

NEONATOLOGY TODAY

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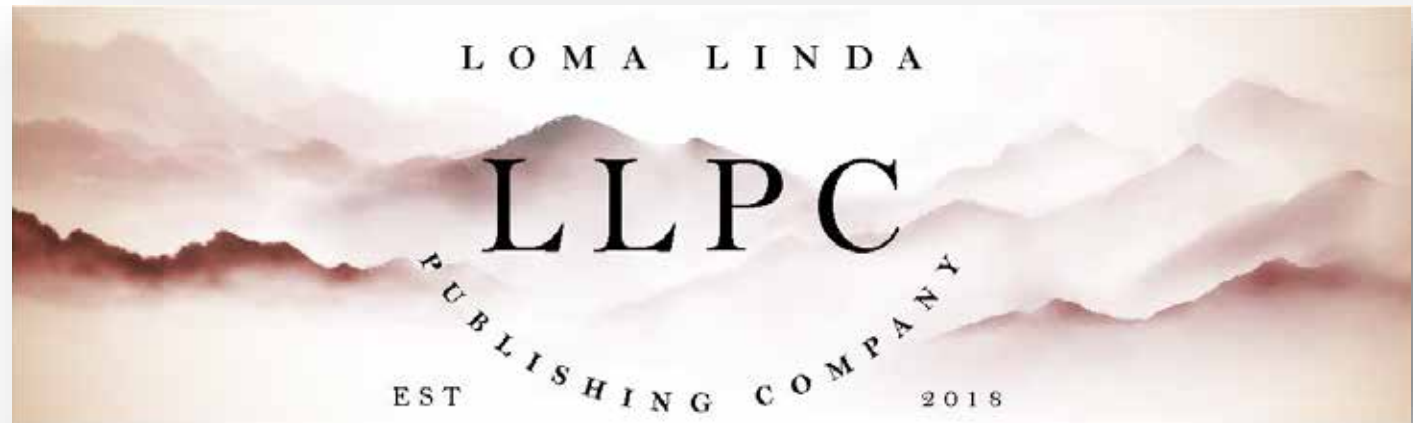
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Nitrogen Wash Out to Inhaled Nitric Oxide

Jay Manuel, Hailey Tupper, Ryan Agsunod, Corrie Jackson, and Shabih Manzar, MD, MPH

Summary:

We present the case of a newborn infant who developed pneumothorax. The pneumothorax was managed by providing 100% oxygen (O₂) with the “nitrogen washout” concept. Post-hyperoxia treatment, the infant developed signs of pulmonary hypertension, evidenced by an echocardiogram. He was successfully treated with inhaled nitric oxide. The primary purpose of this report is to highlight the point that caution should be exercised in treating stable pneumothorax with 100% O₂.

“We present the case of a newborn infant who developed pneumothorax. The pneumothorax was managed by providing 100% oxygen (O₂) with the “nitrogen washout” concept. Post-hyperoxia treatment, the infant developed signs of pulmonary hypertension, evidenced by an echocardiogram. He was successfully treated with inhaled nitric oxide. The primary purpose of this report is to highlight the point that caution should be exercised in treating stable pneumothorax with 100% O₂.”

Case Study:

Maternal history:

The mother denied any history of hypertension, diabetes mellitus, asthma, or seizure disorders and denied any alcohol/tobacco/drug use. She received prenatal vitamins during pregnancy. Her past surgical history included dilation and curettage, and her first pregnancy ended in a spontaneous abortion and dilation and curettage. There was no known family history of neural tube defects, Down Syndrome, mental retardation, or any other congenital disabilities. The mother denied any gynecological history of gonorrhea, chlamydia, trichomonas, syphilis, or HIV, and there was no history of abnormal pap smears.

Birth history:

The baby boy was born at 40²/₇ weeks gestational age with a birth weight of 3180 g (7 lb. 0.2 oz.) via spontaneous vaginal delivery. Apgar scores at 1 minute and 5 minutes were 8 and 8, respectively. A small amount of amniotic fluid was present and pinkish in color and bloody. Upon delivery, the baby was cyanotic and had moderate retractions and mild grunting. He was suctioned, and

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we were unable to pass an 8 French suction catheter nasally but were able to pass a 6 French suction catheter bilaterally. A large amount of frothy fluid was aspirated from the nares. The infant was placed on CPAP and transferred to NICU.

Admission History:

A blood culture was obtained, and ampicillin and gentamicin were also initiated upon admission for possible sepsis. On physical examination, the head was normocephalic and atraumatic with a flat anterior fontanelle. No abnormalities were appreciated in the nose, mouth, throat, or oropharynx. Cardiovascular exam disclosed regular rate and rhythm. The pulmonary exam was significant for grunting and retractions shortly after delivery, and breath sounds were decreased on the right. The abdominal exam revealed normal bowel sounds in all four quadrants and was soft upon palpation. The neck was supple, and the infant was alert. Skin had normal turgor and was warm.

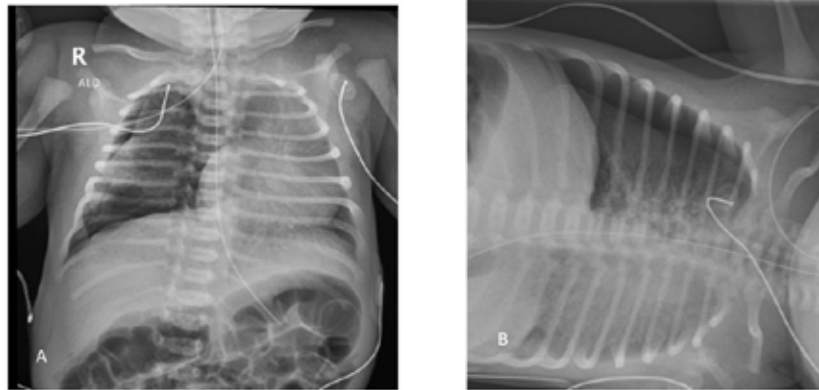
“The pulmonary exam was significant for grunting and retractions shortly after delivery, and breath sounds were decreased on the right.”

Hospital Course:

The infant was continued on bubble CPAP at +5 cm H₂O. An X-ray done in the NICU showed a right-sided pneumothorax with mediastinal shift and no pleural effusion (Figures 1 A and B). He was placed on 100% O₂, and a follow-up X-ray (Figures 2 A and B) showed a resolution of pneumothorax. At 42 hours of life, the infant was noted to have desaturation down to 78% while on 100% O₂. The baby was assessed, then emergently intubated and placed on the ventilator. An umbilical arterial catheter (UAC) and a peripherally-inserted central catheter (PICC) were inserted for vascular access. Shortly after, a bedside echocardiogram showed

Figure 1 A. Anterior-Posterior View of the Chest X-Ray on admission

Figure 1 B. Left-Lateral View of the Chest X-Ray on admission



moderate tricuspid regurgitation and a RV/PA systolic pressure of 81 mmHg, confirming persistent pulmonary hypertension of the newborn (Figures 3 A and B). He was started on inhaled Nitric Oxide (NO) at 20 ppm, which was gradually discontinued. The serial blood gases are displayed in Table 1.

On day 4 of hospitalization, the infant was weaned from inhaled NO and slowly transitioned from total parenteral nutrition to gavage feeds. On hospital day 5, he was extubated to bubble CPAP and weaned to room air on day 6. The UAC was removed, and oral feeds were initiated. A repeat echocardiogram on hospital day 7 showed flattening of the interventricular septum in systole, consistent with 2/3–3/4 systemic RV pressures. A repeat echocardiogram on hospital day 10 revealed no evidence of pulmonary hypertension. He was discharged home on day 11 with close follow-up.

Discussion:

Shireen et al. (1) studied the time to the resolution of spontaneous pneumothorax (SP) in term neonates treated with three different concentrations of supplemental oxygen: high oxygen concentrations ($FiO_2 \geq 60\%$), moderate oxygen concentrations ($FiO_2 < 60\%$) or room air ($FiO_2 = 21\%$). They found that supplemental oxygen use or nitrogen washout was not associated with faster resolution of SP.

“An X-ray done in the NICU showed a right-sided pneumothorax with mediastinal shift and no pleural effusion. He was placed on 100% O₂, and a follow-up X-ray showed a resolution of pneumothorax. At 42 hours of life, the infant was noted to have desaturation down to 78% while on 100% O₂.”

The principle of nitrogen washout in SP was based on the theory that the inhalation of 100% O₂ reduces the partial pressure of nitrogen in the alveolus compared to the pleural space. This gradient causes the nitrogen to diffuse from the pleural space into the alveoli, causing the resorption of air from the pleural space (2) (Figure 4).

As noted in the case study, the infant developed pulmonary hypertension secondary to the use of hyperoxia. In a recent study, inducing hyperoxia in a rat model (an O₂ concentration environment

Figure 2 A. Anterior-Posterior View of the Chest X-Ray—After Needle Aspiration

Figure 2 B. Anterior-Posterior View of the Chest X-Ray—Follow-Up 2 Hours Later

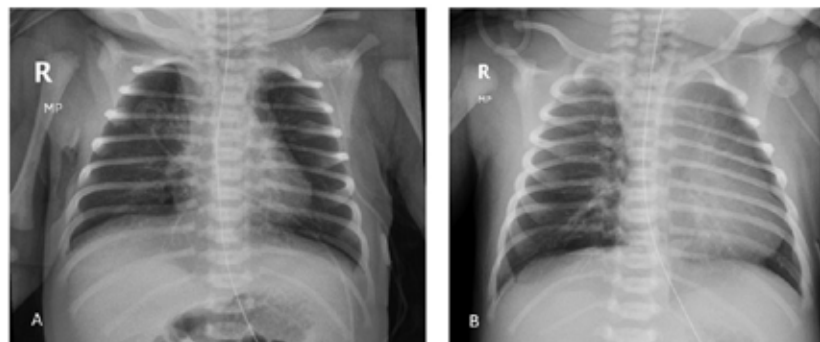


Figure 3 A.
Echocardiogram
Showing Tricuspid
Regurgitation (TR)
across Tricuspid
Valve

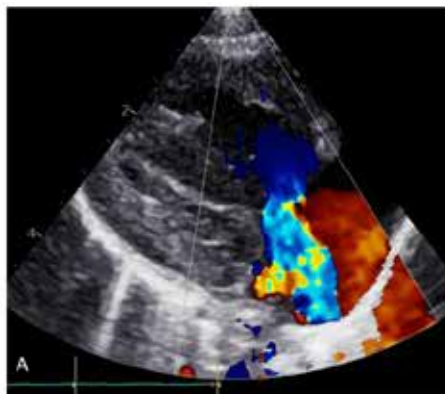
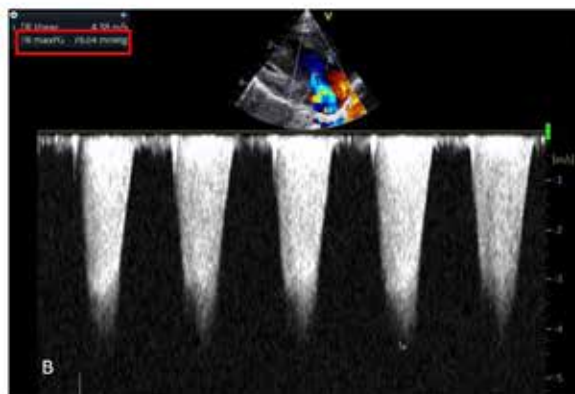


Figure 3 B.
Echocardiogram
Showing Doppler
Wave Measuring
TR (76 mmHg - Red
Box)



of 75% or higher) has been associated with the pathogenesis of pulmonary hypertension, resulting from the induction of a phenotypic transformation in pulmonary artery smooth muscle cells (3). Gong et al. have also shown hyperoxia-induced vascular remodeling in association with pulmonary hypertension (4).

“Shireen et al. studied the time to the resolution of spontaneous pneumothorax (SP) in term neonates treated with three different concentrations of supplemental oxygen: high oxygen concentrations ($FiO_2 \geq 60\%$), moderate oxygen concentrations ($FiO_2 < 60\%$) or room air ($FiO_2 = 21\%$). They found that supplemental oxygen use or nitrogen washout was not associated with faster resolution of SP.”

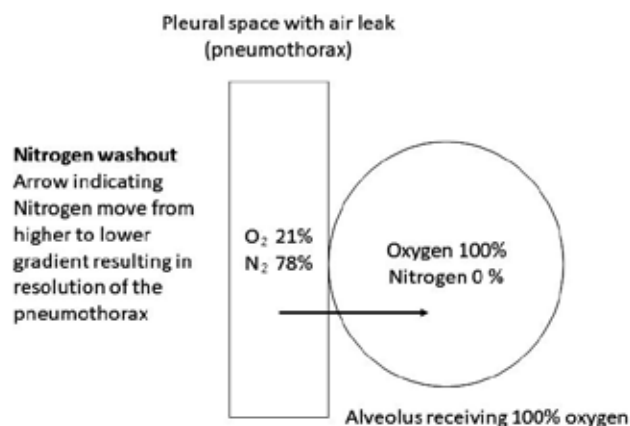
In conclusion, caution should be exercised when treating stable pneumothorax with 100% O_2 in newborn infants.

Table 1 : Serial Arterial Blood Gases

	Day 3 10:05	Day 3 11:50	Day 3 14:43	Day 3 18:04
POC pH	7.261	7.488	7.507	7.427
POC pCO_2	42.9	30.9	29.9	36.5
POC pO_2	77.9	388	277	468
POC HCO_3	18.4	25.3	25.8	24.5
Base Deficit	-7.8	0.1	0.6	-0.3

O_2	100	96.0	100	100.0
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Figure 4 – Schematic Cartoon Diagram Showing the Principle of Nitrogen Washout



“In a recent study, inducing hyperoxia in a rat model (an O_2 concentration environment of 75% or higher) has been associated with the pathogenesis of pulmonary hypertension, resulting from the induction of a phenotypic transformation in pulmonary artery smooth muscle cells. Gong et al. have also shown hyperoxia-induced vascular remodeling in association with pulmonary hypertension.”

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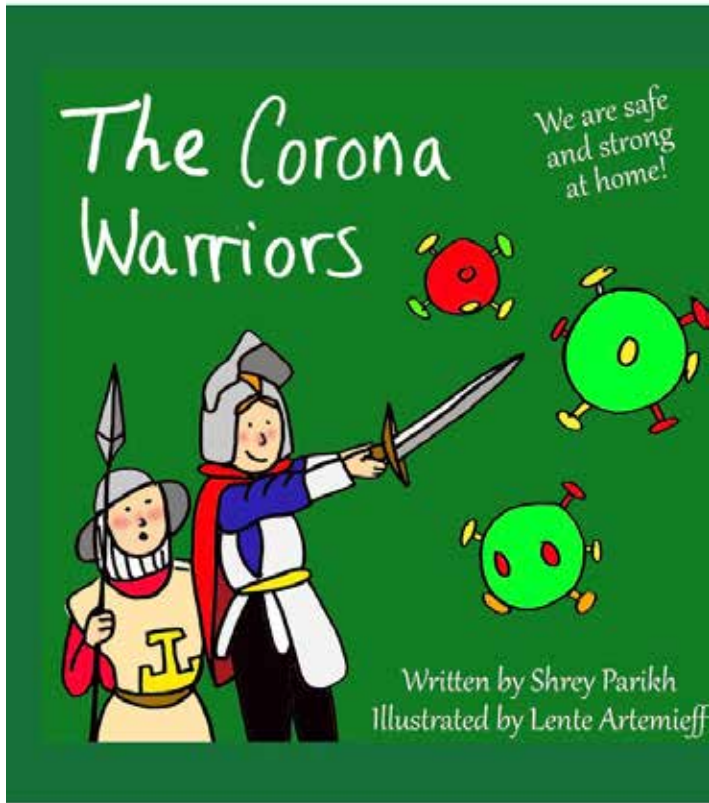
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Family-Team Dynamics in the NICU: How Bias Can Threaten Optimal Communication



Tamorah Lewis, MD, PhD (she/her)
Staff Neonatologist, The Hospital for Sick Children
Sellers Chair, Pharmacology and Pharmacogenetics
Division Head, Clinical Pharmacology & Toxicology
Associate Professor, Department of Pediatrics,
University of Toronto

NICU Parents Need A Hand to Hold: Early Intervention Mental Health Services Improves Outcomes for Parent and Baby



Kelli Kelley
Founder & CEO, Hand to Hold
NICU Parent, Jackson (24 weeker) & Lauren (34 weeker)



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High-Reliability Organizing (HRO) and the Collapse of Sensemaking: Discontinuity Between a Real World and the Actual World

Daved van Stralen, MD, Sean D. McKay, Thomas A. Mercer, RAdm, USN

Abstract:

Preparing for catastrophic events necessitates understanding the dynamic interplay between perceived reality and the objective world. However, severe crises can disrupt this process, leading to cognitive impairments and fear-driven responses. The gap between perceived reality and the actual world becomes pronounced during significant crises, prompting debates between restoration and transformative change. Historical examples, like post-war reconstruction efforts, illustrate the potential for constructive change post-crisis. Relying solely on catastrophic events for change has risks due to human suffering. Bridging this gap requires recognizing existing limitations and committing to transformative shifts. Learning from smaller disruptions and treating outliers as early warning signals can inform proactive risk mitigation. Viewing crises as part of a continuum of environmental variation underscores the need for holistic, adaptive strategies.

“How are we to prepare for a catastrophic event? Do we develop capabilities or provide protection? The answer may hinge on how congruent the real world of our perceptions is to the actual world. Moreover, this depends on how we make sense of the actual world as we create our ‘operational’ real world: by description, observation, acquaintance, or feedback interaction (a form of learning by doing).”

Introduction

How are we to prepare for a catastrophic event? Do we develop capabilities or provide protection? The answer may hinge on how congruent the real world of our perceptions is to the actual world. Moreover, this depends on how we make sense of the actual world

as we create our ‘operational’ real world: by description, observation, acquaintance, or feedback interaction (a form of learning by doing).

How close to the *actual world* is our real world? Our reality consists of our perceptions, knowledge, and experience. The distance can cause abrupt, catastrophic failure and death in dangerous contexts. We should always have an estimate of our capabilities concerning the demands of the environment.

For Karl Weick, sensemaking is a non-hyphenated, single word, “an explanatory process, built out of the cyclical entanglement of actions and interpretations” (1). That is, we learn about the actual world through interaction. That is until our real world becomes severely disrupted.

“Movement and uncontrolled energy amplify threats and drive fear-circuit behaviors to create distance from threats, real or perceived. Existential threats drive bottom-up amygdala-driven behaviors, particularly suites of behaviors to create sustained, coordinated defensive responses for survival (2-6).”

A significant intrusion of the actual world into our real world directly affects our cognitive and affective processes. *Due to such a disruption, stress-impaired cognition develops in the presence of novelty, uncertainty, and a sense of uncontrollability.* Movement and uncontrolled energy amplify threats and drive *fear-circuit behaviors* to create distance from threats, real or perceived. Existential threats drive bottom-up *amygdala-driven behaviors*, particularly suites of behaviors to create sustained, coordinated defensive responses for survival (2-6).

As directed by individuals, the individual and the organization too quickly move toward self-preservation to achieve homeostasis (7, 8). When described in this manner, such reactions appear unwarranted. However, these responses are often not recognized as stress and fear responses. Instead, these responses are expected in subordinates and respected by those with authority. Unrecognized as stress and fear responses, these behaviors have become normalized (7).

How close are our real worlds to the actual world? The gap between our collective real worlds and the actual world becomes most prominent during major, extended, intractable crises. Sometimes, some people desire a return to the homeostatic normal, which is sometimes achieved. Other times, we see an allostatic extension into better real worlds. For example, The UN after WWII, banking reform after a major economic depression, and commercial aviation safety after a series of notable commercial air crashes demonstrate this point.

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Reliance on catastrophic failure for lessons learned and allostasis poses a problem – the rarity of such events and the magnitude of humanity’s loss. The gap between our real worlds and the actual world, and our ability to move toward better possible worlds, is not as simple as a gap. Perhaps it is a rift that we can only cross when large numbers of humanity see the untenability of the current situation and assume a collective belief to move in a common direction.

“However, perhaps it is a discontinuity, a “We cannot get there from here” situation. If so, we could learn from similar disruptions that occur more often but on a smaller scale. Low-frequency events will always occur. Their strength as forcing functions, though, will vary. We cannot protect ourselves from low-frequency events in our patients or environment.”

However, perhaps it is a discontinuity, a “We cannot get there from here” situation. If so, we could learn from similar disruptions that occur more often but on a smaller scale. Low-frequency events will always occur. Their strength as forcing functions, though, will vary. We cannot protect ourselves from low-frequency events in our patients or environment. It may not be worthwhile to seek *where* failure will occur. Instead, we may be better served to identify covert, compensated states and engage outliers as if they were signals in the red noise environment rather than random and independent noise in the white noise environment (9).

“Pink noise shows no preference for short or long timescale disturbances. From seconds to millennia, all-natural disturbances of various sizes can be seen as part of a seamless 1/f-noise process. In this picture, we need not make any special distinction between normal environmental variation and ecological ‘catastrophes’: it is the same thing seen at different scales.”

John M. Halley (10)

“Everyone belongs to their personal “real world.” The aggregate of real worlds is only part of the actual world—the perceived part. Moreover, time and location in their real worlds are experienced differently by each human: by different points and lines in Euclidean space or by frames of reference differing through relativity (11).”

Types of Worlds

Everyone belongs to their personal “real world.” The aggregate of real worlds is only part of the actual world—the perceived part. Moreover, time and location in their real worlds are experienced differently by each human: by different points and lines in Euclidean space or by frames of reference differing through relativity (11).

Real Worlds

The *real world* is made of the concepts the individual uses and the actions the individual takes. The individual experiences it. We continually exist in the real world; it is not something we prepare for or graduate into. In the real world, the individual cognitively perceives objects or ideas and gives them mental representation. Roman Ingarden, a Polish phenomenologist, ontologist, and aesthetician, describes the real world as a reality correlating with a meaningful series of intentional acts (11).

The real world creates the reference frame within which the person acts. Beliefs, judgments, desires, fears, deductive reasoning, or classical logic do not drive actions. The intention, specific states of mind, and mental directedness towards (or attending to) objects lead to action. However, ambiguity corrupts accuracy and detail. “Ambiguity may lead us to construct a world that, while supported by evidence, is not true. We select evidence and interpretations for their plausibility, but later events show we were wrong” (12).

Because events change factual properties, we cannot use classical logic in the real world. “*Dynamic epistemic logic*” deals with knowledge, changing information, partial observability, and non-determinism (13, 14). It describes knowledge and how actions change knowledge (epistemic) and facts (ontic) (13).

“The actual world is the realm that includes us, the world that we inhabit. The actual world is the maximal spatiotemporally related whole of which we are a part. “Actual” is the equivalent of “present.” The actual world does not have unique properties or privileged status (15, 16)”

The Actual World

The *actual world* is the realm that includes us, the world that we inhabit. The actual world is the maximal spatiotemporally related whole of which we are a part. “Actual” is the equivalent of “present.” The actual world does not have unique properties or privileged status (15, 16). “What makes the *actual world* actual is that it is our world, the world that we simply happen to inhabit”—Christopher Menzel (16).

Scientific rationality creates a representational world that we can transport to any circumstance. However, the abstraction of a representational world is neither the actual world nor necessarily a possible world. It is only a *representation* of the actual world (11).

Possible Worlds

Possible worlds describe alternative extensions and domains that

can emerge from the facts and properties of the actual world. The elements of a possible world have a logical relation to the actual world through the logical operators *possible*, *necessary*, or *impossible*. The actual world is no different from a possible world; it is a type of possible world (16).

“We describe a world as liminal if it has the sustained or regularly recurring elements of liminality, such as public safety and the operational military. Liminality is in between two worlds, a transition world. The solution to the situation that one generated creates one’s next actual world from the possible worlds that existed as one entered.”

A Liminal World

We describe a world as liminal if it has the sustained or regularly recurring elements of liminality, such as public safety and the operational military. Liminality is in between two worlds, a transition world. The solution to the situation that one generated creates one’s next actual world from the possible worlds that existed as one entered. During the transition, rules change, and there is limited perception and support.

During this transition, we use *knowledge* logic and *doxastic belief* logic. Doxastic logic provides reasons for belief rather than knowledge. The difference is that a belief is probably not necessarily true. Doxastic operators capture belief change as “belief updates” (the world has changed) and “belief revisions” (we have added information).

- A *belief update* refers to accounting for a change in the situation and acquiring new, more reliable information; this requires us to change our inaccurate old beliefs to more accurate, new ones.
- *Belief revision* occurs when we identify the old information as less reliable and use new, more reliable information to revise our older beliefs; we keep the new belief as close as possible to the old belief while accepting the newer, more accurate information.

The Environment of Crisis

Because we live and operate in open systems, energy can readily enter any system through frequencies described by their “color.” The energy of red noise brings forcing functions to which the system must respond. Pink noise brings abrupt, catastrophic change. The forceful or abrupt entry of energy creates a crisis environment’s complex, chaotic characteristics. These energy fluxes cause *motion*, impair *controllability*, and create *imminent danger* or *existential threat*. Systems begin to self-organize through local, nonlinear interactions. Self-organization brings order to this chaos. Another development from self-organization is the generation of *novel* properties (not principles). Amidst the flux, what was certain becomes *uncertain* and confounds the efforts of operators to comply with rigid rules while following well-thought-out plans. *Time* becomes a requisite dimension of the environment.

Discontinuities:

During a significant forcing function or abrupt catastrophic event, we see the rift between our collective real and actual worlds. For many, a rift of such significance occurs that any possible world seems out of reach. Some will look to authorities, plans, and their knowledge, but finding a path forward is difficult. HRO engages the situation (7, 17, 18) to enact the future (19).

There are rifts in various domains, such as physics, philosophy, organizational science, and knowledge (listed below). This paper will discuss the naturally occurring cognitive and affective domains necessary to engage these events. Counterintuitively, these exact domains impede engagement and impair effective responses.

Rifts, if not discontinuities, develop between our active *perceptions and understanding* of the world.

- Physics wrestles with fundamental gaps that develop between *relativity* and *statistical mechanics*.
- Philosophy reasons about the fundamental gap between our representation of the world (*real world*) and the world itself (*the actual world*) (20).
- Organizations and individuals engage those gaps between continuous perceptions and discrete concepts (21).
- As individuals, we wrestle with the gaps between our *knowledge through experience* and our *knowledge through reason* (7, 22, 23).

“We do not overstate this problem when we label it a rift or discontinuity. Nor do we erringly expand this problem by including physics, philosophy, organizational science, and individual experience. The initial paper of the Neonatology Today HRO Series (22) described the gap between theory and practice as the fundamental difficulty in translating HRO to other organizations. The authors have since utilized diverse sciences and various experiences to develop concepts that help bridge gaps between the field, the lab, and the office.”

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The three authors and Karl Weick have collaborated for the past 2-4 decades for:

Table 1. Patterns and Characteristics of Noise (9)

Color	Structure	Variance	Distribution
White	No frequencies dominate Flattened spectrum	Data <i>decreases</i> variance	Gaussian distribution <ul style="list-style-type: none"> • Elements fully independent • No autocorrelation
Red	Low frequencies dominate Long-period cycles	Data <i>increases</i> variance	Power law distribution <ul style="list-style-type: none"> • Elements <i>not</i> independent • Mutual/ reciprocal relations
Pink	The midpoint of red noise The slope is precisely midway between white and brown (random) noise.	Data <i>continuously increases</i> variance. Distinguishes pink noise from red-dened spectra	Power law distribution <ul style="list-style-type: none"> • No well-defined long-term mean • No well-defined value at a single point

- Correction of the incomplete translation of HRO theory into practice (22);
- Differentiation of the pragmatic stance of field operators from the normative stance of academic spectators and
- The use of engagement to bridge the gap between theory and practice.

Karl Weick described our goal:

“HRO, as an abstract representation of work done out there, a representation by academics, is the very object that has been turned into a normative frame, a frame you want to replace with a more pragmatic frame.” Personal communication from Karl Weick

This breadth and depth is necessary for how we frame the problem.

“We call these relations a discontinuity because they cannot be made continuous through more data or calculations. More perfidious is using our cognitive abilities to translate operations across the discontinuity. In a discussion with Karl Weick, the authors see this in failing to translate HRO into more generalized operations (22).”

Affective Responses

We call these relations a discontinuity because they cannot be made continuous through more data or calculations. More perfidious is using our cognitive abilities to translate operations across the discontinuity. In a discussion with Karl Weick, the authors see this in failing to translate HRO into more generalized operations (22).

An even greater danger is the prevailing views that often prioritize decontextualized, value-free objectivity over contextual subjectivity. The result is skewed perceptions of the environment and misunderstanding of effective practices (24).

Science, particularly the ‘hard’ sciences, enables decontextualized, value-free objectivity. People who prefer this type of objectivity dismiss affective responses and processes. They endanger themselves and others during live-or-die situations. Life is not a movie written, directed, and acted by people with limited experience with sustained operations in dangerous contexts. (Though some have. Their product differs from the majority of theater arts.)

“Science, particularly the ‘hard’ sciences, enables decontextualized, value-free objectivity. People who prefer this type of objectivity dismiss affective responses and processes. They endanger themselves and others during live-or-die situations. Life is not a movie written, directed, and acted by people with limited experience with sustained operations in dangerous contexts. (Though some have.”

It is the affective processes that give us judgment and give us the ability to adjust our actions abruptly if necessary. When referring to ‘uncertainty in war, Carl von Clausewitz (25) did not use the term “fog of war.” von Clausewitz wrote:

“War is the realm of uncertainty; three-quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty. A sensitive and discriminating judgment is called for; a skilled intelligence to scent out the truth.”

"In the dreadful presence of suffering and danger, emotion can easily overwhelm intellectual conviction, and in this psychological fog, it is so hard to form clear and complete insights that changes of view become more understandable and excusable."

"Often there is a gap between principles and actual events that cannot always be bridged by a succession of logical deductions."

Another perspective of the fog of war comes from Vincent Clarence Scott O'Connor in 1917 (26). "The Fog of War"...was a phrase that was meant to keep us quiet, like children in a nursery, and it served its purpose. There never was a Fog of War. Its place instead was something very like an iron curtain, behind which we were not permitted to look."

"Experimental empiricism, using the experimental method and the basis of Evidence-Based Medicine, occurs in a decontextualized white noise environment. Data is random and independent, forming a Gaussian distribution, with time measured as a ribbon of time rather than branching time. These are information-dependent systems where more data decreases the variance. Error in a white environment is derived from models and the Gaussian distribution."

Objectivity

White noise. Experimental empiricism, using the experimental method and the basis of Evidence-Based Medicine, occurs in a decontextualized white noise environment. Data is random and independent, forming a Gaussian distribution, with time measured as a ribbon of time rather than branching time. These are information-dependent systems where more data decreases the variance. Error in a white environment is derived from models and the Gaussian distribution. These errors are information-dependent and a measure of distance from the desired mean or model (27). Objectivity is the goal.

Red or Pink Noise. The red and pink noise environments are ecological, contextual, and pragmatic (22). Empiricism more closely aligns with Francis Bacon's early precepts of empiricism, what we call "experiential empiricism," to differentiate it from simple observation and to defend it against those who do not quite understand the anecdote. In the stochastic noise of the red or pink environment, error marks the boundary of knowledge and the border of capabilities (28). The error becomes a safety border.

These problems are information-independent; we cannot easily differentiate information from noise. We search instead for clues, as in a mystery, rather than pieces of the puzzle (29). We will be generating structure as we generate information. Red noise has a power-law distribution.

Relativity. There is no preferred or absolute time or frame of reference in relativity. All motion creates new contexts without anyone being privileged. Therefore, objectivity contextuality causes subjectivity to replace objectivity.

Situational Cognitive Distortions

Stress-impaired cognition, fear-circuit behavior, and amygdala-driven are necessary survival behaviors (4, 5). However, without modulation, the amygdala and cortisol from the HPA axis will distort thinking and turn off an adequate response. The prevalence of unmodulated stress and fear makes them appear unpreventable if not expected. These unmodulated stress or fear responses become the norm in some social systems. Performance under stress then suffers, and allostatic growth cannot occur. We call these *situational cognitive distortions* and view them as the inherent vice of stress and fear (7, 30).

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Stress-Impaired Cognition

Our brain brings dramatic focus to a crisis because we do not want our cognition cluttered with memories and abstractions. *Novelty, uncertainty, and uncontrollability* "disarm" the executive functions, reducing the influence of abstractions, future thinking, and various memory systems. Demands that exceed the individual's stress capacity will impair an individual's cognitive function and affective state. This occurs in unprepared people who have deficient capabilities or work in pathological or bureaucratic organizations (31, 32). Military and public safety organizations have historically prepared members for these environments.

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Novelty, uncertainty, and uncontrollability, developed in the initial period of the crisis, will release the stress hormone cortisol (33, 34). This initiates stress-impaired cognition within the executive functions. Uncontrollability alone causes minor stress that can impair executive functions (35). Cortisol blocks memory retrieval in the prefrontal cortex and hippocampus (memory center), and the amygdala directly inhibits the prefrontal cortex. Under stress, the brain “disarms” the executive functions to prevent the intrusion of abstractions and future thinking while limiting various memory systems.

“The loss of executive functions means that intuitive thought is not inhibited. Because intuitive responses are mentally faster than scientific responses, childlike misconceptions emerge, and the individual begins thinking in intuitions and superstitions. Inhibitory control is one of the executive functions.”

The loss of executive functions means that intuitive thought is not inhibited. Because intuitive responses are mentally faster than scientific responses, childlike misconceptions emerge, and the individual begins thinking in intuitions and superstitions. Inhibitory control is one of the executive functions. Without cognitive inhibition, intuitions predominate over scientific thought (36).

Fear-Circuit behaviors

During these crises, increased activity through motion and the movement of emerging threats increases the chance of contact. *Fear-circuit behaviors* (4, 5) are safety behaviors that maintain a ‘flight distance’ from the threat, ensuring a safe distance. This distance is found in all animals. Responding to an approaching threat, after which they maintain a safety distance. This is ‘fear flight.’ Should the threat breach the ‘defense distance,’ the individual will attack for self-defense and escape. This is a ‘fear fight’ (37).

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The distant threat within the “flight distance,” whether temporal or spatial, increases activity in the ventromedial prefrontal cortex (vmPFC), a region important for decision-making in uncertain, risky, ambiguous, or context-dependent conditions. The vmPFC uses conceptual information about specific outcomes to shape affective responses, such as determining the most adaptive response given the situation (38). The vmPFC connects to the

amygdala to determine the motivational importance or degree of the threat (39). The amygdala connects to the stria terminalis (BNST) bed nucleus to control a repertoire of behavioral defensive states (40, 41).

Additional proximal threats will switch activity from the vmPFC to the phylogenetically older midbrain periaqueductal gray (PAG) nucleus. The PAG identifies an approaching or receding threat to functionally switch the repertoire of behaviors to fast reflexive behaviors (e.g., fight, flight, or freeze) (40, 42, 43). This continuous switching within the PAG is a blend of the bottom-up responses to threats before they come to our awareness and top-down cortical neuromodulation from the vmPFC and the anterior cingulate cortex.

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Amygdala-Driven Behaviors

Amygdala-driven behaviors are more reflexive, rapidly initiated, and protective against imminent danger and existential threat (4).

Imminent danger or existential threat causes reflexive actions from subcortical structures for immediate response to threats, even before identifying the threat. These unconscious yet objective *threat reflexes* include the well-known fight, flight, and freeze reflexes (44). *A threat fight* is a survival fight in which the person intends to disable or overcome the threat. Because it is intentional, the individual retains awareness, changes actions and behaviors, and may not stop after the threat is over.

In the above descriptions, we find novelty, uncertainty, and uncontrollability, which cause stress-impaired cognition. Energy entering the system creates movement, and the energy itself threatens people by its growing proximity, which drives fear-circuit behaviors. At its most extreme, imminent danger or existential threat prioritizes survival, triggering amygdala-driven behaviors (4, 5). This need not become uncontrollable. The organization can increase capabilities and stress capacity through training, leadership in dangerous contexts (7, 45, 46), and support for line workers. *When modulated, stress-impaired cognition, fear-circuit, and amygdala-driven behaviors support a crisis’s safe and effective engagement. When not modulated, they create an ecology of fear before the crisis, presaging an ineffective response that cascades toward failure.*

* SAM sympathetic-adrenal-medullary

** HPA hypothalamic-pituitary-adrenal axis

Executive Functions:

Effective action responding to a changing environment integrates, from opposite ends of the brain, perception, hastily created plans and motor activity. The *executive functions* produce functional cooperation between continuous perception and emerging motor action (47). Hierarchically, the executive functions coordinate temporary behavioral structures and “integrate actions with perceptions in the presence of novelty and complexity” (48).

The brain must continue functioning in a novel or complex environment that contains distracting information and interference. The executive functions support motor attention, working memory, and inhibitory control:

- *Motor attention* to preparing for impending motor action – “memory of the future” (48)
- *Working (short-term) memory* for sensory stimuli mediates perception and action toward a goal in real time (48)
- *Inhibitory control* protects goal-directed behavior from interference, distracting information, and impulsive or reflexive behaviors (48) and inhibits emotional memories (49, 50), well-established habits, and more easily processed intuitions (36).

“Threat identified through the sympathetic-adrenal-medullary axis (SAM) stimulates the paraventricular nucleus of the hypothalamus to release corticotropin-releasing factor (CRF). CRF enters the anterior pituitary gland of the hypothalamic-pituitary-adrenal axis (HPA) and the locus coeruleus (LC). The HPA releases cortisol to terminate ongoing activity, suppress executive functions, and impair abstract cognition.”

Neurochemical Response:

Threat identified through the sympathetic-adrenal-medullary axis (SAM) stimulates the paraventricular nucleus of the hypothalamus to release corticotropin-releasing factor (CRF). CRF enters the anterior pituitary gland of the hypothalamic-pituitary-adrenal axis (HPA) and the locus coeruleus (LC). The HPA releases cortisol to terminate ongoing activity, suppress executive functions, and impair abstract cognition. Concurrently, CRF enters the locus coeruleus-norepinephrine system (LC-NE) to reorient cognition for attention and arousal – adaptive cognition is started, the individual focuses on behaviors, and engagement follows.

The result of this hormone release is suppression of the executive functions to support engagement and enhancement of the LC-NE system to support the cognition and behaviors necessary for engagement.

The Locus Coeruleus-Norepinephrine System:

In the above description of the environment, we see the causes of stress-impaired cognition (novelty, uncertainty, and uncontrollability), the sources of fear-circuit behaviors (movement and proximity

of threat), and triggers for amygdala-driven behaviors (4, 5). We may not be aware of systems within the brain for thinking under stress or threat following abrupt threats in environments of sufficient magnitude to cause death. The Locus Coeruleus-Norepinephrine system supports resetting or changing learned behaviors at the moment, if not starting over (51).

Abrupt threats in environments of sufficient magnitude to cause death may require resetting or changing learned behaviors at the moment, if not starting over (51). The release of norepinephrine appears to terminate the resting cognitive state. The brain reorients from the current activity to a new behavioral response. Cortical, subcortical, and autonomic activity shift to facilitate focused attention for task-oriented behaviors.

LC-NE system operates at three levels of tonic activity:

- low in the unaroused state, facilitating sleep and disengagement from the environment;
- moderate when engaged in a focused task, enhancing performance, filtering out irrelevant stimuli, and
- high when not committed to a task exploring the environment.

“As individuals, we wrestle with numerous gaps between the knowledge we acquire through experience and the knowledge we develop through reason (21, 52, 53). However, we no longer have gaps when analogies and clichés populate the reliability, safety, and HRO lexicon. Instead, rifts emerge, and we have a discontinuity between the actual world and the various real worlds of perception and lived experience.”

Thought:

As individuals, we wrestle with numerous gaps between the knowledge we acquire through experience and the knowledge we develop through reason (21, 52, 53). However, we no longer have gaps when analogies and clichés populate the reliability, safety, and HRO lexicon. Instead, rifts emerge, and we have a discontinuity between the actual world and the various real worlds of perception and lived experience. Failure becomes more than an option; failure becomes inevitable. The lack of a meaningful lexicon closes our eyes to latent signs and covert states, the early heralds of failure.

The initial response to a threat is a ‘bottom-up’ response. That is, the response is directly from an environmental stimulus and is directed toward immediate survival. At the organizational level of analysis, bottom-up responses give line staff the support necessary for immediate response. In these structures, the executive level considers line workers’ assets (54). The conserved stress system inhibits top-down cognitive control and enhances bottom-up reflexive actions

Bottom-up Response

Bottom-up is not instinct or instinctive behaviors – it is reflexive but a reflex that can be modulated and even controlled as a reflexive response. Uncontrollability alone causes minor stress, impairing the executive functions (35). If unrestrained neurological stress responses develop, then almost pure bottom-up control and self-preserving behaviors occur. Cortisol and the amygdala increasingly suppress executive functions, and a defense cascade follows (55). Threats that are proximal (static distance) or approaching (changing distance) will mobilize one to move toward safety or fight in self-defense if escape is impossible.

“Reflexive action arises from subcortical structures for immediate response to threats before clearly identifying the threat. These unconscious yet objective threat reflexes include the well-known fight, flight, and freeze reflexes (44, 56). Inhibiting memory recall in select memory systems, enhancing memory recall for habit and learned behaviors, and selecting memory formation support the formation of threat reflexes into learned behaviors.”

Reflexive action arises from subcortical structures for immediate response to threats before clearly identifying the threat. These unconscious yet objective *threat reflexes* include the well-known fight, flight, and freeze reflexes (44, 56). Inhibiting memory recall in select memory systems, enhancing memory recall for habit and learned behaviors, and selecting memory formation support the formation of threat reflexes into learned behaviors. Cortisol release during the *stress response* through the hypothalamic-pituitary-adrenal axis accomplishes this. Cognitive behaviors directed toward self-protection are organized into offensive and defensive actions. The immediacy and focus of actions and intense feelings identify these conscious yet subjective *fear reactions* (44, 56).

Top-down Response

Stress is portable. Central control by the organization can increase cognitive stress by removing control (increasing uncontrollability) from line staff engaged in the event. Contrary to intuition, obtaining precise information and following rules and protocols is an unrecognized source of stress. Without recognizing how stress impairs perception, cognition, and behavior, we risk conserving maladaptive responses and not trusting our improvisations. Even the perception of control is sufficient to diminish these reflexive behaviors (8)

Precise information becomes a goal, lacking feedback on its effectiveness. Accuracy requires feedback as we repeat goal-directed behavior to become more effective. Hence the artillery phrase, “ready, fire, aim!” (Dutch Army artilleryman, personal communication to DvS). Feedback augments, if not initiates, bottom-up influence. Managing feedback is critical for learning and reducing stress. Rules are, by their nature, discrete.

Cognitive Flexibility

The conserved stress system inhibits top-down cognitive control

and enhances bottom-up reflexive actions. Modulation by human executive processes can move mental processes toward effective cognitive flexibility. Top-down modulation harnesses cognitive flexibility for rapid improvisation during abrupt, fluctuating change (8)

Behavior:

Vertebrates have numerous methods for surviving hostile environments, behavior being the most immediately adaptive (57). Behaviors come in suites coordinated for various purposes (2, 3). These behaviors combine actions and non-actions to create sustained, coordinated defensive responses for survival. The primary defensive and survival functions are 1) reflexive, subcortical actions, 2) hindering memory systems to limit cognition, and 3) volitional behaviors directed toward self-preservation.

The subjective nature of a threat prevents us from predicting what a person will perceive as a threat or how they will respond to a threat. In this sense, threat in an HRO becomes a shared experience with colleagues, particularly leaders, who monitor each other and subordinates for early signs of stress or fear. For example, the nature of a person’s humor reveals evidence of fear – humor as mastery, tension relief, or redirecting aggression—and gives the leader clues about a person’s state (7).

The subjective representation of threat and the degree to which it is felt is processed in the midbrain periaqueductal gray (PAG) nucleus. The PAG coordinates behaviors essential to survival, including threat reflexes, rapid changes to subcortical behaviors, and startle/posture corrections. The PAG also processes the proximity of threats (41).

“Stress and fear prepare the brain for effective cognition during adversity and drive safe and effective behavioral engagement. Not recognizing the benefits of these functions has shifted the research and our conversations to evaluate the damage that unmodulated stress and fear can cause. It is then that the function of stress and fear will cause damage. This is the inherent vice of stress (58).”

The Inherent Vice of Stress:

Stress and fear prepare the brain for effective cognition during adversity and drive safe and effective behavioral engagement. Not recognizing the benefits of these functions has shifted the research and our conversations to evaluate the damage that *unmodulated* stress and fear can cause. It is then that the *function* of stress and fear will cause damage. This is the inherent vice of stress (58).

The following story is about the sinking of a ship. We describe how the same stress and fear responses during a live-or-die event brought focus to some and self-preservation to others. The inexperienced people effectively organized and performed actions they had never done. They successfully operated with top-down

cognition. Some of the experienced people focused on bottom-up self-preservation.

“The following story is about the sinking of a ship. We describe how the same stress and fear responses during a live-or-die event brought focus to some and self-preservation to others. The inexperienced people effectively organized and performed actions they had never done.”

A passenger ship with 581 guests and crew sailed into 40-knot winds and 9m-high (30ft) waves, began drifting sideways into the waves and listing back and forth. It was late at night. Chairs began sliding; passengers moved to sit on the floor. A guitarist observed crew members wearing life jackets racing aft. The lights went out, replaced by emergency lighting. The cruise director reported that the captain had said they should prepare to abandon the ship. Not hearing instructions from the crew, the guitarist and a magician went below decks to learn more. They reached a bulkhead sealed off by water-tight doors. The ship must be taking on water (59).

On the embarkation deck, some crew members had lowered lifeboats, taking on women and children. But those in the lifeboats were disproportionately crew and senior officers. There had been no announcement, no alarm sounded. The guitarist returned to the lower decks to learn more, but he could hear the sound of water flowing this time. The ship was sinking.

The guitarist, cruise director, and the magician, now joined by another magician and a few other mostly female entertainment staff, figured out how to release the lifeboats. They carried out the evacuation of guests. Passengers stopped asking about the ship's officers, realizing the entertainers were now in charge. After the launch of the last lifeboat, 220 people remained on board (60, 61).

The entertainers went to the bridge to seek assistance from the captain and senior officers. The bridge was empty. The guitarist called “Mayday” repeatedly on the radio. A voice answered, “Yes, what is your Mayday?” The guitarist explained that the ship was sinking (59).

“OK. How long have you got left to float?”

“I don't know - we've got the starboard railings in the water, we're rolling around, we've taken on a huge amount of water. We still have at least 200 people on board.”

“OK. What is your position?” “What are your coordinates?” The guitarist had no idea.

“What rank are you?”

“Well, I'm not a rank - I'm a guitarist.” A moment's silence.

“What are you doing on the bridge?”

“Well, there's nobody else here.”

“Who's on the bridge with you?”

“It's me, my wife - the bass player, we've got a magician here...”

The guitarist had no idea where the captain was. The crew remaining on the ship were mostly Filipino cooks and kitchen staff.

During the navy helicopter evacuation, one magician remained on the bridge for radio contact; another magician joined a navy rescue diver in a Zodiac inflatable boat to rescue anyone who fell or jumped into the sea. The guitarist, bass player-singer, and the cruise director worked together to evacuate passengers by helicopter. The captain was one of the first people rescued by helicopter, stepping in front of elderly passengers. He stated he needed to direct the rescue from land (62).

No lives were lost in the sinking of the passenger ship.

[The captain remains with the ship because the captain knows the capability of the crew and ship, understands and has monitored the damage, and has the knowledge of the ship to direct damage control, salvage, and rescue operations. The crew cannot jettison lifeboats without the captain's order to abandon the ship because the captain needs the entire crew to save the ship. Passengers are safer on the ship than in lifeboats. It would be considered mutiny for the crew to leave the ship on lifeboats without the captain's orders (TAM).]

“The direct absence of a threat does not mean the absence of risk. The lack of a threat that can be perceived does not mean the absence of a threat. The risk of threat and associated defenses are operational costs in an environment where threats are not physically present.”

Protection:

Defense against threats can be fixed (structural) or inducible (behaviors).

The direct absence of a threat does not mean the absence of risk. The lack of a threat that can be perceived does not mean the absence of a threat. The risk of threat and associated defenses are operational costs in an environment where threats are not physically present. This is the ecology of fear, a finding in wildlife biology (63); we can see similar patterns in society and business.

Proactive versus Reactive

Patterns of defenses differ based on predictability, controllability, variability, and the costs of defense (64, 65).

- Predictable and controllable threats generate increased vigilance on the part of the individual and organization, directly affecting productivity.
- Unpredictable and uncontrollable threats that generate stress responses in the individual increase vigilance and directly affect organizational structure and operations.

Risks will vary by location or over time, and defenses carry costs (65):

- Risks are predictable and controllable – proactive defenses have the greatest effectiveness
- Risks are increasingly unpredictable or uncontrollable – Reactive defenses are more effective and reliable.
- Risks are consistently high, or defensive costs are low, so fixed constitutive defenses become effective (spines, shells).
- The absence of predator–vigilance, a defense cost, sustains the stress response with chronically elevated glucocorticoid levels (66, 67)

Organizations that do not routinely experience forcing functions are more likely to use proactive defense mechanisms.

“Inducible antipredator responses allow for selecting antipredator behaviors with variable expression, increasing behaviors for elevated risks and decreasing their expression as the risk abates (5). We have an inducible antipredator response – terminate ongoing behaviors (the stress HPA axis) while initiating attention-arousal behaviors (the LC-NE system), which utilizes broad attention networks to sustain adequate cognition under stress.”

Inducible versus fixed

Inducible antipredator responses allow for selecting antipredator behaviors with variable expression, increasing behaviors for elevated risks and decreasing their expression as the risk abates (5). We have an inducible antipredator response – terminate ongoing behaviors (the stress HPA axis) while initiating attention-arousal behaviors (the LC-NE system), which utilizes broad attention networks to sustain adequate cognition under stress.

Defensive and Offensive Protection:

Cognitive behaviors directed toward self-protection are organized into offensive and defensive actions. The immediacy and focus of actions and intense feelings identify these conscious yet subjective *fear reactions* (49).

Defensive behaviors

Actions for defensive protection focus on the individual’s safety. The person enters this defensive mode when demands exceed capabilities and risks become too great to feel they can continue or survive. Often, the person moves to a place of psychological or physical safety. The person will not go near the source of the threat, which could be the leader, an administrator, or a colleague (68).

Rationalizations and abstractions (for example, clichés and metaphors) support actions since the individual has not approached

the situation sufficiently close to identifying correlations or causations. This individual is less helpful in protecting others because the focus is primarily on reducing risk to themselves. The person will deflect, excuse, justify, or use prophylactic self-blame.

Offensive Behaviors

Offensive protection prompts aggressive attacks to stop the spread of the problem. Actions are often from a developed plan. To achieve security or control, the person will use surprise, concentrated actions, fast tempo, and audacity. The aggressive projection of force secures the initiative but becomes pathological when directed at people.

Blame, accusation, and personal attacks are standard methods.

“In conclusion, preparing for catastrophic events requires a multifaceted approach that acknowledges the dynamic nature of our perceived reality and the objective world. We can strive towards a more resilient and sustainable future by fostering a deeper understanding of sensemaking processes, learning from past crises, and embracing the potential for transformative change.”

Conclusion:

In conclusion, preparing for catastrophic events requires a multifaceted approach that acknowledges the dynamic nature of our perceived reality and the objective world. We can strive towards a more resilient and sustainable future by fostering a deeper understanding of sensemaking processes, learning from past crises, and embracing the potential for transformative change.

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Phototherapy Threshold: Changes Between 2004 and 2022 AAP Guidelines

Archana Bottu, MD, Shabih Manzar, MD, MPH

Education Objective:

Pediatricians/providers caring for newborns can use the new 2022 phototherapy guidelines without concern for delayed care or early discharge.

Abstract:

Jaundice is commonly seen in newborns as the physical manifestation of hyperbilirubinemia (HB), which may be treated with phototherapy. Pediatricians follow the American Academy of Pediatrics (AAP) Phototherapy (PTx) guidelines for HB management. AAP launched new guidelines in 2022, raising concerns amongst some pediatricians about leniency before starting phototherapy. A general notion of the new PTx guideline is that newborns are at an increased risk for delayed intervention or a greater readmission potential due to an earlier discharge. We compared hourly phototherapy threshold levels between the previous and the 2022 AAP guidelines to investigate this possibility. Thresholds for infants with a gestational age of 38 weeks within the first 48 hours of life were used to represent the newborns most commonly seen in the nursery. We then generated graphs representing the values and their differences. The differences ranged from 0.5 to 1.8 mg/dL in the group without risk factors and 0.3–1.8 mg/dL in the group with neurotoxicity risk factors. We concluded that the new AAP 2022 phototherapy nomogram is comparable to the old 2004 AAP nomogram. This study should be replicated to compare individual nomograms for 35, 36, 37, 39, and 40 weeks of gestational age.

“Jaundice is commonly seen in newborns as the physical manifestation of hyperbilirubinemia (HB), which may be treated with phototherapy. Pediatricians follow the American Academy of Pediatrics (AAP) Phototherapy (PTx) guidelines for HB management. AAP launched new guidelines in 2022, raising concerns amongst some pediatricians about leniency before starting phototherapy.”

Introduction:

Jaundice is a common finding in newborns and is the physical manifestation of hyperbilirubinemia. The elevated bilirubin levels may be physiologic or secondary to ABO/Rh incompatibility, G6PD deficiency, birth trauma (cephalohematoma), breastfeeding, maternal gestational diabetes, prematurity, infrequent feedings, polycythemia, or TORCH infections (1). Hyperbilirubinemia (HB) can become dangerous in newborns if levels of unconjugated bilirubin (lipid soluble) are high enough to cross the blood-brain barrier and deposit in the basal ganglia and brainstem nuclei.

This leads to irreversible scarring and damage to the brain tissue, causing bilirubin encephalopathy, leading to kernicterus.

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Phototherapy (PTx) treats HB based on established guidelines, which assess bilirubin levels and correlate with the expected rise and threshold of bilirubin per hour of life, gestational age, and neurotoxicity risk factors. Risk factors include isoimmune hemolytic disease, sepsis, clinical instability within the past 24 hours, and low albumin (<3.0 g/dL) (2, 3). When the threshold is met,

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phototherapy can be initiated to convert unconjugated bilirubin to water-soluble isomers excreted renally. If bilirubin levels do not respond to phototherapy, the next step in management would be an exchange transfusion. Partially hemolyzed and antibody-bound erythrocytes are removed and replaced with normal erythrocytes, decreasing hemolysis and subsequent/further bilirubin elevation. It should be considered in patients with severe anemia, hemolytic disease, or non-hemolytic hyperbilirubinemia that do not respond to phototherapy.

In 2004, the American Academy of Pediatrics (AAP) established guidelines for when phototherapy should be started based on gestational age, neurotoxicity factors, and total bilirubin levels regardless of etiology. Exchange transfusion guidelines were also based on the same parameters. Both were applicable for infants with a gestational age greater than 35 weeks. The implementation of the universal guidelines saw a decreased incidence of hazardous hyperbilirubinemia (>30 mg/dL). These AAP PTx guidelines were updated in 2022.

The leniency in the updated AAP 2022 phototherapy guidelines was often mentioned in social media and internet blogs. While the phototherapy thresholds were increased, the committee combined the best available evidence and expert opinion to reduce the number of infants unnecessarily treated with phototherapy while simultaneously preventing hyperbilirubinemia-associated harm (4). A general notion of the new phototherapy guideline is that newborns are at an increased risk due to delayed intervention or a greater readmission potential because of earlier discharge. We compared hour-by-hour phototherapy threshold levels between the 2004 and 2022 AAP guidelines (2, 3) to investigate this possibility. Our null hypothesis is there is a significant difference between the phototherapy thresholds.

“A general notion of the new phototherapy guideline is that newborns are at an increased risk due to delayed intervention or a greater readmission potential because of earlier discharge. We compared hour-by-hour phototherapy threshold levels between the 2004 and 2022 AAP guidelines to investigate this possibility.”

Methods:

In the previous study (5), a difference of 1 to 3 mg/dL was noted between the 2004 and 2022 threshold bilirubin. Taking the mean of 1 mg/dL and 3 mg/dL, which is 2 mg/dL, we hypothesized that the 2022 bilirubin threshold values would be 2 mg/dL greater than the 2004 guidelines for the first 48 hours of life in newborns born at a gestational age of 38 weeks. As most newborns in the nursery are term infants, we compared phototherapy thresholds for infants with a gestational age of 38 weeks. We further stratified the values based on the presence or absence of neurotoxicity risk factors. The differences were manually calculated and used to generate graphs representing the values and their differences.

Results:

Figure 1 depicts the superimposed nomogram curves for 2004 and 2022. The top panel shows the nomogram of a 38-week infant without any neurotoxicity risk factor for the first 48 hours

of life while the bottom panel shows the nomogram of a 38-week infant with a neurotoxicity risk factor for the first 48 hours of life. The differences, displayed as the bottom curve, ranged from 0.5 to 1.8 mg/dL in the group without risk factors. The group with neurotoxicity risk factors has differences that range from 0.3–1.8 mg/dL.

Discussion:

The differences in threshold of the 2004 and 2022 ($\Delta 04-22$) noted in our study correlated with the 2022 guidelines of increased bilirubin thresholds by about 1 to 3 mg/dL (5). The concept of delta TSB has been used by Kuzniewicz et al. (6); they defined Δ -TSB as the difference between the 2022 AAP phototherapy and the last inpatient TSB level. They concluded that the Δ -TSB can be used to predict if the bilirubin levels would exceed the AAP's 2022 phototherapy threshold.

Our findings could be relevant to pediatricians and have the potential for clinical utility. We demonstrated that although pediatricians may perceive the new guidelines as liberal, the difference in phototherapy thresholds within the first 48 hours of life is nominal, ranging from 0.5–1.8 mg/dL.

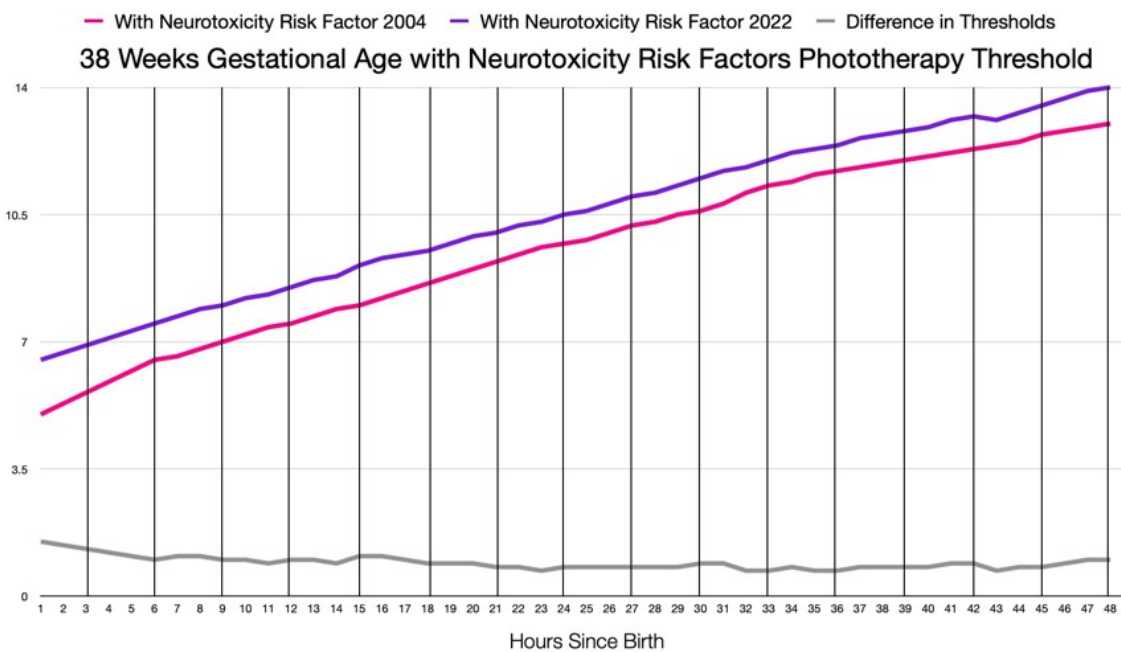
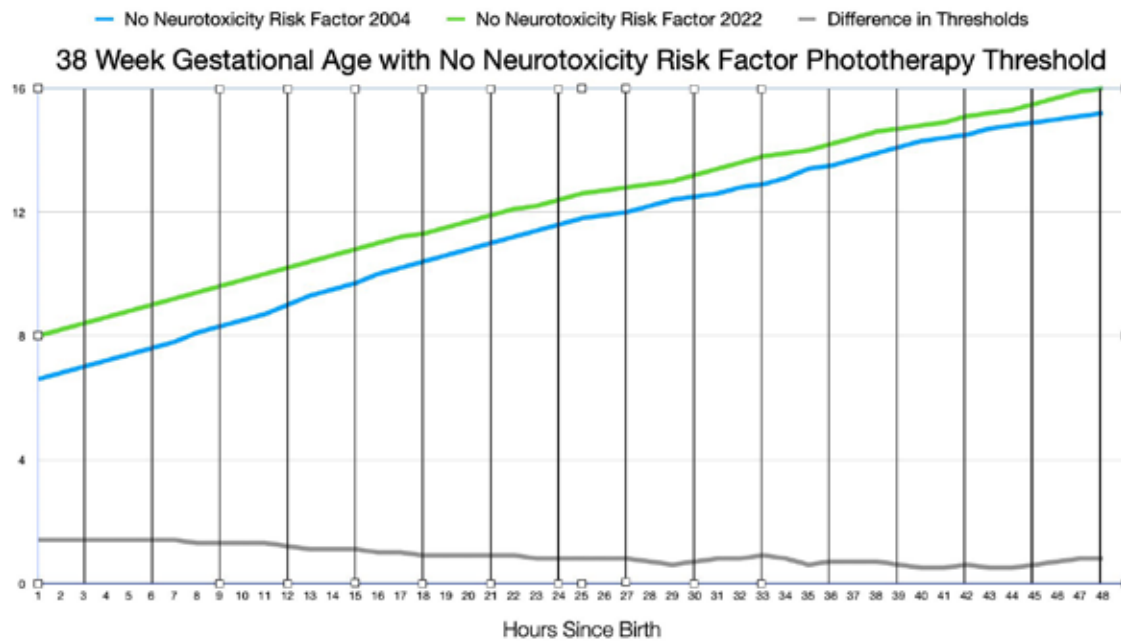
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Therefore, our previously stated null hypothesis would be rejected because all the threshold value differences fall below 2 mg/dL. The narrow increases in the 2022 thresholds are reassuring, and pediatricians are not putting infants at risk with the new guidelines.

The study is limited by threshold comparisons confined to a gestational age of 38 weeks. We aimed to assess the thresholds for the most common newborn a pediatrician would care for in

Figure 1: The top graph compares the hourly phototherapy thresholds for the 2004 and 2022 guidelines. The green line, which maintains a higher threshold, corresponds to the 2022 guidelines. The blue line corresponds to the 2004 guidelines. To highlight the narrow differences, the gray line at the bottom displays the slight differences in thresholds for each hour.

The bottom graph contrasts with the top by incorporating neurotoxicity risk factors into the bilirubin threshold values. The purple line with higher values predictably corresponds to the 2022 guidelines, while the pink line represents the 2004 guidelines. The bottom gray line highlights the differences between the thresholds.



the nursery. Based on our findings, we expect similar differences in range for all groups of gestational age between the 2004 and 2022 guidelines.

In conclusion, the new AAP 2022 phototherapy nomogram is comparable to the 2004 one. The study should be replicated, comparing individual nomograms at 35, 36, 37, 39, and 40 weeks of gestational age.

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Fellows Column: Case Report: Neonatal Intraventricular Hemorrhage in *E.coli* K1 Meningitis

Marian Banh, OMS3, Rohan Chawla, OMS3, Sara Kohandani, OMS3, Monalisa Patel, MD

Background:

Neonatal meningitis is a rare yet devastating disease that can carry profound consequences. It results in acute inflammation of neonatal brain tissue during the first 28 days of life. (1) Compared to other ages, neonates are at the most significant risk for meningitis; therefore, rapid diagnosis and treatment are imperative.

Neonatal meningitis is categorized as being either early or late onset. Early-onset infections, generally occurring within the first 72 hours after birth (or within the first six days for Group B Streptococcus), typically result from vertical transmission from the maternal genital tract flora. Late-onset infections, occurring after six days of age, suggest maternal flora colonization or acquisition from nosocomial or community-acquired sources. (2, 3) Group B Streptococcus (GBS) is the most common cause of neonatal meningitis and sepsis, responsible for over 40% of early-onset infections. (4) *Escherichia coli*, the second most common pathogen, has accounted for a growing number of cases; as many as 30% of all cases of neonatal meningitis in contemporary reports ascribe this bacterium as the causative pathogen.

“Neonatal meningitis is categorized as being either early or late onset. Early-onset infections, generally occurring within the first 72 hours after birth (or within the first six days for Group B Streptococcus), typically result from vertical transmission from the maternal genital tract flora. Late-onset infections, occurring after six days of age, suggest maternal flora colonization or acquisition from nosocomial or community-acquired sources... Escherichia coli, the second most common pathogen, has accounted for a growing number of cases; as many as 30% of all cases of neonatal meningitis in contemporary reports ascribe this bacterium as the causative pathogen.”

Several risk factors can increase the likelihood of developing neonatal meningitis. (5) These include prematurity, maternal rectovaginal GBS colonization, chorioamnionitis or maternal

“Several risk factors can increase the likelihood of developing neonatal meningitis. These include prematurity, maternal rectovaginal GBS colonization, chorioamnionitis or maternal fever, premature rupture of membranes, prolonged rupture of membranes (>18 hours), invasive fetal monitoring, VLBW (<1500 g), prolonged hospitalization, and presence of external devices (e.g., reservoirs, shunts, catheters).”

fever, premature rupture of membranes, prolonged rupture of membranes (>18 hours), invasive fetal monitoring, VLBW (<1500 g), prolonged hospitalization, and presence of external devices (e.g., reservoirs, shunts, catheters). (5) Research has demonstrated that the invasiveness of the *E. coli* pathogen is best related to the K1 antigen rather than the O and H antigens. (6) While it is known that the K1 capsular antigen increases virulence, its expression is thermoregulated and interestingly turns off when the bacteria reach the brain. (7) Given the complexity and lethality of *E. coli* K1 meningitis, we present a case of this pathogen's virulence accompanied by a rapidly advancing intraventricular hemorrhage.

“Research has demonstrated that the invasiveness of the E. coli pathogen is best related to the K1 antigen rather than the O and H antigens.”

Perinatal Challenges: Maternal Health Profile

A 40-year-old G4P4 woman was admitted due to early labor with membrane rupture three days prior to delivery. The mother's medical history revealed chronic hypertension, hypothyroidism, and type 2 diabetes. Her medications included aspirin, insulin, and levothyroxine. The mother's blood type was O positive, and the fetus's blood type was A positive, with a +1 Coombs test. As part of the preterm labor treatment protocol, the mother received ampicillin, magnesium hydralazine, and betamethasone.

Neonatal Clinical Course:

A 34-week-old male infant born at 1475 grams by cesarean section was admitted to the Neonatal Intensive Care Unit (NICU) due to respiratory distress and presumed sepsis. APGAR scores were 8 and 8 at 1 and 5 minutes, respectively. On admission, a blood culture was obtained due to prolonged rupture of membranes and

the baby started on Ampicillin and Gentamicin. The initial complete blood count (CBC) showed a white blood cell count (WBC) of $2.1 \times 10^3/\mu\text{L}$ (36% neutrophils with an absolute neutrophil count [ANC] of 882), hemoglobin (Hgb) of 11.8 g/dL, hematocrit (Hct) of 34.7%, and a platelet count of 34,000/ μL . CRP was 19.6. Due to the persistent thrombocytopenia, platelet transfusion was administered. The patient also received IVIG x3. The WBC differential initially showed 40% segmented neutrophils and 12% bands. After 12 hours, the segs and bands increased to 68% and 17%, respectively, indicating a notable left shift. A lumbar puncture obtained after admission revealed bloody, cloudy-appearing CSF with elevated WBC count of 250 cells/ μL , RBC count of 375,000 cells/ μL , total protein of 565 mg/dL, and a very low glucose level of less than 4.0 mg/dL. Cefepime was added at this time, and Ampicillin was increased to meningitic doses. CSF Gram stain showed Gram negative rods, and the culture grew *E. coli* K1 sensitive to gentamicin and cefepime. The patient remained on gentamicin and cefepime while ampicillin was discontinued. Of note, blood cultures remained negative throughout the hospital course.

“A 34-week-old male infant born at 1475 grams by cesarean section was admitted to the Neonatal Intensive Care Unit (NICU) due to respiratory distress and presumed sepsis. APGAR scores were 8 and 8 at 1 and 5 minutes, respectively. On admission, a blood culture was obtained due to prolonged rupture of membranes and the baby started on Ampicillin and Gentamicin. The initial complete blood count (CBC) showed a white blood cell count (WBC) of $2.1 \times 10^3/\mu\text{L}$ (36% neutrophils with an absolute neutrophil count [ANC] of 882), hemoglobin (Hgb) of 11.8 g/dL, hematocrit (Hct) of 34.7%, and a platelet count of 34,000/ μL . CRP was 19.6...CSF Gram stain showed Gram negative rods, and the culture grew *E. coli* K1 sensitive to gentamicin and cefepime.”

Head ultrasound (HUS) on day of life three (DOL #3) showed a small 5 x 1 x 3 mm echogenic focus within the left lateral ventricles, deemed to be of indeterminate clinical significance. Repeat HUS on DOL #4 showed a decreased 1 x 1 x 4 mm echogenic focus within the left lateral ventricle, indicating an improving grade 1 intraventricular hemorrhage (IVH). HUS on day of life six showed a grade 3 IVH with enlarged dilated bilateral ventricles. Electroencephalography (EEG) findings were abnormal, showing a generalized but asymmetric background slowing, consistent with diffuse but nonspecific cerebral dysfunction; however, no seizure activity was noted. Gentamicin was discontinued on DOL #6 but

was promptly restarted the following day secondary to tachycardia and temperature instability.

On DOL #7, another HUS was performed and revealed a right-sided grade 4 germinal matrix hemorrhage (GMH) and a left-sided grade 2 or 3 GMH, along with bilateral dilation of the ventricles and the third ventricle. At this time, the parents were presented with the option of comfort care due to the likelihood of a poor prognosis. The parents, however, chose to proceed with full medical management. Many blood products and platelets were given due to thrombocytopenia from sepsis. On DOL #12, repeat HUS showed worsening moderate-to-severe ventriculomegaly with the left-sided GMH mildly increased in size (see Figure). The right-sided germinal matrix was not visualized at the time. Repeat EEG the following day showed burst suppression >100 bursts/hour.

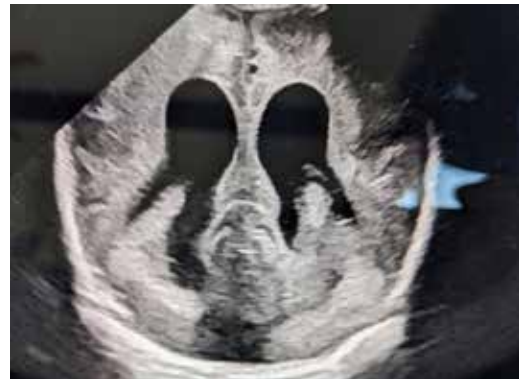
“On day of life 12, repeat HUS showed worsening moderate-to-severe ventriculomegaly with the left-sided germinal matrix hemorrhage mildly increased in size. The right-sided germinal matrix was not visualized at the time. Repeat EEG the following day showed burst suppression >100 bursts/hour.”

The patient's respiratory status was also a primary concern, leading to the implementation of non-invasive mechanical ventilation (NIMV) and high-frequency oscillatory ventilation (HFOV). The baby experienced respiratory challenges throughout his time in the NICU, necessitating constant adjustments in ventilator settings and fluid management. Caffeine was administered for additional apnea of prematurity. Ventilation support via HFOV was continued for five days before switching to Synchronized Intermittent Mandatory Ventilation-Volume Guaranteed (SIMV-VG).

After a lengthy and challenging hospital course, the patient was transferred to a higher-level care facility for further evaluation. Upon admission, a repeat HUS demonstrated an evolving grade 3/4 GMH with no new hemorrhage; however, increased areas of cystic change involving the periventricular leukomalacia became evident. An MRI of the head was also promptly performed and showed the presence of widespread leptomeningeal enhancement across both cerebral and cerebellar hemispheres coupled with sporadic enhancement in the bilateral frontal lobes and deep gray nuclei. These findings were likely associated with the previously diagnosed *E. coli* meningitis. As the patient's disease progressed, he also developed central diabetes insipidus, metabolic acidosis, bilateral renal hydronephrosis, and hypophosphatemia that required rapid treatment.

After multiple discussions involving the family, NICU team, Neurology, and Neurosurgery, a collaborative decision was made on DOL #29 to transition him into comfort care. A morphine drip was started for comfort prior to extubation. The patient underwent extubation and died while in the mother's arms with the father at the bedside.

Figure. Repeat HUS images on DOL #12 showing worsening moderate-to-severe ventriculomegaly with the left-sided GMH mildly increased in size. The right-sided germinal matrix was not visualized at the time.



“An MRI of the head was also promptly performed and showed the presence of widespread leptomenigeal enhancement across both cerebral and cerebellar hemispheres coupled with sporadic enhancement in the bilateral frontal lobes and deep gray nuclei. These findings were likely associated with the previously diagnosed *E. coli* meningitis. As the patient’s disease progressed, he also developed central diabetes insipidus, metabolic acidosis, bilateral renal hydronephrosis, and hypophosphatemia that required rapid treatment.”

This patient's case illustrates the complexity of neonatal *E. coli* meningitis. Frequently, this pathology requires a multidisciplinary approach to care and continuous monitoring and adjustments in the care plan. Even then, as this case highlights, this diagnosis can have devastating consequences.

Discussion:

This patient’s course highlights the complications and devastating effects of neonatal meningitis. Over 100 different *E. coli* capsular antigens have been recognized, with the K1 antigen strain responsible for 77% of neonatal *E. coli* meningitis cases. (6) As the most common cause of gram-negative neonatal meningitis, *E. coli* K1 has a reported mortality rate of 10–15%, with neurological sequelae in 30–50% of cases. (8) The most commonly reported clinical signs are temperature instability, irritability or lethargy, and poor feeding or vomiting.

The high morbidity and mortality associated with neonatal meningitis caused by the *E. coli* K1 antigen, in particular, highlights the limited efficacy of the current standard broad-spectrum

antibiotic regimen. Researchers have successfully treated this pathogen in rat models by modifying the *E. coli* phenotype through bacteriophage-derived endolaseE, eliminating the K1 capsular antigen. (9) This alteration enables the host immune complement system to respond effectively. This research underscores new approaches to treating meningitis, as agents that address infections by modifying the bacterial phenotype could be more efficacious than relying on pathogen killing or growth inhibition. The evolving nature of bacterial infections has prompted the reevaluation of conventional antibiotic treatment modalities, emphasizing a growing need to diversify treatment approaches.

“This patient’s course highlights the complications and devastating effects of neonatal meningitis. Over 100 different *E. coli* capsular antigens have been recognized, with the K1 antigen strain responsible for 77% of neonatal *E. coli* meningitis cases. As the most common cause of gram-negative neonatal meningitis, *E. coli* K1 has a reported mortality rate of 10–15%, with neurological sequelae in 30–50% of cases. The most commonly reported clinical signs are temperature instability, irritability or lethargy, and poor feeding or vomiting.”

An essential discussion regarding neonatal meningitis is the etiology of the disease and the routes of transmission. One manner in which neonates can acquire *E. coli* meningitis is through vertical transmission from their mothers during childbirth. This can happen when the baby comes into contact with the mother’s infected genital or intestinal tract during delivery. In this case, our

patient may have been exposed to the mother's gut flora during the three days of the prolonged rupture of the membrane.

“The high morbidity and mortality associated with neonatal meningitis caused by the E. coli K1 antigen, in particular, highlights the limited efficacy of the current standard broad-spectrum antibiotic regimen. Researchers have successfully treated this pathogen in rat models by modifying the E. coli phenotype through bacteriophage-derived endolaseE, eliminating the K1 capsular antigen.”

In addressing the imperative issue of neonatal meningitis, a crucial focus lies in enhancing early diagnostic methods, identifying preventative measures, and understanding the ethical considerations surrounding a newborn facing a severe illness. It is also essential to recognize the limitations in treating advanced stages of meningitis; advocating for continued research and innovation is crucial. An important caveat to our case presentation is that it represents a singular occurrence of neonatal meningitis. It is important to note that this patient's disease course is unique, and the presentation of *E. coli* neonatal meningitis can vary significantly on a case-by-case basis.

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Lessons Learned from Remote Assessment of Mother-Infant Interactions Among Women with Postpartum Depression

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The National Perinatal Association (NPA) is an interdisciplinary organization that strives to be a leading voice for perinatal care in the United States. Our diverse membership is comprised of healthcare providers, parents & caregivers, educators, and service providers, all driven by their desire to give voice to and support babies and families at risk across the country.

Members of the NPA write a regular peer-reviewed column in *Neonatology Today*.



Abstract:

Purpose: The COVID-19 pandemic posed challenges to measuring mother-infant interactions, a critical outcome for many interventions to support mothers with postpartum depression symptoms and their new infants. The current study describes the process and lessons learned from implementing a remote assessment of mother-infant interactions during the pandemic.

Description: At the onset of the COVID-19 pandemic, we pivoted from in person to using two different strategies to assess mother-infant interactions remotely: (1) participants independently recorded and uploaded videos of free play with their child, and (2) the research team conducted

a live-video recording of the free play.

“The COVID-19 pandemic posed challenges to measuring mother-infant interactions, a critical outcome for many interventions to support mothers with postpartum depression symptoms and their new infants. The current study describes the process and lessons learned from implementing a remote assessment of mother-infant interactions during the pandemic.”

Assessment: We found initial barriers, including technical and video quality issues, but overall, a remote option could increase enrollment and retention rates in a sample of postpartum women across various racial/ethnic groups and economic levels.

Conclusion: Our experiences conducting remote assessments with postpartum women add to growing evidence for the feasibility and validity of remote visits. This showed how our methods can be implemented in future research and practice with postpartum mothers and their infants.

Introduction:

Mother-infant interactions are critical to a child’s development, particularly in the first years of life (1). Secure parent-child relationships help children regulate their emotions in stressful situations, explore their environment, and foster development (2). Substantial research finds associations between maternal sensitivity and positive child outcomes,

including secure attachment, cognitive and language growth, and social and emotional competence (3, 4). A mother’s positive affect may enhance problem-solving, promote intrinsic motivation, facilitate self-regulation in young children (4), and improve mother-infant interaction quality that can be impaired by maternal depression.

Postpartum depression (PPD) is common, occurring in 12–24% of women following the birth of a child (5–7). PPD symptoms negatively affect responsive parenting, i.e., a mother’s ability to nurture and care for her children (8, 9). Mothers with depression are less likely to engage in healthy feeding, eating, and safety practices (10–11). These mothers are less likely to display positive parenting behaviors (e.g., providing praise) and more likely to endorse negative parenting behaviors (e.g., yelling) than mothers who are not depressed (11–12). The literature suggests that depression may adversely affect the mother-infant relationship, leading to less responsive parenting and contributing to impaired infant attachment with mothers (13–14).

“Postpartum depression (PPD) is common, occurring in 12–24% of women following the birth of a child... The literature suggests that depression may adversely affect the mother-infant relationship, leading to less responsive parenting and contributing to impaired infant attachment with mothers.”

Effective parent-infant interaction requires that both the infant and parent send clear cues and respond to each other, thus facilitating the development of an

interactive environment that supports continued interaction. A range of observational systems have been used to assess mother-infant interactions. Some of these systems include CARE-Index, Parent-Child Early Relational Assessment (PCERA), Parent-Infant Interaction Observation Scale (PIIOS), and Parent-Infant Relational Assessment Tool (PIRAT) (15). These systems capture and rate parent behaviors such as responsiveness to their child, infant developmentally appropriate behaviors, and quality of the dyadic interactions.

“This paper discusses the methods and lessons learned from transitioning from in-person assessment of mother-infant interaction to remote assessment due to the COVID-19 pandemic. In our randomized controlled trial (RCT) that enrolled mothers exhibiting elevated PPD symptoms.”

This paper discusses the methods and lessons learned from transitioning from in-person assessment of mother-infant interaction to remote assessment due to the COVID-19 pandemic. In our randomized controlled trial (RCT) that enrolled mothers exhibiting elevated PPD symptoms, mother-infant interaction quality was the primary outcome; thus, its collection was vital for the study. In the current study, we used the PCERA to assess mother-infant interaction quality, as it has sound psychometric qualities and included tasks appropriate for mothers and their infants 12 months and younger (16, 17). Collecting video-recorded mother-infant interactions required addressing barriers remotely that would be common among postpartum women across various racial/ethnic groups and economic levels.

“We conducted an RCT to determine whether a social media-based parenting program improves responsive parenting among women with PPD symptoms. Mothers with infants ages one month to eight months and who scored above 9 on the Edinburgh Postnatal Depression Scale (EPDS) when screened at urban pediatric practices were recruited to the study. Participants were randomized to a parenting program + online depression treatment or online depression treatment alone. Mother-infant interactions were assessed at baseline and post-intervention.”

Description:

Randomized Trial/PCERA

We conducted an RCT (NCT 04045132)(18) to determine whether a social media-based parenting program improves responsive parenting among women with PPD symptoms. Mothers with infants ages one month to eight months and who scored above 9 on the Edinburgh Postnatal Depression Scale (EPDS)(19) when screened at urban pediatric practices were recruited to the study. Participants were randomized to a parenting program + online depression treatment or online depression treatment alone. Mother-infant interactions were assessed at baseline and post-intervention (3 months after the start of intervention); thus, each participant potentially had two assessments.

Our sample comprised 75 mother-infant dyads. The adult sample was predominantly Black (69.3%) with at least a high school diploma or GED (94.7%). Household yearly income levels varied, with the majority representing lower income levels: 41.3% reported less than \$25,000, and 32% reported \$55,000 or greater. The infant sample was also predominantly Black (64%), with an average age of 3.7 months at enrollment. Participants were compensated for completing study activities and assessments and received monthly compensation for cellular data charges.

“... we used the PCERA, a validated 65-item (29 parental, 28 child, and 8 dyadic items) videotape assessment designed to measure the quality of affect and behavior in parent-child interactions to serve as the primary outcome measure. The PCERA uses ratings based on observations of 5-minute videotaped interactions with parent-infant dyads engaged in feeding, structured tasks, and free play. For this study, we coded the free play episode. The PCERA has good interrater reliability, internal consistency, discriminant and concurrent validity, and sensitivity to change.”

In the current investigation, we used the PCERA, a validated 65-item (29 parental, 28 child, and 8 dyadic items) videotape assessment designed to measure the quality of affect and behavior in parent-child interactions to serve as the primary outcome measure (20). The PCERA uses ratings based on observations of 5-minute videotaped interactions with parent-infant dyads engaged in feeding, structured tasks, and free play. For this study, we coded the free play episode. The PCERA has good interrater reliability, internal consistency, discriminant and concurrent validity, and sensitivity to change (16, 17). Mothers

were instructed to play with their infants as usual, using a standard set of age-appropriate toys provided for free play. As a result of the COVID-19 pandemic and institutional restrictions on in-person research engagement, it was necessary to transition the PCERA administration from in-person to virtual.

Phase I. Pre-COVID In-Person Enrollment

Prior to COVID-19, we conducted in-person enrollment visits. As part of the baseline assessment, we collected written informed consent, measures of demographic characteristics, family income, social support, depressive symptoms, parenting competence, and parenting stress, as well as a five-minute video-recorded free play session of the parent-infant dyad using the PCERA. These study visits took place in a research lab. Each family was offered the option of transportation through a ride-share service or mileage reimbursement if they chose to travel in their vehicles or through public transportation.

The assessment rooms were a neutral space with three cameras in different positions around the room. The study staff explained the assessment methods and provided each participating dyad with the same set of toys for free play. Research staff then filmed from a separate viewing room where we could alter the camera angles and shift positions if the mother or child moved around the room. Before the onset of the pandemic, 15 participants were enrolled in the study and completed baseline PCERA assessments in this in-person format, which is the typical administration format.

“The first virtual method we employed for the PCERA involved the participants filming the 5-minute free play videos themselves in their homes. Participants uploaded the videos to a secure cloud-based service available through a free mobile application... Some of the significant barriers we encountered early on were internet bandwidth and technical difficulties while filming... we also encountered video quality issues.”

Phase II. Initial Virtual Interaction Strategy—Mother Recording Independently

The first virtual method we employed for the PCERA involved the participants filming the 5-minute free play videos themselves in their homes. Participants uploaded the videos to a secure cloud-based service available through a free mobile application that our institution uses to store files securely. We created an instructional guide on downloading the app on a smartphone, recording the video, addressing video logistics, and uploading the videos to the app to be reviewed by the research team. The participants were sent the instructional guide and then given access to a secure participant-specific folder on the app to upload their videos. The videos were then reviewed for quality and stored securely by the research team. Once we established our virtual methods, we

obtained additional Institutional Review Board (IRB) approval. The IRB suggested that we expand the language in our protocol and informed consent to maintain that all study activities could be conducted remotely or in person. Although the research team was not required to re-consent participants who were already enrolled in the study, we verbally informed our participants of the changes.

Some of the significant barriers we encountered early on were internet bandwidth and technical difficulties while filming. Due to the large size of the video files, sometimes it took upwards of 30 minutes for a participant to upload their videos to the cloud-based service app. Several participants encountered internet issues and had to travel to a family member's home to upload the PCERA video to the app. With this method, we also encountered video quality issues. There were instances where the lighting or sound quality was distorted, making it difficult for the coders to review the mother's or infant's facial expressions or sounds. Finally, this method also placed a greater burden on the participants to find time to film and upload the videos in addition to their day-to-day activities in the postpartum period. In order to address some of the initial barriers, we explored an alternative method for completing the PCERA videos.

Phase III. Second Virtual Interaction Strategy—Live Video Recording

Considering the initial obstacles, we identified a filming method that reduced the instances of poor video quality and allowed for real-time, personalized instructional feedback from the research team. We decided that a live video recording would be an alternative strategy. We sought to use video conferencing applications to collect data and conduct follow-up procedures remotely that were HIPAA-compliant and offered at and licensed by our institution. We also had to consider if the applications were user-friendly.

“Considering the initial obstacles, we identified a filming method that reduced the instances of poor video quality and allowed for real-time, personalized instructional feedback from the research team. We decided that a live video recording would be an alternative strategy.”

For the live video recording, the research team gave instructions to participants on how to download an app and do a live recording of playtime with their infants. On the day of the visit, participants received a meeting ID that they would use to join the call with a research team member. From there, the research team member would instruct the participant on where and how to position their device so that the picture and audio were validated. The team member then saved and securely stored the recording. If the participant was uncomfortable with a live recording, they could film the video at home and upload it to the secure cloud-based service.

The revised virtual enrollment strategy using a live video recording

through a video conferencing app addressed some of the initial barriers we faced with the participant-initiated recording strategy. While still present, internet issues and technical difficulties were minimal, and the live recording eliminated the time-consuming video upload process. Additionally, video quality improved with this method because study team members could instruct participants in real-time and direct them on adjusting the camera so that the audio and video were clear. While the research team widely used this method, we encountered several barriers, including multiple visit attempts and participant discomfort. There were some instances where the live recording was rescheduled several times due to interruptions, the child falling asleep, or scheduling conflicts.

Assessment:

Throughout the study, we completed 139 PCERA videos. Of the 139, 15 were conducted in person, with the remaining 124 videos conducted virtually, either through independent recording from the participant (n=26) or recorded live using a video conferencing platform (n=98). Two videos were omitted from later analyses due to a high number of missing ratings from poor video quality. Our initial remote strategy involved participants filming the 5-minute free play videos in their homes. After evaluating the initial barriers associated with this strategy, we implemented an additional live video recording option. The live video recording was implemented at the start of Group 2 of 5 (Table 1). Over time, more participants opted to complete the PCERA through the research staff's live video recording compared to filming the video themselves at home.

Before the COVID-19 pandemic, there was a 31% non-attendance rate, compared to 17% once virtual study visits were implemented. In these instances, a visit was scheduled with a potential participant, but they did not attend the scheduled visit. The time

and location flexibility associated with virtual visits allowed us to consider mothers' and infants' schedules at home, suggesting that a remote option can potentially increase enrollment and retention rates in a sample of postpartum women across various racial/ethnic groups and economic levels.

“Before the COVID-19 pandemic, there was a 31% non-attendance rate, compared to 17% once virtual study visits were implemented. The time and location flexibility associated with virtual visits allowed us to consider mothers’ and infants’ schedules at home, suggesting that a remote option can potentially increase enrollment and retention rates in a sample of postpartum women across various racial/ethnic groups and economic levels.”

Conclusions for Practice:

The COVID-19 pandemic has required researchers to alter their study designs and data collection methods to align with health and safety protocols, and such adaptations are paving the way

Table 1. PCERA videos completed at baseline and 3-month follow-up by recording method

Baseline				
Group (n)	In-Person	At home recording	Live video recording	Missing
1 (n=15)	15	0	0	0
2 (n=15)	0	8	5	2
3 (n=17)	0	1	16	0
4 (n=15)	0	0	15	0
5 (n=13)	0	1	12	0
Totals (%)	15 (20%)	10 (13%)	48 (64%)	2 (3%)
Three-month follow-up				
Group (n)	In-Person	At home recording	Live video recording	Missing
1 (n=15)	0	11	0	4
2 (n=15)	0	3	9	3
3 (n=17)	0	1	16	0
4 (n=15)	0	0	15	0
5 (n=13)	0	1	10	2
Totals	0 (0%)	16 (21%)	50 (67%)	9 (12%)

for innovative research methods that will continue to be used and developed. Our experiences conducting remote assessments with postpartum women add to growing evidence for the feasibility and validity of remote video visits (21, 22). We found that it was feasible to conduct mother-infant interactions remotely with racially/ethnically and economically diverse mothers with postpartum depression symptoms. We retained 88% of enrolled participants, suggesting that remote collection has advantages over live, in-person observation.

It is crucial to consider the limitations and variability of video quality when conducting assessments remotely. Although the remote visits still allowed for consistent coding, there were instances where the lighting or sound quality was distorted, making it difficult for the coders to view facial expressions or sounds coming from the mother or infant, ultimately impacting their ability to code the videos using the PCERA properly. Nonetheless, two videos were excluded due to missing ratings. This variability in video quality is minimized with in-person study visits and staff-assisted remote recording. Other potential limitations include differences in participant experiences and costs of maintenance of cell phone plans so that mother-infant interactions can be collected. None of the interactions were collected in person or remotely so that a comparison of differences in the quality of interactions could be determined, which can be tested in future research.

“Conducting assessments can help home visiting programs reduce geographic barriers to service delivery virtually, along with issues related to transportation, scheduling, and family engagement preferences. Similarly, virtual assessments of mother and infant interactions can be beneficial in perinatology or neonatology practices for the same reasons. Our experiences conducting mother-infant interaction assessments as part of an RCT with diverse postpartum samples show how support and technology can be leveraged to gather this vital data for research and intervention purposes.”

Finally, our study demonstrated that measures of mother-infant interactions can be collected virtually with useful recordings that can be coded. Methods such as those described can be implemented in future research and practice with postpartum mothers and their infants. For example, home visiting programs continue to play a vital role in addressing the needs of pregnant and postpartum women, young children, and families, in person or remotely. Conducting assessments can help home visiting programs reduce geographic barriers to service delivery virtually,

along with issues related to transportation, scheduling, and family engagement preferences. Similarly, virtual assessments of mother and infant interactions can be beneficial in perinatology or neonatology practices for the same reasons. Our experiences conducting mother-infant interaction assessments as part of an RCT with diverse postpartum samples show how support and technology can be leveraged to gather this vital data for research and intervention purposes.

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The Indirect Impact of RSV

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 2/3 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 1/3 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:

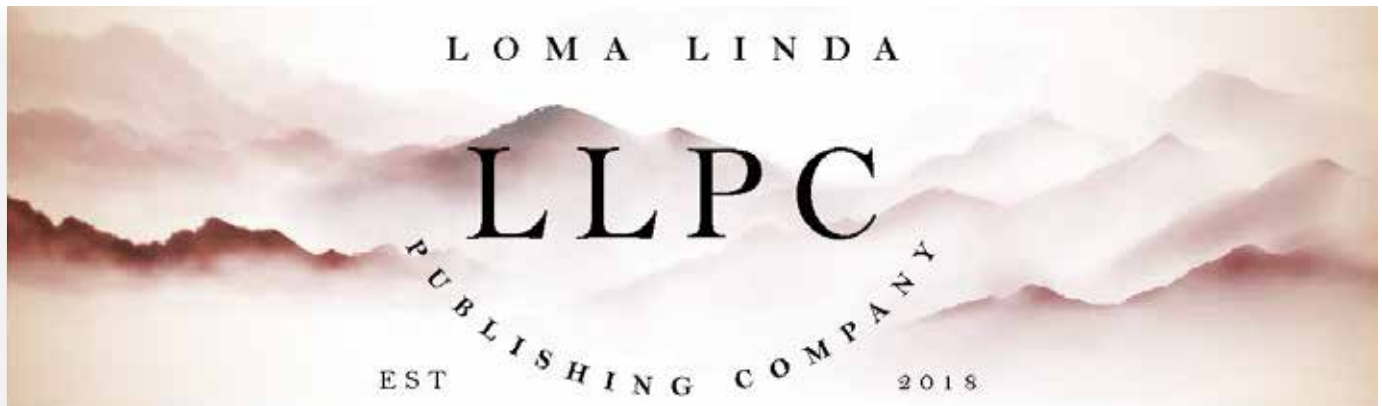
- **Long-lasting health challenges** for babies and young children
- **Financial, social and emotional burdens** for families
- **Frustration for providers**, who lack a cure or viable preventive interventions

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.



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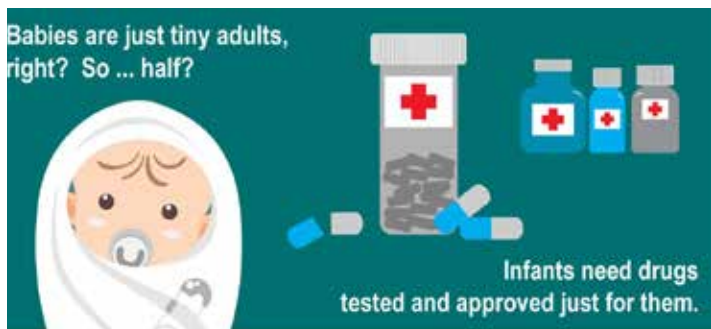
Which Infants are More Vulnerable to Respiratory Syncytial Virus?

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%

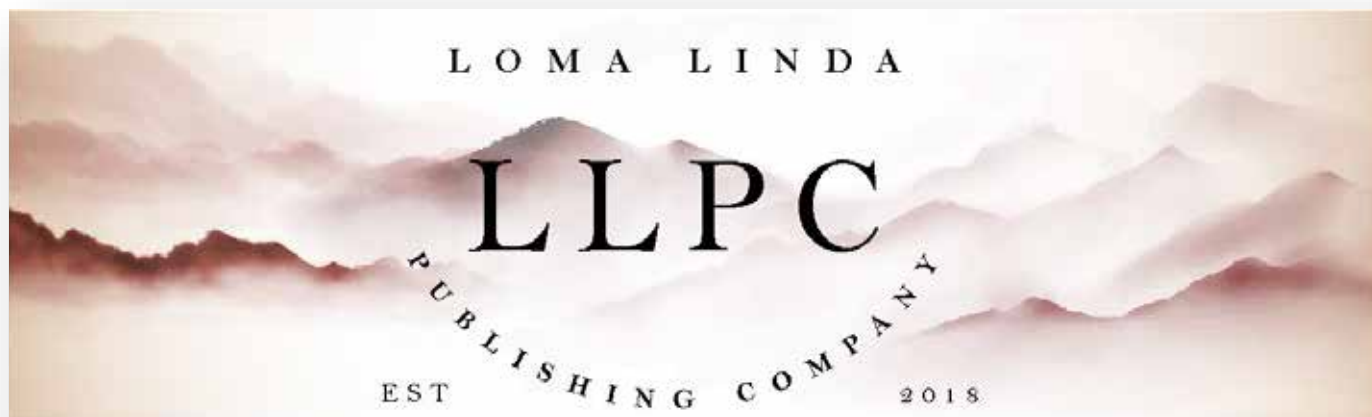


Center for Clinical Trials and Biometrics | NCJFH National Center for Juvenile Health



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

AfPA
Alliance for Patient Access



Health and Wellness: Avoiding Propaganda and Projection in the Neonatal Care Unit

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

In the high-stakes environment of the Neonatal Intensive Care Unit (NICU), where the delicate lives of newborns hang in the balance, conflict, and behaviors by caregivers detrimental to patient care can unfortunately arise. However, these behaviors must be identified and addressed promptly to maintain a cohesive team dynamic and ensure the best possible outcomes for the infants under our care.

“In the high-stakes environment of the Neonatal Intensive Care Unit (NICU), where the delicate lives of newborns hang in the balance, conflict, and behaviors by caregivers detrimental to patient care can unfortunately arise. However, these behaviors must be identified and addressed promptly to maintain a cohesive team dynamic and ensure the best possible outcomes for the infants under our care.”

One of the primary challenges in addressing conflicts in the NICU is the potential for propaganda to spread and be relayed as unwarranted facts! More than mere rumors, false or misleading representations of published studies have the insidious ability to disseminate false information, often only loosely tethered to the truth. Trust in information is paramount but must be coupled with a commitment to verification. In a setting where decisions can mean life or death, the adage of “trust but verify” should be diligently practiced. Evidence-based medicine is the summation of the results of multiple studies. When appropriately analyzed, these meta-analyses provide outcomes from various studies that can be statistically summarized as the degree of benefit or harm of specific treatments in a more significant number of infants than in single studies.

“Trust in information is paramount but must be coupled with a commitment to verification. In a setting where decisions can mean life or death, the adage of ‘trust but verify’ should be diligently practiced. Evidence-based medicine is the summation of the results of multiple studies.”

Moreover, it is essential to recognize the dangers of personal projection in the NICU. Projecting one’s deficiencies onto others hampers effective communication and collaboration and can lead to scapegoating and a toxic work environment. Instead of assigning blame, it is crucial to acknowledge individual deficits and work collaboratively toward improvement.

When confronted with propaganda or projection, seeking information from multiple perspectives is essential. Even if one side appears wrong, taking the time to understand the motivations and perspectives of all parties involved can reveal underlying issues that may have contributed to the conflict. Propaganda may be from careless communications, but often, upon closer examination, it becomes apparent that projection is at the root of the problem, and addressing these underlying issues is vital to resolving the conflict.

“When confronted with propaganda or projection, seeking information from multiple perspectives is essential. Even if one side appears wrong, taking the time to understand the motivations and perspectives of all parties involved can reveal underlying issues that may have contributed to the conflict.”

Furthermore, it is essential to focus on proactive solutions rather than simply reacting to conflicts as they arise. By identifying and addressing the behaviors or situations that contribute to conflicts in the NICU, teams can work towards creating a supportive and harmonious work environment where patient care is always the top priority.

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In conclusion, avoiding propaganda and projection in the Neonatal Care Unit is essential for maintaining a positive team

dynamic and ensuring patient outcomes. By practicing trust but “verify,” refraining from projecting one’s deficiencies onto others, and seeking out multiple perspectives when conflicts arise, NICU teams can foster a culture of collaboration and accountability. Ultimately, the well-being of the infants under their care depends on their ability to navigate conflicts effectively and prioritize patient care above all else.

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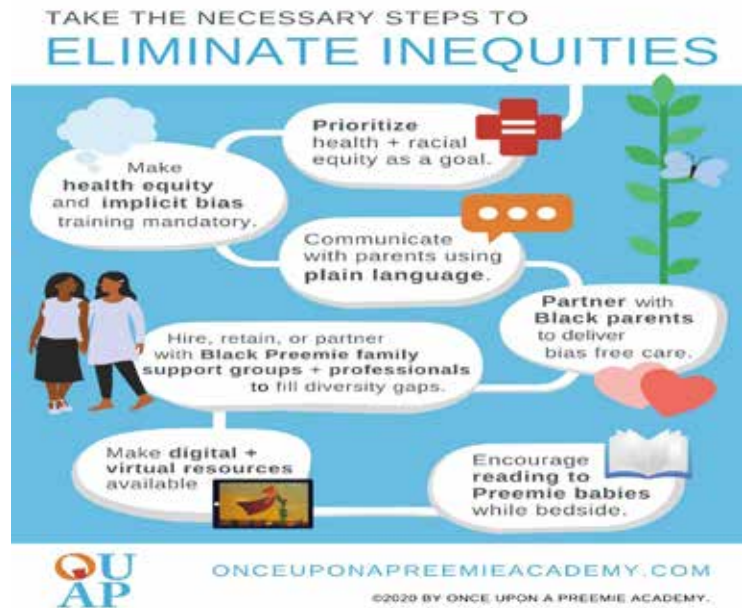
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What parents need to know this RSV and flu season



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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Letters to the Editor

Letter to the Editor: Letter to Editor: "The 0/0/0 Miracle"

Dear Editor,

We are writing to express our sincere appreciation for the work done by student doctors Grace Ahuja, Melissa Kruetz, and Joshua Hernandez in their article entitled "The 0/0/0 Miracle: Overcoming multifactorial birth trauma in a preterm neonate". This compelling work emphasizes the benefits of continued care and aggressive resuscitation efforts in a neonate with multifactorial adverse events, predisposing neonatal mortality. In this article, the authors report the remarkable resilience of a preterm neonate born with an APGAR score of 0/0/0 at 1, 5, and 10 minutes, respectively (1). Although the ACOG recommendations state that infants should score up to 20 minutes with a score of less than 7, this baby's Apgar score was taken up to the 30-minute mark (1,2). Despite the grim prognostic indicators, the medical team's diligent efforts in continuing management are commendable. The variability in outcomes in cases such as this reinforces the complexity of neonatal resuscitation and dependence on individualized care guided by clinical judgment.

"Despite the grim prognostic indicators, the medical team's diligent efforts in continuing management are commendable. The variability in outcomes in cases such as this reinforces the complexity of neonatal resuscitation and dependence on individualized care guided by clinical judgment."

Currently, there are no "evidence-based" protocols for delivery room resuscitation due to the logistical limitations inherent in conducting randomized trials within the delivery room. Therefore, many unanswered questions remain about what an effective protocol to follow is. What do you consider when determining if an intervention is aggressive or moderate? Is it based on time? At what time does the clock start, when a baby is born, or when the efforts begin? These questions are largely challenged and addressed with information gathered from individual case reports and more extensive retrospective studies.

In order to help healthcare providers develop the knowledge and skills needed to resuscitate neonates, the American Academy of Pediatrics (AAP) and the American Heart Association (AHA) created a neonatal resuscitation program (NRP) (3). The NRP started in the 1980s based on anecdotal evidence and scholarly speculation, but since 2000, it has developed into an organized evaluation of current research with an evidence-based curriculum (3). Despite the overall advancements in knowledge and training, there remains subjectivity as to when to discontinue intensive resuscitative efforts due to the very small population of infants who require extended intensive resuscitation. The current recommendations suggest that goals of care can be reevaluated after 20 minutes of "effective" resuscitation, but what exactly defines "effective," and how can clinicians confidently navigate critical decisions with such

ambiguity in the criteria (4)?

Apart from what has been discussed in the miracle baby's case report, there are many more predicaments that a healthcare team can find themselves in when making decisions regarding resuscitation efforts in the delivery room. By primarily focusing on the length of resuscitation, we may be missing out on other factors that may significantly impact prognosis.

"Apart from what has been discussed in the miracle baby's case report, there are many more predicaments that a healthcare team can find themselves in when making decisions regarding resuscitation efforts in the delivery room. By primarily focusing on the length of resuscitation, we may be missing out on other factors that may significantly impact prognosis."

One potential situation is electromechanical dissociation, where the clinical presentation does not correlate with the monitoring devices. What should guide resuscitation, the pulse or the ECG? In some cases, efforts have continued, such as when a preterm infant with hydrops fetalis did not have detectable electrical activity via ECG, and the clinical team decided to use the heart rate from the pulse oximeter instead (5). Difficulty discerning heart rhythms, particularly between bradycardia and pulseless electrical activity (PEA), creates uncertainty that may delay intervention (5). Cases with PEA typically present with longer resuscitation times and a lower likelihood of achieving return of spontaneous circulation (ROSC) and overall survival (6).

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Another factor to consider in neonatal health concerns is the increased usage of drugs of abuse such as fentanyl. In cases of in-utero drug exposure, how long do we attempt resuscitation when reversal agents down the line are not recommended? Clinical studies have not shown any benefits of administering naloxone to neonates with acute respiratory depression, and considering adverse reactions such as acute withdrawal, cardiorespiratory depression, and death, the use of naloxone has remained out of the guidance despite its previous inclusion (7).

Other factors, such as physiological imbalances, can also significantly impact the neonate's responsiveness to resuscitation, necessitating prompt correction for optimal outcomes. Hypocalcemia is a common presentation in neonates that can impact various physiological processes critical for successful resuscitation (8). It may manifest as respiratory muscle weakness or decreased tone, which impairs adequate ventilation and may render resuscitation efforts ineffective if not corrected. This raises the question of whether monitoring calcium levels would reduce complications and mitigate overventilation of the neonate.

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Aggressive resuscitation is typically not recommended in cases such as rigor mortis in neonates, but in rare cases such as severe hypothermia, which could present similarly, may call for a different approach. For example, an infant can have very faint signs of life and a stiff body upon examination, in which case it may still be appropriate to attempt aggressive measures. In a case report from the International Journal of Emergency Medicine, an individual was found unresponsive near a snowy mountain (9). On admission, he was in cardiac arrest with a core temperature of 22 °C, exhibiting mandibular rigidity and no response to normal resuscitation (9). Extracorporeal membrane oxygenation (ECMO) and rewarming were used, which resulted in ROSC without neurological impairments at discharge (9). This case demonstrates that muscle rigidity does not rule out the possibility of resuscitation in patients with hypothermia under cardiac arrest (9). Hypothermia can slow down the body's functions, including the brain, which can mimic signs of rigor mortis. Therefore, if aggressive resuscitation efforts are employed with proper warming techniques to increase and restore circulation in the newborn gradually, there is a chance they could fully revive.

While most of the conversation has centered on what to do during resuscitation and when it should be discontinued, it is also crucial to consider treatments done before resuscitation begins. Every second is critical when a newborn is not demonstrating adequate signs or responses, so actions taken before resuscitation must yield substantial benefits that outweigh any potential delay. Recent studies have demonstrated that suctioning of the oro- and nasopharynx as a routine practice and universal tracheal suctioning of all newborns born with meconium-stained amniotic fluid do not have any significant benefits associated with the practices (10). Instead, they should only be performed when indicated, such

as in ineffective resuscitation resulting from airway obstruction. Each suctioning pass consumes 15 seconds, and if it does not offer significant benefit, it is preferable not to prolong resuscitation initiation (10). Another procedure is umbilical cord milking, which has been a debated topic regarding its efficacy and safety compared to standard delayed cord clamping (DCC). A 2023 randomized control trial demonstrated the two methods to have similar rates of intraventricular hemorrhage and death (11). Now that its noninferiority has been established, umbilical milking might become preferable as it can be completed in 20 seconds compared to the 30 to 180 seconds required for DCC (11). Considering only these two changes, only suctioning as needed and resuscitation can be initiated at least 45 seconds earlier, using umbilical milking. These examples demonstrate the importance of reevaluating current standards in practice and questioning if they indeed provide a benefit or if there may be better alternatives.

“Now that its noninferiority has been established, umbilical milking might become preferable as it can be completed in 20 seconds compared to the 30 to 180 seconds required for DCC (11). Considering only these two changes, only suctioning as needed and resuscitation can be initiated at least 45 seconds earlier, using umbilical milking. These examples demonstrate the importance of reevaluating current standards in practice and questioning if they indeed provide a benefit or if there may be better alternatives.”

These scenarios are merely a drop in an ocean of the potential situations that resuscitation teams may encounter, highlighting the need for an individualized approach. While standard protocols are essential for providing consistently good care, cases such as this baby are critical in developing and pushing the knowledge of current protocols so that, in the long run, we can treat patients who might previously have been deemed to have no chance of successful resuscitation. As we advance medical knowledge, we must continue asking questions like those posed here.

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Sincerely,

Ani Galfayan, OMS III, Allysa Lui, OMS III, Erik Bieniek, OMS III, Monica Desai, OMS III

Western University of Health Sciences College of Osteopathic Medicine of the Pacific

Dear Drs to be Galfayan, Lui, Bieniek, and Desai:

I appreciate the depth and detail in this letter to the Editor regarding neonatal resuscitation protocols and the intricacies involved in decision-making during critical scenarios. These insights provide a comprehensive overview of the challenges faced by healthcare providers in ensuring the best possible outcomes for newborns during neonatal resuscitation.

The case reviewed, which extended Apgar scoring beyond the typical timeframe, invites a thorough examination of the criteria

used to assess the effectiveness of resuscitative efforts. Exploring the definition of "effective" resuscitation and the uncertainty surrounding the decision to discontinue intensive interventions highlights the complexities inherent in such determinations. It prompts crucial questions about defining success in neonatal resuscitation and underscores the need for more straightforward guidelines in these critical moments.

“Exploring the definition of “effective” resuscitation and the uncertainty surrounding the decision to discontinue intensive interventions highlights the complexities inherent in such determinations. It prompts crucial questions about defining success in neonatal resuscitation and underscores the need for more straightforward guidelines in these critical moments.”

Factors such as electromechanical dissociation, in-utero drug exposure, and physiological imbalances complicate resuscitation. The considerations regarding which indicators to prioritize, such as pulse or ECG, and how to manage situations involving drug-exposed neonates underscore the multifaceted nature of neonatal care.

Pre-resuscitation interventions do matter. A review of suctioning practices and umbilical cord management is essential, highlighting the evolving nature of neonatal care protocols. The need to reevaluate established practices in light of emerging evidence is crucial for ensuring that interventions yield optimal neonatal outcomes. This detailed analysis underscores the importance of continually refining protocols to reflect the latest evidence-based practices.

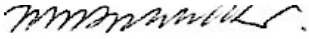
“The need to reevaluate established practices in light of emerging evidence is crucial for ensuring that interventions yield optimal neonatal outcomes. This detailed analysis underscores the importance of continually refining protocols to reflect the latest evidence-based practices.”

The importance of individualized care and the ongoing need to question and refine protocols resonates deeply. As medical knowledge advances, healthcare providers must remain vigilant in adapting their approaches to meet the unique needs of each newborn.

Thank you again for thoroughly exploring this critical aspect of neonatal care. These insights will undoubtedly contribute to ongoing discussions and advancements in the field.

Best regards,

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief



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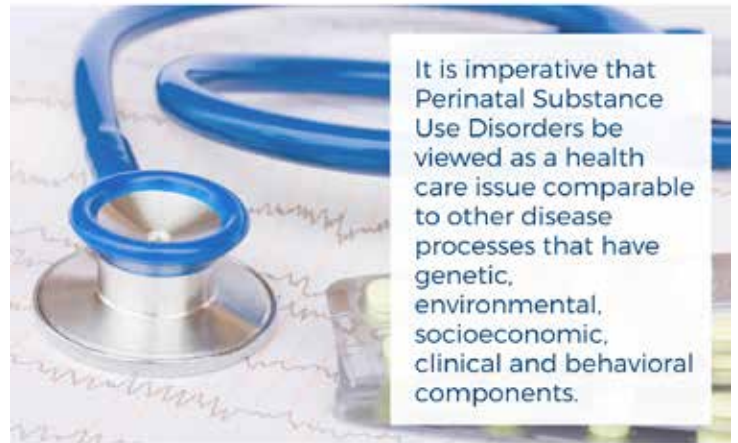
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Erratum (Neonatology Today March, 2024)

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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2024

Keeping Your Baby Safe

from respiratory infections

**RSV
COVID-19
colds
flu**

How to protect your little one from germs and viruses

This year's cold and flu season may be a dangerous one - 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 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.
- Sleep when you can.
- Drink more water and eat healthy foods.
- Seek mental health support.



Immunizations Vaccinations save lives. Protect your baby from flu, pertussis, RSV, and COVID-19 by getting your immunizations.

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 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.


Should Infants Be Separated from Mothers with COVID-19?

FIRST DO NO HARM


SEPARATION may not prevent **INFECTION.**




SKIN to SKIN CARE supports newborns' physiology.




SEPARATION stresses parents and babies.




SEPARATION weakens immune protections.



SEPARATION disrupts breastfeeding putting babies' health at risk.



SEPARATING the DYAD doubles providers' workload, burdening systems.



BASED ON THE ARTICLE:

Should Infants Be Separated from Mothers with COVID-19?
First, Do No Harm

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Review Committee for Pediatrics (RC-Peds) Nominee Qualifications



To qualify to be nominated to the RC-Peds for this position, the candidate:

- must be a board-certified pediatrician or pediatric subspecialist with a background in education and expertise in graduate medical education.
- should have at least three years of experience as a program director of an ACGME-accredited pediatrics residency program or pediatric subspecialty fellowship or three years of experience as a designated institutional official. The nominee's program must be in good standing with a status of Continued Accreditation.
- must have a current or past association with graduate medical education.
- should participate in major specialty societies.
- must be skilled in the use of computers (communication with staff is primarily through email, and members will use electronic systems for receipt of agenda materials, program reviews, reimbursement of expenses, and peer evaluations).
- must demonstrate fairness, the ability to work collaboratively, and express views clearly and concisely.
- must be able to attend an observation meeting, April 10-11, 2025, prior to the start of the term.
- must devote sufficient time to prepare for and participate in three RC meetings per year (January, April, and September), two-three days per meeting, as well as contribute to RC-Peds subcommittee work as assigned.
- ideally, will not hold the same subspecialty certifications as the members of the RC-Peds at the time of appointment. The RC-Peds strives to maintain a balance of specialties; it is preferable that individuals from the following specialties are not nominated:
 - General Pediatrics
 - Internal-Medicine Pediatrics
 - Pediatric Hospital Medicine
 - Pediatric Emergency Medicine
 - Neonatal-Perinatal Medicine
 - Pediatric Critical Care Medicine
 - Pediatric Endocrinology
- must not be at the same institution as any member of the RC-Peds at the time of appointment.
 - *Same-Institution Disqualification: Although the RC-Peds may have multiple members from the same state, they may not be from the same institution. Accordingly, individuals must not be nominated from the following institutions:*
 - UC Davis (Davis, CA)
 - Stanford University (Stanford, CA)
 - University of Colorado (Aurora, CO)
 - Advocate Children's Hospital (Park Ridge, IL)
 - Mayo Clinic (Rochester, MN)
 - Columbia University College of Physicians & Surgeons (Yonkers, NY)
 - Goryeb Children's Hospital-Atlantic Health System (Morristown, NJ)
 - University of North Carolina School of Medicine (Chapel Hill, NC)
 - Cincinnati Children's Hospital Medical Center (Cincinnati, OH)
 - University of Texas Health San Antonio (San Antonio, TX)
 - University of Washington/Seattle Children's (Seattle, WA)

The RC-Peds expects the AAP to consider diversity and inclusion when submitting its nominations.

My Plan Presentations

Friday, May 3



7:00 AM – 1:15 PM
ET

PAS Postgraduate Course: Hot Topics in Pediatric Bioethics
Location: Metro Toronto Convention Centre: 201 F
Jonathan M. Fanaroff, MD, JD (he/him/his) – UH Rainbow Babies & Children's Hospital / Case Western Reserve University School of Medicine; Naomi T. Lavalentha, MD, MA, FAAP, HEC-C (she/her/hers) – University of Michigan Medical School

7:00 AM – 1:30 PM
ET

PAS Postgraduate Course: Building a World Without NEC: A PAS Post-Graduate Course on Necrotizing Enterocolitis
Location: Metro Toronto Convention Centre: 201 BD
Camilia Martin, MD, MS (she/her/hers) – Weill Cornell Medicine; Ravi M. Patel, MD, MSc (he/him/his) – Emory University & Children's Healthcare of Atlanta

7:00 AM – 1:30 PM
ET

PAS Postgraduate Course: Neonatal Pulmonology: Bronchopulmonary Dysplasia - Back to Basics
Location: Metro Toronto Convention Centre: 205
Rita M. Ryan, MD (she/her/hers) – Case Western Reserve University; Vineet Bhandari, MD DM (he/him/his) – The Children's Regional Hospital at Cooper

7:00 AM – 1:30 PM
ET

PAS Postgraduate Course: What to do while you wait to hear "It's not the heart:" Hot Topics in Neonatal Cardiac Care
Location: Metro Toronto Convention Centre: 206 BD
Stephanie Ford, MD (she/her/hers) – Rainbow Babies and Children's Hospital, Case Western Reserve University School of Medicine

8:00 AM – 1:30 PM
ET

PAS Postgraduate Course: Perinatal Stroke
Location: Metro Toronto Convention Centre: 202
Emily WY Tam, MDCM, MAS, FRCPC (she/her/hers) – University of Toronto; Dawn Gano, MD MAS (she/her/hers) – University of California, San Francisco

9:00 AM – 1:30 PM
ET

PAS Postgraduate Course: Towards Enhanced Neonatal Hemodynamic Care in the NICU

Cardiac Corner: Supraventricular Tachycardia: Considerations for Neonatologists

Elizabeth Sherwin, MD; Ben Hopkins, OMS IV

We all know that the heart is the coolest organ, and electricity makes everything work. I am an electrical specialist called an electrophysiologist, and supraventricular tachycardia (SVT) is one of the most common arrhythmias in pediatrics, congenital heart disease, and adult medicine. SVT is very common and can happen in completely healthy kids who have structurally normal hearts and have no other medical conditions. Up to one in about 300 pediatric patients have this. SVT has many management options and can even be cured.

“Supraventricular tachycardia (SVT) is one of the most common arrhythmias in pediatrics, congenital heart disease, and adult medicine. SVT is very common and can happen in completely healthy kids who have structurally normal hearts and have no other medical conditions. Up to one in about 300 pediatric patients have this.”

SVT can occur at any age, from fetal to adult life. When it occurs, it depends on many factors; sometimes, it is random. In a neonate, recognition and management are important as they cannot tell you when they are in it, and many babies may show no signs or symptoms until they are very sick. They may appear comfortable in the early minutes and hours of the arrhythmia, but the longer they are in it, the more tired they will become. If in sustained SVT for 12–24 hours or more, they can develop severe ventricular dysfunction and tachycardia-induced cardiomyopathy. This will present as congestive heart failure with feeding intolerance, decreased urine output, respiratory distress, and lethargy. By the time they show those symptoms, they may be at high risk of hemodynamic collapse. We want to catch SVT early and prevent further complications.

Diagnosis. SVT is an umbrella term that covers all tachyarrhythmias that are not ventricular tachycardia or ventricular fibrillation. Reentrant types of SVT include accessory pathway-mediated tachycardia, AV nodal reentrant tachycardia (AVNRT), and atrial flutter. Automatic types of SVT include ectopic atrial tachycardia (EAT) and junctional ectopic tachycardia (JET). These mechanisms will behave differently and may require unique treatment considerations. To determine the type of SVT, we need to capture it on a monitor. This may be telemetry or a single-lead cardiac monitor, though the best way is to document it on a full 12-lead electrocardiogram (EKG or ECG). Evaluation of the P wave morphology, QRS morphology, and the relationship between the atrial and the ventricular contraction can confirm the diagnosis.

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We also examine the SVT behavior and characteristics over time: How did it start and stop? How long has it been going on? Is it a constant rate? Does it speed up and slow down? Is it irregular or regular?

“To determine the type of SVT, we need to capture it on a monitor. This may be telemetry or a single-lead cardiac monitor, though the best way is to document it on a full 12-lead electrocardiogram (EKG or ECG). Evaluation of the P wave morphology, QRS morphology, and the relationship between the atrial and the ventricular contraction can confirm the diagnosis. We also examine the SVT behavior and characteristics over time: How did it start and stop? How long has it been going on? Is it a constant rate? Does it speed up and slow down? Is it irregular or regular?”

Acute treatment. When we think about arrhythmia management, we think about two main treatment routes: 1) **rhythm control**, with termination of the arrhythmia and return to normal sinus rhythm, and 2) **rate control**, with slowing the ventricular or pulse rate to help with cardiac output. Ideally, we attempt rhythm control. If that takes time to achieve, then we add rate control to optimize cardiac output in the interim.

“When we think about arrhythmia management, we think about two main treatment routes: 1) rhythm control, with termination of the arrhythmia and return to normal sinus rhythm, and 2) rate control, with slowing the ventricular or pulse rate to help with cardiac output. Ideally, we attempt rhythm control. If that takes time to achieve, then we add rate control to optimize cardiac output in the interim.”

When most people use the term SVT, they are referring to atrioventricular reentrant tachycardia via an accessory pathway or dual AV nodal physiology. This is an arrhythmia with very sudden onset, fixed heart rate, and sudden termination, as it is a fixed electrical circuit between the atria and ventricles using the AV node. Thus, treatment aims to interrupt that circuit by pausing the AV node. An arrhythmia such as ectopic atrial tachycardia, where there is automaticity and cells are depolarizing spontaneously, is often in response to increased catecholamines. Stressors such as fever, infection, electrolyte imbalance, acidosis, or negative fluid balance can lead to automatic types of SVT, and the first line of treatment is to correct those issues. A more unique situation is atrial flutter. In a neonate, antiarrhythmic medications may be trialed, though DC cardioversion is often necessary and more efficient. This can be accomplished with light sedation/analgesia and low energy 0.5 joules/kg.

“For typical SVT, we start with Valsalva maneuvers to slow the AV nodal conduction. In an infant, the most common is holding a bag of ice over the nasal bridge for just a few seconds. Older maneuvers such as carotid massage or ocular pressure are not recommended.”

For typical SVT, we start with Valsalva maneuvers to slow the AV nodal conduction. In an infant, the most common is holding

a bag of ice over the nasal bridge for just a few seconds. Older maneuvers such as carotid massage or ocular pressure are not recommended. When Valsalva maneuvers are unsuccessful, or the infant is unstable, the first medication is adenosine, which can be both diagnostic and therapeutic. If adenosine stops the tachycardia, this SVT involves the AV node. If the adenosine stops the QRSs but P waves continue marching through, this confirms an atrial arrhythmia that is not dependent on the AV node. In that case, the adenosine only unmasks those P waves but does not stop the arrhythmia.

If SVT is refractory to Valsalva maneuvers and adenosine, the next step is to add an antiarrhythmic medication to help achieve and maintain sinus rhythm. Typically, this would be an IV medication that can be bolused and/or run over continuous infusion. Common options include amiodarone, beta blockers, digoxin, procainamide, and sotalol. Additional medications may also be helpful, including dexmedetomidine and ivabradine. The medication chosen will depend on patient comorbidities (if any), regional availability, provider preference, and institutional practice.

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Maintenance medications. There are a few clinical factors to consider when determining whether or not to start a medicine to maintain sinus rhythm after the initial SVT termination, including whether it was one episode that stopped on its own or if there are recurrent episodes. Was the SVT prolonged or difficult to break? How much did it affect the baby's overall health in the NICU? If the SVT was not hemodynamically significant and the episode brief or easy to break, then observation without chronic medications may be reasonable, particularly if the infant were expected to stay in the hospital and would have continued monitoring for a period of time. If the arrhythmia were prolonged, challenging, or refractory to basic treatments, we would want to treat and prevent recurrence. This may mean 6–12 months of treatment, occasionally longer. Lastly, we need to consider the family. Are they comfortable with medicines versus averse to medications? Do they feel comfortable monitoring for signs and symptoms at home? After discharge, will they be living in close proximity to an emergency room or be very far from care? Involving the family in decision-making is important.

After discharge, we can guide families on how to monitor for recurrence at home between cardiology outpatient visits. They can monitor to ensure babies do their regular jobs: breathe comfortably, feed well, make good urine, and gain weight. They are encouraged to call the cardiology team on call with any concerns. We may also teach them to listen to the heartbeat with

a stethoscope. I recommend not worrying about counting the heart rate but recognizing the cadence; if it is too fast to count, that is a sign of likely SVT. They might listen before diaper changes, which would be every few hours. Over time, they can spread this out to three times a day, twice a day, and then as needed. Those intermittent checks are beneficial in determining whether or not infants go home on medicine.

“After discharge, we can guide families on how to monitor for recurrence at home between cardiology outpatient visits. They can monitor to ensure babies do their regular jobs: breathe comfortably, feed well, make good urine, and gain weight.”

Additional therapies. Occasionally, SVT can be very refractory. A combination of two or three antiarrhythmic medications may be necessary to achieve rhythm control. This requires close monitoring with telemetry and frequent ECGs to monitor for toxicity. Ablation therapy via a catheter procedure is also a possibility. While this is typically reserved for children >15–20 kg, SVT ablation can be performed in full-term infants who fail medications. If an infant has developed cardiomyopathy secondary to SVT, then mechanical support with ECMO should be anticipated and available.

Pearls. As an electrophysiologist, I would like neonatologists to know a few things about SVT:

SVT is common and can be very stable in otherwise healthy infants, even for several hours. Prolonged and incessant SVT, however, can lead to tachycardia-induced cardiomyopathy.

When an arrhythmia is identified, do not worry about the exact diagnosis but focus on describing what you see. Is it fast or slow? Regular or irregular? Narrow or wide QRS complexes? Sustained or nonsustained? These descriptions quickly give a summary to a colleague or consulting cardiologist to help develop a differential diagnosis and treatment plan. So, do not be afraid or feel like you have to make the diagnosis; just describe what you see.

If SVT is the common AV reentrant tachycardia, it will be narrow, complex (usually), fast, and in a constant rhythm. With a narrow complex, regular tachycardia, adenosine is a low-risk and high-potential yield treatment.

If the SVT is irregular, it is not an AV reentrant; Valsalva maneuvers and adenosine are not recommended.

If adenosine pauses the QRS briefly and the arrhythmia recurs, the adenosine did its job—you do not need to give a higher dose. It has a very short half-life; giving a bigger dose does not make it last longer. Instead, we must reassess the mechanism of the SVT and do something else to keep the patient out of the arrhythmia. This often includes starting an oral or IV medication and then repeating adenosine with that medication on board.

Treatment sometimes involves a stepwise iteration, which will vary for each baby and by type of SVT. For some, complete rhythm control is achieved. For others, brief runs of ectopy may be persistent and tolerated. Do not be shy about asking cardiology questions about the goals of management.

Chronic medications are often recommended but not always required; a tailored approach is needed for each patient.

Antiarrhythmic medications, which may be compounded liquid for infants, can be dangerous if given incorrectly; ensure accurate and very clear dosing instructions.

If an infant is discharged on a medication, adjusting the times the medications are given before discharge to a schedule that fits their routine will help reduce stress and fatigue for the family.

Working together with cardiology as a team, understanding the rhythm, recommendations, and goals of care will reduce patient, family, and provider stress.

Many infants will have spontaneous resolution of their neonatal SVT in the first months to year of life. If it does not resolve spontaneously in childhood, ablation therapy can be curative. This is not expected to be a life-long heart problem.

Cardiology and the NICU are a team and should work closely together to manage neonatal arrhythmias.

Disclosure: The authors have no conflicts of interests to disclose.

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Fellows Column: New Alabama Immunity Ruling: A Step Forwards or a Step Backwards?

Allysa Lui, OMS III, Ani Galfayan, OMS III, Monica Desai, OMS III, Erik Bieniek, OMS III

“Following the Alabama Supreme Court ruling that IVF embryos should be considered children, three out of Alabama’s eight IVF clinics closed their doors, reducing the state’s clinic number by almost 50% (1, 4).”

Following the Alabama Supreme Court ruling that IVF embryos should be considered children, three out of Alabama’s eight IVF clinics closed their doors, reducing the state’s clinic number by almost 50% (1, 4). This resulted in public outcry as hopeful parents missed their window for IVF procedures, along with much discourse regarding personhood and when life begins. Subsequently, Alabama governor Kay Ivey signed a GOP proposed bill on March 6, SB 159, to protect IVF by “provid[ing] civil and criminal immunity for death or damage to an embryo to any individual or entity when providing or receiving services related to in vitro fertilization” (1). The new law protects providers from lawsuits for the damage or death to an embryo during IVF services, however, the manufacturers of IVF supplies can still be sued with damages capped to the price that was paid for the impacted cycle (1). Despite appearing to be a win for supporters of IVF on a superficial level, there are still many criticisms from the public and political parties.

The primary goal of this new law was to provide a quick path for the IVF clinics to reopen to resume services for couples seeking treatment, and with this in mind, they gave a broad-sweeping immunity to IVF clinics and doctors. While it was successful in getting two of the three fertility clinics to resume services, critics say this new law may have overstepped in its protection of the clinics by infringing on the rights of the patients (1). Democrats also criticized the lack of clarification on whether the embryo should be treated as a child under the Alabama law, and both Democrats and Republicans were concerned about the immunity rule leaving patients unprotected (1).

“The primary goal of this new law was to provide a quick path for the IVF clinics to reopen to resume services for couples seeking treatment, and with this in mind, they gave a broad-sweeping immunity to IVF clinics and doctors.”

Patient protection is imperative and warranted, given several incidents with IVF procedures and storage. Apart from the case that led to the current circumstances where a patient accessed and accidentally dropped a batch of embryos, there have also been lawsuits regarding couples who received switched embryos, defective products leading to unsuccessful fertilization, and freezer tank malfunctions (2, 5, 6). Within the US, clinics are required to report their data regarding patient success rates, but otherwise, there is generally no federal regulation for IVF clinics in terms of how they operate and function (3, 7). Although the American Society of Reproductive Medicine (ASRM) provides certification for the clinics, there is no legal requirement to do so, and about 10% of the IVF clinics in the US are currently uncertified (3, 7). In contrast, Britain is an example of a country where the government oversees most of the IVF process. The British government requires clinic licensure, manages the storage of embryos, and enforces a code of practice (3, 7). They also are more conservative with the number of implanted embryos as multiple birth pregnancies carry more risk (3, 7). Given the past IVF incidents that have already occurred in the US, combined with the lack of official governmental regulation, the primary protection for current and future patients is lawsuits, and legal immunity strips this away.

“Overall, it is crucial that doctors and clinics are held to a certain standard and that they can be held accountable for negligence or mistakes that can cost patients their only opportunity for healthy biological children. Nonetheless, having accountability does not indicate pursuing criminal charges against doctors and clinics. In these circumstances, everyone’s goal, whether the doctor, clinic, or patient, is to create a healthy pregnancy. In order to better accomplish this goal, the US government must take a more active role in regulating the products and processes related to IVF.”

Overall, it is crucial that doctors and clinics are held to a certain standard and that they can be held accountable for negligence or mistakes that can cost patients their only opportunity for healthy biological children. Nonetheless, having accountability does not indicate pursuing criminal charges against doctors and clinics. In these circumstances, everyone’s goal, whether the doctor, clinic, or patient, is to create a healthy pregnancy. In order to better accomplish this goal, the US government must take a more active role in regulating the products and processes related to IVF. Standardization and a central organization overseeing and regulating

the clinics, similar to IVF practices in Britain, would provide an overall safer experience for the patients and the embryos. Such practices might have prevented situations like the 2018 freezer malfunction in an Ohio fertility clinic that resulted in 4000 lost embryos, impacting almost 1000 patients (5). If federal standards required things such as criteria for freezers with regular recertifications, this could also clarify circumstances in which patients should have the right to pursue lawsuits for the negligence of a doctor or IVF clinic. Ultimately, this new law providing immunity is a mere stop-gap measure to reopen IVF clinics, and it does not come close to identifying the changes needed to provide a safer experience for patients while still allowing doctors and families to make informed decisions regarding their embryos collaboratively.

Resources:

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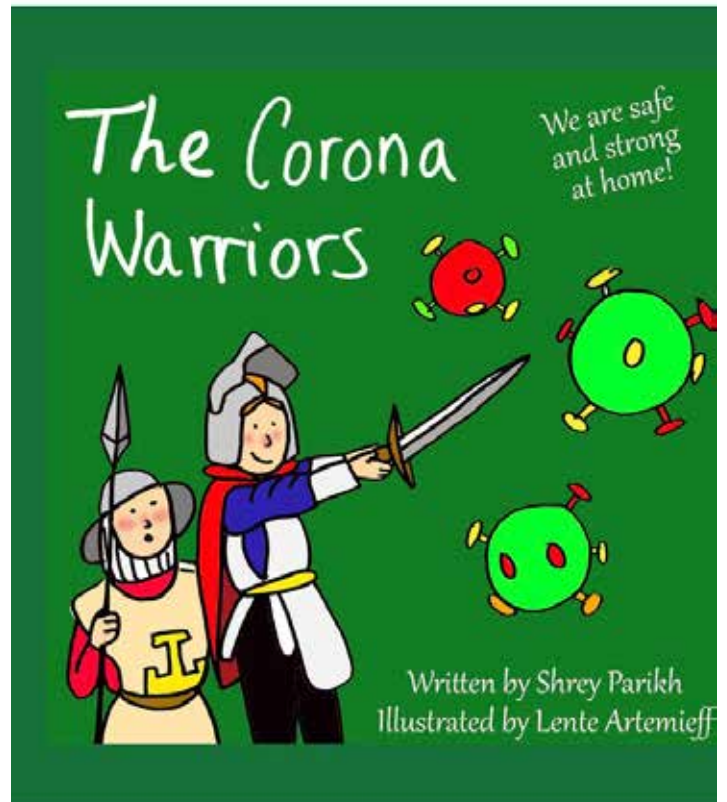
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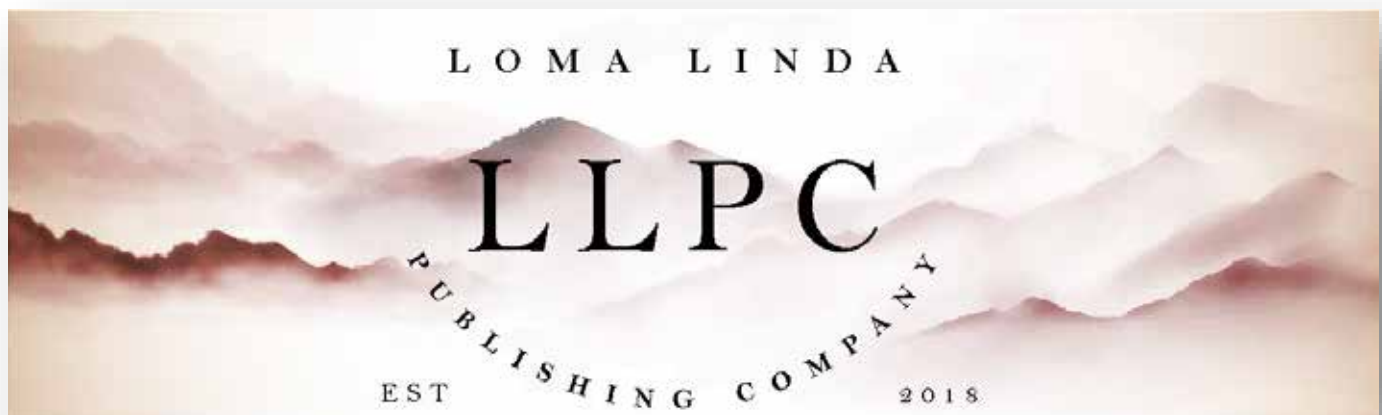
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Clinical Interventions: Should We or Shouldn't We?

Rob Graham, RRT, NRCF

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.

A clinical fellow I once worked with posted on "X" last week. The subject was inotropes and how one should consider the risks/benefits of each as well as the drug's suitability for the clinical picture. My reply was "Asking if the patient needs intervention is also prudent, IMO." She agreed. This started me thinking about the need (or lack thereof) for many things we do routinely without considering the necessity thereof.

"Asking if the patient needs intervention is also prudent, IMO."...This started me thinking about the need (or lack thereof) for many things we do routinely without considering the necessity thereof."

Infants are subjected to numerous clinical interventions during their stay in the NICU. While some of these are relatively benign, others involve significant risks associated with morbidity and mortality. Inotropes are a case in point. Premature infants who are treated with inotropes have a higher risk of a myriad of morbidities, including intraventricular hemorrhages (IVH), retinopathy of prematurity (ROP), necrotising enterocolitis (NEC), and chronic lung disease (CLD). They are also more likely to be mechanically ventilated and have a higher risk of mortality (1). It was noted that disease severity is significantly higher in these infants; thus, it is a fair question to ask, "How much is related to the need for

"Infants are subjected to numerous clinical interventions during their stay in the NICU. While some of these are relatively benign, others involve significant risks associated with morbidity and mortality."

inotropes c.f. their administration?". There is very little evidence and no consensus as to when inotropes should be used. Blood pressure alone may not be a reliable clinical indication for the need for pressors (2). Clearly, more research is needed.

Each intervention adds to the already considerable cost of a typical NICU stay. Many factors are involved when deciding to intervene in a baby's clinical condition; some are quite justifiable and supported by high-level evidence. Others, often driven by a "cover your ass" mindset, not so much.

"Each intervention adds to the already considerable cost of a typical NICU stay. Many factors are involved when deciding to intervene in a baby's clinical condition; some are quite justifiable and supported by high-level evidence. Others, often driven by a "cover your ass" mindset, not so much."

A classic example of the latter is the use of antimicrobials. When I started my career in the NICU, almost every infant admitted received antibiotics, very often driven by medical-legal concerns. Antibiotic stewardship now rules the day, and the use of antimicrobials and the duration of treatment with them has decreased dramatically. This is a good thing since, aside from contributing to antimicrobial resistance, their use has a downside, including microbiome alteration, increased length of stay, and an association with asthma, diabetes, and inflammatory bowel disease, to name a few (3).

"... aside from contributing to antimicrobial resistance, their use has a downside, including microbiome alteration, increased length of stay, and an association with asthma, diabetes, and inflammatory bowel disease, to name a few."

Transient tachypnea of the newborn (TTN) is another condition

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that lacks clear evidence of treatment options. It is very common for these infants to be placed on CPAP, but the evidence to support this practice is lacking and of low quality. CPAP may reduce the duration of TTN, but there are no significant differences in overall outcomes associated with its use (4). Furthermore, since TTN is generally self-limiting, watching and waiting may be quite acceptable, but providing oxygenation is also acceptable. When called to assess an otherwise well baby in the delivery suite, a nurse practitioner I work with would say, “You can listen to them grunt, or I can listen to them grunt.” One review article concluded, “There is insufficient evidence to establish the benefit and harms of non-invasive respiratory support in the management of transient tachypnea of the newborn. Though two of the included trials showed a shorter duration of tachypnea, clinically relevant outcomes did not differ amongst the groups. Given the limited and low quality of the evidence available, it was impossible to determine whether non-invasive respiratory support was safe or effective for the treatment of transient tachypnea of the newborn” (4).

“There is insufficient evidence to establish the benefit and harms of non-invasive respiratory support in the management of transient tachypnea of the newborn. Though two of the included trials showed a shorter duration of tachypnea, clinically relevant outcomes did not differ amongst the groups. Given the limited and low quality of the evidence available, it was impossible to determine whether non-invasive respiratory support was safe or effective for the treatment of transient tachypnea of the newborn”

Blood work may be the most routine procedure performed without thought. Diagnostic bloodletting is the most frequent reason necessitating blood transfusions (RBCT). It is not a benign thing, even with in situ access; RBCT in preterm infants has been linked to IVH, ROP, and NEC (5). The mechanisms behind these associations are unclear, and studies have yielded mixed results on the topic. Brain MRI at 12 years of age showed smaller brain size in those in the liberal transfusion arm of a study conducted in Iowa (5).

Withholding of feeds during RBCT has been shown to reduce the risk of transfusion-associated NEC. Since erythropoietin has been shown to be NEC-protective, and RBCT suppresses endogenous erythropoietin production, this may be one of many mechanisms that increase the risk of NEC. Nevertheless, the association with many RBCT-related morbidities remains unclear, and it is a continuing subject of study and controversy beyond this column’s purview (5).

If the reason for drawing blood is to satisfy idle curiosity, it should not be done. Another question to ask before doing blood work is whether or not the results will lead to clinical intervention. Blood gases are often ordered on an infant who is clinically stable “for

metabolic reasons.” Acetate is often added to TPN to buffer metabolic acidosis, but if the baby is not receiving TPN, there is little to be done if one exists, unless it is severe. If urine pH is 5, there is a good chance it will correct itself without intervention.

“RBCT in preterm infants has been linked to IVH, ROP, and NEC. The mechanisms behind these associations are unclear, and studies have yielded mixed results on the topic. Brain MRI at 12 years of age showed smaller brain size in those in the liberal transfusion arm of a study conducted in Iowa.”

There’s a saying: “If you’re looking for trouble, you’re going to find it.” Perhaps if one must actively seek trouble out, it is not really trouble. It is the practice in the unit in which I work to severely limit bloodletting on a baby whose parents are of Jehovah’s Witness (JW) faith. (Unofficially, we were the preferred NICU for JW parents). To my knowledge, these babies are none the worst for it. There is a good reason for the concerted and ongoing effort to reduce bloodletting.

Incubators are too often pathogenic reservoirs, even after “terminal” decontamination, and may play a significant role in the development of late-onset sepsis (6). Incubators are often recommended to be changed every seven days, but the evidence supporting this practice is sparse (7). Not so long ago, ventilator circuits were changed every 48 hours, representing a significant operational cost. This practice has been abandoned; circuits are often only changed if visibly soiled. The evidence did not support the changing of circuits, which is borne out by the fact that there has not been an explosion of ventilator-associated pneumonia since the practice was changed. (Circuit manufacturers continue to recommend weekly changes, a recommendation the evidence does not support.)

Incubator changes may be stressful to the infant, add to the caregiver’s workload, and undoubtedly reduce the lifespan of the incubator. We may not be able to eliminate incubator changes, but finding evidence to support current recommendations would be a good start. We may find that cleaning the incubator while occupied is as effective as changing it out, but that finding requires research.

Determining whether or not something is essential or non-essential is beneficial not just for the patient but also for the system tasked with their care. Money is king. Performing unnecessary tests, tasks, and procedures is akin to setting it alight.

“Determining whether or not something is essential or non-essential is beneficial not just for the patient but also for the system tasked with their care.”

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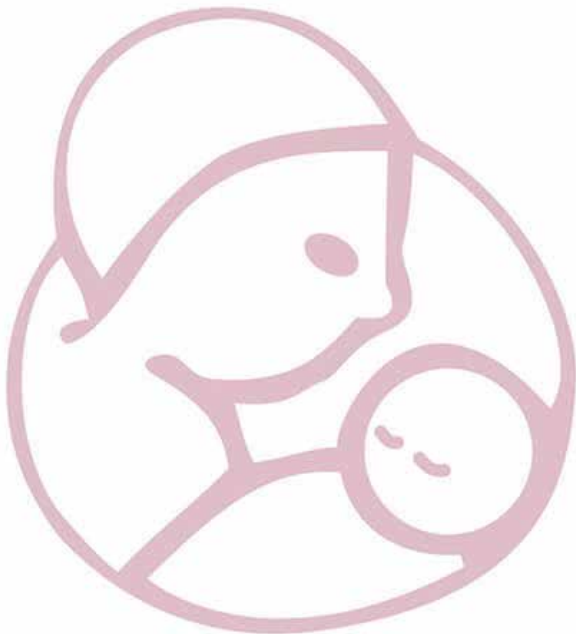
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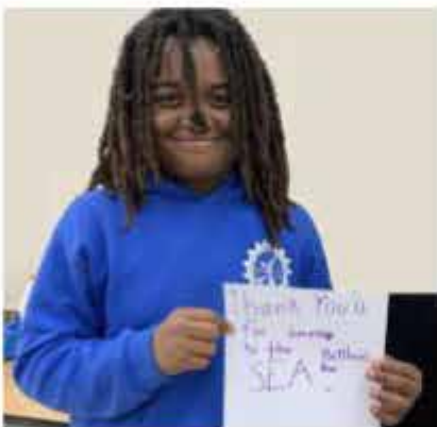
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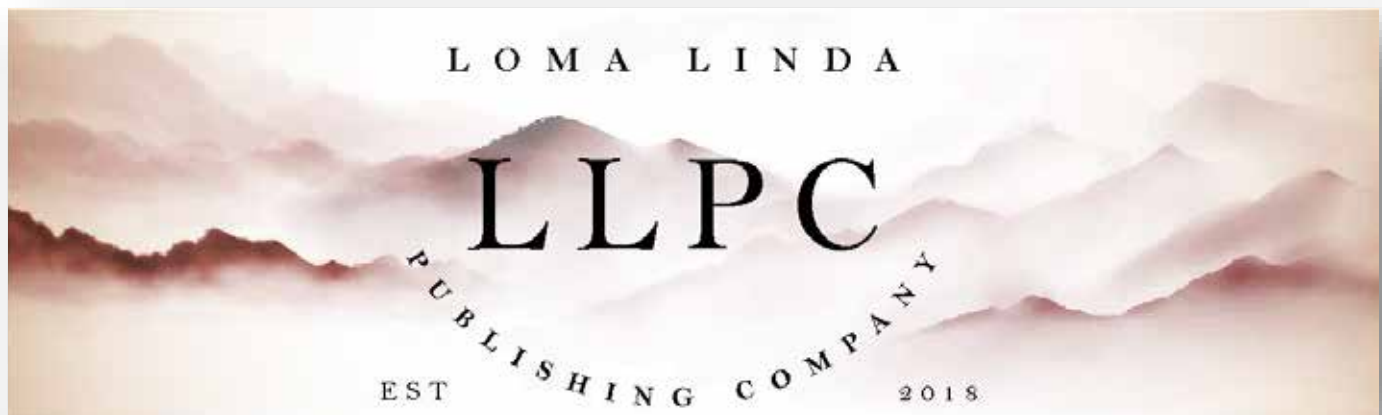
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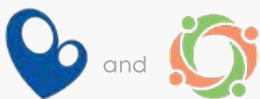
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Along with providing lunch and much-needed baby items such as diapers, strollers, car seats, infant feeding supports, and portable cribs, the program included a talk and Q&A session from Barb Himes, our Director of Education, about the importance of following safe sleep practices and the benefits of breastfeeding.



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“ We are grateful to the Guys for their commitment to helping families get the information, support, and resources they need and for allowing us to participate. As always, we are intent on listening and talking, and we appreciate the opportunity to talk with mothers and families. ”

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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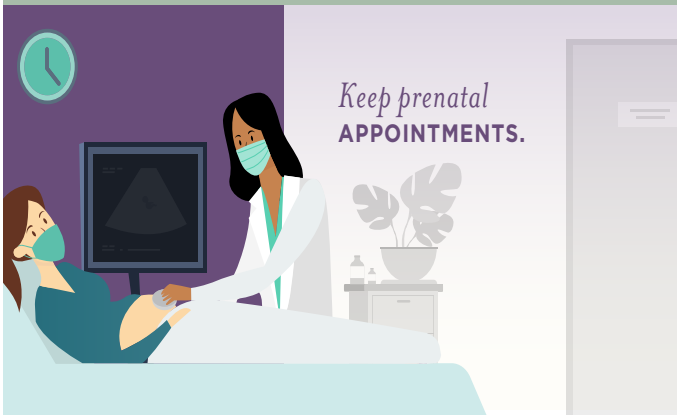
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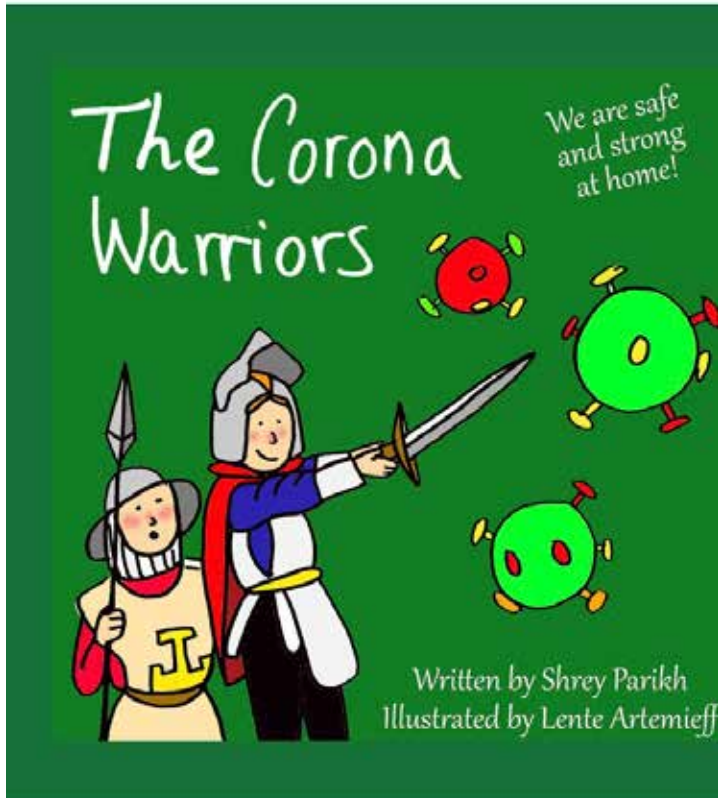
Raising Global Awareness of RSV

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.





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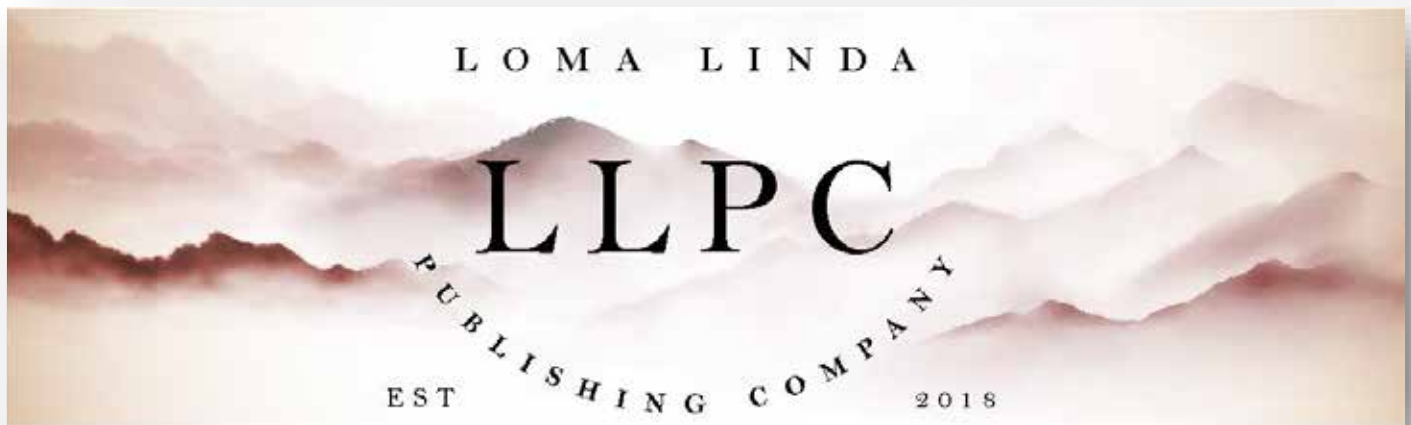
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August 9, 1996 - April 3, 2010



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!

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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.

Overcoming Obstacles to Diversity, Equity, and Inclusion in Neonatal Intensive Care Units

Mitchell Goldstein, MD, MBA, CML, Robert White, MD, Jochen Profit, MD, MPH

“In the delicate ecosystem of a Neonatal Intensive Care Unit (NICU), fostering developmental care for premature infants is paramount.”

In the delicate ecosystem of a Neonatal Intensive Care Unit (NICU), fostering developmental care for premature infants is paramount. However, the path to achieving this goal is riddled with obstacles stemming from social disadvantage and NICU provider's inability or unwillingness to mitigate these disadvantages. Challenges range from the consequences of inadequately met health-related social needs (1) (a new term favored over social determinants of health) to cultural differences, which present significant challenges to parents and healthcare providers.

One of the foremost obstacles lies in the unrealistic expectations placed on parents, often dictated by job demands, income levels, and lack of family support. Parents grappling with demanding jobs may struggle to devote adequate time and attention to their infants in the NICU, leading to feelings of guilt and inadequacy. Additionally, disparities in income levels may limit access to resources essential for optimal care (e.g., adequate transportation, work attendance requirements, and lack of sick/parental leave), exacerbating the stress experienced by these families. Furthermore, the absence of robust family support networks can compound these challenges, leaving parents feeling isolated and overwhelmed.

“One of the foremost obstacles lies in the unrealistic expectations placed on parents, often dictated by job demands, income levels, and lack of family support.”

Cultural and language differences can further complicate matters, particularly regarding relationship-building with parents from diverse backgrounds. Miscommunication or misunderstandings rooted in cultural differences may hinder effective collaboration between healthcare providers and parents, impeding the delivery of tailored developmental care. Families who do not speak English have much less opportunity to provide skin-to-skin care, even after adjusting for socioeconomic status and bedside presence (3). Unrealistic cultural expectations can exacerbate these tensions, perpetuating misunderstandings and inhibiting the formation of trust-based relationships essential for optimal neonatal care. Cultural mismatch between providers and patients can

exacerbate these disparities (4) due to lack of training, biases, and the absence of standardized approaches that ensure care is provided according to patient and family needs.

Transportation difficulties add another layer of complexity, particularly for parents residing in underserved communities or rural areas. Limited access to reliable transportation can hinder parents' regular bedside presence, disrupting crucial bonding opportunities and impeding their involvement in developmental care initiatives.

When arriving directly from work with grease or grime on their clothes, parents' physical appearance can also influence perceptions and interactions within the NICU environment. Stigmatization or judgment based on external appearances may undermine establishing a supportive and inclusive atmosphere, deterring parents from actively participating in their infants' care. Those identifying as fathers, in particular, may often feel ignored or unwelcome. In certain instances, fathers may be perceived as threatening and aggressive.

“Stigmatization or judgment based on external appearances may undermine establishing a supportive and inclusive atmosphere, deterring parents from actively participating in their infants' care.”

Moreover, socioeconomic disparities manifest starkly in instances where parents resort to sleeping in cars or on the streets due to financial constraints. Such dire circumstances compromise parental physical and mental well-being and pose significant barriers to consistent engagement in developmental care practices.

Childcare issues and visiting hour restrictions exacerbate parents' challenges, particularly those juggling multiple responsibilities. Limited access to childcare services can prevent parents from being physically present in the NICU, depriving infants and parents of vital bonding opportunities critical for optimal development. Similarly, restrictive visiting hours can impede parental involvement, hindering the implementation of developmental care strategies and exacerbating feelings of helplessness and exclusion.

Vigilant social workers, while well-intentioned, may inadvertently exacerbate disparities by focusing excessively on minor details that are easily rectifiable. In particular, this discomfort is felt by under-resourced families who often have a divergent and more negative view of social work support (5). Such disproportionate scrutiny can perpetuate feelings of inadequacy and exacerbate the stress experienced by already vulnerable families, undermining efforts to foster a supportive and inclusive environment within the NICU.

Furthermore, preconceived notions held by physicians and other

care providers regarding families' ability to engage in developmental care support can perpetuate disparities. Biases rooted in socioeconomic status or cultural background may result in differential treatment, depriving marginalized families of equitable access to essential resources and support services.

"In conclusion, promoting health equity in the NICU is complex and requires an individualized, multifaceted approach that acknowledges and addresses the complex interplay of socioeconomic, cultural, and systemic factors and provider biases (5, 6)."

In conclusion, promoting health equity in the NICU is complex and requires an individualized, multifaceted approach that acknowledges and addresses the complex interplay of socioeconomic, cultural, and systemic factors and provider biases (5, 6). Such an endeavor requires sustained financial and human resource investments by NICUs to address health-related social needs, educate providers, and promote standardized family-centered care principles. In addition, by fostering a culture of empathy, understanding, and inclusivity, healthcare providers can create an environment conducive to optimal neonatal development, ensuring that every infant receives the care and support they need to thrive, regardless of their background or circumstances.

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National Coalition for Infant Health: Respiratory Syncytial Virus Prevention Options

Susan Hepworth, Mitchell Goldstein, MD, MBA, CML

The National Coalition for Infant Health (NCfIH) is pleased to release its RSV presentation options fact sheet. The document provides information on RSV prevention options for infants. It lists the three current options: ABRYSVO (RSV preF vaccine), BEYFORTUS (Nirsevimab), and SYNAGIS (Palivizumab). These options aim to prevent respiratory syncytial virus (RSV) infections in infants, which can be severe and potentially life-threatening. It is essential to follow the FDA indication for these products as this represents the best evidence-based guidance for administration.

“These options aim to prevent respiratory syncytial virus (RSV) infections in infants, which can be severe and potentially life-threatening. It is essential to follow the FDA indication for these products as this represents the best evidence-based guidance for administration.”

The first option, ABRYSVO, is approved for pregnant women to protect their infants. It is administered during the 32nd to 36th week of pregnancy at a healthcare provider’s office or pharmacy. ABRYSVO comes in a 3-component kit that requires reconstitution. Further details about ABRYSVO can be found by clicking on the link provided in the document. (1)

“The first option, ABRYSVO, is approved for pregnant women to protect their infants. It is administered during the 32nd to 36th week of pregnancy at a healthcare provider’s office or pharmacy.”

“The second option, BEYFORTUS, is approved for all infants born during or entering their first RSV season, as well as children up to 24 months of age who remain at risk of severe RSV disease through their second RSV season.”

The second option, BEYFORTUS, is approved for all infants born during or entering their first RSV season, as well as children up to 24 months of age who remain at risk of severe RSV disease through their second RSV season. BEYFORTUS can be administered in the hospital after birth before discharge or in a pediatrician’s office. It is available in pre-filled syringes of 50 mg and 100 mg. More information about BEYFORTUS can be obtained by clicking on the link. (1)

“The third option, SYNAGIS, is approved explicitly for infants born preterm (< 36 weeks) and who are six months or younger at the beginning of the RSV season. It is also approved for infants with underlying health conditions like bronchopulmonary dysplasia (BPD) or congenital heart disease (CHD) who are 24 months or younger at the beginning of the RSV season.”

The third option, SYNAGIS, is approved explicitly for infants born preterm (< 36 weeks) and who are six months or younger at the beginning of the RSV season. It is also approved for infants with underlying health conditions like bronchopulmonary dysplasia (BPD) or congenital heart disease (CHD) who are 24 months or younger at the beginning of the RSV season. SYNAGIS is administered prior to the start of the RSV season, and the remaining doses are given monthly throughout the season. It is supplied in single-dose liquid solution vials of 50 mg per 0.5 mL and 100 mg per 1 mL. Additional information about SYNAGIS can be found by clicking on the link. (1)

It is important to note that this document does not provide medical advice. It is intended for reference and informational purposes only. The information and internet links provided are for general informational purposes and should not be used for diagnosing or treating a health problem or disease. Individuals seeking medical advice should consult a licensed physician or other healthcare professional.

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RSV Prevention Options for Infants

APRIL 2024

	Maternal Vaccine	Infant Preventive Monoclonal Antibody	Infant Preventive Monoclonal Antibody
Name:	ABRYSVO (RSV preF vaccine)	BEYFORTUS (Nirsevimab)	SYNAGIS (Palivizumab)
Approved for:	Pregnant women for the protection of infants	All infants born during or entering their first RSV season AND Children up to 24 months of age who remain at risk of severe RSV disease through their second RSV season	Infants born preterm (≤ 35 weeks) and who are 6 months or younger at the beginning of RSV season OR Infants with underlying health conditions like BPD or CHD and who are 24 months or younger at the beginning of RSV season
Administered:	During 32 weeks through 36 weeks and 6 days of pregnancy at a health care provider's office or pharmacy	In the hospital after birth before discharge OR In a pediatrician's office	Prior to the start of the RSV season with remaining doses administered monthly throughout the RSV season
How supplied:	3-component kit that requires reconstitution	Pre-filled syringe: 50 mg and 100 mg	Single-dose liquid solution vials: 50 mg per 0.5 mL and 100 mg per 1 mL
More details:	LEARN MORE	LEARN MORE	LEARN MORE

This Document Does Not Provide Medical Advice.

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Three options for RSV prevention in infants, ABRYSSVO, BEY-FORTUS, and SYNAGIS, are presented. Each option has specific approval criteria and administration instructions. The optimal prevention strategy is patient-specific and should be made in coordination with a healthcare professional.

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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.

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

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

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cod

catfish

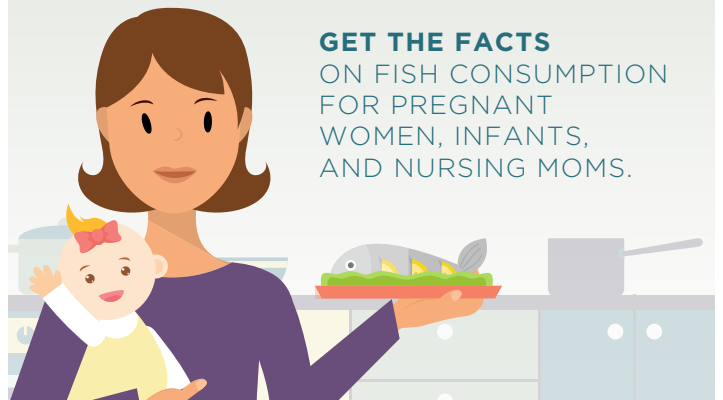
salmon

pollock

tilapia

But **mixed messages** from the media and regulatory agencies cause pregnant women to sacrifice those benefits by eating less fish than recommended.

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Coding: Clinical Documentation, Part I: The Importance of Clinical Documentation and Common Errors

Scott D. Duncan, MD, MHA

The SONPM Coding Committee recently presented a Coding Workshop and a Deep Dive into Coding at the 2024 Perinatal Practice Strategies meeting in Scottsdale, March 22-24. Upon reflection of the content presented at that meeting and coupled with a recent flurry of payment denials, one of the most critical elements in successful coding and billing is clinical documentation. This is the first of a two-part series emphasizing the importance of clinical documentation and reviewing common errors.

Simply stated, clinical documentation matters. As seen in Figure 1, clinical documentation impacts revenue for both the clinician and the facility. On the clinician side, appropriate documentation supports proper ICD-10 diagnosis coding and subsequent CPT coding to support reporting of medical evaluation and management services, as well as surgical, radiology, laboratory, genomic sequencing, etc. On the facility side, proper documentation supports facility billing. In the example of DRG billing, medical documentation supports proper ICD-10 diagnosis coding and the subsequent DRG classification, impacting facility revenue.

“On the clinician side, appropriate documentation supports proper ICD-10 diagnosis coding and subsequent CPT coding to support reporting of medical evaluation and management services, as well as surgical, radiology, laboratory, genomic sequencing, etc. On the facility side, proper documentation supports facility billing. In the example of DRG billing, medical documentation supports proper ICD-10 diagnosis coding and the subsequent DRG classification, impacting facility revenue.”

Errors in clinical documentation abound. The style and format of documentation may differ between EMRs and NICUs. In reviewing clinical documentation, consider the following:

- Is the documentation *consistent*?
- Is the documentation *complete*?
- Is the documentation *specific/precise*?
- Is the documentation *compliant*?
- Is the documentation *non-conflicting*?
- Does the documentation *“tell the story” and interpret the data*?

Common clinical documentation errors include:

- Combined APP and MD notes,
- PATH notes,
- Discharge day and time,
- Time-based critical care services,
- Copy forward functionality and
- Documentation discrepancies.

Advanced practitioner provider (APP) and physician collaboration in the NICU are widespread and acceptable practices. For clinical documentation, one daily note may be generated; if the physician intends to render the service and bill, the physician should provide original documentation. This can be a supplement to the NP note or a stand-alone note. This is not akin to “split-shared” services, which do not apply to the standard global critical care or intensive care codes. The content of this original physician documentation depends on the patient’s clinical status and can range from brief statements to full paragraphs, but it should demonstrate the physician’s evaluation of the patient, medical decision making, and plan formation. Ultimately, the note should demonstrate that the physician was responsible for the patient’s care. Signatures are required of the rendering/billing physician.

“The content of this original physician documentation depends on the patient’s clinical status and can range from brief statements to full paragraphs, but it should demonstrate the physician’s evaluation of the patient, medical decision making, and plan formation. Ultimately, the note should demonstrate that the physician was responsible for the patient’s care. Signatures are required of the rendering/billing physician.”

To support billing for an E/M service that involves a resident, the teaching physician must be present during the key or critical portions of the service. Documentation requires that the teaching physician:

- was present during the key/critical portions of the service, and
- participated in the management of the patient.

The teaching physician should document any key/critical part of the service personally performed, link their documentation back to the resident’s note, and document that the care plan was reviewed and approved. The attestation should delineate the need

for critical care and/or intensive care services.

When a patient is discharged home, E/M services provided on that date by the discharging clinician are reported with one of two Hospital Discharge Day Management codes:

- 99238 Hospital discharge day management; 30 minutes or less,
- 99239 Hospital discharge day management; more than 30 minutes.

These codes report all services provided to a patient on the date of discharge. Time spent must be documented in the medical record to report 99239; if not documented, the code defaults to 99238. The actual time is preferred (vs. stating > 30 minutes). Discharge documentation includes:

- Discharge Diagnosis,
- Final examination of the patient,
- Review of the hospital stay,
- Instructions for continuing care to all relevant caregivers and
- Preparation of discharge records, prescriptions, and referral forms.

When a critical patient is transferred to another facility with a different neonatology group, the transferring physician reports their services for that date with time-based critical care codes. Time-based critical care codes are also appropriate when providing critical care consulting services. Documenting total critical care time in the daily note is essential to supporting these codes:

“When a critical patient is transferred to another facility with a different neonatology group, the transferring physician reports their services for that date with time-based critical care codes. Time-based critical care codes are also appropriate when providing critical care consulting services. Documenting total critical care time in the daily note is essential to supporting these codes:”

- **99291** Critical care, evaluation, and management of the critically ill or critically injured patient; first 30-74 minutes.
- **+ 99292** Each additional 30 minutes.

The document should include the total time in the medical record, which must be specific to the patient. The practitioner can not care for any other patient during the reported time. Time does not include time spent outside the unit or floor, nor can time spent performing procedures be reported. Unbundled procedures may be reported separately. Time less than 30 minutes total duration should be reported with the appropriate hospital care E/M code.

The medical record should accurately reflect the patient’s current clinical status and care plan. If using the copy functionality, **read, review, and edit**. Carefully read and edit the note to ensure the

entries are contemporaneous, relevant, accurate, and consistent. Even when the patient has no significant clinical changes, personalize the phrasing daily to reflect the provider’s contribution and reduce inconsistency/inaccuracy. By signing the note, the provider acknowledges responsibility for the entire content for that service date.

Eliminate discrepancies within the medical record. Again, **read, review, and edit**. The following are examples of common documentation discrepancies that impact the quality of documentation and possibly the coding levels:

- One mode of respiratory support (ex., CPAP) is listed in an area of note, and a different mode (ex., room air) is listed in another area,
- Respiratory support was documented, but no respiratory diagnosis was documented,
- Apnea is listed, but there is no detail to support the current status, such as the number of episodes, interventions, patient stability, etc.
- Presence/absence of supportive lines and devices, including the need for ETT, NG tubes, PICC lines, PIV, umbilical lines, isolette, etc.

“Proper documentation is everyone’s responsibility. Inaccurate documentation can impact patient care, quality metrics, administrative databases, and perceived patient complexity. Improper or poor documentation can result in adverse patient outcomes, communication gaps, revenue loss, and incorrect case-mix indexes. Part II will focus on Clinical Documentation Improvement (CDI) programs.”

Proper documentation is everyone’s responsibility. Inaccurate documentation can impact patient care, quality metrics, administrative databases, and perceived patient complexity. Improper or poor documentation can result in adverse patient outcomes, communication gaps, revenue loss, and incorrect case-mix indexes. Part II will focus on Clinical Documentation Improvement (CDI) programs.

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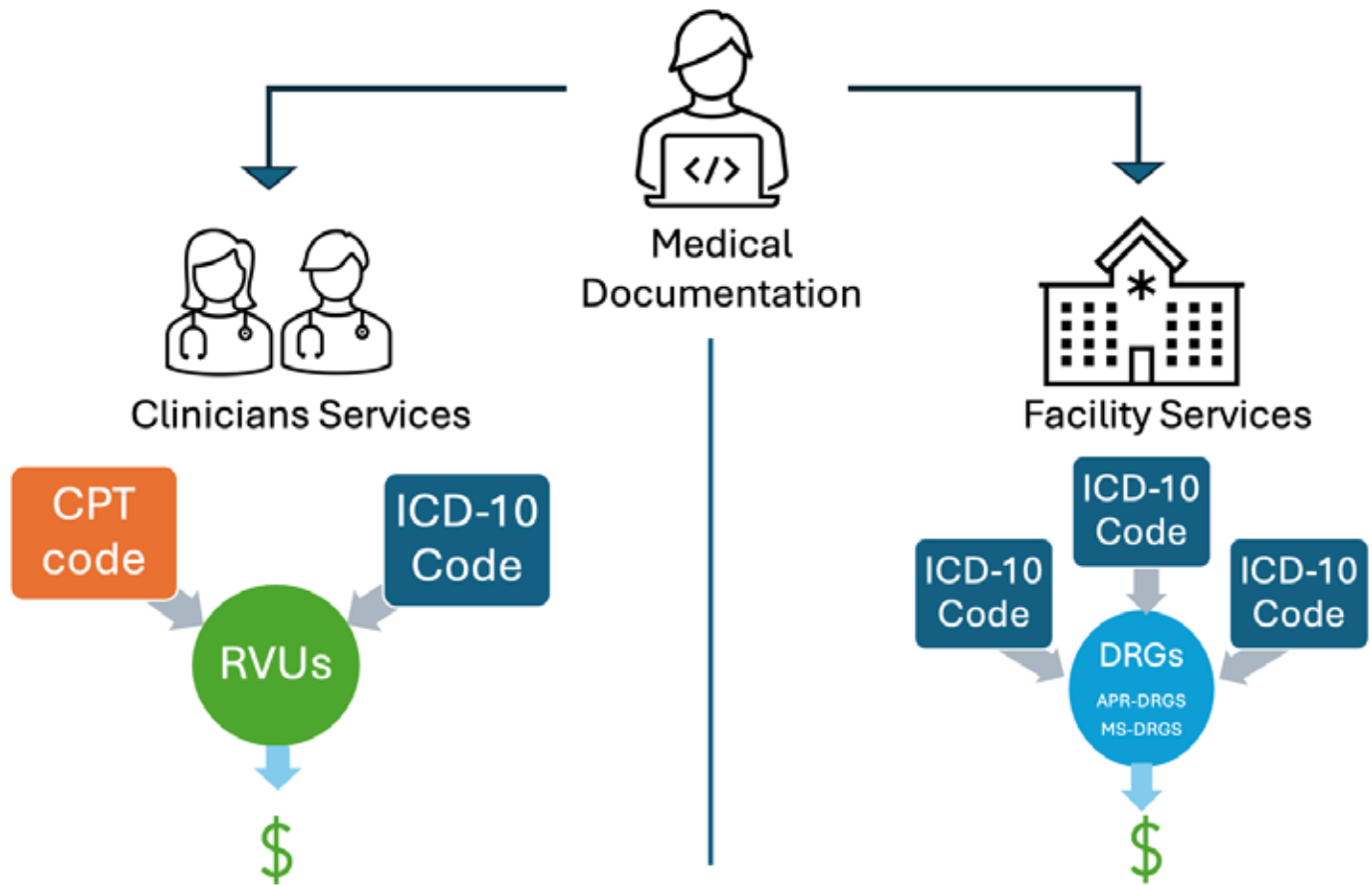


Figure 1: Medical Documentation Impact on Clinician and Facility Revenue. (used with permission of Kate Stanley, MD)

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Disclosures: Dr. Scott Duncan is a Fellow of the American Academy of Pediatrics and a member of the Coding Committee of the Section on Neonatal-Perinatal Medicine.

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- E**VALUATE THE DECISION



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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**



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Fragile Infant Forums for Implementation of IFCDC Standards: Research-Based Often Means Something Different to You, Colleagues, and Parents: Using IFCDC and Other Evidence-Based Guidelines and Literature Search Strategies to Substantiate (or not) Products and Interventions in Intensive Care

Kathleen Kolberg, Ph.D.; Joy Browne, Ph.D., PCNS, IMH-E



The challenge:

According to its studies, a company comes to your unit to promote a smart vibrating bassinet that reduces crying. They point out that some patients have approved this bed as a health benefit. Does your unit want to adopt these beds and endorse this sleep methodology?

How can you prepare to respond when parents present challenges to research or describe something as research-based, but you have doubts?

At a discharge session, a patient's family shows you their weighted sleeper, given by a friend who said this calmed her fussy baby. She points to the webpage that says research supports the use of this product.

Another parent shows you a best-selling book on data-based parenting and says there is insufficient data for most breastfeeding benefits since there is only one randomized controlled trial. The same book questions antibiotic eye cream after birth.

A popular bassinet sells a hammock-like insert where the center

of the baby's back touches the mattress and states this follows the AAP Safe Sleep Guidelines.

Quilted sleepers sold widely keep infants' limbs in extension to avoid kicking and scratching their face and head, and they purport this leads to longer, calmer sleep.

Countless social media videos promote swaddling with arms extended and tightly bound as superior to flexed with hands near the face.

Introduction: Evidence-based practice:

The first example of adopting devices as a unit is a more deliberate process that can and should take time to review the evidence carefully. Generally, an interdisciplinary committee in the unit performs the task of methodically reviewing devices or procedure changes. Many currently used products and procedures, assumed to enhance or support babies' development, do not have strong evidence to support their use in intensive care. Additionally, there may be a lack of rigorous review of the benefits and/or detrimental effects resulting from the use of these products or procedures.

Professionals and parents often incorporate caregiving interventions and products to support the comfort and development of babies in intensive care. Often, professional practices are implemented as typically accepted as represented by "the way we do things around here" rather than by evidence-based protocols. Well-meaning professionals are often the target of product marketing or adherence to unit culturally accepted norms. To support babies' comfort and developmental needs, professionals often incorporate materials and products into caregiving that may not have rigorous empirical support or are inappropriate for use with fragile babies.

"To support babies' comfort and developmental needs, professionals often incorporate materials and products into caregiving that may not have rigorous empirical support or are inappropriate for use with fragile babies."

Guidelines from professional organizations and practice review groups can be the most rapid path to well-vetted information. As more evidence supports Infant- and Family-Centered

Developmental Care (IFCDC) care practices, changes and updates of practices and protocols have become necessary. A rigorous review process examining the quality of evidence can result in interprofessional consensus about what constitutes the best evidence-based caregiving. However, the quality of evidence is often mixed, and there can be disagreements about how high a level of evidence is needed to support a practice. While it can be difficult and time-consuming, the impact on the babies and families and the reputation of IFCDC practices make the process worthwhile.

“As more evidence supports Infant- and Family-Centered Developmental Care (IFCDC) care practices, changes and updates of practices and protocols have become necessary.”

Examining the evidence for evidence-based interprofessional clinical practice:

Careful examination of the evidence begins with a search of the literature: collecting any current guidelines from professional organizations, like the National Association of Neonatal Nurses, the European Foundation for the Care of Newborn Infants (EFCNI), and the American Academy of Pediatrics (AAP), can jump-start the work. The Gravens Conference on the Environment of Care for High-Risk Newborns and their Families is the parent organization for two committees that provide recommended standards based on the review of evidence (1). The Consensus Committee on Recommended Design Standards for Advanced Neonatal Care recently released its 10th edition of the Recommended Standards for Newborn ICU Design (2, 1). The Consensus Committee of the Standards, Competencies, and Best Practices for IFCDC in the Intensive Care Unit is in the midst of a multi-year review of evidence for its second edition of the developmental care standards (3). The committee uses strategies based on the Oxford Centre for Evidence-Based Medicine to guide their search and assessment (4).

“Careful examination of the evidence begins with a search of the literature: collecting any current guidelines from professional organizations, like the National Association of Neonatal Nurses, the European Foundation for the Care of Newborn Infants (EFCNI), and the American Academy of Pediatrics (AAP), can jump-start the work.”

Guidelines from these various committees are updated every few years, so an intensive care unit-based committee must examine what evidence has emerged since the last update of a pertinent guideline or examine the research for which no guideline exists. The work will mirror those of the example guidelines committees.

In gathering journal articles, use Population, Intervention, Comparator, and Outcomes (PICO) questions to drive that search (4). Search terms or filters can focus and improve the yield, as the first papers might need to lead to more detailed searches. Errors in this step often involve poor search terms. The most important part of the work for a NICU population is the P in PICO: Population. Infants, especially premature infants, are not young children or small adults, so literature outside the age range cannot answer questions; it only raises them. For example, using weighted blankets in adults does not mean they are safe and effective for infants; only research on infants can tell us that.

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Intervention is another area of concern. Does the intervention used in the study represent how a device or practice would occur in the hospital or at home after discharge? For example, the independent randomized cross-over study of weighted sleepers involved 16 infants being treated for Neonatal Abstinence Syndrome (NAS) (Population) for 30-minute intervals (Intervention) (5) and showed more prolonged periods of stable sleep. The conclusion was valid for treating babies with NAS with short-term use of a weighted blanket. However, others then generalized the study to say that weighted sleepers were safe for hours-long unmonitored sleep for other populations of babies not indicated by the study.

“Intervention is another area of concern. Does the intervention used in the study represent how a device or practice would occur in the hospital or at home after discharge?”

Once articles are collected on a given topic, they need to be further assessed for bias, design, and level of evidence.

Examining for bias:

The Cochrane Group forms committees that produce high-quality

systematic evidence reviews on various healthcare practices. They have developed a standard of examination of bias that is rigorous yet time-consuming (6). They recognize that many biases are built into the design, such as attrition bias, participation bias, and outcome reporting, such as observer bias, when a study cannot be blinded. The Center for Evidence-Based Medicine (CEBM) also provides appraisal tools for assessing articles (4).

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The most obvious bias is from private industry studies or industry-funded studies, which are at risk for higher efficacy ratings and lower risk (7). These deserve careful examination before being included in the evidence.

One shortcut often used is to look at how many times other reputable authors cite a paper, as it indicates how many others judged it worthy of including in their study. Caution is paramount when using this technique, as often, citing leads to repeated citing. The assumption could be that if it was cited as a good study for one study, it may be appropriate for another. A broad review of a subject across multiple centers and by multiple disciplines protects against bias.

“Design flaws can also stem from an inappropriate or misguided understanding of outcome selection. The question that should be asked is ‘Is this study measuring what they think they are measuring?’”

Design flaws can also stem from an inappropriate or misguided understanding of outcome selection. The question that should be asked is “Is this study measuring what they think they are measuring?” For example, an intervention that quiets a baby or increases the length of sleep may not measure aspects of

sleep that have been identified as essential to a baby’s growth and development. Quiet, indeterminate, and active sleep have different qualitative benefits and risk factors. So, interventions that only focus on the length of sleep could miss the essential benefit of protecting the various components of sleep. However, several low- to high-cost interventions have been adopted based on sleep time. Although sleep is vital to neuronal development (8), a question might be: “How will an intervention affect long-term developmental outcomes”?

For example, at one time, prone sleeping was considered an optimal position for babies’ sleep as it led to fewer arousals and better oxygenation. Positioning babies prone in the hospital showed parents that the position was appropriate even after discharge. Evidence later determined that prone sleeping was a significant risk for Sudden Unexplained Infant Deaths (SUID). Since NICU graduates are especially at risk for SUID under the Triple Risk model (9), they should be transitioned to supine sleeping before discharge for obvious reasons, including demonstrating to parents how their baby should be put down for sleep. Results of these more recent findings indicate that long-term outcomes should be considered in the design of studies as longer durations of deeper sleep are less safe for babies. Any intervention around sleep should be examined for more outcomes than just length of sleep and fewer arousals.

Assigning evidence levels:

Leveling evidence is thought to be the easiest step in the process, as there are several acceptable templates to make those determinations. Studies that reduce observer or selection bias are blinded Multicenter Randomized Controlled Trials (RCTs), representing the “gold standard.” Evidence derived from blinded RCTs leads us to have higher confidence in the intervention and are assigned strength of intervention “Level A” by the CEBM scale. Those looking for good evidence are often alarmed by how few RCTs are possible or available outside of drug trials or pain intervention protocols.

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Due to the ethics of design or looking at rare conditions, the

best evidence is often from cohort, cross-sectional, or case-control studies. Random assignment of babies to sleep in prone vs. supine or breastfeeding vs. formula feeding cannot be done for obvious reasons. However, numerous large cohort studies support breastfeeding, and supine sleep is trusted as CEBM “Level B.” When ethical standards prevent RCTs, Level B strength of intervention confidence is as high as we can obtain. Case series produce CEBM Level C, and Level D is assigned to expert opinion, physiology, and extrapolation of bench research.

“Due to the ethics of design or looking at rare conditions, the best evidence is often from cohort, cross-sectional, or case-control studies...When ethical standards prevent RCTs, Level B strength of intervention confidence is as high as we can obtain.”

Current popular practices and marketing of products and procedures:

The other situations presented at the top of the article do not give us the time for careful interdisciplinary unit review. Consumer product marketing and social media experts present challenges that are either clearly against guidelines or go against the evolution of care we have come to practice. Social norms are often discordant with AAP recommendations. Products and interventions for babies are marketed in professional and lay literature and, more recently, by social media such as TikTok/Instagram.

For example, a review of 1563 Instagram images of sleeping infants or information about infant sleep showed that only 117 were consistent with AAP sleep recommendations (10), and “Likes” were not associated with safe sleep.

Social media influencers often promote products and practices with little or no evidence of having a research base. Other commercial enterprises and marketing strategies often cite a research basis that would not meet standard review guidelines. Conversely, popular literature and best-selling books often dispute accepted evidence-based practices because they do not have RCTs to support their claims. These conflicting perspectives make decisions on best practices difficult. Responding to these popular social influences is essential but can be challenging.

“Social media influencers often promote products and practices with little or no evidence of having a research base. Other commercial enterprises and marketing strategies often cite a research basis that would not meet standard review guidelines.”

Being available on the market and approved by the Consumer Products Safety Commission (CPSC) is not a complete indicator of safety or positive for infant development, even though families assume this is the case. The use of readily available products for infants has a history that merits concern (11). For example, until the Safe Sleep for Babies Act (Public Law No: 117-126) was passed in 2022, inclined sleepers and crib bumpers were legal to market despite AAP guidelines expressly reporting their danger (12, 13, 14, 15). As this legislation points out, AAP guidelines are not necessarily immediately incorporated into CPSC checklists, as hearings or specific guidance from the law are required to add restrictions. The CPSC approvals concern important matters like lead-based paint, flammability, strangulation risk, load, and spacing of rigid support, among others. They only recently added the prohibition of crib bumpers and more than a 10-degree incline in sleepers, even though these have been flagged as dangerous for a decade by AAP sleep guidance.

“Being available on the market and approved by the Consumer Products Safety Commission (CPSC) is not a complete indicator of safety or positive for infant development, even though families assume this is the case. The use of readily available products for infants has a history that merits concern. For example, until the Safe Sleep for Babies Act (Public Law No: 117-126) was passed in 2022, inclined sleepers and crib bumpers were legal to market despite AAP guidelines expressly reporting their danger.”

For example, while the AAP has warned explicitly against weighted blankets, swaddles, sleepers, or devices for infants in the 2022 update of Recommendations for Reducing Infant Deaths in the Sleep Environment (12), these products are still on the market. The AAP asked the CPSC to remove these products a year after the 2022 guidelines (16). The CPSC then placed guidance about weighted sleepers on their website but has not prohibited their sale or manufacture or created a recall of infant weighted sleepers.

Products and caregiving norms that parents typically use in their communities may be appropriate for older infants, yet often, those products or interventions are not appropriate for babies in intensive care. Parents may try to provide their hospitalized baby with products or caregiving strategies meant for older children. When patients bring issues up regarding the product or caregiving strategy they wish to use, countering with high-quality evidence at the moment is a more significant challenge. Parents often do not have the background to understand the need for rigorous review before use with babies in intensive care.

“Products and caregiving norms that parents typically use in their communities may be appropriate for older infants, yet often, those products or interventions are not appropriate for babies in intensive care.”

Challenges from best-selling books downplay evidence-based medicine that are not based on RCTs. For example, often more highly educated parents who peruse available print information question breastfeeding benefits, having the baby sleep in the same room for six months, ophthalmic antibiotics, treating for jaundice, alcohol consumption during pregnancy and breastfeeding, and more (17). Looking for the best evidence is a positive attribute of these books, but some of the conclusions go against our best practices. Professionals must be prepared to explain carefully about evidence from cohort studies and risk-benefit determination for any practice.

A reliance on knowledge of physiology and personal experience often guides professional practice. An awareness of published studies that could resolve issues raised in social media and popular books could be beneficial. Many studies pertain to positions and positioning aids for use with premature infants under various conditions (see review by Yang, Fu & Zhang, 18), but as Fletcher et al. (19) pointed out in a survey of their unit, the details of proper flexed positioning for newborns in swaddle lack specific medical guidelines. A perusal of social media and commercial sites shows that the popular method is to lock arms in extension rather than flex arms with hands toward the mouth position, often recommended by therapists, orthopedists, and nurses. Large high-quality studies about term infant positioning in swaddles are not as available, so professional experience and expert opinion contribute to advice on swaddling as families transition to home. At times, as stated in many of the IFCDC guidelines, evidence is insufficient to determine safety and benefit, like the quilted sleepers, side-car bassinets, or flat-backed hammocks.

These considerations confuse professionals and parents alike and support the need for evidence-based guidelines to help address the appropriate use of products for babies in intensive care or graduating from hospital care.

“These considerations confuse professionals and parents alike and support the need for evidence-based guidelines to help address the appropriate use of products for babies in intensive care or graduating from hospital care.”

Conclusions:

The lesson is that evidence-based practice continues to evolve as we obtain and evaluate more available data. In asking the right questions and being vigilant about examining the quality of evidence about new practices and devices, optimal practice and use of products can be developed. Looking for evidence and assessing it can be time-consuming and ongoing. However, continual updating needs to be accomplished to provide optimal IFCDC practice protocols and recommendations. Guidance for care practices as a family prepares for discharge should be readily available and consistently provided to all families. Familiarizing with the available evidence-based guidelines for care practices can help answer professional and parent questions more quickly. To assist professionals in responding to issues outside of existing guidelines or recommendations, developing expertise and experience in assessing available evidence will be important.

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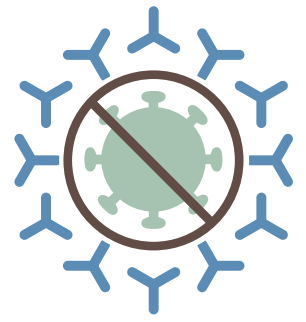


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Protecting your baby and family from

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.

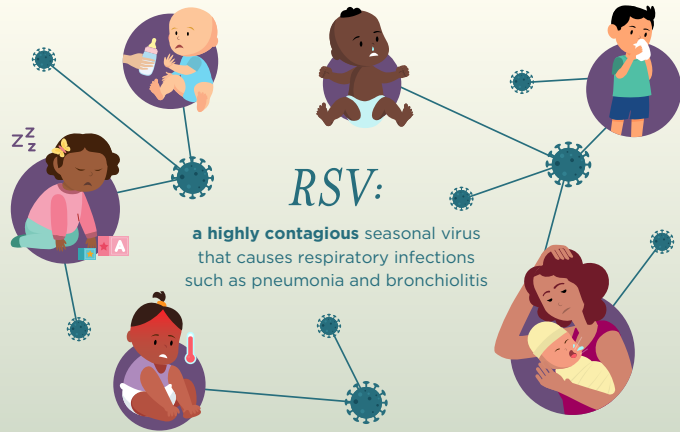


WE CAN HELP PROTECT EACH OTHER.



Respiratory Syncytial Virus

DID YOU KNOW?



The Gap Baby: An RSV Story



Infants under age 1



RSV is the leading cause of hospitalization



16x more likely to get RSV than the flu



Postpartum Revolution

@ANGELINASPICER



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

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Is the Tridemic over? Building a More Aware and Resilient Society

Kelly Welton, BA, RRT-NPS

A recent CDC article <https://www.cdc.gov/media/releases/2024/p0301-respiratory-virus.html> outlines the new guidelines to keep respiratory viruses from spreading. (1)

Under the Hygiene section, it is advised that people:

- Cover their coughs and sneezes
- Wash hands often
- Clean frequently touched surfaces

At a recent visit to a popular coffee shop, a young family walked in as I sat working.

I first heard the young daughter—Respiratory Therapists' ears are trained to tune into productive coughs—that loose, congested, bronchitis-sounding cough that produces nothing. Moreover, when she coughed, there was no tissue. No elbow. No hands covering her mouth. Don't they still teach health subjects in school?

Then, her mother walked in—the same cough. There is no personal protocol in place for her to keep it to herself. She then walked past me, coughing, and stood in line almost right behind me, coughing freely. Happy to share!

I thought I'd better get out of here. So I did.

For all the public health resources available, coupled with the fact that we just got a colossal hygiene lesson thanks to the pandemic, why is it still so hard to teach people to keep their germs to themselves?

On the CDC website, one can order free hygiene posters. The posters show a lot about sanitizing surfaces and handwashing but nothing about the importance of keeping your lung contents confined to your personal space.

According to the American Lung Association, a cough can travel up to 50 mph and let loose 3,000 droplets with each cough. A sneeze, however, wins the race at almost 100 MPH and 100,000 droplets to share. (2)

“According to the American Lung Association, a cough can travel up to 50 mph and let loose 3,000 droplets with each cough. A sneeze, however, wins the race at almost 100 MPH and 100,000 droplets to share.”

So how can we, as healthcare workers, educate the general public that, even though COVID is mainly gone, it is still imperative not to spread germs? Furthermore, should open-mouth coughing in a public place be grounds for arrest?

Firstly, the General Public needs to understand viruses and viral transmission.

Even the droplets of a healthy person, under the right conditions, can make another person sick.

How could we make a campaign to educate all of the USA,

including our immigrants, guests, travelers, and visitors, to cover their mouths when they cough?

The CDC article also describes when to return to normal activities, i.e., work or school after being sick:

“Today’s announcement reflects the progress we have made in protecting against severe illness from COVID-19,” said CDC Director Dr. Mandy Cohen. “However, we still must use the commonsense solutions we know work to protect ourselves and others from serious illness from respiratory viruses—this includes vaccination, treatment, and staying home when we get sick.” (3)

The updated guidance recommends staying home and away from others when sick with a respiratory virus. This would require them to recognize that they have such a thing.

Then, recommendations suggest returning to normal activities “when, for at least 24 hours, symptoms are improving overall, and if a fever was present, it has been gone without use of a fever-reducing medication.” (1, 3)

Then, the “confuser”:

“Once people resume normal activities, they are encouraged to take additional prevention strategies for the next 5 days to curb disease spread, such as taking more steps for cleaner air, enhancing hygiene practices, wearing a well-fitting mask, keeping a distance from others, and/or getting tested for respiratory viruses.” (1, 3)

“The updated guidance recommends staying home and away from others when sick with a respiratory virus. This would require them to recognize that they have such a thing. Then, recommendations suggest returning to normal activities ‘when, for at least 24 hours, symptoms are improving overall, and if a fever was present, it has been gone without use of a fever-reducing medication.’ Then, the ‘confuser’: ‘Once people resume normal activities, they are encouraged to take additional prevention strategies for the next 5 days to curb disease spread, such as taking more steps for cleaner air, enhancing hygiene practices, wearing a well-fitting mask, keeping a distance from others, and/or getting tested for respiratory viruses.’”

This assumes people know what “enhanced hygiene practices” are and can access testing.

This also assumes that people returning to work or school will be able to distance themselves.

“How can we apply this advice to NICU parents and siblings? During 'Respiratory Season,' we have a golden opportunity to educate parents and siblings about respiratory illnesses and how to contain them.”

How can we apply this advice to NICU parents and siblings?

During “Respiratory Season,” we have a golden opportunity to educate parents and siblings about respiratory illnesses and how to contain them. In the safety of the NICU, a baby might not be at such a significant risk. However, how many NICU babies go home and get re-admitted shortly after that with RSV or another respiratory issue? When we see parents during the season, coughing or not, could we create a healthy teaching moment to keep NICU staff and the entire family safe?

Perhaps expand on what is missing in the CDC Guidelines in a fact sheet drawn for speakers of all languages, or, alternatively, a “Health Minute” each time parents visit their baby in the NICU. If we act now to give every NICU baby every possible advantage, perhaps we could affect next year’s RSV and flu-season numbers.

“When we see parents during the season, coughing or not, could we create a healthy teaching moment to keep NICU staff and the entire family safe? Perhaps expand on what is missing in the CDC Guidelines in a fact sheet drawn for speakers of all languages, or, alternatively, a 'Health Minute' each time parents visit their baby in the NICU. If we act now to give every NICU baby every possible advantage, perhaps we could affect next year’s RSV and flu-season numbers.”

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NT

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Trauma-Responsive Perinatal Care

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Healing Together

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with _____
Angela Chaudhari MD



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Neonatology Today's now has a digital presence. The site is operational now and defines the future look of our digital web presence. By clicking on this <https://www.neonatologytoday.org/web/>, researchers can download individual manuscripts both in digital format and as part of the original PDF (print journal). While the PDF version of Neonatology Today will continue in its present form, we envision that the entire website will be migrated to this format in the next several months. We encourage you to take a look, "kick the wheels," and let us know where we still need to improve.. We are working towards making the website more functional for subscribers, reviewers, authors and anyone else. Although we have not yet applied for inclusion in the National Library of Medicine Database (Pub-Med), this new format meets several of the important metrics for this ultimate goal. As of December, 2020, NT has its own account with Cross-Ref and will assign DOI to all published material.

As we indicated last month, we look forward to a number of new features as well.

1. An online submission portal: Submitting a manuscript online will be easier than before. Rather than submitting by email, we will have a devoted online submission portal that will have the ability to handle any size manuscript and any number of graphics and other support files. We will have an online tracking system that will make it easier to track manuscripts in terms of where they are in the review process.
2. Reviewers will be able to review the manuscript online. This portal will shorten the time from receipt of review to getting feedback to the submitting authors.
3. An archive search will be available for journals older than 2012.
4. A new section called news and views will enable the submission of commentary on publications from other journals or news sources. We anticipate that this will be available as soon as the site completes the beta phase
5. Sponsors will be able to sign up directly on the website and submit content for both the digital and PDF issues of Neonatology Today.

Neonatology Today will continue to promote our Academic True Open Model (ATOM), never a charge to publish and never a charge to subscribe.

If there are any questions about the new website, please email Dr. Chou directly at:

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Trauma-Responsive
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Which Infants are More Vulnerable
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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 guidelines limit their access to RSV preventative treatment, increasing these babies' risk.

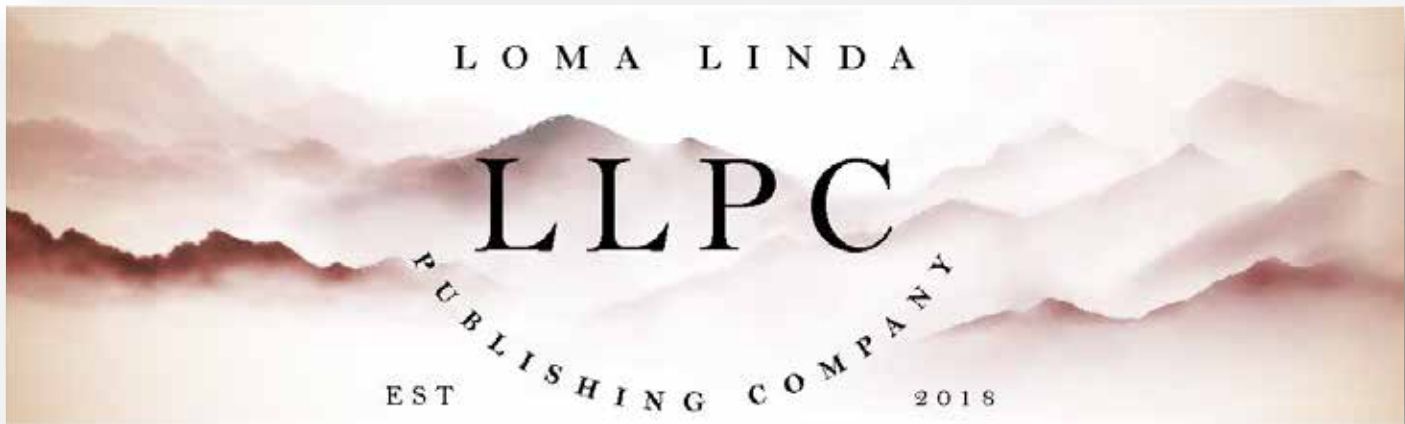


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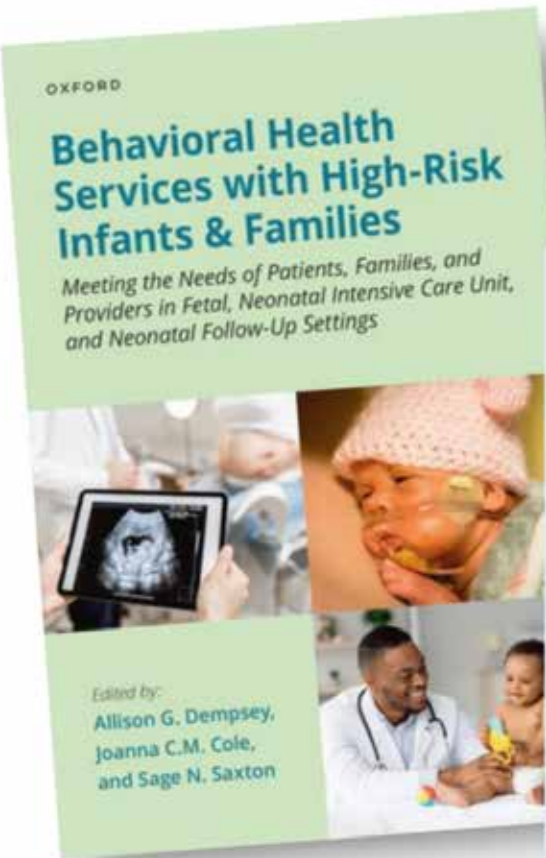
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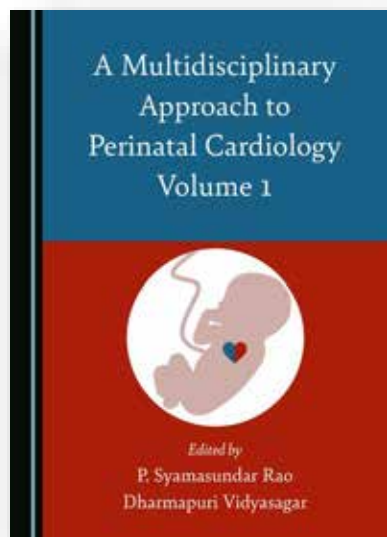
**Gary D. Miner, Linda A. Miner,
Scott Burk, Mitchell Goldstein,
Robert Nisbet, Nephi Walton,
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A Multidisciplinary Approach to Perinatal Cardiology

Volume 1

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



Hardback

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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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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 PPRM 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 PPRM 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 PPRM 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 Contributors:**Brittany Boet**

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

Angela Davids

Founder, Keep 'Em Cookin', Baltimore, MD.

Crystal Duffy

Author of Twin To Twin (from High Risk Pregnancy to Happy Family), and NICU Parent Advisor, Houston, TX.

Tracy Pella, MA

Co-Founder and President, Connected Forever, Tecumseh, NE.

Erin Thatcher, BA

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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.

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- 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 Provisership 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)™*. 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.

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- R**EACH A DECISION
- E**VALUATE THE DECISION



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House Bill Boosts Nutrition for NICU 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.



Infants fighting for their lives should not have to fight insurance barriers for optimal nutrition. That is the message behind a bill [recently introduced](#) by U.S. Rep. Morgan McGavery (1).

“Infants fighting for their lives should not have to fight insurance barriers for optimal nutrition. That is the message behind a bill recently introduced by U.S. Rep. Morgan McGavery”

H.R. 7141, the Supporting Premature Infant Nutrition Act, builds upon McGavery's personal experience. His twins spent 99 days in the NICU after their birth in 2011, and he partially credits their survival to nutrition products that he had to fight his insurer to obtain.

His bill would ensure that human milk-based human milk fortifiers would no longer be denied by insurers, including Medicaid and the Children's Health Insurance Program.

Fortified Human Milk's Value for Preterm Infants

Babies born preterm or with very low birth weights often spend their first weeks in the neonatal intensive care unit or NICU. During these decisive days, some babies rely on a fortifier to supplement mom's milk or donor milk. These fortifiers enhance the milk's protein, calories, and other vital nutrients essential to a vulnerable baby's growth and development. However, human milk-based human milk fortifiers are not always covered by insurance.

This means that some babies will receive a cow milk-derived fortifier, which their delicate digestive systems can struggle to break down. That puts babies at risk for complications, including necrotizing enterocolitis, a life-threatening bacterial infection of the intestines and colon. Infants who contract the infection face a mortality rate as high as 50%.

“Babies born preterm or with very low birth weights often spend their first weeks in the neonatal intensive care unit or NICU. During these decisive days, some babies rely on a fortifier to supplement mom's milk or donor milk. These fortifiers enhance the milk's protein, calories, and other vital nutrients essential to a vulnerable baby's growth and development. However, human milk-based human milk fortifiers are not always covered by insurance.”

To avoid severe complications like necrotizing enterocolitis, vulnerable infants need access to an exclusively human milk diet, including human milk-based human milk fortifiers.

Meeting Babies' Needs

Human milk provides the [best nutrition](#) for all infants (2), especially those born with very low birthweight or other developmental risks. Mother's milk provides optimal nutrition for a healthy infant and anti-infective and probiotic elements to protect the child. Fortifiers provide the added nutritional boost necessary to help NICU babies reach the ideal growth and development.

Every infant deserves the best possible start. Ensuring insurance coverage for human milk-based human milk fortifiers helps bridge the gap in health care and sets all babies on course toward their healthiest future.

References:

1. <https://mcgarvey.house.gov/media/press-releases/congressman-morgan-mcgarvey-leads-efforts-to-require-insurance-coverage-of-special-nutrition-products-for-premature-babies>
2. <https://www.infanthealth.org/blogs/2023/10/dr-eddie-chang-pennsylvanias-fragile-infants-need-access-to-an-exclusive-human-milk-diet>

Disclosure: Josie Cooper is executive director of the Alliance for Patient Access. This article was also published at healthpolicytoday.org.

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We want as many children to come to the summit as possible. However, attending the Summit is not always possible for our families who often experience financial hardships. So iCAN pays for lodging, most food, and a transportation stipend in addition to summit activities. As more youth join iCAN, we need your help more than ever! Your tax-deductible donation of \$1,000 will help bring a child to the Summit, to make it possible for that child to share their voice, and to interact with medical professionals and other kids like them. We will acknowledge you as an individual donor or you may dedicate the donation in honor of a loved one, as you wish.

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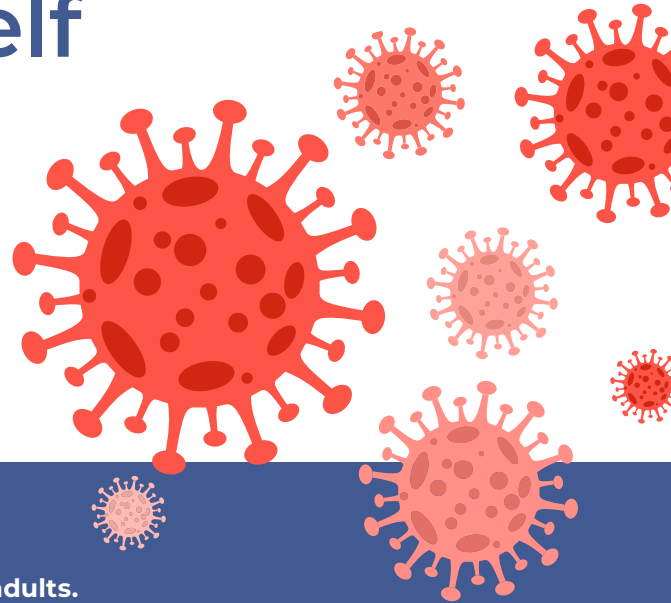
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- ✓ Make communities healthier and safer⁴



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.



PROTEIN SUBUNIT VACCINES

Used for three decades against the flu, whooping cough and hepatitis B.



VECTOR VACCINES

Used for decades against chickenpox, malaria and tuberculosis.

HOW THEY WORK:

Instruct cells to make COVID-like proteins that trigger the immune system to fight the virus.

Deliver harmless versions of the COVID protein that train the immune system to fight the virus.

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 participants⁶



Proven safe and effective

for adults as well as children⁷



Vetted and approved by

the US FDA and EMA and endorsed by the WHO⁸⁻¹⁰

Get Your Job

Vaccines are available at your:



Doctor's office



Neighborhood pharmacy



Community health center

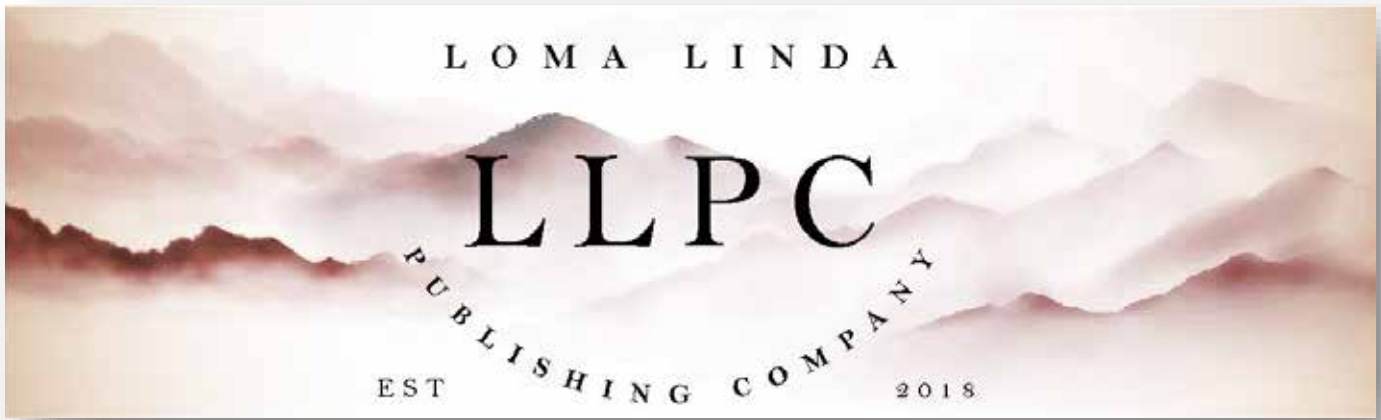


Talk to your health care provider or pharmacist about which vaccine is right for you.

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>
4. <https://royalsocietypublishing.org/doi/full/10.1098/rsif.2020.0683>
5. <https://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html>
6. <https://doh.wa.gov/emergencies/covid-19/vaccine-information/safety-and-effectiveness>

7. <https://doh.wa.gov/emergencies/covid-19/vaccine-information/safety-and-effectiveness>
8. <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines>
9. <https://www.ema.europa.eu/en/human-regulatory/overview/public-health-threats/coronavirus-disease-2019-treatments-vaccines/vaccines-covid-19/covid-19-vaccines-authorized>
10. http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/WHO-EUA-qualified-covid-vaccines.pdf





Supporting NICU Staff so they can support families



Providing online education that is...

- Story-Driven
- Trauma-Informed
- Evidence-Based

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Trauma-Responsive Perinatal Care

Featured Presentation

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Trauma-Responsive Living

with Mary Coughlin



May 15-17 in Anaheim California

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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 Updates: Strengthening Pediatric Consultants Globally: iCAN's Recent Developments and Milestones

Sabina Schmidt Goldstein-Becerra



Get involved today and Join the iCAN Parent Council!

“iCAN, or the International Children’s Advisory Network, is committed to providing numerous opportunities for the pediatric community to come together and hear from the most crucial stakeholders in healthcare: the patients. Our organization is dedicated to empowering all pediatric patients worldwide by facilitating their active participation in innovation, research, and medicine.”

iCAN, or the International Children’s Advisory Network, is committed to providing numerous opportunities for the pediatric community to come together and hear from the most crucial stakeholders in healthcare: the patients. Our organization empowers all pediatric patients worldwide by facilitating their active participation in innovation, research, and medicine. Whether you are a patient, family member, healthcare professional, or supporter of the cause, we welcome you to visit our website at icanresearch.org to learn more about our mission, various programs, and initiatives. Join us to ensure that every child’s voice is heard and that their unique experiences are taken into account to improve healthcare

outcomes for all pediatric patients.

[April Ask the Experts - April Recap and Looking Ahead](#)

[Empowering Children through Play: Mary Jenner, RN, Shares Insights in Ask the Experts Session](#)



Meghan 8:19 AM

M

Considering how you first wanted to be a pediatrician, then switched to nursing, then implemented your creative side into your work, do you have any advice for students who are seeking a career in the medical field but are unsure of what specific path they want to go down?

hanson 8:36 AM

h

Considering these toys are for representing the underrepresented, one may assume that the you would end up expanding to gain more traction to these toys. Based off that, to what level are you planning on expanding the toys and this organization to?

👍 😊 ... ❤️ 1

On April 6th, the latest installment of the monthly *Ask the Experts*

series took place, captivating our youth members with the inspiring journey and insights of guest speaker Mary Jenner, RN. Jenner, the acclaimed author of “The Butterfly Pig” and founder of a groundbreaking toy medical device company, graced the virtual stage, eager to share her wisdom on empowering young patients.

Jenner’s journey from author to entrepreneur began with her book, “The Butterfly Pig,” which entertained children and planted the seeds of curiosity and empowerment. Building on this foundation, she ventured into healthcare innovation, founding her own toy medical device company.

During the session, Jenner recounted heartwarming anecdotes of her toy medical devices’ profound impact on young patients. These innovative tools familiarize children with medical procedures and empower them to take ownership of their treatments. By allowing children to simulate medical scenarios and articulate their experiences, these toys bridge the communication gap between young patients and healthcare professionals.

One of Jenner’s most poignant revelations was the transformation she witnessed in children who used her devices. Engaging in play gave these children confidence and agency, enabling them to articulate their needs and fears to healthcare providers effectively. Jenner emphasized the importance of empowering children to participate actively in their healthcare journey, stressing that fostering such autonomy from a young age lays the foundation for a lifetime of informed decision-making.

“Engaging in play gave these children confidence and agency, enabling them to articulate their needs and fears to healthcare providers effectively. Jenner emphasized the importance of empowering children to participate actively in their healthcare journey, stressing that fostering such autonomy from a young age lays the foundation for a lifetime of informed decision-making.”

Beyond her groundbreaking inventions, Jenner imparted invaluable advice to the young audience, encouraging them to seek opportunities aligned with their interests. Drawing from her own experiences, she highlighted the importance of curiosity and exploration in personal and professional growth. By urging children to embrace their passions and pursue meaningful experiences, Jenner inspired a new generation to unlock their full potential.

Mary Jenner’s appearance on our *Ask the Experts* offered a compelling narrative of innovation, empowerment, and the transformative power of play. Through her pioneering work and impassioned advocacy, Jenner continues to reshape the landscape of pediatric healthcare, leaving an indelible mark on the lives of young patients worldwide.

Mark your calendars- iCAN invites you to another installment of *Ask the Experts!*

You are invited to an insightful Ask the Experts session titled “Empowering Patient Journeys: Exploring Patient Engagement in Clinical Research with Mitch Herndon.”

Join us on May 18th at 8 AM PST, 11 AM EST.



As the Head of Clinical Study Patient Engagement, Experience, and recruitment at UCB (Union Chimique Belge), Mitch Herndon leads a global team that works with clinical teams across the company’s research development portfolio in 3 overarching areas, including the voice of patients and families in clinical research, improving the experience of clinical study participants, and meeting enrollment challenges that exist globally. Mitch has a master’s in public health and 28 years of experience partnering with patients, beginning his career interning at a pediatric clinic where he worked with families and kids living with chronic and acute conditions. He then spent ten years at a national patient organization and ten years at a global contract research organization, and he is now going on his 8th year at UCB. In addition to collaborating with iCAN over the years, Mitch has had the pleasure of serving in various capacities, including TransCelerate, Innovative Medicines Initiative (IMI), Advocates for Children Committee, local schools, community organizations, and as a volunteer coach/mentor/em-

cee. Mitch is a married father of 3 children and continues to learn something new daily.

[Secure your spot by registering here today!](#)

As we look ahead, we remain committed to hosting empowering Ask the Experts sessions, where we will delve into critical topics and glean insights from inspiring leaders in their respective fields. Please let us know if you are interested in being a featured speaker for *Ask the Experts!*

iCAN Spotlight!

Empowering Tomorrow's Advisors: Meghan's Journey From KIDS Illinois to Admission at Brown University



In the upcoming fall, Meghan Herrington, a high school senior from Chicago, IL, will embark on an exciting journey as she prepares to attend the prestigious Ivy League institution, Brown University. Meghan is an active member of the KIDS Illinois—Lurie Children's Hospital KAB chapter, where she passionately shares her journey with chronic illnesses to advocate for patient equity and enhance healthcare standards. In addition to her remarkable advocacy work within the Kids Illinois—Lurie Children's Hospital KAB chapter, Meghan has taken on the co-lead role of the Youth Council. In this capacity, she spearheads research projects and orchestrates collaborative sessions with the Young Professional

Network. Her leadership within the Youth Council underscores her commitment to driving positive change and fostering collaboration among young advisors. Living with conditions such as Ulcerative Colitis and Chronic Recurrent Multifocal Osteomyelitis, Meghan is driven by her experiences to pursue a career in pediatric medicine. Her goal is to specialize in treating and advocating for patients with rare diseases, a cause close to her heart. Meghan's dedication to making a difference in the lives of others makes her a shining example of resilience and compassion within her community.

“Her goal is to specialize in treating and advocating for patients with rare diseases, a cause close to her heart. Meghan’s dedication to making a difference in the lives of others makes her a shining example of resilience and compassion within her community.”

NEW KIDS Chapters!

We are excited to share the exciting news that our global initiatives are expanding with the addition of new chapters. Joining our cause to transform the pediatric landscape are Mexico City, Central Ohio, Rainbow, South Africa, and Chennai! We encourage you to contact us if you are interested in establishing your chapter, whether affiliated with a hospital, university, or school. Let us work together to make a difference in communities around the world!

“Our Executive Director, Sabina Goldstein-Becerra, recently hosted a virtual session with KIDS Rainbow, acquainting them with iCAN. Parris, their chapter leader, facilitated Sabina’s introduction and discussed the engagement opportunities offered by iCAN. The session was lively and interactive, featuring a packed agenda.”

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“They provided insights into various initiatives within their chapter, and we are delighted to welcome them into our community warmly. We eagerly anticipate the participation of some youth members from KIDS Rainbow at our upcoming 2024 Summit!”



Exciting Update: Registration is Now Open for iCAN's 2024 Annual Research and Advocacy Summit Presented by Jumo Health!

To sponsor our Summit, visit bit.ly/iCANSponsorships

To register for our Summit, bit.ly/iCANSummit24Registration

Our upcoming 2024 Summit, Presented by Jumo Health, is set to unfold in the picturesque city of Bari, Italy, from July 15th to 19th! The anticipation among our enthusiastic young participants is palpable as they eagerly await this remarkable event. However, to make it truly unforgettable, we need your support!

Our annual Summit is a transformative platform for nurturing innovation, compassion, and collaboration in pediatric healthcare among youth.

If you believe in the power of education and inspiration, we invite you to participate in this life-changing event. You can contribute in two meaningful ways:

1. Sponsor the 2024 Summit: Your sponsorship plays a pivotal role in the seamless organization of the Summit. Your generous support ensures an impactful experience for all attendees.
2. Sponsor a Child to Attend: Your sponsorship directly impacts a child's life, granting them the chance to attend the Summit in Bari. Your support offers a world of learning and empowerment by covering travel, accommodation, and participation.

Together, we shape a brighter future for pediatric healthcare by nurturing the potential of our young members. Regardless of size, your contribution makes a significant difference in fostering inno-

vative advancements.

Thank you for considering this opportunity to support the next generation of healthcare leaders. Your generosity and dedication are deeply valued. Let us unite in Bari, Italy, to create a summit experience that empowers young minds for years to come!

Disclosures: *There are no reported disclosures*

NT

Corresponding Author



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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



nicuparentnetwork.org
nationalperinatal.org/skin-to-skin



Join iCAN's Virtual Focus Group!



We warmly welcome all individuals within the age ranges of 8-10 and 12-18, including those with:

- Learning disabilities (example: dyslexia)
- Speech or language disabilities (examples: stuttering, understanding others, hearing)
 - 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.

Survey Link: bit.ly/icanxkismet



Fill out the recruitment survey now and let your voice be heard!
Together, we can make a real difference in pediatric healthcare!

New subscribers are always welcome!

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing...



EVIDENCE

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

PARTNERSHIP SHARED DECISION-MAKING

What is the best for this unique dyad?

- SEEK PARTICIPATION
- HELP EXPLORE OPTIONS
- ASSESS PREFERENCES
- REACH A DECISION
- EVALUATE 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.



National Association of Neonatal Nurses

nann.org

National Perinatal Association

nationalperinatal.org

Thank You, from iCAN



#iCANMakeADifference

Continue to Support at iCAN.health

*Education.
Anytime, Anywhere.*

Academy of Neonatal Care



The Academy of Neonatal Care serves to educate Respiratory Therapists, Nurses, and Doctors in current and best practices in Neonatal ICU care. We prepare RT's new to NICU to fully function as a bedside NICU RT. Our goal is to enrich NICU care at all levels. Beginner to Advanced Practice, there is something for you at:

www.AcademyofNeonatalCare.org

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.
www.nationalperinatal.org/rsv



PROTECT YOUR FAMILY FROM RESPIRATORY VIRUSES

flu coronavirus
pertussis RSV



WASH YOUR HANDS
often with soap and warm water.

SOAP

GET VACCINATED
for flu and pertussis. Ask about protective injections for RSV.



COVER COUGHS AND SNEEZES.
Sneeze and cough into your elbow.

USE AN ALCOHOL-BASED HAND SANITIZER.



STAY AWAY FROM SICK PEOPLE
Avoid crowds. Protect vulnerable babies and children.

www.nationalperinatal.org

National Perinatal Association

FREE RESOURCES FOR YOUR NICU

Coping During COVID-19



Targeted interventions to improve the mental health of parents, infants, families, and providers

BONDING WITH YOUR BABY



HELPING CHILDREN AND FAMILIES COPE

CAREGIVERS NEED CARE TOO



National Network of NICU Psychologists

nationalperinatal.org/psychologists

Towards

Trauma-Responsive Perinatal Care



Featured Presentation

Neonatal Sleep Assessment Optimizing Sleep as a Trauma-Responsive Approach

with

Eline de Groot PhD

Christine Gliniak PhD, OTR/L, CNT, CPXP, NTMTC

May 15-17 in Anaheim, California

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Survey Says: RSV

RESPIRATORY SYNCYTIAL VIRUS, or RSV, is a dangerous virus that can lead to:

- Hospitalization
- Lifelong health complications
- Death

for infants and young children.



ACCORDING TO A NATIONAL SURVEY,

Specialty Health Care Providers say:

80% They treat RSV as a priority, "often" or "always" evaluating their patients

77% RSV is the "most serious and dangerous" illness for children under four

77% Barriers to access and denials from insurance companies limit patients' ability to get preventive RSV treatment



But Parents are Unprepared.

18% Only 18% know "a lot" about RSV

22% Only 22% consider themselves "very well" prepared to prevent RSV



RSV EDUCATION & AWARENESS CAN HELP

After parents learned more about RSV, they were:

- 65% "More concerned" about their child contracting the disease
- 67% Likely to ask their doctor about RSV



NCfIH National Coalition for Infant Health
Promoting Access for Perinatal Infections through Age Two

Learn More about RSV at:
www.infantHealth.org/RSV

Survey survey conducted September 2018. Excludes 17% specialty health care providers and 80% parents of children 4 and under.

Briefly Legal: Birth Trauma and Allegation of Abusive Head Trauma (AHT): Search for Truth

Barry, Schifrin, MD, Maureen Sims, MD

"The truth is not for all men, but only for those who seek it."

—Ayn Rand

It may be true that "the truth just is." It may be obvious or hard-won over time. The round, not flat, earth revolves around the sun. The truth, however, is sometimes elusive especially in medicine and in jurisprudence where decisions must be made under greater or lesser degrees of uncertainty. Those two disciplines intersect on different trajectories where allegations of child endangerment or abusive head trauma (AHT) or shaken baby syndrome (SBS) are raised. Once understood, the role of probability analysis moves to the primary position in the differential diagnosis and should prevail but sometimes do not.

The following case of alleged AHT with profound consequences for the child and the family also provides insight into the devastating consequences of uninformed accusations.

Facts of the Case

(sections in italics are quoted from the case; underlined sections are made by authors for emphasis)

The mother was a 30-year-old primigravida, an immigrant from India, who was admitted to a New Zealand hospital at 38 weeks gestation in labor with premature rupture of the membranes for 8 hours. Oxytocin was initiated and an epidural provided. Antibiotics were also administered. Over time, the initially normal FHR pattern showed multiple decelerations and excessive uterine activity.

Multiple adjustments of oxytocin were made during the labor but never discontinued. After a protracted labor, the patient finally reached full dilatation (10 cm) and was instructed to begin pushing with contractions. Maternal pushing produced recurrent decelerations of increasing severity and ultimately absent variability and tachycardia. Irrespective, oxytocin was increased. Despite minimal progress in the descent of the fetal head, the obstetrician first attempted a vacuum-assisted delivery, which failed despite two applications and two pop-offs. An unsuccessful attempt was then made to deliver the fetus with forceps. After about 15 minutes of pushing, the fetal head delivered spontaneously.

At birth, the female infant weighed 2700 grams (50th percentile) and had a head circumference of 32.5 cm (25–50th percentile) and length of 49 cm (50–75th percentile). Apgar scores were 9 and 10 at 1 minute and 5 minutes, respectively. Her newborn examination was reported as "normal apart from a 'clicky' right hip." The events of birth would be entirely ignored or discounted in subsequent deliberations. She was given IM vitamin K and monitored closely for 48 hours, including a check of her hips by a consultant, who found no pathology. A summary of the events of labor and delivery

"The mother was a 30-year-old primigravida, an immigrant from India, who was admitted to a New Zealand Hospital at 38 weeks gestation in labor with premature rupture of the membranes for 8 hours. Oxytocin was initiated and an epidural provided... Over time the initially normal FHR pattern showed multiple decelerations and excessive uterine activity. Multiple adjustments of oxytocin were made during the labor but never discontinued. After a protracted labor, the patient finally reached full dilatation (10 cm) and was instructed to begin pushing with contractions. Maternal pushing produced recurrent decelerations of increasing severity and ultimately absent variability and tachycardia. Irrespective, oxytocin was increased. Despite minimal progress in the descent of the fetal head, the obstetrician first attempted a vacuum-assisted delivery, which failed despite two applications and two pop-offs. An unsuccessful attempt was then made to deliver the fetus with forceps."

in the medical records affirms that there were "no complications." She was fully breast-fed. She had her first immunizations and a routine 6-week check-up with the family physician, which revealed no evidence of abnormal behavior, bruising or symptomatology to suggest that the infant was in pain. At 8 weeks of age, the baby presented to the hospital's Emergency Department with seizures and a raised fontanelle.

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

“Apgar scores were 9 and 10 at 1 minute at 5 minutes, respectively. Her newborn examination was reported as ‘normal apart from a ‘clicky’ right hip.’ ...A summary of the events of labor and delivery in the medical records affirms that there were ‘no complications.’ She was fully breast-fed. She had her first immunizations and a routine 6-week check-up with the family physician, which revealed no evidence of abnormal behavior, bruising or symptomatology to suggest that the infant was in pain. At 8 weeks of age, the baby presented to the hospital’s Emergency Department with seizures and a raised fontanelle.”

Soon after arrival, she was given phenobarbital and underwent a significant workup.

CT Imaging of the head revealed: Biconvexity subdural hemorrhages (SDH), right fronto-occipito-parietal, with a maximal thickness of 7.3 mm, extending interhemispheric, right parafalcine, and onto the right tentorium cerebelli, and on the left, fronto-occipito-parietal, with a maximal thickness of 6.7 mm, extending into the interhemispheric fissure, left parafalcine. There is a small amount of acute blood immediately adjacent to the right sigmoid sinus, such that the sigmoid sinuses appear asymmetric. There may be a small amount of blood layering on the left tentorium cerebelli. It also revealed an undisplaced, left parietal, skull fracture involving the sagittal suture, just posterior to the anterior fontanelle as well as a short accessory midline occipital suture, the margins of which are sclerotic. The overlying soft tissues are normal. These findings were considered highly unlikely to be birth-related, as there was no birth trauma reported, and she was 8 weeks of age, therefore any birth injury would be expected to have healed.

The subdural hemorrhages are hyperdense, in keeping with acute blood. Overlying the frontal lobes, in addition to the hyperdense subdural blood, extra-axial spaces appeared dusky, of greater density than CSF within the ventricular system. There are probably two thrombosed cortical veins near the vertex. There is 2.8 mm leftward displacement of midline structures, no other trans-compartment herniation. No definite areas of parenchymal injury or ischemia were detected. These findings were, ... likely to have occurred within the last 7 days.

A skeletal survey revealed 18 rib fractures. There was bony resorption adjacent to the fracture site along with callus formation with all the rib fractures, suggesting that they were at least 7 days old. It was also noted

that The differences in stages in healing of the multiple rib fractures are difficult to interpret. It may be different timing of injury or differential healing because of different degrees of immobilization at different points on the ribs.

A second skeletal survey revealed Buckle fractures involving the long limb bones and left elbow and fractures of the feet. Despite the skeletal changes, there was no radiological evidence of rickets.

Blood tests revealed a low hemoglobin level of 75 gm/l, confirming a significant anemia for which a blood transfusion was administered. The anemia would be explained by the extensive SDH. Chronic SDH, over months, commonly results in anemia. Blood chemistry revealed a low Calcium level of 1.73 mmol/L, and low Vitamin D levels of 11 nmol/L (normal 50–150). An Endocrinology consult also opined that the low Vitamin D level would not explain the baby’s fractures.

An MRI of the head and spine revealed a left parietal non-depressed skull fracture and bilateral subdural hemorrhages both supratentorial and infratentorial. T1, T2 and FLAIR sequences demonstrated a mixed signal. The fluid signal component of the collections indicates hematoxygromaformation, which had developed since the CT. The mixed signal collection appears to be compartmentalised posteriorly on the right. Compartmentalisation is also suggested posteriorly on the right on the prior CT. Cerebral venous drainage is right dominant with no sign of dural venous sinus thrombosis. There is evidence of right frontal cortical vein thrombosis, as noted on prior CT. Subjacent to this in the high right frontal lobe is a region of well-defined T2 hyperintensity / T1 hypointensity. Appearances are in keeping with established gliosis, suggesting a more longstanding contusion. This region can also be seen on the CT. The spine is normal, with no sign of cord injury or vertebral fracture.”

Subsequent events

“On the basis of the above, a diagnosis of abusive head trauma (AHT) was made. The infant was removed from the parents, who were given no visiting rights, and the mother was incarcerated.”

On the basis of the above, a diagnosis of abusive head trauma (AHT) was made. The infant was removed from the parents, who were given no visiting rights, and the mother was incarcerated. Summarizing his findings, the child abuse pediatrician (CAP) noted that several mechanisms might be involved and then commented on his conclusion:

One mechanism is due to the direct pressure effect of the hemorrhage around the brain, causing compression and damage to the delicate brain tissue.

Another mechanism relates to direct axonal damage (stretching and tearing of nerves) within the brain substance as a result of trauma. It happens when the brain rapidly shifts inside the skull as an injury is occurring.

Another mechanism is hypoxic-ischemic encephalopathy. Related to oxygen deprivation, impaired cerebral blood flow or both.

The baby was small, but with a normal antenatal course and normal delivery. There was no suggestion of a traumatic delivery. Further, the baby would have been handled with excessive force, forces that are not normal in the handling of a baby, for these injuries to occur. It was likely that she had been subjected to repetitive acceleration/deceleration forces to the head, with rotational components [SBS - Shaken baby syndrome]. Thus, there was no natural medical cause for the baby's injuries. In the absence of any other alternative explanation, the diagnosis was that these injuries were consistent with Inflicted Traumatic Head Injury or Abusive Head Trauma, interchangeable terms of Child Abuse.

In the legal proceedings, the conclusions of the CAP were challenged because they had “failed to take serious account of other potential causes. If the diagnostic process does not seriously account for other potential causes, it cannot provide a reliable basis for an opinion.” At a minimum, a review of all of the baby’s records must be done. It is unacceptable to conjecture or have bias. In the CAP’s failure to critically review the obstetrical records or obtain competent consultation, he had failed to use the differential diagnosis method appropriately and her testimony should have been precluded. No obstetrician was called as a witness.

“Reasonably, an informed obstetrician, presented with a detailed record of the labor and delivery, including the fetal monitor tracing, would have concluded, as a minimum, that the fetus had suffered a severe and injurious hypoxic-ischemic injury during the latter part of labor, even before the (mis) adventures with the vacuum and the forceps. Multiple pop-offs of the vacuum during delivery and the use of sequential instruments are well known precursors of adverse fetal outcome.”

Reasonably, an informed obstetrician, presented with a detailed record of the labor and delivery, including the fetal monitor tracing, would have concluded, as a minimum, that the fetus had suffered a severe and injurious hypoxic-ischemic injury during the latter part of labor, even before the (mis)adventures with the vacuum and the forceps. Multiple pop-offs of the vacuum during delivery and the use of sequential instruments are well known precursors of adverse fetal outcome. The FHR tracing provides conclusive evidence of a fetus entering labor with a perfectly normal FHR pattern, permitting the inference that the fetus, at that time, was neurologically responsive and without hypoxic, ischemic or mechanical threat. Just as reasonably, the fetus, by the end of the tracing, in the face of excessive uterine activity and relentless pushing, and even before the attempts at operative delivery, has

suffered an hypoxic-ischemic injury.

The potentially grave consequences of the use of oxytocin are widely understood and are prominently displayed in the drug information pamphlet. In the US, the drug has been labelled a “black box” medication with the understanding that despite its ubiquitous use, it has considerable potential to cause grievous harm if not properly managed. The conduct of the oxytocin infusion in this case falls below any reasonable guidelines for its safe administration. Even without an examination of the tracing, it should be noted that there were at least 18 changes of the dosage of oxytocin, six of which involve a reduction in the dosage, sometimes within minutes of an increase in the dosage that was reasonably contraindicated on the basis of already excessive uterine activity, the presence of decelerations, and/or other clinical circumstances (e.g., rapid progress in cervical dilatation).

“The potentially grave consequences of the use of oxytocin are widely understood and are prominently displayed in the drug information pamphlet. In the US, the drug has been labelled a 'black box' medication with the understanding that despite its ubiquitous use, it has considerable potential to cause grievous harm if not properly managed.”

Further, the several descriptions of the events of labor and delivery as “normal” is an outright fiction; the statements by the pediatricians evaluating this child for the infliction of intentional harm by the parents had egregiously failed to take into account the most obvious and direct evidence of an obstetrical contribution to the child’s condition. The complex of CT/MRI findings is entirely compatible with a chronic SDH as a complication from birth trauma. Indeed, RH and SDH are common finding in asymptomatic newborns delivered vaginally.

Comment

As medical experts, not ordinarily involved in allegations of inflicted child injury, we find it irregular to not only disagree with the CAP’s opinion about the obstetrical care and its potential contribution to the subsequent outcome but also to the approach to the assessment of the potential obstetrical contributions of the mother’s Vitamin D deficiency. The ill-informed rejection of a birth-related injury would not seem to reasonably represent a responsible “clinical judgment” in that to qualify for clinical judgment, as a minimum, one has to take reasonable advantage of information that was or should have been available to the CAP. The lack of any acknowledgment of the events of labor and delivery described above is simply insufficient to exclude the considerable evidence for both mechanical trauma and hypoxic-ischemic neurological injury during labor and delivery. Opining that at least some of the injuries occurred “within 7 days,” of admission to the hospital seems intended to fit a preconceived timeline of abuse.

Similarly, redolent in these statements is the expectation that any such problems encountered by the fetus during labor and delivery would manifest themselves immediately in the neonatal period.

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There is abundant evidence that the fetus may suffer significant harm, including subdural and retinal hemorrhages, skull fractures, stroke, and other hypoxemic-ischemic / mechanical injuries, without immediate manifestations in the newborn. With allegations of child abuse carrying such high stakes, surely the pediatricians in charge of such proceedings needed to be properly and authoritatively informed and maintain equipoise.

There is universal agreement that shaking and other forms of inflicted head trauma and child abuse are dangerous and justify criminal prosecutions; public policies focusing on prevention are warranted. While AHT/SBS is commonly accepted, especially by the CAP and other pediatricians, it does not mean that intent to harm is a scientifically proven theory or always supported by conclusive evidence of intent to abuse. Indeed, over the last half-century, the theories of an acceleration/deceleration sequence (shaken baby), presumably with impact but without bruising or neck injury as evidence of AHT, has come under considerable scientific and legal attack by a wide range of academic disciplines. (See Findley et al.) Whether shaking alone, without impact, may cause subdural hemorrhage and retinal hemorrhage in healthy infants without causing additional traumatic injuries to the neck and other parts of the body remains controversial. Further, there is general agreement that brain injuries in SBS/AHT are hypoxic in nature and not traumatic.

The presence of an intrapartum hypoxic-ischemic injury in this case seems quite evident. In addition, the effects of Vitamin D deficiency in the mother (and fetus) may not have been fully appreciated. Further, statements regarding the timing of rib fractures seems to validate the speculative nature of such dating. It seems difficult to grasp that so many fractures could be the result of recently inflicted trauma in a pain-free child with no evidence of bruising. Similarly, the ophthalmology consultant failed to provide a comment on the poor reliability of RH as a sign of shaking or its well-known link to increased intracranial pressure (ICP). In these areas, we highly recommend the recent publication by Findley et al. on the various medical and legal controversies over allegations of AHT/SBS, including legal decisions, to

exclude such testimony at trial. The authors also discuss the difficulties of assessing parental confessions, the number of such convictions that have been reversed by the courts, as well as the problems in determining the “false positive” rate of the diagnosis of child abuse.

“The presence of an intrapartum hypoxic-ischemic injury in this case seems quite evident. In addition, the effects of Vitamin D deficiency in the mother (and fetus) may not have been fully appreciated. Further, statements regarding the timing of rib fractures seems to validate the speculative nature of such dating. It seems difficult to grasp that so many fractures could be the result of recently inflicted trauma in a pain-free child with no evidence of bruising. Similarly, the ophthalmology consultant failed to provide a comment on the poor reliability of RH as a sign of shaking or its well-known link to increased intracranial pressure (ICP).”

Conclusion

It is not our role to impute motive to the people examining this child, but not only was the labor extraordinarily complicated and injurious to the fetus, its conduct, in the management of the oxytocin and in the evaluation of the well-being of the fetus, fell hopelessly and egregiously below reasonably acceptable standards of care. These facts had the effect (or intent) of concealing the various acts of obstetrical mismanagement that would have provided a strong basis for the legal allegation of negligence and causation in the provision of obstetrical care.

Alas, none of the above analysis was available to the accused mother, defended by the Public Defender, and whose child was placed in foster care upon discharge from the hospital. At trial, the Court found her guilty of willful child abuse, and she was incarcerated for 2 years, by which time she had not seen her child for 3 years. An appeal failed to change the sentence and also failed to introduce the obstetrical evidence. At the end of her incarceration, she and her husband were scheduled for deportation back to India without their child, who would remain in New Zealand under foster care.

In relationship to abusive head trauma in very young children, sometimes referred to as “shaken baby syndrome,” there seem to be two unassailable truths. The first truth is that some children are intentionally mistreated, sometimes to the point of death. The second truth is that many so-called perpetrators of AHT/SBS have been falsely accused with consequences of family disruption, imprisonment, and even execution.

“In relationship to abusive head trauma in very young children, sometimes referred to as ‘shaken baby syndrome,’ there seem to be two unassailable truths. The first truth is that some children are intentionally mistreated, sometimes to the point of death. The second truth is that many so-called perpetrators of AHT/SBS have been falsely accused with consequences of family disruption, imprisonment, and even execution.”

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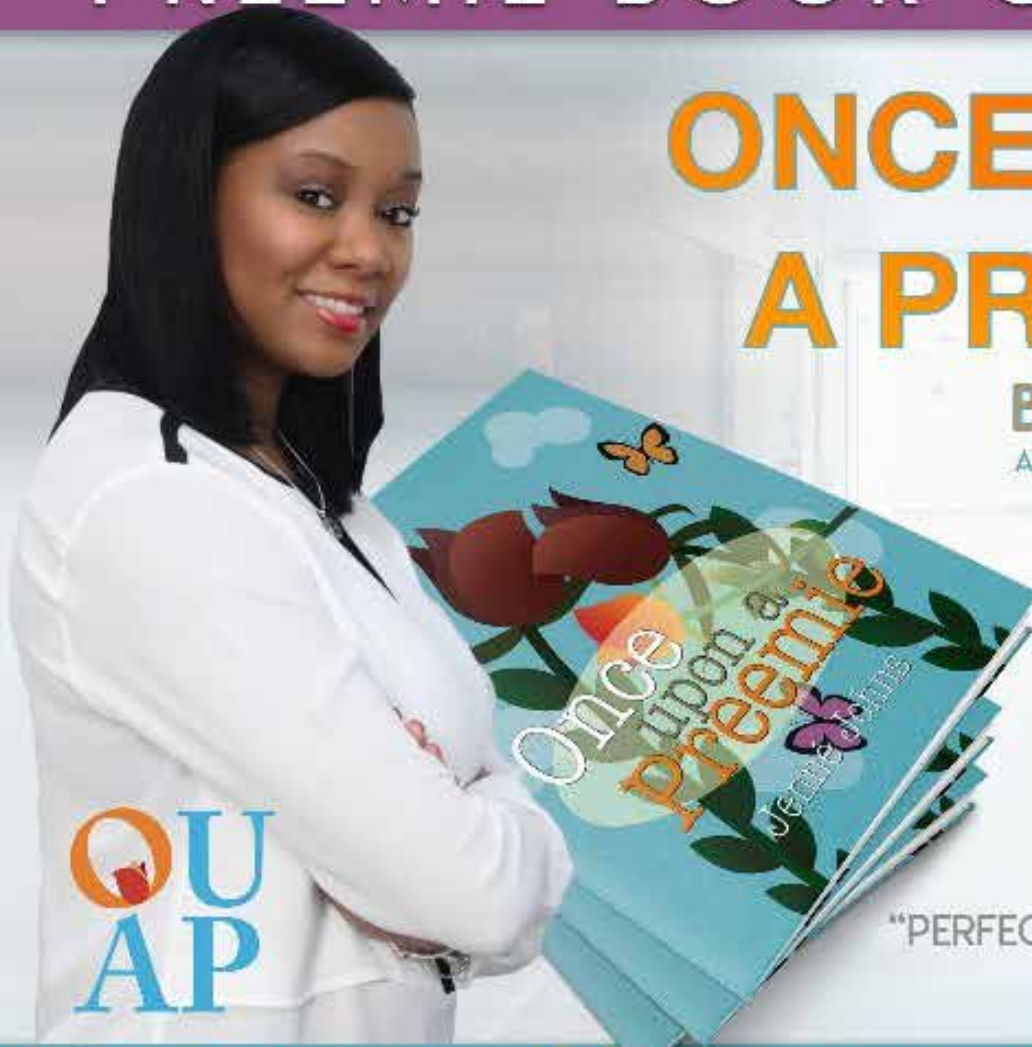


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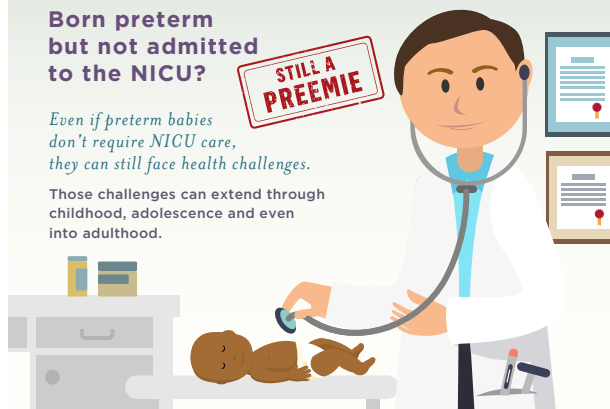


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Parents and babies need each other. Help us bond. Whenever possible, provide my care alongside my parents and teach them how to meet my needs.

Support Rooming-In



Babies like me do best in a calm, quiet, dimly-lit room where we can be close to our caregivers.

Promote Kangaroo Care



Skin-to-skin care helps me stabilize and self-regulate. It helps relieve the autonomic symptoms associated with withdrawal, promotes bonding, and helps me sleep.

Try Non-Pharmacological Care



Help me self-soothe. Swaddle me snugly in a flexed position that reminds me of the womb. Offer me a pacifier to suck on. Protect my sleep by "clustering" my care.

Provide Lactation Support



Human milk is important to my gastrointestinal health and breastfeeding is recommended when my parent is HIV-negative and receiving medically-supervised care. Help my family reach our pumping and feeding goals.

Treat My Symptoms



If I am experiencing signs of withdrawal that make it hard for me to eat, sleep, and be soothed, create a care plan to help me wean comfortably.

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Medical News, Products & Information

Compiled and Reviewed by Sandeep Lankireddy, BA, OMS IV

Study: AAP program leads to reduction in childhood injuries

NEWS PROVIDED BY

[American Academy of Pediatrics](#)

Carla Kemp, Senior Editor

April 1, 2024

Implementation of an AAP injury prevention program was associated with a significant reduction in injuries reported by parents of young children, according to a study published today in *Pediatrics*.

Research shows that unintentional injuries are responsible for about 10% of outpatient visits by children. The AAP developed The Injury Prevention Program (TIPP) in 1983 to help pediatricians provide anticipatory guidance on injury prevention from the newborn period through age 12. TIPP includes written information for parents on topics such as car injuries, falls, burns, firearm injuries, bicycle crashes, drowning, poisoning and choking.

This study aimed to evaluate the effectiveness of TIPP in reducing injuries in a large, diverse sample of young children. To do so, researchers conducted a randomized, controlled study at four university-affiliated pediatric continuity clinics. They reported their findings in "The Injury Prevention Program to Reduce Early Childhood Injuries: A Cluster Randomized Trial" (Perrin EM, et al. *Pediatrics*. April 1, 2024).

Parents of children at two clinics received injury-prevention counseling from trained residents, and the other two clinics provided an obesity-prevention intervention to parents (active control group).

At each preventive care visit from 4 to 24 months, parents were asked how many times their child had been injured since the last visit. Injuries could include cuts, burns, bruises or other harms that resulted from falls, car crashes, heat, choking, a gun, swallowing a poison or drowning.

The study included 781 parent-child dyads. About half of caregivers identified as Hispanic/Latino, 28% as non-Hispanic Black and 17% as non-Hispanic white. About 60% had an annual household income of less than \$20,000, and 27% had less than a high school education.

Parents reported more injuries among older children (3% of 2-month-olds had at least one injury vs. 40% of 2-year-olds). Falls were the most common cause of injuries.

Results also showed significantly fewer injuries were reported at clinics that implemented TIPP compared to those with obesity-prevention programs. When comparing intervention to active control sites, the adjusted odds ratios associated

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with more reported injuries were 0.77, 0.60, 0.32, 0.26 and 0.27 at 4, 6, 12, 18 and 24 months, respectively.

In addition, households with at least four children had fewer injuries than those with one child, and Spanish-speaking Latino caregivers reported fewer injuries than those who spoke English.

“Although further research is needed to determine if TIPP prevents serious injuries and prevents injuries in nontraining settings, our study provides important evidence that a primary care-based intervention can be effective in reducing injury,” the authors concluded.

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Pediatric information added to labeling of over 100 drugs, biologics in 2023

NEWS PROVIDED BY

[American Academy of Pediatrics](#)

from the Food and Drug Administration

April 1, 2024

A pediatric labeling change refers to any update to a product’s labeling to add information about safety, effectiveness or dosing in children. Many, but not all, labeling changes represent a new FDA approval for an indication in children.

Several changes in 2023 represent important strides in pediatric product development, including the following:

- Beyfortus (nirsevimab-alip) is the first single-dose, long-acting monoclonal antibody approved for the prevention of respiratory syncytial virus lower respiratory tract disease in neonates, infants and certain high-risk toddlers (<https://bit.ly/3PkJmEb>).

- Casgevy (exagamglogene autotemcel) and Lyfgenia (lovotibeglogene autotemcel) are the first cell-based gene therapies approved for the treatment of sickle cell disease in patients 12 years and older. Casgevy also is the first FDA-approved therapy utilizing CRISPR/Cas9, a type of genome editing technology (<https://bit.ly/3UUocqF>).
- Jardiance (empagliflozin) and Synjardy (empagliflozin and metformin hydrochloride) are a new class of treatments approved for treatment of type 2 diabetes in pediatric patients 10 years and older (<https://bit.ly/3IdVAKF>).
- Linzess (linaclotide) is the first approved treatment for functional constipation in pediatric patients 6 years and older (<https://bit.ly/3UULzQX>).
- Opvee (nalmefene hydrochloride) is the first nalmefene hydrochloride nasal spray approved for emergency treatment of known or suspected opioid overdose in adults and pediatric patients 12 years and older in a health care or community setting (<https://bit.ly/3Td3zEP>). The FDA also approved the first opioid overdose reversal drugs available over the counter, including the first generic naloxone hydrochloride product, indicated for use in adults and children, including neonates. These approvals are among many actions the FDA has taken as part of its overdose prevention framework (<https://bit.ly/3POET46>).
- Ycanth (cantharidin) is the first approved treatment for molluscum contagiosum in adults and pediatric patients 2 years and older, <https://bit.ly/49OFw4B>.

The FDA also took several actions related to mRNA COVID-19 vaccines, including approval of single-dose regimens for the 2023-2024 formula of Comirnaty and Spikevax for individuals 12 years and old-

er (<https://bit.ly/49qyovx>).

In 2023, labeling was updated for 10 products to reflect that safety and effectiveness have been evaluated but not established in pediatric patients. Three of the products were evaluated for treatment of major depressive disorder in pediatric patients 7-17 years but failed to establish efficacy: Exxua (gepirone), Fetzima (levomilnacipran) and Trintellix (vortioxetine).

In addition, five products were evaluated for treatment of type 2 diabetes in pediatric patients 10-17 years but failed to establish efficacy: Jentadueto and Jentadueto XR (linagliptin and metformin hydrochloride), Kazano (alogliptin and metformin hydrochloride), Nesina (alogliptin) and Tradjenta (linagliptin).

Other products that failed to demonstrate safety and efficacy in pediatric populations include Savaysa (edoxaban) for treatment of venous thromboembolism and Temodar (temozolomide) for treatment of various central nervous system tumors.

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Iowa Nurse Sentenced to Federal Prison after Stealing Pain Medication from At Least 50 New Mothers at Waterloo Hospital

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[U.S. Food & Drug Administration](#)

One New Mother Suffered “Horrible and Excruciating Pain” as Her Newborn Went Unfed

An Iowa nurse who stole pain medication from at least 50 new mothers at a Waterloo hospital was sentenced on March 27, 2024, in federal court in Cedar Rapids, Iowa. Christina Eileen Olson, formerly known as Christina Eileen Hovey, age 43, of Waterloo, received the prison term after pleading guilty on October 12, 2023, to one count of acquiring a controlled substance by misrepresentation, fraud, deception, and subterfuge, one count of adulteration and misbranding with intent to defraud and mislead, and one count of false statements relating to health care matters.

At the plea hearing, and in a plea agreement, Olson admitted that the State of Iowa granted her a nursing license in 2004. In

2017, a Waterloo hospital hired Olson to work as a nurse in its labor and delivery unit. Olson was responsible for caring for late-term pregnant women, women in active labor, and post-partum women, including women recovering from recent Caesarean section (“c-section”) surgery. Obstetricians prescribed these women Schedule II narcotics, including hydromorphone, oxycodone, and fentanyl, in order to control physical pain associated with the birthing process.

From no later than January 2022, to at least March 25, 2022, Olson used her nursing license to gain access to controlled substances in the hospital’s labor and delivery unit. Instead of administering the controlled substances to the women in pain, Olson diverted the controlled substances to herself for her own illicit drug use. Olson admitted she stole narcotics from no less than 50 victims. In order to cover up her crimes, Olson used a variety of fraudulent means, including falsely documenting that she had administered pain medication to new mothers when she had not done so. Olson also admitted to tampering with pain medication — replacing fentanyl inside a vial with saline and diverting the narcotic for her own use.

For example, on March 25, 2022, Olson was supposed to care for three new mothers and their babies during her shift from 3 a.m. to 3 p.m. One of Olson’s victims, known in court documents as “Mother-1,” had given birth via c-section on March 23, 2022, in a high-risk pregnancy. In addition to caring for Mother-1, it was Olson’s responsibility to

come into Mother-1’s room and document how much the baby was eating every hour, as this is important to ensure the health of a newborn. Instead of caring for Mother-1 and her baby, however, Olson never came into the room or checked on Mother-1 or her baby or administered pain medication to Mother-1 on March 25, 2023, even though Olson documented in the hospital’s records that she was administering pain medication to Mother-1. Rather, Olson diverted the pain medication to her own use.

As a result of Olson’s crimes, Mother-1 suffered “horrible and excruciating pain” on March 25, 2023. Further, because Olson had created false health care records documenting that she had administered the pain medication to Mother-1, the next nurse on shift declined to give pain medication to Mother-1 for at least 30 additional minutes in order to ensure Mother-1 was not feigning her need for narcotics. And despite repeated requests by Mother-1’s husband for formula, Mother-1’s newborn did not receive any formula until the end of Olson’s shift.

Another c-section patient, Mother-2, did not speak fluent English. Olson stole needed pain medications from Mother-2, as well. Mother-2’s husband made multiple complaints to the hospital about Mother-2’s pain to no avail.

The next day, March 26, 2023, Olson was again working first shift at the hospital. During this shift, the hospital drug tested Olson. The drug test was positive for opiates

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(oxycodone and hydromorphone) and marijuana. Another nurse then found an open fentanyl vial, an open ephedrine vial, and an epidural bag in another new mother's room. The hospital's records revealed that Olson had removed these three items under the new mother's name despite the fact there were no such orders for her. The fentanyl vial had puncture marks on the top and bottom stopper surfaces, and laboratory results later revealed that nearly all the fentanyl in the vial had been replaced with saline.

Olson admitted that she routinely drank alcohol and used marijuana while working at the Waterloo hospital. In order to pass a drug test at the hospital, Olson injected another person's urine into her bladder. In September 2021, after receiving reports that Olson

was disappearing from her shift for extended periods of time, the hospital's director referred Olson to an employee assistance program. On September 9, 2021, however, Olson took a leave of absence from the hospital for about three months after she was arrested for drunk driving. Olson's blood alcohol level at the time of her arrest was no less than .274.

In July 2022, Olson entered into a settlement agreement with the Iowa Board of Nursing under which she agreed to voluntarily surrender her nursing license for one year. As a part of her plea agreement, Olson has now forfeited her nursing license to the United States.

"Ms. Hovey callously stole pain medications from over 50 new mothers, subjecting them to additional suffering during their procedures," said United States Attorney Timothy T. Duax. "Our office is committed to protecting new mothers, and all medical patients, from such violations of trust by prosecuting health care employees who prey on their patients."

receive FDA-approved medications to manage their pain," said Special Agent in Charge Charles Grinstead, FDA Office of Criminal Investigations, Kansas City Field Office. "We will continue to pursue and bring to justice healthcare professionals who jeopardize patients' health by interfering with their pain medications."


Olson was sentenced in Cedar Rapids by United States District Court Chief Judge C.J. Williams. Olson was sentenced to one year and one day of imprisonment. She must also serve a three-year term of supervised release after the prison term. There is no parole in the federal system.

The case was prosecuted by Assistant United States Attorney Timothy L. Vavricek and was investigated by the Food and Drug Administration, Office of Inspector General, and the Iowa Medicaid Fraud Control Unit.

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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.



WE CAN HELP PROTECT EACH OTHER.



www.nationalperinatal.org/rsv

Food Safety Booklet for Pregnant Women, Their Unborn Babies, and Children Under Five

NEWS PROVIDED BY

[U.S. Food and Drug Administration](#)

Content current as of March 5, 2024

Download the booklet in English or Spanish below:

[Food Safety Booklet](#)

Food safety is vital for everyone – but especially for pregnant women, their unborn babies, and children younger than five. This booklet explains why and provides real-world advice on how to lower the risk of foodborne illness for pregnant women and their unborn babies, and how parents can protect their young children from foodborne infections.

In addition to the information in this booklet, talk with your health care provider about any foods or other products to avoid because of any special health needs for you or your child.

Food Safety: Why It's Critically Important for Pregnant Women, Their Unborn Babies, and Children Under Five

When disease-causing bacteria, viruses, or parasites (germs) contaminate food, they can trigger foodborne illness, often called food poisoning. While the food supply in the United States is among the safest in the world, it can still be a source of infection.

According to the Centers for Disease Control and Prevention (CDC), 48 million persons — or 1 of every 6 people — get foodborne infections each year. Of those, 128,000 are hospitalized, and 3,000 die from their foodborne illness.

Pregnant women are at high risk of developing food poisoning because pregnancy affects their immune system's ability to fight foodborne infections. The immune system is made up of a network of cells, tissues, and organs that work together to protect the body against infectious organisms and other invaders.

Unborn babies are just beginning to devel-

op immune systems and have little power to resist foodborne disease.

Because of the immune system changes in women during pregnancy and the developing immune systems of unborn children, they are both especially at risk for illnesses caused by *Listeria monocytogenes* and *Toxoplasma gondii*. The infection caused by these two organisms can pass to an unborn child even if the mother doesn't show signs of infection.

- *Listeria monocytogenes* (Lm) is a harmful germ found in many foods, including ready-to-eat refrigerated foods like deli meats, unpasteurized (raw) milk, and such foods as soft cheeses made with unpasteurized milk. Lm can lead to a disease called listeriosis. Every year, 2,500 Americans become ill with listeriosis — 1 out of 5 cases result in death. About one-third of listeriosis cases happen during pregnancy. Listeriosis can cause miscarriage, premature delivery, stillbirth, and serious sickness or death for a newborn baby.
- *Toxoplasma gondii* is a parasite found in many food sources, as well as cat litter boxes and other areas where cats may leave their waste. It can cause hearing loss, blindness, and brain damage in babies.
- Other organisms that can cause food poisoning, including *Salmonella*, *Campylobacter*, and *E. Coli*, also may lead to health complications for pregnant women, unborn babies, and newborns.

Children younger than 5 years have a high risk of foodborne illness and related health problems because their immune systems are still developing, and they cannot fight off infections as well as older children and adults. Also, young children make less stomach acid that kills harmful bacteria, making it easier for them to get sick.

Because young children's bodies are small, the vomiting and/or diarrhea often resulting from foodborne illness can lead to serious dehydration.

In children under 5 years, some foodborne infections with the bacterium *Escherichia coli* (*E. coli*) can lead to hemolytic uremic syndrome, a severe complication that can cause chronic kidney disease, kidney failure, and death. *E. coli* infections are likely to come from undercooked ground meat,

unpasteurized ("raw") milk, unpasteurized fruit juice, lettuce, spinach, sprouts, and even frozen cookie dough, if eaten before it is cooked.

NT

What You Need to Know About Preventing Listeria Infections

NEWS PROVIDED BY

[U.S. Food and Drug Administration](#)

Content current as of March 5, 2024

Pregnant women are about 10 times more likely than the general population to get a *Listeria* infection.

Pregnant Hispanic women are even more likely than non-Hispanic pregnant women to get a *Listeria* infection. This is probably caused by eating traditional soft cheese, such as "queso fresco," and other traditional foods made with milk that is unpasteurized. Brands of these traditional foods made with pasteurized milk are available in stores and online.

The Risk



Certain foods – including ready-to-eat refrigerated foods, unpasteurized (raw) milk, and foods made with unpasteurized milk – often may be contaminated with *Listeria monocytogenes* (LM), the third leading cause of death from food poisoning. These foodborne bacteria can grow at refrigerator temperatures and can cause an illness that in most healthy people is unpleasant but not serious. But in people who are at high risk, LM can cause an illness called listeriosis which can be severe and even lead to death. The people at high risk include pregnant women and their unborn babies, newborns, older adults, and other persons with weakened immune systems, such as those with HIV/AIDS, cancer, diabetes or kidney disease, and transplant patients.

While a pregnant woman may have only a mild, flu-like illness, or may not feel sick at all, listeriosis can lead to miscarriage, death of the unborn baby, a low-birth weight infant, health problems for the newborn, or even infant death. That's why reducing risks from *Listeria* is so important.

How to Reduce Your Risk from *Listeria*: 3 Easy Steps

There are three very simple things you can do to help prevent illness from *Listeria*:

1. Chill at the Right Temperature

The right temperatures slow the growth of *Listeria*. Put a refrigerator thermometer in the refrigerator and adjust the refrigerator temperature control, if necessary. Put a second thermometer in the freezer.

Your refrigerator should register at 40°F (4°C) or below and your freezer at 0°F (-18°C).

2. Use Ready-to-Eat Foods Quickly!

Use ready-to-eat, refrigerated foods by the Use By date on the package. The longer they're stored in the refrigerator, the more chance *Listeria* has to grow.

3. Keep the Refrigerator Clean

Clean your refrigerator regularly.

Wipe up spills immediately. This is particularly important, so *Listeria* doesn't have a place to grow and then spread to other foods.

Clean the inside walls and shelves with hot water and a mild liquid dishwashing detergent, rinse, then dry with a clean cloth or paper towel.

Temperature Check!

Use an appliance thermometer for your refrigerator and, if possible, one in your freezer:

- Put the thermometer in the middle of the refrigerator. After 5 to 8 hours, if the temperature is above 38° to 40°F (3° to 4°C), adjust the refrigerator temperature control to a lower setting. Check again after 5 to 8 hours.
- Put the thermometer between frozen food packages in the freezer. After 5 to 8 hours, if the temperature is above 0° to 2°F (-18° to -17°C), adjust the freezer temperature control to a lower setting. Check again after 5 to 8 hours.

To Eat or Not to Eat?

Choosing the right foods and preparing them safely helps reduce the risk illness from *Listeria* for at-risk people.

High risk foods:

- Hot dogs and luncheon meats – unless they're thoroughly

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La leche materna está hecha para bebés.
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Composition du **LAIT MATERNEL** 200+ composants
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FREE TOOLS

nationalperinatal.org/feeding-our-babies

reheated

- Soft cheeses, such as Feta, Brie, Camembert, “blue-veined cheeses,” or “queso blanco,” “queso fresco,” or Panela— that are made with unpasteurized milk.
- Refrigerated pâtés or meat spreads
- Refrigerated smoked seafood – unless it’s in a cooked dish, such as a casserole. (Refrigerated smoked seafood, such as salmon, trout, whitefish, cod, tuna, or mackerel is most often labeled as “nova- style,” “lox,” “kippered,” “smoked,” or “jerky.” These types of fish are found in grocery store refrigerator sections or deli counters or sold at delicatessens.)
- Unpasteurized milk or foods that contain unpasteurized milk

Lower Risk Foods:

- Hot dogs and luncheon meats that are heated to an internal temperature of 165°F measured with a food thermometer.
- Soft cheeses labeled “Made with pasteurized milk”
- Canned or shelf-stable* pâtés or meat spreads
- Canned or shelf-stable* smoked seafood.
- Pasteurized milk and foods made with pasteurized milk

*Foods that can be safely stored at room temperature, or “on the shelf,” are called shelf stable.

Follow These Steps For Food Safety

- Clean: Wash your hands before, during and after handling food. Wash utensils, cutting boards, and any surfaces that food touches after each use. Wash fruits and veggies—but not meat, poultry, or eggs.
- Separate: Use separate cutting boards, plates, and utensils for raw (uncooked) produce and for raw (uncooked) meat, poultry, seafood, and eggs. Keep meat, poultry, sea-

food, and eggs separate from all other foods while shopping and in the refrigerator.

- Cook: Only a food thermometer can make sure meat, poultry, fish, and casseroles are cooked to a safe internal temperature. For example, internal temperatures should be 145°F for whole meats (allow the meat to rest after cooking for 3 minutes) and fish, 160°F for ground meats, and 165°F for all poultry. Eggs should be cooked until the yolk is firm.
- Chill: Use appliance thermometers to be sure your refrigerator is at or below 40°F and your freezer is 0°F or below. Between 40°F and 140°F is the Danger Zone, when bacteria can multiply rapidly. Generally, the more bacteria, the more likely someone will get sick. Most refrigerators have just a colder/ warmer adjustment, so the only way to know is to put a thermometer inside.

About Foodborne Illness: Know the Symptoms

Consuming dangerous foodborne bacteria will usually cause illness within 1 to 3 days of eating the contaminated food. However, sickness can also occur within 20 minutes or up to 6 weeks later. Although most people will recover from a foodborne illness within a short period of time, some can develop chronic, severe, or even life-threatening health problems. Foodborne illness can sometimes be confused with other illnesses that have similar symptoms. The symptoms of foodborne illness can include:

- Vomiting, diarrhea, and abdominal pain
- Flu-like symptoms, such as fever, headache, and body ache

Take Action

If you think that you or a family member has a foodborne illness, contact your healthcare provider immediately. Also, report the suspected foodborne illness to FDA in either of these ways:

Contact the Consumer Complaint Coor-

dinator in your area.

Contact MedWatch, FDA’s Safety Information and Adverse Event Reporting Program:

- By Phone: 1-800-FDA-1088
- Online: File a voluntary report at <http://www.fda.gov/medwatch>

NT

OPIOIDS and NAS

When reporting on mothers, babies, and substance use

LANGUAGE MATTERS



I am not an addict.

I was exposed to substances in utero. I am not addicted. Addiction is a set of behaviors associated with having a Substance Use Disorder (SUD).



I was exposed to opioids.

While I was in the womb my mother and I shared a blood supply. I was exposed to the medications and substances she used. I may have become physiologically dependent on some of those substances.



NAS is a temporary and treatable condition.

There are evidence-based pharmacological and non-pharmacological treatments for Neonatal Abstinence Syndrome.



My mother may have a SUD.

She might be receiving Medication-Assisted Treatment (MAT). My NAS may be a side effect of her appropriate medical care. It is not evidence of abuse or mistreatment.



My potential is limitless.

I am so much more than my NAS diagnosis. My drug exposure will not determine my long-term outcomes. But how you treat me will. When you invest in my family’s health and wellbeing by supporting Medicaid and Early Childhood Education you can expect that I will do as well as any of my peers!

Learn more about Neonatal Abstinence Syndrome at www.nationalperinatal.org



newly validated

Caring for Babies and their Families: Providing Psychosocial Support to NICU Parents

7- Module Online Course in NICU Staff Education



National Perinatal Association
and NICU Parent Network

mynicunetwork.org

Keeping Your Baby Safe from respiratory infections



RSV
COVID-19
colds
flu

How to protect your little ones from germs and viruses

Cold and flu season can be dangerous - 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 hand sanitizers.



Limit Contact with Others

- Stay home when you can.
- Avoid sick people.
- 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

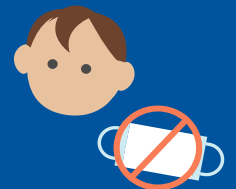
Vaccinations save lives. Protecting your baby from RSV, COVID-19, flu, and pertussis lowers their risks for complications from respiratory infections.



WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask can make it harder for them to breathe.
- Face masks and their straps pose a risk of suffocation and strangulation.
- Remember, a baby can't remove their mask if they're having trouble breathing.



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 viruses 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.
www.nationalperinatal.org/rsv



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Towards

Trauma-Responsive Perinatal Care



 WHEN:

May 15 - 17

 WHERE:



**Sheraton Park
Hotel** in Anaheim,
California

 **National
Perinatal
Association**

* Continuing Education credits available at
no additional cost through our joint provider

WWW.NPACONFERENCE.ORG



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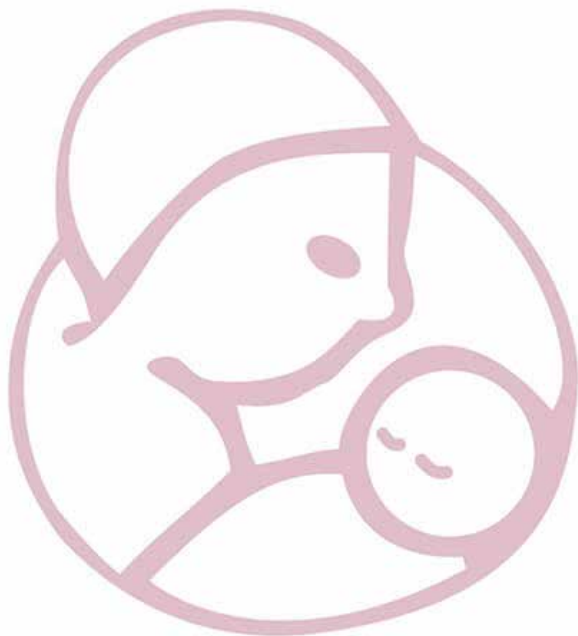
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PAC/LAC's core values for improving maternal and child health have remained constant for over 30 years – a promise to lead, advocate and consult with others.

Leadership

Providing guidance to healthcare professionals, hospitals and healthcare systems, stimulating higher levels of excellence and improving outcomes for mothers and babies.

Advocacy

Providing a voice for healthcare professionals and healthcare systems to improve public policy and state legislation on issues that impact the maternal, child and adolescent population.

Consultation

Providing and promoting dialogue among healthcare professionals with the expectation of shared excellence in the systems that care for women and children.

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Caring for Babies and their Families: Providing Psychosocial Support to NICU Parents

7- Module Online Course in NICU Staff Education



Section on Neonatal-Perinatal Medicine April Update – SONPM Updates: PAS sessions, NRP Grants, AAP EDI Excellence award, ACGME Representative, NCE, and District Elections

Munish Gupta MD, MMSc, FAAP

Dear All,

Hello SONPM friends,

We have a few SONPM and AAP announcements and updates to share. The list is below, followed by more details on each.

1. PAS Neonatology Sessions, Silverman Lecture, and NICU Follow-Up Club (attachments)
2. Reminder: 2024 NRP Grant Applications Open – Intent Applications Due May 3rd, 2024
3. AAP Equity, Diversity, and Inclusion Excellence Award – Nominations Being Accepted, Due June 14th, 2024 (attachment)
4. ACGME Pediatric Review Committee – Call for Nominations for AAP Representative, Due May 24th, 2024 (attachments)
5. SONPM Program at AAP National Conference & Exhibition (NCE) – Save the Dates!

Details:

1. PAS Neonatology Sessions, Silverman Lecture, and NICU Follow-Up Club

Thanks to all who shared PAS sessions. Attached is the compiled list. **This by no means represents all neonatology presentations at PAS!** It only includes events that folks asked to share. It also does not include many neonatology abstract sessions or neonatology special interest group meetings.

Also, a particular shout-out and reminder for two events directly supported by SONPM: the Silverman Lecture and NICU Follow-Up Club.

The Silverman Lecture will be on Sunday, May 5th, 10:00a-10:45a, in Room 107 in the Convention Center. This year's Silverman Lecture will be given by neonatologist Annie Janvier and NICU parent Rebecca Pearce. It is titled "Parent Voices and Evidence-Based Neonatal Care: Where We've Been and Where We Need to Go."

The NICU Follow-Up Club will be held Saturday, May 4th, from 12:30p-2:00p, in the Canadian Room at the Fairmont Royal York. The session will focus on the follow-up of infants with BPD, with talks by Audrey Miller, Connie Williams, and Sarah Sobotka.

2. Reminder: 2024 NRP Grant Applications Open – Intent Applications Due May 3rd, 2024

A friendly reminder that the Neonatal Resuscitation Program is accepting applications for its 2024 grant program. Several grants are available, including those specific for young investigators, nurses, and practitioners. More information, including a link to the application, is available here: [NRP Research Grant and Young Investigator Award Program \(aap.org\)](https://www.aap.org/nrp-research-grant).

“Several folks suggested we share a list of neonatology-related sessions at PAS. If you have a session at PAS that interests SONPM members, please send details along to me; I will put together a list and share it in a future email. There is nothing against abstracts, but given the sheer number of oral and poster abstract presentations, let us keep this to workshops, scholarly sessions, breakouts, SIGs, pre-conference programs, and receptions.”

3. AAP Equity, Diversity, and Inclusion Excellence Award – Nominations Being Accepted, Due June 14th, 2024

From the AAP Board of Directors:

*The American Academy of Pediatrics (AAP) Board of Directors is pleased to announce that nominations are being accepted for the **Equity, Diversity, and Inclusion Excellence Award**. The award was established in May 2022 to recognize excellence in advancing equity, diversity, and inclusion in pediatric medicine. Criteria for nomination include the following:*

- *Nominees must be active Fellow members of the AAP.*
- *Evidence of a single significant achievement or career-long commitment to advancing child health equity through advocacy, clinical practice, research, or promoting EDI within pediatrics. This includes a demonstrated commitment to reduce inequities and disparities in child health and/or bias in health care delivery, to promote diversity in the pediatric workforce through recruitment, mentorship, and sponsorship and/or to foster inclusive learning and professional environments.*
- *Measurable impact at the organizational, institutional, or national level*
- *Demonstration of inclusive leadership*

The AAP Equity, Diversity, and Inclusion Excellence Award will include a plaque presented during the AAP National Conference. Conference registration and travel expenses, including round-trip airfare, 2-night hotel, meals, and incidental expenses, will be covered by the AAP.

Please refer to the attached form to submit your nomination materials to sdiederich@aap.org by June 14th, 2024.

4. **ACGME Pediatric Review Committee – Call for Nominations for AAP Representative. Due May 24th, 2024**

From the AAP Education Department:

The AAP is soliciting nominations for potential representatives to the Accreditation Council for Graduate Medical Education (ACGME) Pediatric Review Committee. This position is for a member with at least three years of experience as a program director (core pediatrics, combined program, or subspecialty fellowship) or DIO, but we will also consider alternate educational leadership experience. Please see the attached document ACGME Nominee Qualifications, which describes the specifications for the backgrounds of potential nominees. The term for this position will be for six years, from July 1st, 2025, through June 30th, 2031.

If interested, please complete the attached ACGME nomination form and return it with a copy of your curriculum vitae to svaladez@aap.org by May 24th, 2024. If you have questions regarding this position or the nomination process, please contact Hilary Haftel at hhaftel@aap.org.

5. **SONPM Program at AAP National Conference & Exhibition (NCE) – Save the Dates!**

We look forward to a terrific SONPM program at the AAP NCE this fall. NCE will be from September 27th to October 1st in Orlando; **the SONPM program will be from September 27th to September 29th.** The SONPM program will include the annual Cone and Merenstein lectures, a session on artificial intelligence in the NICU, a joint session with the Sections on Bioethics and Hospice and Palliative Care, abstracts, presentation of the Apgar, Education, and Landmark Awards, a WIN program, and numerous networking opportunities. The full program agenda should be available soon.

The conference website is here: <https://aapexperience.org/>. Hotel reservations for AAP members open May 1st – for some reason, hotels always fill up quickly, so if you are thinking about coming, you may as well get a reservation!

Thanks all,
Munish

Disclosure: There are no reported conflicts.

NT

Corresponding Author



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Save the Date!
47th Annual AAP District VIII SONPM Conference

June 20 – 23, 2024
Hosted at the Banff Centre
for Arts and Creativity
Banff, Alberta, Canada

<https://cumming.ucalgary.ca/cme/SONPM>

Image by Rita Taylor, Banff Centre for Arts and Creativity



Toronto, Ontario

NICU Follow-Up Club

Saturday, May 4, 2024

12:30 – 2:00 pm

Neurodevelopmental Disability Risks in Children with Tracheostomies and Ventilators

Sarah Sobotka, MD, MSCP

Supporting Development in Infants with Severe BPD: Hospital to Home

Audrey Miller, MD

Preparing an Infant with Severe BPD for Discharge Home: A Family-Centered Interdisciplinary Approach to Optimize Development

Connie Williams, MD, PhD, FRCPC

Moderators: Deborah Campbell, MD, FAAP

Ricki Goldstein, MD, FAAP

Yvette Johnson, MD, FAAP

Raye-Ann DeRegnier, MD, FAAP

Supported by a grant from Abbott

William Silverman, MD Lecture

Sunday, May 5, 2024

10:00-10:45 am

Parent Voices and Evidence-Based Neonatal Care:

Where We've Been and Where We Need to Go


Annie Janvier, MD, FAAP

Rebecca Pearce

Introduction by Munish Gupta, MD, FAAP

Chair, AAP Section on Neonatal-Perinatal Medicine

Sponsored by the AAP Section on Neonatal-Perinatal Medicine



“Even in the middle of taking this course, I could see myself changing the way that I spoke to parents. After taking this course, I am much better at emotionally supporting our NICU families.”

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Please submit your manuscript to: LomaLindaPublishingCompany@gmail.com

Help Our Youth Share Their Story

The International Children's Advisory Network, Inc., (iCAN) is a worldwide network of children's advisory groups, known as Kids Impacting Disease Through Science (KIDS) and Young Persons Advisory Groups (YPAGS). These dedicated youth member groups work in unison around the world to provide a voice for children and families in medicine, research, and innovation. Every year iCAN hosts a summit that brings these groups together in shared experience and camaraderie. iCAN is a tax exempt organization as described in Section 501(c)3 of the Internal Revenue Code.

We want as many children to come to the summit as possible. However, attending the Summit is not always possible for our families who often experience financial hardships. So iCAN pays for lodging, most food, and a transportation stipend in addition to summit activities. As more youth join iCAN, we need your help more than ever! Your tax-deductible donation of \$1,000 will help bring a child to the Summit, to make it possible for that child to share their voice, and to interact with medical professionals and other kids like them. We will acknowledge you as an individual donor or you may dedicate the donation in honor of a loved one, as you wish.



www.icanresearch.org #iCANMakeADifference   



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NANT 14

Champions of Neonatal Development



PRE-CONFERENCE

April 11, 2024

MAIN CONFERENCE

April 12-13, 2024



LOCATION

Miramar Beach, FL



Sponsored By: National Association of Neonatal Therapists*

NANT 14

NANT 14 will be held at the Sandestin Golf & Beach Resort, Miramar, FL from April 12 -13, 2024, with the Pre-Conference on April 11, 2024.

[NANT 14 Info](#)

[Submit an Abstract](#)

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2018

Genetics Corner: Severe Clinical Course and Fatal Outcome in a Premature Female Infant with Filamin A (FLNA)-Associated Periventricular Heterotopia

Kimberly L. Hillyer, DNP; Robin D. Clark, MD

“A 29-week gestation premature female of extremely low birth weight (<1,000 grams) was born to an African American primigravida mother at a regional hospital with a level III NICU.”

Case Summary

A 29-week gestation premature female of extremely low birth weight (<1,000 grams) was born to an African American primigravida mother at a regional hospital with a level III NICU. The pregnancy was complicated by late entry into prenatal care in the second trimester, and maternal hypertension was treated with Labetalol and Nifedipine. Mother had emesis throughout pregnancy. She was admitted for hematemesis on the day prior to delivery. At admission, there was vaginal bleeding, and placental abruption was suspected. No prenatal steroids were given. An episode of prolonged fetal bradycardia prompted an emergency C-section under general anesthesia. The baby girl was delivered in the breech presentation. Apgar scores were 1, 6, and 7 at one, five, and ten minutes, respectively. Her birth weight was 950 grams (Z-score -0.74), birth length 35.5 cm (Z-score -0.63), and head circumference 26 cm (Z-score 0).

At the referring hospital, she developed Necrotizing Enterocolitis (NEC) with abdominal distention, emesis, and hematochezia on day of life 11. Abdominal x-ray revealed NEC stage IIB (Bell's criteria) with pneumatosis, portal venous gas, and no identifiable perforation. She was transferred to our hospital for surgical evaluation on day of life 12. She did not improve with medical management (bowel rest and antibiotics), and her respiratory failure worsened with progressive abdominal distension and persistent thrombocytopenia. She developed septic shock with hypotension requiring multiple blood products, Epinephrine drip, and Solu-Cortef. Even though her X-ray never showed a perforation, surgery was performed because of her worsening clinical status. An ileal resection was performed on day of life 14 after continuous necrosis of the ileum that spared the terminal ileum was encountered on exploratory laparotomy. She required five intestinal surgical procedures for ongoing and persistent ischemia that resulted in a long period of intestinal discontinuity. After a hand-sewn ileo-ileostomy on day of life 105, she had 54 centimeters of proximal and 16 centimeters of distal bowel with the ileocecal valve and entire colon intact. Throughout her hospital course, she had recurring gastrointestinal problems, including malabsorption, positive reducing substances, moderate to severe malnutrition, feeding intolerance even with elemental formulas, signs of short gut syn-

drome (dumping), and a rectal prolapse. At the time of her death, she had been NPO for three days on total parenteral nutrition.

She was intubated in the delivery room and treated with a dose of surfactant (CUROSURF). She was placed on the High Frequency Oscillator ventilator (HFOV) and then extubated on day of life two. Prior to transfer, due to impending respiratory failure secondary to abdominal distention from NEC, she was reintubated and mechanically ventilated. She was transitioned to non-invasive ventilation multiple times, but due to her chronic lung disease, she would be reintubated for hypercarbia and hypoxia. Ultimately, she developed pulmonary hypertension that did not improve with inhaled nitric oxide, Sildenafil, or Bosentan therapy. She eventually succumbed to respiratory failure on day of life 176, at a corrected gestational age of 54 weeks, when she was transitioned to comfort care and mechanical ventilation was withdrawn.

An initial echocardiogram at our hospital on day of life 12 showed a small patent foramen ovale (PFO), large patent ductus arteriosus (PDA), and trivial tricuspid valve regurgitation. Serial echocardiographs were unchanged until she developed signs of increased pulmonary pressures on day of life 97, at 42 weeks 5 days corrected gestational age. At the time of her death, despite multiple medical interventions, she had severe persistent pulmonary hypertension (PPHN).

A head ultrasound on day of life 11 showed irregular contours of the lateral ventricle walls. On day of life 23, a follow-up ultrasound showed no intracranial hemorrhage but increasing moderate third and mild lateral ventriculomegaly and abnormal undulating contour/nodularity of the lateral ventricles, suspicious for heterotopia. On day of life 28, brain MR neuroimaging showed diffuse subependymal nodular gray matter heterotopia of the lateral ventricles and diffusely decreased sulcal gyration, lateral and third ventriculomegaly, mega cisterna magna and cerebellar hypoplasia. There was a cavum septum pellucidum and vergae. The corpus callosum was severely thinned/hypoplastic. Diffusion restriction was normal (See Figure 1). She had little spontaneous movement of the lower extremities, with fixed extension at the knees and excessive hip flexion beyond what was expected for a breech presentation. Ultrasound and MRI imaging of the T-spine and L-spine were normal except for a slightly prominent canal in the distal thoracic cord. The cord terminated as expected at L1-L2.

“A head ultrasound on day of life 11 showed irregular contours of the lateral ventricle walls.”

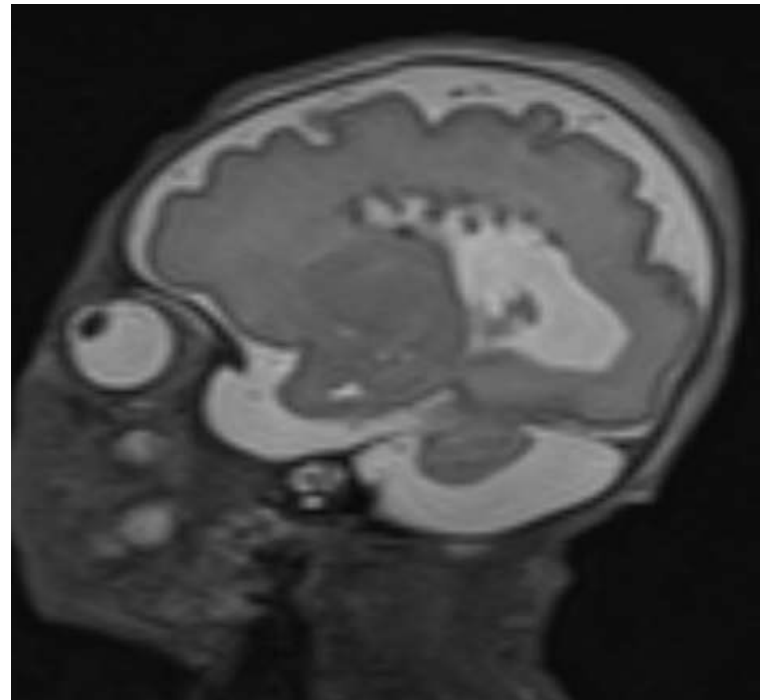
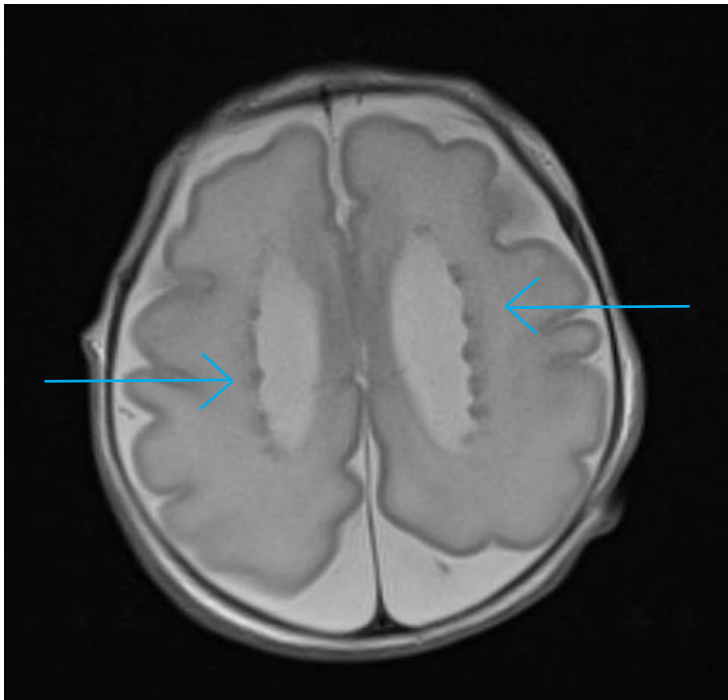


Figure 1 A, B. Brain MR imaging on day of life 28 shows A). an irregular and decreased gyral pattern with subependymal nodules (heterotopias) and B), enlarged cisterna magna and cerebellar hypoplasia.

Our patient was evaluated for seizures early in her hospitalization, but a video EEG was unable to correlate her intermittent tremulous movements with seizures. She continued to be monitored for seizures but never had one. Due to her agitation, she remained on medications (Clonidine q 3-6 hr, Versed prn) that could mask clinical seizures.

“A pathogenic heterozygous variant was identified in exon 22 of the X-linked gene, filamin A, *FLNA* c.3775C>T (p.Gln1259*), which established the diagnosis of X-linked subependymal heterotopia on day of life 121.”

The genetic testing was repeated, and the results were delayed because of a specimen problem. A brain malformation gene panel was ordered at the recommendation of the Neurology consultant. The initial sample was inadequate, and the test was canceled, although the care team was not immediately informed. A Genetics consultation was requested on day of life 64. A chromosome microarray was normal. The gene panel was repeated on day of life 83 with a new sample. A pathogenic heterozygous variant was identified in exon 22 of the X-linked gene, filamin A, *FLNA* c.3775C>T (p.Gln1259*), which established the diagnosis of X-linked subependymal heterotopia on day of life 121. Her mother was then tested for this X-linked variant and was found to be a carrier. By the time her daughter died at five months of age (day of life 176), her mother told one of the authors (KLH) that she was pregnant. She was then referred to the maternal-fetal medicine team for genetic counseling, fetal imaging, prenatal diagnostic testing, and high-risk obstetric follow-up.

Discussion:

This premature infant succumbed to pulmonary and GI complications that are common in early premature infants: bronchopulmonary dysplasia and necrotizing enterocolitis. Although she presented with subependymal nodules, a CNS phenotype associated with *FLNA* (OMIM 300017), relatively early in her course, it took several months to establish the genetic basis of her diagnosis. We propose that the heterozygous pathogenic variant in this X-linked gene *also* contributed to her poor respiratory and cardiac status. Pathogenic variants in *FLNA* cause a variety of X-linked recessive and dominant phenotypes that can affect both males and females. (1) The filamin A protein forms a homodimer that provides cellular scaffolding for over 90 interacting partners, which explains its importance in many tissue types and organ systems (Figure 2). Our patient's variant causes a premature truncation in the filamin A protein (the asterisk * in the p. nomenclature indicates a protein-truncating variant), which means that the abnormal filamin A protein product probably would not be able to form a homodimer. Because of the early inactivation of one X-chromosome in each cell in the developing female embryo, female carriers of a heterozygous pathogenic variant in *FLNA* are functionally mosaic; cells with the active X that bears a normal *FLNA* allele produce a normal filamin A protein product, whereas cells with the active X that bears the variant *FLNA* allele do not.

Loss-of-function (LOF) variants in Filamin A protein were initially described in girls with periventricular nodular heterotopias with no skeletal phenotype. Most males with a LOF variant do not survive. Survival in affected males with LOF variants has been described in individuals with mosaic or hypomorphic variants. However, males with gain-of-function (GOF) variants in the same gene have a variety of skeletal phenotypes in the otopalatodigital (OPD) family of disorders. To further complicate the clinical picture, some *FLNA* variants produce a mix of features associated with both LOF and GOF phenotypes.

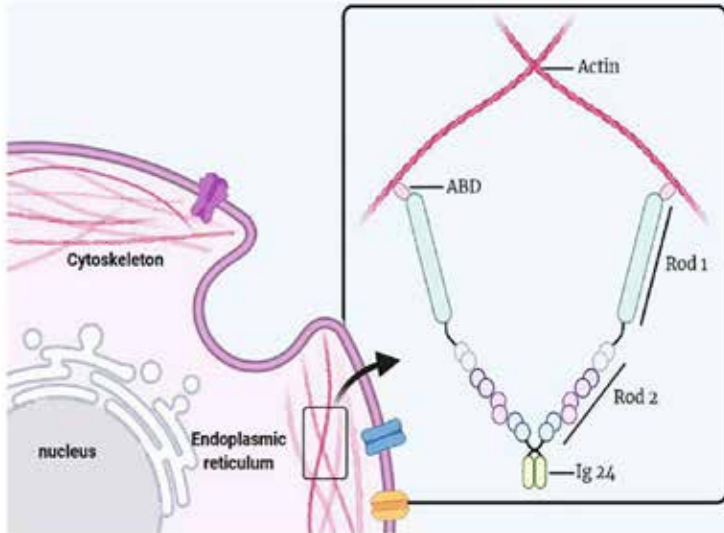


Figure 2. (Adapted from Zhou *et al.* (2)) Actin binds to the Filamin A homodimer's actin-binding domain (ABD) in the cytoplasm. Our patient's variant in the Rod2 domain causes a premature truncation of this protein.

The LOF *FLNA* pathogenic variant is responsible for periventricular nodular heterotopia (PNH, OMIM 300049) because, without filamin A, neurons in the periventricular region of the brain fail to migrate to the cortex. Stagnation of neuronal migration, which occurs from the 6th to the 24th week of pregnancy, causes nodules in the ventricular walls, which can be seen on head ultrasounds (1).

In our patient, a routine head ultrasound identified uncalcified subependymal nodules along the surface of the lateral ventricles, which eventually led to the diagnosis of a pathogenic variant in *FLNA* causing X-linked periventricular nodular heterotopia (X-linked PVNH). X-linked PVNH primarily affects females. Affected families have an excess of miscarriages and an under-representation of males, suggesting prenatal lethality for males who are hemizygous for LOF *FLNA* variants (3).

Extreme prematurity affects so many organ systems that it can confound the diagnosis of genetic conditions. Our patient's pathological findings in pulmonary, cardiac (PDA), and GI systems were initially attributed to prematurity. However, in retrospect, the severity of these problems might have been a clue to the presence of an underlying disorder, in this case, abnormal filamin A-actin binding in those tissues. Below, we discuss the literature on how pathogenic variants in *FLNA* may contribute to respiratory, cardiac,

CNS, and GI dysfunction, exacerbating the problems typically attributed to prematurity alone.

Respiratory:

FLNA-associated lung disease can mimic bronchopulmonary dysplasia, according to West *et al.*, who describe the early presentation but late diagnosis of interstitial lung disease in an 11-year-old female with a LOF variant in *FLNA*. (4) Shah *et al.* (5) describe nine patients with variants in *FLNA*, four females and five males aged 15 months to 24 years. These patients had progressive pulmonary disease with worsening chest imaging ranging from mild interstitial prominence to atelectasis, interstitial densities, and hyperinflation. Three patients presented with interstitial lung disease during the neonatal period or early infancy with respiratory distress or respiratory failure requiring supplemental oxygen or assisted ventilation via tracheostomy. Their patient #4 had progressive respiratory signs with recurrent pneumonia that required bronchodilators at age 1, a PDA persisted at age 2, hyperinflation on chest imaging at age 3, and pulmonary hypertension at age 6. Meliotta *et al.* (6) describe a preterm infant with features similar to our patient, who also had a lethal outcome: a 35-week gestation female with an intronic variant in *FLNA* had pulmonary hypertension, a persistent PDA, and periventricular nodular heterotopia. They conclude that lung and brain involvement, associated with left ventricular outflow obstruction and persistent ductus arteriosus patency, should highly suggest *FLNA* gene alterations in a female newborn.

Cardiovascular:

Up to 65% of individuals with variants in *FLNA* have cardiovascular manifestations: most commonly persistent patent ductus arteriosus, dilation and rupture of thoracic aorta, atrial and ventricular septal defects, valvular dystrophy, vasculopathy and/or coagulopathy that leads to strokes (1). Reinstein *et al.* (7) reported multiple structural cardiovascular problems associated with *FLNA* variants and progressive changes in the function of the mitral and aortic valves. In one patient, pulmonary pressures stayed at systemic levels after a PDA ligation with dilation of the main pulmonary artery, aorta, and dysplastic valves. Reactive pulmonary artery pressures remained despite Sildenafil. Their second patient had a VSD identified in the neonatal period, which was surgically repaired. Following the repair, she developed persistent pulmonary hypertension (PPHN), which was treated with Bosentan.

FLNA Deficiency: Frequency of Select Features (Males and Females)

Feature	% of Persons w/Feature	Comment
Seizure disorder	75%-90%	
Cardiovascular	65%	Patent ductus arteriosus; dilatation & rupture of thoracic aorta; atrial & ventricular septal defects; valvular dystrophy; vasculopathy &/or coagulopathy → stroke
Pulmonary disease	25%	Pulmonary hypertension, alveolar hypoplasia, emphysema, asthma, chronic bronchitis
↓ gastric motility	6%	Chronic intestinal pseudo-obstruction, feeding difficulties
Joint hypermobility	<15%	
Distally shortened digits	<5%	

Table 1 The frequencies of common features are listed for females and males with *FLNA* deficiency, adapted from Chen and Walsh (1).

Prolonged PDAs, VSDs, and mitral and aortic valve abnormalities have been reported in patients with LOF variants in *FLNA*. Chen, Choudry, *et al.*(8) analyzed cardiac data on 114 patients with LOF *FLNA* variants, both children and adults, with periventricular nodular heterotopia (PVNH), with 75 *FLNA* mutations observed in 80 families. Most (64.9%) subjects had a cardiac anomaly or vascular abnormality (80.8% of males and 60.2% of females). Our patient's initial echocardiogram showed a PDA and a patent foramen ovale (PFO), but all valves were normal, along with pulmonary arteries. Our patient's PDA remained patent at the time of her death at 54 weeks corrected gestational age. Although no specific malformations were initially identified, she later developed PPHN, tricuspid, mitral, and pulmonary valve regurgitation, indicating progression of cardiovascular involvement. Bandaru *et al.*(9) describe the endothelial consequences of filamin A dysfunction in macrophage, monocytes, and T-cells and their roles in cellular remodeling.

Neurological:

Gerard-Blanluet *et al.*(10) note the importance of distinguishing expected premature brain imaging findings, such as reduced white matter and even microcephaly, which can be seen with the ELBW preterm infant. Following the death of a male infant with *FLNA*, these authors documented the neuropathology of thin corpus callosum and periventricular white matter with pyramidal neurons creating heterotopic nodules bulging into the enlarged and irregular ventricles (Figure 3). Similarly, our patient had thin versus severely hypoplastic corpus callosum and subependymal nodular gray matter heterotopia of the lateral ventricles.

In addition to the migration disorder that results in periventricular heterotopias, Gerard-Blanluet *et al.* (10) hypothesize that reduced myelination stems from filamin's dysfunctional role in neuronal differentiation and proliferation.

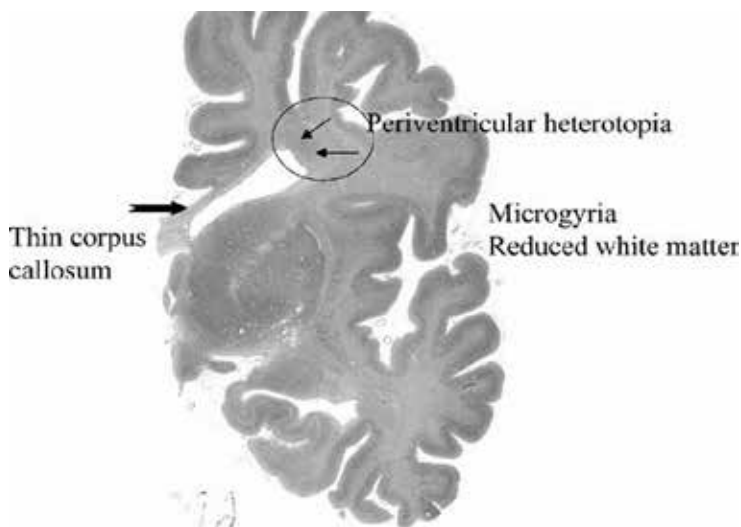


Figure 3. Brain tissue obtained from an autopsy shows similar findings to our patient. In this sample, the coronal section of the brain has atrophic convolutions, a thin corpus callosum, and a slightly enlarged lateral ventricle with periventricular nodules. (Adapted from Gerard-Blanluet *et al.* (10))

Lange *et al.* (11) reviewed 47 patients with *FLNA*-associated periventricular heterotopia. Cerebral MR imaging revealed a mega cisterna magna in 18 of 20 patients and corpus callosal hypoplasia in 8 of 20 patients, findings that were also present in our patient.

Seizures disorders affect the majority of both females and males with *FLNA*-associated periventricular nodular heterotopia (1). Seizures may begin in the newborn period but can also present for the first time during childhood or as adults. (1, 10, 11) Our patient did not have seizures during infancy.

Gastrointestinal:

Our patient had necrotizing enterocolitis and rectal prolapse with malnutrition, which was managed with prolonged TPN. These problems have not been reported in other patients with *FLNA* LOF variants. However, other GI phenotypes have included congenital intestinal pseudo-obstruction (CIPO), congenital short bowel syndrome, and intestinal malrotation(12) . Zada *et al.*(12) showed that *FLNA* is expressed in the muscle layer of the small intestine. At the time of bowel resections from NEC, multiple specimen pathologies were done that showed extensive mucosal necrosis and hemorrhage and patchy mixed acute and chronic mural inflammation along with acute and chronic serositis and sub-serositis. She had not received the *FLNA* diagnosis during the time of pathology review, and at the time of her death, no autopsy was obtained for further review. Our patient had a complicated course and was never able to reach full enteral feedings, with concern for moderate to severe malnutrition and signs of short bowel syndrome with malabsorption. Kapur *et al.*(13) state that the GI cell muscle shape and migration, which are necessary for peristalsis, are abnormal in patients with *FLNA* variants. We speculate that the effect of abnormal filamin A protein on the GI tract muscle layer could have contributed to her severe GI phenotype, exacerbated by her prematurity.

“In conclusion, our patient was a premature female infant with periventricular heterotopias caused by a pathogenic variant in *FLNA*. This CNS malformation should be recognized as a sign of multisystem disease, which is understandable given the many partner molecules that bind to filamin A in different tissues.”

Musculoskeletal:

One of the phenotypes associated with *FLNA* variants is an Ehlers-Danlos-like syndrome (EDS; OMIM #300537). Reinstein(7) described two families with eleven individuals, both females and males, presenting with periventricular nodular heterotopia and a spectrum of connective tissue abnormalities. *FLNA* variants cause connective tissue features in vascular, cardiac, cutaneous, and joints. These two families showed that the responsible *FLNA* vari-

ants constituted null alleles in females, while males had a broader spectrum of connective tissue abnormalities and harbored hypomorphic *FLNA* variants.

“Consider a loss of function pathogenic variant in the X-linked gene, *FLNA*, as a genetic cause of periventricular heterotopia, especially in affected females. Recognize that pathogenic variants in *FLNA* can cause multisystem involvement and affect many tissue types other than CNS. Request a genetics consultation early in the clinical course whenever a malformation is identified. Recognize the value of an early diagnosis in establishing the best care plan for the patient and counseling the family.”

In conclusion, our patient was a premature female infant with periventricular heterotopias caused by a pathogenic variant in *FLNA*. This CNS malformation should be recognized as a sign of multi-system disease, which is understandable given the many partner molecules that bind to filamin A in different tissues. We believe that our patient’s severe respiratory, cardiac, and GI complications that ordinarily could have been attributed to her prematurity were likely exacerbated by her X-linked pathogenic variant in *FLNA*.

Practical Applications:

1. Consider a loss of function pathogenic variant in the X-linked gene, *FLNA*, as a genetic cause of periventricular heterotopia, especially in affected females.
2. Recognize that pathogenic variants in *FLNA* can cause multisystem involvement and affect many tissue types other than CNS.
 - a. Look for the involvement of other tissues, esp. cardiac, GI, and pulmonary, when loss of function *FLNA* variants cause periventricular nodular heterotopia.
 - b. Think beyond prematurity and consider other contributing factors that can exacerbate pulmonary diseases like BPD and cardiac anomalies like persistent PDA.
3. Request a genetics consultation early in the clinical course whenever a malformation is identified.
4. Recognize the value of an early diagnosis in establishing the best care plan for the patient and counseling the family.
 - a. Even when a genetic disorder is identified, understand that it may take time for the care team and the family to reassess assumptions about the patient’s prognosis and plans for clinical care. It took months for the providers and the family to decide that comfort care was the best option for this patient. Also, the patient’s mother learned that she was a carrier for the same *FLNA* variant at about the same time she became pregnant again. The diagnosis of her daughter allowed a timely

diagnosis in the mother and her referral for specialized prenatal care in her next at-risk pregnancy.

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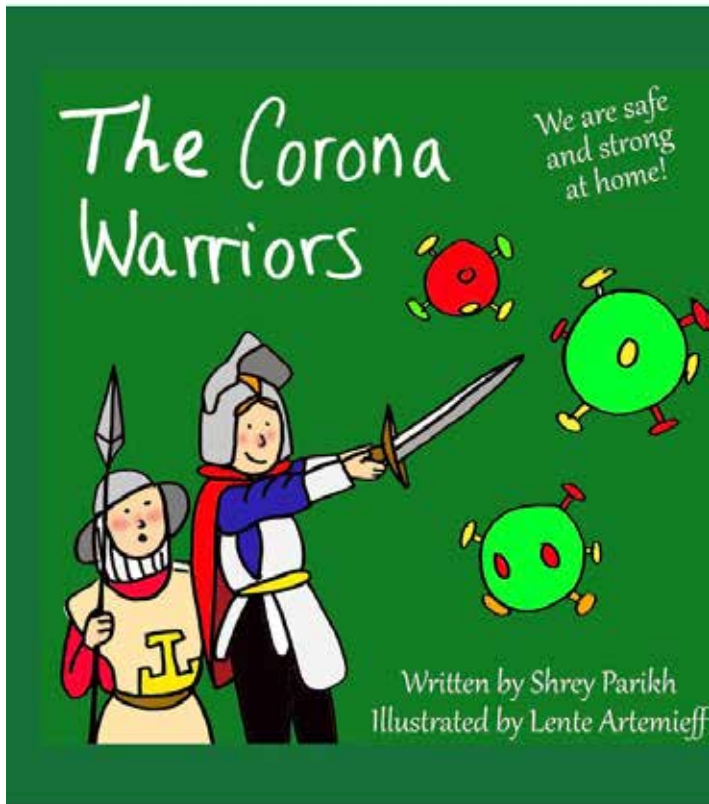
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Immunizations save lives. Stay up-to-date with your family's flu vaccinations and COVID-19 boosters. This helps our community stay safe by stopping the spread of deadly viruses.



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Morgan Kowalski

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“By sharing evidence-based practices and critical family perspectives during webinars and promoting accountability through Office Hours, we are creating a forward movement to close the healthcare gap. Click here to sign up for office hours at no cost, and visit our website, www.fcctaskforce.org, to subscribe and receive invitations to our free, educational webinars!”

In addition to providing small and large group learning opportunities, we've created a monthly poll to address specific questions from our members. Take a look at our February Poll and results below. To access previous polls and poll results, click [here](#).

February Poll Results:

You asked, “Typically, centers ask NICU parents to wait 1-1.5 years after discharge to join a Family Advisory Council. Considering this, **how long should a family who had a neonatal loss journey wait when they are eager to join?**”

We received many thoughtful answers, some from bereaved NICU parents themselves. Thank you to those brave individuals

for providing insight on this sensitive topic.

“You asked, ‘Typically, centers ask NICU parents to wait 1-1.5 years after discharge to join a Family Advisory Council. Considering this, how long should a family who had a neonatal loss journey wait when they are eager to join?’”

Responses:

“Depends on the family, but our rule of thumb is 12 months”

“Whenever they feel ready”

“For as long as THEY are not ready to resume exposure to a clinical environment”

“1 year”

“1.5 years:

“2 years”

“Minimum 2 years”

“2-4 years”

“I think this is such a case-by-case basis. Bereaved parents may want to start working on meaning-making soon after their child dies. I think it would be important to have a meeting with them and discuss the impact of being back in the hospital and what to do if they have an emotional reaction. I could see asking them to wait at least a few months - [giving them] a chance to experience grief reactions [that may] become more intense and frequent (which can happen months after). Maybe take a break from [in-person] meetings, move to provide feedback online, etc., and maybe have a check-in with the chair of the FAC regularly. The goal would be to ensure they are protected from retraumatization and know what to do if they find themselves impacted or triggered during or after meetings.”

“Speaking as a bereaved parent and knowing that each parent's grief journey looks different, this is a tricky question. At Hand to



Hold, we typically encourage peer mentors and Family Support Specialists to wait up to two years before applying. This allows them to surpass the one-year and two-year milestones that are often the most difficult. If they are at risk of prolonged or complicated grief, this also allows more time to identify and address these risk factors. While I have come across parents who donate items to the NICU early on in memory of their child and who are eager to give back in other ways, it can sometimes catch them off guard when they are back in the hospital, and they realize they are not quite ready to go back into that environment, and that they may need a little more time to heal. It can be incredibly healing to start paying it forward immediately, and some parents demonstrate more resilience than others.”

“I could see asking them to wait at least a few months - [giving them] a chance to experience grief reactions [that may] become more intense and frequent (which can happen months after). Maybe take a break from [in-person] meetings, move to provide feedback online, etc., and maybe have a check-in with the chair of the FAC regularly.”

“It’s different for each family. Some families can join one year after their loss.”

“They should be allowed to join whenever they’re ready - no gate-keeping!”

“As soon as they feel ready, and feel like it will help them in their healing.”

“I had a NICU loss, and I just can’t imagine a family being ‘eager to join’ an FAC. There is a lot of processing and healing that needs to take place after a NICU journey, especially when there is a loss. Having said that, sometimes processing and healing takes place by sharing that story and serving other NICU families, which causes me to ask: Why do we wait a year? Perhaps it would be better to consider the individual and their reasons for joining the FAC. It could be a very healing experience for them.”

“I myself am a NICU parent who had twins that were born at 34 weeks. I was very unprepared after a life-threatening C-Section and my twins going to the NICU. They did very well in the NICU, despite a COVID setback, and went home stable and healthy a few weeks later. I personally do not have the same journey experience as someone who has gone through losing their child and cannot attest to how I might feel afterward in regards to wanting to be a part of a Family Advisory Council. However, knowing the circumstances are different for parents who have had a neonatal loss journey, I can only give my best assumption as to why they may be eager to do so and how long to wait to allow them to. There is a possibility part of their healing process is to join the Family Advisory Council and help advocate for others who may go through a neonatal loss journey. I also understand that it can cause a lot of negative emotions and triggering memories to be a part of something related to their loss too soon. The time recommended of 1-1.5 years could be a good recommendation for parents wanting to join the council and return to support when they have had a successful discharge and time to recover and bond

with their baby/babies. Considering these are two very different NICU experiences, my opinion would be that very different neonatal journeys (comparing neonatal loss with successful discharge) would probably need different recommended wait periods to join the Family Advisory Council. For some it may help them heal; for others, it may be may take longer than the 1-1.5 years.”

“I had a 24-weeker who survived, but I have had multiple pregnancy losses and work for a local nonprofit called [HAND: Helping After Neonatal Death](#). Our bereaved families can volunteer at any time, but they can only volunteer for parent-facing roles starting one year after their loss. It is very triggering to volunteer in the area in which your trauma is based, so we encourage eager volunteers to check in with seasoned volunteers regularly to see if they’re getting burned out. If they are, then we scale back their workload or have them wait a bit longer before they volunteer again.”

“ ‘Considering these are two very different NICU experiences, my opinion would be that very different neonatal journeys (comparing neonatal loss with successful discharge) would probably need different recommended wait periods to join the Family Advisory Council. For some it may help them heal; for others, it may be may take longer than the 1-1.5 years.’ ”

“We have found it varies from one family to another. Generally, groups wait one year, but then again, this may not be enough for some, and some are ready quicker. Then, it depends on the “task” parents want to do. Many do not want to come back to the hospital, but can help in several ways. Others teach palliative care courses with us, while others come to the unit. We have documented this in an article [here](#).”

Disclosure: The author has no conflicts of interests to disclose.

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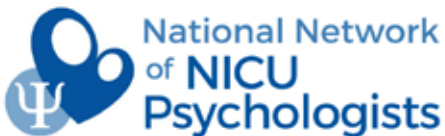
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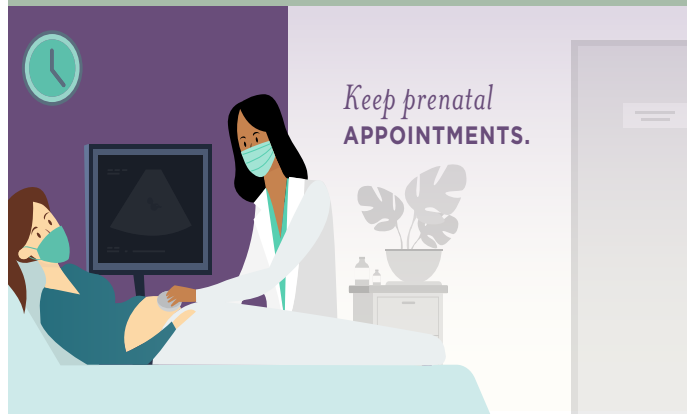
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Yes

Yes

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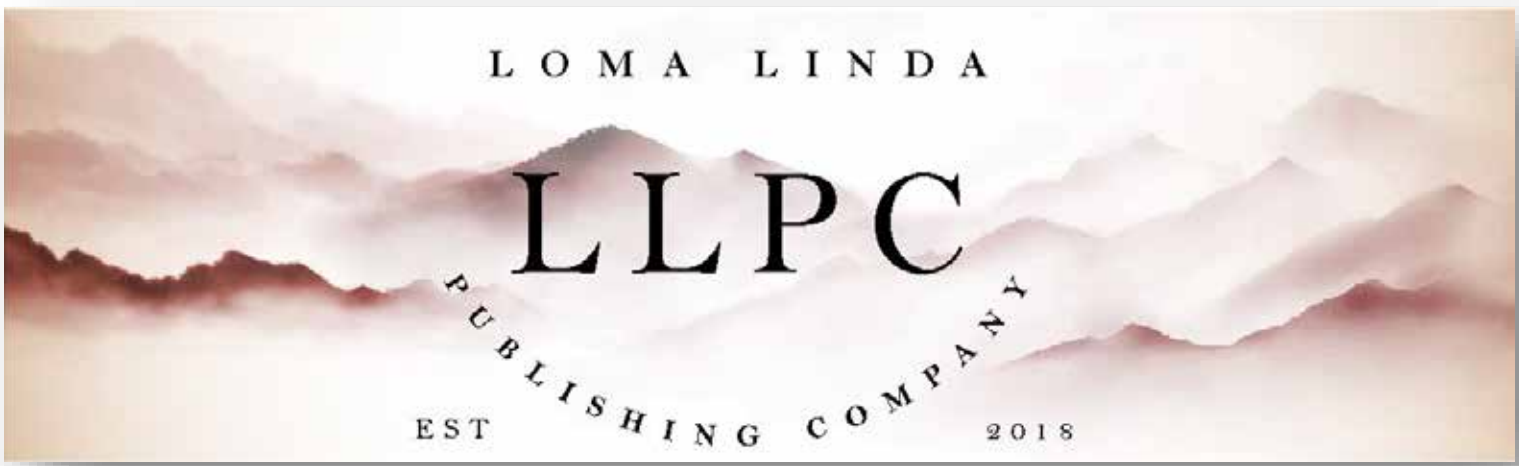
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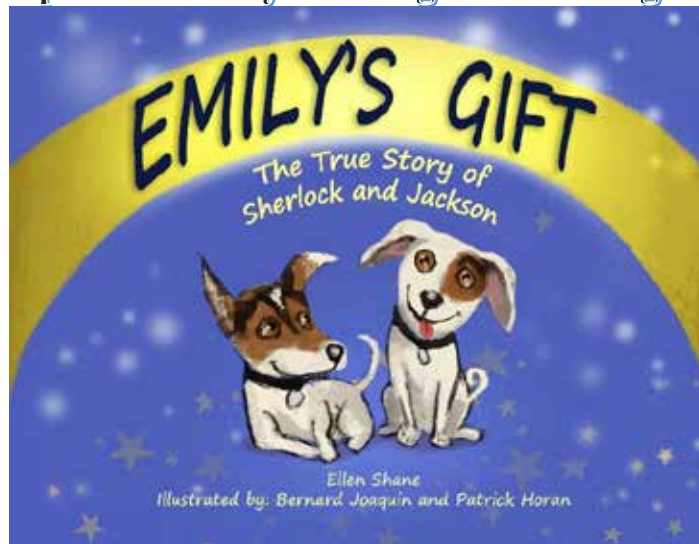
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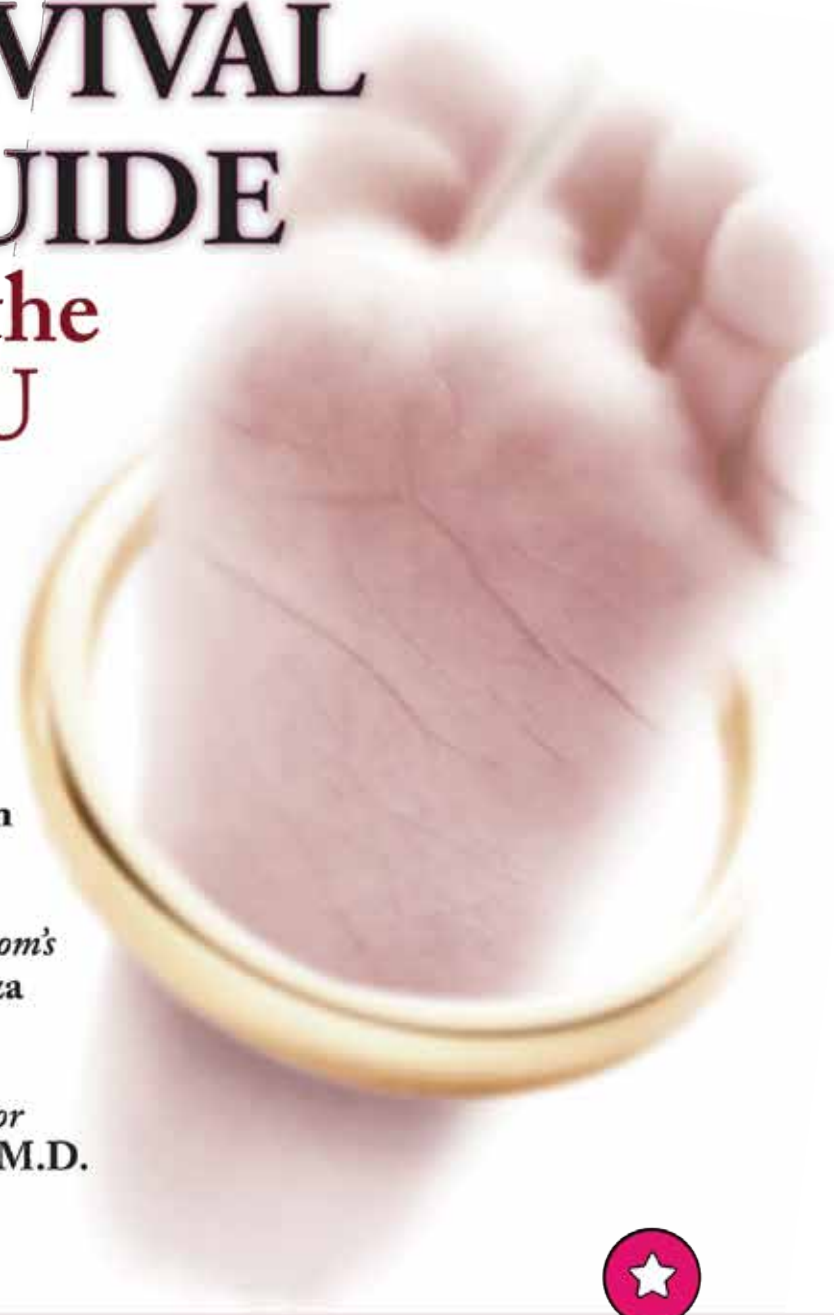
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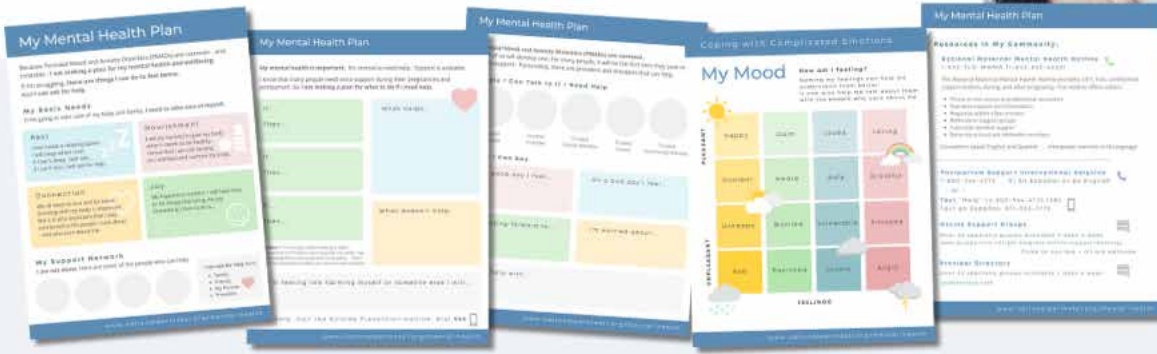
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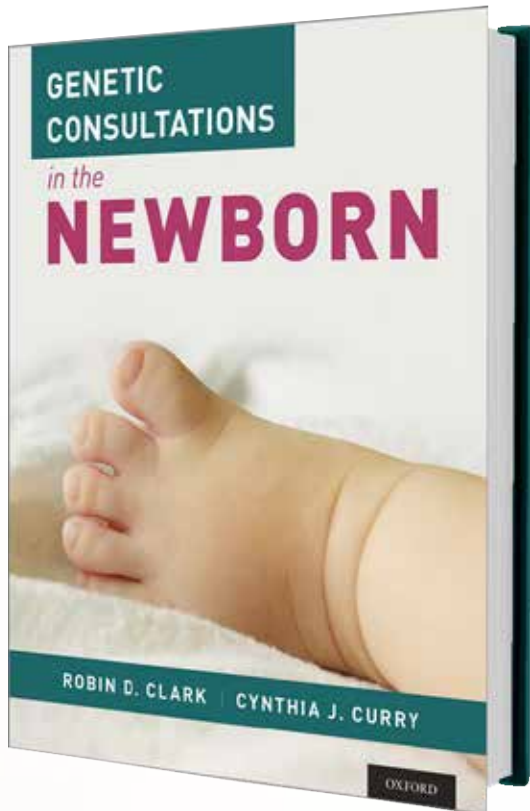
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Clinical Pearl: Neonatal Tuberculosis: Epidemiology, Presentation, and Treatment

Gustave H. Falciglia, MD, Joseph R. Hageman, MD, Walid Hussain, MD, Lolita Alcocer Alkureishi, MD, Kshama Shah, MD, Mitchell Goldstein, MD, MBA, CML

*“A very interesting and worrisome pattern seems to be emerging concerning *Mycobacterium tuberculosis* (M. Tuberculosis) incidence case counts in the United States (US). After almost three decades of continued decline, case counts of tuberculosis (TB) declined precipitously in 2020 with the COVID-19 pandemic. Unfortunately, since 2020, TB case counts have increased each year, with an increase of 1,295 cases (16%) as compared to 2022. (1)”*

A very interesting and worrisome pattern seems to be emerging concerning *Mycobacterium tuberculosis* (M. Tuberculosis) incidence case counts in the United States (US). After almost three decades of continued decline, case counts of tuberculosis (TB) declined precipitously in 2020 with the COVID-19 pandemic. Unfortunately, since 2020, TB case counts have increased each year, with an increase of 1,295 cases (16%) as compared to 2022. (1) That means that the rates of TB in 2023 are back to where they were a decade ago, and while increases are being seen amongst both US-born persons, the most substantial increases are being seen amongst foreign-born persons. The decline in TB, with a subsequent increase, is probably related to a shifting of massive resources towards managing the pandemic – an initial decline supported by social distancing and delayed access to medical care followed by the recent increased incidence fueled by delayed TB diagnosis and treatment. While rates of TB are lower in the US than in the rest of the world (1), the trend underscores the importance of ensuring public health programs directed at TB prevention, control, and elimination are adequately funded and resourced.

Three-quarters of TB cases in the US are in foreign-born individuals. (1) While rates of TB increased in both foreign and US-born individuals, it was twice as much in the former. Roughly a third of new cases occurred in women, leading the Center for Disease

and Control (CDC) to recently add pregnancy status to their reporting, though TB during pregnancy is uncommon. (2) With the increased rates of TB, neonatologists and clinicians in the neonatal intensive care unit (NICU) need to be prepared to diagnose and manage these uncommon cases when they arise.

“Neonatal TB can be acquired congenitally or perinatally. (3) Congenital TB occurs in utero through hematogenous spread from the mother or birthing parent to the fetus or during delivery when the infant breathes in infected droplets or swallows or aspirates infected amniotic fluid. (3)”

Neonatal TB can be acquired congenitally or perinatally. (3) Congenital TB occurs in utero through hematogenous spread from the mother or birthing parent to the fetus or during delivery when the infant breathes in infected droplets or swallows or aspirates infected amniotic fluid. (3) Perinatal TB occurs following delivery, likely due to the proximity of the infant to the mother or birthing parent and variable adherence to masking precautions. (3) In an analysis of 170 cases of congenital TB between 1946 and 2009, 95% of infants were born to mothers with active TB. (4) Most maternal diagnoses were made after delivery, and almost a quarter of mothers and birthing parents were diagnosed following infant diagnosis. (4) It is important to note that breast milk does not contain *M. tuberculosis*. Thus, the transmission of TB through breast milk does not occur without the coexistence of active TB mastitis. (5) There is considerable variation in how long masking should be in effect for parents and caregivers who have active TB and are

“Thus, the transmission of TB through breast milk does not occur without the coexistence of active TB mastitis. (5) There is considerable variation in how long masking should be in effect for parents and caregivers who have active TB and are still infectious. (5)”

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still infectious. (5)

Though most infants with congenital TB are born to those with active infection,(4) many infants born to a mother or birthing parent

“Though most infants with congenital TB are born to those with active infection,(4) many infants born to a mother or birthing parent with active TB will not be diagnosed with congenital TB. Despite the lack of congenital TB, infection of the mother or birthing parent will still impact the fetus.”

with active TB will not be diagnosed with congenital TB. Despite the lack of congenital TB, infection of the mother or birthing parent will still impact the fetus. A 2016 systematic review and meta-analysis of outcomes associated with active maternal TB found 13 articles with 3,384 affected pregnant women. (6) Compared to 119,448 controls, perinatal mortality, preterm birth, low birth weight, and a low 1-minute Apgar were 4, 1.6, 1.7, and 5 times more likely in the infants born to mothers with TB. Infants born to those with active TB were born about one week earlier and almost 300 grams less. Congenital TB was not reported in any of the 13 studies. (6)

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Though congenital TB may be rare, morbidity and mortality are significant. About 80% will experience respiratory distress,⁽⁷⁾ 60% fever, 60% hepatomegaly or splenomegaly, 40% altered alertness (lethargy or hyperactivity), 40% feeding difficulties, and 20-30% lymphadenopathy. ^(4,7) More than 40% of affected infants will die. ^(4,7) With presentation patterns similar to sepsis but usually failing to improve with initial broad-spectrum antibiotics, mortality risk is likely worsened by delayed diagnosis and subsequent treatment. ^(3, 9) Some infants may have normal early chest x-ray findings, but 93% of affected infants have early abnormalities on X-ray, including miliary TB, pulmonary nodules, and pneumonia. ⁽⁴⁾ Miliary TB (Figure 1) is notable for diffusely spreading 1-3 mm nodules throughout the lungs. ⁽⁸⁾ Though symptoms can be present at birth, on average, infants will present with congenital TB at 21 days (\pm 20 days). ⁽⁴⁾

“Laboratory findings associated with congenital TB include leukocytosis, anemia, moderate thrombocytopenia (<100,000), abnormal liver function tests, and elevated inflammatory markers such as C-reactive protein. (4) Interestingly, the tuberculin skin test is more likely to be reactive after several weeks to months and, thus, only positive about 13% of the time at presentation. (4, 9)”

Laboratory findings associated with congenital TB include leukocytosis, anemia, moderate thrombocytopenia (<100,000), abnormal liver function tests, and elevated inflammatory markers such as C-reactive protein. ⁽⁴⁾ Interestingly, the tuberculin skin test is more likely to be reactive after several weeks to months and, thus, only positive about 13% of the time at presentation. ^(4, 9) Cultures from blood, cerebrospinal fluid, gastric aspirate, or abscesses may demonstrate the characteristic acid-fast bacilli of *M. tuberculosis* supporting the diagnosis. ^(3,7)

Risk factors for maternal and congenital TB include foreign-born in or travel to countries with high rates of TB, incarceration, illicit drug use, homelessness, healthcare work, or contact with a confirmed case. ⁽³⁾ Diagnosis of congenital TB using the Cantwell criteria, modified in 1994, includes an *M. tuberculosis* lesion and at least one of the following: lesion from any source in the first week, a hepatic granuloma (this occurs when the bacteria passes to the liver *in utero* through the umbilical vein), maternal genital tract infection or negative testing in all individuals who could have been a source of postnatal transmission. ⁽³⁾

Treatment of the infant with TB is the same whether it is acquired congenitally or perinatally. Course and length of treatment depend on several factors. If the infant has active TB with evidence of TB and symptoms, then in consultation with a pediatric infectious disease specialist, the infant should receive therapy with rifampin, isoniazid, pyrazinamide, and ethambutol (RIPE) for four months, followed by rifampin and isoniazid for several months depending on clinical manifestations and culture sensitivities. CSF testing is necessary to determine the need for corticosteroid treatment in the event of meningitic TB. ⁽¹⁰⁾ If the infant does not have active TB but is born to a mother or birthing person with active TB, then the infant should receive isoniazid. The length depends on

whether the infant's tuberculin test is negative or positive. Again, treatment should be conducted in consultation with a pediatric infectious disease specialist because there are many nuances, including resistant *M. tuberculosis* organisms, and public health should be notified to facilitate tracking and treatment monitoring if needed.

“Diagnosis of neonatal TB requires a high degree of suspicion since most mothers or birthing parents will not have a prenatal diagnosis of active TB, and several will be asymptomatic. (3,4) Therefore, screening should be in place to identify those at high risk and requiring TB testing. Furthermore, the resurgence of TB following the pandemic highlights the importance of TB programs.”

Diagnosis of neonatal TB requires a high degree of suspicion since most mothers or birthing parents will not have a prenatal diagnosis of active TB, and several will be asymptomatic. ^(3,4) Therefore, screening should be in place to identify those at high risk and requiring TB testing. Furthermore, the resurgence of TB following the pandemic highlights the importance of TB programs. While reinstating the necessary funding and resources for these programs is essential, it is equally important that national and state policies be instituted to protect critical public health infrastructure during future public health emergencies, avoiding secondary but consequential rise in morbidity and mortality from the diversion of resources.

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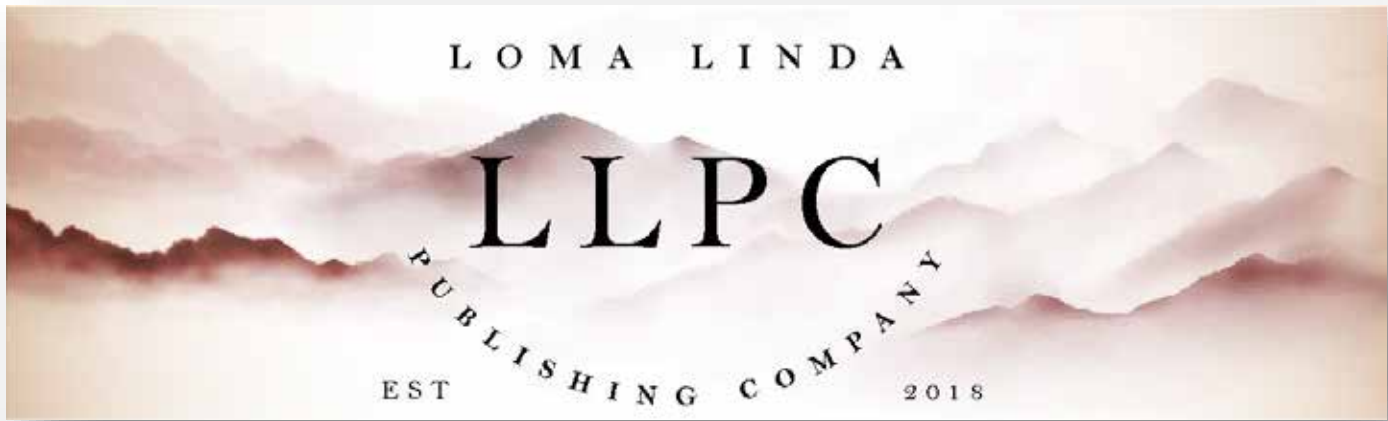
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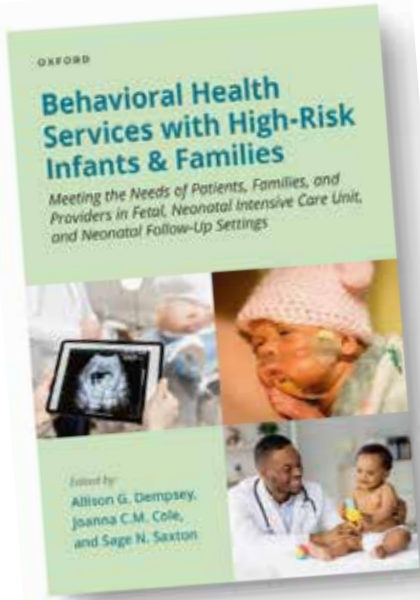
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National Network of NICU Psychologists

Education, Resources, and Support for Perinatal Mental Health Professionals



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Free Resources

Empower families with the skills they need.

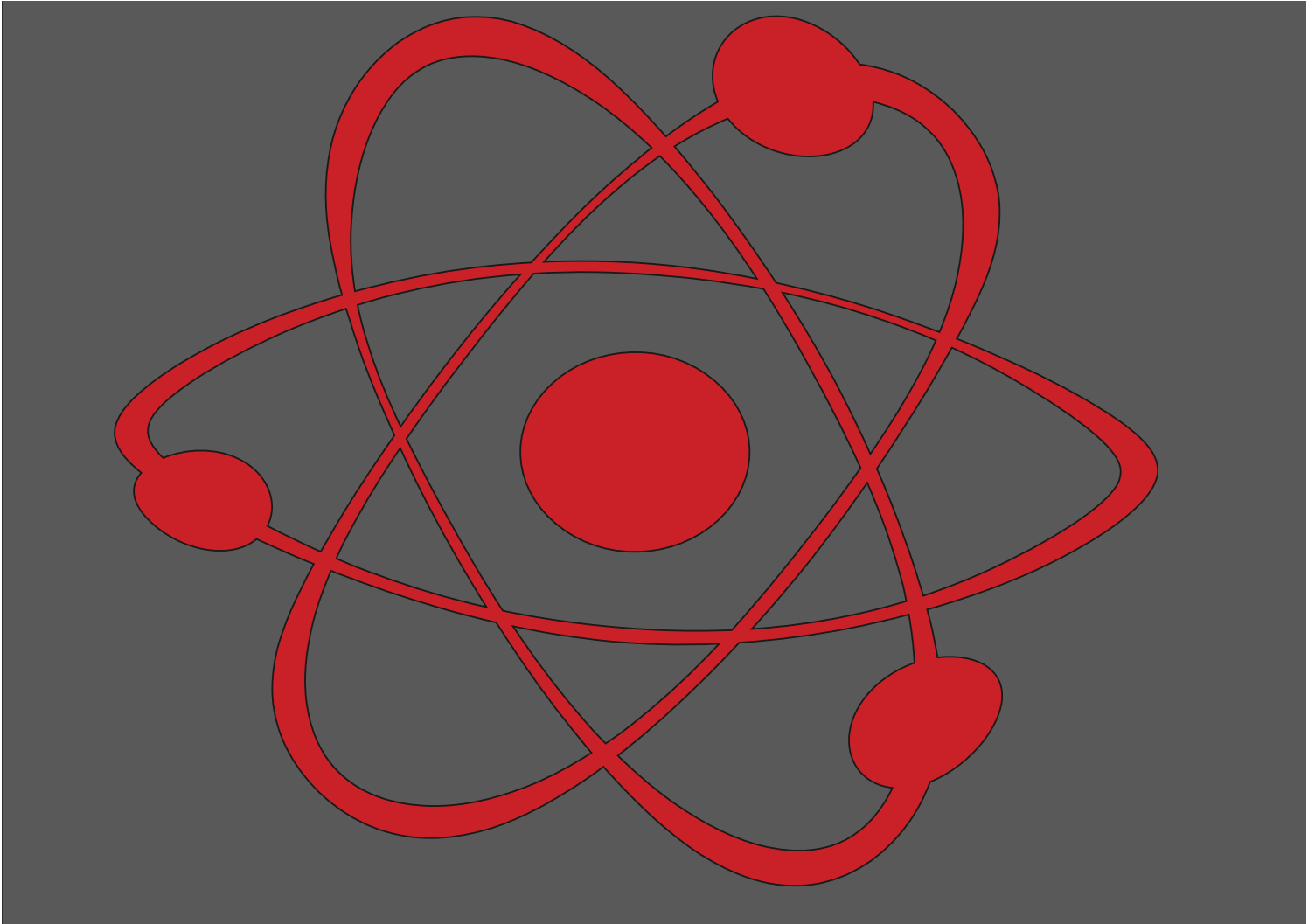
Download our perinatal Mental Health Plan worksheets.

Support NICU families and staff during COVID-19.

See resources created by the National Network of NICU Psychologists.



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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



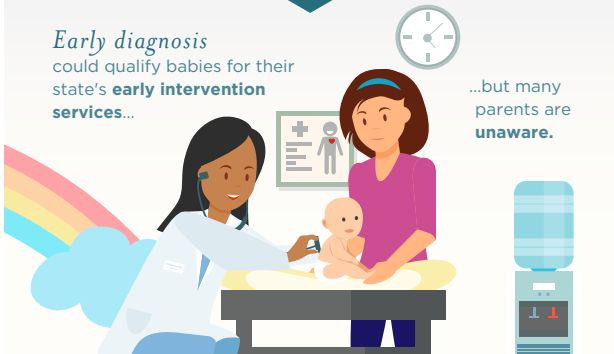
Address physical challenges



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*



Sin embargo, sólo el **15%** recibe tratamiento!

LA DEPRESIÓN POSTPARTO **NO TRATADA PUEDE AFECTAR:**

El sueño, la alimentación y el comportamiento del bebé a medida que crece?



La salud de la madre

La capacidad para cuidar de un bebé y sus hermanos

PARA AYUDAR A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSPARTO



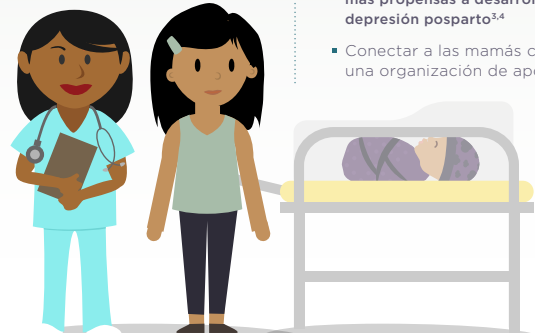
LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnóstico
- 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



NCFIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

¹ American Psychological Association. Accessed on: <http://www.apa.org/women/advocacy/reports/postpartum-depression.aspx>

² National Institute of Mental Health. Accessed on: <https://www.nimh.nih.gov/health/publications/postpartum-depression-facts/index.shtml>

³ Journal of Perinatology (2019) 39, 529–536. doi:10.1097/JP.0000000000000147

⁴ Prevalence and risk factors for postpartum depression among women with problem and low-birth-weight infants: a systematic review. Vigod SN, Villages L, Dennis CL, Ross LE BJOG. 2010 Apr; 117(5):540-50.

Upcoming Medical Meetings

PAS 2024

Toronto, Canada

May 2-6, 2024

<https://www.pas-meeting.org/>

National Perinatal Association TRAUMA-RESPONSIVE PERINATAL CARE

May 15-17 2024

Anaheim, California.

[https://www.npaconference.org/
event-details/towards-trauma-
responsive-perinatal-care](https://www.npaconference.org/event-details/towards-trauma-responsive-perinatal-care)

NeoHeart 2024 Conference

July 30, 2024 – August 2, 2024

Columbia University, New York, NY

[https://web.cvent.com/
event/FE874AD0-526B-
4C3F-BE22-0735E8DB0CF7/
summary?environment=P2](https://web.cvent.com/event/FE874AD0-526B-4C3F-BE22-0735E8DB0CF7/summary?environment=P2)

2024 AAP National Conference & Exhibition

September 27 - October 1, 2024

Orlando, Florida

[https://aapexperience.org/
conference-registration/](https://aapexperience.org/conference-registration/)

NEO: The Conference for Neonatology

Feb, 2025

[https://www.pediatrics.com/for-
clinicians/neo-conference](https://www.pediatrics.com/for-clinicians/neo-conference)

Pediatrics: Specialty Review in Neonatology

Feb 2025

[https://www.pediatrics.com/
for-clinicians/specialty-review-
conference](https://www.pediatrics.com/for-clinicians/specialty-review-conference)

38th International Gravens Meeting
on the the Environment of Care
for High Risk Newborns and their
Families "Providing Safe Spaces for
Babies, Families, and Staff"
March 5-8, 2025

Sheraton Sand Key Resort

Clearwater Beach, FL

[https://paclac.org/https-paclac-org-
gravens-conference/](https://paclac.org/https-paclac-org-gravens-conference/)

*For up to date Meeting
Information, visit
[NeonatologyToday.net](https://www.NeonatologyToday.net) and click
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Abstracts due September 30, 2024.



Clinical Trial Center (Full-Time, Day Shift) - Research Coordinator

The Loma Linda University Health's Clinical Trial Center is actively seeking and recruiting top clinical research coordinator talent.

Our mission is to participate in Jesus Christ's ministry, bringing health, healing, and wholeness to humanity by Creating a supportive faculty practice framework that allows Loma Linda University School of Medicine physicians and surgeons to educate, conduct research, and deliver quality health care with optimum efficiency, deploying a motivated and competent workforce trained in customer service and whole-person care principles and providing safe, seamless and satisfying health care encounters for patients while upholding the highest standards of fiscal integrity and clinical ethics. Our core values are compassion, integrity, humility, excellence, justice, teamwork, and wholeness.

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The Clinical Trial Center is actively involved in many multi-center global pediatric trials, which span different Phases of research to advance health care in children. Please reach out to Jaclyn Lopez at 909-558-5830 or JANLopez@llu.edu with further interest. We would love to discuss the exciting research coordinator opportunities at our Clinical Trials Center.

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- Schedule: Full-time
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Loma Linda University Children's Hospital is hiring Neonatal Nurse Practitioners

Children's Hospital, centrally located in Southern California, has earned Magnet Recognition as part of the American Nurses Credentialing Center's (ANCC) Program.

We are looking for experienced or new graduate Neonatal Nurse Practitioners (NNPs) who are excited to join a cohesive team that practices in a collaborative, fast-paced, high-acuity setting.

- Full-time and part-time positions available
- Level IV, 84-bed Neonatal Intensive Care Unit (NICU)
- Regional referral center encompassing Tiny Baby unit, ECMO, Cardiac ICU, Neuro NICU and Surgical services
- Maternity services and delivery center
- 24/7 coverage by NNP team and Fellows
- Competitive employee benefit packages



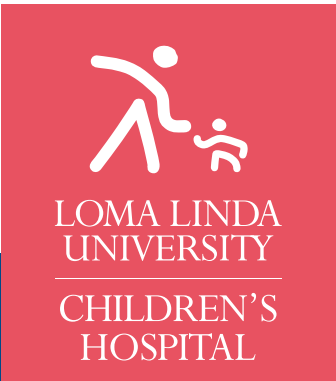
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HIRING**



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Full job summary and link to apply below

https://egln.fa.us2.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX/job/2820/?utm_medium=jobshare

Qualifications:

- Bachelor's Degree or Master's degree in Nutrition and Dietetics or Nutrition-related field required
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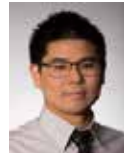
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Neonatology and the Arts

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 feature artistic works created by our readers on the next to last page as well as photographs of birds on rear cover. For this edition, our art was again graciously provided by Colleen Kraft, MD. It is a work called "Profile" done by her son Tim.. Our Bird is from Dr. Ghassan Samara. It is a White throated Sparrow photographed in the Reno, NV area.



Mita Shah, MD,

Neonatal Intensive Care Medical Director
Queen of the Valley Campus
Emanate Health, West Covina, CA

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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. 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.

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NICU BABY'S Bill of Rights

1- THE RIGHT TO ADVOCACY

My parents know me well. They are my voice and my best advocates. They need to be knowledgeable about my progress, medical records, and prognosis, so they celebrate my achievements and support me when things get challenging.

2- THE RIGHT TO MY PARENTS' CARE

In order to meet my unique needs, my parents need to learn about my developmental needs. Be patient with them and teach them well. Make sure hospital policies and protocols, including visiting hours and rounding, are as inclusive as possible.

3- THE RIGHT TO BOND WITH MY FAMILY

Bonding is crucial for my sleep and neuroprotection. Encourage my parents to practice skin-to-skin contact as soon as and as often as possible and to read, sing, and talk to me each time they visit.

4- THE RIGHT TO NEUROPROTECTIVE CARE

Protect me from things that startle, stress, or overwhelm me and my brain. 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 am cared for today will help my brain when I grow up. Connect me with my parents for the best opportunities to help my brain develop.

5- THE RIGHT TO BE NOURISHED

Encourage my parents to feed me at the breast or by bottle, whichever way works for us both. Also, let my parents know that donor milk may be an option for me.

6- THE RIGHT TO PERSONHOOD

Address me by my name when possible, communicate with me before touching me, and if I or one of my siblings pass away while in the NICU, continue referring to us as multiples (twin/triplets/quads, and more). It is important to acknowledge our lives.

7- THE RIGHT TO CONFIDENT AND COMPETENT CARE GIVING

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 educate them about my unique needs, development, diagnoses, and more.

8- THE RIGHT TO FAMILY-CENTERED CARE

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

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 parents about resources such as peer-to-peer support programs, support groups, and counseling, which can help reduce PMAD, PPD, PTSD, anxiety and depression, and more.

10- THE RIGHT TO INCLUSION AND BELONGING

Celebrate my family's diversity and mine; including our religion, race, and culture. Ensure that my parents, grandparents, and siblings feel accepted and welcomed in the NICU, and respected and valued in all forms of engagement and communication.

Presented by:



NICU Parent Network

NICU PARENT NETWORK Visit nicuparentnetwork.org to identify national, state, and local NICU family support programs.

* 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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