital versus those born in five community hospitals with level I nurseries and then transported to the level III hospital in one report and the outcomes of infants born to mothers transferred antenatally to the tertiary center versus infants born in the community hospitals and then transferred in the second report. (15, 16) Infants born in the tertiary hospital had better survival than those born in the community and then transferred, but this benefit was seen only in the smallest babies. Likewise, outcomes were better for infants born to mothers transferred antenatally than for those born in the community and then transferred. However, there were no differences between groups in neurodevelopmental outcomes for survivors in either study. In a later commentary, Dr. Butterfield stated: "One of the weaknesses of almost all of the studies that have been done comparing the outcome of inborn and outborn populations of very low birth-weight babies is that we don't know what happens to the group of babies who don't get to the nursery, the ones who aren't referred there." (17)

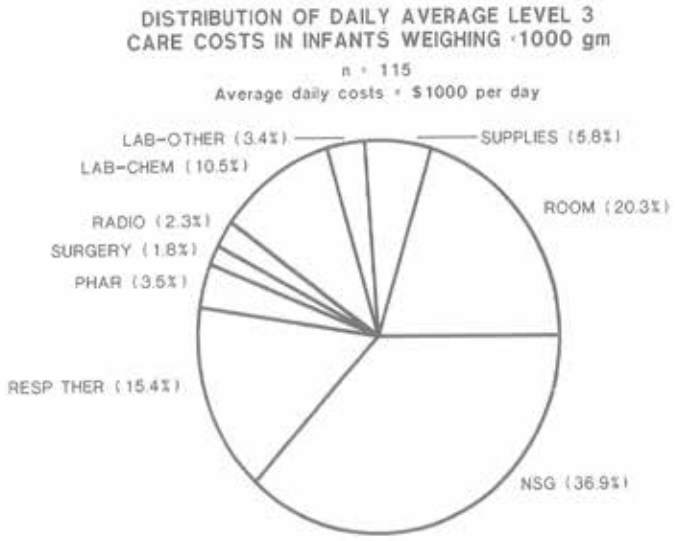
"Infants born in the tertiary hospital had better survival than those born in the community and then transferred, but this benefit was seen only in the smallest babies. Likewise, outcomes were better for infants born to mothers transferred antenatally than for those born in the community and then transferred."

"Dr. Butterfield was interested in the outcomes of premature infants. A 1972 study led by Dr. Lubchenko evaluated the outcomes at approximately 10 years of age of 133 infants weighing 1,500 grams or less at birth and found a strong association with poor caloric intake in the first week of life and lower IQ scores."

Like all neonatologists, Dr. Butterfield was interested in the outcomes of premature infants. A 1972 study led by Dr. Lubchenko evaluated the outcomes at approximately 10 years of age of 133 infants weighing 1,500 grams or less at birth and found a strong association with poor caloric intake in the first week of life and lower IQ scores. (18) It should be noted that this was the era of early fasting of the preterm infant. Another study presented case reports of two sets of quadruplets and discussed the problems associated with gestations with high fetal numbers, including a comment about the public fascination with high birth numbers, concluding, "Of course, it is well to remember that although publicity can infringe on privacy, it can also help in the obtaining of gifts." (19)

The cost of neonatal intensive care was another interest. The mean charge per day in 1976 was $338 for survivors and $607 for non-survivors. (20) Between the years 1981 and 1984, the

Figure 3. Distribution of costs for intensive care of infants weighing <1,000 grams at birth between 1981 and 1984 in a Denver, CO hospital. Used with permission. (21)



average cost per day for an infant weighing <1,000 grams at birth was $1,000 (Figure 3). (21) In a commentary to an article by Sinclair, et al. outlining the need to study the economic evaluation of newborn intensive care, Dr. Butterworth wrote, "The more these conversations go on in society, the more ready we will be for the ultimate hardball question: How cost-effective is the NICU?" (22, 23)

Dr. Butterfield also conducted several additional basic studies. In one report, significant differences in transplacental gradients of free amino acids were found between normal pregnancies and those affected by toxemia and/or diabetes. (24) Another study documented significant reductions in brain weight and cellularity between normally grown and growth-restricted neonates, with the cerebellum being the most affected brain region. (25) Renal tubular conservation of free amino acids was evaluated among premature, term, and adult individuals, with significant differences noted, with the most deficient reabsorption noted for most in the preterm group. (26) Disseminated intravascular and intracardiac thrombosis was documented in 8.1% of autopsied infants over 43 months from the late 1960s to the early 1970s, which was found to be distinct from disseminated intravascular coagulation. (27) Fortunately, this entity seems to be quite rare in the modern era.

"Another major contribution of Dr. Butterfield and his colleagues was the early establishment of newborn infant hospice care."

Another major contribution of Dr. Butterfield and his colleagues was the early establishment of newborn infant hospice care. (1) Their concept of in-hospital hospice was detailed in response to an editorial by William Silverman, MD. (28–30) The authors state, "We have designated an old treatment room within the neonatal intensive care unit as a 'Family Room.' This room is physically separate but geographically within the intensive care unit and provides a private and quiet setting for the patients and staff to be with the dying or dead newborn." They further state, "This is a task that was and remains extremely difficult, but when neonatal staff members are able to reorientate their thinking toward the palliative mode of care for the newborn and then participate actively in *doing* this form of care, it is our experience that staff members find their involvement extremely gratifying and rewarding." I could not agree more. It may seem strange to outsiders, but doing death right can be a very positive experience.

Dr. Butterfield was also very active at the national level. He wrote an extensive chapter for neonatology.net that discussed his work on regionalization and also reviewed many of his efforts to organize conferences and committees to advance the care of newborns. (31) Among many activities, he founded the Aspen Conference on Perinatal Biology in 1963, co-chaired with Dr. Jerold Lucey the Fifty-third Ross Conference in 1966 entitled "Intrauterine Transfusion and Erythroblastosis Fetalis," which laid out the state-of-the-art at the time, and chaired an American Academy of Pediatrics (AAP) ad hoc committee on the history of neonatology. (32, 33) Most importantly, Dr. Butterfield introduced a motion to the Colorado Chapter of the AAP in 1971 that led to the establishment of the Section on Neonatal-Perinatal Medicine (SONPM) of the AAP. (34) Dr. Butterfield reflected on much of this, plus his role in establishing the Mead Johnson Nutritionals Perinatal Research Conferences, in a 1997 publication in the *Journal of Perinatology*. (35)

"Most importantly, Dr. Butterfield introduced a motion to the Colorado Chapter of the AAP in 1971 that led to the establishment of the Section on Neonatal-Perinatal Medicine (SONPM) of the AAP."

Another important aspect of Dr. Butterfield was his passion for Dr. Virginia Apgar and her eponymous scoring system. Dr. Apgar published this in 1953 and almost single-handedly revolutionized the level of attention paid to the neonate at delivery. (36) Her simple system gave numerical scores of zero to two for each of 5 signs: heart rate, respiratory effort, reflex irritability, muscle tone, and color. Butterfield wrote "Despite the value of the [Apgar] scoring system, experience has shown that it may be difficult to memorize the categories that make up the score and that [some] medical personnel are not familiar with it" first in *JAMA* and then in *Pediatrics* (37, 38). The epigram used the letters of Dr. Apgar's name—appearance, pulse, grimace, activity, and respiration—to create an easy-to-remember sequence (Figure 4).

Figure 4. Dr. Butterfield's epigram for easy memory of the five components of the Apgar Score.

Score	0 points	1 point	2 points
Appear-ance (skin color)	Blue/ pale all over	Body pink, ex-tremities blue	Pink
Pulse (Heart Rate)	0	<100	>100
Grimace (Reflex ir-ritability)	No response to stimulation	Minimal re-sponse to stimulation	Cry when stimulated
Activity (Muscle tone)	Limp	Some flexion of extremities	Active motion
Respiration	Apneic	Slow, irregular breathing	Vigorous cry

Dr. Butterfield then embarked on a 10-year quest to have Dr. Apgar honored with a US Postal Service stamp. He enlisted the AAP's support and ultimately accomplished this (Figure 5). (39–41) Dr. Apgar was also an accomplished luthier, building many stringed instruments. Dr. Butterfield raised $30,000 to acquire a

quartet of them, which were donated to Dr. Apgar's university. These instruments have been played at AAP meetings, most appropriately when Dr. Butterfield was the 20th recipient of the Apgar Award.

Figure 5. The Virginia Apgar postage stamp. (41)



"Dr. Apgar was also an accomplished luthier, building many stringed instruments. Dr. Butterfield raised $30,000 to acquire a quartet of them, which were donated to Dr. Apgar's university. These instruments have been played at AAP meetings, most appropriately when Dr. Butterfield was the 20th recipient of the Apgar Award."

Many accolades came to L. Joseph Butterfield. As mentioned, he received the Apgar Award, the AAP's highest honor. A Festschrift issue of the *Journal of Perinatology* was published in 1999, with an introduction written by his medical school classmate, Philip Sunshine, MD (42, 43). 2026 will mark the 47th anniversary of the L. Joseph Butterfield Perinatal Conference provided by Children's Hospital Colorado. (42)

Dr. Butterfield died of a heart attack in 1999 at age 72. He received obituaries in many prominent publications, including the AAP newsletter, the *New York Times*, and the *Chicago Tribune*. (1, 43, 44) L. Joseph Butterfield, MD, was truly a pioneer in neonatology, leading the way in promoting the regionalization of perinatal care and in organizing our specialty at the regional and national levels. He left behind an amazing legacy that will truly endure.

"L. Joseph Butterfield, MD, was truly a pioneer in neonatology, leading the way in promoting the regionalization of perinatal care and in organizing our specialty at the regional and national levels. He left behind an amazing legacy that will truly endure."

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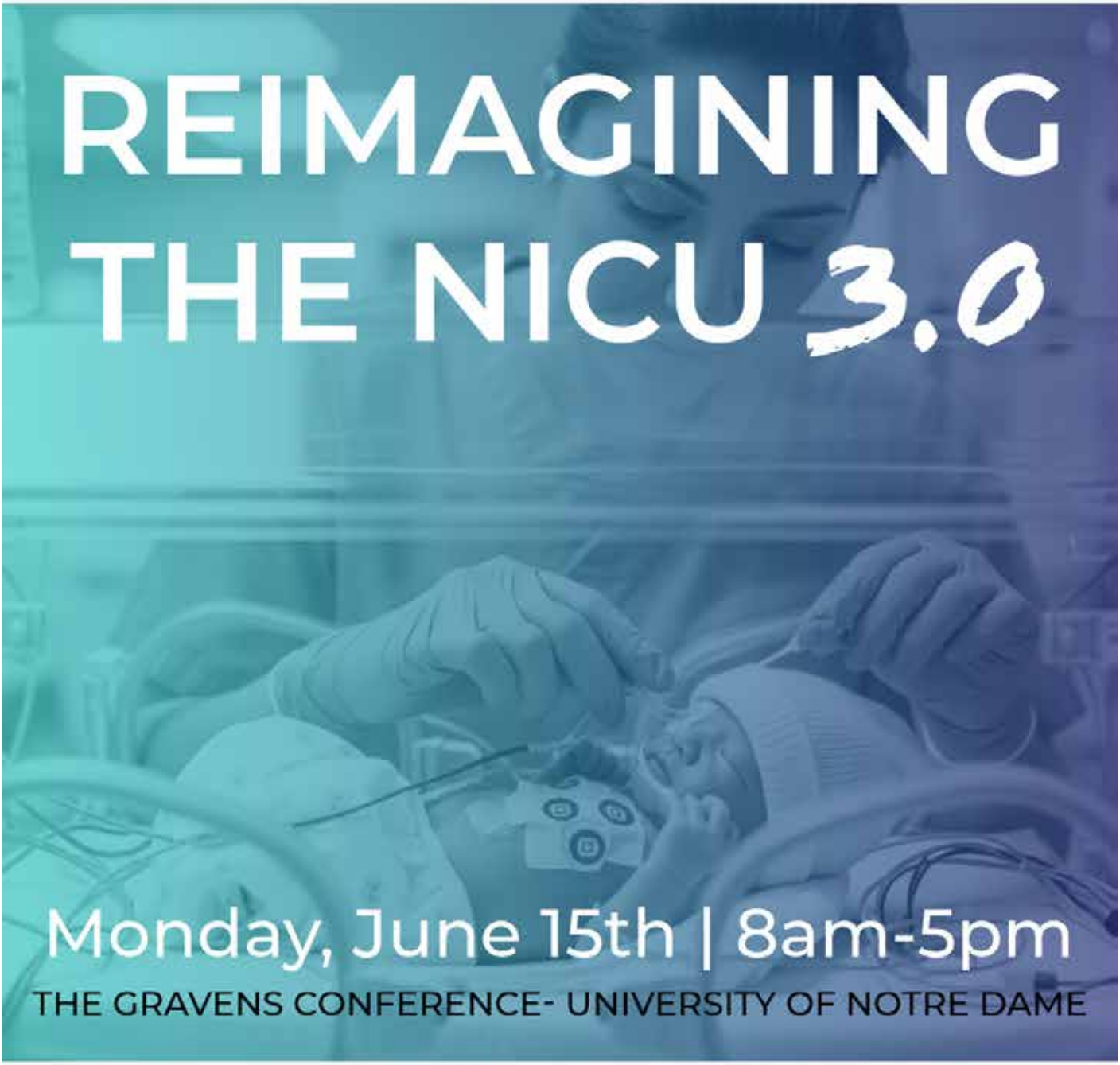
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Book Review: *Lost in Time: Our Forgotten and Vanishing Knowledge*

Aerin Mellott, MS3

"Reading Lost in Time : Our Forgotten and Vanishing Knowledge proved unexpectedly relevant as I progress through my medical training and shape my identity in pediatrics and neonatology. The book explores historical innovations, forgotten discoveries, and the nonlinear progression of human knowledge."

Reading by Jack R Bialik's *Lost in Time: Our Forgotten and Vanishing Knowledge* proved unexpectedly relevant as I progress through my medical training and shape my identity in pediatrics and neonatology. The book explores historical innovations, forgotten discoveries, and the nonlinear progression of human knowledge. These central themes closely parallel the evolving, uncertain nature of medicine and scientific advancement. One main takeaway is clear: advancement is not always a straightforward path. As evidenced by numerous case studies in the book, we sometimes move forward only to lose, overlook, or erase critical knowledge from the past.

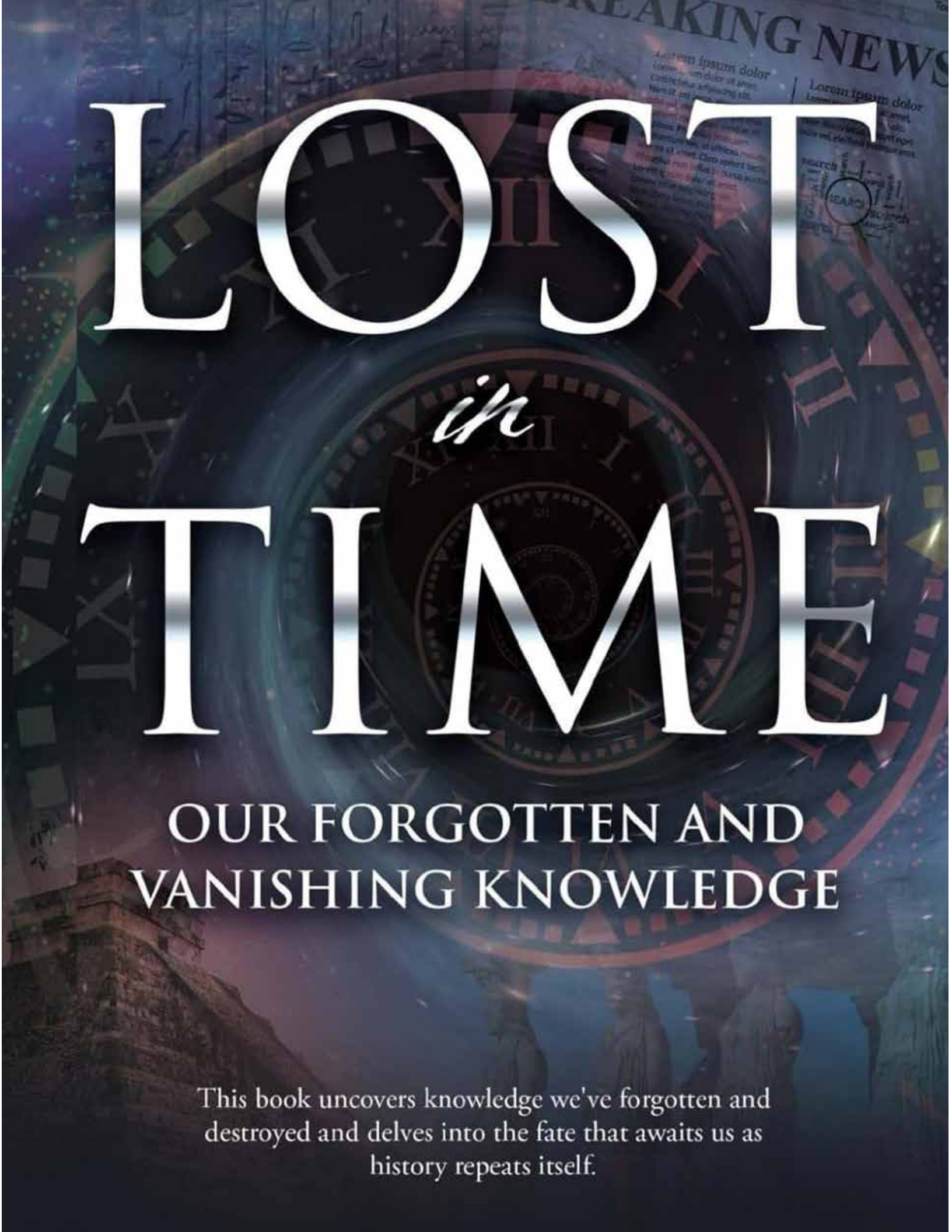
"This concern is even reflected in popular media such as the television series, The Pitt, where an EMR outage highlights how dependent we are on digital infrastructure. In neonatology, where we care for some of the most vulnerable patients, precise data tracking and continuity of care are critical—making such vulnerabilities particularly consequential."

Taken together, themes of the fragility of knowledge preservation, the tension between progression and regression, and the importance of revisiting the past to inform the present intertwine to form the book's central message: global advancement depends on our ability to accept and critically evaluate ever-evolving truths.

This idea becomes especially clear when considering the fragility of knowledge preservation. The book illustrates this through the example of Smithsonian Museum scientist, Emilie Savage-Smith, who identified a bronze globe created in Pakistan centuries ago, despite the absence of any written record describing how it was made. The lack of documentation raises an important concern: how easily knowledge can be lost. In medicine, we often assume that digital records safeguard us against this erasure. However, this reliance introduces new vulnerabilities. Modern healthcare systems are heavily dependent on electronic medical records, and when these systems fail, clinical care can be disrupted. This concern is even reflected in popular media such as the television series, *The Pitt*, where an EMR outage highlights how dependent we are on digital infrastructure. In neonatology, where we care for some of the most vulnerable patients, precise data tracking and continuity of care are critical—making such vulnerabilities particularly consequential.

"This concept is particularly relevant in medicine, where rapid advances can create uncertainty. While the book highlights historical examples of this phenomenon, I was reminded of the COVID-19 pandemic as a modern parallel. As new data emerged, public health recommendations shifted quickly. Although these recommendations were grounded in evolving scientific evidence, the rapid pace of the guidance's changes led to widespread uncertainty and, at times, mistrust."

Building on this tension between preservation and loss, another compelling theme in *Lost in Time: Our Forgotten and Vanishing Knowledge* is the idea that progress can paradoxically lead to regression. Innovations build upon previous ideas, yet in doing so, foundational knowledge may be lost or dismissed. This concept is particularly relevant in medicine, where rapid advances can create uncertainty. While the book highlights historical examples of this phenomenon, I was reminded of the COVID-19 pandemic as a modern parallel. As new data emerged, public health recommendations shifted quickly. Although these recommendations were grounded in evolving scientific evidence, the rapid pace of the guidance's changes led to widespread uncertainty and, at times, mistrust. In this way, *Lost in Time* reinforced that even when science is moving in the right direction, failing to anchor new knowledge in clear, consistent communication can undermine its impact.


LOST
in
TIME
OUR FORGOTTEN AND
VANISHING KNOWLEDGE
This book uncovers knowledge we've forgotten and
destroyed and delves into the fate that awaits us as
history repeats itself.

In turn, this raises an important question about how we engage with knowledge over time. As I continued to read, I became increasingly aware of the importance of revisiting and reinterpreting past knowledge through the lens of present understanding. Bialik's reflection on the lost Library of Alexandria further emphasizes the consequences of lost knowledge. His question, "How much further ahead in technology might we be today had those libraries continued to thrive and survive?" resonates deeply as I begin my career in medicine. I am constantly learning the "newest" medical knowledge, yet I find myself searching for its origins—tracing the progression of ideas so I can better understand them. It raises an important question: should we be concerned about missed opportunities when knowledge is fragmented or forgotten? Each lost dataset, unpublished study, or overlooked perspective represents a potential gap in progress. While we rely on clinicians and scientists to be thorough, our collective advancement remains vulnerable to human limitations.

"Ultimately, these themes in Lost in Time culminate in a broader lesson about humility in medicine. As a future physician, I recognize that what we accept as truth today may evolve tomorrow– and I am responsible for communicating clinical recommendations to establish clarity and trust. As we balance new emerging information, we must also remain grounded in the knowledge that brought us this far."

Ultimately, these themes in *Lost in Time : Our Forgotten and Vanishing Knowledge* culminate in a broader lesson about humility in medicine. As a future physician, I recognize that what we accept as truth today may evolve tomorrow—and I am responsible for communicating clinical recommendations to establish clarity and trust. As we balance new emerging information, we must also remain grounded in the knowledge that brought us this far. In pediatrics and neonatology, where we care for the most vulnerable populations, this balance is especially critical. Staying current with emerging evidence while maintaining awareness of foundational knowledge is one of the most important and challenging aspects of our profession.

This book serves as a reminder that medicine does not exist in isolation; it is part of a broader human story of discovery, loss, and rediscovery. By learning from both the advancements and the gaps of the past, we can ensure that progress in medicine is not only forward-moving but also enduring.

I highly recommend this engaging and deeply thought-provoking read.

Disclosures: *The author has no conflicts of interest to disclose*

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Lost in Time: Our Forgotten and Vanishing Knowledge
by Jack R Bialik (Author)
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Chasing the Rainbows: Turning Pain Into Purpose

Bernice Quesenberry

"Each year, workplace grief is estimated to cost businesses more than $75 billion in lost productivity, absenteeism, and turnover. However, behind that number are deeply human stories—individuals navigating life-altering loss while expected to continue functioning as though nothing has changed. In the realm of reproductive health, the scope of impact is significant."

Each year, workplace grief is estimated to cost businesses more than **$75 billion in lost productivity, absenteeism, and turnover**. However, behind that number are deeply human stories—individuals navigating life-altering loss while expected to continue functioning as though nothing has changed. In the realm of reproductive health, the scope of impact is significant. Approximately **1 in 4 pregnancies end in miscarriage**, while **1 in 6 couples experience infertility**, often enduring years of emotional, physical, and financial strain in pursuit of building their families. Additionally, **stillbirth affects approximately 1 in 160 pregnancies in the United States**, and thousands of families each year experience the loss of an infant. These are not rare occurrences; they represent millions of individuals and families navigating profound grief, often in silence.

"Approximately 1 in 4 pregnancies end in miscarriage, while 1 in 6 couples experience infertility, often enduring years of emotional, physical, and financial strain in pursuit of building their families. Additionally, stillbirth affects approximately 1 in 160 pregnancies in the United States, and thousands of families each year experience the loss of an infant."

Despite how common these experiences are, the emotional aftermath is frequently isolating. What many individuals and families report as most critical to their healing is not only clinical care, but **connection to others who understand the unique weight of their experience**. Being in community with those who have walked a similar path, who recognize the layered emotions of grief, fear, guilt, hope, and trauma, provides a level of validation that cannot be replicated in isolation. Shared experience fosters understanding, reduces stigma, and creates space for healing in ways that traditional systems often overlook.

"Chasing the Rainbows was born out of both professional experience and deeply personal loss. Its founder spent years as an insurance account executive, often on the front lines of medical malpractice claims, witnessing firsthand the weight families carry when tragedy strikes."

Chasing the Rainbows was born out of both professional experience and deeply personal loss. Its founder spent years as an insurance account executive, often on the front lines of medical malpractice claims, witnessing firsthand the weight families carry when tragedy strikes. At the same time, she was quietly navigating her own journey through years of secondary infertility, an early-term pregnancy loss, and the devastating loss of her 5½-week-old daughter.

"Through these experiences, it became clear that one of the most profound challenges families face is not only the loss itself, but the absence of consistent, accessible, and specialized support"

Through these experiences, it became clear that one of the most profound challenges families face is not only the loss itself, but the absence of consistent, accessible, and specialized support. Recognizing this gap, she made the life-altering decision to leave behind a successful career in insurance to build something different. A nonprofit dedicated to ensuring that no parent has to navigate infertility, pregnancy loss, infant loss, or pregnancy after loss alone.

Founded in September 2022, Chasing the Rainbows is a 501(c)(3) organization created to meet this critical need. At a time when most organizations offered limited or periodic support, Chasing the Rainbows introduced a **daily, community-based model of care**, providing ongoing connection, resources, and healing spaces for families navigating life after loss.

What began with just two daily support groups and a handful of peer mentors has grown into a comprehensive, nationwide network of services for families living with the heartbreak of infertility,

pregnancy loss, infant loss, and the challenges of pregnancy after loss. Today, Chasing the Rainbows hosts up to four support groups every single day, facilitated by trauma-informed volunteers and staff who understand the unique complexities of these experiences. In addition, we provide one-on-one peer mentorship, trauma therapy, mindfulness movement videos, and our podcast, Cry It Out Loud, alongside online communities that offer parents a safe and compassionate space to share and connect.

"Beyond daily support, Chasing the Rainbows extends its mission through awareness events that shine a light on the realities of loss, as well as specialized training for perinatal medical providers and HR professionals to ensure that families receive sensitive, informed care during their most vulnerable times."

Beyond daily support, Chasing the Rainbows extends its mission through awareness events that shine a light on the realities of loss, as well as specialized training for perinatal medical providers and HR professionals to ensure that families receive sensitive, informed care during their most vulnerable times. We also provide care packages, guided journal coloring books with positive affirmations and coping materials, and, through growing partnerships, connect families with medical and funeral assistance programs.

Every service we provide is designed to be deeply personal, customized to the unique needs of parents navigating their own worst nightmares. What sets Chasing the Rainbows apart is our philosophy: **grief has no timeline, and neither should support.** Mental health, trauma, and loss do not fit neatly into a routine schedule, so our services are designed to meet families where they are, whenever they need them. All of our programs are offered daily at no cost, with the compassion of a community that truly understands.

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From our beginnings in Pennsylvania, Chasing the Rainbows has expanded to serve families in all 50 states. As we continue to grow, we are actively seeking volunteers to join us, whether through direct support, outreach, fundraising, or helping bring services to their local communities. Volunteers also play a vital role in our October Pregnancy & Infant Loss Awareness Campaign through BabyLossAwareness.org. Opportunities include helping host Light Up the Sky for Our Pink and Blue Gone Too Soon, supporting our Honor Out Loud candle lighting ceremony on National Pregnancy & Infant Loss Remembrance Day on October 15, 2026, and assisting with or attending our National Gala in Pennsylvania on October 17, 2026, as a participant, sponsor, or ambassador.

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Our mission is simple yet powerful: to repurpose pain into purpose. By standing together, we can ensure that no parent grieves in silence and that every family has access to the compassionate daily support they deserve.

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Moreover, as *Chasing the Rainbows* continues to expand, the organization is calling for **volunteers, supporters, and partners** to help sustain and grow its free, life-changing support programs, ensuring that no grieving parent is ever left in the dark again.

Because when we chase the rainbows together, we light the way for one another.

Disclosures: There are no disclosures noted..

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Which Infants are More Vulnerable *to Respiratory Syncytial Virus?*

RSV is a respiratory virus with cold-like symptoms that causes 90,000 hospitalizations and 4,500 deaths per year in children 5 and younger. It's 10 times more deadly than the flu. For premature babies with fragile immune systems and underdeveloped lungs, RSV proves especially dangerous.

But risk factors associated with RSV don't touch all infants equally.*

*Source: Respirator Syncytial Virus and African Americans

Caucasian Babies	Risk Factor	African American Babies
11.6%	Prematurity	18.3%
58.1%	Breastfeeding	50.2%
7.3%	Low Birth Weight	11.8%
60.1%	Siblings	71.6%
1%	Crowded Living Conditions	3%

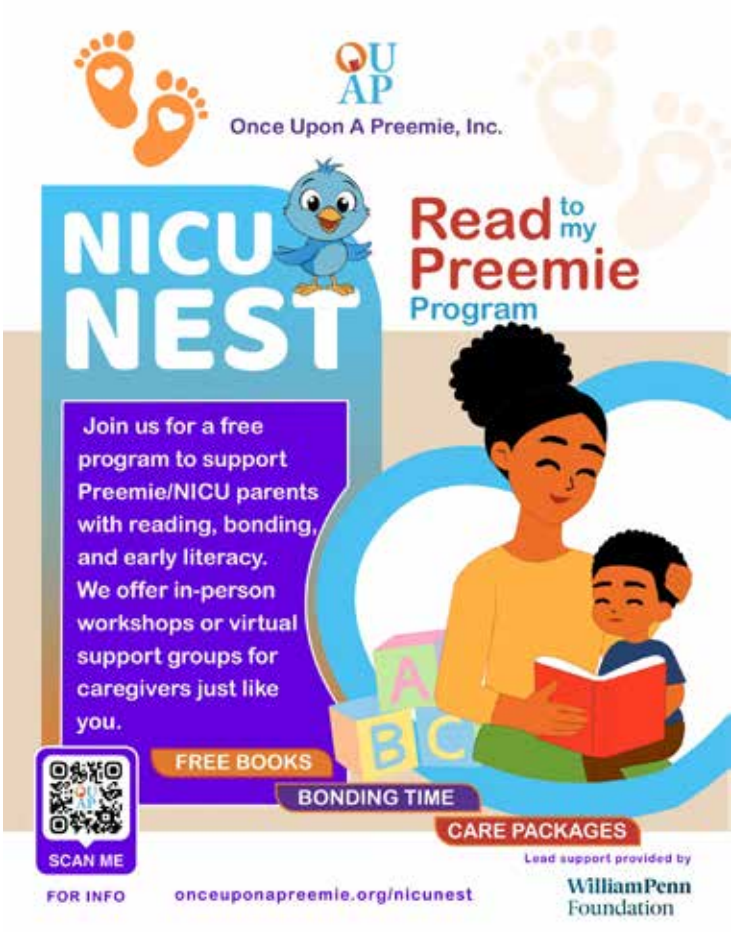
AFRICAN AMERICAN BABIES bear the brunt of RSV. Yet the American Academy of Pediatrics' restrictive new guidlines limit their access to RSV preventative treatment, increasing these babies' risk.

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Peer Reviewed

Organophosphate Poisoning Presenting as Acute Respiratory Distress in a Neonate: A Diagnostic Challenge

Hima Bindu Bhaskar, MD

Patient Summary:

Age / Sex: 20-day-old term female neonate

Presenting complaints: Acute onset of respiratory distress, poor feeding, excessive secretions

Setting: Sri Venkateswara Ramnarayan Ruia Government General Hospital, Tirupathi, Andhra Pradesh, India.

"Organophosphates (OPs) are well known for their use as pesticides. Its poisoning inhibits the acetylcholinesterase enzyme by phosphorylating the esteratic site in both the PNS and the CNS, leading to Cholinergic toxicity. It is a well-recognised fact that toxicological emergencies of OP poisoning are common in adults and older children; however, it is exceedingly rare in neonates. (1)"

Introduction:

Organophosphates (OPs) are well known for their use as pesticides. Its poisoning inhibits the acetylcholinesterase enzyme by phosphorylating the esteratic site in both the PNS and the CNS, leading to Cholinergic toxicity. It is a well-recognised fact that toxicological emergencies of OP poisoning are common in adults and older children; however, it is exceedingly rare in neonates. (1) The clinical presentation in this age group can closely mimic neonatal sepsis or primary respiratory disorders, posing a significant diagnostic challenge. Delays in recognition can be life-threatening. This case highlights the importance of maintaining a broad differential, including toxicological causes, when evaluating neonates with unexplained respiratory distress and cholinergic features.

Case Presentation:

A 20-day-old female neonate, exclusively breastfed, was brought to the emergency department with an acute onset of respiratory distress, poor feeding, and excessive nasal discharge. There is no history of aspiration events, cyanotic episodes, antenatal complications, or exposure to sick contacts.

On examination, the infant was tachypneic with subcostal retractions and maintained a heart rate of 80-90 beats per minute. Oxygen saturation was low on room air. Notably, pinpoint pupils were observed bilaterally. Emergency airway management by clearing secretions and endotracheal intubation with assisted ventilation was performed.

"Oxygen saturation was low on room air. Notably, pinpoint pupils were observed bilaterally. Emergency airway management by clearing secretions and endotracheal intubation with assisted ventilation was performed."

Investigations and Diagnosis:

Initial workup was directed toward suspected neonatal sepsis, and empirical intravenous antibiotics were commenced. Lab investigations showed an absolute PMN count of 8200/cu mm and normal levels of electrolytes, urea, and creatinine.

Arterial blood gases showed pH of 7.37, pO_2 75 mm Hg, pCO_2 20 mm Hg, and HCO_3 18.5 mEq/1. The coagulation parameters, including the prothrombin index and partial thromboplastin time, were normal. The level of blood glucose was 84 mg/dl. Chest X-ray and cranial ultrasound did not show any abnormality, and CSF examination was normal. However, the clinical picture failed to improve despite 24 hours of antibiotic therapy.

Given the persistence of symptoms and the constellation of cholinergic features, miosis, bradycardia, excessive secretions, and bronchospasm (3), a toxicological etiology was considered. Thus, the serum acetyl cholinesterase levels checked were 180 U/L (5000-12000 U/L), supporting organophosphate toxicity. Appropriate medicolegal procedures were initiated in view of the non-accidental nature of poisoning in a neonate of this age.

Management and Outcome:

Treatment (4) was initiated with an Atropine infusion (2) started at 0.01 mg/kg/hr and then increased to 0.02 mg/kg/hr for complete atropinization. The infusion was continued for 48 hours, after which it tapered off over a 24-hr period. Over the next 2 days, atropine was administered 8-12 hourly; the heart rate improved from 80-140 bpm in due course.

Pralidoxime (PAM) (5) 30 mg/kg loading dose was started and followed by 10 mg/kg/hr infusion along with atropine. It was stopped after 4 days. The infant showed marked clinical improvement within 48–72 hours of initiating atropine therapy. Ventilatory support was gradually weaned, and the neonate was successfully extubated on day 4 of admission. The infant was discharged in stable condition.

Discussion:

This case illustrates a rare but important diagnostic scenario. In neonates, the differential for respiratory distress typically includes transient tachypnoea of the newborn, respiratory distress syndrome, pneumonia, congenital heart disease, and sepsis. Toxicological causes are rarely considered. Early initiation of atropine and pralidoxime, combined with supportive care, is life-saving. Delayed recognition, as occurred initially in this case, underscores the need for toxicological vigilance even in the neonatal period.

"Toxicological causes are rarely considered. Early initiation of atropine and pralidoxime, combined with supportive care, is life-saving. Delayed recognition, as occurred initially in this case, underscores the need for toxicological vigilance even in the neonatal period."

Conclusion:

Organophosphate poisoning, though rare in neonates, must be included in the differential diagnosis of unexplained respiratory distress accompanied by cholinergic features such as miosis, bradycardia, and hypersecretion.

In resource-limited settings where advanced diagnostics may not be immediately available, clinical recognition of the toxidrome is paramount. Prompt antidotal therapy is life-saving.

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2024

Protecting your baby and family from

Respiratory Viruses:

What parents need to know this RSV and flu season

Like COVID-19, RSV (Respiratory Syncytial Virus) and flu affect the lungs and can cause serious breathing problems for children and babies. Talk to your family about the risks.

Certain diagnoses can make children and babies more vulnerable for serious complications from respiratory viruses - including prematurity, chronic lung disease, and heart conditions.

You can limit the spread of viruses by wearing a mask, washing your hands with soap & water, using an alcohol-based hand sanitizer, and getting vaccinated.

The fewer germs your baby is exposed to, the less likely they are to get sick. Let people know you need their help to stay well. Limit visitors. Avoid crowds. Stay away from sick people.

Immunizations save lives. Stay up-to-date with your family's flu vaccinations and COVID-19 boosters. This helps our community stay safe by stopping the spread of deadly viruses.

Babies older than 6 months can get a flu shot and COVID-19 vaccinations. Now there are new vaccines for RSV for adults and antibody shots for babies that can help protect them.

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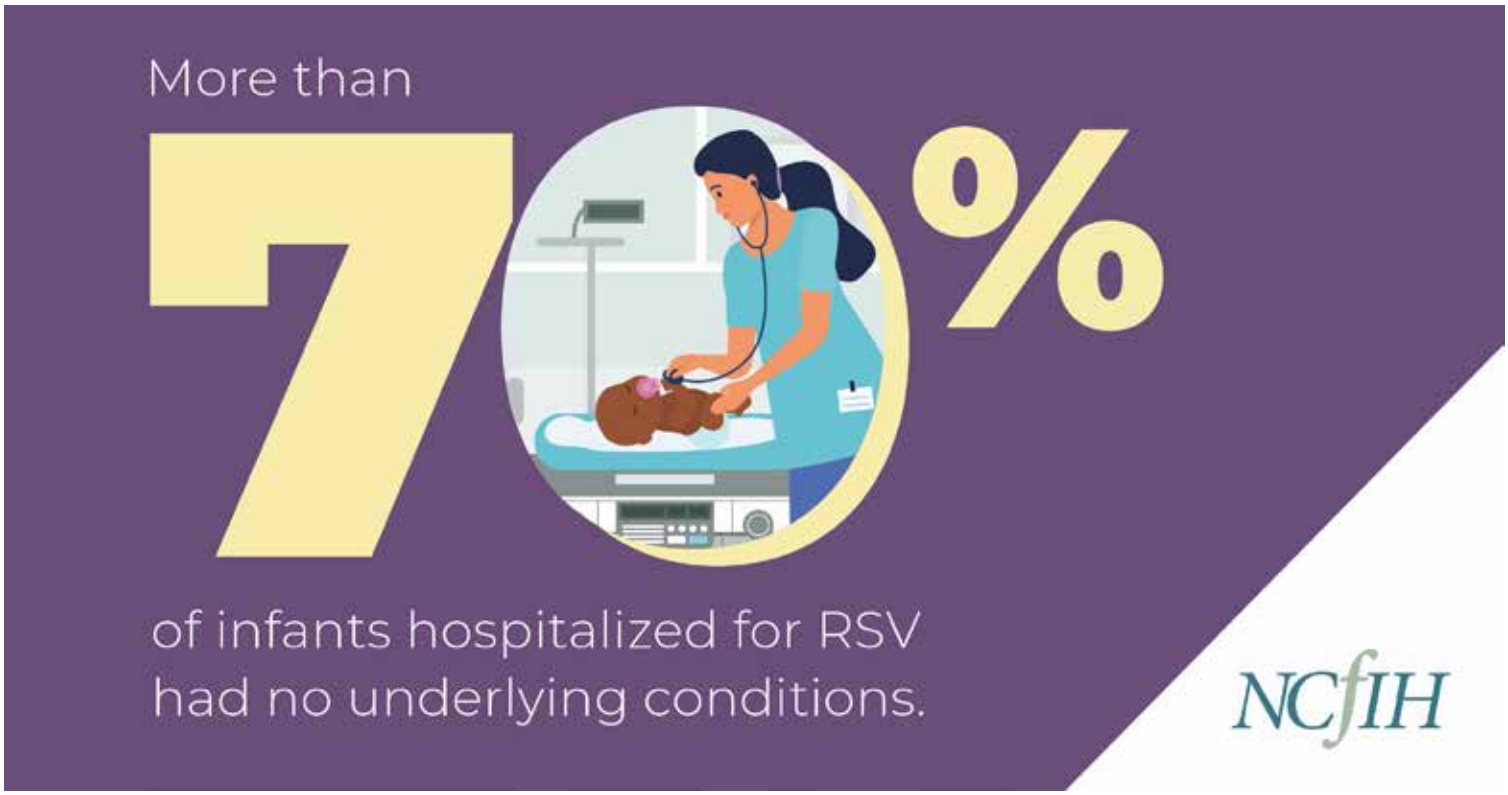
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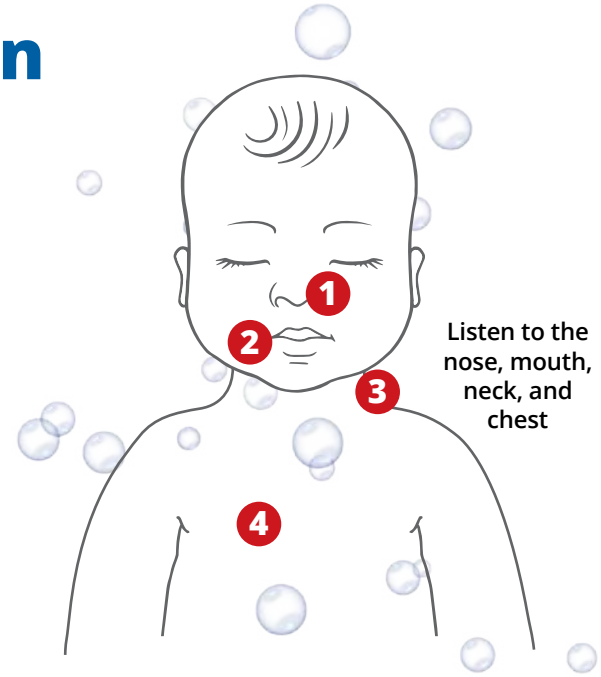
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Auscultate **all four areas** during every assessment



QUICK ASSESSMENT WORKFLOW

Listen for characteristic bubbling throughout the system.

1. **NOSE**: Equal flow + bubbling = Good
2. **MOUTH**: No flow = Good
3. **NECK**: Good flow = Patent airway
4. **CHEST**: Bubbling = CPAP delivered

1 NOSE

Ascultate over nasal bridge

Desired results

Should hear equal flow
Good flow + bubbling = patent

Troubleshooting

Poor flow = prongs malposition
No flow/bubbling = prongs out, mouth leak, or circuit issue
Check circuit flow/prongs
Confirm correct prong size

2 MOUTH

Ascultate over mouth

Desired results

Should hear NO flow
Mouth should be closed

Troubleshooting

If leak present: Use Baby Chin Band / Strap
If intermittent bubbling: reposition Chin Band

3 NECK

Ascultate over larynx / trachea

Desired results

Should hear good flow
Airway patency indicator

Troubleshooting

If no bubbling: Check for secretions
Suction: as needed
Check: for neutral neck position

4 CHEST

Ascultate lung fields bilaterally

Desired results

Should hear bubbling
CPAP delivery confirmed

Troubleshooting

If no bubbling: Check for secretions and airway patency
Suction: as needed
Check: for neutral airway position
Reposition: chin strap

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Metrology in Neonatal Phototherapy: Why Accurate Measurement of Therapeutic Light Still Matters

Mahesh L. Sampat, BASc

"This article discusses the metrology principles underlying irradiance measurement, highlights gaps identified in earlier clinical literature, and introduces a metrology-inspired framework for improving confidence in therapeutic light delivery."

Abstract

Accurate measurement of therapeutic irradiance is essential for effective neonatal phototherapy. A question raised by NICU staff about discrepancies between calibrated radiometers prompted an exploration of measurement challenges with phototherapy devices. This article discusses the metrology principles underlying irradiance measurement, highlights gaps identified in earlier clinical literature, and introduces a metrology-inspired framework for improving confidence in therapeutic light delivery. Improved measurement reliability may help support consistent treatment practices and enhance clinical confidence in neonatal phototherapy.

A Question from a NICU Nurse

This work began with a simple but important question.

Hospitals routinely send radiometers used to measure neonatal phototherapy devices to our laboratory for calibration. On several occasions after these instruments were returned to service, NICU staff contacted us with concerns.

Two radiometers used to measure the same phototherapy device were producing noticeably different readings, even though both had recently been calibrated in our laboratory.

In one such instance, a NICU nurse asked a direct and thoughtful question:

"If both radiometers were calibrated correctly, why are they reading differently?"

It was a fair question. In neonatal care, clinicians rely on these instruments to estimate the therapeutic light dose delivered to newborn infants.

At that moment, I did not have a clear answer. I told her I would investigate the issue.

What initially appeared to be a routine technical question gradually led to a deeper exploration of how therapeutic light is measured in neonatal phototherapy.

Phototherapy: One of the Most Common Treatments in Neonatal Medicine.

Phototherapy remains one of the most widely used treatments in newborn care. For decades, it has served as the primary non-invasive therapy for neonatal hyperbilirubinemia.

Blue light within a specific wavelength range interacts with bilirubin molecules in the skin and converts them into more water-soluble photoisomers that can be excreted from the body.

Clinical guidelines, therefore, recommend delivering sufficient irradiance within the therapeutic wavelength band to ensure effective treatment.

To monitor this, many NICUs rely on handheld radiometers designed to estimate spectral irradiance from phototherapy devices.

"It provides clarity to families who might otherwise remain uncertain about their child's status for years. Moreover, it supports anticipatory guidance and strengthens continuity within the medical home—critical in populations at risk for fragmented care."

However, an important question remains:

How accurately is the therapeutic dose of light actually measured?

While investigating the nurse's question, I reviewed the clinical literature on phototherapy measurement. One publication stood out: the 2004-2011 American Academy of Pediatrics Technical Report on phototherapy, led by Vinod K. Bhutani.

In its section on Research Needs, the report emphasized an important gap in knowledge:

"The ability to measure the actual wavelength and irradiance delivered by phototherapy devices is urgently needed to assess the efficiency of phototherapy in reducing total serum bilirubin."

This observation underscored the importance of accurately measuring the therapeutic light delivered during treatment.

More than two decades later, the measurement question identified in that report remains highly relevant. The practical challenges associated with accurately measuring phototherapy irradiance—particularly those related to radiometer spectral response and illumination geometry—continue to deserve careful consideration.

Earlier experimental work, including studies by Henrik Vreman, had compared the performance of different phototherapy systems and light sources, demonstrating variability in device output and treatment conditions.

For someone working in measurement science, these observations were striking. They suggested that the question raised by the NICU nurse might reflect a broader challenge in how therapeutic light is measured and delivered.

A Metrology Perspective:

In optical calibration laboratories, measurement accuracy depends on two fundamental principles:

1. Spectral compatibility between the light source and the detector, and
2. Spatial uniformity of the illumination field.

If either condition is not satisfied, measurement results can vary—even when the instruments themselves are properly calibrated.

This realization helped explain why two calibrated radiometers might produce different readings when measuring the same phototherapy device. Differences in spectral sensitivity, combined with variations in light distribution across the treatment area, can influence the reported value.

Such discrepancies are well understood in metrology laboratories, where measurement conditions are carefully controlled. In clinical environments, however, these factors may not always be fully appreciated.

The Challenge of Measuring Phototherapy Irradiance:

Modern phototherapy devices increasingly rely on **blue LED light sources**, which typically emit within a relatively narrow spectral band. Radiometers used to measure this light often employ optical filters designed to approximate the therapeutic wavelength range. However, LED emission spectra and radiometer filter responses do not always align perfectly. Variations in spectral bandwidth or detector sensitivity can affect the measured irradiance. In addition, the spatial distribution of light across the infant's body may not always be uniform. Measurements taken at a single location may therefore not reflect the average dose received across the treatment field.

These challenges highlight an important point:

Measuring phototherapy irradiance is not simply a matter of placing a sensor under a lamp:

It involves the interaction of light sources, detectors, and illumination geometry.

Toward a Metrology-Inspired Framework:

These observations eventually led to the conceptual development of the Standardized Bilirubin Phototherapy System (SBPS)—a metrology-inspired framework intended to improve the measurement and control of therapeutic irradiance.

The SBPS concept integrates several key elements:

- spatially homogeneous illumination
- spectral alignment within the therapeutic wavelength band
- real-time irradiance measurement
- electronic regulation of optical output

The goal is not simply to produce blue light, but to establish a framework that enables the delivered therapeutic dose to be measured with greater confidence and consistency.

In measurement science, improving the accuracy of measurement systems often leads to improvements in the processes that depend on those measurements. Phototherapy may benefit from a similar approach.

Linking Measurement to Patient Safety:

The original question raised by the NICU nurse illustrates an important point. When two radiometers provide different readings for the same phototherapy device, clinicians are left with uncertainty about the actual therapeutic dose being delivered.

For most medical therapies, the ability to measure the delivered dose with confidence is considered essential for patient safety. Phototherapy, despite being one of the most commonly used treatments in neonatal medicine, has historically relied on measurements that may vary depending on the characteristics of the measuring instrument and the illumination conditions.

This does not imply that current phototherapy practices are unsafe. Rather, it highlights an opportunity to improve the precision and reliability with which therapeutic light is delivered and documented.

A metrology-based approach—combining controlled illumination, reliable irradiance measurement, and electronic regulation of light output—may help clinicians have greater confidence that the intended therapeutic dose is accurately measured and consistently delivered.

"In an era when neonatology increasingly emphasizes precision and data-driven care, it may be worth asking whether phototherapy—one of the most common therapies in newborn medicine—could also benefit from improved measurement standardization."

Clinical Relevance:

For clinicians, accurate measurement of phototherapy irradiance has several practical implications.

First, clinicians rely on irradiance readings to determine whether a device is delivering sufficient treatment intensity. Second, improved measurement could help reduce variability between different phototherapy devices or clinical environments. Third, greater confidence in measured irradiance may support more consistent treatment practices across NICUs.

In an era when neonatology increasingly emphasizes precision and data-driven care, it may be worth asking whether phototherapy—one of the most common therapies in newborn medicine—could also benefit from improved measurement standardization.

Acknowledgment:

The author appreciates discussions with clinicians who helped

highlight the practical challenges of measuring phototherapy irradiance in neonatal care. Among those who encouraged further exploration of these ideas was Dennis T. Costakos of the Mayo Clinic, who recognized the potential clinical value of applying measurement science principles to therapeutic light delivery in newborn care.

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Disclosures: *The ideas described here are part of an ongoing exploration of how principles of measurement science can inform clinical technologies. The author has recently shared additional reflections on this topic under the theme "Metrology in Medicine."*

Related work will also be presented at the Pediatric Academic Societies Meeting 2026, where continued dialogue between clinicians, researchers, and measurement scientists may help advance the goal of delivering therapeutic light with greater accuracy and confidence.

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Merchak Monthly Neonatal Case Challenge Page March 2026 Edition – Case number 75

Assaad Merchak, MD

"We are pleased to present the March edition of the Merchak Monthly Case Challenge, designed to foster ongoing education and excellence in neonatal care. Each month, clinicians are invited to test their knowledge, engage with real-world scenarios, and compete for prizes."

Welcome Back

We are pleased to present the March edition of the Merchak Monthly Case Challenge, designed to foster ongoing education and excellence in neonatal care. Each month, clinicians are invited to test their knowledge, engage with real-world scenarios, and compete for prizes.

"March's challenge featured the case of neonatal AKI, where care was provided for Margaret, a 6-day-old female, born at 26 weeks GA via vaginal delivery due to preterm labor. Her mother's serology is negative, and she received one dose of antenatal steroids. Margaret received exogenous surfactant therapy, conventional ventilation, trophic feeds of donor breast milk, TPN support via UVC, and Caffeine."

March Case Recap: Neonatal Acute Kidney Injury (AKI)

March's challenge featured the case of neonatal AKI, where care was provided for Margaret, a 6-day-old female, born at 26 weeks GA via vaginal delivery due to preterm labor. Her mother's serology is negative, and she received one dose of antenatal steroids. Margaret received exogenous surfactant therapy, conventional ventilation, trophic feeds of donor breast milk, TPN support via UVC, and Caffeine. A few days ago, Margret had an increased frequency of desaturations requiring increased vent support, so she was placed on broad-spectrum antibiotics. Blood culture grew Klebsiella Pneumonia. Margaret's urine output has been decreasing, and she has had no urine output for 3 days. She has severe generalized edema, and she is having frequent events of bradycardia on high ventilatory support. Her electrolytes are as follows: Na 124 mEq/L, K 8 mEq/L, CL 108 mEq/L, Bicarb 12 mEq/L, Glu 50 mg/dl, BUN 45 mg/dl, Creatinine 2.3 mg/dl, Ca 7 mg/dl.

"Margret had an increased frequency of desaturations requiring increased vent support, so she was placed on broad-spectrum antibiotics. Blood culture grew Klebsiella Pneumonia. Margaret's urine output has been decreasing, and she has had no urine output for 3 days. She has severe generalized edema, and she is having frequent events of bradycardia on high ventilatory support."

Key Learning Points:

- Acute Kidney Injury (AKI) is an independent risk factor for adverse outcomes impacting short-term outcomes (length of mechanical ventilation, length of stay, and mortality) as well as long-term kidney health (subsequent chronic kidney

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disease (CKD) and hypertension).

- Premature birth results in lower nephron endowment, placing the kidney at risk for adverse short- and long-term outcomes.
- Glomerular Filtration Rate (GFR) is considerably lower at birth than later in life, and increases steadily during the ensuing months to reach an adult level by 2 years of age

For more details, visit the previous case presentation:

https://www.takethequiz.us/prior-case-presentation

Congratulations

The gift card winner for March's challenge is Nandeesh Rangaswamy. PMG of Missouri

April Case Challenge: Should we start her on Albumin to help her with her blood pressure? Asks Margaret's nurse.

Apri's case focuses on the use of Albumin in neonatal care.

Sneak Peek Challenge question: True or false: Albumin infusion utilization in the NICU is best considered in infants with continuous albumin loss.

Test your knowledge and participate in the challenge by visiting: WWW.Takethequiz.US or scan this QR code:

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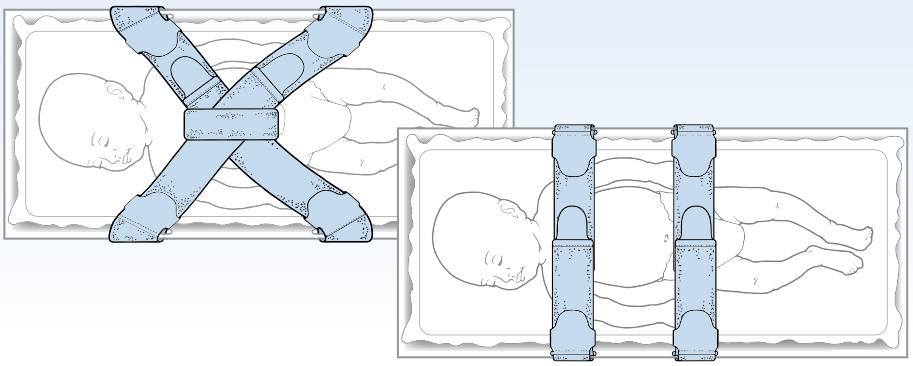


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Leadership and the 5-Star Review Problem

Jonathan Miller

"Our current culture is obsessed with the power of a 5-star review, and for good reason. Those online hospital reviews have a significant influence. However, we often overlook the fundamental truth that we cannot expect customer or patient interactions to reflect a 5-star experience unless our people experience a 5-star environment internally first."

Our current culture is obsessed with the power of a 5-star review, and for good reason. Those online hospital reviews have a significant influence. However, we often overlook the fundamental truth that we cannot expect customer or patient interactions to reflect a 5-star experience unless our people experience a 5-star environment internally first. The logic is simple: we cannot give away what we do not possess ourselves. If we want our customers, clients, and patients to enjoy outstanding service, we must start by focusing on our internal culture. I have worked with many large companies, and almost all of them believe they place their people at the center of what they do, yet they often struggle to get the kind of reviews they want. Why? Because telling someone what kind of experience you want them to provide is very different than them experiencing it themselves and having an experience to draw from.

As leaders, how we navigate these challenges matters. Organizations with strong leadership are 13 times more likely to outperform their competitors. To put this into perspective, that is not just a 13% improvement but a staggering 1300% increase in performance. Is there any organization in the world that does not want to be even 100% better than its competition? It is safe to assume none of us would want to miss out on results like that. However, the unfortunate reality is that most individuals and organizations leave a significant portion of that 1300% potential untapped.

The gap is partly understandable. Truly investing in leadership and culture can be uncomfortable. While 86% of executives agree that leadership development programs are critical for long-term organizational success, many leaders find it challenging to make these investments a priority and struggle to embody the traits that define genuinely strong leadership themselves. While most leaders possess experience, expertise, and charisma, exceptional leadership is not rooted in command and control or subject-matter prowess. Instead, it is rooted in adaptability, humility, trust building, empowerment, strategic vision, emotional intelligence, compassion, and accountability. These qualities mark a transition from traditional leadership styles to those that nurture and foster adaptability, connection, trust, creativity, and innovation within their teams.

Ironically, these qualities are often labeled as "soft skills," yet they are among the most difficult abilities to teach and master. Adopting this form of leadership can feel vague and uncertain, requiring leaders to take an honest inventory of their own relational attunement abilities and be open to identifying growth opportunities. Since developing these skills takes time, it is easy for fear and "pragmatism" to convince us that working on them is a luxury rather than a necessity. Nevertheless, failing to seize the opportunity to build cultures where individuals and teams thrive does a disservice not only to our people but also to our customers, clients, patients, and the organization's bottom line.

"Adopting this form of leadership can feel vague and uncertain, requiring leaders to take an honest inventory of their own relational attunement abilities and be open to identifying growth opportunities."

Inc. Magazine recently cited that the primary cause of stagnation in a team's creativity and innovation—even in teams that perform well—is directly linked to leaders' inability to attune to and lead through issues that negatively affect creativity, passion, and innovation. This highlights that essential leadership skills go beyond business acumen and reside in the relational realm: our ability to attune and connect is essential to leading effectively through the complexities of modern times.

In many ways, it really is that simple.

If we want to be best in class, if we want to provide the type of service that garners consistent 5-star reviews, we need to embody leadership and internal cultures that live and breathe 5-star connection in ways that bring them to life organically. Assessing where you are as an organization is not rocket science, but it does require the willingness to look in the mirror without distorting what you see. Look at your external reviews, market share, and profitability. Look at your employee engagement surveys. If those numbers are not where you want them to be, it's time to take that hard look in the mirror.

#LeadershipStartsWithin.

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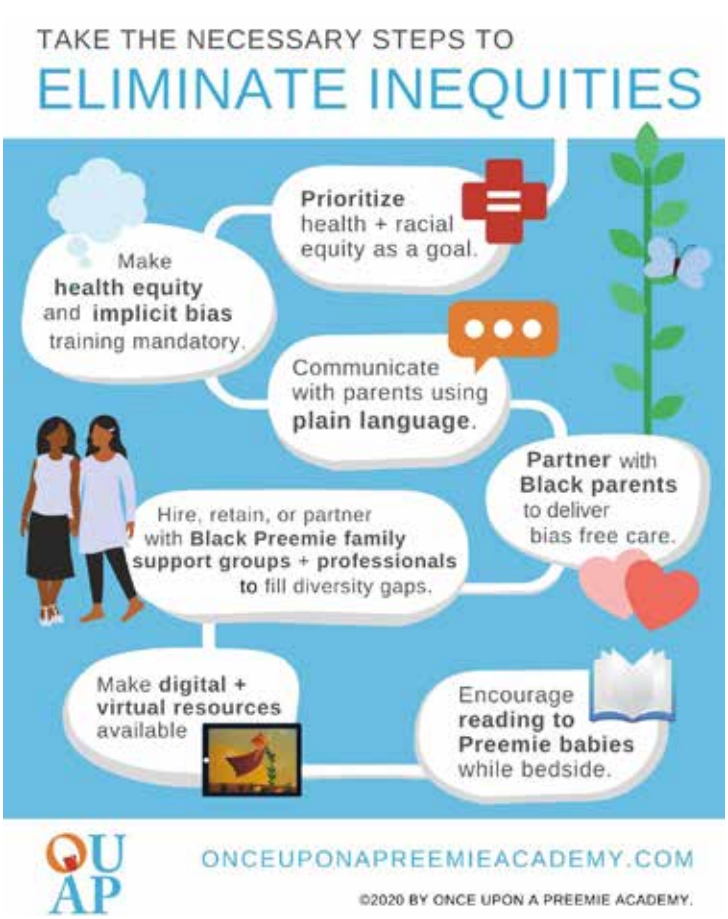
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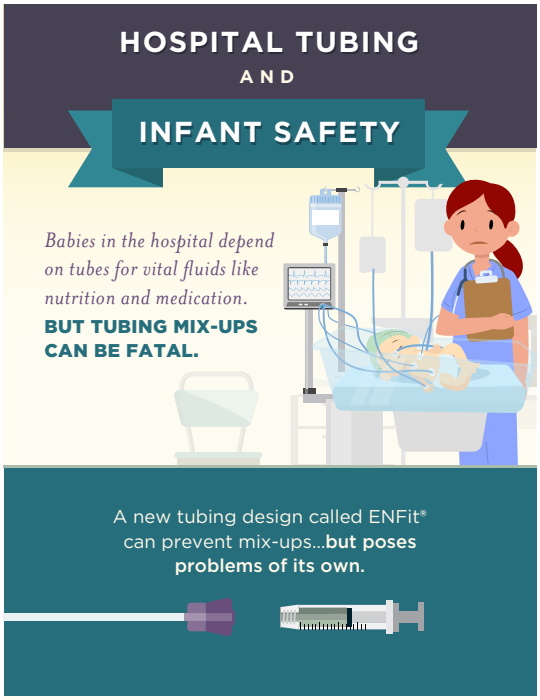


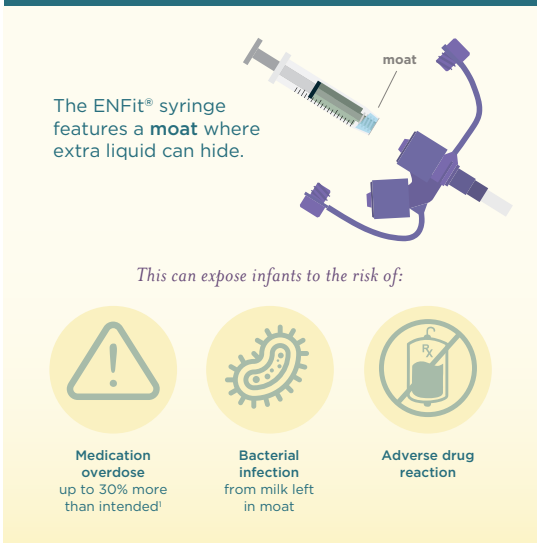
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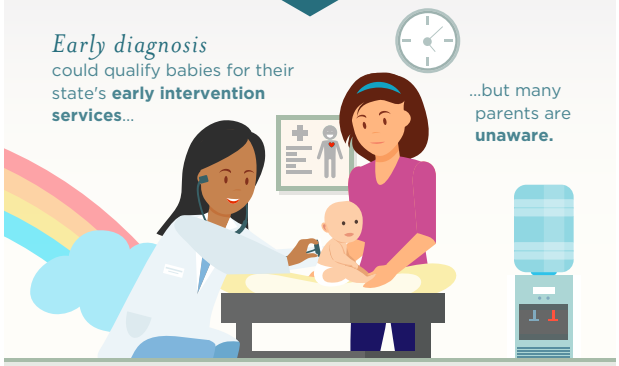
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NCIH National Coalition for Infant Health
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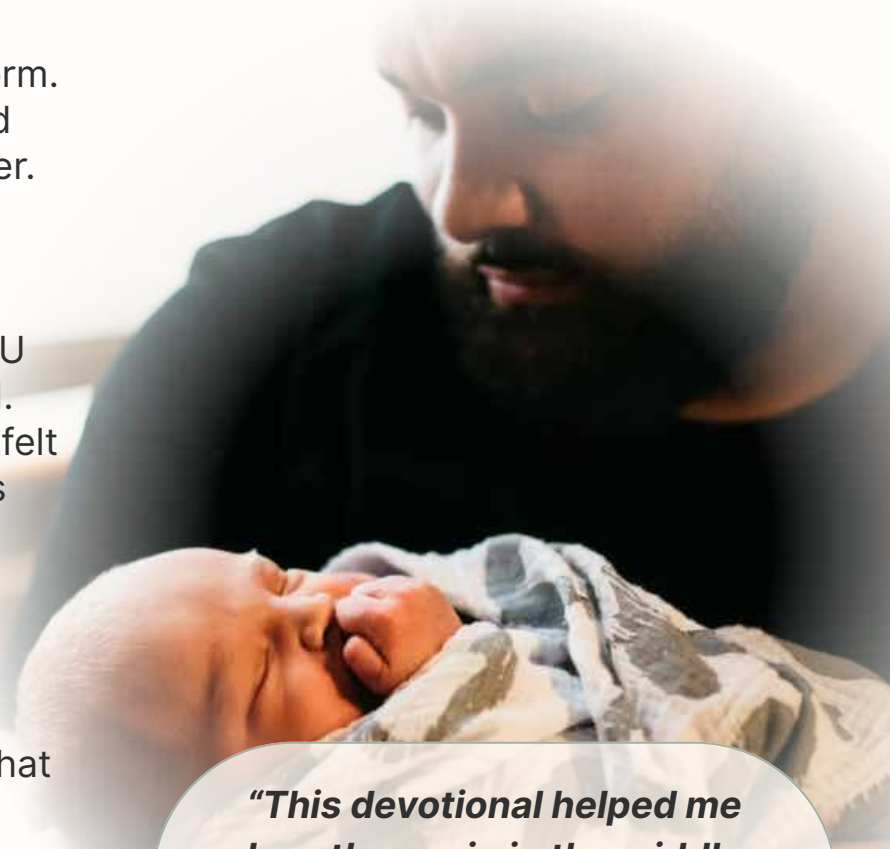
When hope feels distant, let His words anchor your heart.

A 30-Day Devotional for NICU Parents

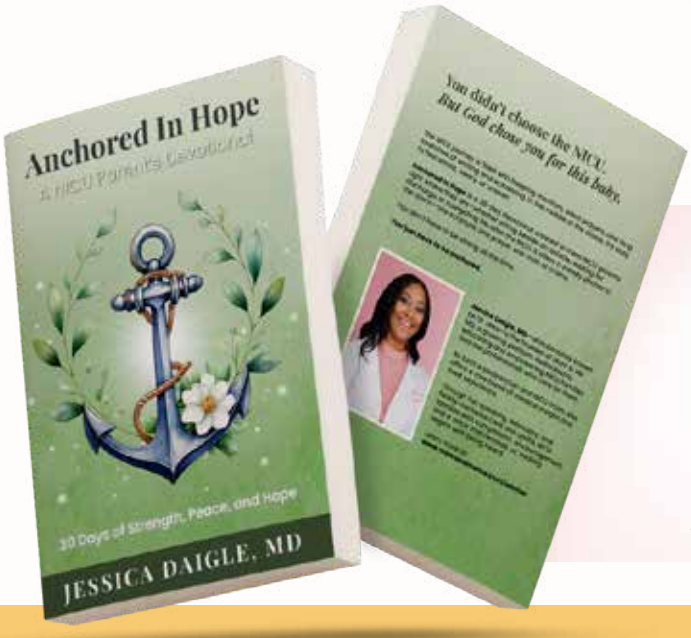
The NICU journey can feel like a storm. One filled with uncertainty, fear, and long nights that blur into one another. But even here, *you are not alone*.

Anchored In Hope was written by Dr. Jess, a physician and fellow NICU mom who knows this road firsthand. Through 30 days of scripture, heartfelt reflections, and guided prayers, this devotional helps NICU parents find calm, courage, and connection with God when life feels overwhelming.

Inside these pages, you'll feel **seen**, **understood**, and gently reminded that **hope is still present**. *Even here*.



"This devotional helped me breathe again in the middle of our NICU storm."
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Biologic Windows of Prematurity Across Organ Systems: A Developmental Chronology of Shifting Care Priorities

Noel Tan, MD

Abstract:

Premature birth shifts late fetal organ maturation into the extra-uterine environment, creating overlapping biologic windows during which organs remain structurally immature yet actively developing and highly sensitive to neonatal exposures. Because organ systems mature in parallel, vulnerability evolves across postmenstrual age (PMA) rather than discrete gestational stages. Prematurity unfolds as a developmental continuum in which the dominant focus of neonatal care shifts with maturation. This review integrates developmental physiology with evolving care priorities across four maturational phases: early transition (lung–cardiovascular, brain, kidney), interface (skin, gut–immune, retina), growth–accretion (bone–mineral, hematologic, somatic growth), and near-term neurointegrative maturation. Interpreting prematurity through these sequential biologic windows clarifies the timing of prematurity-related disorders and provides a physiologic rationale for neonatal monitoring and management across the course of prematurity.

Introduction:

Late gestation is characterized by coordinated maturation across organ systems, including structural growth, angiogenesis, epithelial barrier formation, mineral accretion, and physiologic integration. Preterm birth interrupts this synchronized developmental program and exposes organs to extra-uterine oxygen tension, fluctuating perfusion, artificial nutrition, microbial colonization, and environmental stress while maturation remains incomplete. The neonatal course of prematurity, therefore, reflects shifting biologic windows during which specific systems are actively developing and particularly vulnerable to perturbation.

Because fetal organ maturation proceeds in parallel rather than sequence, vulnerability windows overlap broadly across PMA. For clinical interpretation, prematurity can be conceptualized as progression across phases in which particular organ systems dominate vulnerability while earlier susceptibilities recede.

"Because fetal organ maturation proceeds in parallel rather than sequence, vulnerability windows overlap broadly across PMA. For clinical interpretation, prematurity can be conceptualized as progression across phases in which particular organ systems dominate vulnerability while earlier susceptibilities recede."

Importantly, this maturation also corresponds to a developmental shift in neonatal care priorities that parallels changes in organ vulnerability across PMA. This progression of biologic windows across prematurity is outlined below.

Developmental Progresssion of Care Focus Across Prematurity:

Prematurity unfolds as a continuum in which the dominant determinants of physiologic stability shift with maturation. Immediately after birth, survival depends on fragile organs still constructing the internal physiologic environment. As cardiopulmonary stability improves, organs mediating interaction with the extra-uterine world become the principal sites of vulnerability. With the maturation of these interfaces, development becomes dominated by nutrient-dependent tissue accretion. Although nutrient provision is required throughout prematurity, this stage reflects the period when accretion demand becomes the principal determinant of vulnerability. Near-term equivalent age: maturation culminates in the integration of previously developing systems into coordinated whole-organism function.

"Prematurity unfolds as a continuum in which the dominant determinants of physiologic stability shift with maturation. Immediately after birth, survival depends on fragile organs still constructing the internal physiologic environment. As cardiopulmonary stability improves, organs mediating interaction with the extra-uterine world become the principal sites of vulnerability. "

Accordingly, neonatal care priorities evolve in parallel with these biologic transitions:

> **internal stabilization → environmental interface → growth accretion → neurointegrative function**

This sequence reflects the organs most actively developing at each PMA and most susceptible to environmental disruption. As maturation proceeds, earlier vulnerabilities recede while new developmental demands emerge, producing the characteristic temporal pattern of prematurity-related disorders and the need for clinical monitoring across the neonatal course.

PHASE 1—EARLY TRANSITION:

Vulnerable Organ Stabilization (Birth to ~30 wk PMA):

Dominant systems: Lung–Cardiovascular, Brain, Kidney:

Immediately after a very preterm birth, survival depends on organs still undergoing fundamental structural and regulatory assembly. The immature lung–cardiovascular system determines oxygenation and systemic perfusion; the developing brainstem governs respiratory rhythm, autonomic tone, thermoregulation, and postural organization; and the immature kidney regulates electrolyte and metabolic homeostasis. Instability within these systems propagates system-wide physiologic variability affecting all organs. Care during this phase focuses on stabilizing these vulnerable transitional organs that establish the internal environment for subsequent development.

"Immediately after a very preterm birth, survival depends on organs still undergoing fundamental structural and regulatory assembly."

Lung and Cardiovascular System:

Between approximately 22–28 weeks of gestation, the lung transitions from canalicular to early saccular architecture, with active formation of distal airspaces and pulmonary capillary networks. Pulmonary vascular resistance remains elevated, and the circulatory transition remains incomplete. Exposure to mechanical ventilation, oxygen variability, and inflammation during this stage disrupts septation and capillary alignment. Because rapid alveolarization occurs later (32–36 wk PMA), structural injury sustained during early transition manifests weeks later as evolving bronchopulmonary dysplasia.

"Exposure to mechanical ventilation, oxygen variability, and inflammation during this stage disrupts septation and capillary alignment. Because rapid alveolarization occurs later (32–36 wk PMA), structural injury sustained during early transition manifests weeks later as evolving bronchopulmonary dysplasia."

Pulmonary immaturity produces intermittent hypoxemia and carbon-dioxide variability that propagate systemic perfusion instability affecting cerebral, renal, and intestinal circulation. Immature ductal smooth muscle contributes to the persistence of the ductus arteriosus. As pulmonary vascular resistance falls toward term PMA, oxygenation stabilizes and hemodynamic variability declines.

Noninvasive distending pressure is commonly continued into late prematurity to support alveolar stability during the transition from saccular to early alveolar development. Although oxygen requirements and work of breathing may improve before term-equivalent age, the preterm lung remains prone to derecruitment due to a compliant chest wall, limited surfactant reserve, and an evolving distal airspace-capillary architecture. Many infants remain on nasal CPAP until approximately 34 weeks PMA to preserve functional residual capacity and reduce cyclic atelectasis while pulmonary mechanics and distal airspace maturation continue.

"Although oxygen requirements and work of breathing may improve before term-equivalent age, the preterm lung remains prone to derecruitment due to a compliant chest wall, limited surfactant reserve, and an evolving distal airspace-capillary architecture."

Brain and Neuroregulatory Maturation:

Between approximately 24–32 weeks of gestation, brainstem and hypothalamic networks regulating respiratory rhythm, arousal, autonomic tone, thermoregulation, and postural control remain structurally and functionally immature. Limited central respiratory drive, impaired chemoreceptor responsiveness, and weak upper-airway motor control produce unstable breathing with periodic apnea, while immature hypothalamic and sympathetic pathways limit vasomotor tone and brown-fat thermogenesis, necessitating external thermal support. Immature central motor organization and reduced flexor tone also impair spontaneous midline posture and physiologic self-regulation.

The preterm brain simultaneously exhibits vascular and white matter vulnerability during this interval. Fragile germinal matrix vasculature predisposes to intraventricular hemorrhage, while pre-oligodendrocytes predominant between approximately 24–32 weeks of gestation are highly susceptible to hypoxia–ischemia and

"Fragile germinal matrix vasculature predisposes to intraventricular hemorrhage, while pre-oligodendrocytes predominant between approximately 24–32 weeks of gestation are highly susceptible to hypoxia–ischemia and inflammation, creating a developmental window for periventricular leukomalacia. Fluctuating cerebral perfusion and oxygenation associated with respiratory and hemodynamic instability, therefore, affect both vascular integrity and white matter maturation."

inflammation, creating a developmental window for periventricular leukomalacia. Fluctuating cerebral perfusion and oxygenation associated with respiratory and hemodynamic instability, therefore, affect both vascular integrity and white matter maturation.

These vulnerabilities define recommended neuroimaging and developmental care practices. Cranial ultrasonography during the first postnatal week and again at 7–14 days targets hemorrhage and early white matter injury. Developmental positioning—nesting, boundary support, and facilitated flexion—provides external containment that supports postural tone development and behavioral state regulation during immature central neuroregulatory function.

At approximately 33–35 weeks PMA, maturation of brainstem respiratory generators and autonomic pathways permits a stable respiratory rhythm, improved arousal responses, effective thermoregulation, and sustained flexed posture. Resolution of apnea and discontinuation of caffeine therapy around 34 weeks PMA reflect maturation of central respiratory control within this neuroregulatory window.

Kidney:

Nephrogenesis and tubular differentiation continue until approximately 34–36 weeks of gestation, rendering the preterm kidney structurally and functionally immature during early transition. Limited sodium reabsorption and relative chloride retention lower the plasma sodium–chloride difference, producing the mild hyperchloremic metabolic acidosis characteristic of prematurity. Immature filtration and autoregulation increase susceptibility to acute kidney injury during systemic instability.

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These features define renal-directed monitoring and pharmacologic adjustment. Reduced glomerular filtration during the first postnatal week necessitates prolonged dosing intervals for renally cleared medications; intervals shorten as clearance matures. Electrolyte monitoring and sodium supplementation reflect maturation of tubular transport within this renal biologic window.

PHASE 2—INTERFACE:

Environmental Interaction and Barrier Maturation (~28–34 wk PMA):

Dominant systems: Skin, Gut–Immune, Retina:

As lung–cardiovascular stability improves, the infant's physiologic interaction with the external environment expands. Organs mediating exchange with that environment—skin, intestine, immune system, and retina—become the principal sites of vulnerability. Care focus shifts toward the regulation of the environmental interface and barrier function.

Skin:

The epidermal barrier develops during the third trimester through keratinization and intercellular lipid deposition. Extremely preterm infants have minimal stratum corneum and high permeability, producing substantial insensible water and heat loss. Because environmental exposure begins immediately at birth while structural immaturity is maximal, cutaneous vulnerability peaks earliest among interface organs. Barrier formation accelerates between approximately 30–34 wk PMA, reducing permeability and stabilizing fluid and thermal balance.

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Gut and Neurointestinal Maturation:

Intestinal epithelial integrity, mucosal immune regulation, enteric nervous system function, smooth-muscle motility, and neurogastrointestinal coordination mature progressively through approximately 28–34 weeks PMA. Preterm birth exposes the intestine to enteral nutrients and microbial colonization while neuromuscular coordination and barrier function remain incomplete, defining the intestinal biologic window.

Neurointestinal motility is most immature in extremely preterm infants (<28 weeks PMA), with weak peristalsis, delayed gastric emptying, and poor coordination of swallowing and breathing. During this stage, feeds are typically minimal and trophic. As feeding volumes advance between approximately 28 and 32

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weeks PMA, while coordination remains incomplete, delayed gastric emptying and ineffective peristalsis become clinically evident as gastric residuals, abdominal distension, and feeding intolerance. Continued maturation after approximately 32–34 weeks PMA permits progressive improvement in gastric emptying and tolerance.

Intestinal epithelial and immune barrier maturation during approximately 28–34 weeks of gestation permits increased interaction with the luminal microbiota. Immature tight-junction integrity and dysregulated inflammatory responses predispose to necrotizing enterocolitis, which typically emerges after several weeks of feeding and colonization and therefore peaks within this biologic window.

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Oral feeding readiness emerges as neurogastrointestinal and neurorespiratory coordination mature during late prematurity. Coordinated sucking, swallowing, and breathing develop primarily between approximately 32 and 34 weeks PMA, with progressive improvement after approximately 34–36 weeks PMA. Supportive feeding therapy practices optimize bolus control while coordination remains incomplete.

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Retina:

Retinal vascularization progresses during 28–40 weeks of gestation under oxygen-regulated signaling. Premature hyperoxia suppresses physiologic angiogenesis early, leaving the peripheral retina avascular. As metabolic demand rises later (~30–34 wk PMA), hypoxia drives pathological neovascularization characteristic of retinopathy of prematurity, peaking at 34–38 wk PMA. An initial retinal examination at approximately 31 wk PMA (4 weeks postnatal age) targets the onset of this proliferative phase.

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PHASE 3—GROWTH ACCRETION:

Nutrient-dependent Construction (~30–36 wk PMA):

Dominant systems: Bone–Mineral, Hematologic, Somatic Growth:

With systemic stability largely achieved and environmental interfaces maturing, development becomes dominated by sustained tissue growth. Organs requiring high substrate supply—bone, hematopoietic system, and somatic tissues—now define vulnerability, and care priorities shift toward ensuring that nutrient supply matches growth demand.

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Bone–Mineral:

Fetal skeletal mineralization accelerates after 28 weeks of gestation. Preterm birth interrupts placental mineral transfer while skeletal growth continues. As growth accelerates after approximately 30–32 wk PMA, mineral requirement exceeds supply and metabolic bone disease emerges. Biochemical screening beginning around 4–6 weeks postnatal age corresponds to the onset of mineral accretion demand within this window.

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Hematologic:

Erythropoiesis transitions to marrow dominance during late gestation. After preterm birth, low erythropoietin production and rapid growth produce anemia of prematurity, with hemoglobin nadir near 32–34 wk PMA. Periodic hemoglobin monitoring during the first 6–8 weeks aligns with this erythroid accretion window.

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Somatic Growth:

Rapid tissue accretion, normally occurring in late gestation, must occur postnatally in preterm infants. Immature anabolic regulation limits early growth; improving nutrition and endocrine maturation toward term PMA increases growth velocity.

PHASE 4 — NEAR-TERM NEUROINTEGRATIVE MATURATION:

Functional Synchronization (~34–40 wk PMA):

Dominant systems: Brainstem–Autonomic–GI Integration:

Near-term equivalent age: organ systems are largely structurally complete, and the dominant developmental task becomes integration. Brainstem respiratory rhythm, autonomic regulation, thermoregulation, postural stability, and neurogastrointestinal coordination converge toward mature function. Vulnerability now reflects incomplete coordination rather than structural immaturity.

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Preterm infants approaching discharge may appear stable supine but may desaturate when positioned semi-upright. Car-seat tolerance testing evaluates this final stage of neurorespiratory integration. Gastroesophageal reflux and feeding discoordination likewise decline during this phase as coordination matures.

CLINICAL MEANING:

The biologic windows framework provides a developmental basis for anticipatory neonatal care. Because organ vulnerability follows maturation rather than chronological age alone, monitoring and management priorities should align with the dominant developmental processes at each PMA. Early transition care emphasizes stabilization of oxygenation, perfusion, and metabolic homeostasis to protect the immature lung, brain, and kidney. As cardiopulmonary stability improves, care shifts toward regulation of environmental interfaces, including thermal balance, feeding progression, microbial exposure, and oxygen stability. With advancing maturation, sustained growth and substrate delivery become central to preventing deficits in mineralization, erythropoiesis, and somatic accretion. Near-term equivalent age, assessment focuses on integrated physiologic competence, including respiratory control, feeding coordination, and autonomic stability before discharge.

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SUMMARY:

Biologic windows of prematurity arise because organ maturation proceeds in parallel during late gestation. Vulnerability shifts with PMA—from systemic stabilization (lung–brain–kidney), to environmental interface (skin–gut–retina), to growth-dependent accretion (bone–hematologic–somatic growth), and finally to neurointegrative maturation near term age. Interpreting prematurity through these sequential biologic windows provides a unified developmental framework linking maturation, disease timing, and neonatal management across the course of prematurity.

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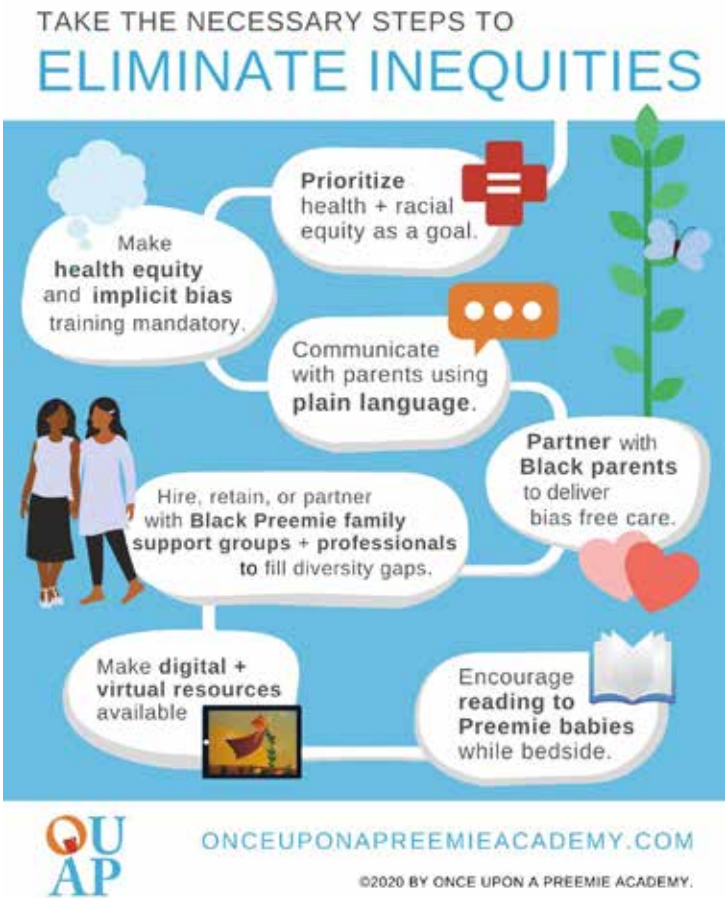
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The Carrington Event: Technology's Achilles' Heel?

Rob Graham, RRT, NRCP

I dedicate this column to the late Dr. Andrew (Andy) Shennan, the founder of the perinatal program at Women's College Hospital (now at Sunnybrook Health Sciences Centre). To my teacher, my mentor and the man I owe my career as it is to, thank you. You have earned your place where there are no hospitals and no NICUs, where all the babies do is laugh and giggle and sleep.

"At 11:18 a.m. on Thursday, September 1, 1859, Richard Carrington observed 2 blinding beads of white light while observing sunspots. Mr. Carrington had the means to build his own private observatory, having found the facilities available at the time inadequate for his needs. He was, at the time, the preeminent expert on solar activity. What he observed is now known as a white light solar flare. Within 5 minutes, the phenomenon had all but disappeared."

At 11:18 a.m. on Thursday, September 1, 1859, Richard Carrington observed 2 blinding beads of white light while observing sunspots. Mr. Carrington had the means to build his own private observatory, having found the facilities available at the time inadequate for his needs. He was, at the time, the preeminent expert on solar activity. What he observed is now known as a white light solar flare. Within 5 minutes, the phenomenon had all but disappeared. He, along with a witness and Robert Hudson (an amateur astronomer observing independently with his own telescope), was the first person to witness a solar flare. What was significant (and unknown to them) was the magnitude of the flare. Usually invisible, only the largest solar flares emit white light visible to the human eye, and what they saw was the largest solar flare in recorded history.

17.4 hours later (1), the coronal mass ejection (CME) they had witnessed produced unprecedented auroras, reaching as far south as Jamaica, and in the southern hemisphere (where the "aurora borealis" is known as the "borealis australis" reached as far north as Santiago, Chile. That is not all. In 1859, when radio had not yet been invented, the telegraph was the only means of instant communication. Since telegraphs were transmitted via wires, when the radio was invented, it was referred to as "the wireless".

Electricity is generated by passing a wire through a magnetic field, and when it reaches telegraph wires, the same electromagnetic field that produces auroras so spectacular they turn night into near daylight creates an inductive current in them. They sparked, some were destroyed, and telegraph operators at the ends of those wires were electrocuted, and although there are reports of some being knocked off their chairs, no fatalities were reported. Some equipment reportedly caught fire (2). Aside from fire halls in cities whose citizens had never seen auroras being flooded with calls, that was the extent of societal disruption in 1859.

"The Carrington Event," named after the man who observed those massive coronal mass ejections, may have been the largest such event in recorded history; but Carbon-14 and nitrate records clearly show it was not the first; may not have been the largest; and it certainly has not been the last (3). A combination of factors set the stage for what was witnessed.

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CMEs happen all the time, more so when the sun is in the most active part of its (primary) 11-year solar cycle and 22-year polar shift cycle (3), yet very few produce significant earthly effects. Think of a CME like a bullet coming from a gun; unless the gun is correctly aimed, the bullet is inconsequential. However, not only does a CME's trajectory have to cross Earth's path, but the orientation of its electromagnetic field (EMF) must also be such that it interacts with Earth's magnetic field (4). The Carrington Event CME's EMF was aligned to produce maximum effect, but if other factors had been perfectly aligned, it could have been worse. The probability of another Carrington-level event is estimated to be very low, but it is nonzero. What is concerning is how much technology has changed since 1859.

Horse-drawn carriages have been replaced by automobiles that are completely dependent on embedded electronics and engine control modules; increasingly, wireless telecommunications and data transmission have replaced hard-wired telegraphs; interconnected electrical distribution grids provide the lifeblood of modern society, and electric vehicles are entirely dependent on them regardless of how the electricity is produced. There is not a single aspect of modern life that is not dependent on electricity, and medicine is no exception. A Carrington-level event today would have far more devastating effects than in 1849 (5).

Four CMEs occurred between August 2nd and 11th, 1972. The one of August 4 reached Earth in 14.6 hours, the fastest transit time on record (the speed at which CMEs travel is one component that determines EMF effects), and was the strongest recorded in the "space age." Even though the solar energetic particle fluence (the total number of particles, primarily protons, electrons, and heavy ions, per unit area that strike a surface during a solar event, measured over a specific time and energy range) was the highest ever recorded, the intensity of the 1972 storms did not exceed disturbance storm time (DST) of -154 nano-Teslas (n-T). (The other factors associated with magnetic storm strength were not ideal.) (6)

On March 13, 1989, another series of CMEs triggered a magnetic storm, the largest recorded during the "space age," with a DST of -710 nT. (The Carrington event is estimated to have had a DST of -1760.) This storm caused power outages in Quebec, Canada, and New Jersey (7). In Quebec, the long stretches of transmission lines carried an induced current that overloaded the system, just as the telegraph wires did in 1859. By 02:45:32, March 13, 1989, the entire Quebec power grid had collapsed, plunging 6 million people into darkness for 9 hours, some for 12. The relative non-conductivity of the Precambrian igneous rock of the Canadian Shield contributed to the magnitude of the induced current in the Quebec grid (8).

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As bad as the 1989 magnetic storm was, it is worth noting that the internet did not become widespread until the 1990s, with full commercialisation coming in 1995. Furthermore, the internet used hard-wired connections since wireless standards did not arrive until 1997. Cellular phones had been available in Canada since 1983, but their size and expense made them impractical for most until much later. Telephones were invariably "landlines" at the time, supported by a robust, hard-wired infrastructure. Personal landlines today are becoming as rare as cell phones were in 1989.

Fast forward to 2026, and cellular phones and the internet have become essential for commerce, personal communication, banking, and shopping. In medicine, complex electronics are behind everything from simple monitors to CT and MRI machines and relatively simple X-rays. The vulnerabilities are as obvious as they are numerous.

Another mechanism could throw modern society into turmoil: an electromagnetic pulse (EMP). On July 9, 1962, at 09:00 UT, the United States conducted the "Starfish Prime" nuclear test, a detonation of a 1.4 megaton nuclear device at approximately 400 km above Earth. In Hawaii, almost 1400 km from the point of detonation, radios failed, streetlights flickered, circuit breakers tripped, and burglary alarms went off. Although far fewer in number than now, satellites in low Earth orbit were damaged or destroyed (9), and a telecommunications relay was damaged (10). This reference also describes a similar test conducted by the Soviet Union.

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By comparison, an EMP could generate an electromagnetic storm with DST of 2000-5000 nT, much larger than the one that collapsed the Quebec power grid. Furthermore, if detonated over the continental U.S., 70% or more of the power grid would immediately collapse (10), and given the grid's interconnectedness, a complete and total collapse is foreseeable. Destroyed equipment could take years to replace, especially since grid collapse in and of itself would cripple short-term manufacturing (10).

Perhaps of greater consequence is the effect of an EMP (or Carrington-level magnetic storm) on semiconductors. Simply put, unshielded devices would be damaged, if not functionally destroyed (11). These devices are indispensable in the modern world. Everything we use in modern life depends on them, or on something that depends on them. The combination of electrical grid collapse and semiconductor destruction would magnify the effects of each. Take, for instance, how the COVID-19 pandemic and supply chain disruptions in chip production and distribution wreaked havoc on automobile manufacturing. Now imagine that not only is every modern vehicle on the road functionally useless (save being pulled behind a horse!), but the chips they rely on cannot be manufactured.

The prospect of an EMP attack is quite likely more plausible than a full-scale nuclear war. There would be little to no warning, no defense, and the attack would cripple a society without killing anyone or destroying buildings. The attacker might well be able

to sit back and wait for what remains of society to destroy itself. The tests have been conducted, the results are known, and the technology exists.

"Critical infrastructure can be protected from both electromagnetic storms and EMPs. Grids are at risk, but surge protection devices and breakers can mitigate damage. Faraday cages will protect vulnerable devices from electromagnetic interference from any source. As well, EMP/magnetic interference-blocking properties can be built into rooms or structures at a cost."

Critical infrastructure can be protected from both electromagnetic storms and EMPs. Grids are at risk, but surge protection devices and breakers can mitigate damage. Faraday cages will protect vulnerable devices from electromagnetic interference from any source. As well, EMP/magnetic interference-blocking properties can be built into rooms or structures at a cost.

It would not be difficult to locate critical equipment in hospitals in central, shielded locations. Even better, protection could be built into the devices themselves. Automobiles could be protected as well, but that is unlikely to occur due to (you guessed it!) cost.

"Money makes the world go round." Given the relatively low chance of a Carrington-level event, the costs associated with immunizing the world against an EMP attack may well result in money making the world stop.

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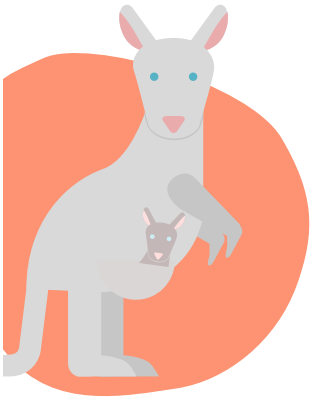
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National Perinatal Association

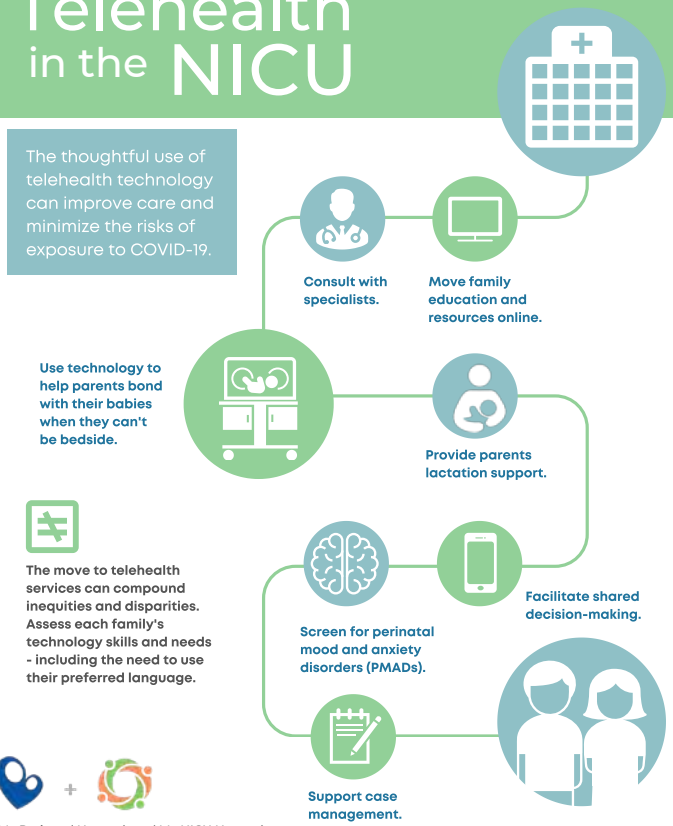
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Neonatal Nurses Conference: National Neonatology Forum of Karnataka State

R. Kishore Kumar, MBBS, DCH (Mysore), MD (Paed, India), FNNF (India), FIAP, DCH (London), MRCP (Paed, U.K.), MRCP (Ireland), FRCPCH (U.K.), Sabbatical at Johns Hopkins (U.S.A.), FRCPI, FRACP (Australia), Management in Healthcare Delivery (Harvard Business School, U.S.A.)

I assumed the post of President of the National Neonatology Forum of Karnataka State (NNF-K), India, in September 2025, after the association had been through a rough patch, at the advice of seniors to get NNF-K back on track. As soon as we took over, we planned to make several academic impacts so that NNF-K would once again be glorious for the reasons it should be. One of the things we planned was a Neonatal Nurses Conference, among others, like NeoSutra—a comprehensive pack of information condensed into 3 slides every week for fellows, post-graduates, nurses, young neonatologists, and a review for senior neonatologists. The Neonatal Nursing conference, though it had been held a couple of times in the past, had never had workshops on one day and the conference the next. We planned 10 workshops across different hospitals across the State to make it easier to cater to most nurses in a State like Karnataka—with 7 workshops in Bangalore and 3 in different parts of the State.

Neonatology is an emerging branch of Medicine in India, as in many parts of the world, with exponential growth over the last 2 decades. We started Cloudnine (a boutique maternal & neonatal care hospital) in 2006, when Bangalore City in South India had only 11 NICUs. Today, in 2026, we have more than 56 NICUs across the city, and they are still growing. Nursing training is not uniform, and nursing accreditation for NICU nurses has just begun, with fellowships for Neonatal Nurses offered by NNF India. However, regular conferences or workshops for them are missing, and many nurses feel they would benefit from them (1, 2). So when we thought of organizing 10 workshops, everyone said we might not have many candidates and that it might not succeed. So we decided that the workshops will go ahead only if we get enough registrations.

We planned to have 20 nurses in each workshop to maintain the required tutor: student ratio. Eventually, we got nearly 75 registrations for many workshops, and we had to find faculty and resources to match that number. In total, we trained 680 nurses across various workshops. The workshops we conducted were as follows (table below):

"In total, we trained 680 nurses across various workshops. The workshops we conducted were as follows (table below):"

Gentle touch, safe skin: Humanized newborn care " workshop	Aster Women & Children Hospital, Bangalore, India.
Zero infection mission: Empowering nurses for a better tomorrow	Indira Gandhi Institute of Child Health, Bangalore, India.
Breath-Easy: Neonatal Non Invasive ventilation made simple.	Manipal Hospital, Old Airport Road, Bangalore, India.
Readiness to care for the little ones	Cloudnine Hospital, Thannisandra, Bangalore, India.
Neonatal Emergency Skills and Effective Communication Workshop for Nurses	Oyster Hospital, Bangalore, India.
Neo transit care: Effective Newborn transport.	JSS Medical College, Mysore, India
Breathe for life: Basic NRP workshop.	Cloudnine Hospital, Old Airport Road, Bangalore, India
Breathe for life: Basic NRP workshop.	KLE Society Hospital, Belgaum, India
Early touch, Lasting impact: Integrating Developmentally Supportive care and Immediate KMC	St. John's Medical College Hospital, Bangalore.
Newborn care 360° Practical Skills for Nurses	Dr. Bahubali Ingale, Karnataka Institute of Medical Sciences (KIMS), Hubballi, India.



Delegates attended each and every workshop, and the take-home message was that we need more such workshops and more often![3]

"With advances in Medicine, we take things for granted – most people look only at doctors' training. Nurses form the backbone of any healthcare system. Their training and education form an integral part of the care we provide. Every country has to focus on nurses' training, especially in emerging fields like neonatal intensive care, robotics, transplantation, and so on. Otherwise, the progress of a country's medical care is at best partial and not complete (4)."

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The nursing conference, held the next day at CDSIMER (Chandramma Dayanand Sagar Institute of Medical Education & Research), Bangalore, was a resounding success. We had 176 nurses registered (as opposed to our aim of 120) because the hall capacity was 180. The hall was full throughout the day, suggesting the interest shown by all delegates.

A State Neonatal Nursing Conference with workshops on this scale, we believe, was organized for the first time in India for this group of nurses and serves as a template for future Presidents and teams to take this further to help improve the training of nurses in their specialties.

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The Indirect Impact of **RSV**

NCfIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two

OVERVIEW



RSV impacts not only infants and young children, but also entire families.

The National Coalition for Infant Health and the Alliance for Patient Access sought to examine the multifaceted burden that RSV places on families and to identify potential policy solutions.

Two surveys were conducted, one of parents who had at least one child contract RSV and one of health care providers who treat infants and children with RSV.

Both surveys were conducted with YouGov, a global public opinion and data company. Parents and providers were recruited from a pool of pre-selected respondents to ensure they met the survey's requirements. Participants received an honorarium.

RSV PARENT SURVEY

340 parents who had at least 1 child sick with RSV



67% of parents said their child was hospitalized for RSV

RSV HEALTH CARE PROVIDER SURVEY

175 health care providers across various pediatric and neonatal subspecialties



67% worked in an outpatient facility

33% worked in a hospital

RESULTS

FINANCIAL BURDEN

More than ⅔ of parents said the costs of RSV posed a financial burden or financial crisis.

7% of parents said they were fired as a result of caring for their child with RSV.

32% of parents reported losing potential income while their child had RSV.

EMOTIONAL BURDEN

68% of parents said watching their child suffer affected their mental health.

69% of parents felt guilty that they could not do more to prevent their child's RSV.

When parents found out there was no treatment for RSV, only supportive care:

- **48%** felt angry
- **46%** felt helpless

SOCIAL BURDEN

43% of parents had never heard of RSV before finding out their child was sick.

54% of parents had to rely on family and friends for sibling care, transportation and other responsibilities.

42% of parents said they struggled to care for their other children when one faced RSV.

RESULTS

PARENT EDUCATION & AWARENESS

86% of providers said they include RSV education as part of routine care.

99% of providers agreed that parents need more information about RSV.

TREATMENT CHALLENGES

Nearly ⅓ of providers have been reluctant to test for RSV because no treatment exists.

48% of providers said it was difficult to decide whether to send an infant or child with RSV to the emergency room.

92% agreed that if an immunization were available, it should be added to the Vaccines for Children program's list of pediatric vaccines.

MISCONCEPTIONS

A majority of providers (60%) explained that around 50% or more of the babies they see hospitalized for RSV were born healthy, despite many people thinking severe RSV only impacts premature infants or those with preexisting conditions.

CONCLUSION

Both surveys highlighted that the burden of RSV extends well beyond its physical symptoms.

The virus may lead to:

- **Long-lasting health challenges** for babies and young children
- **Financial, social and emotional burdens** for families
- **Frustration for providers,** who lack a cure or viable preventive interventions

This burden is not experienced by the few. Most infants and children contract RSV by the time they are two, and challenges that accompany RSV may impact anyone who has been affected.

Moving forward, the many burdens of RSV demonstrate the need for:

- **More RSV education**
- **Research and innovation** for preventive interventions
- **Access to prevention and treatment** for all babies and children

The challenges caused by RSV can reach far and wide, and its indirect impacts often leave families struggling.

infanthealth.org

Peer Reviewed

Loyalty Versus Leverage: Does Staying Too Long Limit Leadership Growth?

Rody Azar, MHA, RRT-NPS, FAARC

"This article explores the dual-edged nature of leadership longevity, examining when loyalty becomes leverage and when it begins to constrain it."

Abstract:

In an era where career mobility is often equated with ambition, many leaders find themselves quietly asking a puzzling question: Does staying with the same company for over 15 years reflect strength, or signal stagnation? Long tenure can build deep trust, institutional knowledge, and influence that cannot be replicated externally. However, it may also limit exposure, reduce adaptability, and create invisible ceilings on growth. This article explores the dual-edged nature of leadership longevity, examining when loyalty becomes leverage and when it begins to constrain it. Leaders who remain in one organization for extended periods must confront a critical challenge: are they continuing to evolve, or simply becoming more comfortable within a familiar system?

Introduction:

The Comfort of Staying, and the Cost:

There is a quiet prestige associated with long tenure. Leaders who spend 15 or more years within the same organization are often viewed as pillars of stability, individuals who have navigated change, built relationships, and contributed meaningfully to sustained performance. In many industries, particularly healthcare and medical devices, continuity of leadership can be a strategic advantage.

However, the modern leadership landscape is shifting. Agility, cross-industry thinking, and external benchmarking are increasingly valued. Organizations are evolving faster than ever, and their leaders must evolve even faster. The question is no longer whether long tenure is good or bad; it is whether it actively enables growth or subtly limits it.

The Power of Loyalty: When Staying Builds Strategic Advantage:

Leaders who remain with one organization over an extended period accumulate a form of capital that is difficult to replicate: institutional intelligence. This includes not only knowledge of systems and processes but also a deep understanding of people, culture, and informal networks that drive real decision-making.

This depth of understanding allows long-tenured leaders to move faster and with greater precision. They can anticipate resistance, align stakeholders efficiently, and execute with a level of confidence that newer leaders often lack. Trust, once earned over years, becomes a powerful accelerant.

Research supports this advantage. Studies on leadership tenure indicate that longer-serving leaders often demonstrate stronger internal influence and are more effective at navigating organizational complexity. Their credibility is not theoretical; it is earned through consistent delivery over time.

Additionally, loyalty can signal stability. In industries where relationships matter, such as healthcare, this consistency builds confidence among customers, partners, and internal teams. Leaders who have "been there" through multiple cycles are often seen as reliable anchors during periods of uncertainty.

However, this strength contains the seeds of its own limitation.

"Studies on leadership tenure indicate that longer-serving leaders often demonstrate stronger internal influence and are more effective at navigating organizational complexity. Their credibility is not theoretical; it is earned through consistent delivery over time."

The Risk of Familiarity: When Strength Becomes Constraint.

Over time, familiarity can evolve into invisibility. The same leader who once stood out for their contributions may begin to blend into the organizational fabric. Their ideas, once seen as innovative, may be perceived as expected.

This phenomenon is often referred to as familiarity bias, the tendency to undervalue what is consistently present. Leaders who have spent many years within one company may find that their internal market value does not fully reflect their actual capabilities.

More importantly, long tenure can lead to cognitive narrowing. Without exposure to different business models, competitive strategies, or cultural environments, leaders risk developing a limited frame of reference. They may unknowingly reinforce existing assumptions rather than challenge them.

Innovation requires friction, innovative ideas, diverse perspectives, and a willingness to question the status quo. Leaders who remain in the same system for too long must intentionally work to avoid becoming products of that system rather than drivers of its

evolution.

The External Benchmark Gap:

One of the most significant risks of long tenure is the gradual loss of external calibration. Leaders who build their careers within a single organization may lack visibility into how their performance, compensation, and leadership style compare to the broader market.

"One of the most significant risks of long tenure is the gradual loss of external calibration. Leaders who build their careers within a single organization may lack visibility into how their performance, compensation, and leadership style compare to the broader market."

This gap can manifest in several ways. Compensation may plateau without the leader realizing their external value has increased. Leadership practices may become outdated relative to industry trends. Strategic thinking may remain internally optimized but externally misaligned.

External moves often force leaders to re-evaluate and expand their capabilities. They introduce new challenges, unfamiliar environments, and different expectations. Without these experiences, leaders must proactively seek alternative ways to stay calibrated through executive education, cross-industry networking, or exposure to external benchmarks.

The Identity Trap: When the Organization Defines the Leader:

After 15 or more years at one company, a leader's identity can become deeply intertwined with the organization. Their reputation, relationships, and sense of purpose are often intricately linked to their role within that specific context.

While this alignment can be powerful, it can also become restrictive. Leaders may begin to define their success primarily in terms of internal recognition rather than broader impact. They may hesitate to take risks that could disrupt their established position.

This creates an identity trap, a situation in which the leader's sense of self is so closely tied to the organization that it limits their willingness to explore new opportunities or challenge existing norms.

Breaking free from this trap does not necessarily require leaving the organization. However, it does require a deliberate effort to separate personal growth from organizational tenure.

Leverage vs. Loyalty: Reframing the Decision:

The central question is not whether leaders should stay or leave. It is whether they are using their tenure as leverage.

Leverage, in this context, means actively expanding scope, influence, and impact. It involves seeking out new challenges, driving transformation, and continuously redefining one's role within the organization.

Leaders who successfully leverage long tenure often do several things differently. They avoid becoming overly comfortable in their current position. They actively seek feedback from outside their immediate environment. They pursue opportunities that stretch their capabilities, even if those opportunities carry risk.

In contrast, leaders who rely solely on loyalty may find themselves in a holding pattern, valued but not advancing, respected but not challenged.

***Strategies to Sustain Growth Without Leaving*:**

For leaders who choose to remain within the same organization, sustained growth requires intentionality. It is not enough to perform well within an existing role; leaders must actively create new dimensions of impact.

"Leaders who successfully leverage long tenure often do several things differently. They avoid becoming overly comfortable in their current position. They actively seek feedback from outside their immediate environment. They pursue opportunities that stretch their capabilities, even if those opportunities carry risk."

One approach is to rotate perspectives rather than positions. This approach can involve taking on cross-functional initiatives, leading global projects, or assuming roles that require diverse skill sets. Even within the same company, these experiences can provide the diversity of thought typically gained through external moves.

Another strategy is to build external exposure. This approach includes participating in industry forums, engaging with peers across organizations, and staying connected to broader market trends. These interactions serve as a critical counterbalance to internal focus.

Leaders must also commit to continuous learning. Executive education, leadership coaching, and structured reflection can help maintain a growth mindset and prevent stagnation.

Most importantly, leaders should repeatedly ask themselves a simple but powerful question: If I were entering this organization today, what would I do differently? The answer often reveals opportunities for reinvention that might otherwise go unnoticed.

The Organizational Responsibility:

While much of the responsibility lies with the individual leader, organizations also play a critical role. Companies that value

long-tenured leaders must actively invest in their continued development.

This includes providing opportunities for role expansion, encouraging cross-functional movement, and creating pathways for innovation. Organizations should also be mindful of the risk of under-leveraging their most experienced leaders, failing to utilize the depth of knowledge and capability they possess fully.

Leaders who feel challenged and valued are far more likely to continue contributing at an elevated level. Those who feel stagnant, regardless of tenure, are more likely to disengage.

"While much of the responsibility lies with the individual leader, organizations also play a critical role. Companies that value long-tenured leaders must actively invest in their continued development."

Conclusion:

The Leadership Challenge:

Staying with the same company for over 15 years is neither inherently good nor inherently limiting; it is a platform. One that can either accelerate a leader's impact or quietly constrain it over time.

For many leaders, long tenure creates a powerful advantage. It builds trust, sharpens institutional understanding, and enables influence at a level that cannot be replicated externally. When leveraged effectively, this depth allows leaders to move faster, think more strategically, and drive meaningful changes across the organization.

However, the same tenure can also introduce risk. Familiarity can replace challenges, stability can reduce urgency, and growth can gradually shift from expansion to maintenance. Without intentional effort, leaders may find themselves relying more on past success than actively pursuing new capability.

The critical distinction lies in how tenure is used.

Leaders who continue to grow within the same organization do so deliberately. They seek new challenges, expose themselves to external perspectives, and consistently redefine their role to increase impact. They treat tenure not as a destination, but as leverage, something to be actively deployed rather than passively accumulated.

"Leadership is not defined by how long you stay; it is defined by how you continue to grow while you are there."

At the same time, leaders must be willing to assess their trajectory with honesty. If opportunities for growth, influence, or learning begin to plateau, it becomes essential to question whether staying is still serving their development. Loyalty is valuable, but it should never replace evolution.

Leadership is not defined by how long you stay; it is defined by how you continue to grow while you are there.

Challenge Question:

Are you leveraging your tenure to expand your impact, or has your comfort within the organization begun to define your limits?

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With over 20 years of leadership experience, Rody Azar has built a distinguished track record of driving performance, accelerating growth, and developing high-performing teams. He is widely recognized for his ability to align strategy, execution, and people development to deliver measurable business results. A staunch believer in servant leadership, Rody is passionate about fostering strong, trust-based relationships and cultivating cultures of accountability, engagement, and continuous improvement.

Rody is deeply committed to talent development and human asset optimization, consistently emphasizing the critical role of effective people leadership in achieving sustainable success. Throughout his career, he has successfully coached and promoted leaders into pivotal mid-management and senior leadership roles, directly contributing to organizational performance and long-term shareholder value.

Currently, Rody serves as Vice President of Sales and Clinical at a leading medical device manufacturing company in Orange County, California, where he leads commercial strategy and field execution. In parallel, he holds a Global Sales Enablement leadership role, driving initiatives focused on sales effectiveness, capability development, operational excellence, and scalable performance frameworks across the MENAT, JAPAC, EU, and the US regions.

In addition to his corporate leadership responsibilities, Rody is an Organizational Leadership Coach and a faculty member in clinical education, as a proud Fellow of the American Association for Respiratory Care (AARC), a member of the American College of Healthcare Executives (ACHE), and the California Society for Respiratory Care (CSRC). He is also an author of the CSRC Law and Professional Ethics Course for the 2026–2029 cycle, reflecting his continued commitment to advancing professional standards, ethical practice, and leadership within healthcare.

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Event Schedule:
6:00 p.m.- 7:00 p.m.: Networking/Social Hour/Visit the Exhibitors
7:00 p.m.- 9:00 p.m.: Film screening, Dinner and Lecture



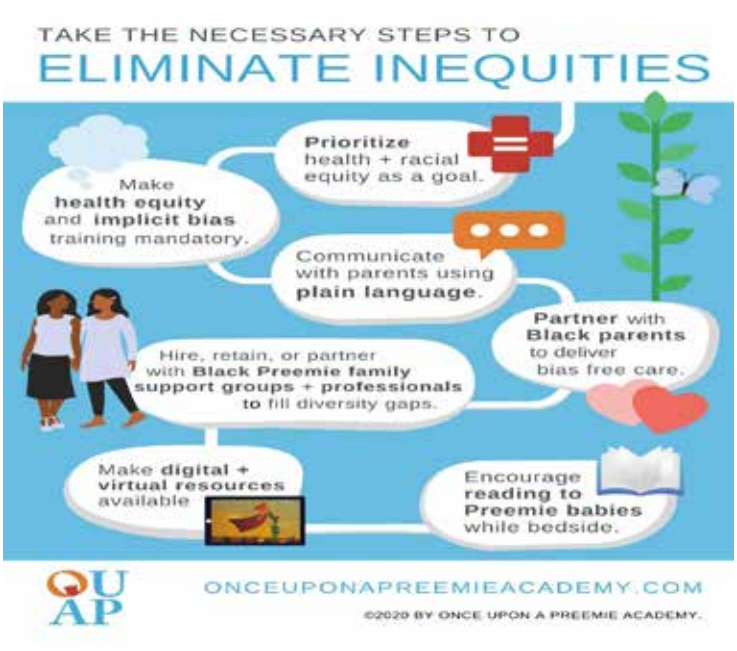
Devorah Herbert
Filmmaker, Founding Partner of The California Perinatal Wellness Alliance



Sinmi Bamgbose, MD
Assistant Professor of Psychiatry at Cedars-Sinai Medical Center



Eynav Accortt, Ph.D
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SYSTEMS THINKING IN COMPLEX ADAPTIVE SYSTEMS

- Are the baby and family central to the mission, values, environment, practice & care delivery of IFCDC in the unit?
- Are the parents of each baby fully integrated into the team and treated as essential partners in decision-making and care of the infant?
- What are the strategies and measurements used to improve and sustain IFCDC in the unit?

POSITIONING & TOUCH FOR THE NEWBORN

- Are the positioning plans therapeutic and individualized, given the care needs and development of the baby?
- Are the positioning and touch guidelines continually reviewed by the team, including the parents, and adapted to meet the changing comfort needs of the baby?

SLEEP AND AROUSAL INTERVENTIONS FOR THE NEWBORN

- Can the team confidently describe the "voice" or behavioral communication of the baby?
- Are the baby's unique patterns of rest, sleep, and activity documented by the team and protected in the plan of care?

SKIN-TO-SKIN CONTACT WITH INTIMATE FAMILY MEMBERS

- Is the practice of skin-to-skin contact supported and adjusted to the comfort needs of each baby, parent, & family member?
- Are the parents & family members supported to interact with the baby to calm, soothe, & connect?

REDUCING AND MANAGING PAIN AND STRESS IN NEWBORNS AND FAMILIES

- Are parents supported to be present and interactive during stressful procedures to provide non-pharmacologic comfort measures for the baby?
- Are there sufficient specialty professionals to support the wellbeing of the team, including parents, families, and staff? Examples include mental health, social, cultural, & spiritual specialists.

MANAGEMENT OF FEEDING, EATING AND NUTRITION DELIVERY

- Are the desires of the m/other central to the feeding plan? Is this consistently reflected in documentation with input of the m/other?
- Does the feeding management plan demonstrate a feeding & nutrition continuum from in-hospital care through the transition to home & home care?

WANT TO KNOW MORE ABOUT THE STANDARDS AND RECOMMENDATIONS? VISIT: HTTPS://NICUDESIGN.ND.EDU/NICU-CARE-STANDARDS/

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The Gravens Conference
on the Environment of Care for High Risk Newborns

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SENSITIVE ISSUES IN SENSATIONAL TIMES

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Have questions? Please email:

Christie Lawrence
(Christie_Lawrence@rush.edu
Kelly McGlothen-Bell
(mcglothen@uthscsa.edu))

Ethics and Wellness: Ignore the Man Behind the Curtain: Rethinking Influence and Credit in Neonatology

Mitchell Goldstein, MD, MBA, CML, T. Allen Merritt, MD, MHA, MBA

"Most of us first encountered the phrase 'ignore the man behind the curtain' in The Wizard of Oz. It has endured because it captures something deeply human: the tension between perceived authority and the often-unseen forces that truly drive change. In modern usage, it has come to represent hidden influencers-those individuals or systems quietly shaping outcomes while others stand at the podium."

Most of us first encountered the phrase "ignore the man behind the curtain" in The Wizard of Oz. It has endured because it captures something deeply human: the tension between perceived authority and the often-unseen forces that truly drive change. In modern usage, it has come to represent hidden influencers—those individuals or systems quietly shaping outcomes while others stand at the podium.

"In Neonatal/Perinatal Medicine, change rarely arrives fully formed from a single, visible source. Protocols evolve, practices shift, and innovations take hold through a complex interplay of bedside observations, iterative trials, interdisciplinary collaboration, and, yes, advocacy."

Neonatology is not immune to this dynamic. In fact, it may be particularly susceptible to it.

In Neonatal/Perinatal Medicine, change rarely arrives fully formed from a single, visible source. Protocols evolve, practices shift, and innovations take hold through a complex interplay of bedside observations, iterative trials, interdisciplinary collaboration, and, yes, advocacy. Yet, the individuals most visibly associated with these advances, those delivering keynote lectures, publishing landmark papers, or shaping guidelines-are not always the ones who first sparked the idea or labored through its early uncertain stages or uncharted waters.

"Behind many of our most meaningful advances are quieter contributors: the clinician who questioned a routine practice, the respiratory therapist who refined a technique, the nurse who recognized a pattern before it was measurable, the junior investigator who drafted the first version of a now widely accepted protocol."

Behind many of our most meaningful advances are quieter contributors: the clinician who questioned a routine practice, the respiratory therapist who refined a technique, the nurse who recognized a pattern before it was measurable, the junior investigator who drafted the first version of a now widely accepted protocol. These are the individuals working "behind the curtain," often without recognition, yet essential to progress. Similarly, in the laboratory, an astute technician refines a technique or makes an association not conceived by the laboratory director.

Today, our younger colleagues might frame this conversation differently. They speak of "influencers," individuals who can amplify ideas, attract attention, and increasingly monetize visibility. Neonatology has its own version of this phenomenon. Some voices command attention, shape discourse, and accelerate the dissemination of ideas. This influence is not inherently problematic; in many cases, it is necessary. Good ideas require advocates to gain acceptance and reach scale.

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Nevertheless, influence without attribution raises important questions.

"There are also those whose contributions remain obscured for more complicated reasons. Some are affiliated with industry and are therefore viewed through the lens of conflict of interest, regardless of the validity of their insights. Others lack the resources, institutional backing, or geographic positioning to bring their ideas to publication or widespread adoption."

There are also those whose contributions remain obscured for more complicated reasons. Some are affiliated with industry and are therefore viewed through the lens of conflict of interest, regardless of the validity of their insights. Others lack the resources, institutional backing, or geographic positioning to bring their ideas to publication or widespread adoption. Still others operate within systems where politics, hierarchy, or limited opportunity constrain visibility or actually suppress it.

The result is a layered ecosystem of innovation, visible and invisible, credited and uncredited. So what, then, should matter most?

"In the final analysis, it is not the origin of a new treatment or technique story that saves a life, reduces morbidity, or improves neurodevelopmental outcomes. It is the successful translation of an idea into practice. If an insight, regardless of where it began, reaches the bedside and benefits even a single infant, it has achieved its highest purpose."

In the final analysis, it is not the origin of a new treatment or technique story that saves a life, reduces morbidity, or improves neurodevelopmental outcomes. It is the successful translation of an idea into practice. If an insight, regardless of where it began, reaches the bedside and benefits even a single infant, it has achieved its highest purpose.

This is not to suggest that credit is unimportant. On the contrary, proper attribution fosters trust, encourages collaboration, and sustains the academic integrity upon which Neonatal/Perinatal medicine depends. However, attribution alone is insufficient. We must also be discerning about whose voices we elevate and why.

If we extend the metaphor, perhaps it is time to redefine our "wizards." The true wizards of neonatology are not those who appear powerful, but those who effectuate meaningful, measurable change. They are the individuals-visible or not-who move an idea from concept to care.

"Furthermore, here lies the uncomfortable truth: it is entirely possible to be a highly visible, widely respected neonatologist and yet contribute little to meaningful change."

Furthermore, here lies the uncomfortable truth: it is entirely possible to be a highly visible, widely respected neonatologist and yet contribute little to meaningful change. In that sense, we may have to paraphrase some very good neonatologists who are, in effect, "bad wizards."

Our responsibility, as a field, is twofold: first, to more thoughtfully acknowledge the full spectrum of contributors who like, Vivien Thomas, Rosalind Franklin, and Gertrude Elion, faced overwhelming odds to bring positive change to the field of medicine. Second, to identify and support the "good wizards," those whose influence, whether quiet or amplified, consistently advances the care of our most vulnerable patients.

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Because in the end, legacy may not be as important as the outcome to the infant progressing down the yellow brick road.

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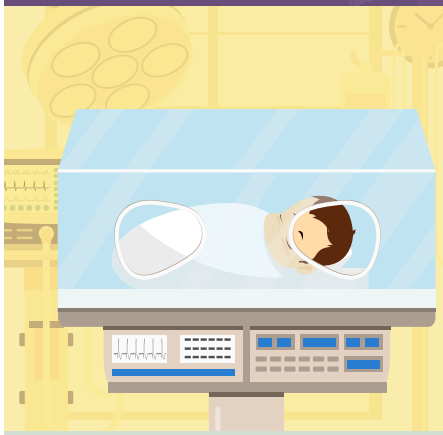
Hemolytic Disease of the Fetus & Newborn

DID YOU KNOW?

Hemolytic disease of the fetus & newborn is a rare blood disorder.

When the mother's and infant's blood types are incompatible, the mother's antibodies attack the baby's red blood cells.





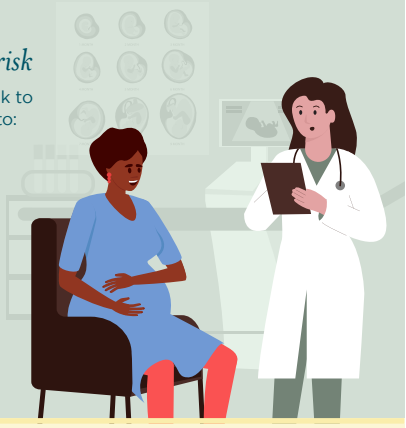
HDFN can lead to:

- **Severe anemia**
- **Jaundice**
- Fetal or infant **death**

To reduce their baby's risk

pregnant mothers should talk to their health care provider to:

- **Identify** potential blood incompatibilities
- **Monitor** the baby
- **Treat** the condition if it occurs



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If their baby was born **preterm or the birth was traumatic,** their risk of postpartum depression and PTSD increases



Signs and symptoms a father may be struggling include:



Mood swings



Trouble sleeping



Anger



Withdrawing from family and friends



Difficulty bonding with their baby

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Reduce stigma



Help dads recognize the symptoms



Eliminate barriers to screening and treatment

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Beyond the Incubator: Growing a Culture of Interdependent Safety

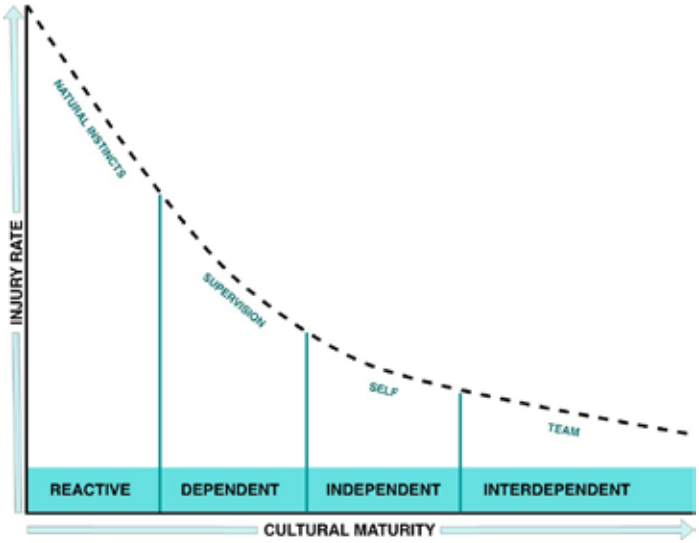
Colonel Robert Erick Ridout, MD U.S. Army, Retired

Over the past 18 years, our Neonatal Intensive Care Unit (NICU) has pursued a singular mission: to provide care entirely free of harm and focused exclusively on adding value to our patients, their families, and our caregivers. This journey led to the creation of POKE—a team-based, patient-centered ecosystem where every member is empowered to surface safety concerns, eliminate waste, and ensure that everyone involved feels safe, valued, and loved. Central to this mission is a culture of total accountability. We expect every team member to be 100% accountable for their own actions and 100% accountable for those working to their left and right (1, 2). This radical interdependence is the only way to ensure that our patients only ever experience care that adds true value. To guide our progress, we adopted the Bradley Curve, a model developed at DuPont in the early 1990s (3). This framework allowed us to map our cultural evolution from a Reactive state toward true interdependence. The following discussion explores the genesis of the Bradley Curve (Figure), its integration of Stephen Covey›s principles of human maturity, and how we have applied this model within our NICU to sustain a world-class safety culture where the interval between never events, like CLABSI, is not measured in weeks but decades.

"Central to this mission is a culture of total accountability. We expect every team member to be 100% accountable for their own actions and 100% accountable for those working to their left and right. This radical interdependence is the only way to ensure that our patients only ever experience care that adds true value. To guide our progress, we adopted the Bradley Curve, a model developed at DuPont in the early 1990s."

Edgar S. "Ed" Woolard, Jr., an industrial engineer who joined DuPont in 1957, rose through the ranks to become Chief Executive Officer in 1989 (4). He inherited an industrial juggernaut that manufactured the essential materials of the modern world, including Kevlar, Nomex, Lycra, and Nylon, as well as pervasive products like Teflon, Corian, Mylar, and the refrigerants that heat and cool most structures (5). With the recent acquisition of Conoco, DuPont had become a vertically integrated powerhouse, capable of extracting the raw petroleum required to produce its own chemicals and fibers. As CEO, Woolard was responsible

Figure. Bradley Curve. Stages of a mature safety culture.



for an incredibly complex organization operating across high-risk environments, including petroleum extraction, chemical manufacturing, and high-precision laboratory research. He quickly recognized that a single, standardized safety rulebook could not adequately address such diverse risks. Furthermore, he noted that DuPont›s safety performance had hit a plateau; despite having some of the most rigorous protocols in the world, injury frequency rates had stopped declining. Woolard realized that traditional, top-down "command and control" methods had reached their limit and would never achieve the safety future that the organization sought and its employees deserved (1, 6).

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In 1993, internal discussions at DuPont intensified as leadership recognized that the "command and control" safety model had reached a point of diminishing returns. Despite rigorous protocols, the stagnation in safety performance meant that both employees and the organization were still suffering preventable harm. Seeking a breakthrough, Woolard chartered the Discovery Group in 1994 with a clear mandate: identify the specific factors that differentiated DuPont›s "best of the best" plants from the rest of the organization (7). From 1994 to 1995, the Group conducted

extensive ethnographic research, interviewing thousands of employees across DuPont›s global operations to surface the underlying cultural and psychological drivers of safety. In 1995, the Group codified these findings into the Bradley Curve (Figure), named after Discovery Group member and DuPont engineer Vernon Bradley. To fully understand the genius of the Curve, however, one must first review the influence of Stephen Covey›s *The 7 Habits of Highly Effective People* (8). Published in 1989, Covey›s work was at the height of its popularity during this period and provided the essential framework for the Discovery Group's analysis of its findings and for defining the stages of a mature safety culture.

Covey's 7 Habits defines a "Maturity Continuum" through which an individual evolves from Dependence (relying on external control) to Independence (achieving self-mastery), and ultimately to interdependence (attaining collaborative success). The first three habits focus exclusively on developing this self-mastery. Critically, one cannot become a reliable, interdependent team member until they are first independently successful and reliable.

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Habit 1: Be Proactive. Values rather than circumstances drive proactive individuals. They recognize that while they cannot always influence what happens to them, they have absolute control over how they respond. By focusing their energy on the things they can influence, they move from being reactive to being responsible.

Habit 2: Begin with the End in Mind. This habit is based on the principle that all things are created twice: first as a mental creation (a vision or plan) and second as a physical creation (the actual result). It is the habit of personal leadership, requiring one to ask, «What do I want to achieve?" before bringing that vision into reality.

Habit 3: Put First Things First. If Habit 2 is the vision, Habit 3 is the execution. It involves organizing and implementing life around one›s most important priorities—doing the right things with excellence. Collectively, Habits 1 through 3 represent the "Private Victory," providing the essential foundation for moving from a state of Dependence to true Independence (Self-Mastery).

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Habit 4: Think Win-Win. This is the habit of effective interpersonal leadership. It seeks mutual benefit in every interaction, ensuring that all parties feel successful and committed to the outcome. Rooted in an "abundance mindset," it rejects the idea that one person›s success must come at another›s expense. This habit requires high character and maturity: the ability to be crystal clear about one›s own needs while remaining equally committed to others' needs.

Habit 5: Seek First to Understand, Then to be Understood. This is the practice of empathetic listening and a powerful catalyst for trust and conflict resolution. By prioritizing the understanding of another person›s perspective before advocating for one's own, a clinician creates a safe environment. When a person feels truly understood, they become significantly more open to understanding others' ideas and concerns.

Habit 6: Synergize. Synergy is the culmination of the previous habits, where a team discovers and achieves far greater results than any individual could alone. The foundation of synergy is valuing differences—seeing them as opportunities for discovery rather than obstacles. In a high-trust, synergistic system, team members feel safe being vulnerable; they openly share ideas, raise safety concerns, and build upon one another's findings to reach a higher level of care.

Finally, **Habit 7: Sharpen the Saw** focuses on renewal. It is a commitment to continuous improvement that sustains the gains made in Habits 1 through 6. In a high-stakes environment like the NICU, this habit is the safeguard that prevents cultural regression back toward a Reactive state, ensuring the ecosystem remains healthy, resilient, and effective.

Rather than issuing a standard memo or a new set of rules, DuPont›s Discovery Group launched a fundamental shift in leadership philosophy, moving from "command and control" management to a coaching-based model. By utilizing the 7 Habits as a framework,

"This gamble forces the receiver to decipher the urgency of the situation, a cognitive burden that often leads to catastrophic delays in care. The NICU represents a unique clinical environment where the 'Hint and Hope' gamble carries disproportionate risks. Neonates are physiologically fragile, with little physiological reserve to compensate for delayed intervention."

they transitioned the global workforce through the stages of the Bradley Curve. To move employees from the Dependent stage—where compliance was driven by a fear of punishment—to the Independent stage—where individuals personally valued safety—the rollout focused on Habits 1 through 3. Habit 1 (Be Proactive): Every employee, regardless of rank, was empowered with the authority to "stop the line" for any perceived safety risk (akin to Pulling the Andon Cord in the Toyota Production System) (9, 10). This shifted responsibility from the supervisor to the individual (closest to the work). Habit 2 (Begin with the End in Mind): Employees were encouraged to develop personal safety goals that extended to their families and homes. By making safety a life value rather than a work rule, they created a personal "vision" for well-being. Habit 3 (Put First Things First): DuPont implemented "pre-job briefings" before high-risk activities. This established a "preoccupation with failure" that prioritized safety protocols over production throughput (11). The most challenging phase was nudging 140,000 employees into the Interdependent stage, where a high-trust culture ensured everyone looked out for one another. Habit 4 (Think Win-Win): The focus shifted to developing a Just Culture (12). Recognizing that punishing individuals for "near misses" only suppresses reporting and learning, which can lead to future catastrophe, the Group redefined the "Win" as the praise and recognition received for surfacing a latent failure before it caused harm (13).

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Habit 5 (Seek First to Understand): DuPont implemented the STOP (Safety Training Observation Program). Staff were trained to observe a colleague and listen to their reasoning before offering a correction, thereby reducing defensiveness and building mutual trust. Habit 6 (Synergize): Top-down dictates were replaced by decentralized safety committees. By bringing diverse skill sets together at the GEMBA (the place where the work happens), the organization developed synergistic solutions to complex risks. At the core of this transformation was Visible Felt Leadership, championed by Ed Woolard (14). VFL served as the practical application of interdependence through three key principles: Visibility: Leaders must be present where the work happens. Felt Commitment: Staff must "feel" that the leader cares more about their well-being than the metrics. Personal Responsibility: Leadership is not a rank; it is an action taken by every team member to keep those to their left and right safe. To prevent a regression to a reactive posture, the rollout included a continuous renewal loop (Habit 7). Safety audits were reframed from "gotcha" moments into opportunities to learn and share findings. Furthermore, the definition of safety was expanded holistically to include the total well-being of every individual. Through this maturity process, the Discovery Group successfully nudged the organization toward true interdependence, committing to a continuous investment in every team member, both personally and professionally.

A few examples of steps we took to achieve our goal of care delivery in the NICU free from harm:

1. RNC-NICU: A critical driver in our unit's migration down the Bradley Curve has been our strategic focus on ensuring that every nurse achieves RNC-NICU certification (15, 16). This pursuit of clinical excellence serves as the professional bridge between the Independent and Interdependent stages of safety culture. Through Mastery (an Essential Nutrient of Self-Determination Theory) of the specialized neonatal knowledge required for certification, our nurses move beyond the "Dependent" stage of simply following hospital protocols and into a state of Independence (the Private Victory) (17). A certified nurse possesses the "intellectual capital" and clinical confidence to move from being a reactive participant to a proactive leader who can effectively "Stop the Line" when a safety risk is perceived. Furthermore, this collective elevation of expertise fosters the high-trust environment necessary for true interdependence (the Public Victory). When the entire multidisciplinary team—from the neonatologist to the bedside nurse—recognizes a shared, validated baseline of advanced expertise, the level of Synergy (Habit 6) increases dramatically. The result is a POKE ecosystem where 100% accountability is not just a mandate but a natural byproduct of a team that is "Sharpening the Saw" together, ensuring that our care delivery remains free from harm, relentlessly adds value, and is evidence-based.

"A critical driver in our unit's migration down the Bradley Curve has been our strategic focus on ensuring that every nurse achieves RNC-NICU certification."

2. Huddles: The team-based huddle is the operational heartbeat of the Interdependent stage. If the Bradley Curve defines the *where* of safety culture, the daily huddle is the *how*—the vehicle that moves a unit from individual excellence

(Independence) to collective reliability (Interdependence). In our NICU, the huddle serves as a twice-daily, high-frequency "reset" that keeps the entire multidisciplinary team aligned by operationalizing Covey›s Habit 2: Begin with the End in Mind (The Shared Mental Model of patients and caregivers only ever experiencing care delivery that adds value) (18). In the Independent stage, a nurse or physician develops a plan of care for their patients. In the Interdependent stage, the entire team contributes to a patient-centered, family-focused, team-based plan of care (referenced in the August 2025 column as "Leveraging the Genius at the Bedside") (22). The Huddle Impact: By gathering the MD, RN, RT, and other members of the care team, we "create the day twice"—first mentally during the huddle, then physically through care delivery.

"In the Interdependent stage, the entire team contributes to a patient-centered, family-focused, team-based plan of care... The Huddle Impact: By gathering the MD, RN, RT, and other members of the care team, we 'create the day twice'—first mentally during the huddle, then physically through care delivery."

By remaining preoccupied with potential failure, we visualize potential challenges, such as tenuous IV access, worsening respiratory failure, or the impending delivery of extremely low birth weight multiples, and ensure role clarity before the crisis occurs (19). Bradley Curve Shift: This shifts the unit away from Reactive "firefighting" and into a proactive stance where the shared "End in Mind" is a shift entirely towards care delivery free from harm. Next, we consider Habit 5: Seek First to Understand. The huddle provides the structured space necessary for Habit 5 to ensure a shared mental model for how we will keep the babies safe today. The Huddle Impact: It flattens the hierarchy and cultivates a culture of psychological safety in which all contribute freely and expect their input to be heard and valued (20). Bradley Curve Shift: This builds the psychological trust essential for interdependence. When staff feel consistently heard during the huddle, they are significantly more likely to speak up at the bedside (cultivating psychological safety) (21). Habit 6: Synergize (The Public Victory). Synergy represents the "Public Victory" where the collective whole is greater than the sum of its parts (1+1=3). Bradley Curve Shift: This is the pinnacle of the Curve. The team realizes they are safer together than they are alone, moving from "I am responsible for my patients" to "We are 100% accountable for every baby in this unit." (No more, "Not my patient.") 4. The Huddle as "Stop the Line" Preparation. The huddle unleashes the psychological safety required to effectively "Stop the Line" (Habit 1). By discussing risks openly in the low-stakes environment of a huddle, it becomes much more natural for a bedside team member to voice that they are Concerned, Uncomfortable, or have a Safety concern (18).

"By remaining preoccupied with potential failure, we visualize potential challenges, such as tenuous IV access, worsening respiratory failure, or the impending delivery of extremely low birth weight multiples, and ensure role clarity before the crisis occurs. Bradley Curve Shift: This shifts the unit away from Reactive 'firefighting' and into a proactive stance where the shared 'End in Mind' is a shift entirely towards care delivery free from harm."

"When staff feel consistently heard during the huddle, they are significantly more likely to speak up at the bedside (cultivating psychological safety)."

Often, I find myself referencing Commercial Aviation for its high reliability when discussing future-state goals for Newborn Intensive Care. In this case, I am referring to the 224-year-old chemical company that manufactures components for IV tubing, high-frequency ventilator seals and diaphragms, and overpackaging, all of which are critical to the sterile supply chains necessary for the value-added care we intend for the babies, families, and caregivers we serve. From 1935 to 1982, DuPont's Slogan was "Better Things for Better Living... Through Chemistry," followed by "Better Things for Better Living" from 1982 to 1999 (22). I appreciate the second slogan, as it could apply to our POKE journey, where we have sought to embrace "Better Things" to nudge our culture from Reactive to Interdependence, so everyone can enjoy "Better Living" as they are sent home every day: Safe, Valued, and Loved.

As an aside, Woolard played a critical role as a member of Apple's Board of Directors when the company was approaching bankruptcy in 1997. He was a primary force behind the ouster of then-CEO Gil Amelio and made the phone call to Steve Jobs, enticing him to return to the company Jobs co-founded. He valued Culture, Leadership, and Product over short-term metrics (4).

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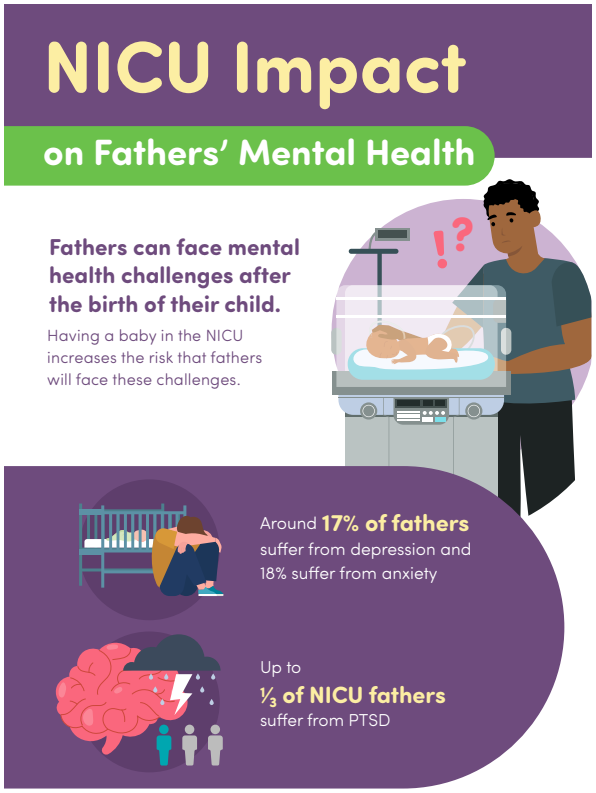
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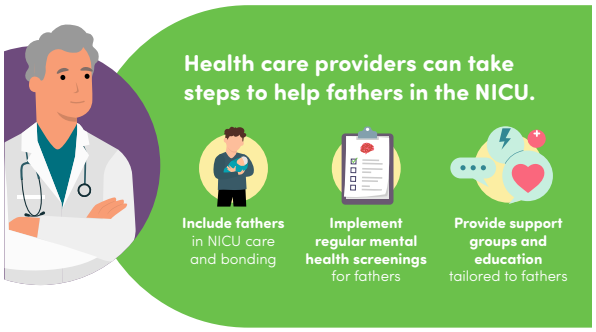
Erick Ridout, M.D., is blessed to be the dad to two amazing kids, granddaddy to three extraordinary grandsons and two granddaughters, and currently serves the babies, their families, and the caregivers in the Newborn ICU in Southwestern Utah and Honolulu, Hawaii, and as Vermont Oxford Network Faculty. Additionally, Colonel Ridout proudly served in the United States Army for 23 years, including 11 years as the State Surgeon for the Nevada Army National Guard. He was among the first Army Medical Corps Officers to become a Lean Six Sigma Green Belt and has applied the learned principles to relentlessly eliminate patient, staff, and organizational harm in all its forms. He has lectured nationwide on Just Culture, Harm Reduction, Value Added Care, and Servant Leadership. He passionately believes that all patients and caregivers deserve to experience care delivery free of harm. To that end, he seeks to influence MEDICINE to embrace the principles of servant leadership and team-based family-centered care, to send all members of the care team home each day feeling Safe, Valued, and Loved, returning to the bedside fully engaged with heart and mind, all the while seeking to only do for the patient and never to the patient.


NICU Impact
on Fathers' Mental Health
Fathers can face mental health challenges after the birth of their child.
Having a baby in the NICU increases the risk that fathers will face these challenges.
Around 17% of fathers suffer from depression and 18% suffer from anxiety
Up to ⅓ of NICU fathers suffer from PTSD


SAFETY
=
Devices & Medications
Specifically Developed
For Infants
NCfIH


Fathers can do several things to support their mental health while their baby is in the NICU.
Lean on family and friends for support
Prioritize self-care by balancing time between the NICU and home, exercising and getting enough sleep
Seek help from a mental health professional or peer support group


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Health care providers can take steps to help fathers in the NICU.
Include fathers in NICU care and bonding
Implement regular mental health screenings for fathers
Provide support groups and education tailored to fathers


Together, we can provide NICU fathers the support they deserve.
Hand to Hold
National Coalition for Infant Health

Brilliant! Dr. Bell bridges the journey from grief to growth. This is classic wisdom on healing from our heartbreaks and ultimately enjoying a fulfilling life.

– Christine Theard, M.D.

Post-Traumatic Thriving

The Art, Science, & Stories of Resilience



Randall Bell, Ph.D.

Is the Lack of Noninvasive Carbon Monoxide Monitoring in Neonatal Hyperbilirubinemia a Missed Opportunity?

Dennis T. Costakos, M.D.

A recent study in *Hospital Pediatrics* examining national variation in the screening and management of neonatal hyperbilirubinemia provides valuable insight into current practice patterns. (1) The BORN study used a national survey of US hospitals to characterize how institutions screen for and manage hyperbilirubinemia, focusing on bilirubin measurement strategies, DAT testing, and phototherapy thresholds. The authors concluded that substantial variability exists across hospitals with inconsistent approaches to both screening and treatment. However, one notable omission warrants attention: none of the surveyed hospitals reported using end-tidal carbon monoxide (ETCOc) monitoring, the most direct noninvasive measure of hemolysis available in clinical medicine.

"The BORN study used a national survey of US hospitals to characterize how institutions screen for and manage hyperbilirubinemia, focusing on bilirubin measurement strategies, DAT testing, and phototherapy thresholds. The authors concluded that substantial variability exists across hospitals with inconsistent approaches to both screening and treatment. However, one notable omission warrants attention: none of the surveyed hospitals reported using end-tidal carbon monoxide (ETCOc) monitoring, the most direct noninvasive measure of hemolysis available in clinical medicine."

The 2022 AAP Clinical Practice Guideline explicitly identifies hemolysis as a major risk factor for significant hyperbilirubinemia and bilirubin-induced neurologic dysfunction. It further states that "If available, measurement of end-tidal carbon monoxide production, corrected for ambient carbon monoxide (ETCOc), is a potentially useful method for quantifying hemolysis. Carbon monoxide is produced in equimolar amounts with bilirubin when heme is catabolized to bilirubin." (2)

"'If available, measurement of end-tidal carbon monoxide production, corrected for ambient carbon monoxide (ETCOc), is a potentially useful method for quantifying hemolysis. Carbon monoxide is produced in equimolar amounts with bilirubin when heme is catabolized to bilirubin.'"

The 2024 AAP Technical Report on phototherapy reiterates that an infant's response to phototherapy depends in part on the rate of bilirubin production, which is elevated when hemolysis is ongoing. (3) Although a positive direct antiglobulin test (DAT) may support the diagnosis of ABO hemolytic disease, it is neither necessary nor sufficient to confirm hemolysis. In contrast, ETCOc measurement has been described as the gold standard for diagnosing and quantifying hemolysis in neonates. (4)

Despite this, ETCOc monitoring appears absent from the practices reported in the BORN survey.

"The 2024 AAP Technical Report on phototherapy reiterates that an infant's response to phototherapy depends in part on the rate of bilirubin production, which is elevated when hemolysis is ongoing. Although a positive direct antiglobulin test (DAT) may support the diagnosis of ABO hemolytic disease, it is neither necessary nor sufficient to confirm hemolysis. In contrast, ETCOc measurement has been described as the gold standard for diagnosing and quantifying hemolysis in neonates."

NEONATOLOGY TODAY is interested in publishing manuscripts from Neonatologists, Fellows, NNPs and those involved in caring for neonates on case studies, research results, hospital news, meeting announcements, and other pertinent topics.

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This is striking given the growing evidence base. A published nomogram for term and late-preterm Chinese newborns demonstrates the feasibility of standardized interpretation. (5) Additional work shows that combining predischarge ETCOc with bilirubin measurements improves the prediction of early and late hyperbilirubinemia requiring phototherapy. (5)

In a US cohort using universal ETCOc screening, investigators reported several advantages over DAT-based assessment: fewer infants received phototherapy, fewer were readmitted for phototherapy, and significant cost savings were realized. Notably, 4.7% of infants were identified as G6PD-deficient through state newborn screening—an important consideration in regions where routine G6PD testing is not performed. (6)

Given these findings, the absence of ETCOc monitoring in the surveyed hospitals raises an important question: Are we overlooking a rapid, noninvasive, physiologically grounded tool that could improve the identification and management of hemolysis in newborns?

"In a US cohort using universal ETCOc screening, investigators reported several advantages over DAT-based assessment: fewer infants received phototherapy, fewer were readmitted for phototherapy, and significant cost savings were realized. Notably, 4.7% of infants were identified as G6PD-deficient through state newborn screening—an important consideration in regions where routine G6PD testing is not performed"

References:

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Conflicts of Interest: None.

Financial Disclosures: *No financial disclosures except that Dr. Costakos is a Mayo Clinic employee.*

Author Statement: All opinions expressed in this submission are solely those of Dr. Costakos.

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First Candle: It is 2 AM

Alison Jacobson

Saving babies. Supporting families.

First Candle's efforts to support families during their most difficult times and provide new answers to help other families avoid the tragedy of the loss of their baby are without parallel.

"And your mind is racing - not about safe sleep guidelines - but about everything else."

It is 2 AM.

Your baby is crying. You have not slept. You're exhausted.

And your mind is racing - not about safe sleep guidelines - but about everything else.

How are you going to pay the rent?

Is there's enough food to last through the week?

How are you going to afford diapers?

When families are carrying this much stress, they're in survival mode.

In those moments, parents aren't thinking about safe sleep recommendations. They're just trying to get through the night.

That's why safe sleep education can't happen in a vacuum.

At **First Candle**, we know families need more than information; they need support.

Through our community-led program **Let's Talk Community Chats**, we partner with trusted local organizations that are already helping families navigate real-life challenges like housing instability, food insecurity, diaper needs, and access to essential services.

"Because when families feel supported - when someone sees the whole picture of what they're facing - they're far more open to learning how to keep their babies safe."

During Community Chats, our facilitators do not just teach safe sleep. They listen. They acknowledge the stress families are under. And they connect parents with resources that can help lighten the load.

Because when families feel supported - when someone sees the whole picture of what they're facing - they're far more open to learning how to keep their babies safe.

"That is why we are more committed than ever to scaling this work, especially as maternal and infant health funding declines nationwide."

Preventing sleep-related infant deaths isn't just about education.

It is about trust.

Itis about community.

And it's about making sure families don't have to face these challenges alone.

To learn more visit www.firstcandle.org

References:

1. https://firstcandle.org/programs/lets-talk-community-chats/

Disclosure: *The author is the Executive Director and Chief Executive Officer of First Candle, a Connecticut-based not-for-profit 501(c3) corporation.*

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About First Candle:

First Candle, based in New Canaan, CT, is a 501c (3) committed to eliminating Sudden Unexpected Infant Death while providing bereavement support for families who have suffered a loss. Sudden Unexpected Infant Death (SUID), which includes SIDS and Accidental Suffocation and Strangulation in Bed (ASSB), remains the leading cause of death for babies one month to one year of age, resulting in 3,700 infant deaths nationwide per year. It was also the host of the 2025 International Society for the Study and Prevention of Perinatal and Infant Death (ISPID) Conference in Houston from October 7 – 10.



firstcandle

LET'S TALK Community Chats IN THE NICU



We are thrilled to expand our ongoing efforts surrounding safe sleep in the Grady Memorial Hospital NICU by bringing Let's Talk Community Chats to our families. This is especially important given the significantly higher rates of Sudden Unexpected Infant Death in premature babies, and to help expand our work to ensure optimal health to all babies, both in the NICU and after discharge home."

Dr. Mattie Feasel Wolf,
Division of Neonatal-Perinatal Medicine
at Emory University School of Medicine

FEEDBACK FROM LET'S TALK COMMUNITY CHATS IN THE NICU:

- **Nearly all participants (98%) reported an increase in their confidence to apply safe sleep practices, and all also found the breastfeeding information provided to be helpful or very helpful (96%).**
- **Additionally, most participant (98%) felt that the products and recommendations shared were relevant to their needs.**
- **94% percent of respondents reported having a plan for where they would place their baby to sleep upon bringing them home after attending the event.**
- **All participants (100%) shared that they felt comfortable and supported, and that facilitators respected their cultural values.**
- **Almost all participants (82%) who had specific questions indicated that their specific questions and concerns were fully addressed.**

LEARN HOW YOU CAN BRING LET'S TALK TO YOUR NICU.

Email alison@firstcandle.org or scan the QR code for more information

Maternal Vaccines:

WHAT YOU NEED TO KNOW

CDC-Recommended Vaccines for Pregnant Women

	COVID	FLU	RSV	TDAP
Does it protect baby?	+	+	+	+
Does it protect mother?	+	+		
Is there an immunization for baby after birth?			+	

Vaccines given to pregnant women **are safe and effective.**

Maternal vaccines help the body create antibodies that can be passed to your baby and help protect them when they are born.

Talk with your health care provider to learn more about protecting yourself and your baby.

LEARN MORE ▶

NATIONAL COALITION for Infant Health

Telehealth in the NICU

The thoughtful use of telehealth technology can improve care and minimize the risks of exposure to COVID-19.

- Consult with specialists.
- Move family education and resources online.
- Use technology to help parents bond with their babies when they can't be bedside.
- Provide parents lactation support.
- Facilitate shared decision-making.
- Screen for perinatal mood and anxiety disorders (PMADs).
- Support case management.

The move to telehealth services can compound inequities and disparities. Assess each family's technology skills and needs - including the need to use their preferred language.

My Perinatal Network and My NICU Network are products of a collaboration between National Perinatal Association (NPA) and NICU Parent Network (NPN).

myNICUnetwork.org

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Advancing Neonatal-Perinatal Care: SONPM Chair Update- March 2026, #2

Clara H. Song, MD, FAAP

"Your more-than-monthly update from SONPM to keep us all connected and informed!"



For SONPM Listserv distribution:

*Your **SONPM** more-than-monthly update to keep us all in the loop!*

*More details on upcoming events, webinars, and due date details on the #AAPneonatal **Calendar***

*Peruse **the #**AAPneo **photo gallery** for SONPM event highlights **(Password: SONPMc3 to download pics)***

Social Media links on

https://aapneonatal.org/

Happy March 🌼🍀🌈

1- SONPM Shout-out 😍: Dr. **Mitchell Goldstein, MD., MBA, CML** Professor of Pediatrics and Director of Neonatal ECMO at Loma Linda University School of Medicine. Mitch is the Editor of Neonatology Today, the SONPM Executive Assembly Liaison from the AAP Section on Advances in Therapeutics and Technology, and Director of the annual Gravens Conference.

Neonatology Today

neonatologytoday.net



The Gravens Conference

thegravensconference.org

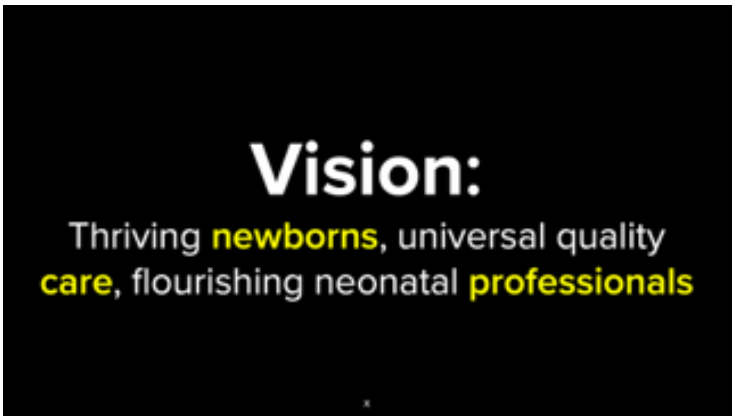
2- **A Victory for Babies!** A million, zillion thanks to our very own Dr. **Shetal Shah** for his advocacy in protecting children from vaccine-preventable illnesses.

"A Victory for Babies! A million, zillion thanks to our very own Dr. Shetal Shah for his advocacy in protecting children from vaccine-preventable illnesses."

3.16.2026 All-Member

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3- **Your SONPM Executive Committee met before the 2026 Workshop in Neonatal-Perinatal Practice Strategies for a 2-day strategic planning session.**

We reinforced our collective Mission and Vision, as well as streamlining our strategic aims.

The SONPM Strategic Grant program uses these aims to guide awardee selections.



4- From the AAP:

"AAP Publishing and the Council on Communications and Media (COCM) have created the new AAP Publishing Award, given annually to recognize outstanding contributions to publishing in the field of pediatrics, focusing on achievements in writing and developing innovative publications with a major impact on the practice of primary care pediatrics in offices and clinics. Nominees must be members of the AAP; posthumous nominations will be considered. Nominees will be evaluated by a selection committee identified by AAP Publishing and COCM, and the recipient will receive recognition at the AAP National Conference and Exhibition. Learn more here and nominate a worthy colleague or yourself here by April 30.»

5- From the AAP:

New Immunization Resources that include RSV, Influenza, HepB, and more:

https://www.aap.org/en/patient-care/immunizations/maternal-and-infant-immunization-discussion-guides/

6- Seeking **Early Career NRP Instructors** to Join the NRP Steering Committee! Due **March 31**.

If you are interested in applying, please submit your application at https://form.jotform.com/260205200062032. Applications will be accepted through March 31, 2026. The new committee member's term will begin July 1, 2026

7- From the AAP: **2026 AAP Resolution** submissions are OPEN until **April 1**!

Resolution submissions are now open for the 2026 Leadership Conference! All resolutions must be submitted through

our online submission form. The deadline for submissions is Wednesday, **April 1**, 2026, at 11:59 pm CT. Relevant resolution information is listed below:

- Online portal submission
- Guidelines for Submitting Resolutions
- Resolution Template
- Resolution Roadmap
- Resolution 1 page infographic
- Resolution 2 page infographic
- District's CFMC Representative

For complete resolution information, please visit the Leadership Conference website.

8- 2026 **NRP Grant** opportunity! Due **May 1**

To obtain the NRP Research Grant, NRP Young Investigator Award, NRP Human Factors/Education Grant, and Jeanette Zaichkin NRP Nursing Grant Guidelines and view the electronic Intent for Application, **apply here**. (If clicking the link does not take you to the page, copy/paste the URL into your web address bar: https://form.jotform.com/253185470479062).

9- From the AAP:

The American Academy of Pediatrics will be hosting a live, online ENC 2 Facilitator Course in May/June of 2026. ENC 2 is the second part of the WHO's Essential Newborn Care Course, second edition, and focuses on care of babies from 60 minutes after birth to discharge from the facility. ENC 2 is the new version of the AAP's Essential Care for Every Baby (ECEB) and Essential Care for Small Babies (ECSB) programs, updated to align with WHO recommendations and guidelines.

This course will be delivered across four online sessions and is designed to develop new ENC 2 facilitators who will commit to cascading the training to/with healthcare providers in low-resource settings. This course is suitable for doctors, nurses, midwives, and allied health professionals. To learn more about ENC 2, click here."

"The American Academy of Pediatrics will be hosting a live, online ENC 2 Facilitator Course in May/June of 2026. ENC 2 is the second part of the WHO's Essential Newborn Care Course, second edition, and focuses on care of babies from 60 minutes after birth to discharge from the facility."



10- **Coding Corner: Point-of-Care Diagnostic Ultrasonography--**Submitted by David Kanter, MD, MBA, CPC (david.kanter@pediatrix.com) on behalf of the SONPM Coding Committee.

Presentation: A previously stable preterm baby with UVC in place develops sudden, abrupt life-threatening cardiovascular collapse. The neonatologist performs bedside diagnostic echocardiography, which demonstrates a large pericardial effusion consistent with cardiac tamponade. The neonatologist performs pericardiocentesis with prompt resolution of symptoms. The neonatologist queries whether there is an opportunity for additional billing beyond the daily critical care code.



Figure 2: Case 2: (A) X-ray showing a high position of UVC (arrow). (B) Echocardiography showing the pericardial effusion (bold arrow).

Image reference: Gialamprinou D, Lithoxopoulou M, Drogouti E, et al. (December 22, 2025). Pericardial Effusion and Cardiac Tamponade in Preterm Neonates After Umbilical Venous Catheter Insertion: Management of a Case Series Using a Point-of-Care Ultrasonography (POCUS)-Guided Clinical Protocol. Cureus 17(12): e99821. doi:10.7759/cureus.99821

Approach: While the previous Coding Corner addressed ultrasound guidance coding when performing interventional

procedures, the basis for this vignette focuses on coding bedside ultrasound as a diagnostic modality (in this case, use of echocardiography to diagnose pericardial effusion). From the standpoint of the neonatologist, general principles guiding the billing of inpatient diagnostic point-of-care ultrasound focus on:

- Skill and training
- Hospital scope-of-practice credentialing
- Permanent storage of images that are archived to patient identifiers
- Documentation of diagnostic findings either within the daily note or as a separate note
- If billing, appending modifier 26 to the imaging code indicates professional interpretation-only in a facility setting where the hospital provides equipment.

Regarding the selection of billing codes that reference general anatomical areas such as cardiac, chest, and abdomen, CPT recognizes diagnostically complete codes (comprehensive assessment and documentation of the anatomical organ or area) vs. diagnostically limited codes (focusing only on a particular area of concern within that anatomical organ or area). In contrast to radiologists and cardiologists, who typically report the complete, comprehensive code for their initial study, neonatologists performing point-of-care ultrasound will typically report only the limited code to reflect their narrower focus on a particular structure or finding, examples of which are outlined below:

Coding summary for this 3-day-old patient:

CPT: 99469: subsequent day critical care

93308-26: limited echocardiography

33016: pericardiocentesis (includes imaging guidance, when performed)

ICD: I31.39: Other pericardial effusion (noninflammatory)

I31.4: Cardiac tamponade

Click to Download

Coding Corner #7 March 11, 2026-PDF.pdf

206 KB

Our current SONPM focus goal, Payment Parity for 2024-2026, aligns with the AAP Payment Transformation Agenda.

Action plans for NICU-specific payment advocacy:

1- Payer data transparency =

From SONPM with support from AAP: **Payment Transparency for Neonatal Codes** https://pediatricsupport.com/analysis-of-codes-affecting-neonatology

SONPM and AAP have partnered to aggregate negotiated payment information from 4 common commercial payers for 65 neonatal codes.

In 2022, HHS mandated the public disclosure of machine-readable files of in-network coverage rates for all health plan services. https://www.cms.gov/priorities/healthplan-price-transparency/overview/use-pricing-information-published-under-transparency-coverage-final-rule

SONPM and AAP purchased the organization of this publicly available information for the benefit of AAP SONPM members. We hope that having this data will serve our members in their advocacy efforts and negotiations for optimal, fair payment. https://pediatricsupport.com/analysis-of-codes-affecting-neonatology

2- Coding Education to ensure full payment =

Coding Corner: Submitted by David Kanter, MD, MBA, CPC (david.kanter@pediatrix.com) on behalf of the SONPM Coding Committee.

3- DRG payments for optimal NICU payment =

Upcoming webinar in partnership with the Children's Hospital Association

****Fair payment ➡ improved salary:FTE ratio ➡ improved staffing ➡ decreased burnout ➡ increased workforce ➡ maintain health of our profession****

"Ultimately, payor reform will be needed to sustain growth in subspecialty compensation."

CPT (with appending modifier 26 in the hospital setting)	Description	Application examples	Medically Unlikely Edit (CMS per-day frequency limit)
93308	Limited echocardiogram	Cardiac function; pericardial effusion	1
76604	Chest ultrasound (does not differentiate complete vs limited)	Pneumothorax; pleural effusion; parenchymal pathology	1
76705	Limited abdominal ultrasound	Ascites	2
76857	Limited pelvic ultrasound	Bladder	1

- Robin Steinhorn & Satyan Lakshminrusimha.

On behalf of your #SONPMexec comm:

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With warm regards,

Clara H. Song, MD, FAAP

Disclosures: No conflicts noted

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REQUEST FOR RESEARCH GRANT LETTER OF INTENT (LOI)
Submission Deadline March 1, 2026

The American SIDS Institute invites qualified investigators to submit a Letter of Intent (LOI) for a research grant related to sudden unexpected infant death (SUID). Applicants must have a faculty appointment or the equivalent at a U.S. based university, hospital, research institution, or medical examiner office, with one exception. Graduate students enrolled in a postdoctoral program may also apply as the PI, BUT the faculty advisor must be a Co-Investigator, with a biosketch and letter of support included. Topics of interest include, but are not limited to, pathology, physiology, neonatology, cardiology and epidemiology. The intent of this funding opportunity is to support innovative research leading to subsequent extramural grant funding regarding SUID or related causes of sudden unexpected death.

Priority will be given to research proposals related to one of the top ten US research priorities identified by the Global Action and Prioritization of Sudden Infant Death (GAPS) Project. These include:

1. Physiological mechanisms leading to death and how they interact with behavioral risk factors, e.g. prone (front)-sleeping.
2. The role of genetic factors in SUID.
3. Social and cultural factors affecting parental choices in sleep practices and responses to risk reduction campaigns.
4. Role of abnormal or immature brain anatomy and physiology.
5. Systematic collection and sharing of death scene data from SUID and non-SUID deaths to allow better case control studies
6. How infants control oxygen desaturation and arousal to allow a better understanding of SUID mechanisms.
7. Mechanisms for SUID at different ages.
8. Developing and evaluating new ways to make safe sleep campaigns more effective.
9. Identifying specific biomarkers to differentiate between natural causes, accidental asphyxia, and SIDS.
10. Better understanding of the risks of sharing any sleep surface with an infant, notably how it interacts with other factors, including feeding practices, to make it more or less risky.

Proposals related to the study of sudden unexpected intrauterine death, sudden death in children, or sudden death in epilepsy may also be responsive. However, applicants will need to clearly explain how their proposal will advance the understanding of SUID. Although priority will be given to human studies, animal studies may be responsive if justified and related to an animal model relevant to the research priorities listed above. Proposals for the development of new physiologic monitoring equipment or devices to facilitate safe sleep position or reduction of other sleep environment-related risks will not be responsive.

These grant awards are intended to be self-contained studies with a well-defined targeted hypothesis. Budgets may include technical salary support, but principal investigator salary support and indirect costs may not be requested. Awards will be for 2 years and limited to a total of $80,000.

REQUIREMENTS FOR LOI

PROPOSAL

The proposal is limited to **2 pages**. Preliminary data strengthen the proposal but are not required. Each proposal should include the following:

1. Title of LOI proposal and name of P.I.
2. Scientific rationale, specific aim(s) and hypotheses
3. Approach (Methods)
4. Anticipated outcomes; how this research will advance the knowledge base of SUID

IN ADDITION TO 2-PAGE PROPOSAL

Biosketch using NIH format for PI and all Co-Investigators and other Key Personnel
When completing the personal statement section of the biosketch, please name and describe the roles of any mentors who will support you in the work.

SUBMISSION

The LOI including the proposal and other required items should be submitted as a single PDF email attachment to the American SIDS Institute at: research@sids.org.

REVIEW PROCESS

Submitted LOI will be evaluated by the American SIDS Institute Research Advisory Council. In addition to scientific merit, reviewers will also consider:

1. Responsiveness to requirements in this announcement
2. Potential for results leading to subsequent extramural research funding
3. Potential for subsequent peer-review publication

Applicants with well-defined, high priority LOI proposals will be invited to submit a complete research grant application.

AMERICAN SIDS INSTITUTE CONTACT

We encourage inquiries and welcome the opportunity to answer questions from potential applicants. Contact Betty McEntire at bmcentire@sids.org.

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Pamela J. Simms-Mackey, MD
Michael Barone, MD, MPH

American Pediatric Society
Steve Daniels, MD, PhD
Catherine Gordon, MD

Association of Medical School Pediatric Department Chairs
Leslie Walker, MD
Stephanie Davis, MD

Association of Pediatric Program Directors
Megan Aylor, MD
Michael Weisgerber, MD

Society for Pediatric Research
Eric Austin, MD
Ann Chahroudi, MD

Call for Nominations for the 2026 Joseph W. St. Geme, Jr. Leadership Award

The death of Joseph W. St. Geme, Jr., MD, in 1986, removed from American pediatrics a leader with vision and selfless dedication to the ideal of excellence. His concern for the patient and the future of health care was well known. Certainly, he was a leader in the forums addressing issues concerning the future of pediatric education and research. It seemed appropriate, therefore, to honor his memory in a manner that would remind present and future generations of pediatricians that one individual can make a difference, and all should try, when the health care of children is at stake.

The member societies of the Federation of Pediatric Organizations established an endowment fund for what is now the Joseph W. St. Geme, Jr. Leadership Award. Dr. St. Geme's stature in pediatrics was reflected by his meaningful participation in all facets of pediatrics as demonstrated by the sponsorship of this award by these societies:

Academic Pediatric Association
American Academy of Pediatrics
American Board of Pediatrics
American Pediatric Society
Association of Medical School Pediatric Department Chairs
Association of Pediatric Program Directors
Society for Pediatric Research

This award was established as an effort on the part of these organizations to honor the life, work, and memory of Joe St. Geme and to memorialize his many contributions to and his aspirations for pediatrics. Many of Dr. St. Geme's friends and colleagues have contributed to this award as well as major contributions from Ross Laboratories, Hoechst Roussel Pharmaceuticals, Inc., Connaught Laboratories, Inc., Merck & Company, Inc., and Mead Johnson Nutrition.

Criteria for Selection

1. The individual must be a pediatrician who is perceived as a role model for others to emulate, as a clinician, an educator, and/or an investigator.

2. The individual must be a leader who has "created a future" for pediatrics and for children and has played an active role in one or more organizations sponsoring this award.

3. The individual should preferably have a record of broad sustained contributions to pediatrics that have had or will have a major impact on child health.

4. The individual must be currently active in pediatrics. **what defines "active" is at the discretion of each of the 7 organizations.*

5. The individual can be a retired member of any of the pediatric organizations sponsoring this award.

6. The individual must **not** be an active FOPO Board member.

Call for Nominations!

Section on Neonatal-Perinatal Medicine Executive Committee: District Representatives from Districts III, VI, and IX

One of the most significant opportunities to engage with the Section on Neonatal-Perinatal Medicine (SONPM) is to serve on the SONPM Executive Committee (EC). The EC consists of one representative from each of the 10 AAP Districts, in addition to chair, chair-elect, past-chair, of-counsel advisor, and AAP section manager (currently Jim Couto). District representatives serve 3-year terms, and are eligible to serve a second term.

District representatives to the EC are responsible for representing all neonatologists working in their AAP districts. The district representative is a liaison between district neonatologists and the SONPM, providing members direct input into SONPM and conveying section activities and opportunities back to the members. More specifically, responsibilities of EC members include the following:

Within executive committee and SONPM broadly:

1. Attend two **required** EC meetings annually, at Scottsdale spring workshop and at NCE;
2. Attend the full SONPM program at Scottsdale spring workshop and NCE meetings annually;
3. Participate in periodic virtual SONPM EC meetings (generally once or twice per month);
4. Review and score abstract submissions to NCE and review poster and oral presentations at NCE meeting, including scoring for SONPM Young Investigator Award;
5. Suggest and select annual SONPM honorary lecturers, including the Cone, Merenstein, Butterfield and Silverman speakers;
6. Solicit and review nominations for annual SONPM awards, including the Apgar, Education, Landmark and Pioneer awards, and select awardees;
7. Participate in planning and execution of national meetings, including section program at NCE, Scottsdale conference, and NeoPREP;
8. Review applications and determine awardees for the Section Strategic Grant Program, currently offered every two years;
9. Review and provide feedback on AAP policy statements, clinical reports, and guidelines as they pertain to newborn care;
10. Participate in and support AAP and SONPM advocacy efforts, including AAP Days of Action;
11. Participate in section committees, groups, and task forces based on interest and need;
12. Participate in SONPM strategic leadership, including implementation of goals of strategic plan; and
13. Participate in SONPM administration, including maintenance and updating of section manual of operations and section budget planning.

Within district:

1. Solicit updates from district members for inclusion in section newsletter twice annually;
2. Allocate annual SONPM district grants by soliciting and evaluating grant proposals;
3. Provide regular updates to district members on relevant aspects of section activities;
4. Provide regular updates to section on district activities and needs of district members;
5. Actively participate in district activities, including attendance at regional conferences; and
6. Encourage AAP and SONPM membership from representative's district, including trainees.

The core executive committee is a productive group! Participation on the executive committee does require a commitment of time and effort, but it is a highly rewarding experience.

SONPM Fellow Education co-Chairs – for Research & Career Conferences

We are in search of a Fellows Research Conference co-Chair!
The SONPM Fellow Education co-Chairs provide primary oversight for the SONPM fellow research and career education conferences. These conferences have been a foundation of SONPM and the neonatology community for decades, and have helped shape careers and collaborations for thousands of neonatal intensivists. They continue to be a highlight of annual SONPM activities. The conferences include the research-focused Perinatal and Developmental Medicine Symposia (three per year, supported by Reckitt/Mead Johnson) and the career-focused Seminars on Neonatal-Perinatal Medicine (two per year, supported by Abbott).

The Fellow Education co-Chairs represent the SONPM at these conferences by providing overall strategic planning, adjusting content and format, and introducing innovations based on fellow feedback and SONPM priorities. Each conference is organized by a planning committee with defined membership and terms; the Fellow Education co-Chairs solicit and select new members of these committees, ensuring appropriate diversity and expertise, and provide support for the planning committees throughout the year. The Fellow Education co-Chairs should be vocal champions for the conferences, leading efforts that align with SONPM, ONTPD, and TECaN to ensure all fellows seek the opportunity for participation.

The Fellow Education co-Chairs serve as liaisons to the SONPM executive committee and other external organizations, and are expected to attend the annual SONPM executive meeting each spring.

The Fellow Education co-Chairs should be familiar with both the research and career conferences, and should have served on the planning committee or faculty for at least one of the respective conferences. The Fellow Education co-Chairs should be an experienced neonatologist with substantial leadership experience, and, for the Research Conference co-Chair, should have an accomplished publication record. To facilitate identification of program committee members and conference faculty, the Fellow Education co-Chair should have a national reputation.

Apply via JotForm. For questions: lnavarro@aap.org or clarasong@me.com

2026.02.05

Letter from a Former Patient

A 52-Year Update from your 1973 "Experimental" Cohort via St.Jude-OCMC

Subject: A 52-Year Update from your 1973 "Experimental" Cohort via St.Jude-OCMC

- Angel Marie Thompson)

Dear Dr. Modanlou,

I am writing to you today as a living testament to the pioneering work you and your team (including Drs. Nichols, Hamady, and Mastisoff) performed over five decades ago.

"I was born on June 23, 1973, at St. Jude Hospital in Fullerton at just 26 weeks gestation, weighing 2 lbs. and 12 ounces. I was transferred to your care at the Orange County Medical Center (UCI) for what I have been told were experimental trials regarding lung maturation and respiratory support."

I was born on June 23, 1973, at St. Jude Hospital in Fullerton at just **26 weeks gestation,** weighing 2 lbs. and 12 ounces. I was transferred to your care at the Orange County Medical Center (UCI) for what I have been told were experimental trials regarding lung maturation and respiratory support.

Because of your intervention, I am here today at age 52. However, I am writing to share that my survival has come with a "long-term signature" that I am only now beginning to understand. I struggle with chronic fatigue, anemia, and symptoms of fibromyalgia-issues that modern research is just beginning to link back to the intense physiological stress and experimental treatments of early 1970s neonatology.

"I struggle with chronic fatigue, anemia, and symptoms of fibromyalgia-issues that modern research is just beginning to link back to the intense physiological stress and experimental treatments of early 1970s neonatology."

I wanted to reach out to:

1. Express my gratitude for the life you gave me. You, sir, are the reason that I am alive today and went on to have my four children, who are my very joy of life!
2. Share my current health challenges, in hopes that my "pioneer" status might help you or your colleagues better understand the lifelong needs of your first generation of survivors. Perhaps something in my stories can further help other children who might feel the same way that I do and have questions.
3. Ask if you have any recollections, summary data, or other case notes, academic articles regarding the 1973 lung maturation trials that might help my current doctors understand the "structural" origin of my fatigue and central sensitization.

Side note and afterthoughts.

I have a bit of information that might also shed light on my then-and-now situation. It comes directly from my mother, Faustina Thompson. She informed me that she was informed that she was told that I probably would not survive, and if I did, that I would surely be deaf, blind, or worse. Apparently, she has a recollection of my needing multiple blood transfusions from her to me, as she states that I could not make my own blood. I also understand that I was in an incubator that pumped 100 percent oxygen and was given Experimental lung maturation drugs. In fact, she said that while I was in the hospital for months after my birth, I would forget to breathe as I could not breathe on my own and the nurses would tap my foot to stimulate me to breathe.

"She informed me that she was informed that she was told that I probably would not survive, and if I did, that I would surely be deaf, blind, or worse. Apparently, she has a recollection of my needing multiple blood transfusions from her to me, as she states that I could not make my own blood. I also understand that I was in an incubator that pumped 100 percent oxygen and was given Experimental lung maturation drugs."

Believe it or not, I still forget to breathe during the day. I have to remind myself not to hold my breath, as crazy as that sounds. An organization called The Crippled Children's Network worked with you, and my mother stated that this organization paid the bills for my care at your then hospital. She said that I was also in home monitored for about four years, but that due to a home move, I could no longer be monitored. She does not remember which agency did the in-home health monitoring. I also had to wear braces on my legs when I was little. Several doctors have told me that they can not fully conclude what is going on with me, as most of my lab results for years have come back normal, yet I severely suffer from chronic fatigue, shortness of breath, asthma-like symptoms, bouts of unpredictable all-over-body shut-downs and lock-ups with pain that are very intense. They have

diagnosed me with fibromyalgia. My anemia has been lifelong, but is categorized as puzzling because it shows as iron deficiency, yet my red blood cells are abnormal: my marrow does not produce enough cells, and they are small.

This leads me to intense bouts of weakness that are also unpredictable.

"I hope, with all my heart, that somewhere in your research and notes the answer lies written. I have read snippets of your research on the after effects of premature babies born in the 1970s, and to be honest, it is like reading my life struggle. I am at a crossroads, and I feel that once you held my life in your hands and saved it, you alone may have the answers to why I am struggling daily, even to do the dishes as I age."

I have a long list of progressiveness with all of these issues, and in a way, I feel like the adopted child that needs answers to emotionally cope with what doctors around me can only partially explain. I hope, with all my heart, that somewhere in your research and notes the answer lies written. I have read snippets of your research on the after effects of premature babies born in the 1970s, and to be honest, it is like reading my life struggle. I am at a crossroads, and I feel that once you held my life in your hands and saved it, you alone may have the answers to why I am struggling daily, even to do the dishes as I age.

I can no longer work because I never know when my body is going to crash and attack me with crippling pain from head to toe. The crashes happen even when I am stressed. I also suffer from depression, panic, and anxiety attacks. It's becoming hard to do day-to-day functions. I am going to try to apply for disability, and I am aware that it will be an uphill battle because most doctors have very little knowledge about the pioneering days of saving a severe preemie in 1973. The medical community has written me off, so to speak. If you are available, I would even love to speak with you on the phone. I understand that you are a busy man and that I was not the only preemie that you have treated. By now, I am sure you have worked with thousands of children, but I feel as if I have something to give back to this world. I feel that I might also be able to contribute to some studies while, in turn, gaining on-site experience for my own well-being.

"By now, I am sure you have worked with thousands of children, but I feel as if I have something to give back to this world."

I hope to be in contact with you somehow, sir, and I want you to know that every day I have lived has been a gift that you and your team have given to me. It never went lost on my parents or me. They were two very scared young children, only 19 and 18, who, to this day, also seek answers.

Thank you for your lifelong dedication to the tiniest among us. You are a hero to my family and me.

Patient: Angel Marie Thompson (Williams)

Email: Everlong11@yahoo.com

Dear Ms. Thompson,

Thank you for your deeply moving letter. I read it with great care, humility, and a profound sense of respect—for your life, your perseverance, and your willingness to reach back across five decades to share your story.

"First and foremost, please allow me to say that it is an extraordinary privilege to hear from you. In 1973, the survival of an infant born at 26 weeks' gestation was, indeed, uncommon and uncertain. The care you received at St. Jude Hospital and subsequently at Orange County Medical Center represented the very frontier of neonatology at that time."

First and foremost, please allow me to say that it is an extraordinary privilege to hear from you. In 1973, the survival of an infant born at 26 weeks' gestation was, indeed, uncommon and uncertain. The care you received at St. Jude Hospital and subsequently at Orange County Medical Center represented the very frontier of neonatology at that time. While you refer to it as "experimental," I would describe it as a period of urgent innovation—where every intervention was guided by the singular hope of giving infants like you a chance at life.

To know that you survived, grew, and went on to have four children is nothing short of remarkable. That legacy—your life and your family—is the most meaningful outcome any physician could hope for. You honor us far more than we could ever deserve.

"To know that you survived, grew, and went on to have four children is nothing short of remarkable. That legacy—your life and your family—is the most meaningful outcome any physician could hope for. You honor us far more than we could ever deserve."

At the same time, I want to acknowledge, with equal sincerity, the challenges you have carried. Your description of chronic fatigue, anemia, respiratory symptoms, and fibromyalgia-like pain is both compelling and important. You are correct in your understanding that we are only now beginning to appreciate the long-term physiologic "signature" of extreme prematurity, particularly in those who were among the earliest survivors.

In the early 1970s, neonatal care often required prolonged exposure to high concentrations of oxygen, mechanical or assisted ventilation, repeated transfusions, and medications whose long-term effects were not yet fully understood. Conditions such as what we now recognize as bronchopulmonary dysplasia, altered autonomic regulation (including breathing patterns), and hematologic adaptations may have lifelong implications. Similarly, the concept of central sensitization—now associated with conditions like fibromyalgia—may indeed have roots in early-life stress and intensive care exposures, although this remains an evolving area of study.

"Similarly, the concept of central sensitization—now associated with conditions like fibromyalgia—may indeed have roots in early-life stress and intensive care exposures, although this remains an evolving area of study."

Your mother's recollections are consistent with the care practices of that era. Apnea of prematurity—what you describe as "forgetting to breathe"—was common, and tactile stimulation by nurses was often necessary. The use of transfusions, oxygen therapy, and early attempts at promoting lung maturation were part of our efforts to sustain life under extraordinarily fragile circumstances.

I must be candid in saying that individual patient records from that time are often difficult to retrieve, and my personal recollection of specific cases after so many years is limited. However, your experience aligns closely with what we have observed in longitudinal follow-up studies of early preterm survivors. I would be very interested in helping guide you toward clinicians or researchers who specialize in adult outcomes of prematurity, as your voice is both valid and needed.

Equally important, I want to emphasize this: your symptoms are real, and your experience should not be dismissed. The fact that standard laboratory testing has not yielded clear answers does not diminish the legitimacy of what you are enduring. Medicine is still catching up to patients like you—individuals who represent the very first generation of extremely premature survivors.

"If you are open to it, I would encourage you to seek evaluation at a center with expertise in adult congenital or developmental conditions, where a multidisciplinary approach—pulmonary, hematologic, neurologic, and behavioral—can be integrated."

If you are open to it, I would encourage you to seek evaluation at a center with expertise in adult congenital or developmental conditions, where a multidisciplinary approach—pulmonary, hematologic, neurologic, and behavioral—can be integrated. There is also growing interest in studying the kinds of long-term outcomes you describe, and your willingness to participate could make a meaningful contribution to the field.

Your desire to "give back" is deeply admirable. In truth, by sharing your story, you already have.

"Please accept my heartfelt gratitude for reaching out, and my sincere respect for the life you have lived. While I may not be able to provide all the answers you seek, I want you to know that your journey matters—not only to you and your family, but to the ongoing understanding of neonatal care and its lifelong impact."

Please accept my heartfelt gratitude for reaching out, and my sincere respect for the life you have lived. While I may not be able to provide all the answers you seek, I want you to know that your journey matters—not only to you and your family, but to the ongoing understanding of neonatal care and its lifelong impact.

With warm regards and enduring respect,

Houchang D. Modanlou, MD

Professor of Pediatrics/Obstetrics and Gynecology

University of California Irvine, Retired

Email: modanlou@uci.edu

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INFANT AND FAMILY-CENTERED DEVELOPMENTAL CARE (IFCDC)

STANDARDS AND SAMPLE RECOMMENDATIONS FOR INFANTS IN THE INTENSIVE CARE UNIT

SYSTEMS THINKING IN COMPLEX ADAPTIVE SYSTEMS

- Are the baby and family central to the mission, values, environment, practice & care delivery of IFCDC in the unit?
- Are the parents of each baby fully integrated into the team and treated as essential partners in decision-making and care of the infant?
- What are the strategies and measurements used to improve and sustain IFCDC in the unit?

POSITIONING & TOUCH FOR THE NEWBORN

- Are the positioning plans therapeutic and individualized, given the care needs and development of the baby?
- Are the positioning and touch guidelines continually reviewed by the team, including the parents, and adapted to meet the changing comfort needs of the baby?

SLEEP AND AROUSAL INTERVENTIONS FOR THE NEWBORN

- Can the team confidently describe the "voice" or behavioral communication of the baby?
- Are the baby's unique patterns of rest, sleep, and activity documented by the team and protected in the plan of care?

SKIN-TO-SKIN CONTACT WITH INTIMATE FAMILY MEMBERS

- Is the practice of skin-to-skin contact supported and adjusted to the comfort needs of each baby, parent, & family member?
- Are the parents & family members supported to interact with the baby to calm, soothe, & connect?

REDUCING AND MANAGING PAIN AND STRESS IN NEWBORNS AND FAMILIES

- Are parents supported to be present and interactive during stressful procedures to provide non-pharmacologic comfort measures for the baby?
- Are there sufficient specialty professionals to support the wellbeing of the team, including parents, families, and staff? Examples include mental health, social, cultural, & spiritual specialists.

MANAGEMENT OF FEEDING, EATING AND NUTRITION DELIVERY

- Are the desires of the m/other central to the feeding plan? Is this consistently reflected in documentation with input of the m/other?
- Does the feeding management plan demonstrate a feeding & nutrition continuum from in-hospital care through the transition to home & home care?

WANT TO KNOW MORE ABOUT THE STANDARDS AND RECOMMENDATIONS? VISIT: HTTPS://NICUDESIGN.ND.EDU/NICU-CARE-STANDARDS/

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Letters to the Editor

Letter to the Editor: "Nucleated Red Blood Cells and the Timing of Hypoxic Ischemic Encephalopathy."

Dear Editor,

We are writing to express our appreciation for the opportunity to review the manuscript entitled "Nucleated Red Blood Cells and the Timing of Hypoxic Ischemic Encephalopathy." This publication offers a compelling examination of the relationship between nucleated red blood cells (nRBCs) and hypoxic-ischemic encephalopathy (HIE) in neonates, thus integrating physiologic mechanisms and applying them clinically with a relevant medicolegal case. This discussion is particularly important for improving the understanding, management, and potential prevention of neonatal hypoxic injuries with significant long-term consequences.

"This publication offers a compelling examination of the relationship between nucleated red blood cells (nRBCs) and hypoxic-ischemic encephalopathy (HIE) in neonates, thus integrating physiologic mechanisms and applying them clinically with a relevant medicolegal case. This discussion is particularly important for improving the understanding, management, and potential prevention of neonatal hypoxic injuries with significant long-term consequences."

"Teleologically, one can think of a hypoxic stimulus as causing a need for more oxygen-carrying capacity, and the body responds by putting more young red cells (i.e., nRBCs) into circulation to help in this condition."

The authors' discussion of nRBC development and release from the bone marrow and fetal liver provides a strong physiologic foundation for understanding their role in HIE. The link between hypoxic stress, increased erythropoietin production, and subsequent elevation in nRBC counts highlights the body's adaptive response to impaired oxygen delivery. The clarification that nRBCs are typically absent beyond the first trimester unless triggered by stressors such as hypoxia, anemia, prematurity, or maternal diabetes further reinforces their clinical relevance. Importantly, the authors extend this discussion by addressing the temporal relationship between these processes. The estimated 28–29 hour lag between erythropoietin elevation and the appearance of nRBCs in circulation is particularly insightful, as it provides a useful framework for approximating the timing of fetal insults, especially in cases of unexpected neurologic injury.

"The newborn was depressed at birth with low Apgar scores and a cord pH of 7.05 with a base deficit of -15. He showed early signs of encephalopathy and was treated with therapeutic hypothermia for 72 hours. An MRI at four days of age showed restricted diffusion noted diffusely in the subcortical white matter, consistent with hypoxic-ischemic encephalopathy (HIE). A follow-up evaluation of the child revealed global developmental delay and mild quadriparetic cerebral palsy."

The inclusion of the clinical case involving a 25-year-old primigravid patient was particularly compelling. It effectively illustrates how nRBC levels can help determine the chronicity of fetal injury, providing both clinicians and patients with greater insight into the factors contributing to hypoxic insults. Notably, the physicians involved suggested that the elevated nRBCs may have reflected a pre-admission insult rather than an intrapartum event. The observation that nRBC levels decline after birth at a rate proportional to their initial elevation further highlights their potential utility, suggesting a role for serial measurements in assessing the severity and duration of fetal stress. Taken together, these findings underscore that while nRBCs should not be used in isolation, their dynamic nature may serve as a valuable adjunct in evaluating neonatal risk and informing clinical management decisions.

"Continued research and thoughtful integration of this marker into clinical practice may ultimately allow us to better advocate for these vulnerable patients—ensuring that newborns are given the best possible chance at a healthy life, free from preventable neurologic injury, while also reducing the emotional burden on families during what should be a joyful and reassuring time."

Overall, this manuscript highlights the potential of nRBCs as a valuable adjunct in evaluating neonatal hypoxic injury. Continued research and thoughtful integration of this marker into clinical practice may ultimately allow us to better advocate for these vulnerable patients—ensuring that newborns are given the best possible chance at a healthy life, free from preventable neurologic injury, while also reducing the emotional burden on families during what should be a joyful and reassuring time.

Sincerely,

Anik Boyadzhyan, OSM-III, Fouad Hajjar, OMS-III

Western University of Health Sciences

Dear Mr. Boyadzhyan and Mr. Hajjar,

Thank you for your thoughtful and engaged letter regarding the manuscript, "Nucleated Red Blood Cells and the Timing of Hypoxic Ischemic Encephalopathy." Your appraisal reflects a careful reading and a commendable effort to synthesize both the physiologic and clinical implications of nucleated red blood cells (nRBCs) in the context of Hypoxic-Ischemic Encephalopathy.

You appropriately highlight the biologic plausibility linking hypoxic stress, erythropoietin upregulation, and the subsequent روظ of nRBCs in the circulation. The manuscript's attempt to anchor this process within a temporal framework—particularly the proposed 28–29 hour lag—is indeed intriguing and, as you note, potentially useful in framing clinical and even medicolegal discussions. However, it is precisely here that a degree of caution is warranted.

"While the teleologic explanation is appealing in its simplicity, it risks oversimplifying a physiologic response that is far more complex and heterogeneous. The kinetics of nRBC release are influenced by multiple variables, including gestational age, baseline fetal health, inflammatory states, and placental function."

While the teleologic explanation is appealing in its simplicity, it risks oversimplifying a physiologic response that is far more complex and heterogeneous. The kinetics of nRBC release are influenced by multiple variables, including gestational age, baseline fetal health, inflammatory states, and placental function. As such, assigning a relatively fixed temporal relationship between insult and hematologic response may inadvertently confer a level of precision that is not yet fully supported by robust, prospective data.

Your emphasis on the clinical case is well taken. Case-based illustrations can be powerful, particularly when bridging physiology with real-world decision-making. Yet, we must be careful not to overgeneralize from single cases, especially in domains—such as timing of injury in neonatal encephalopathy—where the stakes are high, and the margin for misinterpretation is considerable. The suggestion that elevated nRBCs definitively indicate a pre-admission insult, rather than an intrapartum event, should be viewed as hypothesis-generating rather than conclusive.

Importantly, you correctly underscore that nRBCs should not be used in isolation. This point deserves even stronger emphasis. Biomarkers, particularly those with dynamic postnatal trajectories, must be integrated within a broader clinical, biochemical, and radiographic context. Overreliance on any single parameter risks both diagnostic anchoring and misattributing causality.

Nonetheless, your letter captures the central value of the manuscript: it stimulates necessary discussion around improving our interpretive tools in neonatal brain injury. Advancing this field will require not only physiologic insight but also rigorous validation and humility in application.

"Nonetheless, your letter captures the central value of the manuscript: it stimulates necessary discussion around improving our interpretive tools in neonatal brain injury. Advancing this field will require not only physiologic insight but also rigorous validation and humility in application."

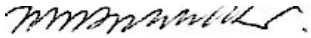
We appreciate your contribution to this dialogue and your commitment to advancing neonatal care through critical inquiry.

Mitchell Goldstein, MD

Editor-in-Chief

Neonatology Today

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief

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Letters to the Editor

Letter to the Editor: "Fellow's Column: Spontaneous Intestinal Perforation or Necrotizing Enterocolitis"

Dear Editor,

We read the informative work "Fellow's Column: Spontaneous Intestinal Perforation or Necrotizing Enterocolitis" by Dr. Kristie Searcy, MD, and Dr. Shabih Manzar, MD, with great interest and appreciation. The authors thoughtfully examine the overlap in presentation between necrotizing enterocolitis (NEC) and spontaneous intestinal perforation (SIP), highlighting the diagnostic challenges this creates in clinical practice. In response, they propose a clear, practical algorithm to distinguish between these two serious conditions, ultimately enhancing clinical awareness of complications with potentially life-threatening outcomes.

"The authors thoughtfully examine the overlap in presentation between necrotizing enterocolitis (NEC) and spontaneous intestinal perforation (SIP), highlighting the diagnostic challenges this creates in clinical practice. In response, they propose a clear, practical algorithm to distinguish between these two serious conditions, ultimately enhancing clinical awareness of complications with potentially life-threatening outcomes."

"The estimated annual cost of caring for infants with Necrotizing Enterocolitis (NEC) is about $500 million to $1 billion. 1 NEC is used as one of the NICU's key performance indicators. (2,3) A high-performing institution has the lowest incidence of NEC. However, the data could be influenced by how the institution defines NEC."

The article begins by introducing existing diagnostic frameworks for NEC, arguing that they are increasingly outdated and that a shift toward categorizing NEC into surgical and medical subtypes is beneficial. This perspective underscores the need for a more nuanced diagnostic approach. The authors build on this critique by emphasizing that NEC is frequently misdiagnosed as focal intestinal perforation due to variations in local practices and the absence of classic clinical features. This observation is particularly compelling in light of recent epidemiological trends, with NEC incidence declining while SIP appears to be on the rise.

"Studies from Fisher et al. (8) showed that neonates with laparotomy-confirmed SIP had significantly lower mortality than those with laparotomy-confirmed NEC."

"To address this diagnostic ambiguity, the authors propose an approach analogous to the classification of hyperbilirubinemia, suggesting that clearer nomenclature can reduce confusion. Their framework encourages clinicians to evaluate three key domains: clinical presentation, radiologic findings, and laboratory data."

To address this diagnostic ambiguity, the authors propose an approach analogous to the classification of hyperbilirubinemia, suggesting that clearer nomenclature can reduce confusion. Their framework encourages clinicians to evaluate three key domains: clinical presentation, radiologic findings, and laboratory data. To arrive at a diagnosis of enterocolitis. The final distinction between NEC and SIP (or focal intestinal perforation) is guided by clinical course and intervention: NEC is confirmed histopathologically, whereas SIP typically requires surgical management, such as an exploratory laparotomy.

Interestingly, the authors conclude by noting that management strategies for NEC and SIP are often similar, suggesting that precise differentiation may not always alter immediate treatment. Nevertheless, their work importantly calls for greater consensus among neonatologists, advocating improved diagnostic clarity to optimize outcomes in these critical neonatal emergencies.

Sincerely,

Fouad Hajjar, OMS-III, Anik Boyadzhyan, OMS-III

Western University of Health Sciences

Dear Mr. Hajjar and Ms. Boyadzhyan,

Thank you for your thoughtful and carefully articulated response to the Fellow's Column by Kristie Searcy, MD and Shabih Manzar, MD. Your engagement with this important topic reflects precisely the type of scholarly dialogue that *Neonatology Today* seeks to foster—one that not only summarizes but critically examines evolving paradigms in neonatal care.

You appropriately highlight the central tension addressed by the authors: the diagnostic ambiguity between Necrotizing Enterocolitis and Spontaneous Intestinal Perforation. This distinction is far more than semantic. As you note, it carries implications for benchmarking, institutional performance metrics, and even perceived quality of care within NICUs. The observation

that reported NEC rates may be influenced by definitional variability is particularly important and speaks to a broader issue in neonatology—the need for standardized, consensus-driven diagnostic criteria that are both clinically meaningful and epidemiologically reliable.

"Your discussion of the authors' proposed framework, which integrates the clinical, radiographic, and laboratory domains, is well taken. It reflects a growing recognition that single-axis diagnostic models are insufficient for complex neonatal diseases. The analogy to hyperbilirubinemia classification is especially insightful, emphasizing how structured nomenclature can reduce variability and improve communication across institutions."

Your discussion of the authors' proposed framework, which integrates the clinical, radiographic, and laboratory domains, is well taken. It reflects a growing recognition that single-axis diagnostic models are insufficient for complex neonatal diseases. The analogy to hyperbilirubinemia classification is especially insightful, emphasizing how structured nomenclature can reduce variability and improve communication across institutions.

At the same time, your letter implicitly raises an important paradox. If, as the authors suggest, initial management strategies for NEC and SIP often converge, one might reasonably question the urgency of precise differentiation in the acute setting. However, I would argue that diagnostic clarity remains essential—not only for prognostication and parental counseling, but also for advancing research, refining prevention strategies, and ensuring the integrity of quality metrics. The distinction becomes even more critical when considering long-term outcomes and the design of interventional trials.

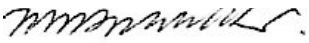
"However, I would argue that diagnostic clarity remains essential—not only for prognostication and parental counseling, but also for advancing research, refining prevention strategies, and ensuring the integrity of quality metrics. The distinction becomes even more critical when considering long-term outcomes and the design of interventional trials."

Your inclusion of outcome data, such as the differential mortality reported in surgically confirmed cases, further underscores that these entities are not interchangeable. Rather, they represent distinct pathophysiologic processes that may overlap in presentation but diverge in trajectory and underlying biology.

We commend you for recognizing both the practical and conceptual contributions of this work. As our field continues to evolve, it is precisely this kind of nuanced, questioning perspective that will help move neonatology beyond rigid classifications toward a more precise and individualized understanding of disease.

Thank you again for your contribution to this important discussion.

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief

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Letters to the Editor

Letter to the Editor: "Title: Beyond the Incubator: Growing a Culture of Interdependent Safety"

Dear Editor,

Dr. Ridout's article on the development of the Bradley Curve at DuPont in the 1990s and its emphasis on employee safety was fascinating. The principle of a maturity continuum, evolving from dependence to independence to interdependence, was used as a model for the POKE system to optimize care, safety, and accountability in the NICU. This system championed the culture of safety at work and at home.

"The principle of a maturity continuum, evolving from dependence to independence to interdependence, was used as a model for the POKE system to optimize care, safety, and accountability in the NICU. This system championed the culture of safety at work and at home."

While commendable for DuPont's concern for improving worker safety, one can only wonder where that corporate concern for worker and public safety was when the company knowingly dumped poisonous PFAS "forever chemicals," particularly PFOA (C8), into the environment for decades, as described in attorney Rob Bilott's novel, *Exposure: Poisoned Water, Corporate Greed, and One Lawyer's Twenty Year Battle Against Dupont*, on which the excellent movie *Dark Waters* (starring Mark Ruffalo) was based. For full disclosure, I grew up in a city on the Ohio River, which was our water source, downstream from where these chemicals were freely discharged into the river.

"While commendable for DuPont's concern for improving worker safety, one can only wonder where that corporate concern for worker and public safety was when the company knowingly dumped poisonous PFAS 'forever chemicals,' particularly PFOA (C8), into the environment for decades,"

PFAS have been commercially produced since the 1940s, but their toxicity was not publicly known until the late 1990s. (1) Two companies have been the major producers of PFAS—DuPont (for Teflon) and 3M (for Scotchguard). These chemicals have unique properties that repel oil and water, resist temperature, and reduce friction, which is why they have a wide range of applications, including non-stick cookware, fabric treatment, food packaging, insulation, and fire suppression, among others. (1, 2) Their chemical properties also make them highly resistant to degradation in the human body and the environment. In fact, despite being phased out of production and use since 2002 and completely phased out by 2015, these chemicals are ubiquitous in our environment and are still found in pregnant women (96–100%) as of 2023. (3) PFOA has been established to cause various health problems, including, but not limited to, fetal growth restriction, pregnancy-induced hypertension, renal and testicular cancers, ulcerative colitis, and impaired response to vaccines. It has also been associated with dyslipidemia, infertility, premature birth, delayed puberty, earlier menopause, and other metabolic effects (1) as well as neurological and behavioral disorders, including ADHD, autism, cognitive delays, and schizophrenia. (4)

"PFOA has been established to cause various health problems, including, but not limited to, fetal growth restriction, pregnancy-induced hypertension, renal and testicular cancers, ulcerative colitis, and impaired response to vaccines."

Gaber et al. examined previously private industry documents to determine how long DuPont and 3M knew about the toxicity of PFAS. (1) The timelines below (Figures 1 and 2) show when and what they found—much of the toxic effects of their products **decades** before it was publicly known and before the lawsuit filed by Rob Bilott in *Leach v. E.I. Dupont de Nemours & Co.* in 2002:

"Unfortunately, these corporations seem to ascribe to the same philosophy as the tobacco, oil, chemical, and other industries in denying harm to public health by suppressing scientific research for as long as possible to make as much money as possible until significantly adverse health and/or environmental issues can no longer be denied. "

Essentially, these companies knew that PFAS are "highly toxic when inhaled and moderately toxic when ingested" (5)—**a full 40 years** before it was known to the public health community. (1) Unfortunately, these corporations seem to ascribe to the same philosophy as the tobacco, oil, chemical, and other industries in

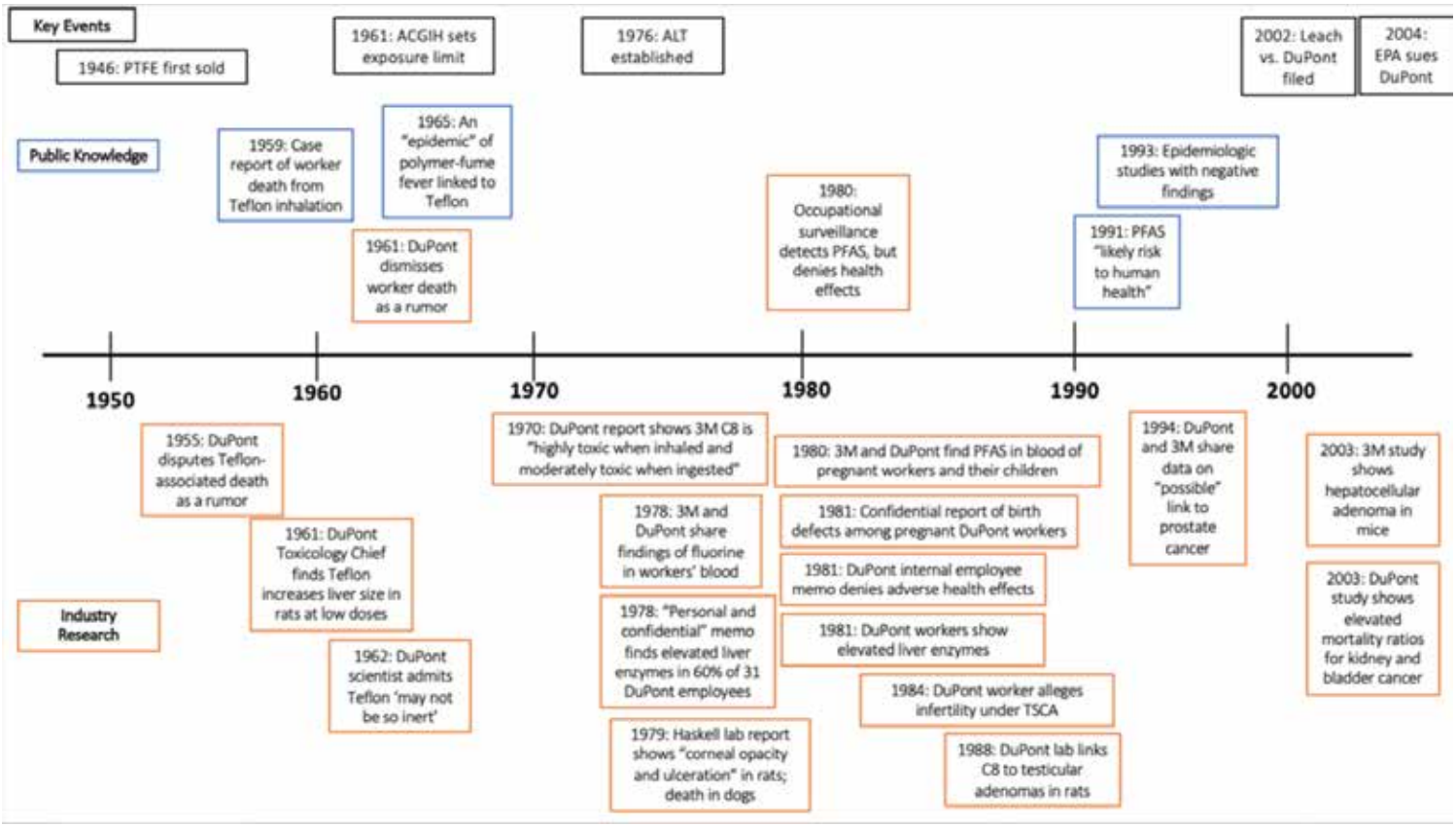


Figure 1. Timeline of notable public health research and health-related industry findings on PFAS health effects, with key historical events in black. The period of interest extends from 1940 to the 2002 Leach vs. DuPont filing, though we include two papers submitted by industry to the EPA after that filing with positive findings of harm and the 2004 lawsuit the EPA subsequently filed, for context. Industry research is in orange; non-industry papers are in blue. Above the timeline are papers in the public domain, and below are papers in the private domain. (http://creativecommons.org/licenses/by/4.0/.)(1)

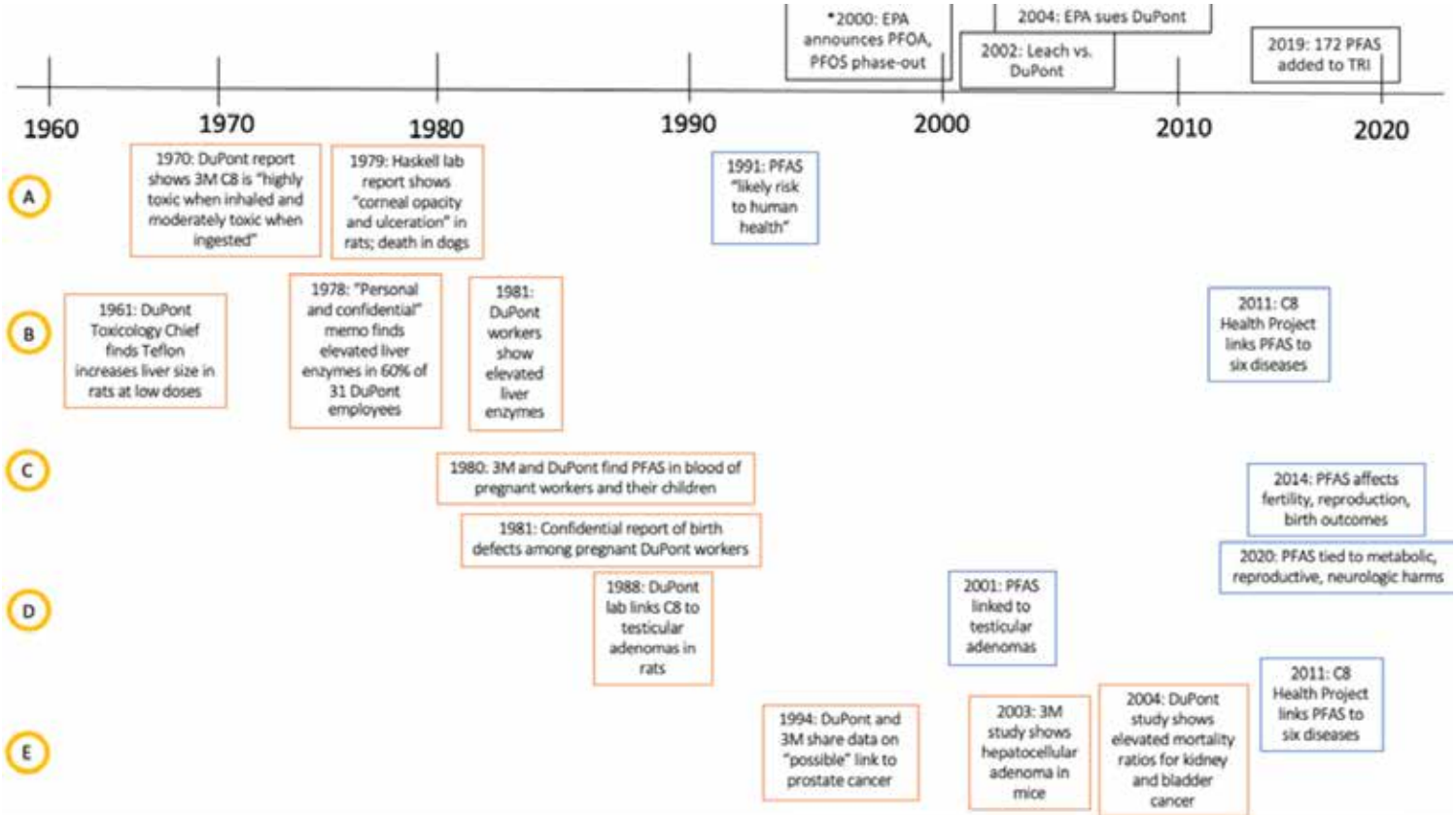


Figure 2. An extended timeline following five health outcomes of interest, showing when information was known by industry (in orange) and in the public domain (in blue). A = Systemic toxicity, B = Liver toxicity, C = Reproductive outcomes, D = testicular adenomas, E = Other cancer risk. http://creativecommons.org/licenses/by/4.0/. (1)

denying harm to public health by suppressing scientific research for as long as possible to make as much money as possible until significantly adverse health and/or environmental issues can no longer be denied. One can only hope that the several hundreds of millions of dollars (and potentially over a billion, as some lawsuits are still making their way through the court system) of damages awarded to the victims of Dupont will continue to serve as an incentive for corporations to have some corporate conscience and take responsibility to prevent harm to their workers and the general public. Sadly, some of these adverse effects on our health will continue for many years to come as several of these products persist—forever in the case of PFAS—in the environment.

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Sincerly,

Hun-Seng Chao, MD

Dear Dr. Chao,

I thank you for this thoughtful and deeply personal reflection on Dr. Ridout's discussion of the Bradley Curve and its application to safety culture in the NICU. The tension highlighted here between corporate innovation that advances safety and corporate actions that undermine public health is both real and instructive.

The example of DuPont illustrates a broader truth: institutions, like individuals, are capable of both meaningful contributions and profound harm. The Bradley Curve's emphasis on progression from dependence to interdependence offers a compelling framework for cultivating accountability and shared responsibility in healthcare settings. Its adaptation into NICU practice models such as POKE reflects the kind of cross-industry learning that can improve outcomes for our most vulnerable patients.

"The example of DuPont illustrates a broader truth: institutions, like individuals, are capable of both meaningful contributions and profound harm. "

At the same time, the historical record surrounding PFAS, including Perfluorooctanoic acid, raises serious ethical concerns. As detailed in Exposure: Poisoned Water, Corporate Greed, and One Lawyer's Twenty-Year Battle Against DuPont and dramatized in Dark Waters, there is compelling evidence that critical knowledge about toxicity was not disclosed in a timely or transparent manner. This delay does not exculpate; rather, it sharpens responsibility.

"Recognition of positive contributions, such as advancements in workplace safety, must not be misconstrued as absolution. On the contrary, it underscores the expectation that organizations capable of leadership in one domain should demonstrate the same integrity across all domains."

Recognition of positive contributions, such as advancements in workplace safety, must not be misconstrued as absolution. On the contrary, it underscores the expectation that organizations capable of leadership in one domain should demonstrate the same integrity across all domains. The failure to do so, particularly when it involves long-term environmental and human health

"For the neonatal community, this discussion is especially relevant. Our work is grounded in prevention, transparency, and advocacy for those who cannot speak for themselves. The persistence of PFAS in pregnant populations and the documented associations with adverse developmental and health outcomes reinforce the need for vigilance,"

consequences, is not simply a historical footnote; it is an ongoing public health issue with intergenerational implications, including those affecting fetal and neonatal health.

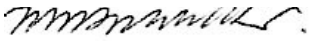
For the neonatal community, this discussion is especially relevant. Our work is grounded in prevention, transparency, and advocacy for those who cannot speak for themselves. The persistence of PFAS in pregnant populations and the documented associations with adverse developmental and health outcomes reinforce the need for vigilance, not only in clinical care but also in how we engage with industry, policy, and environmental health.

"It is through informed discourse, transparency, a commitment to disclosure, and responsible parties owning past violations of the public trust that we can collectively move toward systems, clinical and corporate alike, that truly embody ethical practice."

As a journal, *Neonatology Today* is committed to fostering dialogue that does not shy away from complexity. We believe it is possible, and necessary, to hold two truths simultaneously: that models like the Bradley Curve can inform meaningful improvements in safety culture, and that corporations must be held accountable for actions that compromise public trust and health. These are not opposing views; they are part of a continuum of responsibility.

It is through informed discourse, transparency, a commitment to disclosure, and responsible parties owning past violations of the public trust that we can collectively move toward systems, clinical and corporate alike, that truly embody ethical practice.

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief

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Erratum (Neonatology Today February, 2026

There are no erratum to report for February, 2026

Corrections can be sent directly to LomaLindaPublishingCompany@gmail.com. The most recent edition of Neonatology Today including any previously identified erratum may be downloaded from www.neonatologytoday.net.

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Neonatology Today welcomes your editorial commentary on previously published manuscripts, news items, and other academic material relevant to the fields of Neonatology and Perinatology.

Please address your response in the form of a letter. For further formatting questions and submissions, please contact Mitchell Goldstein, MD at LomaLindaPublishingCompany@gmail.com.

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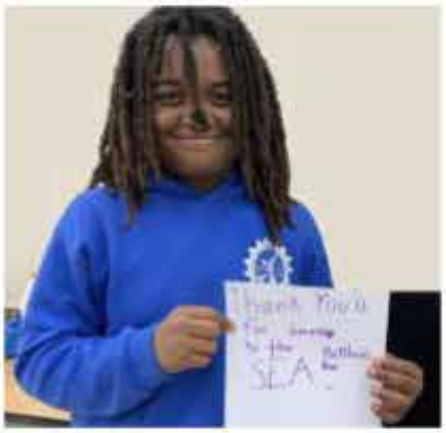


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The Village Son



A Life's Journey

Iranian village to a university professor in the United States of America in this memoir. As a boy, his unruly behavior was sedated by scholastic challenges as a remedy. At age twelve, he left home for junior high school in a provincial capital. At first, a lack of self-esteem led him to stumble, but he soon found the courage to tackle his subjects with vigor. He became more curious about the world around him and began to yearn for a new life despite his financial limitations. Against all odds, he became one of the top students in Iran and earned a scholarship to study medicine in Europe. Even though he was culturally and socially naïve by European standards, an Italian family in Rome helped him thrive. The author never shied away from the challenges of learning Italian, and the generosity of Italy and its people became part and parcel of his formative years. By the time he left for the United States of America, he knew he could accomplish whatever he imagined.

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Gravens by Design: the Gravens Conference On the Environment of Care to Partner with Rush University to Provide Interprofessional Continuing Education

Mitchell Goldstein, MD, MBA, CML

"The Gravens Conference on the Environment of Care for High Risk Newborns and their families has long been recognized as a singular force in neonatal care—an international gathering dedicated not simply to advancing clinical practice, but to transforming how we understand and shape the entire ecosystem of the Newborn Intensive Care Unit (NICU)."

The Gravens Conference on the Environment of Care for High Risk Newborns and their families has long been recognized as a singular force in neonatal care—an international gathering dedicated not simply to advancing clinical practice, but to transforming how we understand and shape the entire ecosystem of the Newborn Intensive Care Unit (NICU). With its deeply interdisciplinary foundation, the conference convenes experts from developmental biology, neuroscience, developmental psychology, architecture, and anthropology alongside neonatologists, neonatal nurses, developmental therapists, and—critically—former NICU parents. This convergence of perspectives is not incidental; it is essential to the conference's mission of holistically enhancing outcomes for the most vulnerable infants and their families.

What distinguishes the Gravens Conference from other medical meetings is its unwavering commitment to the principle that environment is not peripheral to care—it is care. The physical, sensory, emotional, and relational contexts in which infants receive treatment profoundly shape neurodevelopment, physiologic stability, and long-term outcomes. The conference exists to advance knowledge about how hospital and NICU environments influence infant health and family well-being, translating emerging science into practical, actionable change. From the impact of noise and lighting on brain development to the role of parental presence in stabilizing physiologic responses, Gravens has consistently been at the forefront of redefining what constitutes optimal care.

Equally central is the conference's leadership in promoting family-centered care. Gravens has helped shift the paradigm from viewing parents as visitors to recognizing them as essential partners in care. This philosophy has informed not only bedside practices but also institutional policies and architectural design, ensuring that NICUs are structured to support bonding, privacy, and active parental participation. The presence of parent advocates at the conference reinforces this commitment, grounding scientific discourse in lived experience and reminding all participants of the human dimensions of neonatal care.

The Gravens Conference has also played a pivotal role in setting global standards for NICU design. Its influence can be seen in the widespread transition from large, open-bay nurseries to single-family room models that prioritize developmental support, infection control, and family integration. By bringing architects and designers into direct dialogue with clinicians and scientists, the conference has fostered innovations that reduce stress, minimize harmful sensory exposures, and create healing environments tailored to the unique needs of high-risk infants.

At its core, Gravens is a catalyst for collaboration. It fosters enduring partnerships across disciplines and institutions, encouraging the exchange of ideas that might otherwise remain siloed. This collaborative ethos has led to the development of guidelines, research initiatives, and advocacy efforts that extend far beyond the conference itself, influencing practice and policy on a global scale.

"In this context, the decision to partner with the Rush University Interprofessional Continuing Education (IPCE) Office represents a natural and strategic evolution of the Gravens mission. The Rush IPCE Office is uniquely positioned to support this vision. As a jointly accredited academic center, Rush is authorized to provide continuing education to a wide array of healthcare professionals, including physicians, nurses, pharmacists, psychologists, social workers, dietitians, and physical and occupational therapists."

In this context, the decision to partner with the Rush University Interprofessional Continuing Education (IPCE) Office represents a

natural and strategic evolution of the Gravens mission. The Rush IPCE Office is uniquely positioned to support this vision. As a jointly accredited academic center, Rush is authorized to provide continuing education to a wide array of healthcare professionals, including physicians, nurses, pharmacists, psychologists, social workers, dietitians, and physical and occupational therapists. This breadth of accreditation aligns seamlessly with the interdisciplinary nature of the Gravens Conference, ensuring that all members of the care team can receive meaningful, recognized educational credit.

"This breadth of accreditation aligns seamlessly with the interdisciplinary nature of the Gravens Conference, ensuring that all members of the care team can receive meaningful, recognized educational credit"

Interprofessional education—where professionals learn with, from, and about each other—is foundational to both Rush IPCE and Gravens. In the NICU, where outcomes depend on seamless coordination among diverse disciplines, this approach is indispensable. By embedding interprofessional continuing education into the conference structure, Gravens not only enhances the value of attendance but also models the kind of collaborative practice it seeks to promote.

The scale and rigor of Rush IPCE further strengthen this partnership. In 2023 alone, Rush accredited 656 live courses, reflecting both its capacity and its commitment to excellence. Since achieving Joint Accreditation in July 2016, Rush has consistently delivered high-quality educational programming that meets the standards of the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME). In addition, Rush is an approved provider for multiple disciplines through the Illinois Department of Professional Regulation, including physical therapy, occupational therapy, respiratory therapy, social work, nutrition, speech-audiology, and psychology.

"Equally important is the integrity of the educational process. The Rush University Medical Center Office of Interprofessional Continuing Education adheres to strict policies ensuring that all activities are independent, free from commercial bias, and protected from undue influence."

Equally important is the integrity of the educational process. The Rush University Medical Center Office of Interprofessional Continuing Education adheres to strict policies ensuring that all activities are independent, free from commercial bias, and protected from undue influence. This commitment to transparency and ethical rigor ensures that the educational content delivered at the Gravens Conference remains trustworthy, evidence-based, and aligned with the highest standards of patient care.

Through this partnership, the Gravens Conference will not only continue to serve as a hub for innovation and collaboration but will also provide attendees with robust, accredited continuing education that reflects the full spectrum of NICU care. This integration elevates the conference experience, allowing participants to engage deeply with cutting-edge science and interdisciplinary dialogue while also meeting their professional development needs.

Ultimately, this initiative reinforces what Gravens has always stood for: a belief that the best outcomes for high-risk infants arise not from isolated expertise, but from the thoughtful integration of science, environment, and human connection. By aligning with Rush IPCE, the conference takes a decisive step forward—enhancing its reach, deepening its impact, and continuing to shape the future of neonatal care worldwide.

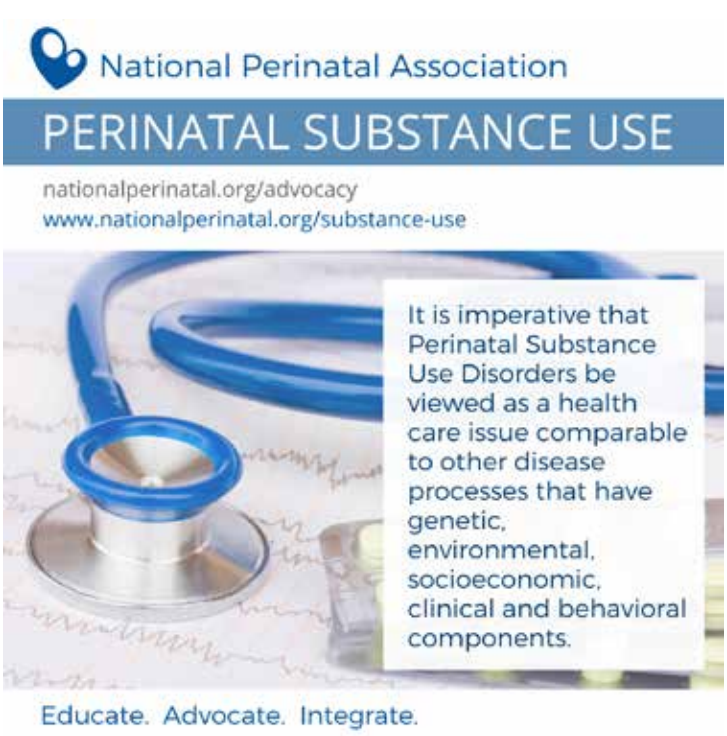
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Corresponding Author



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Professor of Pediatrics
Division of Neonatology
Department of Pediatrics
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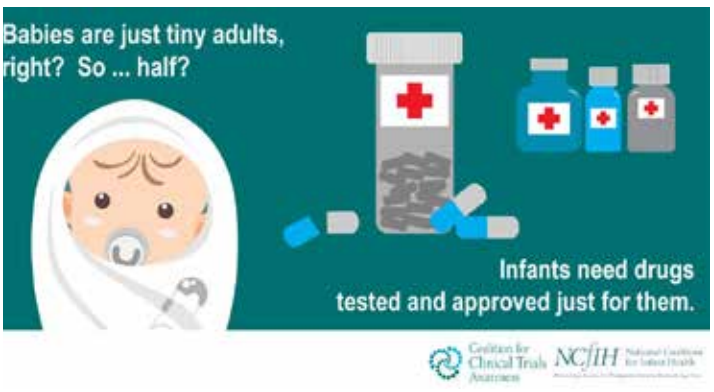
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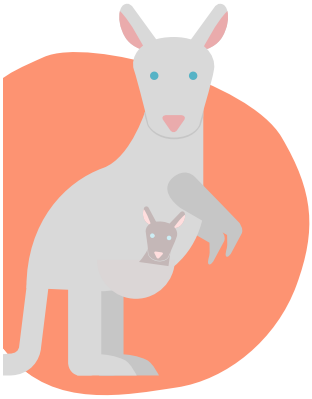






SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

with soap and water for 20+ seconds. Dry well.





PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

and ask others to hold your baby when you can't be there



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Raising Global Awareness of RSV

Global awareness about respiratory syncytial virus (RSV) is lacking. RSV is a relatively unknown virus that causes respiratory tract infections. It is currently the second leading cause of death – after malaria – during infancy in low- and middle-income countries.

The RSV Research Group from professor Louis Bont, pediatric infectious disease specialist in the University Medical Centre Utrecht, the Netherlands, has recently launched an RSV Mortality Awareness Campaign during the 5th RSV Vaccines for the World Conference in Accra, Ghana.

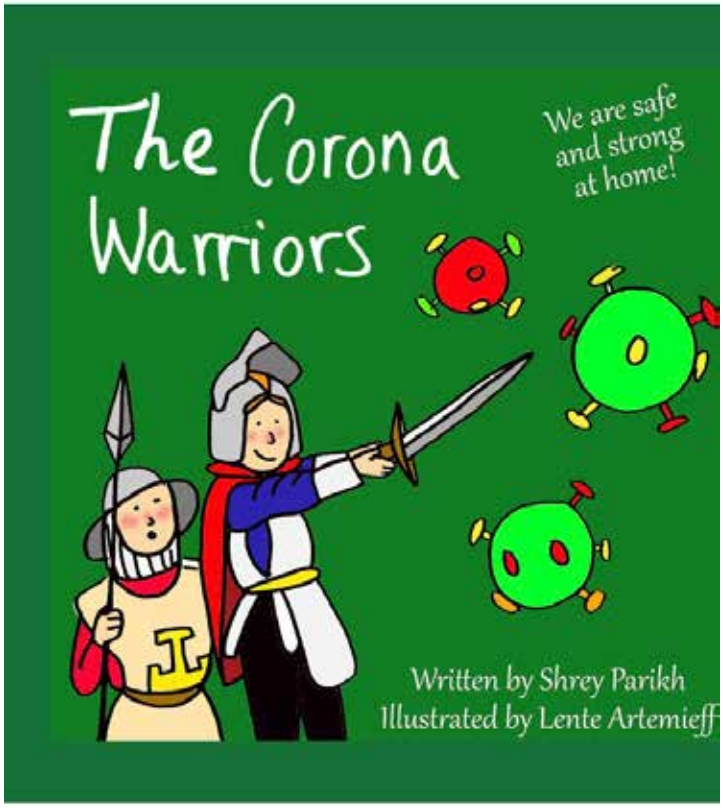
They have produced a personal video entitled "*Why we should all know about RSV*" about Simone van Wyck, a mother who lost her son due to RSV. The video is available at www.rsvgold.com/awareness and can also be watched using the QR code on this page. Please share the video with your colleagues, family, and friends to help raise awareness about this global health problem.



RSV GOLD

A Global Mortality Database for Children with RSV Infection

The RSV awareness video was produced in collaboration with the Bill & Melinda Gates Foundation



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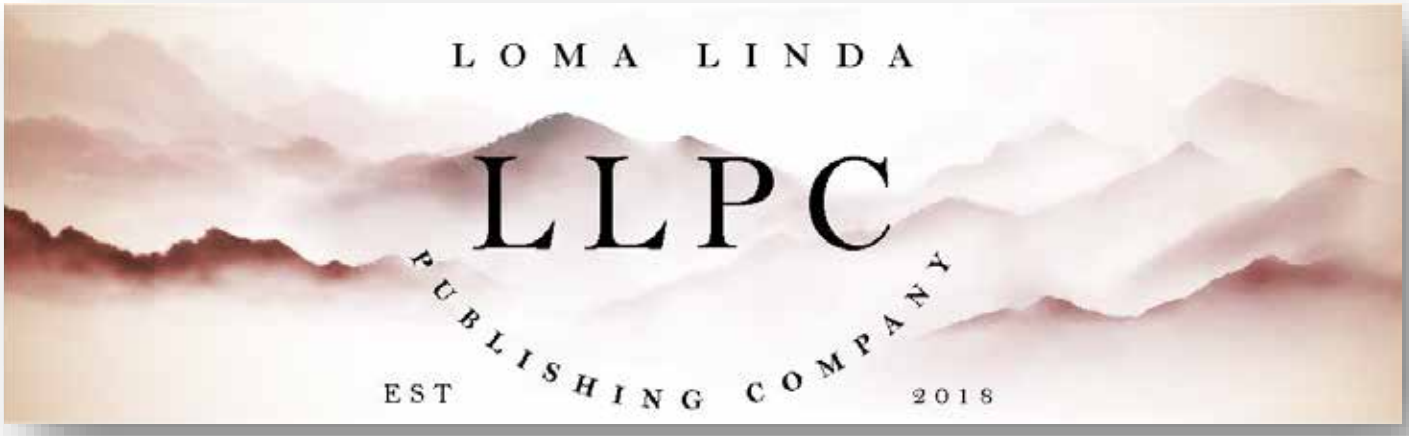
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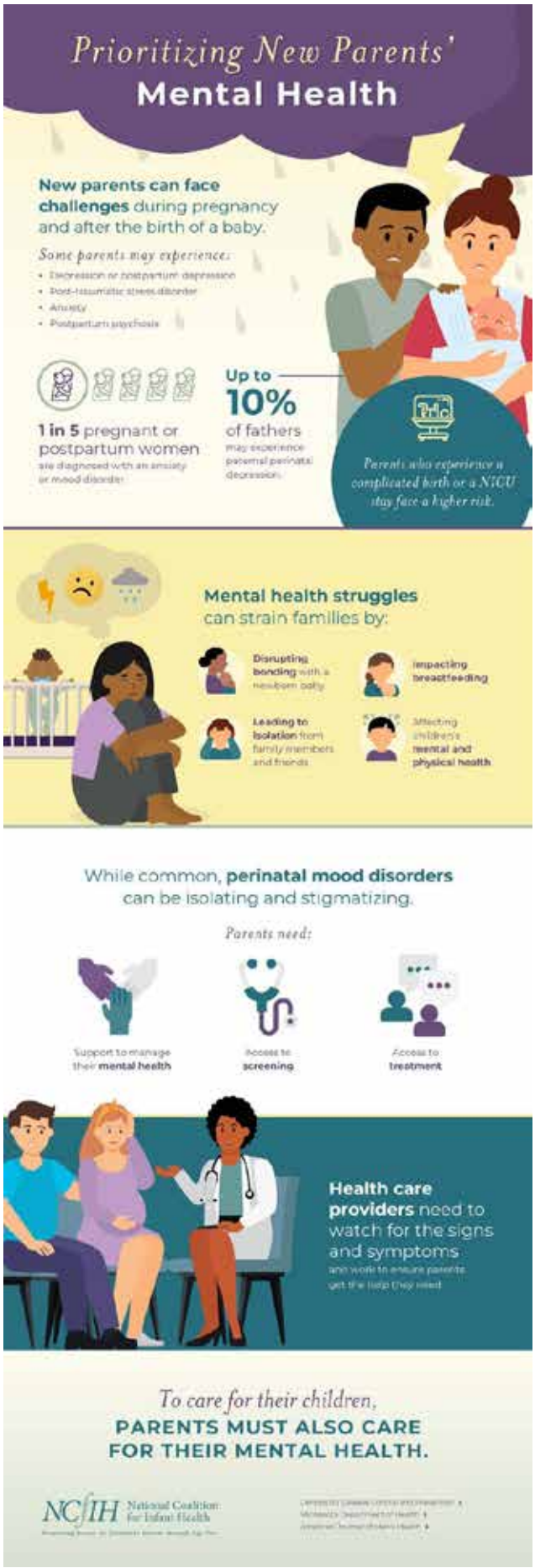




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COPING WITH COVID-19

KEEP PATIENTS UP-TO-DATE WITH CHANGES IN POLICIES SO THEY KNOW WHAT TO EXPECT. LISTEN TO THEIR CONCERNS.





Provide culturally-informed and respectful care.

TELL PARENTS HOW YOU WILL KEEP THEM AND THEIR BABIES SAFE DURING THEIR NICU STAY.





Use technology like video chat apps to include family members who can't visit the NICU.

myNICUnetwork.org

and

National Perinatal Association
NICU Parent Network

My Perinatal Network and My NICU Network are products of a collaboration between NPA and NPN.

Thirteen-year-old Emily Rose Shane was tragically murdered on April 3, 2010 on Pacific Coast Highway in Malibu, CA. Our foundation exists to honor her memory.

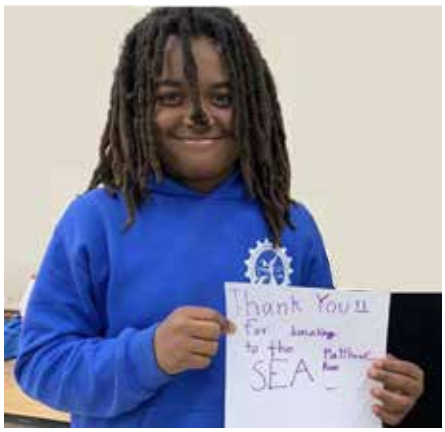


Each year, the Emily Shane Foundation SEA(Successful Educational Achievement) Program provides academic and mentoring support to over 100 disadvantaged middle school students who risk failure and have no other recourse. We have served over 700 children across Los Angeles since our inception in the spring of 2012. Due to the COVID-19 outbreak, our work is in jeopardy, and the need for our work is greatly increased. The media has highlighted the dire impact online learning has caused for the very population we serve; those less fortunate. **We need your help now more than ever to ensure another child is not left behind.**

Make a Difference in the Life of a Student in Need Today!
Please visit emilyshane.org

Sponsor a Child in the SEA Program

The average cost for the program to provide a mentor/ tutor for one child is listed below.



1 session	$15
1 week	$30
1 month	$120
1 semester	$540
1 year	$1,080
Middle School	$3,240

The Emily Shane Foundation is a 501(c)3 nonprofit charity, Tax id # 27-3789582. Our flagship SEA (Successful Educational Achievement) Program is a unique educational initiative that provides essential mentoring/tutoring to disadvantaged middle school children across Los Angeles and Ventura counties. All proceeds directly fund the SEA Program, making a difference in the lives of the students we serve.

National Coalition for Infant Health: Steering Committee Meeting Briefing 2026

Kristen Santiago, MS, Mitchell Goldstein, MD, MBA, CML

The National Coalition for Infant Health is a collaborative of more than 200 professional, clinical, community health, and family support organizations focused on improving the lives of premature infants through age two and their families. NCfIH's mission is to promote lifelong clinical, health, education, and supportive services needed by premature infants and their families. NCfIH prioritizes safety of this vulnerable population and access to approved therapies.

Date: Friday, April 24
Location: Omni Boston at the Seaport
450 Summer Street, Boston, MA

"The Steering Committee Meeting of the National Coalition for Infant Health serves as a central forum for aligning national leaders across clinical care, advocacy, public policy, and industry around a shared mission: improving outcomes for the most vulnerable infants. This meeting is designed to move beyond information sharing and toward strategic alignment, actionable prioritization, and measurable impact."

I. Purpose and Objectives

The Steering Committee Meeting of the National Coalition for Infant Health serves as a central forum for aligning national leaders across clinical care, advocacy, public policy, and industry around a shared mission: improving outcomes for the most vulnerable infants. This meeting is designed to move beyond information sharing and toward strategic alignment, actionable prioritization, and measurable impact.

The objectives of this meeting are to:

- Review and critically assess the Coalition's progress over the past year
- Identify emerging clinical, policy, and societal challenges affecting infant health
- Evaluate public perception and trust in preventive interventions, including immunization
- Facilitate transparent dialogue with industry partners on innovation and access
- Elevate the priorities of member organizations representing diverse stakeholders
- Develop a coordinated, actionable roadmap for the coming year



"Infant health in the United States remains at a critical juncture. While advances in neonatal care have significantly improved survival, disparities in outcomes persist—particularly among underserved and marginalized populations. At the same time, public trust in vaccines and other preventive strategies has become increasingly complex, influenced by misinformation, cultural dynamics, and evolving risk perceptions."

II. Strategic Context

Infant health in the United States remains at a critical juncture. While advances in neonatal care have significantly improved survival, disparities in outcomes persist—particularly among underserved and marginalized populations. At the same time, public trust in vaccines and other preventive strategies has become increasingly complex, influenced by misinformation, cultural dynamics, and evolving risk perceptions.

The Coalition operates within this dynamic environment, advocating for:

- Evidence-based preventive care, including maternal and infant immunization
- Access to human milk-based nutrition and optimal feeding practices
- Policies that support families before, during, and after NICU hospitalization
- Health equity across racial, socioeconomic, and geographic lines

This meeting is structured to integrate these priorities into a cohesive strategy informed by data, frontline experience, and stakeholder collaboration.

"The meeting will begin with remarks from Mitchell Goldstein, Medical Director of the Coalition, who will frame the session within the broader mission of advancing infant health outcomes through collaboration, advocacy, and education."

III. Meeting Overview and Content

Opening Remarks and Framing

The meeting will begin with remarks from Mitchell Goldstein, Medical Director of the Coalition, who will frame the session within the broader mission of advancing infant health outcomes through collaboration, advocacy, and education.

Year in Review and Strategic Outlook

Kristen Santiago, Executive Director, will present a comprehensive review of the Coalition's activities over the past year. This will include:

- Key advocacy milestones at state and federal levels
- Expansion of educational initiatives and stakeholder engagement
- Progress in building partnerships across clinical and community organizations

The forward-looking component will identify priority areas for the upcoming year, including policy opportunities, communication strategies, and programmatic growth.

"A featured presentation by Jarrett Lewis of Public Opinion Strategies will explore the underlying drivers of vaccine confidence and hesitancy."

Vaccine Confidence and Public Perception

A featured presentation by Jarrett Lewis of Public Opinion Strategies will explore the underlying drivers of vaccine confidence and hesitancy. This session will examine:

- The role of trust in healthcare providers and institutions
- The impact of misinformation and communication gaps
- Strategies for improving engagement and message framing

These insights are particularly relevant to neonatal and maternal health, where preventive interventions depend heavily on caregiver trust and understanding.

Industry Perspectives and Innovation Updates

Representatives from key partner organizations will provide updates on advancements shaping the infant health landscape. These presentations will address developments in vaccines, neonatal therapeutics, and human milk-based nutrition, while also highlighting

considerations related to access, policy, and ethical collaboration.

Member Priorities and Collaborative Dialogue:

A central component of the meeting will be dedicated to Steering Committee members sharing their organizational priorities, current initiatives, and areas for collaboration. This session is designed to:

- Surface common themes across organizations
- Identify gaps and unmet needs in infant health
- Foster partnerships that leverage complementary strengths

"Facilitated by Suzanne Staebler, DNP, NNP-BC, FAANP, FAAN, Policy Advisor to the Coalition, this structured discussion will guide participants through a prioritization process. The goal is to distill the morning's discussions into a focused set of high-impact initiatives that can be advanced collectively."

Moderated Prioritization Exercise:

Facilitated by Suzanne Staebler, DNP, NNP-BC, FAANP, FAAN, Policy Advisor to the Coalition, this structured discussion will guide participants through a prioritization process. The goal is to distill the morning's discussions into a focused set of high-impact initiatives that can be advanced collectively.

Closing Remarks:

The meeting will conclude with reflections from Kristen Santiago, summarizing key insights and outlining next steps to ensure sustained momentum and accountability.

IV. Participants and Organizational Representation:

The Steering Committee reflects a multidisciplinary and multi-stakeholder approach to infant health, incorporating perspectives from clinical care, nursing leadership, parent advocacy, and policy.

Participants include:

- National Black Nurses Association
- Expecting Health
- American Academy of Pediatrics
- PreemieWorld
- National Association of Neonatal Nurses
- Council of International Neonatal Nurses, Inc.
- NICU Parent Network
- National Association of Neonatal Therapists
- Hand to Hold
- GLO Preemies
- The Trianon Group
- Association of Women's Health, Obstetric and Neonatal Nurses
- Council of International Neonatal Nurses

V. Expected Outcomes

By the conclusion of the meeting, the Coalition aims to achieve:

- A clearly defined set of shared advocacy and education priorities
- Strengthened alignment across member organizations

Disclosures: *The authors have no relevant disclosures.*

NT

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National Coalition for Infant Health Values (SANE)

Safety. Premature infants are born vulnerable. Products, treatments and related public policies should prioritize these fragile infants' safety.

Access. Budget-driven health care policies should not preclude premature infants' access to preventative or necessary therapies.

Nutrition. Proper nutrition and full access to health care keep premature infants healthy after discharge from the NICU.

Equity. Prematurity and related vulnerabilities disproportionately impact minority and economically disadvantaged families. Restrictions on care and treatment should not worsen inherent disparities.

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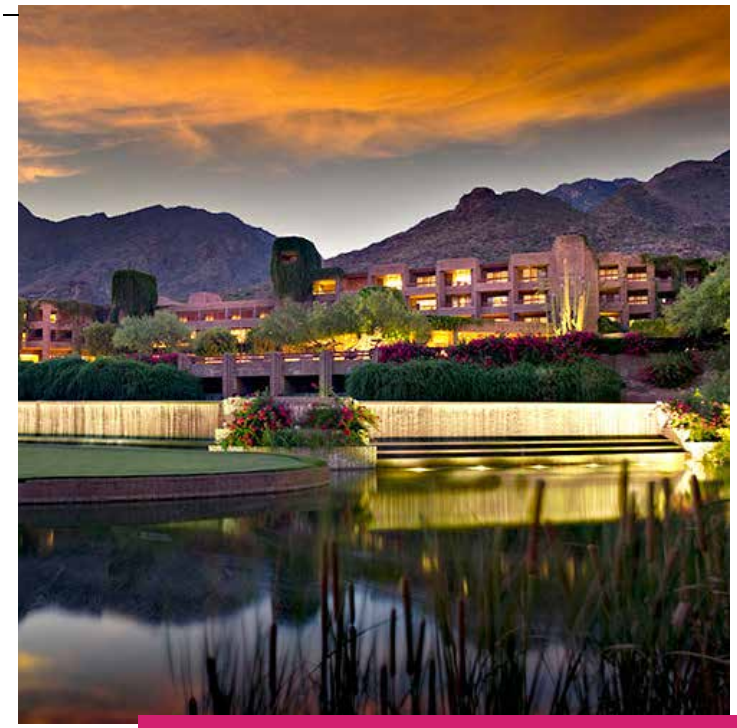
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Tucson, AZ

Your Pregnancy and Substance Use

4 Things you can do to improve your health and lower your risk for complications



Get Prenatal Care

Start early. Go to all your visits. Empower yourself with information so you can make smart decisions. Build relationships with providers who understand Substance Use Disorders (SUDs) and know how to help. Partner with them to reach your goals. But remember, you do not need to be abstinent from substance use to get care. Go now.



Reduce Your Use

There are simple things you can do to limit the harm substances might do.

- Use fewer substances
- Use smaller amounts
- Use less often
- Learn how to use safer

Reducing or quitting smoking is a good place to start. Set your goals, then ask for help.
One of the best things you can do is to stop using alcohol. We know that even small amounts are risky. And when combined with benzos and opioids, alcohol can kill.



Use Medications for Opioid Use Disorder (MOUD) if you are opioid dependent

Methadone and Buprenorphine (Subutex® or Suboxone®) are the "Standard of Care" during pregnancy because they:

- Eliminate the risks of illicit use
- Reduce your risk for relapse
- Can be a positive step towards recovery



Take Good Care of Yourself

You deserve a healthy pregnancy & childbirth.

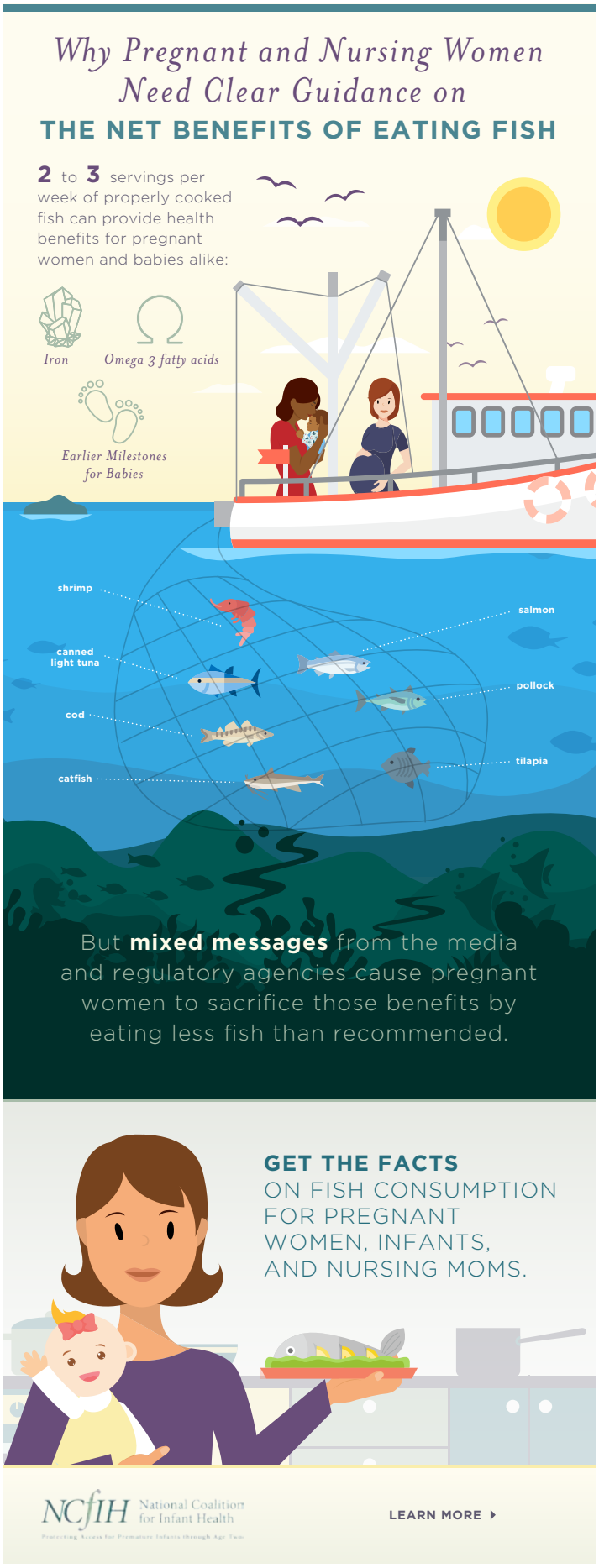
- Eat healthy and take your prenatal vitamins
- Find the right balance of rest and exercise
- Surround yourself with people who care

Your Health Matters

Academy of Perinatal Harm Reduction

National Perinatal Association

www.perinatalharmreduction.org | www.nationalperinatal.org



SHARED DECISION-MAKING PROTECTS MOTHERS + INFANTS DURING COVID-19

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- HORIZONTAL INFECTION
- SEPARATION AND TRAUMA





EVIDENCE

We encourage families and clinicians to remain diligent in learning **up-to-date evidence**.

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

- **S** EEK PARTICIPATION
- **H** ELP EXPLORE OPTIONS
- **A** SSESS PREFERENCES
- **R** EACH A DECISION
- **E** VALUATE THE DECISION





TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

We need to understand more about outcomes for mothers and infants exposed to COVID-19, with special attention to:

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY



NEW DATA EMERGE DAILY. NANN AND NPA ENCOURAGE PERINATAL CARE PROVIDERS TO ENGAGE IN CANDID CONVERSATIONS WITH PREGNANT PARENTS PRIOR TO DELIVERY REGARDING RISKS, BENEFITS, LIMITATIONS, AND REALISTIC EXPECTATIONS.

Partnering for patient-centered care when it matters most.

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National Association of Neonatal Nurses

National Perinatal Association

Fragile Infant Forums for Implementation of IFCDC Standards: The Gravens 2026 Emphasis on the Multiple Aspects of the Sensory Environment of Care

Joy V. Browne, Ph.D., PCNS, IMH-E



The sensory environment for babies and their parents has historically been one of "too much" or "too little." Early NICU environments were protective. Later in their evolution, units became more populated with auditory, visual, and physical sensory input. More professionals became involved in caregiving, sophisticated medical equipment was used to support babies, and procedures became more frequent. The result was that sensory environments became more intrusive and often destabilizing for vulnerable babies. The sensory impact on babies and their families in intensive care has demonstrated the need for protection against excessive and inappropriate intrusions and has emphasized the need for organized and individualized sensory experiences. This year's Gravens meeting will emphasize both the developmental science and the importance of appropriate sensory environments for babies and their families in intensive care.

"The sensory impact on babies and their families in intensive care has demonstrated the need for protection against excessive and inappropriate intrusions and has emphasized the need for organized and individualized sensory experiences."

Evolution of sensory stimulation practices in NICUs:

Early in the development of specialized services for preterm babies, there was a concern for preventing infections, which resulted in contact with the least number of persons needed for adequate care. Parents were not permitted access to their babies for the same reason. There was a shift from seeing preterm infants as fragile beings to being sensory-deprived. (1) The "deprivation construct" led to the advent of sensory stimulation studies. (2) Tactile and kinesthetic stimulation aimed to increase weight gain in preterm babies (3–6), and visual stimulation was also thought to be beneficial to babies' development. (7, 8) Subsequently, multimodal stimulation studies were introduced. (9–12)

Technology-based sensory stimulation studies expanded to include the use of rocking waterbeds and "breathing bears" to reduce apneic episodes and enhance development. (13–15) Other related sensory stimulation devices, such as pacifier-activated music therapy and synthetic orocutaneous stimulation, emerged as technological applications and became more widely available. (16, 17)

The evidence for potential adverse consequences of sensory stimuli was recognized, and sensitivity to learning about the effects of the environment on babies' physiology and developing brains began. The use of technological monitoring and imaging studies prompted a re-evaluation of the effects of the sensory environment on babies' neurophysiologic responses. (18–20) The recognition resulted in "minimal stimulation" efforts, including dimmed lighting, lowered sound levels, clustered care, and minimized sleep disruptions, culminating in "minimal stim" protocols.

"The evidence for potential adverse consequences of sensory stimuli was recognized, and sensitivity to learning about the effects of the environment on babies' physiology and developing brains began. The use of technological monitoring and imaging studies prompted a re-evaluation of the effects of the sensory environment on babies' neurophysiologic responses."

Evidence-based reviews of implications of the NICU environment on babies' outcomes were published in 1992 by a consensus group led by Dr. Stanley Graven. These publications established science-based practice recommendations based on the then-

available studies. Those efforts prompted the establishment of annual Gravens meetings to provide education focused on the sensory and caregiving environment of care. Concurrent with the Gravens meetings, the NICU Design Standards (https://nicudesign.nd.edu/nicu-standards/) and the Infant and Family Centered Developmental Care Standards, Competencies, and Best Practices (https://nicudesign.nd.edu/nicu-care-standards/), consensus panels have provided evidence-based guidance for the environment of care for babies and their families. Each provides strong evidence for implementing appropriate sensory environments in intensive care.

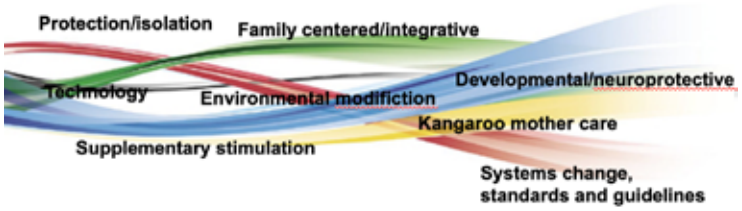
"Evidence-based reviews of implications of the NICU environment on babies' outcomes were published in 1992 by a consensus group led by Dr. Stanley Graven. These publications established science-based practice recommendations based on the then-available studies. Those efforts prompted the establishment of annual Gravens meetings to provide education focused on the sensory and caregiving environment of care."

Current directions for sensory environment of care studies and practices:

Contributions from developmental psychobiology, applied clinical and social science, psychology, environmental ecology, and design studies have shifted current environments and practices toward more sensory-appropriate, neuroprotective, nurturing, humane, and inclusive approaches. In addition to increasing scientific evidence for appropriate sensory environments, there has been a strong national and international movement towards family-centered NICU care. An emphasis on parental inclusion in all caregiving practices and participation on the decision-making medical team has resulted in policies and procedures that encourage non-separation of parents from their baby, skin-to-skin contact, and early, successful breastfeeding. (21–24) Practices such as these can be considered as contributing to appropriate sensory experiences for babies and their parents.

"Contributions from developmental psychobiology, applied clinical and social science, psychology, environmental ecology, and design studies have shifted current environments and practices toward more sensory-appropriate, neuroprotective, nurturing, humane, and inclusive approaches."

Figure. Evolution of sensory-based care in intensive care. (initially presented at the Karolinska meeting, Stockholm, Sweden, 2015)



"The 2026 Gravens Meeting on the Environment of Care for High Risk Newborns and their Families will be held June 16–18, 2026 at the University of Notre Dame."

The Gravens meeting emphasizes the appropriate sensory environments of care:

The 2026 Gravens Meeting on the Environment of Care for High Risk Newborns and their Families will be held June 16–18, 2026 at the University of Notre Dame. The Gravens meetings are currently in their 39th year. A plenary presentation on the first day will describe the current state of the science of sensory stimulation studies for babies in intensive care and is expected to prompt lively discussion for the remainder of the meeting. On the second day, speakers at the Infant and Family Centered Developmental Care Track will provide an in-depth, integrated perspective on why attention to sensory development in babies is essential. Expert

"Integration of developmental science, clinical implications, and parent perspectives will lead to informed, nuanced guidance on how to provide individualized, developmentally appropriate, and family-sensitive sensory input for both babies and their parents."

researchers and clinicians in the field will review recent evidence on somatosensory, auditory, visual and chemosensory development. Integration of developmental science, clinical implications, and parent perspectives will lead to informed, nuanced guidance on how to provide individualized, developmentally appropriate, and family-sensitive sensory input for both babies and their parents.

We hope you will join us to discuss the implications for designing and delivering the sensory environment of care in an informed, evidence-based, and sensitive manner. We expect rich discussion about appropriate, organized, and individualized optimal sensory environments for babies and their families.

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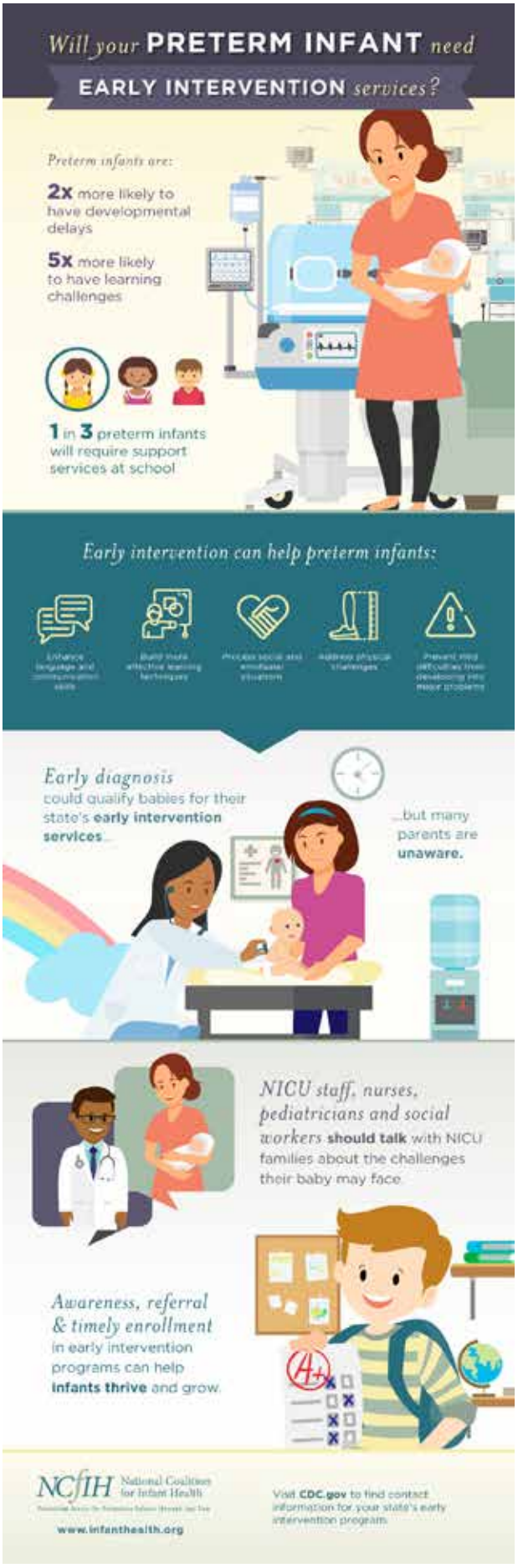
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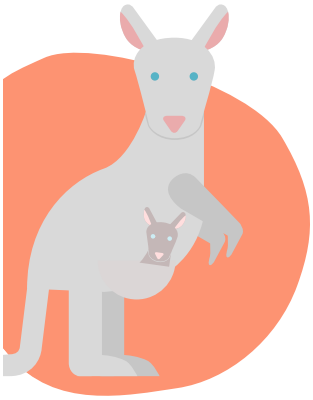
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SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

with soap and water for 20+ seconds. Dry well.





PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

and ask others to hold your baby when you can't be there



National Perinatal Association

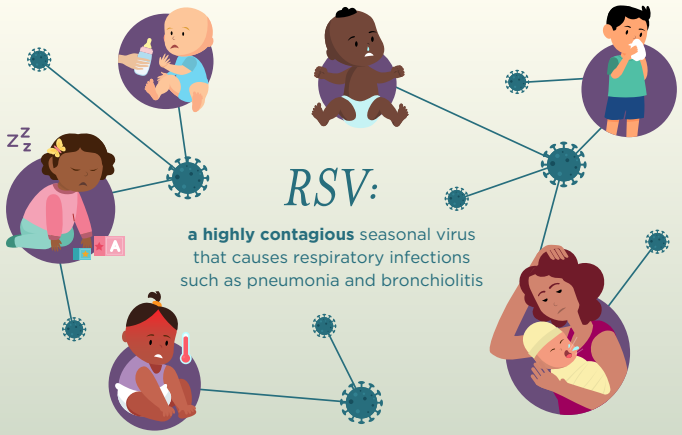
nicuparentnetwork.org

NPN NICU PARENT NETWORK

nationalperinatal.org/skin-to-skin

Respiratory Syncytial Virus

DID YOU KNOW?



RSV:

a highly contagious seasonal virus that causes respiratory infections such as pneumonia and bronchiolitis

Infants under age 1

RSV is the **leading cause** of hospitalization

16x more likely to get RSV than the flu





Kids under age 5 experience

500,000 emergency room visits for RSV each year

57,000 hospitalizations for RSV each year

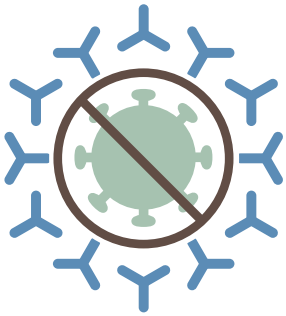
NCfIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

LEARN MORE

Protecting your baby and family from

Respiratory Viruses:



What parents need to know this RSV and flu season

Like COVID-19, RSV (Respiratory Syncytial Virus) and flu affect the lungs and can cause serious breathing problems for children and babies. Talk to your family about the risks.

Certain diagnoses can make children and babies more vulnerable for serious complications from respiratory viruses - including prematurity, chronic lung disease, and heart conditions.

You can limit the spread of viruses by wearing a mask, washing your hands with soap & water, using an alcohol-based hand sanitizer, and getting vaccinated.

The fewer germs your baby is exposed to, the less likely they are to get sick. Let people know you need their help to stay well. Limit visitors. Avoid crowds. Stay away from sick people.

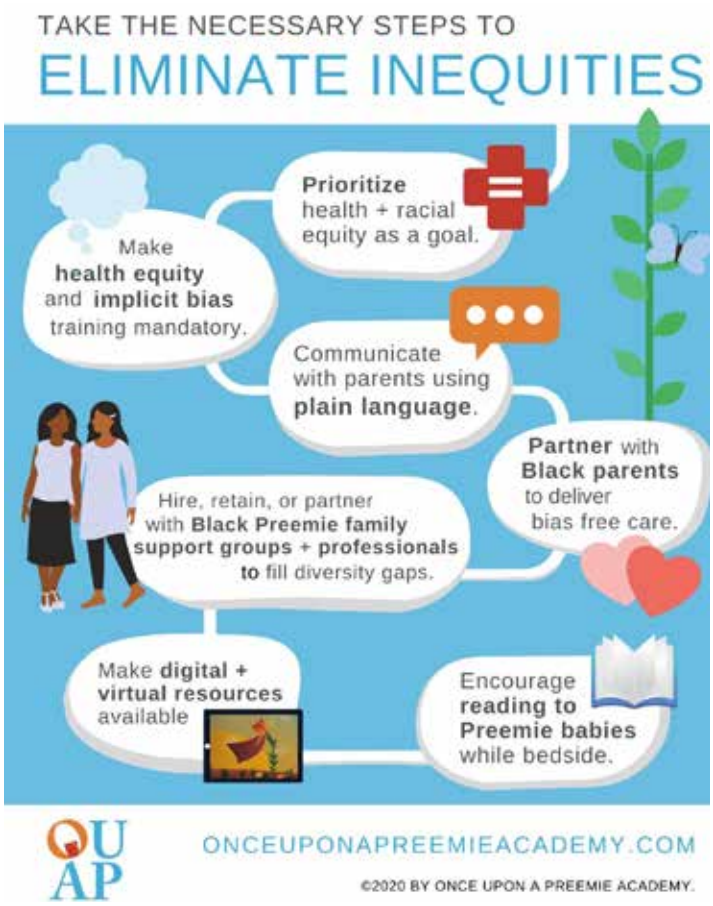
Immunizations save lives. Stay up-to-date with your family's flu vaccinations and COVID-19 boosters. This helps our community stay safe by stopping the spread of deadly viruses.

Babies older than 6 months can get a flu shot and COVID-19 vaccinations. There is no vaccine for RSV, but monthly antibody shots during RSV season can help protect them.

WE CAN HELP PROTECT EACH OTHER.

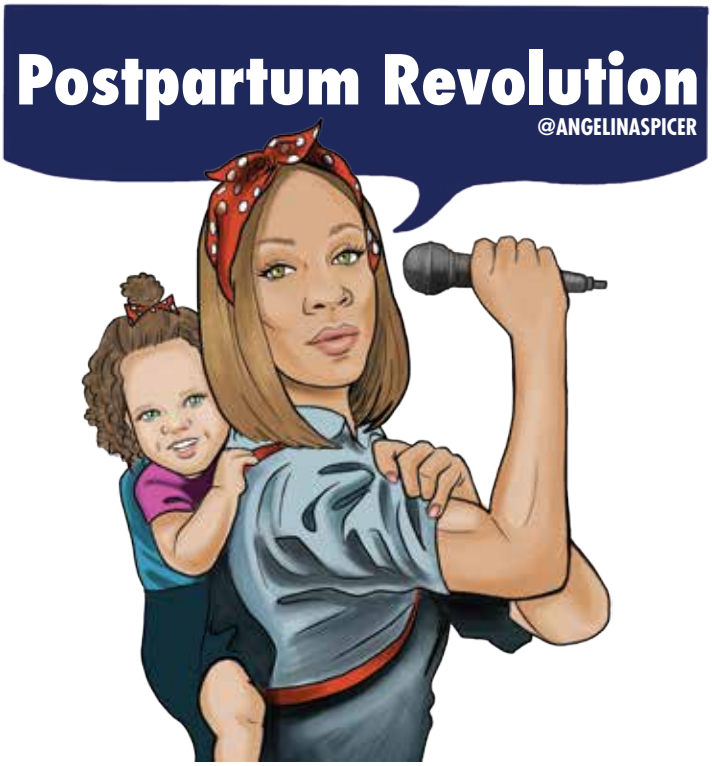
National Perinatal Association

www.nationalperinatal.org/rsv



The Gap Baby: An RSV Story





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Preventing Retinopathy of Prematurity

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Jonathan R. Swanson, MD, MSc
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COVID-19

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FREE for our NICU COMMUNITY

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- Bonding with Your Baby
- Caregivers Need Care Too



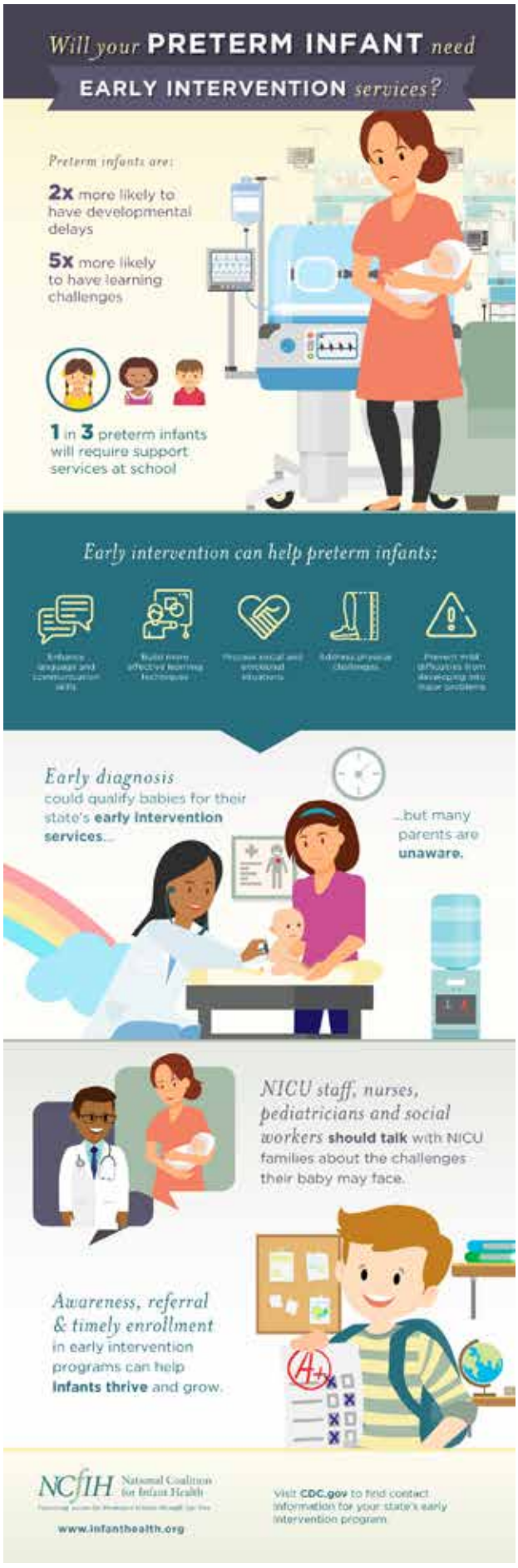
Download at www.nationalperinatal.org/psychologists

The National Urea Cycle Disorders Foundation



The NUCDF is a non-profit organization dedicated to the identification, treatment and cure of urea cycle disorders. NUCDF is a nationally-recognized resource of information and education for families and healthcare professionals.

www.nucdf.org | Phone: (626) 578-0833



Which Infants are More Vulnerable to Respiratory Syncytial Virus?

RSV is a respiratory virus with cold-like symptoms that causes 90,000 hospitalizations and 4,500 deaths per year in children 5 and younger. It's 10 times more deadly than the flu. For premature babies with fragile immune systems and underdeveloped lungs, RSV proves especially dangerous.

But risk factors associated with RSV don't touch all infants equally.*

*Source: Respirator Syncytial Virus and African Americans

Caucasian Babies	Risk Factor	African American Babies
11.6%	Prematurity	18.3%
58.1%	Breastfeeding	50.2%
7.3%	Low Birth Weight	11.8%
60.1%	Siblings	71.6%
1%	Crowded Living Conditions	3%

AFRICAN AMERICAN BABIES bear the brunt of RSV. Yet the American Academy of Pediatrics' restrictive new guidlines limit their access to RSV preventative treatment, increasing these babies' risk.

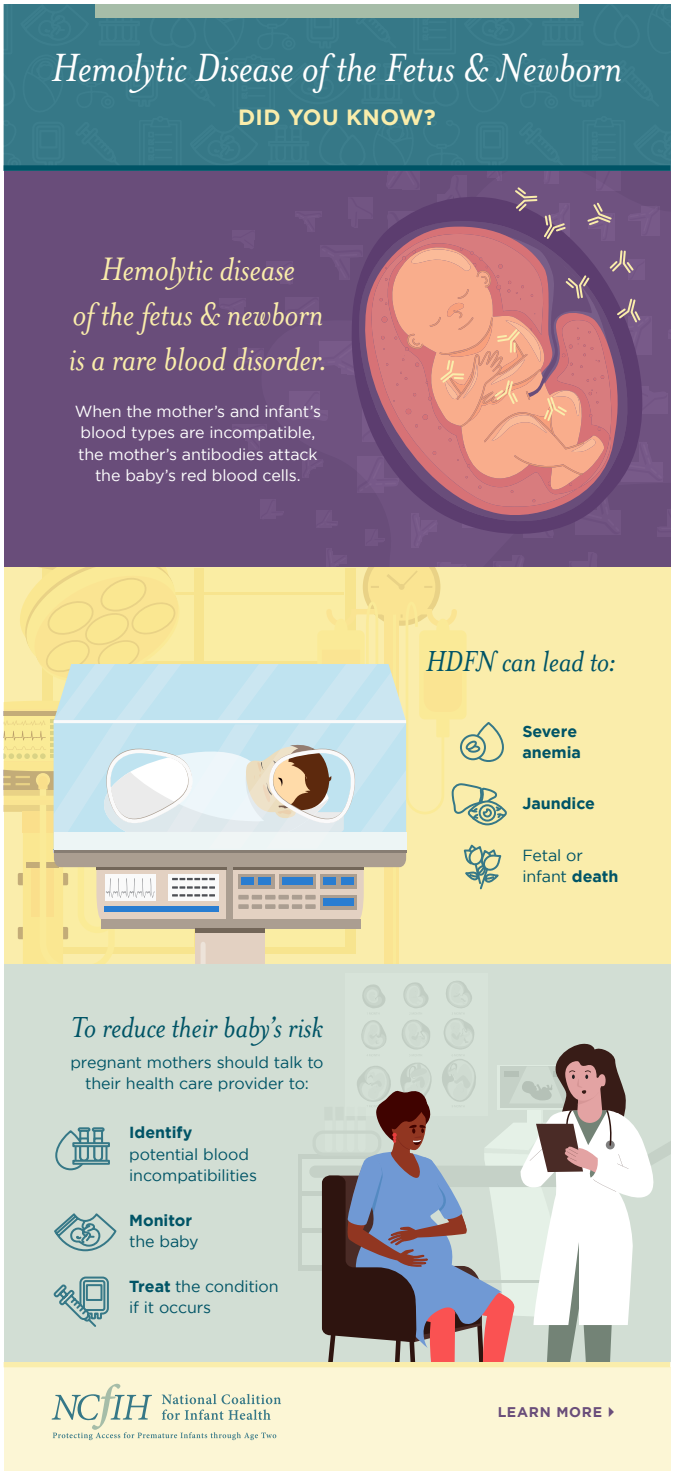
AfPA Alliance for Patient Access

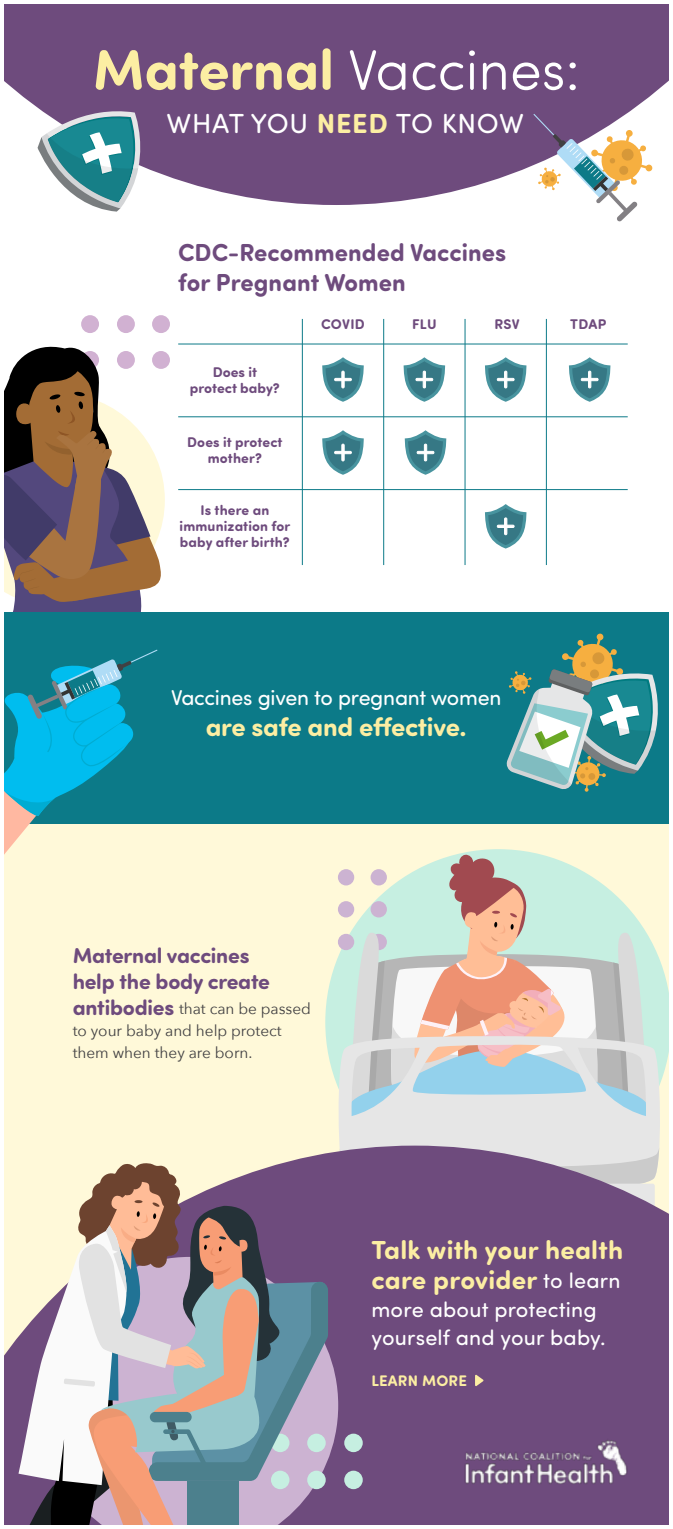
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Hemolytic Disease of the Fetus & Newborn
DID YOU KNOW?
Hemolytic disease of the fetus & newborn is a rare blood disorder.
When the mother's and infant's blood types are incompatible, the mother's antibodies attack the baby's red blood cells.
HDFN can lead to:
Severe anemia
Jaundice
Fetal or infant death
To reduce their baby's risk
pregnant mothers should talk to their health care provider to:
Identify potential blood incompatibilities
Monitor the baby
Treat the condition if it occurs
NCfIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
LEARN MORE


Maternal Vaccines:
WHAT YOU NEED TO KNOW
CDC-Recommended Vaccines for Pregnant Women
COVID
FLU
RSV
TDAP
Does it protect baby?
Does it protect mother?
Is there an immunization for baby after birth?
Vaccines given to pregnant women are safe and effective.
Maternal vaccines help the body create antibodies that can be passed to your baby and help protect them when they are born.
Talk with your health care provider to learn more about protecting yourself and your baby.
LEARN MORE
National Coalition Infant Health


COVID-19
FREE for our NICU COMMUNITY
Helping Children and Families Cope
Bonding with Your Baby
Caregivers Need Care Too

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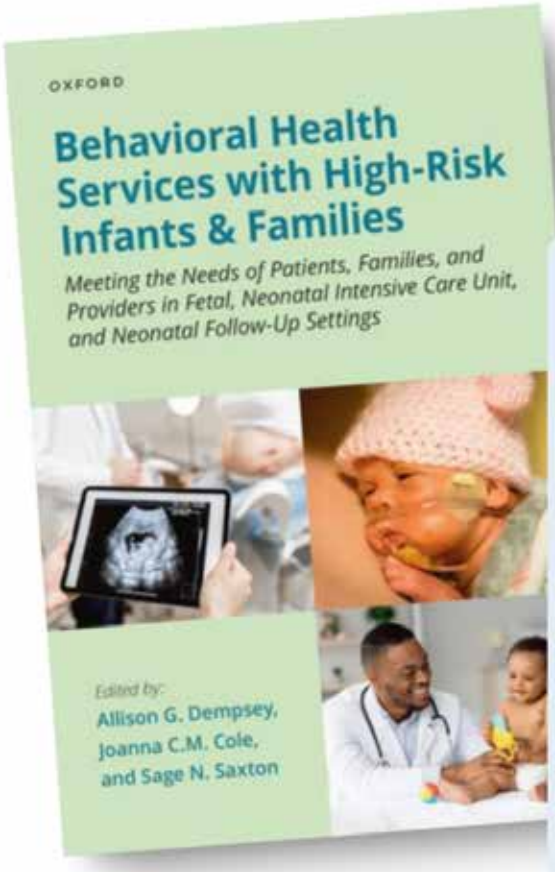
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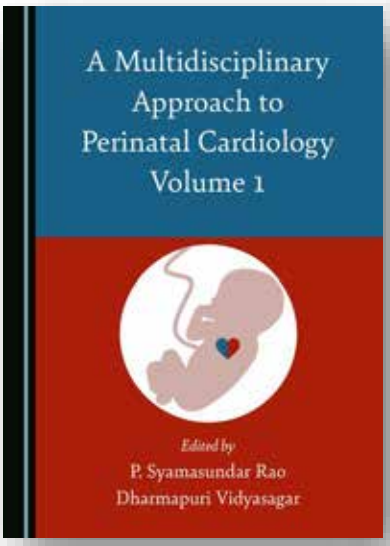
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A Multidisciplinary Approach to Perinatal Cardiology *Volume 1*

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



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Book Description

Recent developments in diagnostic and therapeutic aspects of cardiac and neonatal issues have advanced the care of the newborn. To achieve excellence in cardiac care, however, close interaction and collaboration of the pediatric cardiologists with neonatologists, pediatricians, general/family practitioners (who care for children), anesthesiologists, cardiac surgeons, pediatric cardiac intensivists, and other subspecialty pediatricians is mandatory. This book provides the reader with up-to-date evidence-based information in three major areas of neonatology and prenatal and neonatal cardiology. First, it provides an overview of advances in the disciplines of neonatology, prenatal and neonatal cardiology, and neonatal cardiac surgery in making early diagnosis and offering treatment options. Secondly, it presents a multidisciplinary approach to managing infants with congenital heart defects. Finally, it provides evidence-based therapeutic approaches to successfully treat the fetus and the newborn with important neonatal issues and congenital cardiac lesions. This first volume specifically explores issues related to perinatal circulation, the fetus, ethics, changes in oxygen saturations at birth, and pulse oximetry screening, diagnosis, and management.

About the Editors

Dr P. Syamasundar Rao, MD, DCH, FAAP, FACC, FSCAI, is Professor of Pediatrics and Medicine and Emeritus Chief of Pediatric Cardiology at the University of Texas-Houston Medical School. He received his medical degree from Andhra Medical College, India, and subsequently received post-graduate training both in India and the USA before joining the faculty at the Medical College of Georgia, USA, in 1972. He has also served as Chairman of Pediatrics at King Faisal Specialist Hospital and Research Center, Saudi Arabia, and Professor and Director of the Division of Pediatric Cardiology at the University of Wisconsin and St. Louis University, USA. He has authored 400 papers, 16 books and 150 book chapters, and is a recipient of numerous honors and awards.

Dr Dharmapuri Vidyasagar, MD, MSc, FAAP, FCCM, PhD (Hon), is currently Professor Emeritus in Pediatrics at the University of Illinois, Chicago, where he served as Professor of Pediatrics for four decades. He is a graduate of Osmania Medical College, India. He has published over 250 papers and authored several books with a focus on prematurity, neonatal pulmonary diseases and neonatal ventilation. His goal is to reduce neonatal mortality in the USA and around the world, and he has received multiple awards and honors including the Ellis Island Award.

A Multidisciplinary Approach to Perinatal Cardiology Volume 1 is available now in Hardback from the Cambridge Scholars website, where you can also access a free 30-page sample.

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My Perinatal Network

National Perinatal Association + NICU Parent Network

Online L&D Staff Education Program

Caring for Pregnant Patients & Their Families:

Providing Psychosocial Support During Pregnancy, Labor and Delivery

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Continuing education credits provided by

pac-lac

About the Program

- **WHO SHOULD TAKE THE PROGRAM?** This program is designed for both office and hospital staff in all disciplines that interact with pregnant patients and their families. A key focus is recognizing risk factors for perinatal mood and anxiety disorders, and mitigating their impact through provision of trauma-informed care.

- **WHY TAKE THE PROGRAM?** Families will benefit when staff have improved skills, through enhanced parental resilience and better mental health, and improved parent-baby bonding leading to better developmental outcomes for babies. Benefits to staff include improved skills in communicating with patients; improved teamwork, engagement and staff morale; reduced burnout, and reduced staff turnover.

- **HOW DOES THE PROGRAM ACHIEVE ITS GOALS?** Program content is representative of best practices, engaging and story-driven, resource-rich, and developed by a unique interprofessional collaboration of obstetric and neonatal professionals and patients. The program presents practical tips and an abundance of clinical information that together provide solutions to the emotional needs of expectant and new parents.

- **HOW WAS THE PROGRAM DEVELOPED?** This program was developed through collaboration among three organizations: a multidisciplinary group of professionals from the National Perinatal Association and Patient + Family Care, and parents from the NICU Parent Network. The six courses represent the different stages of pregnancy (antepartum, intrapartum, postpartum), as well as perinatal mood and anxiety disorders, communication techniques, and staff support.

Program Objectives

- Describe principles of trauma-informed care as standards underlying all communication during provision of maternity care in both inpatient and outpatient settings.
- Identify risk factors, signs, and symptoms of perinatal mood and anxiety disorders; describe treatment options.
- Define ways to support pregnant patients with high-risk conditions during the antepartum period.
- Describe obstetric violence, including ways that providers may contribute to a patient's experience of maternity care as being traumatic; equally describe ways providers can mitigate obstetric trauma.
- Describe the importance of providing psychosocial support to women and their families in times of pregnancy loss and fetal and infant death.
- Define the Fourth Trimester, and identify the key areas for providing psychosocial support to women during the postpartum period.
- Identify signs and symptoms of burnout as well as their ill effects, and describe both individual and systemic methods for reducing burnout in maternity care staff.

Continuing education credits will be provided for physicians, clinic and bedside nurses, social workers, psychologists, and licensed marriage and family therapists. CEUs will be provided by Perinatal Advisory Council: Leadership, Advocacy, and Consultation.

PROGRAM CONTENT



COMMUNICATION SKILLS CEUs offered: 1

Learn principles of trauma-informed care, use of universal precautions, how to support LGBTQ patients, obtaining informed consent, engaging in joint decision-making, delivering bad news, dealing with challenging patients.

Faculty: Amina White, MD, MA, Clinical Associate Professor, Department of OB/Gyn, University of North Carolina, Chapel Hill, NC; Sue Hall, MD, MSW, FAAP, St. John's Regional Medical Center, Oxnard, CA; Karen Saxer, CNM, MSN, University of North Carolina Maternal-Fetal Medicine, UNC Women's Hospital, Chapel Hill, NC; Tracy Pella, Co-Founder & President, Connected Forever, Tecumseh, NE.



PERINATAL MOOD AND ANXIETY DISORDERS CEUs offered: 1

Identify risk factors for and differential diagnosis of PMADs (perinatal mood and anxiety disorders), particularly perinatal depression and/or anxiety and posttraumatic stress syndrome. Learn the adverse effects of maternal depression on infant and child development, and the importance of screening for and treating PMADs.

Faculty: Linda Baker, PsyD, psychologist at Unstuck Therapy, LLC, Denver, CO; Sue Hall, MD, MSW, FAAP, neonatologist at St. John's Regional Medical Center, Oxnard, CA; Angela Davids, Founder of Keep 'Em Cookin', Baltimore, MD; Brittany Boet, Founder of Bryce's NICU Project, San Antonio, TX.



PROVIDING ANTEPARTUM SUPPORT CEUs offered: 1

Identify psychosocial challenges facing high risk OB patients, and define how to provide support for them, whether they are inpatient or outpatient. Recognize when palliative care is a reasonable option to present to pregnant patients and their families.

Faculty: Amina White, MD, MA, Clinical Associate Professor, Department of OB/Gyn, University of North Carolina, Chapel Hill, NC; Sue Hall, MD, MSW, FAAP, neonatologist at St. John's Regional Medical Center, Oxnard, CA; Angela Davids, Founder of Keep 'Em Cookin', Baltimore, MD; Erin Thatcher, BA, Founder and Executive Director of The PPROM Foundation, Denver, CO.



PROVIDING INTRAPARTUM SUPPORT CEUs offered: 1

Describe how to manage patient expectations for labor and delivery including pain management; identify examples of obstetric violence, including identification of provider factors that may increase patients' experience of trauma; learn how to mitigate patients' trauma, and how to provide support during the process of labor and delivery.

Faculty: Sara Detlefs, MD, Fellow in Maternal-Fetal Medicine, Baylor College of Medicine, Houston, TX; Jerry Ballas, MD, MPH, Associate Clinical Professor, UCSD Health System, Maternal-Fetal Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California at San Diego, San Diego, CA; MaryLou Martin, MSN, RNC-NIC, CKC, Women's and Children's Services Nurse Educator, McLeod Regional Medical Center, McLeod, SC; Claire Hartman, RN, IBCLC, Labor & Delivery, University of North Carolina Hospital, Chapel Hill, NC; Crystal Duffy, Author of Twin To Twin (from High Risk Pregnancy to Happy Family), and NICU Parent Advisor, Houston, TX; Erin Thatcher, Founder and Executive Director of The PPROM Foundation, Denver, CO.



PROVIDING POSTPARTUM SUPPORT CEUs offered: 1

Define the 4th Trimester and the importance of follow-up especially for high risk and minority patients, learn to recognize risk factors for traumatic birth experience and how to discuss patients' experiences postpartum; describe the application of trauma-informed care during this period, including support for patients who are breastfeeding and those whose babies don't get to go home with them.

Faculty: Amanda Brown, CNM, University of North Carolina Hospital, Chapel Hill, NC; ; Sue Hall, MD, MSW, FAAP, neonatologist at St. John's Regional Medical Center, Oxnard, CA; Crystal Duffy, Author of Twin To Twin (from High Risk Pregnancy to Happy Family), and NICU Parent Advisor, Houston, TX.



SUPPORTING STAFF AS THEY SUPPORT FAMILIES CEUs offered: 1

Define burnout and compassion fatigue; identify the risks of secondary traumatic stress syndrome to obstetric staff; describe adverse impacts of bullying among staff; identify the importance of both work-life balance and staff support.

Faculty: Cheryl Milford, EdS, Consulting NICU and Developmental Psychologist, Director of Development, National Perinatal Association, Huntington Beach, CA; Sue Hall, MD, MSW, FAAP, neonatologist at St. John's Regional Medical Center, Oxnard, CA; Erin Thatcher, BA, Founder and Executive Director, The PPROM Foundation, Denver, CO

Cost

- RNs: $10/CEU; $60 for the full program
- Physicians, licensed clinical social workers (LCSWs), licensed marriage and family therapists (LMFTs): $35/CEU; $210 for the full program
- Although PACLAC cannot award CEs for certified nurse midwives, they can submit certificates to their own professional organization to request credit. $35/CEU; $210 for the full program

Contact help@myperinatalnetwork.org to learn more.

Faculty

Linda Baker, PsyD
Psychologist at Unstuck Therapy, LLC, Denver, CO.

Jerasimos (Jerry) Ballas, MD, MPH
Associate Clinical Professor, UCSD Health System, Maternal-Fetal Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California at San Diego, San Diego, CA.

Amanda Brown, CNM, MSN, MPH
University of North Carolina-Chapel Hill Hospitals, Chapel Hill, NC.

Sara Detlefs, MD
Fellow in Maternal-Fetal Medicine, Baylor College of Medicine, Houston, TX.

Sue L. Hall, MD, MSW, FAAP
Neonatologist, Ventura, CA.

Claire Hartman, RN, IBCLC
Labor & Delivery, University of North Carolina Hospital, Chapel Hill, NC.

MaryLou Martin, MSN, RNC-NIC, CKC
Women's and Children's Services Nurse Educator, McLeod Regional Medical Center, McLeod, SC.

Cheryl Milford, EdS.
Former NICU and Developmental psychologist, in memoriam.

Karen Saxer, CNM, MSN
University of North Carolina Maternal-Fetal Medicine, UNC Women's Hospital, Chapel Hill, NC.

Amina White, MD, MA
Clinical Associate Professor, Department of Obstetrics and Gynecology, University of North Carolina, Chapel Hill, NC.

Parent/Patient Contributers:

Brittany Boet
Founder, Bryce's NICU Project, San Antonio, TX.

Angela Davids
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Tracy Pella, MA
Co-Founder and President, Connected Forever, Tecumseh, NE.

Erin Thatcher, BA
Founder and Executive Director, The PPROM Foundation, Denver, CO.

CANCELLATIONS AND REFUNDS

- For Individual Subscribers:
  - If you elect to take only one course, there will be no cancellations or refunds after you have started the course.
  - If you elect to take more than one course and pay in advance, there will be no cancellations or refunds after payment has been made unless a written request is sent to help@myperinatalnetwork.com and individually approved.
- For Institutional Subscribers:
  - After we are in possession of a signed contract by an authorized agent of the hospital and the program fees have been paid, a 50% refund of the amount paid will be given if we are in receipt of a written request to cancel at least 14 (fourteen) days prior to the scheduled start date for your hospital's online program.
  - Refunds will not be given for staff members who neglect to start the program. Also, no refunds for those who start the program, but do not complete all 6 courses within the time frame allotted.

For Physicians: This activity has been planned and implemented in accordance with the Institute for Medical Quality and the California Medical Association's CME Accreditation Standards (IMQ/CMA) through the Joint Providership of the Perinatal Advisory Council: Leadership, Advocacy and Consultation (PAC/LAC) and the National Perinatal Association. PAC/LAC is accredited by the Institute for Medical Quality/California Medical Association (IMQ/CMA) to provide continuing education for physicians. PAC/LAC takes responsibility for the content, quality and scientific integrity of this CME activity. PAC/LAC designates this activity for a maximum of 6 *AMA PRA Category 1 Credit(s)TM*. Physicians should only claim credit commensurate with the extent of their participation in the activity. This credit may also be applied to the *CMA Certification in Continuing Medical Education*.

For Nurses: The Perinatal Advisory Council: Leadership, Advocacy and Consultation (PAC/LAC) is an approved provider by the California Board of Registered Nursing Provider CEP 5862. When taken as a whole, this program is approved for 7 contact hours of continuing education credit.

For CAMFT: Perinatal Advisory Council: Leadership, Advocacy, and Consultation (PAC/LAC) is approved by the California Association of Marriage and Family Therapists to sponsor continuing education for LMFTs and LCSWs. CE Provider #128542. PAC/LAC maintains responsibility for the program and its content. Program meets the qualifications for 6 hours of continuing education credit for LMFTs and LCSWs as required by the California Board of Behavioral Sciences. You can reach us at help@myperinatalnetwork.org.

SHARED DECISION-MAKING PROTECTS MOTHERS + INFANTS DURING COVID-19

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- **HORIZONTAL INFECTION**
- **SEPARATION AND TRAUMA**





EVIDENCE

We encourage families and clinicians to remain diligent in learning **up-to-date evidence**.

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

- **S** EEK PARTICIPATION
- **H** ELP EXPLORE OPTIONS
- **A** SSESS PREFERENCES
- **R** EACH A DECISION
- **E** VALUATE THE DECISION





TRAUMA-INFORMED

Both parents and providers are confronting significant...

- **FEAR**
- **GRIEF**
- **UNCERTAINTY**

LONGITUDINAL DATA

We need to understand more about outcomes for mothers and infants exposed to COVID-19, with special attention to:

- **MENTAL HEALTH**
- **POSTPARTUM CARE DELIVERY**



NEW DATA EMERGE DAILY. NANN AND NPA ENCOURAGE PERINATAL CARE PROVIDERS TO ENGAGE IN CANDID CONVERSATIONS WITH PREGNANT PARENTS PRIOR TO DELIVERY REGARDING RISKS, BENEFITS, LIMITATIONS, AND REALISTIC EXPECTATIONS.

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A viral pandemic

A racial pandemic within a viral pandemic









Will mental illness be the next inevitable pandemic?

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Alliance for Patient Access: PREEMIE Act Supports Healthy Babies

Josie Cooper

The Alliance for Patient Access (allianceforpatientaccess.org), founded in 2006, is a national network of physicians dedicated to ensuring patient access to approved therapies and appropriate clinical care. AfPA accomplishes this mission by recruiting, training and mobilizing policy-minded physicians to be effective advocates for patient access. AfPA is organized as a non-profit 501(c)(4) corporation and headed by an independent board of directors. Its physician leadership is supported by policy advocacy management and public affairs consultants. In 2012, AfPA established the Institute for Patient Access (IfPA), a related 501(c)(3) non-profit corporation. In keeping with its mission to promote a better understanding of the benefits of the physician-patient relationship in the provision of quality healthcare, IfPA sponsors policy research and educational programming.



"Babies born preterm are among those with higher mortality rates. Preterm birth is also hard on mothers, posing physical health challenges as well as high medical costs and periods of stress. For these mothers and babies, the passage of the bipartisan Prematurity Research Expansion and Education for Mothers who Deliver Infants Early Reauthorization, or PREEMIE Act, in the federal funding package represents a major stride toward secure care. (1, 2)"

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"At the federal level, the act reinforces a commitment to maternal health and reducing risk to the nation's youngest, most vulnerable citizens. (3)"

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Data Collection Supports Better Outreach:

The Centers for Disease Control and Prevention (CDC) houses several programs that collect data on preterm births and research their root causes. When reporting is weak or underfunded, trends and disparities in infant deaths can go unnoticed, putting more lives at risk.

Known risk factors cause some preterm births, and testing mothers for these risks allows doctors to intervene. Where structural factors prevent access to prenatal care or the financial burden is too much for families, longitudinal research can identify trends and provide support.

"In particular, the bill establishes a single entity within the Department of Health and Human Services to coordinate federal activities. By aligning federal efforts, teams of researchers, clinicians, and statisticians can advance efforts to address preterm birth, infant mortality, and adverse outcomes."

Uniting Several Programs Toward One Goal:

In particular, the bill establishes a single entity within the Department of Health and Human Services to coordinate federal activities. By aligning federal efforts, teams of researchers, clinicians, and statisticians can advance efforts to address preterm birth, infant mortality, and adverse outcomes.

For the benefit of mothers, a complementary bill, the Preventing

Maternal Deaths Reauthorization Act (4), also strengthens the CDC's ability to collect data on adverse outcomes. Pregnancy-related deaths—defined as a death caused by a pregnancy complication occurring during pregnancy or within one year of the end of pregnancy—are overwhelmingly preventable with adequate treatment. (5)

"A nation might well be measured by how it treats its birthing mothers and newborn children. Reauthorizing programs to support research on risk factors and allowing scientists to collect and analyze national data on preterm births is a necessary step toward safer beginnings for both mothers and babies."

A nation might well be measured by how it treats its birthing mothers and newborn children. Reauthorizing programs to support research on risk factors and allowing scientists to collect and analyze national data on preterm births is a necessary step toward safer beginnings for both mothers and babies.

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1. https://www.bennet.senate.gov/2025/05/01/bennet-boozman-reintroduce-bipartisan-bill-to-reduce-premature-births/
2. https://www.congress.gov/crs-product/IN12421
3. https://www.marchofdimes.org/sites/default/files/2023-09/OGA23-054-MOD-PREEMIE-v12.pdf
4. https://www.congress.gov/crs-product/IN12421
5. https://www.cdc.gov/maternal-mortality/preventing-pregnancy-related-deaths/index.html

Disclosure: Josie Cooper is the Executive Director of the Alliance for Patient Access. This article was also published at healthpolicytoday.org.

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Immunizing Yourself Against **COVID-19**

COVID-19 vaccines have been shown to:

- Lessen the severity of symptoms[1]
- Reduce disease transmission[3]
- Reduce risk of mortality[2]
- Make communities healthier and safer[4]

Understanding the Options

COVID-19 vaccines are available for children, adolescents and adults. There are 3 types to choose from.

mRNA VACCINES

New to market, but research has been ongoing since the 1990s.

HOW THEY WORK: **Instruct cells to make COVID-like proteins that trigger the immune system to fight the virus.**

PROTEIN SUBUNIT VACCINES

Used for three decades against the flu, whooping cough and hepatitis B.

Deliver harmless versions of the COVID protein that train the immune system to fight the virus.

VECTOR VACCINES

Used for decades against chickenpox, malaria and tuberculosis.

Use a modified virus, such as a common cold, to teach the body to fight off COVID.

COVID vaccines are recommended for everyone ages 6 months and older, and boosters for everyone ages 5 years and older, if eligible.[5]

Safe and Sound

COVID vaccines have been:

- **Thoroughly tested** through multi-phase trials with tens of thousands of participants[6]
- **Proven safe and effective** for adults as well as children[7]
- **Vetted and approved** by the US FDA and EMA and endorsed by the WHO[8-10]

Get Your Jab

Vaccines are available at your:

- **Doctor's office**
- **Neighborhood pharmacy**
- **Community health center**



Talk to your **health care provider** or **pharmacist** about which vaccine is right for you.

1. https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8782520/
3. https://www.nejm.org/doi/full/10.1056/nejmc2107717
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GAfPA Global Alliance for Patient Access

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Still a **Preemie?**

Some preemies are born months early, at extremely low birthweights. They fight for each breath and face nearly insurmountable health obstacles.

But that's not every preemie's story.

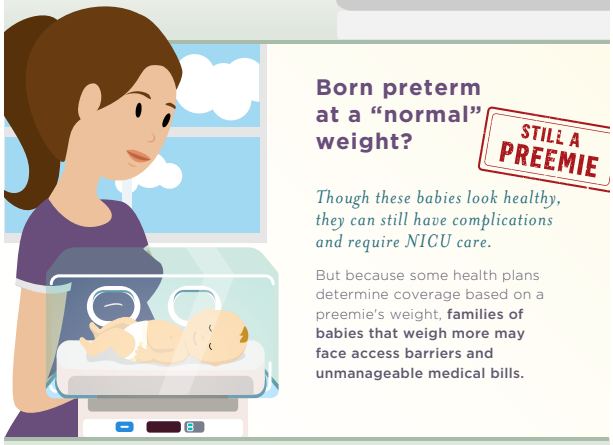
Born between 34 and 36 weeks' gestation?

STILL A PREEMIE

Just like preemies born much earlier, these "late preterm" infants can face:

Jaundice | Feeding issues | Respiratory problems

And their parents, like all parents of preemies, are at **risk for postpartum depression and PTSD.**



Born preterm at a "normal" weight?

STILL A PREEMIE

Though these babies look healthy, they can still have complications and require NICU care.

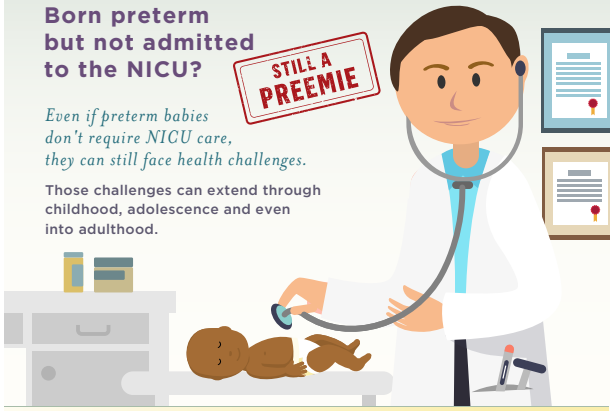
But because some health plans determine coverage based on a preemie's weight, **families of babies that weigh more may face access barriers and unmanageable medical bills.**

Born preterm but not admitted to the NICU?

STILL A PREEMIE

Even if preterm babies don't require NICU care, they can still face health challenges.

Those challenges can extend through childhood, adolescence and even into adulthood.



Some Preemies

- Will spend weeks in the hospital
- Will have lifelong health problems
- Are disadvantaged from birth

All Preemies

- Face health risks
- Deserve appropriate health coverage
- Need access to proper health care

NCfIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

The Gap Baby: An RSV Story



A collaborative of professional, clinical, community health, and family support organizations improving the lives of premature infants and their families through education and advocacy.



The National Coalition for Infant Health advocates for:

- **Access to an exclusive human milk diet** for premature infants
- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
- **Clear, science-based nutrition guidelines** for pregnant and breastfeeding mothers
- **Safe, accurate medical devices** and products designed for the special needs of NICU patients

www.infanthealth.org

iCAN Update: iCAN Youth Are MARCH-ing Into The Season Of Youth Empowerment

Abby Clark

Get involved today and Join the iCAN Parent Council!

As the weather gets warmer, so does the spirit of iCAN youth! With spring comes new beginnings, young people sharing their voices, and the excitement of the upcoming iCAN Summit in July. This month, iCAN young people have completed their iCAN Challenge of 10 activities, spoken on global stages, and taken incredible initiatives. Read more to learn all about the incredible work that they accomplished.



What is in this Issue of the iCAN Newsletter?

- What is iCAN?
- iCAN Impact - iCAN Youth and Executive Director Speak on Global Stages, Youth Present Position Paper
- Youth Member Spotlight - Anvita (Speaking at LSI 2026)
- KIDS Chapter Spotlight - KIDS Rare Hellas
- Ask the Experts - Tune in April 18 for ATE!
- iCAN Summit - 2026 Summit Announcement

"iCAN, the International Children's Advisory Network, is the premier global pediatric platform working to empower the patient voice in healthcare, driven by youth for youth. As a worldwide network of 40+ KIDS (Kids Impacting Disease through Science) advisory groups spanning four continents (and virtually), iCAN's dedicated youth member groups work in unison to provide a voice for children and families in medicine, research, science, and innovation."

What is iCAN?

Empowering Pediatric Patients Worldwide:

iCAN, the International Children's Advisory Network, is the premier global pediatric platform working to empower the patient voice in healthcare, driven by youth for youth. As a worldwide network of 40+ KIDS (Kids Impacting Disease through Science) advisory groups spanning four continents (and virtually), iCAN's dedicated youth member groups work in unison to provide a voice for children and families in medicine, research, science, and innovation. To foster greater global understanding about the importance of the pediatric patient and caregiver voice in healthcare, clinical trials, and research, iCAN's young people continue to drive incredible change in the global health landscape.

On average, our youth are between the ages of eight and eighteen years old, most of whom are living with chronic, rare, and complicated diagnoses; although, not all of iCAN's youth members have a medical diagnosis or medical condition. iCAN celebrates the understanding that all patients, even the youngest, have valuable insights into improving the healthcare experience. All children, regardless of where they are, are welcome to participate in iCAN's programming. iCAN also supports young adults and the voices of parents and siblings. We continue to be an ecosystem of schools, children's hospitals, academia, and other like-minded non-profits.

Our mission is to ensure that youth are placed in positions where their voices are heard and make a difference in pediatric healthcare

through interactions with industry professionals, presenting original research at conferences, innovating new solutions, and sharing their stories. iCAN continues to empower the pediatric patient voice through community partnerships with organizations such as the FDA, Everylife Foundation for Rare Diseases, PFMD, MRCT, iSPI, and AAP.

"Whether a patient, family member, friend, healthcare professional, or just an individual looking to make a difference, you are welcome to visit our website at www.icanresearch.org to explore our mission, programs, and initiatives. Join us today in ensuring that every child's voice is enshrined in the effort to improve healthcare for all pediatric patients."

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iCAN Impact - iCAN Youth and Executive Director Speak on Global Stages, Youth Present Position Paper

"At the 2026 Patients as Partners conference, iCAN Youth Member, Inaaya (KIDS Illinois), became the conference's first-ever pediatric keynote speaker. She shared her story as a person with lived experience and a youth advocate to an audience of over 200 professionals, patients, regulators, and clinicians. She touched on the importance of speaking directly to youth when discussing healthcare experiences and how kids understand more about their health than you might think. "

At the 2026 Patients as Partners conference, iCAN Youth Member, Inaaya (KIDS Illinois), became the conference's first-ever pediatric keynote speaker. She shared her story as a person with lived experience and a youth advocate to an audience of over 200 professionals, patients, regulators, and clinicians. She touched on the importance of speaking directly to youth when discussing healthcare experiences and how kids understand more about their health than you might think.



"I was so honored to be the opening Keynote speaker on the first day…I felt so comfortable and able to share my experience and story with osteosarcoma and my amputation. I love to see so many people putting in the effort to push patient voices and advocacy into big pharmaceutical industry conversations. This means so much to me, especially as a rare cancer survivor."

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Also at Patients as Partners, iCAN's Executive Director, Sabina Schmidt Goldstein-Becerra, spoke on a panel composed of some of iCAN's professional partners. Titled "Best Practices for Pediatric

Engagement and Patient-Centric Design," the presentation focused on real-world case studies, projects that professional partners have done with iCAN Youth, and what that process and impact looked like.

iCAN Executive Director, Sabina, reflected on her time at Patients as Partners, "Patients as Partners reinforced the need to meaningfully center lived-experience experts in all conversations and decisions that affect them. Their insights are not supplementary; they are essential, as they are stakeholders with both the expertise and the right to be at the table."

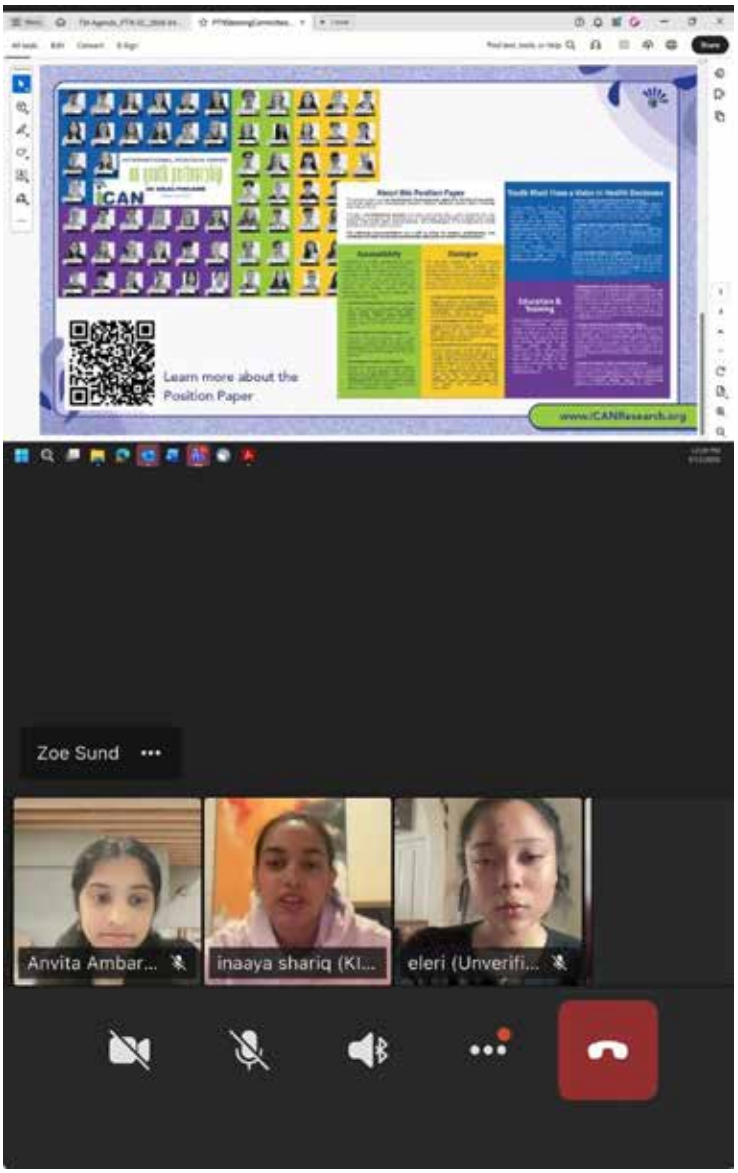
iCAN extends its thanks to Kate Woda and the Patient as Partners team for including the youth voice in such a prominent way!





Following the success of the iCAN International Position Paper on Youth Partnership in Healthcare (created at the 2025 iCAN Summit in Montreal), the Pediatric Trials Network (PTN) invited three iCAN youth members to present the paper to PTN's Steering Committee Meeting. iCAN's incredible Youth Members, Anvita (KIDS CHOC), Inaaya (KIDS Illinois), and Eleri (KIDS Moorfields Eye) expertly broke down the Position Paper into key topics - highlighting their personal experiences creating the paper and going in-depth on topics such as Accessibility, Education and Training, Dialogue, and more. We are so proud of our incredible youth members, and thank you to PTN for sharing the Position Paper.

If you are interested in learning more about the position paper, click here!



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iCAN Youth Member Spotlight: Anvita (Speaking at LSI 2026):

This month, iCAN is proud to spotlight KIDS CHOC youth member, Anvita! Not only is Anvita the president of the KIDS CHOC chapter, but she is also an iCAN Young Professionals Network Co-Chair, a member of the 2026 KIDS Summit Planning Committee, and on the KIDS Research Leadership board. This month, Anvita was invited to speak about her experiences participating in iCAN at LSI 2026 in California! As a young person with lived experience, Anvita used this opportunity to share her experiences during her healthcare journey and how they have impacted the empowering work she continues to do with and outside of iCAN.

"iCAN gives kids something we don't always know we can have: a seat at the table with researchers, clinicians, and industry leaders building the next generation of healthcare solutions. A voice that's heard beyond doctors' offices and hospital rooms, speaking not simply as a statistic, but as a patient with lived experience."

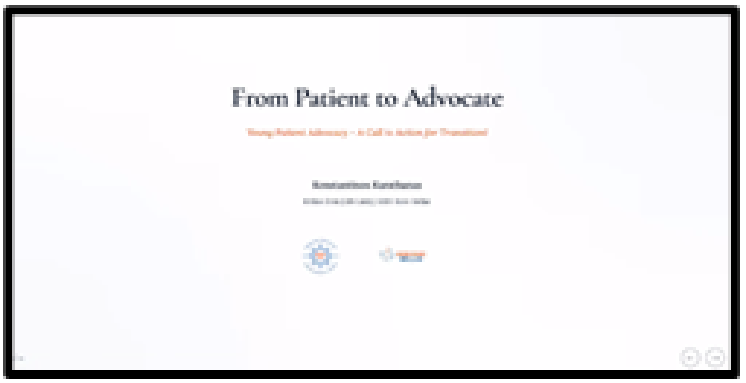
Anvita will also be attending John Hopkins in the fall! We are incredibly proud and excited for her as she takes the next steps into this exciting stage of life.

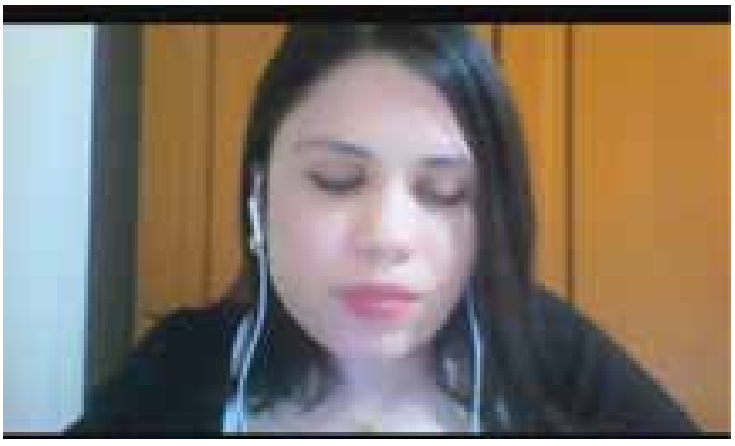


iCAN KIDS Chapter Spotlight (KIDS Rare Hellas):

KIDS chapters around the world continue to speak up and share their voices, thoughts, and experiences! This month, representatives from KIDS Rare Hellas, based in Greece, joined the "Young Patient Advocacy- A Call to Action in Transition!" webinar organized by the European Research Network for Metabolic Diseases and Panhellenic Advocate of Inherited Metabolic Diseases. On March 19, iCAN youth members - Konstantinos and Eirini (team leader of KIDS Rare Hellas) shared their journeys as patients with lived experience and forays into patient advocacy. We are so proud of them both and cannot wait to see how their insights impact the global landscape.







Upcoming Ask the Experts: Mark your calendars- iCAN invites you to another installment of Ask the Experts on April 18!

Next Episode: April 18 at 10 a.m. EST with special guest Dori Jones.

In April, iCAN will host Dori Jones, who will discuss how she has built a career developing machines that help heal sick babies and kids.

Bio: Dori Jones helps invent special machines that doctors use to take care of sick babies and kids. She started a company called AcQumen Medical, where she and her team are building a tool called UltraTrac. This tool helps doctors quickly see how blood is flowing in tiny bodies, enabling them to provide the best care.

"Dori has been working on medical devices for almost 20 years! She studied engineering, which means she learned to design and build solutions to big problems. She then spent many years in hospitals and in the operating room working on heart pumps. She's worked with both small companies and giants like Abbott and Medtronic to ensure these devices help real patients."

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Her love for helping children comes from her own life - Dori's son was in the NICU (intensive care unit for newborns) and the pediatric ICU. That experience made her want to create better tools for doctors and families.

Session Details: ATE: A Conversation with Dori Jones: Inventing Life-Saving Tools for Sick Babies and Kids

Date: Saturday, April 18, 2026

Time: 7:00 AM PST / 10:00 AM EST

Ask the Experts brings in speakers every month to answer your questions about medicine, healthcare, research, innovation, and much more! Check out the ATE page on the iCAN Website to view previous recordings.

The 2026 iCAN Summit - Registration Open:

Our annual Summit serves as a transformative platform for innovation, compassion, and collaboration in pediatric healthcare. As iCAN celebrates our 12th year of this incredible event, iCAN is so excited to announce that the iCAN Summit is back this summer in person. It is truly a testament to iCAN's dedicated and generous family that the Summit will continue to bring our young people together to change the global healthcare landscape. Registration is now open!

Link to Register: https://www.zeffy.com/en-US/ticketing/registration-for-icans-2026-summit

The 2026 iCAN Summit will be held July 12 (check-in) through July 17 (check-out), 2026, at Barretstown in Ireland (approximately one hour outside of Dublin), and will be hosted by KIDS RAiN CRAG. Set on beautiful, expansive grounds, Barretstown is a fully wheelchair-accessible SeriousFun therapeutic recreation camp, thoughtfully designed to support a wide range of physical and medical needs. In addition to collaborating directly with global industry leaders to advance meaningful change in pediatrics, our community will take part in exciting on-site experiences, including horseback riding, archery, canoeing, and team-building challenges, all intentionally adapted to ensure accessibility and inclusion for all participants (including those with medical and physical needs).

"The lasting impact of this annual event on the youth who attend, the iCAN Network, and the wider healthcare community cannot be measured. Together, we continue to impact pediatric healthcare in tangible ways. By giving every kid a seat at the table through discussion and co-creation, current and future pediatric patients are both empowered and transformed."

The lasting impact of this annual event on the youth who attend, the iCAN Network, and the wider healthcare community cannot be measured. Together, we continue to impact pediatric healthcare in tangible ways. By giving every kid a seat at the table through discussion and co-creation, current and future pediatric patients are both empowered and transformed. We invite you to be part of this life-changing event by contributing in three meaningful ways:

1. Sponsor the 2026 Summit: Your sponsorship will play a crucial role in ensuring an impactful experience for all attendees.
2. Sponsor a Child to Attend: Your sponsorship directly impacts a child's life by granting them the opportunity to

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attend the Summit in Ireland. Your support will cover travel, accommodation, and participation, offering them a world of learning and empowerment.

Together, we are shaping a brighter future for pediatric healthcare. Your contribution—big or small—makes a significant difference in prioritizing the patient voice and driving positive change. Your generosity and dedication are deeply valued. Let us unite in Ireland to create a summit experience that empowers the pediatric community for years to come.

3. Contribute to the GoFundMe for the iCAN 2026 Summit: We want our next Summit to be in person—and we can only do that with your support! Please share or donate to our GoFundMe:

   - https://gofund.me/525439b3
   - www.icanresearch.org

"Let us work together to make our 2026 Summit even bigger by bringing more kids to share their voices! To contribute to the funding for next year's Summit, please click here to sponsor or make a donation."

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Disclosures: *There are no reported disclosures*

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Caroline Arnold, Author

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LET'S TALK IN THE NICU: PREPARING FAMILIES FOR SAFE SLEEP AT HOME

HOW CAN ONE CONVERSATION CHANGE EVERYTHING?

Let's Talk Community Chats are now in the NICU—bringing culturally responsive, judgment-free safe sleep and breastfeeding education directly to families before discharge.

Led by **community peers trained by First Candle** and adhering to AAP Guidelines, these sessions empower NICU parents with knowledge, support, and resources to help protect their most vulnerable babies.

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firstcandle LET'S TALK Community Chats IN THE NICU





Pictured: Baby Kole with his Dad

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Come learn with us!

June 15th Preconference,
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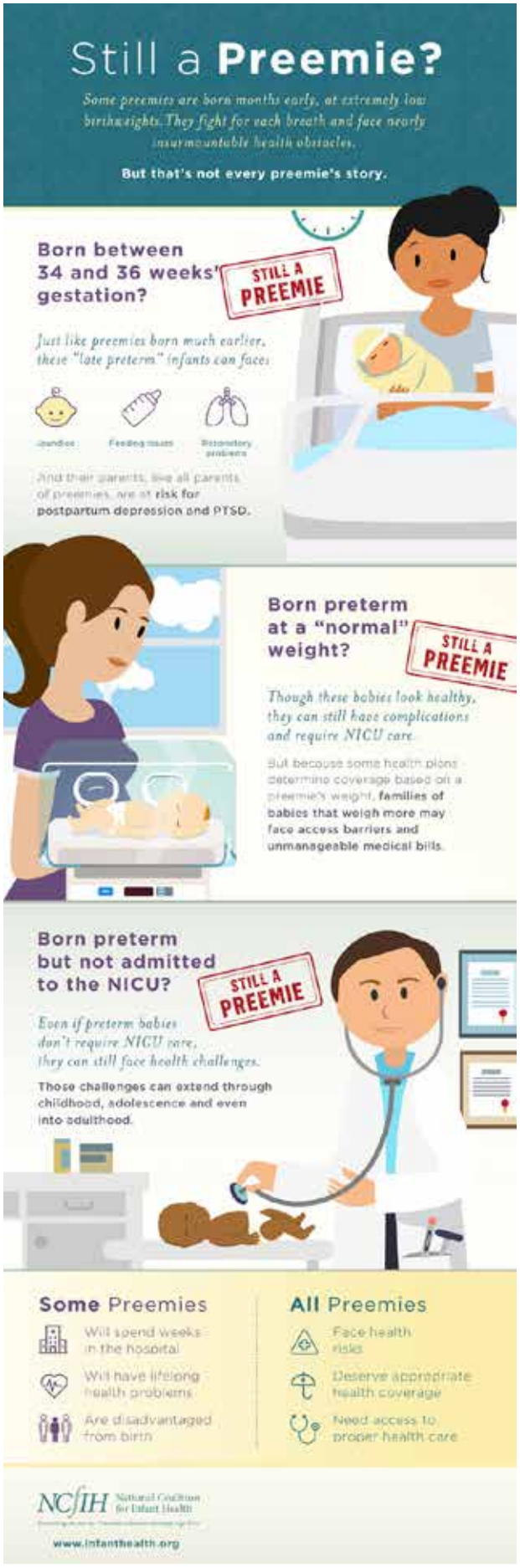
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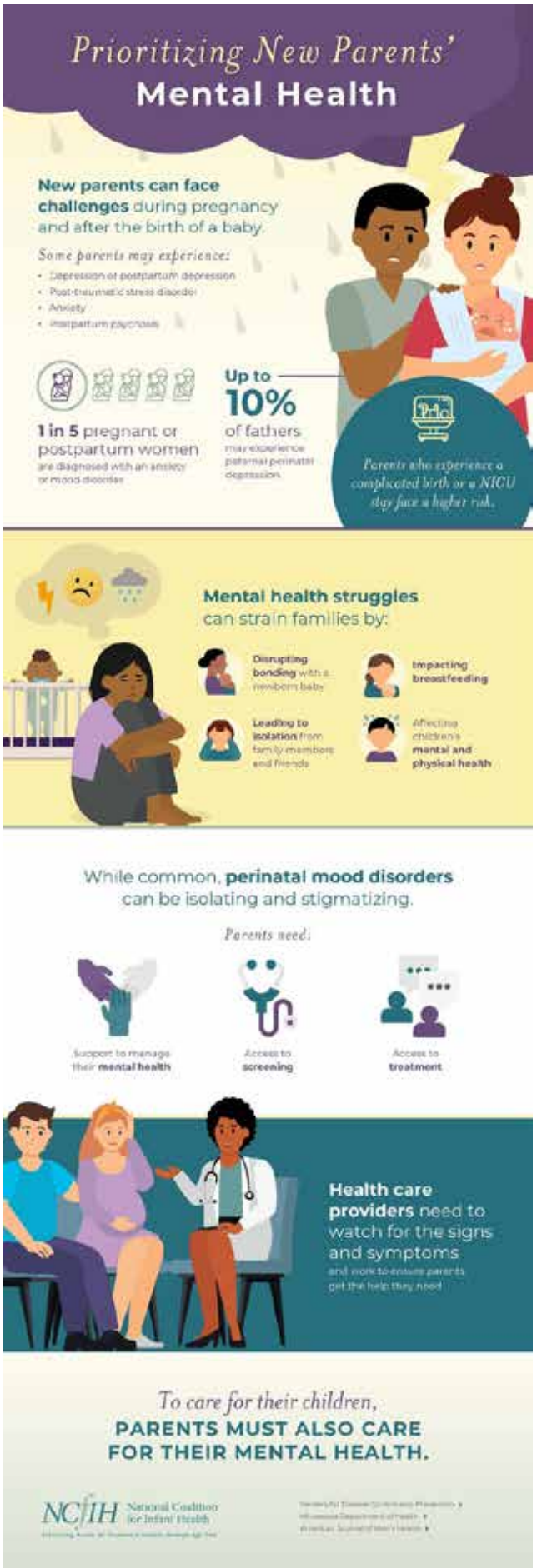
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Still a Preemie?
Some preemies are born months early, at extremely low birthweights. They fight for each breath and face nearly insurmountable health obstacles.
But that's not every preemie's story.
Born between 34 and 36 weeks' gestation?
STILL A PREEMIE
Just like preemies born much earlier, these "late preterm" infants can face:
Jaundice
Feeding issues
Respiratory problems
And their parents, like all parents of preemies, are at risk for postpartum depression and PTSD.
Born preterm at a "normal" weight?
STILL A PREEMIE
Though these babies look healthy, they can still have complications and require NICU care.
But because some health plans determine coverage based on a preemie's weight, families of babies that weigh more may face access barriers and unmanageable medical bills.
Born preterm but not admitted to the NICU?
STILL A PREEMIE
Even if preterm babies don't require NICU care, they can still face health challenges.
Those challenges can extend through childhood, adolescence and even into adulthood.
Some Preemies
Will spend weeks in the hospital
Will have lifelong health problems
Are disadvantaged from birth
All Preemies
Face health risks
Deserve appropriate health coverage
Need access to proper health care
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Prioritizing New Parents' Mental Health
New parents can face challenges during pregnancy and after the birth of a baby.
Some parents may experience:
Depression or postpartum depression
Post-traumatic stress disorder
Anxiety
Postpartum psychosis
1 in 5 pregnant or postpartum women are diagnosed with an anxiety or mood disorder
Up to 10% of fathers may experience paternal perinatal depression
Parents who experience a complicated birth or a NICU stay face a higher risk.
Mental health struggles can strain families by:
Disrupting bonding with a newborn baby
Impacting breastfeeding
Leading to isolation from family members and friends
Affecting children's mental and physical health
While common, perinatal mood disorders can be isolating and stigmatizing.
Parents need:
Support to manage their mental health
Access to screening
Access to treatment
Health care providers need to watch for the signs and symptoms and work to ensure parents get the help they need
To care for their children,
PARENTS MUST ALSO CARE FOR THEIR MENTAL HEALTH.
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- Physical disabilities (examples: epilepsy, cystic fibrosis)
- Autism Spectrum Disorder (ASD) or Attention-Deficit/Hyperactivity Disorder (ADHD)

Every voice counts!

It's a one-minute survey to see if you qualify for a one-hour focus group to be scheduled at a later date.

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Keeping Your Baby Safe
from respiratory infections

RSV
COVID-19
colds
flu

How to protect your little ones from germs and viruses

This year is an especially dangerous cold and flu season - especially for vulnerable infants and children. Fortunately, there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

- This is the single, most important thing you can do to stop the spread of viruses.
- Use soap.
- Wash for more than 20 seconds.
- Use alcohol-based sanitizers.



Limit Contact with Others



- Stay home when you can.
- Stay 6 feet apart when out.
- Wear a face mask when out.
- Change your clothes when you get home.
- Tell others what you're doing to stay safe.

Provide Protective Immunity

- Hold your baby skin-to-skin.
- Give them your breast milk.
- Stay current with your family's immunizations.



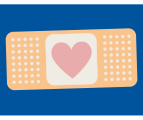
Take Care of Yourself

- Stay connected with your family and friends.
- Drink more water and eat healthy foods.
- Seek mental health support.
- Sleep when you can.



Get Immunized

Vaccinations save lives. Protecting your baby from COVID-19, flu and pertussis lowers their risks for complications from respiratory infections.



WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask makes it hard for them to breathe.
- Masks pose a risk of strangulation and suffocation.
- A baby can't remove their mask if they're suffocating.



If you feel sick or are positive for COVID-19

- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.



We can help protect each other.
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Peer Reviewed

Briefly Legal: Cortical Vein Thrombosis: Unrecognized Intrapartum and Systemic Failures Causing Neonatal Diagnostic Overreach

Barry Schifrin, MD, Maureen Sims, MD

The following case of fetal neurological injury occupied the docket of an American court system for almost a decade. We raise this issue because, at the end of the day, with the case settled, the allegations seem no different from those of obstetrical negligence in the 1980s and from current allegations of obstetrical malpractice in the 2020s. The issues then and now relate to the conduct of labor, especially the second stage: the interpretation of FHR patterns; the recognition of excessive uterine activity; the control of Pitocin; and the denial of intrapartum fetal neurological injury related to mechanical factors acting on the fetal head during labor.

"...the allegations seem no different from those of obstetrical negligence in the 1980s and from current allegations of obstetrical malpractice in the 2020s. The issues then and now relate to the conduct of labor, especially the second stage: the interpretation of FHR patterns; the recognition of excessive uterine activity; the control of Pitocin; and the denial of intrapartum fetal neurological injury related to mechanical factors acting on the fetal head during labor."

Case Details:

The mother was a 26-year-old, G_1P_0, with an uneventful prenatal course. She is 5 feet 1 inch tall and weighs 135 pounds at delivery, having gained 30 pounds during an uneventful pregnancy.

She presents to labor and delivery at $39^4/_7$ weeks' gestation, complaining of the leakage of fluid and infrequent contractions. She is noted to have an elevated WBC count and tachycardia. She is treated with antibiotics, which will be continued during labor. On initial examination, the cervix is only 1 cm dilated and 50% effaced with the fetal head not yet engaged in the pelvis (at -2 station). She is induced with increasing doses of oxytocin (Pitocin), resulting in progressively increased frequency and intensity of contractions. Initially, contractions are monitored with an external tocodynamometer; however, as registration becomes increasingly difficult, an intrauterine pressure catheter (IUPC) is introduced, which clearly indicates too-frequent contractions (tachysystole) and elevated baseline uterine tone (hypertonus). Despite excessive uterine activity, the FHR pattern remains normal with no decelerations.

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Over time, the patient makes steady progress to full dilatation but with minimal descent of the fetal presenting part. Indeed, despite numerous pelvic examinations, there is no attempt to define and document either the position of the fetal head or the amount of caput and molding.

"The patient is encouraged to bear down with very frequent contractions. The onset of pushing is characterized by a progressive deterioration of the FHR pattern with decelerations, rising baseline rate, and diminishing variability, denoted as a Category II ('indeterminate' pattern)."

The patient is encouraged to bear down with very frequent contractions. The onset of pushing is characterized by a progressive deterioration of the FHR pattern with decelerations, rising baseline rate, and diminishing variability, denoted as a Category II ("indeterminate" pattern). During this time, there are also numerous episodes of overlap between the maternal heart rate (MHR) and fetal heart rate (FHR), so that the MHR is recorded in both the maternal and fetal channels. These features, including frequent contractions, lack of moderation of pushing, and no

consideration of inserting a fetal scalp electrode to more reliably record the fetal heart rate, are not mentioned in the progress notes. Within 15 minutes of the onset of pushing, there is an obvious change in the character of the tracing, permitting the notion that the fetus has suffered a neurological injury. The baseline rate is 175 bpm; variability is absent; and there are recurrent variable decelerations with overshoot (a Category III pattern). This pattern goes on for about 45 minutes of continued pushing with no progress in descent of the presenting part. Pushing is discontinued, and preparations are made to perform a Cesarean section. It will be almost an hour, however, before the operation is performed, with the sustained abnormal FHR pattern obvious until the tracing is discontinued. Despite the absence of pushing, the FHR pattern never returns to the pattern that preceded the onset of pushing. It remains a Category III tracing.

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At Cesarean section, the amniotic fluid is foul-smelling. The infant is found to be in occiput posterior (OP) position with asynclitism [the baby's head is tilted sideways) along with considerable molding and caput. Delivery is achieved with the application of a vacuum extractor to the fetal head.

"At Cesarean section, the amniotic fluid is foul-smelling. The infant is found to be in occiput posterior (OP) position with asynclitism [the baby's head is tilted sideways) along with considerable molding and caput. Delivery is achieved with the application of a vacuum extractor to the fetal head."

At birth, the 3070-gram male infant is limp with no respiratory effort. The 1-minute Apgar score is 1. The baby is immediately warmed, dried, and stimulated by the neonatal resuscitation team, and placed on respiratory support with Positive Pressure Ventilation (PPV). A cardio-respiratory monitor reveals a heart rate of 64 bpm. The FiO_2 ("fraction of inspired oxygen") is rapidly increased to 100%, with a prompt increase in the heart rate. The FiO_2 is then weaned slowly back to 21%. PPV is continued for 4 minutes and 40 seconds. Temperature is recorded at 37.8 °C. The 5-minute Apgar score is reported as 7, and the infant is transferred to the NICU for further care. His physical examination shows distortion of the head (molding—overlapping of the bones of the head), caput (swelling of the scalp), a vacuum mark on the baby's occiput, a cephalohematoma, and possible plagiocephaly (so-called "flat head syndrome"). There is also extensive bruising (ecchymosis) over the occipital area, but he maintains cardiovascular stability on room air without any further assistance. He started on antibiotics. At no time is there any indication of consideration of cooling the infant.

"On the baby's day 2 of life...a CT scan shows an area of hypodensity in the left parietal lobe, parasagittal (in brief, alongside the midline) location; a smaller area of edema in the right parietal lobe; a cephalohematoma; and an acute epidural hemorrhage related to fractures in the parietal portion of the skull. The impression— likely diagnosis—is a venous infarction.
On day 3, the baby exhibits a tonic-clonic seizure in the NICU.

On the baby's day 2 of life, a cranial ultrasound examination is read as normal. The same day, a CT scan shows an area of hypodensity in the left parietal lobe, parasagittal (in brief, alongside the midline) location; a smaller area of edema in the right parietal lobe; a cephalohematoma; and an acute epidural hemorrhage related to fractures in the parietal portion of the skull. The impression—likely diagnosis—is a venous infarction.

"The differential includes the diagnosis of 'atypical hypoxic ischemic encephalopathy.' The neonatologist and hematologist launch extensive metabolic and hematologic evaluations to determine the cause of the thrombosis."

On day 3, the baby exhibits a tonic-clonic seizure in the NICU. He started on phenobarbital and was transferred to the regional Children's Hospital for seizure and sepsis evaluation. After admission, clinical and electrographic seizures are documented.

On day 4, an MRI of the brain confirms the diagnosis of cortical vein thrombosis. The differential includes the diagnosis of "atypical hypoxic ischemic encephalopathy." The neonatologist and hematologist launch extensive metabolic and hematologic evaluations to determine the cause of the thrombosis.

The baby is discharged from the Regional Children's Hospital on day 10 of life. The discharge plan includes continued maintenance on phenobarbital and parental surveillance for additional seizures. The workup to detect abnormal clotting is normal. On long-term follow-up, the child needs a cranial shaping device (helmet). He is found to have speech and motor impairment with an unstable gait and attention deficit hyperactivity disorder (ADHD).

"On long-term follow-up, the child needs a cranial shaping device (helmet). He is found to have speech and motor impairment with an unstable gait and attention deficit hyperactivity disorder (ADHD)."

A lawsuit is brought against the healthcare providers and the delivery hospital, alleging the following:

a. Failure to properly estimate the limited feasibility of safe vaginal delivery.
b. Failure to properly recognize and respond to the malposition of the fetal head and attempt to correct the problem by manual rotation of the fetal head.
c. Failure to properly recognize and respond to the overt and prolonged excessive uterine activity as manifested by coupled contractions, tachysystole, and uterine hypertonus.
d. Failure to properly control the infusion of Pitocin in the face of excessive uterine activity. This includes the allegation that Pitocin was increased in the face of excessive uterine activity when it should have been reduced or discontinued, especially in the second stage of labor. Failure to restore a normal uterine activity pattern required the administration of a uterine relaxant.
e. Failure to safeguard the well-being of the fetus by properly assessing and responding to the deteriorating FHR tracing after the onset of pushing. Additionally, there is no recognition of prolonged episodes when the monitor is, in fact, tracing the MHR rather than the FHR.
f. Failure by the attending obstetrician to attend to the patient directly in the face of notification by the nursing staff, as well as by his personal viewing of the FHR pattern at the central station. Ordering the reduction or discontinuation of Pitocin, evaluating the maternal tachycardia, and properly assessing the feasibility of safe vaginal delivery all required his presence.
g. The deteriorating FHR features prompted the physician to abandon pushing efforts and to expedite a C-Section. The delay in calling the Cesarean section was aggravated by the hour of relentless pushing and the subsequent 54-minute delay after the decision for Cesarean section was made.
h. With proper attention to the FHR tracing from the onset of the use of Pitocin and with proper response to contractions and control of the Pitocin infusion, the previously resilient fetus would not have suffered any brain injury and would have been born neurologically intact.
i. The use of the vacuum device at the time of delivery introduced the potential for mechanical injury to the fetus.

The declarations by the defense included the following:

a. It was within the standard of care for the physician to rely, in part, on the nursing staff in monitoring the FHR tracing and the progress of the patient's labor.
b. There was no requirement for an emergency Cesarean section. Performing the Cesarean section earlier would not have changed the outcome.
c. The FHM tracing is persistently Category I or II, for which a Cesarean section is not required.

The defense positions contain no comment on the amount of uterine activity or the control of Pitocin.

After numerous court proceedings, including delays and motions for summary judgment over the course of more than 9 years, the case is settled on behalf of the plaintiff.

Comment:

The medico-legal issues in this case relate to the conduct of labor, especially during the second stage: the interpretation of FHR patterns; the recognition of excessive uterine activity; the control of Pitocin; and the diagnosis of intrapartum fetal neurological injury unrelated to severe hypoxemia and acidemia. The breadth of deviations in the care of this mother and baby by providers is troubling, not so much for their individual failures, but for the lack of any semblance of a culture of safety. Missing from the activities of the health care providers in this case are the commonly understood, widely shared Guidelines among all members of the obstetrical team, which underpin a dedication to safeguarding the well-being of both mother and fetus. In this case, the lack of coherent, enforced Guidelines blurred the roles and the accountability of the various obstetrical healthcare providers, leading directly to the disability of a child under their observation.

"Missing from the activities of the health care providers in this case are the commonly understood, widely shared Guidelines among all members of the obstetrical team, which underpin a dedication to safeguarding the well-being of both mother and fetus."

From the neonatologists' standpoint, although they were not named in the lawsuit, there is a failure to recognize recent neurological injury without sufficient depression at the time of birth and immediately thereafter. This was brought about by the failure to meaningfully interact with the obstetrical care providers, as well as the failure to use the fetal monitor strip as a clinical history of the newborn to inform the decision to use neonatal hypothermia for neuroprotection. As is often the case with non-communication

among the specialties, the provenance of the baby's injury becomes uncertain, and there is often a scramble to test the baby for issues of clotting and inborn errors of metabolism when the timing and the mechanism of ischemic brain injury should have been made affirmatively at the time of delivery, permitting timely and potentially beneficial application of cooling.

Over the last 40 years, the argument has been made for the defense that unless the newborn meets criteria of severe acidosis and hypoxemia at birth with severely low Apgar scores and a Category III FHR pattern (present, but not recognized in this fetus), the injury must have occurred before labor, and the newborn is not a candidate for cooling.

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The problems of communication among the various obstetrical and neonatal providers are, in turn, related to the superficial and vague ACOG guidelines for identifying excessive uterine activity, a diagnosis that does not appear in this medical record. There is never any attempt to moderate the dosage of Pitocin, which on several occasions is increased despite reasonable contraindications to do so.

The malposition, asynclitism, marked molding, caput, cephalohematoma, and frequent contractions, along with the sudden appearance of decelerations with the onset of pushing, would seem to direct attention to the problem of cerebral blood flow (ischemia) as a mechanism of the subsequent disability in the child and to the neuroradiological findings.

The mechanism of injury most obviously relates to compression of the malleable fetal head, with unfused bones permitting dramatic increases in the intracranial pressure, especially venous pressure from compression of dural sinuses. Under these conditions, blood flow is slowed or stopped (congested); clots then form in the dural venous sinuses or cerebral veins, and cerebral sinovenous thrombosis (CSVT) leads to injury of brain tissue (infarction). Indeed, perinatal asphyxia is a commonly associated risk factor.

The apparent prompt response of the newborn, despite its immediate depression at birth, was considered sufficient to preclude the need for an assessment of the umbilical blood gases. The subsequent blood gas from the baby revealed no severe metabolic acidosis, again consistent with cerebral ischemia separate from global hypoxia and acidemia. Irrespective, in the neonatal records, there is the categorical dismissal of fetal head compression as a mechanism of the ischemic (venous) injury as the neonatal care providers search for hematological or metabolic answers to the baby's neurological signs and symptoms. The pattern of neurological injury is inescapable on the FHR tracing for well over 1.5 hours before delivery. There is no evidence that the neonatologists at either the delivering or referral hospitals sought to interrogate the FHR tracing.

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As often happens in these cases, there is a lack of attention paid to the second channel on the tracing—the uterine activity pattern. This is a glaringly inefficient practice, such that a normal pattern with no contractions and a normal pattern with 6 contractions in 10 minutes both fall into the same clinical diagnostic and intervention category and, according to ACOG, require no effort to reduce excessive uterine activity.

This case illustrates the failures to define fetal risk and maintain fetal safety during the second stage of labor. The caregivers failed to determine the poor feasibility of safe vaginal delivery due to the lack of descent despite compulsive pushing; they failed to recognize and prevent the deterioration of the FHR pattern by reducing the Pitocin and curtailing the pushing. With more than reasonable medical probability, these interventional activities would have resulted in a normal fetal outcome. Such understanding and timely preventive care would also have reduced the risk of allegations of medical negligence to nil.

As mentioned above, tabulating the individual failures is required to pursue the lawsuit. Unindicted is the failure to do away with the myths and distortions related to the conduct of the second stage of labor involving obstetrical systems, boundaries, and shared responsibilities.

It should be noted that the time from the onset of the second stage

to the ultimate delivery was just shy of two hours. Accordingly, there was, on the surface, no need to invoke the diagnosis of prolonged second stage of labor. One of the major myths surrounding the second stage, however, is its definition and whether that diagnosis shall be determined by 1) the duration of time from the appearance of full dilatation, 2) the duration of time from the onset of pushing, or 3) the pattern of descent of the fetal presenting part.

"As often happens in these cases, there is a lack of attention paid to the second channel on the tracing—the uterine activity pattern. This is a glaringly inefficient practice, such that a normal pattern with no contractions and a normal pattern with 6 contractions in 10 minutes both fall into the same clinical diagnostic and intervention category and, according to ACOG, require no effort to reduce excessive uterine activity."

The current ACOG Guidelines state that the definition is based on elapsed time, modified by the patient's parity, whether she has epidural anesthesia on board, and whether she is pushing.

	Without Epidural	With Epidural
Nulliparous—pushing	> 3 hours	4 hours
Multiparous, pushing	> 2 hours	3 hours

We argue that, as in this case, the failure to make any progress in descent after one hour of relentless pushing, represents an actionable "prolonged second stage." Despite the ACOG Guidelines, we believe that continued pushing beyond this threshold, without documented descent, not only deviates from accepted obstetric practice but also increases the risk of fetal hypoxia, acidemia, and neurologic injury. It is also barbaric.

The duration of the second stage, especially the lack of descent, cannot be attributed to the individual fetus's tolerance or to the personality or optimism of the individual nurse, midwife, resident, or attending physician. Uniform guidelines and definitions must be widely promulgated, and mandatory escalation must be accepted for all levels of care. The Hospital must ruthlessly enforce them. There may be disagreement about the management of a "prolonged second stage," but there can be no disagreement about what constitutes an actionable second stage (whether it is called prolonged second stage or not) and the FHR patterns that demand escalation of care when found. This is shared situational awareness. In this case, no one felt authorized or obligated to stop excessive uterine activity or the relentless deterioration of this fetus. No one stepped up to moderate the excessive Pitocin or the compulsive pushing, as should have been required by the institution's mandatory, not optional, rules of escalation.

Every provider who comes into contact with the patient must have the option to escalate the level of care and call for immediate discontinuation not only of the Pitocin infusion but also of pushing while proper resources are mobilized. The US Navy's aerial acrobatics team, the Blue Angels, debriefs every mission. "I have a safety" is a phrase borrowed from those debriefing sessions. The safety consideration is heard irrespective of rank, position (pilot or ground crew), or ultimate action.

"Uniform guidelines and definitions must be widely promulgated, and mandatory escalation must be accepted for all levels of care. The Hospital must ruthlessly enforce them. There may be disagreement about the management of a 'prolonged second stage,' but there can be no disagreement about what constitutes an actionable second stage (whether it is called prolonged second stage or not) and the FHR patterns that demand escalation of care when found."

Informed consent. Patients cannot consent to risks that they are not told exist. It seems axiomatic that the uninformed health care provider cannot obtain proper informed consent. Second stage counseling must include regular (every 30–60 minutes), time-based assessments of the feasibility of safe vaginal delivery, along with a proper assessment of the condition of the fetus. Counseling only after two to four hours of non-productive labor is not counseling but confrontation, where options for preventive care and truly shared decision making are compromised. The informed choice to continue labor is the patient's, not only her care provider's.

"Second stage counseling must include regular (every 30–60 minutes), time-based assessments of the feasibility of safe vaginal delivery, along with a proper assessment of the condition of the fetus....The informed choice to continue labor is the patient's, not only her care provider's."

Adverse fetal outcomes related to the conduct of the second stage of labor have been common sources of obstetrical malpractice suits for the last 50 years with little evidence that they are diminishing. They continue to occur not because care providers are indifferent or poorly educated. They recur because the basic

support systems in hospitals are festooned with vague guidelines, imprecise rules about escalation, incoherent classifications of FHR patterns, excessive uterine activity, and labor progress, especially of the second stage. An increased understanding of the value of FHR tracing by the neonatologist and a demand for that tracing during the evaluation of the distressed newborn might greatly assist in a more coherent approach to tracing interpretation by the obstetrical profession.

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Disclosures: *There are no reported disclosures*

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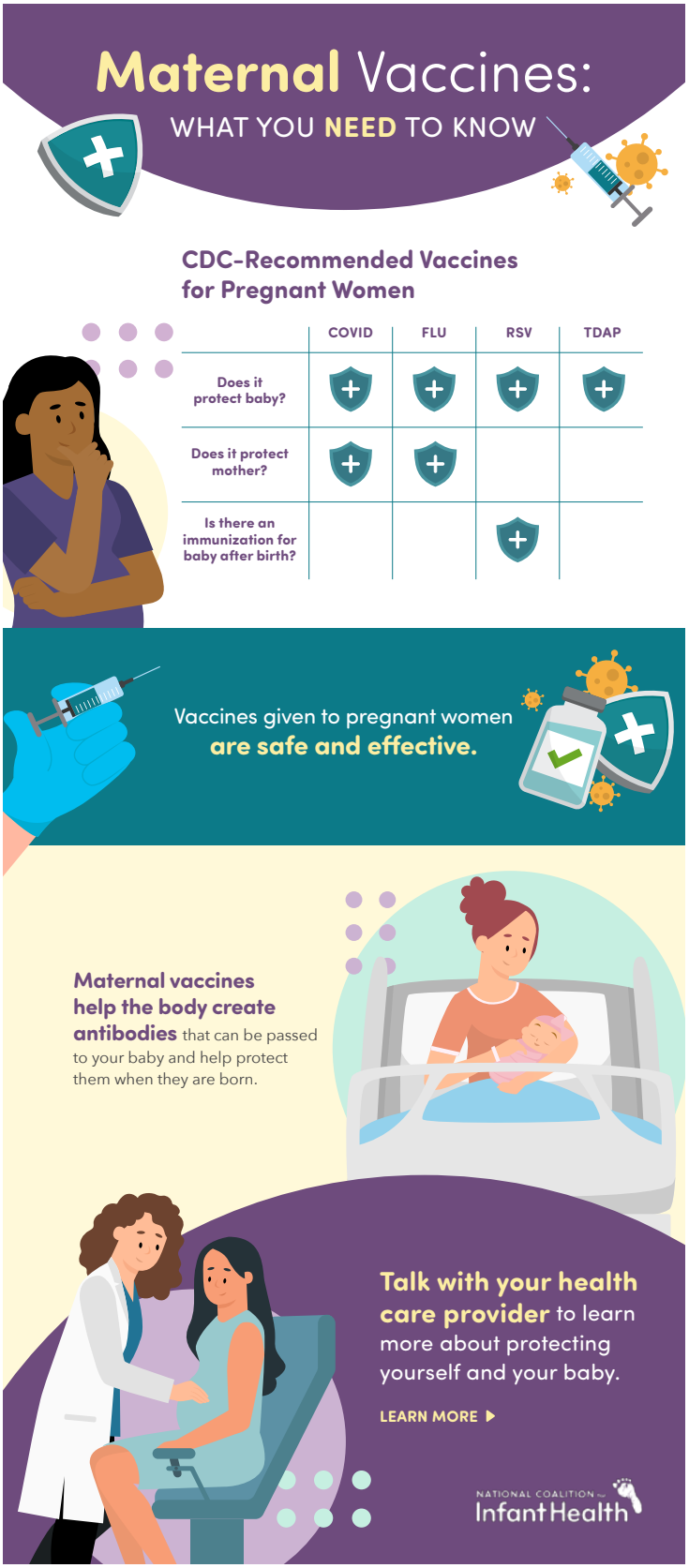
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Will your **PRETERM INFANT** *need* **EARLY INTERVENTION** *services?*

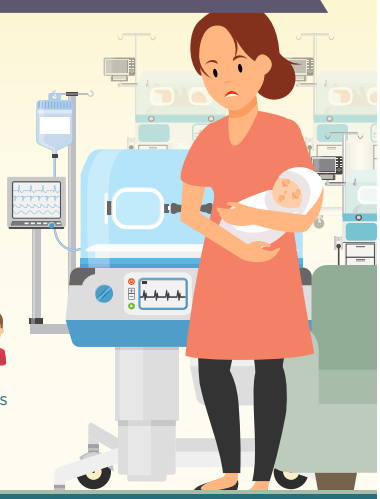
Preterm infants are:

2x more likely to have developmental delays

5x more likely to have learning challenges



1 in **3** preterm infants will require support services at school

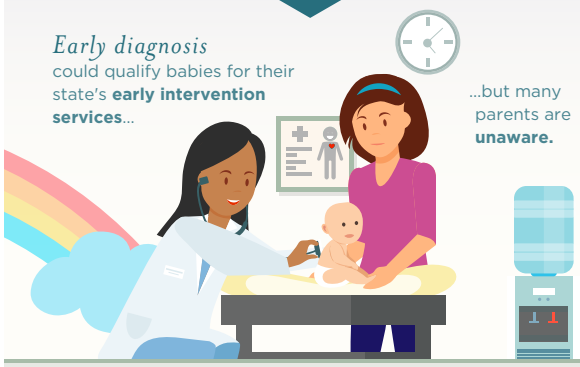


Early intervention can help preterm infants:

- Enhance language and communication skills
- Build more effective learning techniques
- Process social and emotional situations
- Address physical challenges
- Prevent mild difficulties from developing into major problems

Early diagnosis could qualify babies for their state's **early intervention services**...

...but many parents are **unaware.**





NICU staff, nurses, pediatricians and social workers **should talk** with NICU families about the challenges their baby may face.

Awareness, referral & timely enrollment in early intervention programs can help **infants thrive** and grow.



NCFIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

Visit **CDC.gov** to find contact information for your state's early intervention program.

Las nuevas mamás necesitan acceso a la detección y tratamiento para **LA DEPRESIÓN POSPARTO**



1 DE CADA **7** MADRES AFRONTA LA DEPRESIÓN POSPARTO, *experimentando*

- Llanto incontrolable
- Sueño interrumpido
- Ansiedad
- Desplazamientos en los patrones de alimentación
- Ideas de hacerse daño a sí mismas o al bebé
- Distanciamiento de amigos y familiares





Sin embargo, sólo el 15% recibe tratamiento[1]

LA DEPRESIÓN POSTPARTO **NO TRATADA** PUEDE AFECTAR:



La salud de la madre

El sueño, la alimentación y el comportamiento del bebé a medida que crece[2]

La capacidad para cuidar de un bebé y sus hermanos

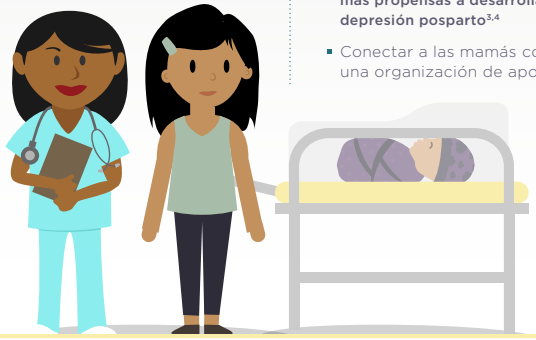
PARA AYUDAR **A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSPARTO**

LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnostico
- Proteger el acceso al tratamiento

LOS HOSPITALES PUEDEN:

- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión posparto**[3,4]
- Conectar a las mamás con una organización de apoyo



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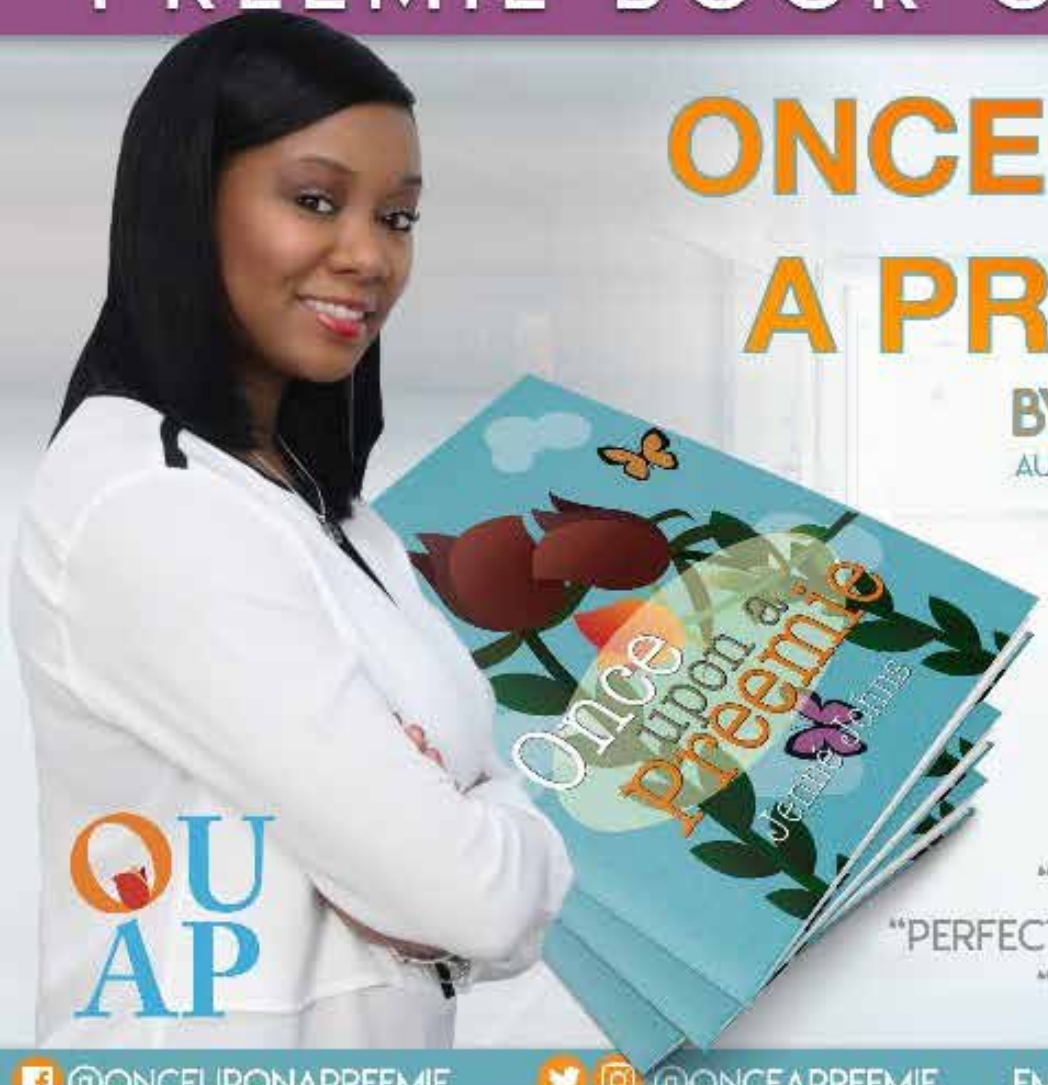
[1] American Psychological Association. Accessible on: http://www.apa.org/pi/women/resources/reports/postpartum-depression.aspx

[2] National Institute of Mental Health. Accessible on: https://www.nimh.nih.gov/health/publications/postpartum-depression-facts/index.shtml

[3] Journal of Perinatology (2015) 35, 529–536; doi:10.1038/jp.2015.147.

[4] Prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants: a systematic review. Vigod SN, Villegas L, Dennis CL, Ross LE BJOG. 2010 Apr; 117(5):540-50.

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BY JENNÉ JOHNS

AUTHOR | SPEAKER | ADVOCATE

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Compiled and Reviewed by Benjamin Hopkins, DO

Young children see drop in rates for 5 vaccines including flu, HepB birth dose

NEWS PROVIDED BY

American Academy of Pediatrics

By Melissa Jenco

Study: **Young children see drop in rates for 5 vaccines including flu, HepB birth dose**

Current as of March 26, 2026

Young children had a drop in rates of receiving five vaccines including flu and the birth dose of hepatitis B vaccine compared to two years prior, a new report found. Rates for other vaccines held steady.

"Maintaining high levels of vaccination and improving coverage among groups and in areas in which rates have declined could help protect children from vaccine-preventable morbidity and mortality," researchers from the Centers for Disease Control and Prevention (CDC) wrote in the Morbidity and Mortality Weekly Report (MMWR).

The team analyzed 2024 data from the National Immunization Survey-Child. Parents and guardians of children born in 2021 and 2022 reported the vaccines their children received by 2 years of age.

The largest difference between this group and children born in 2019 or 2020 was for two doses of flu vaccines, which fell from 61% to about 54%, according to the report. Authors noted flu vaccination has not rebounded to levels from before the COVID-19 pandemic and that, in surveys, parents have said they do not believe their children would get very sick from flu. However, 293 children died during the 2024-'25 flu season, the highest since reporting began in 2004. Most of those children were unvaccinated.

Coverage with the birth dose of hepatitis B vaccine fell nearly 2 percentage points to 79%. Uptake had been on the rise from 2014-'19 but has since "steadily declined," according to the report. Rates could come down further in light of recent actions by federal health officials. In December 2025, the CDC stopped recommending the universal birth dose of hepatitis B vaccine, a decision the AAP said will harm children. A federal judge recently put that change and others on hold temporarily as part of an AAP lawsuit against Health and Human Services Secretary Robert F. Kennedy Jr. for changing vaccine recommendations without scientific evidence or following proper procedures.

The new CDC report also showed children born in 2021 and 2022 had declines of 1-2 percentage points for the primary series of Haemophilus influenzae type b (Hib) conjugate vaccine, rotavirus vaccine and at least four doses of pneumococcal conjugate vaccine compared to children born in 2019 and 2020. Coverage with other vaccines was similar.

Data from the survey on coverage by 24 months show rates of

- 92% for at least three doses of poliovirus vaccine,

- 92% for at least three doses of hepatitis B vaccine,

- 91% for at least one dose of measles, mumps, rubella vaccine (MMR),

- 90% for at least one dose of varicella vaccine,

- 81% for at least four doses of pneumococcal conjugate vaccine,

- 81% for at least four doses of diphtheria, tetanus and acellular pertussis (DTaP) vaccine,

- 79% for the hepatitis B birth dose,

- 78% for the full Hib vaccine series,

- 74% for rotavirus vaccine by age 8 months,

- 68% for the combined seven-vaccine series,

- 54% for at least two doses of influenza vaccine, and

- 47% for at least two doses of hepatitis A vaccine.

The DTaP rate (80.7%) missed its Healthy People 2030 target of 90% while MMR met its target for one dose. The data come in the midst of ongoing measles outbreaks. There were 2,285 confirmed cases last year, the highest since 1991, according to CDC data. There already have been 1,487 cases this year. About 21% of cases have been in children under 5 years and most cases have been among people who are unvaccinated or have an unknown vaccination status.

Just over 1% of children were completely unvaccinated by 2 years of age, according to the report. Vaccine coverage was lower for Black and Hispanic children compared to white and Asian children. Children living in poverty and those in rural areas also tend to have lower rates than their peers.

To increase vaccination coverage, authors of the report recommend that health care providers make a strong recommendation for vaccination, develop targeted messages, increase participation in the VFC program and use standing orders and reminders. They also suggested using vaccination programs in child care centers and Special Supplemental Nutrition Program for Women, Infants, and Children settings.

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Recalls: It doesn't matter who's to blame if no one's protected

NEWS PROVIDED BY

Food Safety News

By Roger Hancock

Study: **Recalls: It doesn't matter who's to blame if no one's protected**

Current as of March 20, 2026

The recent ByHeart infant formula recall is an example of what happens when recall management breaks down at multiple levels. The widespread, multistate recall was initiated after botulism was detected in the brand's organic infant formula, which research indicates originated from organic whole milk powder received from a supplier. But the recall didn't go smoothly, leading to significant public health risks — along with finger pointing and blame.

How did the systems fail? First of all, retailers continued to offer contaminated infant formula, even after ByHeart issued the recall. According to the FDA, during spot checks of retail locations, food safety officials found more than 175 retailers across 36 states that were continuing to sell recalled ByHeart formula long after the initial recall announcement. When questioned about why they were still offering the recalled product, retailers said they weren't aware of the recall, they continued receiving recalled product, or they were confused about which specific lots were affected.

Compounding the problem, ByHeart's formula contamination may have begun years before the recall was issued, leading to an expanded recall scope, plus questions about the effectiveness of the nation's food inspection and regulatory systems.

What are companies doing to protect people? There's no question about it: the ByHeart recall had failures at every level — ingredient supplier, manufacturer, distributor and retailer — which created real risk for families. Consumers were right to be outraged. Many mistakes were made, including late communication, unclear messaging, indecisive action, and failure to act effectively.

Unsurprisingly, consumers wanted to know who was to blame. Fault is rarely a straightforward question, and determining liability can be even more complicated. And, ultimately, who is liable shouldn't be the question driving systemic change. While it's certainly important to hold companies accountable for recalls, focusing solely on liability can overshadow the glaring issues of how the incident was handled.

Companies, regulators and the entire food industry must prioritize fixing the problems around recall management. Instead of only asking who's liable for a recall, the more urgent questions are: what are companies doing to identify and close gaps necessary to protect people right now, and how can we improve the systems, processes, and protocols to prevent botched recalls from happening in the future?

A call for change

In response to the mismanaged ByHeart recall, the FDA called on food industry officials nationwide to improve compliance to better protect consumers from recalled products. Additionally, the Safe Food Coalition — comprised of national food safety advocacy groups — sent an impassioned letter to the FDA, CDC, and Department of Health and Human Services, imploring them to implement reforms to strengthen food safety inspections and regulations, plus improve the speed of recalls.

Despite the fact that gaps in the recall process are well-known and long-standing, the ByHeart crisis demonstrates that the urgent need for change hasn't translated into significant progress. When recalls are mismanaged, they can increase public health risks, as well as costs, disruption, liability and damage to companies' reputations. It's past time for recalls to be managed well at every point in a supply chain — not only to avoid liability, but to minimize costs, disruption, damage, and most importantly, public health consequences.

Readiness — not finger pointing — helps keep people safe

No single company can fully protect consumers without the cooperation of their supply chain partners. It comes down to this: responsibility is always shared, regardless of who's at fault. Recalls are not primarily legal events — they're about protecting public health.

Proper execution is what matters most in a recall. Every company across the supply chain has an obligation to act swiftly, communicate clearly, and verify that affected products are removed from every point in the supply chain. If every company does its part, they help reduce risks and protect public health. They also help avoid blame and liability — for themselves and their trading partners.

So, if you're a shopper frustrated by how recalls are handled — you're not wrong. You're paying attention. Continue to put pressure on brands to improve their recall protocols. Food companies shouldn't wait until the recall spotlight is on them to do the right thing. Readiness—not finger pointing—is what keeps people safe.

Enfamil Lawsuit Claims Premature Infant Required Partial Intestine Removal From NEC Side Effects

NEWS PROVIDED BY

About Lawsuits

By Irvin Jackson

Study: **Enfamil Lawsuit Claims Premature Infant Required Partial Intestine Removal From NEC Side Effects**

Current as of March 12, 2026

A lawsuit filed by a New York woman says feeding her newborn infant Enfamil led to serious and life-threatening side effects, causing the premature child to develop a devastating condition known as necrotizing enterocolitis (NEC), which will result in life-long gastrointestinal issues.

The complaint (PDF) was brought by Quadria Breaker, on behalf of herself and her infant, identified only as Baby Z.L., last month in Cook County Circuit Court in Illinois. The case was later removed to the U.S. District Court for the Northern District of Illinois on March 10 by the defendant, Mead Johnson & Company LLC, the maker of Enfamil infant formula.

Mead Johnson already faces hundreds of similar Enfamil lawsuits brought by families nationwide, each involving similar allegations that the infant formula manufacturer failed to warn parents and the medical community that its cow's

milk-based formula products increased the risk of necrotizing enterocolitis (NEC) among preterm infants. The company's competitor, Abbott Laboratories, faces even more Similac lawsuits over the same issue.

NEC is a serious and life-threatening condition, occurring when harmful bacteria infiltrate the walls of a newborn's intestines, causing portions of the tissue to become inflamed or die. In many cases, infants who develop NEC from infant formula require emergency surgery while still in the neonatal intensive care unit (NICU), and many newborns do not survive. Those who do are often left with health complications for the rest of their lives.

Despite years of scientific evidence indicating that there is a connection between cow's milk-based infant formula like Enfamil and preterm infant NEC side effects, lawsuits allege the manufacturers have continued to aggressively market their products for use among this vulnerable population, placing profits ahead of the safety of newborns.

RSV rates rising instead of winding down in some states

NEWS PROVIDED BY

American Academy of Pediatrics

By Melissa Jenco

Study: **RSV rates rising instead of winding down in some states**

Current as of March 6, 2026

Some states are seeing rising rates of respiratory syncytial virus (RSV) at a time when the season typically is starting to wind down, and experts are encouraging continued immunizations for young children.

Nationwide, 9.1% of tests were positive as of Feb. 28, the highest so far this season, according to data from the Centers for Disease Control and Prevention (CDC). At this time last year, that rate was 6.1% and had come down from a season peak of 11% more than two months prior.

RSV infections are growing or likely growing in 13 states, according to a CDC model using emergency department data. These states include Idaho, Indiana, Iowa, Kentucky, Maine, Michigan, Minnesota, Montana, North Dakota, Ohio, Vermont, West Virginia and Wyoming.

There were 2,810 confirmed pediatric hospital admissions for RSV nationwide during the week ending Feb. 28, a 9% increase compared to the same time last year, an AAP analysis of Health and Human Services data shows.

"It still remains important that children in the first two years of life who are eligible to receive protection against RSV … get immunized," said James D. Campbell, M.D., M.S., FAAP, vice chair of the AAP Committee on Infectious Diseases.

The AAP recommends RSV immunization with nirsevimab or clesrovimab for infants under 8 months of age born during or entering their first RSV season if their pregnant parent was not vaccinated during that pregnancy. Infants and children 8 months through 19 months at high risk of severe RSV disease entering their second RSV season should receive nirsevimab, as clesrovimab is not indicated for children in this age group.

Vaccination of people who are pregnant typically goes through January, and infants born in the next few weeks still should get an immunization if their birth parent was not vaccinated, Dr. Campbell said.

Immunization of infants and eligible toddlers is recommended through the end of March in most of the continental U.S. If activity is still elevated later this spring pediatricians can talk to local or state health officials for guidance.

Dr. Campbell also encouraged older adults to get vaccinated against RSV so they can not only protect themselves but their grandchildren.

Since the season began last fall, there have been 38,053 pediatric hospital admissions for RSV, most of which have been among children under 5 years, according to the AAP's data analysis.

Survey finds people trust their doctor, AAP more than federal health agencies

NEWS PROVIDED BY

American Academy of Pediatrics

By Melissa Jenco

Study: **Survey finds people trust their doctor, AAP more than federal health agencies**

Current as of March 6, 2026

A new survey found people have more trust in their primary care doctor and the AAP than they do in federal health agencies.

About 86% of respondents expressed confidence in their primary care provider, 82% in the American Heart Association, 77% in the AAP and 73% in the American Medical Association (AMA), according to a survey of 1,650 adults conducted by the Annenberg Public Policy Center of the University of Pennsylvania. Trust in the National Institutes of Health, Food and Drug Administration and Centers for Disease Control and Prevention (CDC) was 60%-62%. The margin of error is ±3.5 percentage points.

"It is heartening in the poll to see the American public realizes we pediatricians are still reviewing all the data and making what is the best advice for protecting children from infections," said James D. Campbell, M.D., M.S., FAAP, vice chair of the AAP Committee on Infectious Diseases.

Trust in federal health agencies has been falling. The 60%-62% feeling confident in the agencies this year was down from 67% in 2025 and 74%-76% in 2024.

"I think the American public is realizing that some of the decisions that are being made on recommendations are not being based on scientific evidence," Dr. Campbell said of the declining trust in federal agencies.

While the CDC, AAP and other experts historically worked together on vaccine recommendations, the CDC removed the universal recommendation for a birth dose of hepatitis B vaccine in December 2025, changing it to shared clinical decision-making without scientific evidence for doing so. AAP leaders said the move would have "heartbreaking consequences." The AAP's 2026 vaccine schedule continues to recommend giving newborns a dose of hepatitis B vaccine within 24 hours of birth with additional doses at 1-2 months and 6-18 months.

The new survey results show 42% of people would accept the AAP recommendation on the universal hepatitis B birth dose compared to 11% for the CDC. About 32% were unsure and 16% said they wouldn't accept a recommendation from either.

"I was happy to see … parents and the American public still would trust the evidence-based guidance that's provided by the pediatricians in our country," Dr. Campbell said.

He added that he hopes people realize the American Academy of Pediatrics is made up of the same pediatricians in their communities that people trust every day with the well-being of their children.

"We are pediatricians who each take the field that we're expert in and try to help other pediatricians and families make the best decision," he said.

On the topic of vaccines more broadly, 59% of respondents expressed confidence in the CDC for trustworthy information. However, if the AMA and CDC were to disagree, 34% said they would turn to the AMA compared to 15% who would trust the CDC. About 34% were unsure and 17% said they wouldn't accept a recommendation from either. This question did not include the AAP as an option. The AMA has endorsed the AAP's 2026 child and adolescent immunization schedule.

The poll also found confidence is greater in the career scientists at the federal agencies (67%) than in their leaders (43%).

Health and Human Services Secretary Robert F. Kennedy Jr.'s tenure leading the agency has been marked by eroding confidence in vaccines, drastic changes to childhood immunization recommendations, false claims about autism, major staff cuts and soaring measles cases.

In the poll, 38% of people expressed confidence in Kennedy and 42% in Centers for Medicare & Medicaid Services Administrator Mehmet Oz, M.D., M.B.A. Respondents were asked how much they trusted former National Institute of Allergy and Infectious Diseases Director Anthony S. Fauci, M.D., and 54% said they were confident in the public health information he provided during his tenure.

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More than 3,000 pediatric residencies filled in 2026 Match, a slight dip from previous year

NEWS PROVIDED BY

American Academy of Pediatrics

By Sean Stangland

Study: **More than 3,000 pediatric residencies filled in 2026 Match, a slight dip from previous year**

Current as of March 20, 2026

More than 3,000 medical students filled 94.4% of pediatric positions offered in the 2026 Main Residency Match, which saw more applicants than ever before.

The 3,006 future residents who matched into categorical and primary pediatrics represent a .09 percentage-point decrease from last year's Match Day when 3,043 (95.3%) positions were filled.

AAP President Andrew D. Racine, M.D, Ph.D, FAAP, congratulated the future pediatric residents on "joining the most dynamic, inspiring medical specialty there is" in a video message on TikTok.

"The privilege of being a pediatrician, and the hope that comes with working with children, fills my heart with meaning and joy," he said. "I can't wait to share that experience with you."

More pediatric positions are expected to be filled later this spring through the Supplemental Offer and Acceptance Program.

From 2013-'26, more than 50 pediatric residency programs have been added among an increase in the number of positions offered (19%) and filled (13%).

By the numbers

Pediatrics offered 3,185 categorical and primary positions in 2026, eight fewer than last year.

Categorical pediatrics — programs that provide full training for general pediatric specialty board certification — filled 2,951 of 3,126 positions (94.4%). Pediatrics-primary, which provides a training emphasis on primary care, filled 55 of 59 positions (93.2%).

Five categories of pediatrics programs filled 100% of positions.

Internal medicine-pediatrics filled all 404 positions, up from 99.2% filled in 2025. Four subspecialist categories — pediatrics/psychiatry/child psychiatry (30 positions), pediatrics-preliminary (25), pediatrics-anesthesiology (8) and pediatrics-physical medicine and rehabilitation (5) — also filled all open positions.

Pediatrics-emergency medicine filled 7 of 8 positions and pediatrics-medical genetics filled 27 of 31.

This year saw 684 non-U.S. citizen international medical graduates filling positions in categorical pediatrics, a number that had been steadily climbing according to recent AAP data and an increase of 94 over last year.

The pool of active applicants in the Main Residency Match increased by 1.8% from last year's record-setting high to 48,050. There were 44,344 training positions offered and 41,482 (93.5%) were filled by the National Resident Matching Program's algorithm that places applicants into their most preferred residencies.

The majority of positions offered in this year's match belong to primary care specialties at 20,712, which is 412 more than last year's record but with a fill rate that decreased to 92.1% from 93.5%.

Pediatric workforce challenges

While the Main Residency Match has seen record-high numbers of applicants in consecutive years, the number of people entering the pediatric workforce has remained flat, said Jesse Hackell, M.D., FAAP, chair of the AAP Committee on Pediatric Workforce, a concern as acute infectious diseases like measles, whooping cough and influenza continue to rise.

About half of the roughly 3,000 residents matched to pediatrics positions in this and recent years will eventually shift into subspecialty fellowships, Dr. Hackell said, leaving the other half in primary care pediatrics. "That's not enough to provide access to care for all kids," he said.

Additionally, recent data shows that pediatricians continue to be the lowest-paid primary care specialists in the U.S.

"If you come out of medical school with a quarter of a million dollars in loans, you

have to be thinking about the money," he said. "If we increased pediatric salaries to the mean physician salary in the nation, I think our workforce issues would disappear."

Residents who join that workforce have a unique opportunity to shape the future of pediatrics, Dr. Racine said.

"As you begin your training as pediatricians, we want you to know that at the American Academy of Pediatrics, along with our Section on Pediatric Trainees, we are here for you every step of the way," he said in his welcome video. "I began my journey decades ago, and the spirit that animated my work as a pediatrician back then still inspires me today."

NT

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Genetics Corner: Incontinentia Pigmenti in a Neonate: Classic Cutaneous Evolution and Suspected Reactivation Following Routine Immunization

Hua Wang, M.D., Ph.D.

Abstract:

Background: *Incontinentia pigmenti (IP) is a rare X-linked dominant genodermatosis caused by mutations in the IKBKG gene, characterized by distinct evolution of skin lesions through four stages.* ***Case Presentation:*** *We report a female neonate presenting at birth with linear vesiculopustular eruptions following Blaschko lines. Genetic testing confirmed a pathogenic heterozygous partial gene deletion (exons 4-10) in IKBKG. While the initial vesicular stage was resolving, the patient experienced a marked reactivation of vesiculopustular lesions and worsening inflammation following rotavirus and DTaP vaccinations at 9 weeks of life. Comprehensive evaluation revealed peripheral retinal avascularity in the right eye but no neurological deficits on imaging.* ***Conclusion:*** *This case highlights the classic neonatal presentation of IP and underscores a potential, though rare, association between vaccination and cutaneous reactivation. Recognizing this phenomenon is crucial for clinicians to provide appropriate anticipatory guidance while avoiding unnecessary contraindication of routine immunizations.*

Introduction:

Incontinentia pigmenti (IP; OMIM #308300) is a rare X-linked dominant multisystem disorder affecting the skin, hair, teeth, eyes, and central nervous system (1). It is caused by loss-of-function mutations in the IKBKG gene (also known as NEMO), which encodes a regulatory component of the nuclear factor-kappa B (NF-κB) signaling pathway essential for protection against apoptosis (2, 3). The condition is typically lethal in hemizygous males in utero, resulting in a female-predominant prevalence (1).

"Incontinentia pigmenti (IP; OMIM #308300) is a rare X-linked dominant multisystem disorder affecting the skin, hair, teeth, eyes, and central nervous system. It is caused by loss-of-function mutations in the IKBKG gene (also known as NEMO), which encodes a regulatory component of the nuclear factor-kappa B (NF-κB) signaling pathway essential for protection against apoptosis"

The hallmark of IP is its cutaneous presentation, which classically evolves through four distinct stages: Stage I (vesiculopustular/inflammatory, birth to 4–6 months), Stage II (verrucous, 2 weeks to several months), Stage III (hyperpigmented, 3–6 months to adolescence), and Stage IV (hypopigmented/atrophic, adolescence to adulthood) (1, 4). While the cutaneous features are diagnostic, morbidity is primarily driven by extracutaneous manifestations, including retinal neovascularization (20–77% of patients) and central nervous system (CNS) anomalies such as seizures and developmental delay (approximately 27–30% of patients) (4–6).

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Current literature documents the natural history of IP extensively; however, reports linking cutaneous reactivation to immunological triggers, such as vaccinations, are sparse. Alikhan et al. (7) and Dupati et al. (8) have documented cases of IP reactivation following 12-month and 18-month immunizations. We present a case of a neonate with a confirmed IKBKG deletion who exhibited a classic cutaneous evolution, complicated by a distinct flare of blistering lesions following 2-month vaccinations (rotavirus and DTaP). This report aims to expand the phenotypic spectrum of vaccine-associated reactivity in early infancy and to inform clinical management of immunization scheduling.

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Case Presentation:

Neonatal Presentation and Initial Evaluation:

This is a female infant born at 39 weeks 5 days via spontaneous vaginal delivery to a 29-year-old G_2P_{0010} mother and 35-year-old

father, both of Mexican ancestry. Birth parameters were: weight 4,105 g (>97th percentile), length 52 cm (94th percentile), and head circumference 34.5 cm (50th percentile). Apgar scores were 5 and 7 at one and five minutes, respectively. The pregnancy was uncomplicated aside from maternal yeast infections and prenatal ultrasound findings of a large-for-gestational-age fetus with a subchorionic hematoma. The mother had one prior first-trimester miscarriage. Family history was unremarkable except for left clubfoot in a maternal uncle, with no consanguinity.

At birth, the infant presented with scattered erosions, intact bullae, and distinctive linear and whorled hyperpigmentation following Blaschko lines, predominantly on the extremities. Based on these pathognomonic findings in a female neonate, incontinentia pigmenti (IP) was clinically suspected.

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Skin biopsy on day 2 confirmed IP. Genetic testing revealed a heterozygous IKBKG deletion (exons 4–10), the common recurrent deletion found in 75–80% of molecularly confirmed cases (2). This deletion causes complete loss of IKBKG protein function and impaired NF-κB signaling.

Given negative family history and absent maternal manifestations, the deletion was presumed de novo, consistent with the 65% de novo rate for this deletion (1, 9). Maternal testing was recommended to confirm this and assess recurrence risk, as germline mosaicism or skewed X-inactivation could affect future pregnancies.

The infant was discharged on day 4 with dermatology and genetics follow-up arranged.

Extracutaneous Manifestations:

At approximately 7 weeks of age, the patient was hospitalized for seizure-like activity followed by unresponsiveness, though there was a question whether colic and gastroesophageal reflux contributed to the episode. Brain MRI and MRA performed on July 27, 2025, were normal, showing no evidence of seizure focus, ischemic injury, or vascular abnormalities. Video EEG monitoring was normal in wakefulness and sleep with no epileptogenic abnormalities identified. The seizure-like episode did not recur, and the infant demonstrated age-appropriate developmental milestones at 10 weeks, including tummy time, head lifting, reaching for objects, and visual tracking.

Ophthalmologic evaluation revealed peripheral retinal avascularity of the right eye, consistent with IP-associated retinopathy. The infant was established with ophthalmology for ongoing surveillance with monthly examinations recommended until 4 months of age (1).

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Clinical Course at 10 Weeks: Vaccine-Associated Flare:

At 10 weeks of age, she returned to the genetics clinic with appropriate growth parameters: weight 5.1 kg (36th percentile), length 58 cm (52nd percentile), and BMI 15.16 kg/m² (30th percentile). The mother reported significant concern regarding apparent reactivation of skin lesions following rotavirus and DTaP vaccinations administered one week prior. After vaccination, the infant developed new blisters, and previously healing lesions appeared darker and wart-like. Physical examination revealed erythematous, linear, and whorled vesiculopapular lesions with crusting over the upper and lower extremities, following Blaschko lines, consistent with transition from Stage I (vesiculopustular) to Stage II (verrucous) of IP (1). No signs of secondary infection were evident. The infant appeared uncomfortable, frequently scratching and crying. Additional findings included cradle cap and areas with hair appearing dry and sparse, with overlying regions showing active blistering. Dermatology prescribed topical Kenalog and Bactroban for symptomatic management.

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Management and Outcome:

A multidisciplinary team, including Genetics, Dermatology, Ophthalmology, and Neurology, follows the patient. Management of cutaneous lesions has been primarily supportive with topical Kenalog and Bactroban prescribed to manage inflammation and prevent secondary infection. The mother was advised to avoid

rupturing sealed blisters, keep areas clean while healing, and monitor for signs of systemic infection. These blisters and rashes are expected to resolve in the first 1–2 years of life (1).

Regarding the post-vaccination flare, the family was counseled that while patients with IP may experience skin flares temporally associated with various triggers, there is currently no evidence that routine vaccinations are contraindicated in IP. The literature on vaccine-associated reactivation is limited, with Alikhan et al. (7) and Dupati et al. (8) documenting cases following 12-month and 18-month immunizations. However, recent evidence suggests that IP may accelerate thymic involution, predisposing individuals to life-threatening viral diseases and reinforcing the importance of vaccination (10). The observed flares are likely part of the natural course of the condition, and any temporal association with vaccination may be coincidental. Temporary deferral of immunizations can be considered during periods of significant skin discomfort or active lesions with coordination between Dermatology and Primary Care to optimize vaccine timing. Ophthalmology continues to monitor retinal avascularity to prevent progression to retinal detachment. The patient remains under close multidisciplinary surveillance.

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Discussion:

Clinical Features and Pathogenesis:

This case illustrates the classic "linear and whorled" cutaneous phenotype of IP, driven by lyonization (X-inactivation) resulting in functional mosaicism (1, 11). The patient presented with Stage I (vesiculopustular) lesions at birth, which began transitioning to Stage II (verrucous) lesions characterized by hyperkeratotic, wart-like plaques at approximately 9–10 weeks of age. The pathogenesis involves the IKBKG gene, which encodes the NF-κB essential modulator (NEMO), a critical regulator of the NF-κB signaling pathway. Loss of function in IKBKG renders cells susceptible to apoptosis in response to inflammatory cytokines, particularly tumor necrosis factor-alpha (TNF-α), leading to the initial inflammatory vesicular stage (2, 3).

The skin lesions in IP follow Blaschko lines, which represent developmental growth patterns of the skin and reflect the clonal distribution of cells with different X-chromosome inactivation patterns (11). In affected females, cells that have inactivated the X chromosome carrying the normal IKBKG allele undergo apoptosis when exposed to inflammatory stimuli while cells that have inactivated the X chromosome carrying the mutant allele survive, creating the characteristic linear and whorled pattern (1).

"This case illustrates the classic 'linear and whorled' cutaneous phenotype of IP, driven by lyonization (X-inactivation) resulting in functional mosaicism. The patient presented with Stage I (vesiculopustular) lesions at birth, which began transitioning to Stage II (verrucous) lesions characterized by hyperkeratotic, wart-like plaques at approximately 9–10 weeks of age. The pathogenesis involves the IKBKG gene, which encodes the NF-κB essential modulator (NEMO), a critical regulator of the NF-κB signaling pathway. Loss of function in IKBKG renders cells susceptible to apoptosis in response to inflammatory cytokines, particularly tumor necrosis factor-alpha (TNF-α), leading to the initial inflammatory vesicular stage."

Vaccine Reactivation:

While this patient's presentation aligns with established IP phenotypes, the temporal association with vaccination provides insight into potential immunological triggers of cutaneous reactivation. Literature on vaccine-induced IP reactivation is limited to two prior reports: Alikhan et al. (7) documented recurrent vesicobullous lesions 1–2 days after 12-month and 18-month immunizations, and Dupati et al. (8) reported new vesicular lesions 5 days after 12-month vaccines (MMR, varicella, hepatitis A).

Our case extends these observations by documenting vaccine-associated reactivation as early as 2 months of age following rotavirus and DTaP vaccines. This supports the hypothesis that immune stimulation triggers apoptosis in IKBKG-mutated cells through vaccine-induced cytokine release, particularly TNF-α, which selectively induces apoptosis in cells lacking functional IKBKG/NEMO protein (3, 7).

However, distinguishing vaccine-associated reactivation from natural progression through the IP stage is challenging, as the transition from Stage I to Stage II typically occurs between 2 weeks and several months, overlapping with routine immunization timing (1, 4). Late recurrences of inflammatory lesions have also been reported with febrile illnesses and infections, suggesting susceptibility to various immunological stimuli (12, 13).

Importantly, recent evidence demonstrates that IP causes thymic dysplasia, autoantibodies to type I interferons, and increased susceptibility to life-threatening viral infections (10). The benefits

of vaccination far outweigh the risk of transient cutaneous flares, reinforcing that vaccines should not be withheld in IP patients.

"Our case extends these observations by documenting vaccine-associated reactivation as early as 2 months of age following rotavirus and DTaP vaccines. This supports the hypothesis that immune stimulation triggers apoptosis in IKBKG-mutated cells through vaccine-induced cytokine release, particularly TNF-α, which selectively induces apoptosis in cells lacking functional IKBKG/NEMO protein."

Extracutaneous Manifestations:

This patient demonstrated two important extracutaneous manifestations: peripheral retinal avascularity and a seizure-like episode. Ophthalmologic abnormalities occur in 20–77% of IP patients and represent a major cause of morbidity (1, 4). Retinal vascular abnormalities typically develop within the first few months and can progress to retinal detachment, vitreous hemorrhage, and vision loss if untreated (14). Early detection through systematic screening and timely laser photocoagulation or anti-VEGF therapy can prevent vision-threatening complications (14).

"Ophthalmologic abnormalities occur in 20–77% of IP patients and represent a major cause of morbidity. Retinal vascular abnormalities typically develop within the first few months and can progress to retinal detachment, vitreous hemorrhage, and vision loss if untreated."

Neurologic complications occur in 27–30% of IP patients and include seizures, developmental delay, intellectual disability, spasticity, and stroke (4, 5). These result from inflammatory microvascular changes that cause ischemic injury, particularly during the first year, when skin inflammation is most active (6, 15). This patient's seizure-like episode at 7 weeks was concerning, but the brain MRI, MRA, and EEG were normal. The episode may have been related to gastroesophageal reflux or breath-holding, though continued neurologic surveillance remains warranted given ongoing CNS risk during infancy.

Genetic Insights:

The recurrent IKBKG exons 4–10 deletion identified in this patient accounts for approximately 75–80% of molecularly confirmed IP cases (4, 16). This 11.7-kb deletion arises through non-allelic homologous recombination between MER67B repeat elements, resulting in complete loss of gene function (2, 17). The high de novo rate (approximately 65%) aligns with the negative family history in our case (1, 9), and the deletion occurs preferentially on the paternally inherited X chromosome (9). Maternal testing was recommended to confirm de novo status and exclude germline mosaicism or skewed X-inactivation, which could affect recurrence risk in future pregnancies (1, 18).

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Management Considerations:

No specific targeted therapies exist for IP; management focuses on symptomatic treatment and surveillance for extracutaneous complications (1). Topical corticosteroids and antibiotics effectively manage inflammatory flares and prevent secondary infection. Standard skin care includes avoiding trauma to blistered areas, maintaining hygiene, and monitoring for infection (1).

"...management focuses on symptomatic treatment and surveillance for extracutaneous complications. Topical corticosteroids and antibiotics effectively manage inflammatory flares and prevent secondary infection. Standard skin care includes avoiding trauma to blistered areas, maintaining hygiene, and monitoring for infection."

Multidisciplinary surveillance is essential. Ophthalmologic screening should begin within the first month of life with monthly examinations until 4 months of age, every 3 months from 4 months to 1 year, every 6 months from 1 to 3 years, and annually thereafter to detect retinal vascular abnormalities before vision-threatening complications develop (1). Neurologic monitoring, including developmental assessment and brain MRI when indicated, helps detect CNS complications early (6). Dental evaluation should begin at 6 months or when teeth erupt to manage dental abnormalities, which occur in approximately 80% of patients (1).

Routine vaccinations should continue in patients with IP, as benefits outweigh the risk of transient cutaneous flares (7). Families should be counseled about the possibility of temporary skin reactivation following immunizations, and scheduling flexibility may be considered during active inflammation.

"Multidisciplinary surveillance is essential. Ophthalmologic screening should begin within the first month of life with monthly examinations until 4 months of age, every 3 months from 4 months to 1 year, every 6 months from 1 to 3 years, and annually thereafter to detect retinal vascular abnormalities before vision-threatening complications develop. Neurologic monitoring, including developmental assessment and brain MRI when indicated, helps detect CNS complications early. Dental evaluation should begin at 6 months or when teeth erupt to manage dental abnormalities, which occur in approximately 80% of patients."

Conclusion:

This case documents classic incontinentia pigmenti confirmed by IKBKG deletion, with rare cutaneous reactivation following 2-month vaccinations (rotavirus and DTaP). It demonstrates that vaccine-associated flares can occur in early infancy, not just toddlerhood as previously reported. While routine immunizations should continue given their critical benefits, flexible scheduling and anticipatory guidance regarding potential skin reactions are prudent. Early multidisciplinary surveillance for extracutaneous manifestations, particularly ophthalmologic and neurologic complications, remains essential to prevent major morbidity in IP.

Take-Home Messages for the Neonatologist:

Recognize the Stages: Linear and whorled blistering following Blaschko lines in a female neonate is highly suggestive of IP. Recognize the four evolving cutaneous stages (vesiculopustular, verrucous, hyperpigmented, atrophic) to avoid misdiagnosis with epidermolysis bullosa or neonatal herpes.

Vaccine Guidance: Vaccinations may trigger transient skin flares but are not contraindicated. Counsel parents about this possibility and consider flexible scheduling during active inflammation. The benefits of immunization far outweigh the risks of temporary reactivation.

Multidisciplinary Screening: Confirmed IP requires immediate ophthalmology referral (to detect retinal vascular abnormalities) and neurology evaluation (to monitor for seizures and developmental delays), even in asymptomatic infants. Early intervention prevents vision-threatening complications.

Genetic Confirmation: IKBKG deletion analysis detects 75–80% of IP cases. Maternal testing is recommended to assess recurrence risk and provide accurate genetic counseling, as germline mosaicism or skewed X-inactivation may occur despite maternal asymptomatic status.

Anticipatory Guidance: Inflammatory skin lesions typically resolve within 1–2 years, but lifelong surveillance for dental, ophthalmologic, and neurologic complications is essential.

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Disclosures: *There are no reported disclosures*

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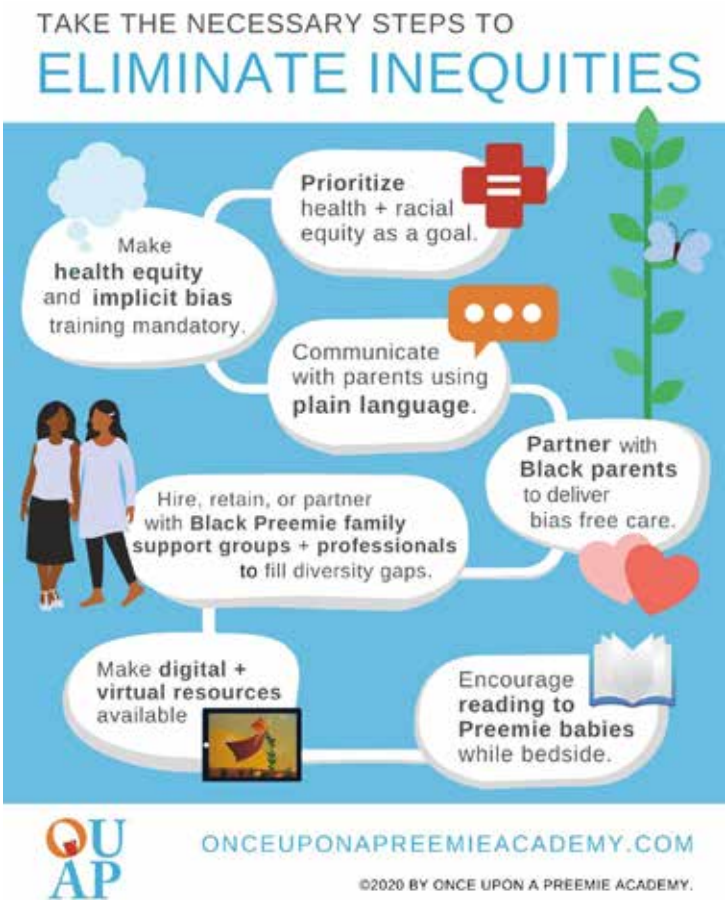


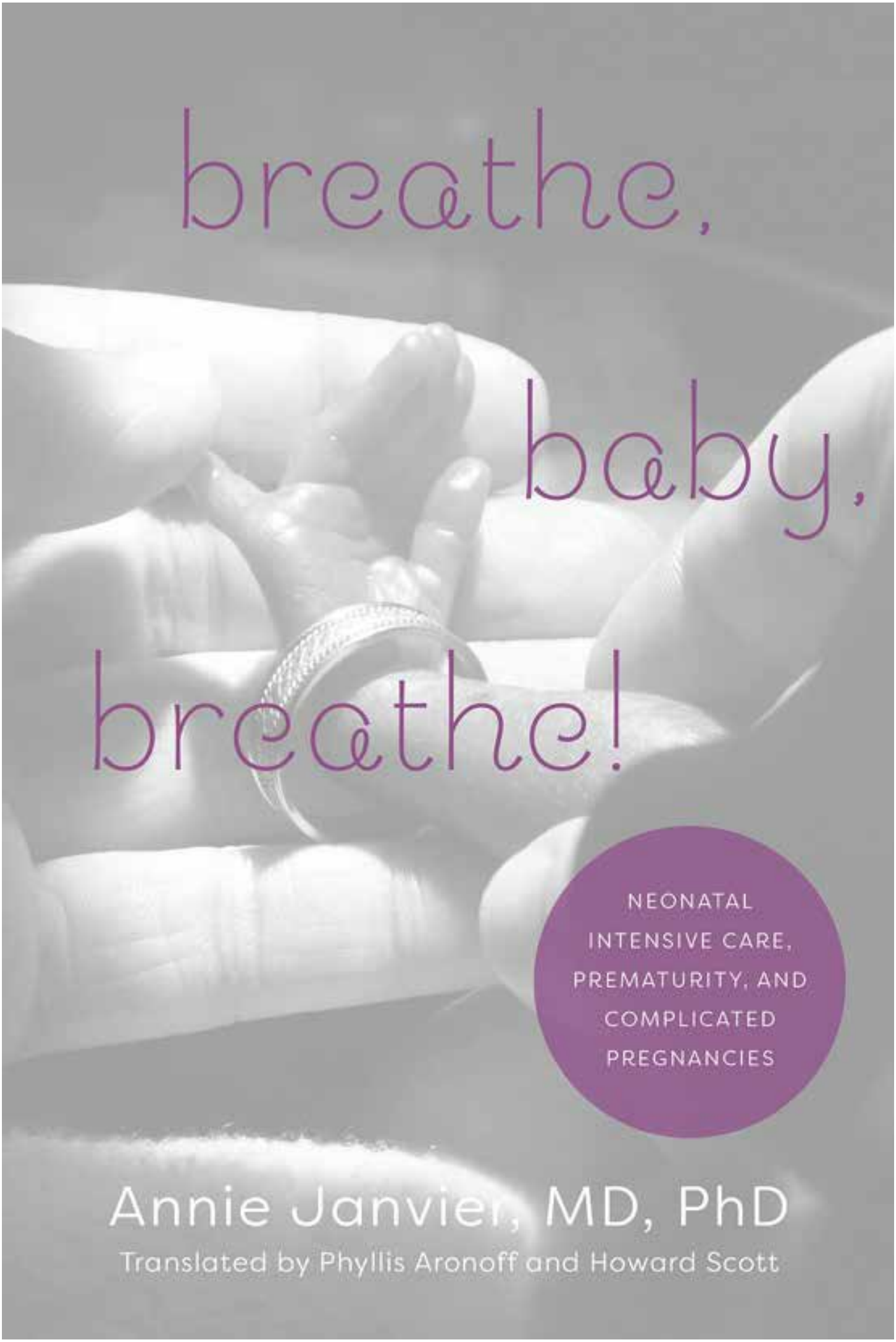
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Family Centered Care: The Role of Certified Child Life Specialists (CCLS) in the NICU

Bob Cicco, MD

While Certified Child Life Specialists (CCLS) have been actively involved in most children's hospitals for years, the role and function of CCLS are relatively new in most neonatal intensive care units (NICUs). Because of this, most staff in NICU settings are unaware of the many ways a CCLS can participate in creating a family-centered care culture and environment. Annie Jacobson provides FCC Taskforce members with insights into the role of CCLS and describes ways CCLS can enhance the NICU team, help implement family-centered care principles, and maximize the health outcomes of both babies and families in the NICU setting.

"While Certified Child Life Specialists (CCLS) have been actively involved in most children's hospitals for years, the role and function of CCLS are relatively new in most neonatal intensive care units (NICUs). Because of this, most staff in NICU settings are unaware of the many ways a CCLS can participate in creating a family-centered care culture and environment."

What is a Certified Child Life Specialist (CCLS)?

Many people may be under the impression that a Child Life Specialist is a volunteer brought into a hospital setting to provide activities for children during their hospitalization. In fact, that perception could not be further from the truth. Child Life Specialists are certified professionals who are experts at the intersection of a child's social, emotional, and cognitive development and the effect of stress and trauma on that development. They are extensively trained in both child development and the impact of trauma on children and their families. CCLSs are required to maintain credentialing and minimum standards of care, and professional organizations such as the American Academy of Pediatrics have issued policy statements stating that CCLSs should be included as essential team members in hospital-based pediatric care.

What is the Role of a Certified Child Life Specialist?

CCLSs specialize in developing individualized plans of care for hospitalized children of all ages. These care plans focus on promoting optimal development, positive coping, and support for the entire family, including siblings. Among the many services provided are developmental support for children, education for families to better understand treatment plans, preparing both patients and families for surgery and other procedures, and assistance in aligning family and medical goals of care. Their role is especially important in helping siblings understand why their brother or sister is hospitalized.

"CCLSs also serve a vital role in bereavement and end-of-life discussions. In that role, they can facilitate difficult conversations, support siblings, and create keepsakes and memories."

CCLSs also serve a vital role in bereavement and end-of-life discussions. In that role, they can facilitate difficult conversations, support siblings, and create keepsakes and memories.

Certified Child Life Specialists in the NICU

The services of a CCLS can greatly help develop a family-centered care environment in the NICU. Specific to NICU babies, their training and input can help create developmentally supportive policies and pain management plans. However, the role of a CCLS can go much further, empowering parents to recognize the important role they play in their baby's care and helping them better understand treatment plans. Examples of ways in which CCLSs can help integrate parents into their child's care include reading programs, parent orientation classes, and assistance with discharge planning. In addition, CCLS are especially well trained to recognize siblings' needs and to identify and address the concerns and fears siblings may not openly express. This intervention can expand a policy of sibling visitation into a comprehensive support program to minimize the trauma experienced by older brothers and sisters. CCLSs are uniquely trained to address these needs.

"Family-centered care principles demand the creation of an environment where all family members are valued and recognized for the expertise they bring to the care of a baby. Incorporation of a certified child life specialist can greatly assist in creating that environment. All NICUs dedicated to FCC principles should consider adding CCLSs to their care team. "



"Child Life 101: Introduction to Services in the NICU" Annie Jacobson, MS, CCLS, CAHP

Family-centered care principles demand the creation of an environment where all family members are valued and recognized for the expertise they bring to the care of a baby. Incorporation of a certified child life specialist can greatly assist in creating that environment. All NICUs dedicated to FCC principles should consider adding CCLSs to their care team.

For a recording, slides, and resources from Annie's session, click here. (https://fcctaskforce.org/community-exchange-2/)

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Michael Hynan, PhD
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Dr. Hynan's research interests include stress reactions in parents who have had their infant hospitalized in the NICU.

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- Co-Chair, FCC Taskforce EDIBJ Committee
- Senior Research Coordinator, Washington University School of Medicine & Stanford School of Medicine
- NICU Parent of Gavin



Malathi Balasundaram, MD (she/her)

- Clinical Professor, Stanford School of Medicine
- Founder & Executive Director, Family-Centered Care Taskforce
- Neonatal Intensivist, El Camino Health NICU

Trust and Engagement in the AI Era: Advancing Family-Centered Care Through Responsible Innovation



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WHO WE ARE

OUR VISION

Everyone who experiences infertility, pregnancy, and infant loss is able to access support and resources to help them grieve.

OUR MISSION

To support those daily experiencing infertility, pregnancy & infant loss by providing trauma informed care & resources in a safe environment.

OUR CORE VALUES

01 **Compassionate**
We are empathetic, respectful & supportive of the individuals we serve.

02 **Validating**
We meet people where they are in their journey & make sure they feel heard & seen.

03 **Sincere**
We are honest & transparent, which helps us provide the individuals we serve with the information they need in a genuine way.

04 **Dependable**
We are accessible & consistent so that our stakeholders know that we will always do what we say.

05 **Safe**
We foster and create an environment of trust to enable people to heal.

Chasing the Rainbows

OUR SERVICES

- Peer Support Groups
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- Trauma Therapy
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- Yoga & Meditation
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- Community Events
- Trauma Informed Training & Resources

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2026 Bursting Bubble 5K

Join us on Bereaved Mother's Day, May 3, 2026, for our Annual Bursting Bubbles 5K. An event honoring every parent touched by infertility, pregnancy loss, stillbirth, or infant loss. We chose bubbles because grief, like bubbles, comes in all shapes and sizes. It rises, drifts, expands, and sometimes bursts without warning. No two bubbles and no two grief journeys are the same.

Every step taken lifts the voices of grieving parents and fuels the trauma-informed support they urgently need. Chasing the Rainbows works every day to break the silence surrounding infertility, pregnancy loss, infant loss, and pregnancy after loss, ensuring families have immediate access to compassionate care. By sponsoring this event, you stand with the one in four couples who face these devastating experiences and help ensure no parent ever walks this path alone. Together, we surround loss families with community, connection, and hope. One bubble, one step, one healing moment at a time.

Your sponsorship directly supports our mission to sustain, expand, and strengthen daily support services so survivors receive comfort, community, and hope exactly when they need it most. Chasing the Rainbows currently offers nine free daily services, including support groups, peer mentorship, trauma therapy, mindful-movement tools, care packages, and more. With your partnership, we can grow these resources, add new groups, and continue meeting families in their most vulnerable moments. Grief and trauma do not follow a schedule which is why our services must remain free, daily, and accessible for every loss family who reaches out.

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Showcase your business or organization with a vendor table at the Chasing the Rainbows Bursting Bubble 5K. *(Can be added on to a sponsorship level.)*

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As a National Sponsor, your organization will receive nationwide exposure across all event locations through local and national marketing, including digital and print media, social media, and event signage. This partnership offers a chance to reach thousands across the country and connect with diverse audiences who care about grief, loss, and healing.

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- National exposure in marketing materials *(brochures, posters, website)*
- Exclusive speaking opportunity at each event
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- Inclusion in email marketing campaigns
- Booth space at all race events
- Recognition in post-event press releases and media coverage
- Social media shoutouts *(combined following of 20,000+)*
- Promotional items in race packets and at event locations
- Silver Level Sponsorship for our Annual 'A Chance Worth Taking Gala' *(October 2026)* with all associated benefits
- 50 VIP tickets to any location

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- Logo on all race t-shirts nationwide
- Featured as a sponsor in national email marketing campaigns.
- Signage at all race locations.
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- Recognition in email marketing for 3 selected events.
- Social media mentions during the race series.
- 30 VIP Tickets to any location

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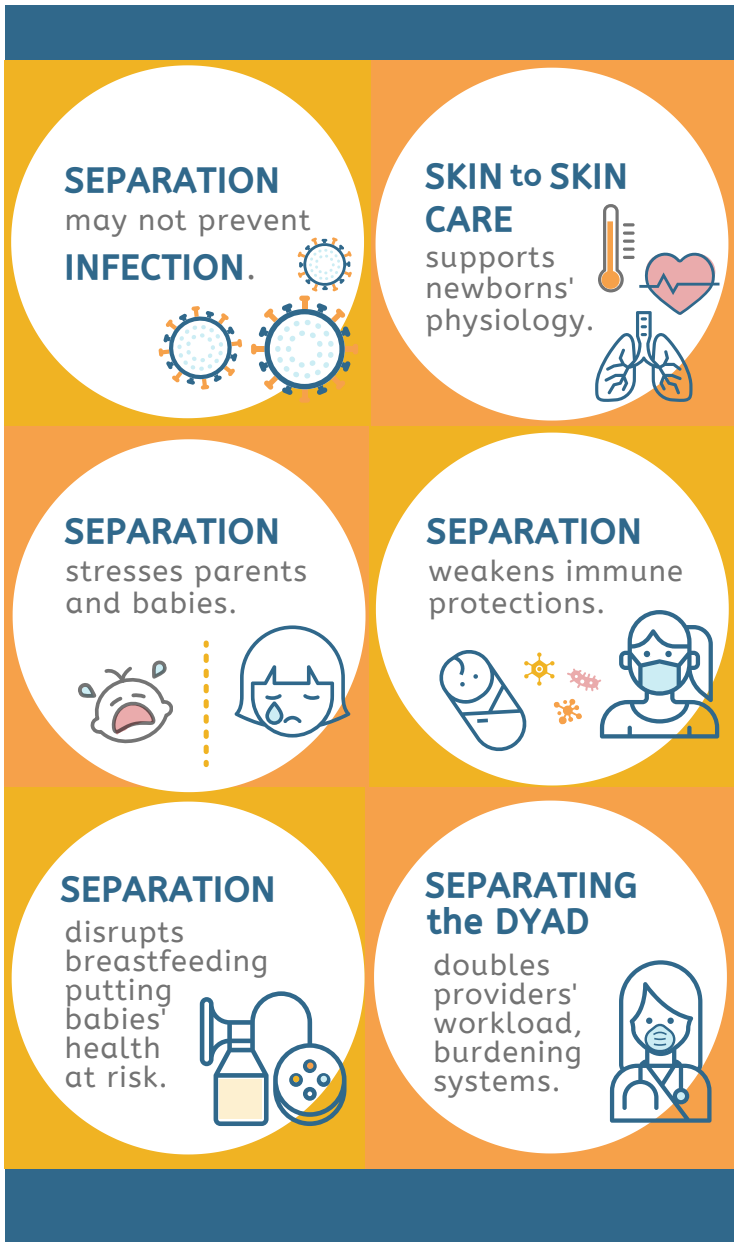
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Medical-Legal Issues in the Management of Neonatal Seizures

Jonathan K. Muraskas, MD, Jay P. Goldsmith, MD

Introduction:

Neonatal seizures are relatively common, but their diagnosis and management remain challenging. (1) The neonatal period represents the highest risk of life for seizures to occur, with an estimated incidence of 58/1000 live births in very low birthweight infants (<1500 grams) and 1–3.5/1000 live births in term infants.

"The neonatal period represents the highest risk of life for seizures to occur, with an estimated incidence of 58/1000 live births in very low birthweight infants (<1500 grams) and 1–3.5/1000 live births in term infants."

The large majority of neonatal seizures are acute symptomatic seizures associated with acquired brain injury due to neonatal encephalopathy, or vascular insult such as an arterial ischemic stroke or intracranial hemorrhage. A clonic seizure is defined as a seizure characterized by rhythmic movements of muscle groups in a focal distribution, which consists of a rapid phase followed by a slow return movement. Tonic seizures are defined as a sustained flexion or extension of axial or appendicular muscle groups. Subtle seizures are proximal alterations in neonatal behavior and motor or autonomic function. In general, clinical detection of neonatal seizures is unreliable, and continuous video electroencephalogram is the gold standard for monitoring the presence and burden of neonatal seizures. Neonatal seizures are often short, lasting less than 2 minutes, and have a focal onset. Most neonatal seizures do not have a generalized onset. (2) Treatment of neonatal seizures is generally considered necessary because experimental animal and human evidence suggest recurrent or prolonged seizures may lead to secondary brain injury and are associated with less favorable outcomes. (3) However, antiseizure medications may have associated risks, and there are few data to guide evidence-based management. Potential mechanisms for seizures to cause brain injury include the release of excitatory amino acids, decreased brain glucose, increased blood pressure resulting in increased cerebral blood flow and hemorrhage, or hypoventilation leading to cardiovascular collapse and decreased cerebral blood flow.

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"Most neonatal seizures do not have a generalized onset. Treatment of neonatal seizures is generally considered necessary because experimental animal and human evidence suggest recurrent or prolonged seizures may lead to secondary brain injury and are associated with less favorable outcomes. However, antiseizure medications may have associated risks, and there are few data to guide evidence-based management.

Hypoxic Ischemic Encephalopathy (HIE) and Seizures:

Hypoxic ischemic encephalopathy is the most common cause of neonatal seizures. Seizures in neonates with HIE peak in the first days after birth and are often subclinical. Approximately one-half of neonates with HIE who are treated with therapeutic hypothermia have EEG-confirmed seizures, and up to 20% have status epilepticus. Among neonates with confirmed HIE who are not cooled, the risk of seizures is even higher. The median age at first seizure in HIE is approximately 4 to 24 hours after birth, and the maximum seizure burden is typically reached between 12 and 24 hours of life. (4, 5) The timing of seizures is a manifestation of

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"Hypoxic ischemic encephalopathy is the most common cause of neonatal seizures. Seizures in neonates with HIE peak in the first days after birth and are often subclinical."

the secondary injury phase, which includes additional cell death due to ongoing energy failure that results in a neurotoxic cascade, inflammation, and cytotoxic edema. The onset of seizures cannot be used to time a hypoxic ischemic insult specifically. In our experience, early onset seizures in the first few hours of life often represent either a remote injury or an acute profound injury which occurred close to the time of birth (based on neuroimaging pattern) with Apgar scores of 2 or less beyond 10 minutes. Early-onset hypertonia can be seen in remote insults. In terms of imaging, deep gray matter injury is associated with more severe and earlier seizures, while those with mild to moderate seizures have a more watershed-type pattern of injury. (6)

"The onset of seizures cannot be used to time a hypoxic ischemic insult specifically. In our experience, early onset seizures in the first few hours of life often represent either a remote injury or an acute profound injury which occurred close to the time of birth (based on neuroimaging pattern) with Apgar scores of 2 or less beyond 10 minutes. Early-onset hypertonia can be seen in remote insults."

Differential Diagnosis:

Diagnostic workup for seizures is beyond the scope of this article. In both term and preterm newborns, any type of intracranial hemorrhage, such as intraventricular, parenchymal, subarachnoid, or subdural hemorrhage, can result in seizures. Abnormal neonatal movements might not be seizures. One should consider brainstem release phenomena and startle syndrome as causes of unusual neonatal movements. Transient metabolic deficits such as hypoglycemia, hypocalcemia, hypomagnesemia, and hyponatremia can result in seizures and are reversible with treatment. Metabolic disorders, genetic disorders, sepsis, and meningitis, as well as a remote hypoxic ischemic insult, can manifest with seizures shortly after birth. Congenital infections, drug withdrawal, and toxins also need to be in the differential. Rare conditions, such as inborn errors of metabolism, vitamin-responsive epilepsies, and neonatal epilepsy syndromes, must be considered, especially in the setting of refractory seizures unresponsive to conventional treatment. (7, 8) Benign familial neonatal seizures, early myoclonic epilepsy, and early infantile encephalopathy (Ohtahara syndrome) are also rare causes of neonatal seizures. (9) From a medical-legal perspective, hypoxic ischemic encephalopathy may not always represent a purely hypoxic-ischemic etiology but rather a final common pathway influenced by underlying genetic predisposition and environmental factors. Over 60% of infants diagnosed with HIE display abnormal fetal heart rate patterns indicative of fetal distress but lack an identifiable acute sentinel event during the intrapartum period. (10)

"From a medical-legal perspective, hypoxic ischemic encephalopathy may not always represent a purely hypoxic-ischemic etiology but rather a final common pathway influenced by underlying genetic predisposition and environmental factors. Over 60% of infants diagnosed with HIE display abnormal fetal heart rate patterns indicative of fetal distress but lack an identifiable acute sentinel event during the intrapartum period."

Clinical Exam:

The management of neonatal seizures is a major challenge for clinicians because of subtle or even absent clinical signs, the need for continuous, conventional video electroencephalography-based diagnoses, and the relatively limited response to antiseizure medication. Seizures can be subtle, with abnormal movements such as chewing, pedaling, or rhythmic eye movements, or manifest as apnea and oxygen desaturations. Movements such as clonus, tremors, jitteriness, tongue fasciculations, and abnormal sucking can be normal or represent seizures. Subclinical seizures may be sensory seizures in neonates that are not clinically expressed, or sometimes seizures in neonates are obscured by a blanket/incubator, limiting visual assessment by provider staff and delaying diagnosis. (11)

"The management of neonatal seizures is a major challenge for clinicians because of subtle or even absent clinical signs, the need for continuous, conventional video electroencephalography-based diagnoses, and the relatively limited response to antiseizure medication."

Clinical features that distinguish seizures from other abnormal movements in neonates are the slow, rhythmic, non-suppressible movements of clonic seizures. In contrast, nonepileptic movements may be suppressible, provoked by stimulation, or spontaneous. (12) Arterial ischemic strokes resulting in seizures often present in the first 24 hours of life and are often unilateral clonic seizures. These newborns may have normal Apgar scores and present with apnea and episodes of cyanosis in the newborn nursery, or be noticed by their parents during the postpartum period. From a medical-legal point of view, apnea and desaturations in a term newborn require prompt attention to rule out seizures. The EEG definition of seizures relies on monitoring using conventional (c-EEG) or video-EEG. Neonatal c-EEG is often not readily available, requires a trained technician to come to the bedside for application, and is difficult to interpret. Many neonatal intensive care units will use amplitude integrated EEG (aEEG), which is more readily available, easier to place on the newborn (by a trained nurse or physician), and utilizes a simpler EEG methodology for interpretation based on a restricted number of channels (1–2 channels) and a compressed EEG trace. (13,14)

"From a medical-legal point of view, apnea and desaturations in a term newborn require prompt attention to rule out seizures. The EEG definition of seizures relies on monitoring using conventional (c-EEG) or video-EEG. Neonatal c-EEG is often not readily available...Many neonatal intensive care units will use amplitude integrated EEG (aEEG), which...utilizes a simpler EEG methodology for interpretation based on a restricted number of channels (1–2 channels) and a compressed EEG trace."

Why Treat?

The immature brain is particularly susceptible to damage from seizures. Although quality evidence for seizure treatment is limited, there is expert consensus to treat electrographic seizures as quickly as possible as a strategy to optimize neurodevelopmental outcomes and minimize the risk of postnatal epilepsy. Responsiveness to antiseizure medication may decrease with recurrent and/or prolonged seizures. (15) The hypothesis that earlier treatment leads to better response is supported by animal work in mice and rats, which have shown a progressive increase in intracellular chloride with recurrent seizures, increasing the likelihood of more seizures and a decrease in responsiveness to antiepileptic therapy. (16) Prolonged seizures can exacerbate brain injury by increasing metabolic demands and the formation of reactive oxygen species as well as increasing inflammation that can cause edema and tissue damage. (17)

"The immature brain is particularly susceptible to damage from seizures. Although quality evidence for seizure treatment is limited, there is expert consensus to treat electrographic seizures as quickly as possible as a strategy to optimize neurodevelopmental outcomes and minimize the risk of postnatal epilepsy. Responsiveness to antiseizure medication may decrease with recurrent and/or prolonged seizures.

TREATMENT

The consensus is that new-onset neonatal seizures should be treated as a medical emergency. (18) Current published guidelines for the management of all neonatal seizures recommend starting treatment with antiseizure medication as soon as possible after seizure recognition, although there are no recommendations on specific timing for treatment. (18) Phenobarbital was recently approved by the FDA for treatment of neonatal seizures and remains the first-line antiseizure medication in newborns. The three major drugs for the treatment of neonatal seizures (phenobarbital, fosphenytoin, and Levetiracetam) have been compared in several studies. (18–23) Phenobarbital has been shown to have more predictable pharmacokinetics than fosphenytoin and has a better response rate and a longer duration of seizure freedom than Levetiracetam. Phenobarbital has a stable clearance and does not require dose adjustment with therapeutic hypothermia.

"The consensus is that new-onset neonatal seizures should be treated as a medical emergency. Current published guidelines for the management of all neonatal seizures recommend starting treatment with antiseizure medication as soon as possible after seizure recognition, although there are no recommendations on specific timing for treatment. Phenobarbital was recently approved by the FDA for treatment of neonatal seizures and remains the first-line antiseizure medication in newborns."

"Phenobarbital is associated with significant side effects, including sedation, abnormal neuronal apoptosis in rodent models, and memory problems when used long-term. The response rate to phenobarbital is approximately 43%."

Phenobarbital is associated with significant side effects, including sedation, abnormal neuronal apoptosis in rodent models, and memory problems when used long-term. The response rate to phenobarbital is approximately 43%. Recent surveys of providers have demonstrated that the preferred second-line antiseizure medication was split between fosphenytoin and Levetiracetam. Levetiracetam, in a recent meta-analysis, might be less effective than phenobarbital, although it is associated with a lower risk of adverse events. (20) A randomized controlled trial found phenobarbital to be more effective than Levetiracetam as the first treatment of neonatal seizures. (19–23) In extreme preterm infants < 28 weeks of gestation, 74% of these patients did not respond to levetiracetam monotherapy and required additional medications. (24) Benzodiazepines such as midazolam can be associated with hypotension, transient hypoxia, apnea, and tachycardia. (25) The World Health Organization recommends that antiseizure medication discontinuation should be considered in neonates with acute symptomatic seizures in the presence of a normal neurologic exam and/or normal EEG after at least 72 hours of seizure freedom. (21) In our experience, lidocaine is rarely used in the management of neonatal seizures.

Medical Legal Issues:

Neonatal seizures, especially when associated with hypoxic ischemic encephalopathy, often result in litigation. In a study of 144 children with acute provoked neonatal seizures managed by a neonatal neurocritical care service at a tertiary center in the United States, 26% died in the first year of life, 21% had cerebral palsy, and 9% had epilepsy. (27) From a medical-legal perspective, when hypoxic ischemic encephalopathy is suspected, charting by all members of the healthcare team will be carefully scrutinized by attorneys for the early diagnosis and treatment of seizures.

Some points to consider:

1. Healthcare teams should keep their charting objective and avoid speculation on the etiology of the seizures until all evidence-based investigations are evaluated.
2. Similar to the implementation of therapeutic hypothermia, many providers err on the safe side and treat suspected seizures without an EEG. The thought process is that aggressive treatment for known seizures is the standard of care and that earlier treatment for possible seizures is preferred. Whether further seizures with minimal physiologic changes exacerbate a previous brain injury remains controversial. For those newborns who have possible seizures in a hospital without an EEG or pediatric neurologic consultation, the question remains of whether treatment should be delayed until an infant is transferred to a tertiary center with more advanced neurocritical capabilities.
4. It appears that early use of antiepileptic drugs may affect the interpretation of an EEG and subsequent management.
5. Some providers will recommend that a potentially seizing baby in a rural hospital receive 10 mg/kg of phenobarbital (one-half the recommended dose) as a loading dose to avoid the risk of respiratory depression and need for intubation. If this loading dose is ineffective, one can always give another 10 mg/kg to achieve the recommended loading dose.
6. Special training may be given to postpartum and newborn nursery staff to be more aware of and recognize subtle seizures, especially apnea episodes in term infants.
7. The MRI remains the best modality to image suspected hypoxic ischemic injury. Cranial ultrasound and CT scan will miss a certain percentage of abnormalities. Seizures may cause edema seen on MRI, which must then be differentiated from the abnormal diffusion caused by HIE.
8. A common allegation in litigation is that the healthcare team did not recognize apnea and cyanosis, and these intermittent but significant episodes caused further brain damage.
9. Juries will often view treatment more favorably than observation when there are subtle signs of seizures with a history of birth depression.

"Neonatal seizures, especially when associated with hypoxic ischemic encephalopathy, often result in litigation. In a study of 144 children with acute provoked neonatal seizures managed by a neonatal neurocritical care service at a tertiary center in the United States, 26% died in the first year of life, 21% had cerebral palsy, and 9% had epilepsy. From a medical-legal perspective, when hypoxic ischemic encephalopathy is suspected, charting by all members of the healthcare team will be carefully scrutinized by attorneys for the early diagnosis and treatment of seizures."

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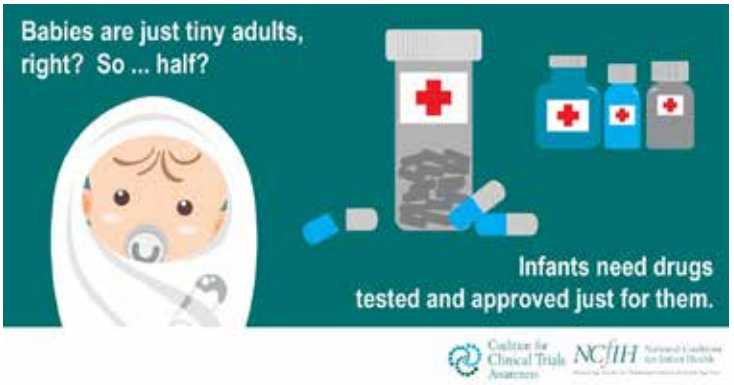


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Which Infants are More Vulnerable to Respiratory Syncytial Virus?

RSV is a respiratory virus with cold-like symptoms that causes 90,000 hospitalizations and 4,500 deaths per year in children 5 and younger. It's 10 times more deadly than the flu. For premature babies with fragile immune systems and underdeveloped lungs, RSV proves especially dangerous.

But risk factors associated with RSV don't touch all infants equally.*

*Source: Respirator Syncytial Virus and African Americans

Caucasian Babies	Risk Factor	African American Babies
11.6%	Prematurity	18.3%
58.1%	Breastfeeding	50.2%
7.3%	Low Birth Weight	11.8%
60.1%	Siblings	71.6%
1%	Crowded Living Conditions	3%

AFRICAN AMERICAN BABIES bear the brunt of RSV. Yet the American Academy of Pediatrics' restrictive new guidlines limit their access to RSV preventative treatment, increasing these babies' risk.

AfPA

The Signs & Symptoms of RSV

RESPIRATORY SYNCYTIAL VIRUS

Know the Signs & Symptoms of RSV

- Cough
- Runny Nose
- Struggling to Breathe *(breastbone sinks inward when breathing)*
- Difficulty Eating
- Lethargy
- Wheezing

RESPIRATORY SYNCYTIAL VIRUS
is a highly contagious seasonal virus that can lead to hospitalization for some babies and young children.

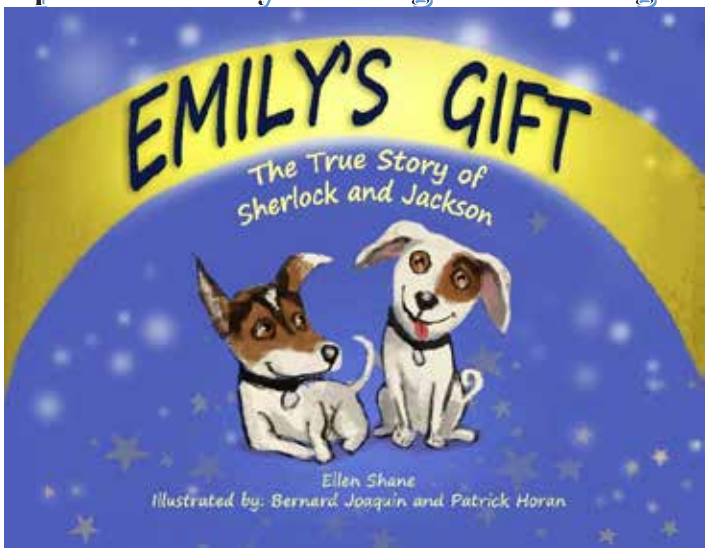
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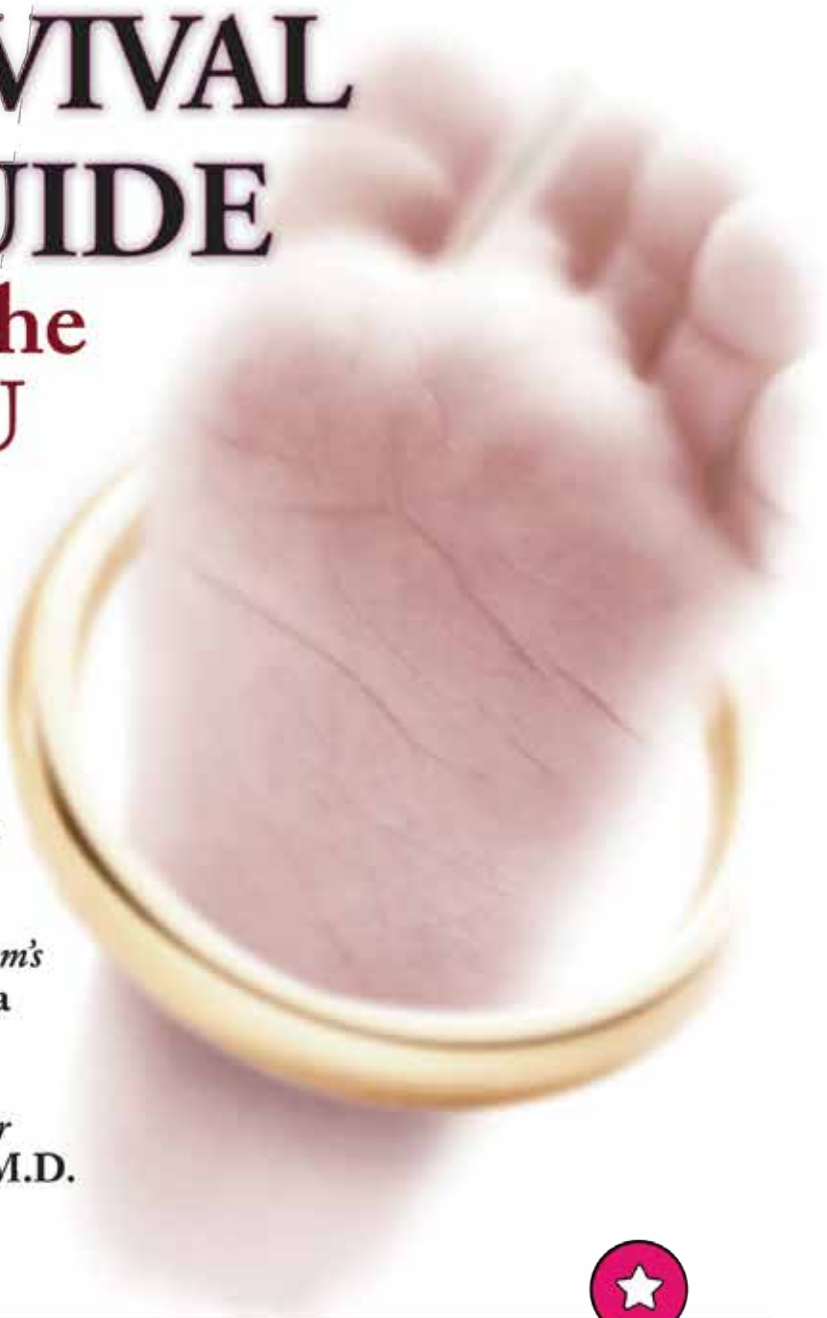




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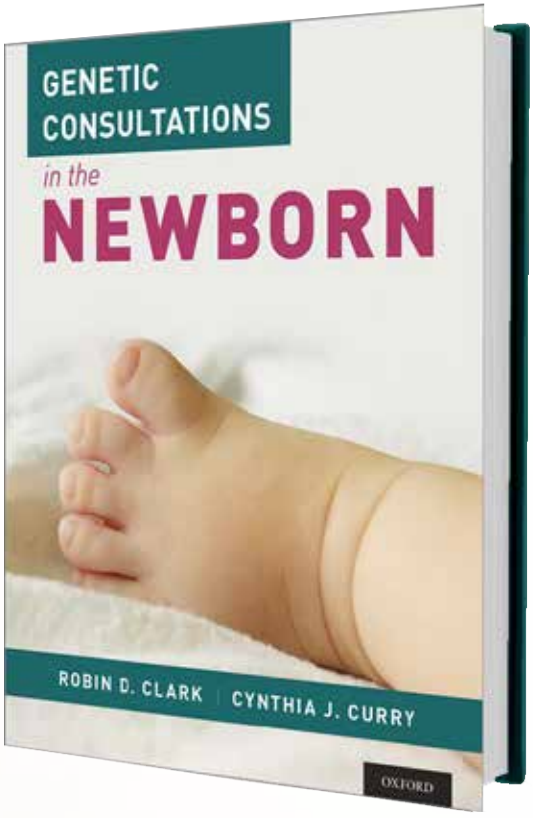
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Clinical Pearl: The Benefits of Neonatal Caffeine Therapy on Neurobehavioral Outcomes in Very Low Birthweight Infants

Joseph R. Hageman, MD, Mitchell Goldstein, MD, MBA, CML

Introduction:

Therapy with methylxanthines (theophylline or aminophylline then caffeine therapy, has been utilized in the treatment of apnea of prematurity (AOP) since about 5 years before I was a pediatric resident rotating in the Neonatal Intensive Care Unit at what is now The Ann and Robert H. Lurie Children's Hospital of Chicago in 1978 (1). At that time, we were using theophylline therapy, which was changed to caffeine, which became the preferred therapy by the mid-2000s (2).

"Caffeine has several mechanisms of action, as presented in the Table from the review by Dobson and Hunt (2). The mechanisms most relevant to the neuroprotection of the infant's developing brain are the following: caffeine binds to adenosine receptors (A1, A2a, A2b, and A3), which block adenosine activity, and alters the concentration of cyclic adenosine monophosphate (cAMP). It also has secondary effects on many classes of neurotransmitters."

Mechanisms of Action of Caffeine relevant to benefitting neurobehavior (2):

Caffeine has several mechanisms of action, as presented in the Table from the review by Dobson and Hunt (2). The mechanisms most relevant to the neuroprotection of the infant's developing brain are the following: caffeine binds to adenosine receptors (A1, A2a, A2b, and A3), which block adenosine activity, and alters the concentration of cyclic adenosine monophosphate (cAMP). It also has secondary effects on many classes of neurotransmitters. In addition, caffeine inhibits cyclic nucleotide phosphodiesterase, thereby increasing the concentration of cAMP (2). These effects improve neurodevelopmental outcomes by reducing intermittent hypoxia and possibly have direct neuroprotective effects. It also modulates inflammation (See Table) (2).

Clinical Effects of Caffeine therapy related to neurobehavioral outcomes:

Many clinical studies have demonstrated that "caffeine is universally considered to be effective in reducing apnea-related symptoms caused by immature autonomic control of breathing "(2).

"The caffeine group also performed better than the placebo group in fine motor coordination, visuomotor integration, visual perception, and visuospatial organization (3). In addition, general intelligence, attention, and behavior were not adversely affected by caffeine therapy (3). These findings highlight the long-term safety of caffeine therapy for AOP in VLBW neonates (3). "

The Caffeine for Apnea of Prematurity (CAP) was a randomized, double-blind, placebo-controlled trial that included 13 academic hospitals in Canada, Australia, Great Britain, and Sweden (3). In the CAP trial, caffeine treatment was associated with a week less endotracheal intubation, positive pressure ventilation, supplemental oxygen therapy, and less use of postnatal corticosteroids for lung disease in these VLBW infants (500-1250 grams birthweight) (3). Caffeine treatment also decreases the failure of extubation and the risk of bronchopulmonary dysplasia (BPD) (3). Eight hundred and seventy infants were followed in the CAP trial for 11 years with measures of general intelligence, attention, executive function, visuomotor integration and perception, and behavior obtained (3). At 11 years of age, the caffeine therapy group had significantly less motor impairment than the placebo group (19.7% vs. 27.5%, p=0.009) (2). The caffeine group also performed better than the placebo group in fine motor coordination, visuomotor integration, visual perception, and visuospatial organization (3). In addition, general intelligence, attention, and behavior were not adversely affected by caffeine therapy (3). These findings highlight the long-term safety of caffeine therapy for AOP in VLBW neonates (3).

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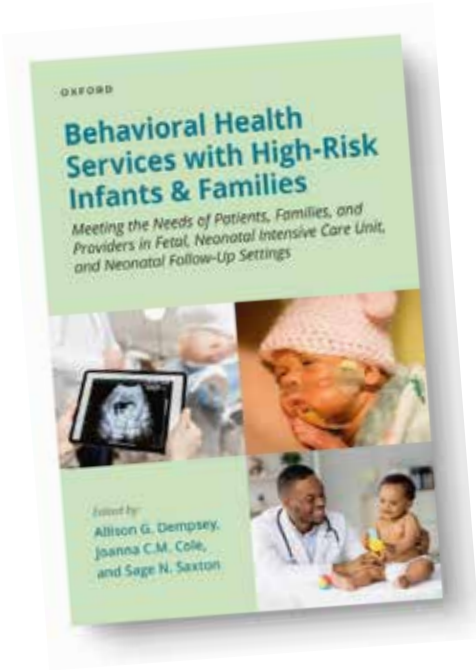
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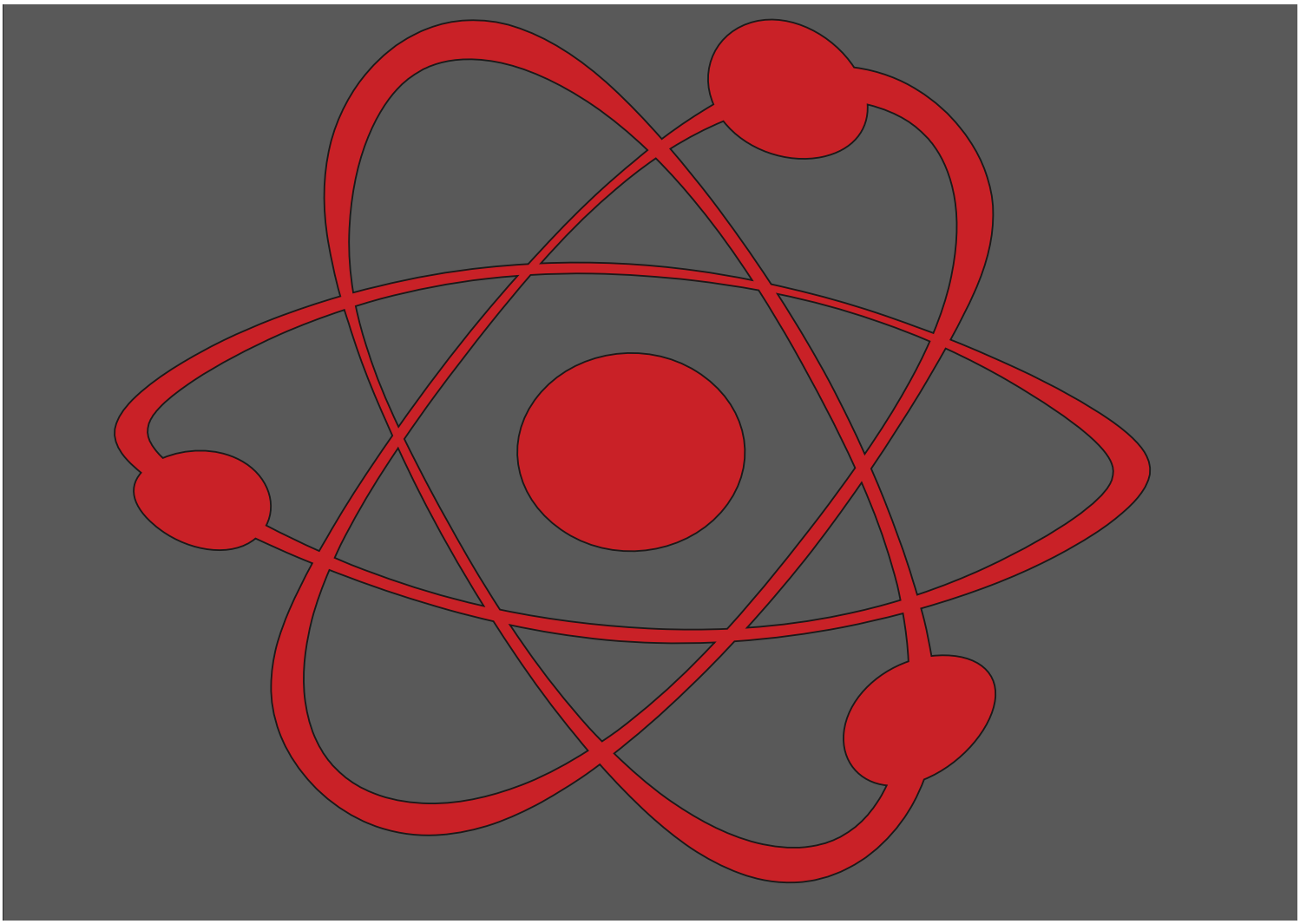
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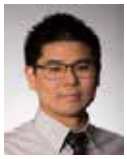
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https://olaw.nih.gov/policies-laws/phs-policy.htm

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Neonatology and the Arts

This section focuses on artistic work which is by those with an interest in Neonatology and Perinatology. The topics may be varied, but preference will be given to those works that focus on topics that are related to the fields of Neonatology, Pediatrics, and Perinatology. Contributions may include drawings, paintings, sketches, and other digital renderings. Photographs and video shorts may also be submitted. In order for the work to be considered, you must have the consent of any person whose photograph appears in the submission.

Works that have been published in another format are eligible for consideration as long as the contributor either owns the copyright or has secured copyright release prior to submission.

Logos and trademarks will usually not qualify for publication.

This month we continue to landscapes, feature artistic works created by our readers on the next to last page as well as photographs of birds on rear cover. Dr. Zahera Etter provides "Au Cap d'Antibes, le troisième de la série." For this edition, our art was graciously provided by Colleen Kraft, MD. It is a work called "Cool Vibes" done by her son Tim. Our bird is from Dr. Shah, "London Swan"



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Manuscript Submission: Instructions to Authors

1. Manuscripts are solicited by members of the Editorial Board or may be submitted by readers or other interested parties. Neonatology Today welcomes the submission of all academic manuscripts including randomized control trials, case reports, guidelines, best practice analysis, QI/QA, conference abstracts, and other important works. All content is subject to peer review.

2. All material should be emailed to: LomaLindaPublishingCompany@gmail.com in a Microsoft Word, Open Office, or XML format for the textual material and separate files (tif, eps, jpg, gif, ai, psd, SVG, or pdf) for each figure. Preferred formats are ai, SVG, psd, or pdf. tif and jpg images with sufficient resolution so as not to have visible pixilation for the intended dimension. In general, if acceptable for publication, submissions will be published within 3 months.

3. There is no charge for submission, publication (regardless of number of graphics and charts), use of color, or length. Published content will be freely available after publication. There is no charge for your manuscript to be published. NT does maintain a copyright of your published manuscript.

4. The title page should contain a brief title and full names of all authors, their professional degrees, their institutional affiliations, and any conflict of interest relevant to the manuscript. The principal author should be identified as the first author. Contact information for the principal author including phone number, fax number, e-mail address, and mailing address should be included.

5. A brief biographical sketch (very short paragraph) of the principal author including current position and academic titles as well as fellowship status in professional societies should be included. A picture of the principal (corresponding) author and supporting authors should be submitted if available.

6. An abstract may be submitted.

7. The main text of the article should be written in formal style using correct English. The length may be up to 10,000 words or longer with prior approval. Abbreviations which are commonplace in neonatology or in the lay literature may be used.

8. References should be included in standard "NLM" format (APA 7th is no longer acceptable). Bibliography Software should be used to facilitate formatting and to ensure that the correct formatting and abbreviations are used for references. EndNote X9 is suggested.

9. Figures should be submitted separately as individual separate electronic files. Numbered figure captions should be included in the main file after the references. Captions should be brief.

10. Only manuscripts that have not been published previously will be considered for publication except under special circumstances. Prior publication must be disclosed on submission. Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

11. NT recommends reading Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals from ICMJE prior to submission if there is any question regarding the appropriateness of a manuscript. NT follows Principles of Transparency and Best Practice in Scholarly Publishing (a joint statement by COPE, DOAJ, WAME, and OASPA). Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

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NEONATOLOGY TODAY is interested in publishing manuscripts from Neonatologists, Fellows, NNPs and those involved in caring for neonates on case studies, research results, hospital news, meeting announcements, and other pertinent topics.

Please submit your manuscript to: LomaLindaPublishingCompany@gmail.com

Invitation to Apply:

Seeking content development experts for an AAP Project Advisory Committee (PAC)

The White Zone – Developing A Perinatal Loss Toolkit for LMICs

The Need: Over 2.4 million neonatal deaths and 2.6 million stillbirths occur each year; 98% occur in Low- and Middle-Income Countries (LMICs). While programs such as Helping Babies Breathe (HBB) and Essential Newborn Care (ENC 1 and 2) have revolutionized how providers in LMICs train in and provide neonatal resuscitation and post-delivery care for small and sick newborns, gaps remain in how to best offer end-of-life care and post-loss psychosocial care in these settings.

The Babies: HBB and ENC 1 begin with assessing if a baby is crying and conclude with the "Red Zone" where a baby who is unable to sustain an appropriate heart rate and/or respirations is provided with PPV support as someone attempts to get help. Within the HBB/ENC framework, we could imagine several babies for whom an extension of this framework to include palliative/perinatal loss guidelines could be helpful:

1. A stillbirth for whom no resuscitation is attempted. (Stillbirth)
2. A baby who proceeds through the red zone but never has a heartbeat or breathing despite the best resuscitative efforts of the team. (Stillbirth)
3. A baby who proceeds through the red zone who, after 20 or so minutes still has a very low heartbeat and/or gasping breathing. (Anticipated neonatal death)
4. A preterm baby who is too small for ongoing support, based on local resource constraints or resuscitation guidelines, despite a sustained heart rate and breathing. (Anticipated neonatal death)

The Approach: Create a suite of resources that could accompany ENC 1 and 2, focused on end-of-life care and perinatal loss. These resources would be less algorithmic than ENC, as local practices around death vary significantly – meaning there is not one "right" way to approach this care. Rather, the "White Zone Toolkit" would combine structured guidance about symptom management as well as reflective tools for implementing contextually and culturally appropriate post-loss care. This could consist of, but is not limited to, the following:

1. Structured guidance on what physiologic changes may happen at the end of life (ex: gasping) as well as pharmacologic and non-pharmacologic options for symptom management.
2. Reflective questions about if/when to offer seeing or holding of the baby.
    - Data shows that many women want to see and/or hold their infant following stillbirth or neonatal death but are often not offered that opportunity based on historic cultural norms.
3. Reflective questions about cultural traditions around loss and if/how these practices can be supported by those attending the delivery.
4. Anticipatory guidance guides on how mothers may still produce milk and how to manage those symptoms.
5. Anticipatory guidance on potential maternal mental health needs. Reflective questions on how to approach mental health and psychosocial support after loss.
6. Access to a set of adaptable practice scenarios that could help providers gain experience in handling perinatal loss and communicating with families surrounding perinatal loss.

NICU BABY'S *Bill of Rights*

1 The Right to *Advocacy*

My parents are **my voice** and **my family** are **my best advocates**.

My parents know me well. They are my voice and my best advocates. They need to be knowledgeable about my progress, medical needs, and prognosis, so they celebrate my achievements and support me when things get challenging.

2 The Right to *My Parents' Care*

Welcome my family and **include them** in everything we do.

My parents are my essential caregivers. In order to care for me, they need lots of opportunities to learn. Ensure that hospital policies and protocols, including hours & rounding, are as inclusive and expansive as possible. Then be patient with them.

3 The Right to *Bond With My Family*

Create opportunities for my family and me **to be together and bond**.

Bonding is crucial for my healthy growth and development. Support my parents so that we can practice skin-to-skin care as soon and as often as possible. Encourage them to read, sing, and talk to me.

4 The Right to *Neuroprotective Care*

Protect my **developing mind** and **senses**.

Protect me from things that startle, stress, or overwhelm me. Support things that calm me. Ensure I get as much sleep as possible. My brain is developing for the first time - and faster than it ever will again. The way I'm cared for today will affect me as I continue to grow & develop.

5 The Right to *Be Nourished*

Support our feeding decisions and **help us develop our skills**.

Encourage my parents to feed me at the breast or by bottle, whichever way works for us both. Support our feeding goals and make sure my parents know all the nutrition options available to meet my needs.

6 The Right to *Personhood*

Respect me as the **amazing, unique individual** that I am.

Use my name. Talk to me before touching me. If one of my siblings passes away, ask my family how we want to talk about and acknowledge them.

7 The Right to *Confident and Competent Care Giving*

Support my parents and caregivers.

The NICU may be a traumatic place for my parents. Ensure that they receive tender loving care, information, education, and as many resources as possible to help inform them about my unique needs, development, diagnoses, and more.

8 The Right to *Family-Centered Care*

Teach my family **how to care for me**.

Help me feel that I am a part of my own family. Teach my parents, grandparents, and siblings how to read my cues, how to care for me, and how to meet my needs. Encourage them to participate in or perform my daily care activities, such as bathing and diaper changes.

9 The Right to *Healthy and Supported Parents*

Care for our **mental health** and **wellbeing**.

My parents may be experiencing a range of new and challenging emotions. Be patient, listen to them, and lend your support. Share information with my family about resources such as counseling, support groups, & peer-to-peer programs, which can help reduce the impact of perinatal mood and anxiety disorders (PMADs).

10 The Right to *Inclusion and Belonging*

Celebrate what makes us special and unique.

Celebrate our diversity. Honor what makes us unique. Ensure that my parents, grandparents, siblings, and friends feel accepted and welcomed in the NICU, and respected and valued in all forms of engagement and communication.

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*The information provided on the NICU Baby's Bill of Rights does not, and is not intended to, constitute legal or medical advice. Always consult with your NICU care team for all matters concerning the care of your baby.

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