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A Delphi Survey – Enhancing Parents' Knowledge and Practice of Kangaroo Mother Care

Natalie Paulse, Andre Venter

Abstract:

Aim: This research aimed to establish directives for an education programme that will improve parents' knowledge and practice of kangaroo mother care (KMC) for preterm babies.

Methods: The Delphi method was used to assess expert consensus on the directives that could improve parent knowledge/skills for KMC practice. The panel of experts included international and local (South African) representatives. Data from focus group interviews, together with the literature review, were used to populate the 134 statements for the Delphi survey. Panelists rated the likely usefulness of each statement for inclusion as a directive for KMC.

Results: A 100% response rate was achieved in rounds 1 and 2. After Round 3, consensus was achieved in 89,9% statements for inclusion as directives for KMC. Panellists rated a few statements differently but overall, there was considerable agreement about which statements were essential for inclusion in a KMC programme. The statements that panellists disagreed on related to problems associated with KMC and the characteristics of a suitable instructor.

Conclusions: We identified directives for a KMC education programme. The implementation of these directives needs to be evaluated to see that it enhances KMC practice for preterm babies.

Keywords: Delphi, Kangaroo Mother Care, Patient education, Preterm babies.

"Approximately one in ten babies will spend time in a newborn intensive care unit (NICU). (1) Studies indicate that preterm birth significantly contributes to infant morbidity and mortality. Though mortality rates have been declining for preterm infants, there remains a significant percentage of infants born at the earliest gestational age who die in the NICU."

1. Introduction

Kangaroo Mother Care (KMC) is a high-impact, low-tech, low-cost intervention addressing preterm newborns' morbidity and mortality. (1,2) KMC is recommended as routine care for all clinically stable newborns who weigh 2000g or less. (3-5)

Despite KMC being introduced more than four decades ago and regarded as the intervention with the highest impact on newborn survival and health,(6) some countries still find the goals of increased coverage and sustained practice elusive. Despite several policies in South Africa (SA) and the Maternal, Newborn, Child, and Women's Health (MNCWH) strategic plan, implementation remains uneven. (7) Education programs to increase parental awareness of the benefits of KMC are needed. (8) Most education and training strategies focus on healthcare providers. (9) The World Health Organisation (WHO) guidelines stress the importance of parents adopting KMC due to an informed decision. (5) In order to achieve this, patient education is necessary. (10) Patient education is a cornerstone of caring for patients, with strong evidence that it improves health outcomes too. (11)

Successful education depends on an understanding and application of theories and models of behavior change to health education. (10,11) Theories focusing on individual health behavior include the health belief model, theory of reasoned action, and stages of change models. (12) A model that applies to KMC implementation is the stages of change theory, developed by Prochaska, DiClemente, and others. (13) The stages of change theory depict that the behavior change takes place over a period of time. This applies to KMC implementation: Although Dr. Rey introduced KMC in 1978, institutions have been slow to adopt this practice. (14)

"Parental "NICU blues" are defined by the intersection of four factors in figure 1: NICU trauma, baby blues, postpartum mood and anxiety disorders (5), and NICU grief. NICU blues may contain varying levels of these four factors. Both parents are included in this biopsychosocial, transitory, and non-pathological model of predicted cogent symptoms in the NICU."

KMC is still underutilized, despite all its benefits. (15) Mothers still demonstrate a lack of knowledge of KMC, according to recent studies. (16-19) Thus, it is evident from the literature that there is a need to improve patient education on KMC.

2. Patients and Methods

This study followed an exploratory sequential design. A mixed methods approach was used, which combined qualitative and quantitative methods. (20) The study's first phase was a qualitative exploration of inquiry using focus groups. Data from the qualitative phase and the literature review were used to populate statements for the Delphi survey. The Delphi survey was used as the data collection tool for the quantitative phase of the study. The goal of the Delphi was to obtain expert opinions and to obtain consensus on the directives that could improve parent knowledge/skills for KMC practice. (21)

This study was approved by the Faculty of Health Sciences Ethics Committee at the University of the Free State (HSREC 16/2016). The Free State Department of Health granted permission to re-

Figure 1: Illustration of the three-round Delphi survey applied in this study

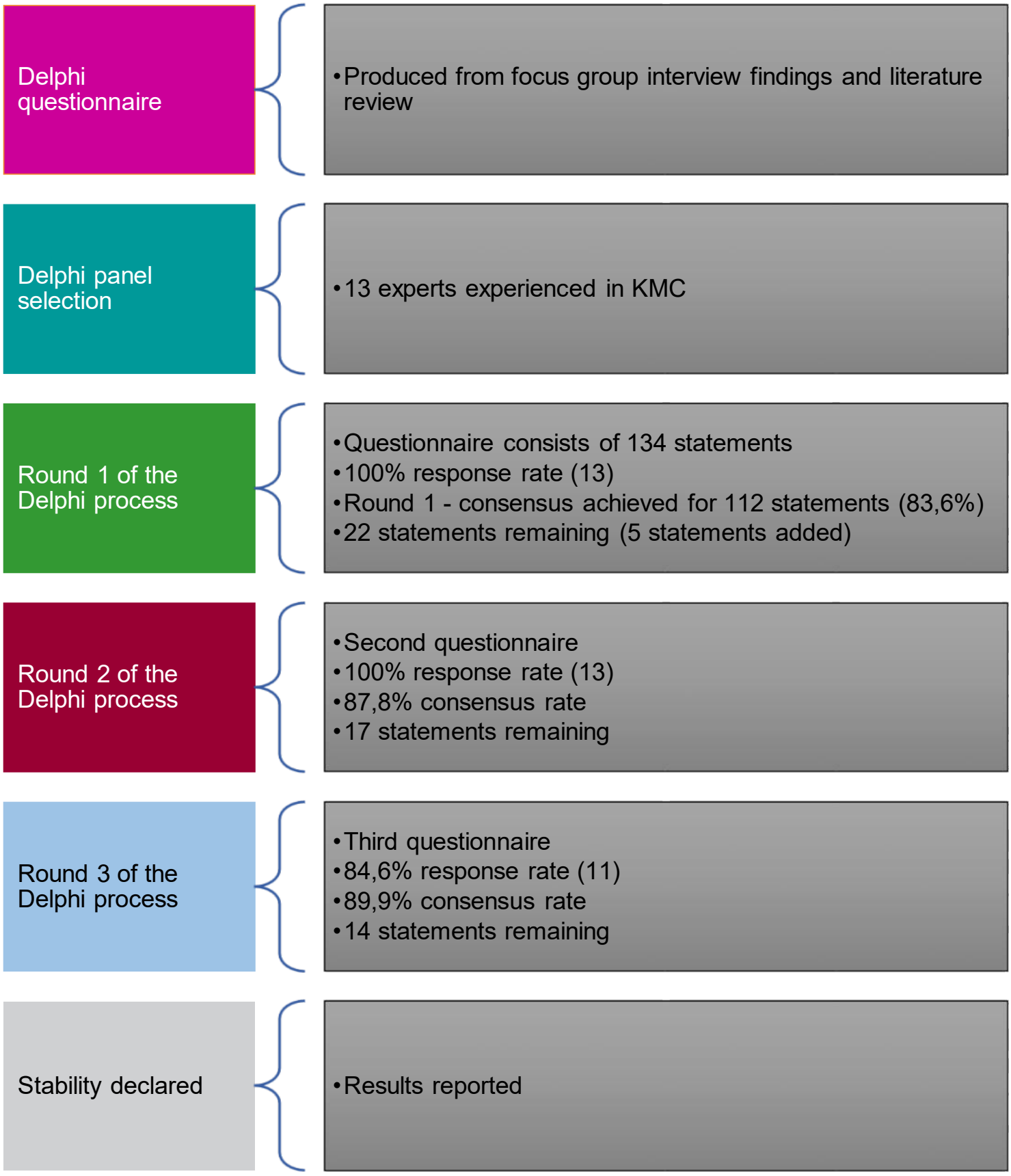

Table I: Criteria used to inform selection of the panel members who participated in this study

	Designation	Qualifications	Years of experience in KMC	Involved in teaching and training of KMC	Previous or current KMC committee member
1	Neonatologist	MB ChB, FCPaeds, Certificate in Neonatology	11 – 15 years	Undergraduate and postgraduate training	Yes
2	Emeritus professor in paediatrics and neonatology	MD (Paediatrics)	20 + years	Training and awareness campaigns on KC	Yes
3	Retired neonatologist	MB ChB, M Med (Paeds), registered sub specialist	20 + years	Undergraduate and postgraduate training	
4	Neonatologist, previous head of a unit	MB ChB, M Med (Paeds), DGG, FCPaeds	16 – 20 years	Undergraduate and postgraduate training	
5	Head of a clinical unit, associate professor	MB ChB, FCPaeds (SA), PhD registered neonatologist	11 - 15 years	Undergraduate and postgraduate training	
6	Paediatrician, previous head of a neonatal unit	MB ChB, M Med (Paeds)	11 – 15 years	Undergraduate and postgraduate training	
7	Emeritus professor, postgraduate advisor at a school of medicine	MB ChB, FCPaeds (SA), registered neonatologist	20 + years	Undergraduate and postgraduate training, training of nurses	
8	Head of a neonatology unit	MD (Paediatrics) Doctorate in Medical Sciences	11 – 15 years	Training of undergraduate and postgraduate students	
9	Principal family physician	MB ChB, M.Fam Med. Masters in Health Professions Education	16 – 20 years	Training of undergraduate and postgraduate and allied health students	
10	Nursing manager	Paediatric nursing specialist, professional/registered nurse	20+ years	Training students and training delegates at KC conferences	Yes
11	Neonatal nursing specialist	Professional/registered nurse, neonatal nursing specialist, lactation specialist	11 – 15 years	Training undergraduate and postgraduate students	
12	Speech therapist	B. Speech-Language & Hearing Therapy, Masters in speech pathology	6 - 10 years	Training students	
13	Researcher Associate	Postgraduate Diploma in Nursing Education, PhD in Nursing Science	5 years	Training nursing students	

Table II: Benefits of Kangaroo Mother Care

	Benefits of Kangaroo Mother Care
1.	Kangaroo care is safe, and benefits are evidence-based.
2.	Bonding between the baby and parent is strengthened. This helps to reduce parental anxiety and it has a calming effect on the baby.
3.	KMC leads to improved growth, weight gain and increased head circumference.
4.	Breastfeeding is promoted and improved, as increased milk production improves. Breastfeeding is initiated earlier and continued for a longer time.
5.	Babies sleep for a longer duration.
6.	Babies have better neurodevelopmental outcomes.
7.	KMC has been proven to reduce infections.
8.	KMC reduces the risk of malnutrition.
9.	KMC provides physiological stability, such as good temperature control, heart rate, respiratory rate.
10.	KMC meets the basic needs for survival of the new-born.
11.	Babies cry less and experience less pain during painful procedures when they are held in the KMC position.
12.	KMC improves mother's confidence about caring for their babies.
13.	Maternal satisfaction is enhanced.
14.	Fathers and other family members can support the mother and also provide KMC.
15.	KMC empowers parents to care for their baby.

search patients and healthcare providers.

A non-random purposive sampling technique was employed to select participants. The researcher identified 29 participants who met the criteria for inclusion according to the matrix (see Table I). In total, 13 people responded and were willing to participate in the study.

"A parent in the NICU needs a meaningful, loving, and nurturing relationship with their baby. In Ainsworth and colleagues' classic maternal attachment studies,(10) maternal attachment involves physical and psychological accessibility."

The Delphi questionnaire was divided into six sections which covered; the participants' demographic details, the proposed content for a parent education program, and other aspects related to programming development. Participants were required to indicate their responses according to a Likert scale.

During each round, the participants completed the questionnaire and returned it to the researcher via email. The researcher then collected and analyzed the data and gave all participants feedback. Feedback reflected the groups' opinions on the research Issues. The participants were allowed to reassess their initial opinions and answers they had given in previous rounds, and they were allowed to change or maintain their original opinion. (22)

Analysis was twofold; firstly, to provide feedback between rounds and, secondly, to identify when consensus had been reached. A consensus of 75% was accepted for this study. (23) If no consensus and no further changes occurred after the last round, stability was declared.

"It is imperative for NICU psychologists and medical and nursing staff to help parents make sense and meaning of their initial distress specific to identifiable physical changes, situational stressors, and loss (16). Parents often express relief in knowing that predictable NICU blues may be additive to or better explained to both parents than the term baby blues in addition to hormonal changes."

Analysis was accomplished by combining computer packages (survey monkey tool) and manual techniques. Descriptive statistics were applied because the questionnaires were designed to collect nominal and ordinal data.

Table III: Summary of all the statements in which stability was achieved

Statements	Essential	Useful	Unnecessary	Responses
Parents need to understand the background to KMC. The following information should be included:				
Parents should be briefly informed of how kangaroo mother care developed.	**1**	**2**	**3**	1 1 2 2 2 2 2 2 2 2 1 **Round 3** (2) 73%
The following statements are pivotal and should be conveyed to parents during the training process:				
When appropriate, kangaroo mother care for the dying baby should be encouraged	**1**	**2**	**3**	1 1 1 2 2 1 1 1 1 2 1 **Round 3** (1) 73%
The following benefits of kangaroo mother care must be emphasised to parents:				
Babies also grow in length faster	**1**	**2**	**3**	1 1 1 2 1 1 2 1 1 2 2 **Round 3** (1) 64%
Family relationships are enriched	**1**	**2**	**3**	1 2 1 2 1 1 1 1 1 2 1 **Round 3** (1) 73%
It reduces postpartum haemorrhage	**1**	**2**	**3**	1 2 1 2 1 2 1 1 1 3 1 **Round 3** (1) 64%
Parents need to be aware of potential problems they may experience during kangaroo mother care. The following concerns must be anticipated and addressed:				
Parents may fall asleep on top of their babies	**1**	**2**	**3**	2 3 2 1 1 1 2 2 2 1 2 **Round 3** (2) 55%
The baby may still cry when doing kangaroo mother care	**1**	**2**	**3**	1 2 1 2 1 2 2 2 1 1 1 Round 3 (1) 55%
The baby may get very hot and sweat during kangaroo mother care	**1**	**2**	**3**	1 2 2 2 1 2 1 2 1 1 1 Round 3 (1) 55%

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree	Responses
The coordinator should have the following characteristics:					

Statements		Essential	Useful	Unnecessary	Responses
					3 2 1 2 1 3 2 2 3 1 3
					Round 3
They must work in a full-time capacity	**1**	**2**	**3**	**4**	(1) 36%
					(2) 36%
					72% in agreement
					3 3 2 3 2 2 2 2 2 3 2
					Round 3
They do not have to be a health professional	**1**	**2**	**3**	**4**	(2) 64%
					64% in agreement
					3 2 2 3 2 2 3 2 3 1 3
					Round 3
The person in charge of the kangaroo unit should ideally take on this role	**1**	**2**	**3**	**4**	(1) 9%
					(2) 45,5%
					(3) 45,5%
					54,5% in agreement
Requirements for educators involved in teaching parents about kangaroo mother care:					
					2 2 3 3 1 3 2 3 2 1 3
					Round 3
Nursing staff are sufficient to meet the teaching demands of mothers in kangaroo mother care	**1**	**2**	**3**	**4**	(1) 18%
					(2) 36%
					54% in agreement

3. Results

3.1 Demographic details

The panel of experts included international and local (SA) representatives. The average age of the panelists was 55.6 years - their ages ranged from 30 to 70 years. The majority of the expert panel was female (76,9%). The fields of expertise ranged from neonatologists, pediatricians, and family medicine specialists to those working in nursing and allied health sciences.

3.2 Findings of the three-round Delphi process (see Fig 1)

A 100% response rate was achieved for Rounds 1 and 2. Participants agreed on 112 of the 134 statements in the first round, giving an 83,6% overall consensus. After Round 1, five statements were added to the questionnaire. In Round 2, a consensus was achieved for 122 of the 139 statements, giving an 87,8% overall consensus. Only 11 of the 13 participants completed Round 3 of the Delphi survey, achieving an 84,6% response rate. After Round 3, consensus had been achieved in 125 of the 139 statements, giving an 89,9% overall consensus. As no consensus and no further changes occurred after the last round, stability was declared. Stability was reached on 14 (10,1%) statements.

4. Discussion

Information deemed necessary for inclusion in a patient education program can be grouped into:

A. Content about KMC

B. Equipment needs

C. Instructors, instructional media, and methods

1.1.1 Content about KMC

The benefits listed in Table II are all considered essential content for inclusion into a KMC education program aimed at parents. A benefit listed in Table II but not common in other guides is preventing malnutrition. This benefit is important in the setting of this study, as malnutrition is a major cause of morbidity and mortality in SA. The panel did not deem it necessary to explain the origins of KMC; or the association with the kangaroo, although many experts explained that they found it useful.

Benefits that did not meet the criteria for inclusion into a KMC program in the Delphi consensus process are listed in Table III.

Literature on teaching strategies recommends that the essential information should be focused on first. (24)

Experts advise against warning parents that they may feel discomfort during KMC; fall asleep on top of their babies; that the babies might still cry even while in the KMC position; and that babies may become hot and sweaty. These messages may lead to nega-

tive attitudes about KMC and cause anxiety. Teaching mothers by demonstrating how to secure the baby in the KMC position safely will assist in alleviating such fears.

1.1.2 Equipment needs

For adopting KMC practice, the panel agreed that a lack of equipment was a barrier. This is also supported in other studies. (25)

1.1.3 Instructors, instructional media, and methods

Parents should be exposed to KMC prior to the birth of their babies. This has been shown to improve their knowledge about KMC. (26) Antenatal clinics and prenatal birth classes were identified as suitable for introducing the concept of KMC.

A wide variety of resources, such as; videos, pamphlets, posters, and websites on the internet, are readily available. Health educators must carefully consider which tools will be most effective for their target group. The initial assessment of the patient will guide these decisions.

No consensus was reached on the ideal candidate for the role of instructor. Not all experts believed that it needed to be a health professional, nor did they agree that the nurse in charge should fulfill this role. Nursing staff should not be solely responsible for teaching mothers about KMC; instead, an interdisciplinary team is required. Administrative staff and cleaning personnel who interact with patients regularly should not be involved in teaching mothers about KMC. Furthermore, they recommend that personnel involved in teaching parents must receive training. Collaboration among various disciplines is encouraged in the literature so that the team can develop that teaching protocols.

Protocols should outline provider responsibilities to save time and prevent confusion.[13]

4.2 Conclusion:

The overall aim of this study was to produce directives for a patient education program to enhance KMC practice. Table I summarizes the recommended content for inclusion into a KMC education program. This research incorporated the perceptions and experiences of multiple stakeholders involved in KMC. The Delphi survey provided validation by experts, who reached a consensus on what is deemed relevant for inclusion in a patient education program.

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Credit author statement:

Natalie Paulse: Conceptualization, methodology, writing-original draft preparation and data curation.

Prof Andre Venter: Supervision, writing-reviewing, and editing.

Declaration of interests:
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Letters to the Editor

Letter to the Editor in Response to: "Regulating Donor Milk Will Protect Infant Health Jennifer Carroll Foy, JD"

Dear Editor:

We read "Regulating donor milk will protect infant health" with great interest (Foy, J. Regulating donor milk will protect infant health. Neonatology Today. 2022;17(10):135-136.). This opinion piece discusses the regulation or lack thereof of donor breast milk. It concludes that there is not enough regulation of donor breast milk as it is "considered mere food by the FDA, meaning there is no requirement for FDA inspectors to scrutinize the milk banks manufacturing and distributing donor milk for infants." The author ends with a warning statement implying that a tragic event might occur if action is not taken. We also believe that our most vulnerable patients, the babies in the NICU who need donor breast milk, require extra precaution and advocacy. With drafts in the senate that are in the works to be codified, it is essential to understand why babies in the NICU require breast milk and specify what tragic events may occur if donor breast milk continues to be unregulated.

"With drafts in the senate that are in the works to be codified, it is essential to understand why babies in the NICU require breast milk and specify what tragic events may occur if donor breast milk continues to be unregulated."

Every year, 15 million babies are born preterm, meaning they are born before 37 weeks gestation. (WHO) When babies are born prematurely, they are at an increased risk of many adverse health outcomes. Maternal breast milk has decreased the risk of necrotizing enterocolitis and sepsis, two common outcomes in premature babies if appropriate precautions are not taken. It explicitly helps prevent NEC and sepsis due to its ability to improve immune system protection and maturation of the gastrointestinal system (2), as it contains human milk oligosaccharides. These non-digestible carbohydrates lead to the foundation of the gut microbiome (3). While breast milk is an important aspect of nutrition in the NICU, many mothers with babies in the NICU require donor breast milk to be given to their child as their milk supply may not be adequate. There are many reasons why milk supply may drop, including less time for breast development when a baby is born prematurely. Additionally, having a child in the NICU brings a great deal of stress onto the family, which may not be conducive to keeping up the milk supply in the mother. Babies in the NICU also are often so young that their suckling reflex has not fully developed, which provides another barrier to breastfeeding. (4) Donor breast milk thus clearly has an important role in the medical management of babies in the NICU, but it must be distributed safely.

"The lack of unified regulation regarding breast milk sharing can result in health risks that can severely endanger the lives of susceptible infants. For example, the transmission of specific infectious agents such as HIV, CMV, HTLV-I, Hepatitis B, Hepatitis C, and Syphilis can occur from women who may or may not be aware of these infections themselves (5)."

The lack of unified regulation regarding breast milk sharing can result in health risks that can severely endanger the lives of susceptible infants. For example, the transmission of specific infectious agents such as HIV, CMV, HTLV-I, Hepatitis B, Hepatitis C, and Syphilis can occur from women who may or may not be aware of these infections themselves (5). In addition, the improper storage and handling of donated breast milk can lead to the growth of environmental contaminants that can cause infection. Despite these risks, it is equally important to note that many risks associated with unregulated donor breast milk are similar to those associated with unregulated formula. It is not that breast milk itself is more of a dangerous product; instead, sharing breast milk without substantive regulations is an inherently more dangerous practice (7). A common regulatory framework would ensure a minimum standard for safe donor human milk and contribute to better health outcomes for these vulnerable infants.

Breast milk should be regulated as a medication because it is treated as one for NICU babies. A physician must prescribe human breast milk like any other medication a patient might need. However, most hospitals must foot the bill and bundle the price of milk into costs, so they must make their own cost-benefit decisions (10). By implementing FDA regulation on milk in the NICU, there will be more safety oversight in prescribing human milk as medicine while adding the benefit of insurance reimbursement for patients and providers.

"Breast milk should be regulated as a medication because it is treated as one for NICU babies. A physician must prescribe human breast milk like any other medication a patient might need. However, most hospitals must foot the bill and bundle the price of milk into costs, so they must make their own cost-benefit decisions (10)."

In conclusion, breast milk is necessary for managing NICU babies. Having the FDA regulate breast milk with the same standards and quality assurance as any other medication will help protect one of our most vulnerable patient populations.

Sincerely,

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Haig Karsian, OMS3

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No conflict of interest

Resources:

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Dear Doctors to Be Chamberlain, Kasian, and Tse:

Your points are well taken. Breastmilk feeding represents the most natural, complete food for newborns. Issues including choice preclude the availability of breastmilk feeds for all babies. To provide more options, breastmilk banks have tried to meet a need that is progressively increasing as more people become aware of the availability of additional sources of breastmilk, including unregulated sources such as "Craigslist" and various parent groups.(1)

Infectious diseases notwithstanding, other contaminants, including other milk or milk-like substances that have been introduced into these products and the recreational drug products, including Marijuana and opioids, have become a genuine concern. With the current state of regulation, breastmilk is treated like a food product and does not merit the same treatment as a pharmaceutical or biological product. (2) Generally, acceptable practices are sufficient as a "food" product, although donated breastmilk may carry the same infectious risk as donated blood. Our most vulnerable populations, especially those born prematurely, would benefit from increased scrutiny. (3)

"To provide more options, breastmilk banks have tried to meet a need that is progressively increasing as more people become aware of the availability of additional sources of breastmilk, including unregulated sources such as "Craigslist" and various parent groups. (1)"

Regulation is a problematic issue, however, without the express involvement of the FDA. States may decide to set their regulations, but many different regulations across many different states would further complicate distribution. They may further lead to individual states being unable to supply donor milk across state lines where those laws are different from the originating state. Local, as opposed to federal regulation, may reduce breastmilk supply to those who need it the most.

"Moreover, the identification tracking must be bidirectional and correctly represent the milk from the indicated donor. Unlike blood product donation, breastmilk donor occurs in private and is shipped to the depo facility. Because the donation is unwitnessed, DNA tracking is indicated to prevent inadvertent contamination with breastmilk from a non-screened individual. (4)"

Nevertheless, regulation must also provide a modus for identification and tracking of the breastmilk to meet the requirements of other human body products, including packed red blood cells, fresh frozen plasma, and cryoprecipitate. Moreover, the identification tracking must be bidirectional and correctly represent the milk from the indicated donor. Unlike blood product donation, breastmilk donor occurs in private and is shipped to the depo facility. Because the donation is unwitnessed, DNA tracking is indicated to prevent inadvertent contamination with breastmilk from a non-screened individual. (4)

As you have indicated, the provision of breastmilk also involves cost factors. Although some states have authorized the expenditure of state Medicaid funds on donated breastmilk, in many areas, expressed breastmilk is an additional expense item that

strains hospital budgets that have already been stretched to the breaking point. Increased vigilance, lobbying, and, where applicable, the regulation that ensures the availability of babies most in need must proceed as we approach optimal nutrition for those most imperiled by feeding human milk substitutes. (5)

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Neonatology Today is not aware of the erratum affecting the October, 2022 edition.

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

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

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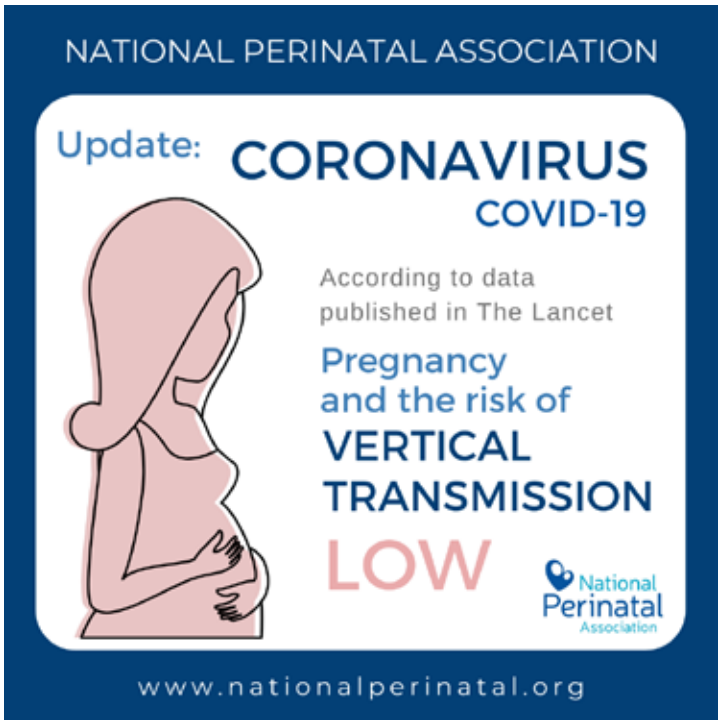

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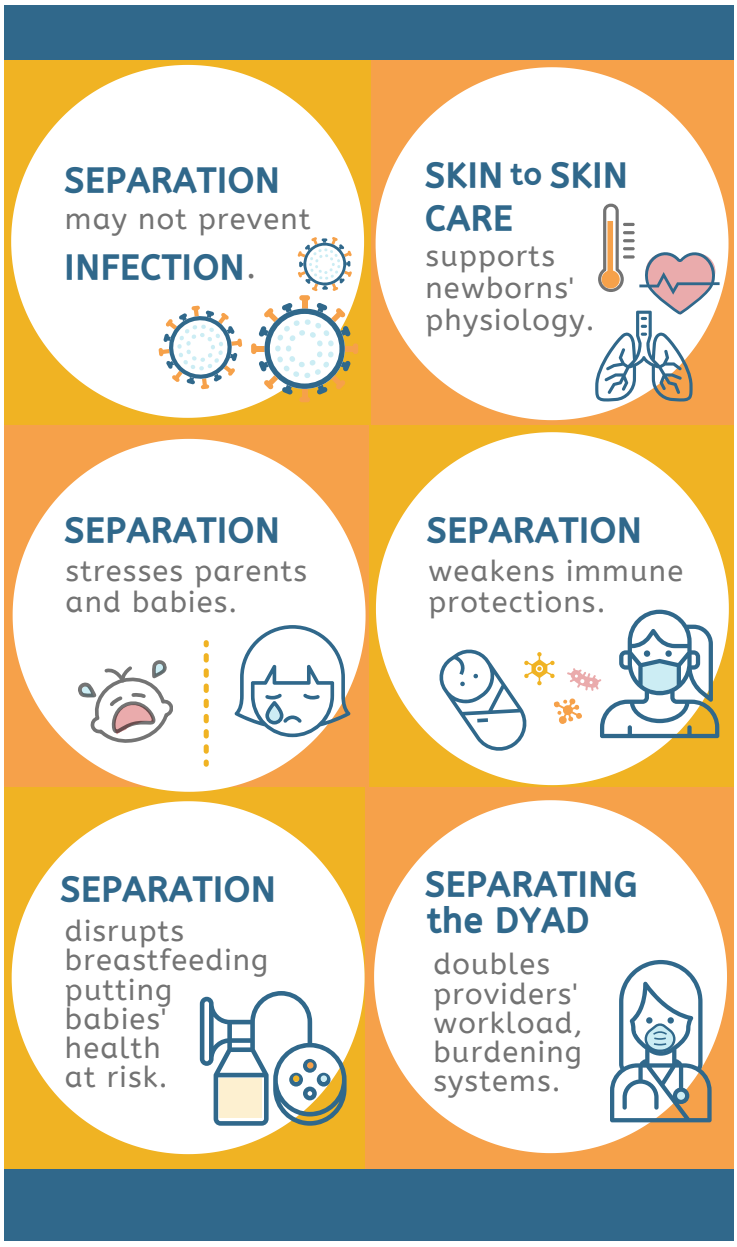

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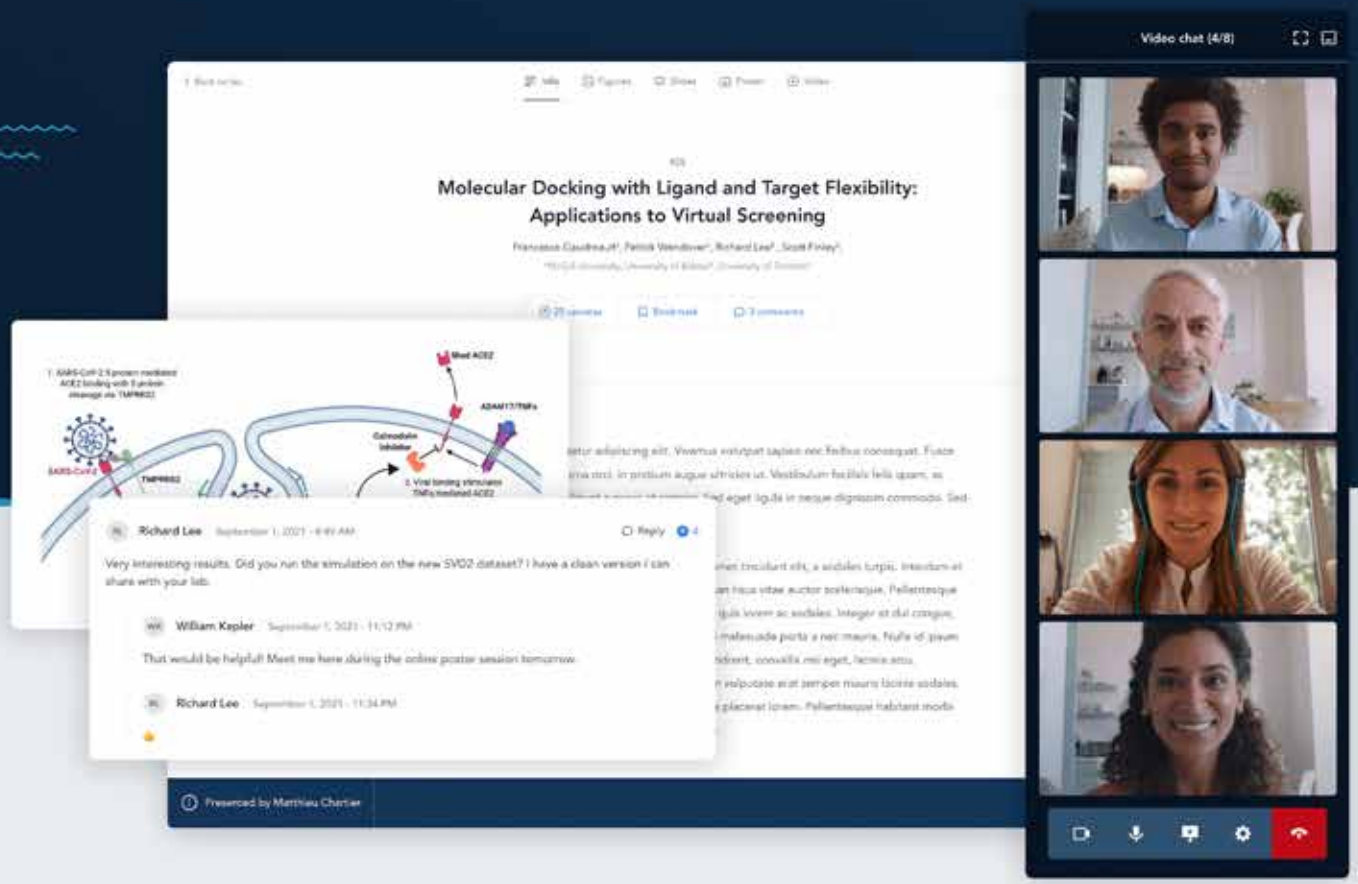

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Disaster Series: The Failure of Lessons Learned (LL) and the High-Reliability Organization (HRO): Experience-Conceptualization-Contextualization

Daved van Stralen, MD, FAAP, Sean D. McKay, Thomas A. Mercer, RAdm, USN (Retired)

Abstract

Lessons Learned programs are continually at risk for "conceptual arrest" – the Lesson Learned that is a concept, an abstraction, something that has not, and cannot, be contextualized. A disaster creates abrupt gaps between what we thought we could do, what we must do, and the urgent necessity to engage the situation. Lessons Learned convert these experiences into more effective organizational performance and improved capabilities of personnel. In these volatile and uncertain environments, a failure is an option. The belief that a dangerous context can be engaged with the same organizational and cognitive approaches as a stable environment leads to ineffective, even dangerous, Lessons Learned. Effective Lessons Learned come from an integrated program of full-spectrum analysis, appreciation of the crisis environment, and knowledge of stress and fear modulation. This is not a mixing of academic concepts with field experience. It is an integration of how concepts are used in crises – we have experience-conceptualization-contextualization.

"This is not a mixing of academic concepts with field experience. It is an integration of how concepts are used in crises – we have experience-conceptualization-contextualization."

Introduction

A disaster reveals gaps in the organization's knowledge and experience. These are the gaps between the new disruptive environment and accepted theory or strongly held belief. The HRO brings order to the disruption, but this order comes more from a pragmatic rather than a normative stance. The nature of that order is rendered less accurately by a spectator's concepts than by the insider's detailed acquaintance (1). However, insiders have difficulty translating their experience in a manner that spectators understand.

The HRO exploits newly gained experience to strengthen the organization or to engage in novel situations. Organizations and individuals that aspire toward high reliability seek the capability to extend their organization or themselves into new environments (2). For this to occur, they are well-served to incorporate novel and unexpected experiences into their knowledge. In this way, they can extend their capabilities and better understand their environment. The US military uses the Lessons Learned process to take deliberate corrective actions from the Lesson Learned to enhance performance (3).

To do this, the HRO must cross the gaps between theory and practice, strongly held beliefs, and the environment. This is through engagement. During the review, the organization conceptualizes that experience for effective contextual application. The danger is "conceptual arrest," the organization accepts the produced concepts independent of the ability to use the concepts as contextual actions.

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"Concepts can be 'counterfeit abstractions' that imitate some, but not all, of the differentiated flux produced by attentive HRO practitioners, (Karl Weick, personal communication). Alfred North Whitehead (4) described "the accidental error of mistaking the abstract for the concrete. It is an example of what might be called the 'Fallacy of Misplaced Concreteness.'" Nevertheless, concepts can be intentionally used as concreteness. William James (5) described how abstraction "becomes a means of arrest far more than a means of advance in thought." It becomes too easy to substitute a virtual world created from concepts for the actual world by the fallacy of abstraction.

Through the Lessons Learned process, abstractions and concepts function to enhance performance. As "misplaced concreteness," on the other hand, they create certitude and a misplaced sense of mastery, safety, and security.

"The fox knows many things, the hedgehog one great thing," Archilochus, Greek Poet. Experts who are confident yet poor predictors are the hedgehogs. Their certitude, accepted as mastery, gives their followers a sense of safety and security during the flux of uncertainty brought by a disaster or other crisis. The hedgehog extends one theory to many domains, defending this approach by following Occam's razor – the parsimony of having one theory overrides the numerous theories other people use. Hedgehogs do not entertain the idea that other views may be correct (6).

Experts with exceptional results at forecasting ("super forecasters"), the foxes in Archilochus' fable and Philip Tetlock's model, know many things but to a far lesser degree than the hedgehog. Superforecasters rarely forecast and adjust predictions as they receive the new or updated information. They readily admit to being wrong.

Foxes are self-critical and use a point-counterpoint style of thinking that sustains doubt while reducing excessive enthusiasm.

Foxes understand that opposing and contradictory forces yield stability, a feature that also confounds prediction. Superforecasters are diligent in pursuing information, updating their information, and revising their conclusions as more information becomes available. They have a greater tolerance for operating under uncertainty, easily learn from their mistakes, and improve their ability to forecast over time (6).

"Superforecasters are diligent in pursuing information, updating their information, and revising their conclusions as more information becomes available. They have a greater tolerance for operating under uncertainty, easily learn from their mistakes, and improve their ability to forecast over time (6)."

Though it would seem reasonable to defer to the super forecaster, more commonly, people defer to the certitude of the fox.

Explanations we can readily understand help with coping during difficult situations when there is a lot of uncertainty and contradictory information. Well-understood concepts give simple answers and will support a sense of certitude, particularly when it comes from an accepted expert. Unsatisfied or frustrated psychological needs can influence people to turn to straightforward concepts they can more easily understand.

In ecology, "ecology of fear" describes interactions of predator-prey that occur in the absence of the predator (7). The ecology of fear develops when the *absence* of the threat paradoxically causes more severe and wide-ranging problems than the *direct* presence of the threat (8).

Respect for certitude and the creation of local or central "hedgehog" experts becomes inevitable for the organization whose leaders unintentionally propagate the ecology of fear. Concepts give a feeling of safety and security, attracting some people to mistake abstract concepts for concrete. Those who need to feel knowledgeable will use the 'Fallacy of Misplaced Concreteness' to become accepted as an expert. Consequently, when the ecology of fear creates an environment that supports certitude rather than increases capabilities, individuals professing certitude undermine the Lessons Learned process.

"Identifying well-structured, tightly coupled concepts support a sense of mastery over a conceptual order. The resulting tractability of thought and sense of security from predictability supports using concepts when preparing for or working in a disaster.

Identifying well-structured, tightly coupled concepts support a sense of mastery over a conceptual order. The resulting tractability of thought and sense of security from predictability supports using concepts when preparing for or working in a disaster. This becomes seductive to accept conceptual arrest. However, we then sacrifice reliability for the tractability of thought and the security from predictability.

Forcing functions, described by the "color of noise" (9, 10), confound the predictability necessary for effective plans and planning. Commonly referred to as the "fog of war," forcing functions and abrupt catastrophes result from autocorrelations that develop from internal feedback within a system (11).

Not by concepts but by engagement do we increase our understanding of the environment. High reliability is seldom a heavy-handed application of a conceptual order. Instead, it gets worked out during activity through small activities with more significant consequences. A practical domain of engagement recognizes the overlapping and loose coupling of concepts necessary to complete a task and illuminates the study of the problems of transferring academic work to organizational practice (1).

The Lesson Learned process can enhance performance following a disaster through gap analysis. However, conceptual arrest, the sense of certitude, and the drive to master concepts can interfere with or impair the use of Lessons Learned to support adaptability, reliability, and engagement.

"Traveling backward in time to attribute specific reasons for an incident develops sturdier structures for our future but with a hidden bias directing individuals to pursue pathways that make sense rather than have authentic causality."

In a disruptive, confusing, and volatile situation, the analysis of the situation, the search for patterns, and attempts to create structure teach people how to engage and create stronger designs to prevent system failure effectively. Traveling backward in time to attribute specific reasons for an incident develops sturdier structures for our future but with a hidden bias directing individuals to pursue pathways that make sense rather than have authentic causality. The Lessons Learned process frames the incident with the pragmatic stance for introspection, examination of capabilities, identifying early heralds of failure, possible actions, possible responses, and who can help.

Captain Chesley "Sully" Sullenberger's river landing of a passenger jet revealed the strength of HRO operations when he solved a problem that he did not know he had and the difficulty of identifying what worked and what did not. If framed as a normative incident, the water landing applies to engineers, pilots, flight crews, and passengers; if framed as a pragmatic incident, the water landing applies to all of us because unexpected incidents are a part of living (1).

> Capt. Sullenberger was trying to increase the angle of attack as much as possible just prior to touchdown before the aircraft stalled in order to maximize the flare and thus minimize the airplane's downward velocity when it impacted the water. His effort was frustrated because the phugoid damper prevented him from getting the last 3 1/2 degrees of nose-up pitch that would otherwise have been available before

Table 1. VUCA-2T (12)

Volatility	A rapid, abrupt change in events
Uncertainty	Lack of precise knowledge, need for more information, unavailability of the necessary information
Complexity	A large number of interconnected, changing parts
Ambiguity	Multiple interpretations, causes, or outcomes
Threat	Impaired cognition and decision-making
Time Compression	Limitations acquiring information, deciding or acting before consequential changes

Table 2. Liminality (12)

Conventional Operations	Liminal Operations
White noise	Red and pink noise
Closed system	Open system
	"Cosmology episode" (13)
Familiar	Threshold of Transition
Structured	Passage for travel, but not traveling
Knowledge by description	Gaps in knowledge (14)
Hierarchical support	Alone
Standards	Learn by doing
Known rules	Old rules do not apply
Familiar relations	New rules unknown
Prevent Failure	Consequence driven
Euclidean space	Topological space, but learning relations
Newtonian physics	Collapse sensemaking and leadership (13)

> stall. Consequently, the sink rate was higher than it otherwise would have been, and the rear fuselage structure was breached to the extent that a flight attendant seated in the rear was injured, and water entered the airplane. Automation that was intended to improve safety and comfort actually hindered the most adaptable part of the system, the human pilot. *Sully was not aware of this until we discovered it in our investigation.* [Emphasis added by the authors]
>
> Christopher A. Hart, former Chairman NTSB (personal communication)

"A convergent, deductive, analytic approach drives the search for facts and information, which will then guarantee our conclusions – the nature of deductive reasoning is that the data guarantee the conclusion."

A convergent, deductive, analytic approach drives the search for facts and information, which will then guarantee our conclusions – the nature of deductive reasoning is that the data guarantee the conclusion. The security offered by the structures we create and our actions reinforces the normative frame. The results are narrowing and increasingly confining, destined to cascade into destructive failure when the environment intrudes into the problem. As in Sullenberger's water landing, a pragmatic frame enhances our capability to solve problems linked to deeper, unidentifiable structures.

The Disaster Environment

Spectators far from events are most likely to direct the Lessons Learned process, developing then implementing the Lessons Learned. However, the information necessary for effective Lessons Learned comes from participants operating *within* the event. Participants with limited experience in dangerous contexts will search for the familiar and seek the security of homeostasis. They are less likely to search the discordant event to identify the threat, thereby supporting safety

These insiders have difficulty translating their experience in a manner that spectators understand. These disruptions create a novel VUCA-2T environment (Table 1) and produce an unfamiliar liminal experience (Table 2).

VUCA-2T

The military concept of "VUCA" to describe threats to national security (15, 16) and the anthropological experience of liminality as a transition (17) have entered the lexicon of business, public safety, and healthcare. The incomplete translation of VUCA, liminality and HRO theory into the practice of reliability and safety comes with the loss of nuance and missed, subtle cues within the environment (1). The loss of neuromodulation as a skill, and methods for its acquisition, are unrecognized.

A threat more often takes place out of sight of the public. People then reject or misunderstand how a threat forms HRO and how it makes a program stronger. Threat acts as a motivating condition to generate a set of beliefs and behaviors from within the ranks of workers, relatively independent of the organization or regulatory agencies (18).

In 1995, US Army researchers working in the Carlisle (Pennsylvania) Barracks, US Army War College, described the global environment that had developed at the end of the Cold War as VUCA:

volatile, *uncertain, complex*, and *ambiguous* (15, 16). The concept of threat is not included because, for the military, the threat is expected. Therefore, the threat was not translated into civilian applications (19). On the other hand, one of the authors (DvS) included time compression into the element of volatility as a quality of instability (19, 20). A particular group in SOCOM (Special Operations Command) used "VUCAT" but found the element of time compression to have such importance that it should stand alone (SDM). We now use VUCA-2T to describe the physical environment of a disaster (21).

"The environment is the enemy in a liminal space. When structure and activity become random, we lose context. Unfamiliarity and loss of context become disorienting or overwhelming. In the disorientation of the liminal space, knowledge and facts suffer (22)."

Liminality

The environment is the enemy in a liminal space. When structure and activity become random, we lose context. Unfamiliarity and loss of context become disorienting or overwhelming. In the disorientation of the liminal space, knowledge and facts suffer (22). Organizations operating in the liminal space that rely on strong leaders of whatever style or philosophy risk failure from abrupt changes (23-25). The liminal space is not an environment where monitoring, sensemaking, or attention can help us.

The liminal zone described in anthropology is that space between a world we know and a world we do not, where our old rules do not apply and we have not learned the new rules (17). In this area of experience, we must engage the situation to leave, yet, we do not know what works (22). The common themes across work domains include suppression of fear, trust, helping the novice, protecting your partner, recognizing fear in fellow workers, and local leadership. The organization's response to liminality differentiates management by high-reliability organizing from conventional organization management (12).

"The common themes across work domains include suppression of fear, trust, helping the novice, protecting your partner, recognizing fear in fellow workers, and local leadership. The organization's response to liminality differentiates management by high-reliability organizing from conventional organization management (12)."

Reasoning

In the liminal space, we do not have certainty, particularly for antecedent events, which impairs our ability to act on what happened earlier. This also interferes with scientific logic and the Cartesian approach to reaching truth (26) or bringing about a resolution. Instead, we use the possible consequences of our actions to guide inquiry, likely the most challenging tenet of pragmatism to appreciate (27).

In the liminal space, constant observation and reciprocal feedback, generating and testing information, all rely on inductive processes. Leonhard Euler (28) describes the problem this creates:

> *We can place our highest hopes in observations; they will lead us continually to new properties which we shall endeavor to prove afterwards. The kind of knowledge which is supported only by observations and is not yet proved must be carefully distinguished from the truth; it is gained by induction as we usually say…Indeed, we should use such a discovery as an opportunity to investigate more than exactly the properties discovered and to prove or disprove them; in both cases we may learn something useful.*

We have only observation to adapt our knowledge to emerging facts. This drives inquiry, described by John Dewey as "always a behavioral response of a reflective organism to its environing conditions....inquiry belongs to 'action or behavior,' which takes place in the world, not just within the mind or within consciousness.... Inquiry…is what Dewey termed an 'outdoor fact'" (29).

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"Operators are maintained in [complex technological] systems because they are flexible, can learn and do adapt to the peculiarities of the system, and thus they are expected to plug the holes in the designer's imagination," Jens Rasmussen (30).

Information and Communication

> "During a crisis, there is no time to think about each specific bit of knowledge or experience that we depend on to make sense of imperfect information and ambiguity. But having those resources immediately accessible in our minds, we use them in a conceptual decision-making process to frame the decision. We essentially quickly come up with a paradigm of how to solve the problem. It is after the fact that we retrospectively begin to attribute specific reasons for the decisions that we made."
>
> Capt. Chesley "Sully" Sullenberger (personal communication)

For thermodynamics and information, entropy is a state measure on the spectrum between certainty and uncertainty. Information Theory uses entropy to describe increases in uncertainty from random internal or external sources. For Shannon, the act of choosing between messages creates information. Certainty is having only one message possible, no choice, and predictability; therefore, certainty carries no information. This creates a counter-

intuitive statement: uncertainty is information.

When we choose from randomness, we create information (31). We have many choices in the VUCA-2T environment, meaning VUCA-2T has high information entropy. By engaging the situation, we generate information through our choices (32). In the VUCA-2T environment, information is transient and must be constantly generated.

"Communication is the act of resolving this uncertainty. Communication describes the process of encoding information in the environment, transmitting that information, then decoding that information by someone removed from the situation."

Communication is the act of resolving this uncertainty. Communication describes the process of encoding information in the environment, transmitting that information, then decoding that information by someone removed from the situation. The corruption of communication can occur at any point along the sequence. Information entropy increases as information is corrupted, as measured from certainty (order) towards uncertainty (randomness). *Communication corrupts information* (31). We must not blame the person for communication failures (32).

Language

Language operates in environments where environmental "noise" corrupts communication. This corruption occurs not only within the event but during Lessons Learned analysis. A structure in the language must support honest communication and contain some form of redundancy for reliability. Message feedback for calibration reduces the effect of noise (Karl Weick, personal communication).

In the VUCA-2T environment, language is also *caused* by communication due to the separation and distance between individuals who must encode information for transmission and the receiver who must then decode the information. HROs have communication methods for operations in noisy environments.

Lexicon, as the vocabulary of a discipline, is too coarse of a concept to appreciate the elements of a language in noisy environments. Failure to appreciate this contributes to corrupted information necessary for effective Lessons Learned. *Lexical elements* are those basic elements of a language that can carry meaning. For example, actors use faces and facial expressions, musicians use notes, and academicians use concepts and theories. Conflicts develop when we talk from different lexical elements. For example, doctors focus more on diagnoses, while nurses focus more on treatments.

In the 1970s, an ED nurse rode along with fire medics. She asked one of the authors (DvS) during his service as a fire rescue medic how the medics knew to bring certain equipment into a home. In the discussion, he realized how much communication the medics had with facial expressions. During interviews for a report on fire response to a mass shooting, all interview teams had at least one person with extensive experience operating in dangerous contexts (20). The team identified numerous accounts formed into accepted practice or commonly used phrases. This led to Lessons Learned that differed from published accounts for similar incidents (33).

"The foundations of lexical elements are "those aspects of meaning which have consequences for the syntax," which are made operational by "those bits of perceptual and cultural knowledge that form the bulk of the lexical representation" (34)."

The foundations of lexical elements are "those aspects of meaning which have consequences for the syntax," which are made operational by "those bits of perceptual and cultural knowledge that form the bulk of the lexical representation" (34). Lexical elements have *form, function, and meaning,* just as words do. They have the same combinatorial characteristics of words and contribute to concept creation.

Lexical elements carry action, description, persuasion, and interpretation. The structure of lexical elements has cultural use and will incorporate whether the culture relies on the environment and

Table 3. Patterns and Characteristics of Noise (10)

Color	Structure	Variance	Distribution
White	No frequencies dominate Flattened spectrum	Data *decreases* variance	Gaussian distribution - Elements fully independent - No autocorrelation
Red	Low frequencies dominate Long-period cycles	Data *increases* variance	Power law distribution - Elements *not* independent - Mutual/ reciprocal relations
Pink	The midpoint of red noise The slope lies *exactly* midway between white noise and brown (random) noise	Data *continuously increases* variance Distinguishes pink noise from reddened spectra	Power law distribution - No well-defined long-term mean - No well-defined value at a single point

context for information. For the environment, we must be descriptive (it is difficult to describe a mountain in the abstract). This exactness in lexical elements leads to the outcome-oriented pragmatic stance compared to the process-oriented normative stance.

People can become limited by the frame of reference, lexical elements, lexicon, and concepts. This concept influences how they use their understanding to translate hazards – to fit the hazard into their understanding or to use their understanding to extend operations into the hazard. The danger of using clichés and metaphors is that the metaphor becomes real, and the concept is treated as reality. This is beyond experience and inside the liminal.

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The Color of Noise

Disasters bedevil attempts at planning and prediction. The 'color' of environmental noise describes the effect of periods on the environment. Without feedback, time segments and elements are independent of each other, hence the Gaussian distribution and calculated statistics and probabilities. The presence of feedback in a system causes autocorrelation, shifting the spectral frequencies from white to reddened noise. Low-frequency events bring a more significant force into the system (Table 3).

Stable environments measurable by the gaussian distribution are "white noise" environments. Environments, where stability is at risk from external forcing functions are "red noise" environments (10). The interaction between the orthogonal axes of abstractions and contextuality produces periods that have stability or have the appearance of stability. Over time this appearance of stability can reset the perceived baseline of what we can expect or should prepare for (35). However, these environments are punctuated by instability that seems distant until it arrives, then it appears to have been a logical consequence of events (Table 3).

Reddened or pink-noise environments are information *insensitive*. More information (or data) makes the data messier or reveals covert, unexpected influences. With events in flux, current information quickly becomes antecedent information, entrained energy changes circumstances, and what was once relevant becomes irrelevant. We operate more in a mystery, searching for and testing clues using a complete spectrum analysis (36). Our drive is to prevent possible consequences from becoming a reality.

Red noise environmental 'forcing functions' drive environmental influences into the organization, destabilizing the internal environment. Problems become contextually resolved by practical, pragmatic solutions. The pink noise environment is also ecological, but the problem is embedded into the environment, making these problems contextual and pragmatic (37). Problem-solving for red and pink noise environments tends toward practical common sense, focusing on consequences and a broad knowledge base (38).

Decision theories and problem-solving developed in white noise environments tend to be information sensitive, linear, and deterministic. Within the forcing function of red noise or the abrupt catastrophe from pink noise, white noise methods *become* the problem. Using white noise predictions of what would happen during forcing functions or catastrophes could become a matter of life or death literally – inaccurate models could kill (39).

A system can become trapped when the white noise interludes between events. Established veterans may misattribute the absence of forcing functions to effective structures and operations. New arrivals set their standards for operations at the level when they entered the field. What then happens is the baseline shifts (35) toward consideration that a white noise environment is normal. Disinterest in past capabilities leads to the loss of history and memory as the organization enters a period of *shifting baselines*.

Certitude is no longer an early herald of failure and becomes respected. The doubt of the veteran is a sign of constrained competence. Lessons are not learned.

"The organization and local groups maintain continuity against these forcing functions through malleability; in topology, this characteristic is called deformability – relations can be deformed but can never be destroyed."

Forcing Functions

The organization and local groups maintain continuity against these forcing functions through malleability; in topology, this characteristic is called deformability – relations can be deformed but can never be destroyed. The HRO uses LLs to identify and strengthen the relations that contribute to the organization's and individuals' capabilities. This process can be considered a variance of *resilience*, another characteristic of HROs (40).

The disaster environment is information insensitive. Data accumulation and aggregation will increase variance rather than decrease it. At some point, increasing data increases confusion. action during the event generates information as it slows the activity rate and creates structure toward a whiter noise environment.

A less well-recognized effect is how new properties emerge from self-organizing local elements.

Every moment is a new moment of *evolving vulnerability.* It is this activity at the local level that hinders accurate descriptions of events, particularly as cause-and-effect. Sullenberger described this in the quote above, "It is after the fact that we retrospectively begin to attribute specific reasons for the decisions that we made."

Engagement

Engagement is the act of approaching and entering liminal spaces. In these situations, sometimes all we have are observation and action (41). Engagement describes actions taken without certainty that they will succeed (22). Engagement describes the approach and experience when the operator does not know what will work. "I don't know what is happening, but I know what to do." – said a Los Angeles Fire Department firefighter. "HRO uniquely

Table 4: Domains of Engagement (2)

Domain	Personal	Organizational (non-HRO)
Categorization	Personal experience is a frame of reference Translate the situation into familiar terms	Standards to reduce diversity and variability (45)
Decision making	Reciprocal feedback loops Error as limits of knowledge, boundaries of performance	Algorithms Protocols
Affective processes	Attitudes and values Contextual nature of the information *How* information flows and is used	Focus on cognitive science Decontextualized plans The central organization of information
Modulated stress and fear responses	Recognize the inherent vice of stress and fear Maintain adaptive thought	Rely on hierarchy Develop structure

shapes the engagement that moves through and out of a liminal period," Karl Weick (personal communication).

We question if plans and planning, the most commonly accepted methods, are the most effective approach to entering or exiting a liminal space. The hallmark of liminal space is the uncertainty of what actions will be successful. This is what makes planning difficult (22) and what gives value in augmenting capabilities and developing reasoning for these environments.

We have described how engagement bridges the gap between theory and practice (42) and between discrete concepts and continuous perceptions (43). Engagement bridges the gap between abstractions and details (Karl Weick, personal communication). Engagement makes use of the nuances and subtle differences in details. Details can herald an early response to therapy or be an early herald of failure. Yet, focusing on details without context is the definition of micromanagement details (Karl Weick, personal communication).

"Engagement is the act of learning by doing in context, not an outcome of rational deliberation, and cannot be objectified for theory-making (44). Engaged action comes from insight and immediate feedback, with negative feedback marking the safe boundary of performance and positive feedback generating growth."

Engagement is the act of learning by doing in context, not an outcome of rational deliberation, and cannot be objectified for theory-making (44). Engaged action comes from insight and immediate feedback, with negative feedback marking the safe boundary of performance and positive feedback generating growth. All feedback generates information. Effective responsiveness brings strength through change and allostasis.

The act of engagement bridges conceptual gaps and extends responsiveness which, in turn, forms prevention and generates resilience. We describe *four domains of engagement* (Table 4), sets of properties with functions and characteristics that differ between stable environments (or environments where we can expect stability) and abrupt change or liminal situations (2).

Gap Analysis

The nature of disruptive events interferes with the use of accepted methods of gap analysis for operations. The gap forms between the novel experience and one's personal experience, knowledge, and firmly held beliefs. The liminal nature of these experiences limits how one describes events. The turbulence of the VUCA-2T environment limits the documentation of environmental influences.

When we apply concepts to situations, we act in the top-down direction – from the abstract to the contextual. Abstractions can readily be applied to situations in various contexts with little ability to verify fidelity to the situation (46). When this approach is given priority, we risk treating the abstract concept as something concrete, Whitehead's "Fallacy of Concreteness" (47).

Contextual influences tend to operate from the bottom up. Both are developed through gap analysis from conceptualization through to contextualization. Both can become arrested when identifying agreeable concepts interferes with identifying methods to contextualize the LL.

Well-meaning professionals overlook or leave behind the practical, bottom-up nature of HRO that produces its pragmatic strength. Responsiveness to rapid, nuanced, or subtle changes in the environment occurs at the level of the individual, hence the bottom-up characteristics of HRO (48-50)

A fundamental problem of gap analysis is whether to conform to accepted concepts and models, in effect, conceptual arrest or to extend understanding through experience-concept-context-application.

Organizations seeking to increase reliability and decrease error look to methods of deductive analysis, scientific logic, and critical thinking. Unintentionally, this supports certainty, disregards ambiguity, and supports deterministic, linear problem solving, more like puzzle-solving, where knowable information fits together to produce the right answer (36, 51). A conceptual approach induces problems to become linear, puzzle-solving processes. We utilize only the concepts we can conceive. This approach carried grave consequences (36).

The belief that knowable information enhances decision-making contributes to the collection of more information and increases confidence, but with little change in accuracy (51). Rather than a puzzle solved by identifiable, knowable information, we can approach the problem as a mystery where generated information generates new decisions (36).

The inclusion of uncertainty widens our operational environment,

making available a fuller spectrum of analysis and the pursuit of weak but salient signals (36). To John Boyd (52), a US Air Force officer and strategist who created the OODA (Observe, Orient, Decide, and Act) Loop, the analysis served to differentiate concepts, a trait particularly useful during disruptions or for complex situations when he would combine analysis with synthesis – destructive with constructive cognitive forces, for his model *Destruction and Creation*.

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Boyd also considered these problems a dynamic mystery rather than a static puzzle. Adrian Wolfberg (36) describes a puzzle as having one right answer you reach by obtaining and properly placing the puzzle pieces. If necessary, we can figure out the missing pieces within the puzzle matrix. We then solve the puzzles sequentially until we resolve the problem.

Wolfberg demonstrated that, rather than puzzle-solving, we use Boyd's concept of mystery for "mystery-solving." This relies on "full spectrum analysis," many lines of simultaneous engagement as events unfold across a full spectrum of possible actions. Multiple challenges can best be solved in an integrated fashion to create synergy among disparate domains. "In full-spectrum analysis, the analyst examines not only multiple, possibly interrelated intelligence problems simultaneously, but also considers contextual and influential factors that could affect the interim analysis of information and its interpretation" (36).

"There are multiple interrelated mysteries to be solved simultaneously. The solution lies within many possible explanations or overlapping pieces of explanations. As we investigate some mysteries, data may not become available until after we decide (36), which is common in critical care and disasters."

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Models give mastery, pieced together like a puzzle without overlap or gaps. Concepts are abstract. While experience is understood through concepts, experience also reinforces and improves concepts.

Tightly coupled concepts support expert formation and mastery but are at the risk of creating "hedgehog" experts who know one thing well that they apply to all situations (53). The linear structure allows matching resources to disturbances and solving problems much like a puzzle – finding the pieces for their proper space (36). Problems match the well-structured problem amenable to algorithmic solutions, as Herbert Simon (54) described.

"The stability of a white noise environment permits context-free concepts and problem-solving, placing greater significance on classifications (45) and abstractions (46). System change occurs over generations in an evolutionary manner rather than context-dependent ecological processes."

The stability of a white noise environment permits context-free concepts and problem-solving, placing greater significance on classifications (45) and abstractions (46). System change occurs over generations in an evolutionary manner rather than context-dependent ecological processes. Leadership is less important than executive, administrative, and managerial skills (54), where 'categorical work' creates classifications and rules to work by (45) [see below].

Identifying well-structured, tightly coupled concepts support a sense of mastery over a conceptual order. The resulting tractability of thought and sense of security from predictability supports using concepts when preparing for or working in a disaster. This becomes seductive to accept conceptual arrest. However, we then sacrifice reliability for the tractability of thought and the security of predictability.

The HRO must cross the gaps between theory and practice and between strongly held beliefs and the environment. This is accomplished through engagement. During the review, the organization conceptualizes that experience for effective contextual application. The danger is "conceptual arrest," the organization accepts the produced concepts independently of the ability to use the concepts as contextual actions.

Evaluating Motion and Continuity

We generate LLs from either outside or within the event. Both views have great utility for learning in the HRO. From the outside, we choose a position in space or time that gives a "whole field view" of the evolving disaster. When viewing from the inside, as a "local grouping" of people would experience a disaster, we select a starting place. From the starting place, we observe the local effects of the event on the local grouping. We can later aggregate local information to develop a larger field view.

The whole field view observer at a fixed point detects the local group only if the group is visible as it passes by the fixed point. The local grouping observer moves with the group through the flux

of events. The whole field view of the flow of events is an aggregate of local flows and velocities experienced by local groupings. Local groupings are not an immediately compelling consideration in the full field view specifications but are fundamental for local groupings specifications.

"The outside view is too quickly taken as the top-down approach; the view inside, the flow of events, is assumed to be a bottom-up view. This understanding is too simple. A top-down approach develops when concepts or abstractions from a centralized authority guide action, while the bottom-up approach develops when contextual, local actions influence the centralized authority. "

The outside view is too quickly taken as the top-down approach; the view inside, the flow of events, is assumed to be a bottom-up view. This understanding is too simple. A top-down approach develops when concepts or abstractions from a centralized authority guide action, while the bottom-up approach develops when contextual, local actions influence the centralized authority. This HRO characteristic is distributed authority or *deference to expertise* (40). The two views are different levels of analysis. Arguing across levels of analysis creates false debate (55). The mistaken belief that the two views are not related or in conflict may lead to inaccurate models that, not tested in the VUCA-2T environment, can be deadly (39).

We can better understand these views not as directional influences but as specifications from outside or within the flux of events. The "whole field view," from outside the flux of events, observes a specific area from a fixed position, though the "fixed" position can be moved to increase the scope of the field. Whole field observers primarily use location and time static coordinates as independent variables.

A "local grouping" specification refers not only to the group's positions within the flux of events but to the group itself as an independent unit, including its actions. Within the flux of events, a local group becomes deformable; therefore, the position of the grouping is more important rather than the size of the group.

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Boundary objects, singular objects used in both views, support effective and efficient interactions (45). For example, the rate of change of events, a forcing function, is shared by both views. The rate of change creates a trajectory that is observable in the full field view specification to which the organization must respond. It also creates local changes to which the local group must respond as a local group specification.

Quantities for whole field view specifications are measured primarily as rates and direction of change and spatial distribution, but at an *instant* during the evolution of events. The relative simplicity of this formulation can result in analysis that produces groupings of data. Statistical analysis and probability calculations benefit when these groupings are independent of other data groupings. Concepts and models can then be developed and refined.

For local grouping specifications, the group's identity becomes an independent variable.

- This form emphasizes changes to the state in a frame of reference that moves with events.
- The primary measurement of change is the velocity of change rather than the physical *direction* of movement.
- Entropic changes within events cause actions of the local group.
- The velocity of events and pressure on the local group are variables within the event.

The whole field view specification formulates movement as static coordinates that can also apply to local groupings. Local grouping specifications have coordinates that move with events.

"The whole field view, outside the flux of events, is more amenable to reliance on concepts and is tolerant of abstractions. The contextual nature of local groupings, from within the flux of events, is not tolerant of abstractions. Rather, abstractions can be dangerous and can kill (46)."

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Lessons Learned

We too readily consider cognitive approaches as the more objective approach compared to affective processes, derisively considered "emotional." Lost in this view is how we operate in the VUCA-2T environment – through the value of information in an unstable environment. Mastery of concepts is of less use where information is in flux, the value of information shifts, and we do not know what decision information is or will be necessary – even after the decision is made and acted on. In effect, the affective domain conforms cognitive knowledge to the changing situation, real-time adaptation to a red noise forcing function. Affective judgment becomes more critical to sensitize one for detecting subtle or nuanced threats and hazards and the salience of early heralds

Table 5: Impaired Lessons Learned

Standard Specifications	Lessons Learned Specifications
Environment	
Stability readily regained	VUCA-2T
Assumption of white noise	Red noise-forcing functions
Gaussian distribution	Unpredictability
Information from observation	Information is generated
Data-driven	Information insensitive
Specifications	
Fixed point observation, the spectator's view	Within the flux of events, the insider view
A frame of reference is stationary	The frame of reference moves with events
Whole field view as the primary reference	Local grouping as the primary reference
Top-down approach	Synthesis of top-down and bottom-up approaches
Specifications primarily are rates and direction of change and spatial distribution	Specifications primarily are changes to the state
	The velocity of change, not the *direction* of movement
The analysis produces groupings of data	The analysis is difficult due to local entropic change
Statistical analysis and probability calculations	Local events cause actions of the local group
Concepts	
General concepts	Detailed acquaintance
Safety and security from mastery of concepts	Safety and security from capabilities
Error from mistaking abstract concepts for concreteness	Error revises and corrects concepts
Categorization guides sensemaking	Sensemaking creates new categories
Reasoning	
Puzzle-solving	Mystery solving
Limited spectrum analysis	Full spectrum analysis
Certitude	Doubt
Certitude and confidence yield poor predictions	Opposing, contradictory forces yield stability
Deductive reasoning – facts guarantee the conclusion	Inductive reasoning – facts are constantly re-evaluated
Classical logic	The logic of practice, modal logics, paraconsistent logic
Decision-making linear and deterministic	Decision-making from reciprocal feedback
Reductionism	Nonlinearity
Cognitive processes	Affective processes
The "ecology of fear."	Modulated stress and fear
Communication, language	
Lexical elements – concepts, words	Lexical elements – body language
Information entropy	Communication for noise
Reset baseline	The past as Lessons Learned

of failure.

The motive for studying Lessons Learned came from changes in the world and added information. We evaluate and judge information for the development of Lessons Learned. Judgment does not have an external auditor; we use our judgment to judge our judgment and take offense when someone questions our objective judgment. This is not a trite observation. For decades, one of the authors (DvS) has advised students and residents how to introduce disconfirming information to a superior – using the *belief update operator* from the doxastic modal logic (56, 57).

Epistemology has two aspects: the definition of knowledge and its logical inferences. The two logical inferences are *epistemic*

"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. "

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 being 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 judgment of people for Lessons Learned is not entirely objective. Faced with uncertainty and contradiction, people often prefer broad, internally consistent explanations that preserve their beliefs. Lessons Learned that will initiate change may be construed as criticism of accepted operations, conflicting with the strong positive feelings people have toward their group. A few organization members seek external validation to maintain a strong positive image of themselves. They may resist Lessons Learned or adapt them to support their belief in themselves (58).

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Lessons Learned that contradict predispositions, or previously held worldviews will likely be over-scrutinized. *Motivated reasoning* (59) describes the response when conflicting or disconfirming information challenges held beliefs or identities that are held closely. The individual then over-scrutinizes information that conflicts with those beliefs and too readily accepts data that supports the belief (57).

Systems respond to internal feedback (autocorrelation), making red noise-forcing functions inevitable. Human behavior also responds to feedback; therefore, human behavior operates in the reddened spectra. We cannot predict how people will respond to a crisis. Individuals themselves cannot predict how they will respond. While a top-down engineering structure can produce neatly structured Lessons Learned, the red noise of human behavior prevents such orderly execution.

In Neonatology and disasters, we encounter numerous critical gaps:

- The newly disruptive environment and accepted theory or firmly held belief;
- The pragmatic stance and the normative stance;
- Theory and practice; and
- Firmly held belief and the environment.

Tetlock's metaphorical foxes understand that opposing and contradictory forces yield stability, a feature that also confounds prediction. In minor situations, we readily negotiate these gaps. In the critically ill neonate or during a disaster, even minor levels of stress impair cognition, and we must then operate with the inherent vice of stress-induced disorders, fear circuitry disorders, and amygdala-driven behaviors (60, 61)

Engaging these gaps relies on opposing and contradictory forces that can initiate stress-induced disorders, fear circuitry disorders, and amygdala-driven behaviors. It is these consequences that Lessons Learned addresses.

"Bringing spectators and insiders together makes the effects of different frames of reference visible: the whole field observer and insiders within local groups. This is more than a view of where one stands. The VUCA-2T environment is not amenable to reductionist methods to create linear vectors for causation."

Bringing spectators and insiders together makes the effects of different frames of reference visible: the whole field observer and insiders within local groups. This is more than a view of where one stands. The VUCA-2T environment is not amenable to reductionist methods to create linear vectors for causation. The effects of liminality hide the effective cognitive actions taken during crises. Stress-induced disorders, fear circuitry disorders, and amygdala-driven behaviors lead to justifications and explanations that impair the identification of necessary problems and solutions. Insiders have difficulty translating their experience in a manner that spectators understand.

While not comprehensive, this article discusses some of the impairments that have prevented the identification and implementation of effective Lessons Learned programs in healthcare (Table 5).

During the thirty years from 1921-52, mountain climbers from eleven expeditions to Everest failed to climb higher than 27,000 feet. One year after the physiologist, Gifford Pugh, joined the effort, Sir Edmund Hillary and Tenzing Norgay reached the summit of Mount Everest, smiled, removed their oxygen set, and took photos (62). From Eric Shipton's list of studies (63), we know high-altitude climbers were cognizant of the problems impeding success and were familiar with the science of human performance in low-oxygen environments.

The expertise of Mount Everest climbers produced articulate, accurate observations of the problems they encountered and characterized the need for better science (64-67). The expertise of scientists produced a better understanding of environmental hypoxia and engineered technology for oxygen administration that could be readily adapted from military aviation (39, 68, 69). However, just as a gap exists between theory and practice (70) or discrete

concepts and continuous perception (71), a discontinuity, a separation, exists between the protected, well-controlled laboratory study and the dangerous, volatile high-altitude environment (62, 72).

"As in the story of Mount Everest or our experience interviewing participants in shooting incidents, effective Lessons Learned develop when subject matter experts participate (3) and contributions come from individuals with academic knowledge and field experience to guide the program."

Lessons Learned developed by spectators or solely by the whole field observer will not contain the necessary nuance for the VUCA-2T environment nor support the individual crossing the liminal threshold. As in the story of Mount Everest or our experience interviewing participants in shooting incidents, effective Lessons Learned develop when subject matter experts participate (3) and contributions come from individuals with academic knowledge and field experience to guide the program.

Concepts without context cannot predict consequences. Experience without concepts cannot predict what may work. Individuals familiar with concepts tempered by experience and experience extended by concepts act as a resource

Conclusion

The introduction of HRO into healthcare and the development of patient safety programs has taken place over the past two decades. From published accounts, it is hard to tell if HRO is being incorporated into the healthcare system but what is missing is the effective processes for decision-making and the lexical elements to operate in a noisy environment.

"HRO gets worked out by utilizing small activities with more significant consequences (Karl Weick, personal communication). In these small activities and mundane situations, vigilance for early heralds of failure lay the beginnings of high-reliability operations."

HRO gets worked out by utilizing small activities with more significant consequences (Karl Weick, personal communication). In these small activities and mundane situations, vigilance for early heralds of failure lay the beginnings of high-reliability operations. That is where the organization engages in 'covert compensated states' (19). For Karl Weick, this is "what happens when the autopilot is turned off and you 'discover' first-hand what forces had been held in check and balanced automatically. Isn't that what happens when habits suddenly break down? Covert compensation may be somewhat of a synonym for habit, routine."

Lessons Learned can apply experience gained in a crisis or catastrophe to routine operations – vigilant for the sudden breakdown of habits during red noise forcing functions. For this to occur, the Lessons Learned approach must not only move into the field but must also incorporate the lexical elements necessary to communicate in a noisy environment.

Not by mastery of models nor expertise in operations will an organization achieve HRO. HRO emerges from the practical application of science in a particular context. Lessons Learned is to increase individuals' capabilities and the organization's performance toward engagement in situations where what works is not certain. Otherwise, there is a failure of lessons learned.

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Peer Reviewed

Fellow's Column:The 21st Century Cures Act and Disclosure of Sexually Transmitted Infections in the Neonatal Electronic Chart

Rebekah Daggett, MD, Patricia Pichilingue-Reto, MD, Shabih Manzar, MD

"When treating an adult patient with sexually transmitted infections (STI), keeping the information confidential is more accessible as there is no proxy to access the electronic medical records (EMR)."

The 21st Century Cures Act was passed in 2016. A Final Rule interpreting this law—over 300 pages—was published in May 2020 and took full effect on April 5, 2021. (1) Under Title V, section 4006, empowering patients and improving access to their electronic health information. (2)When treating an adult patient with sexually transmitted infections (STI), keeping the information confidential is more accessible as there is no proxy to access the electronic medical records (EMR).

However, when caring for an adolescent patient, guardians/parents may have access to EMR, which may create a problem of breaching confidentiality. (3,4) In the case of a newborn infant, both parents have access to the EMR, and that may create a dilemma for providers to look at what to document and what to block. (5)We present a case to highlight our point.

"In the case of a newborn infant, both parents have access to the EMR, and that may create a dilemma for providers to look at what to document and what to block. (5)We present a case to highlight our point."

A newborn infant was admitted to the nursery for management of probable congenital syphilis as the mother had a rapid reactive plasma reagin maternal (RPR) of 1:4 and inadequate treatment. The infant was started on intravenous penicillin after obtaining the laboratory and radiological studies per the infectious disease recommendations. The father, who had access to the chart via the patient portal, asked the provider about the indication of penicillin on his baby. In this case, the mother did not have any reservations about telling the father about her syphilis status. Still, the providers raised the question about how to approach the case if the mother had requested confidentiality. EMR documentation of confidential personal health information (PHI) may lead to untoward reactions, resulting in the endangerment of the infant or mother. For example, the documentation of a partner's violence in a child's EMR note may affect the safety of the other partner and children. (6)

"STIs are reportable conditions, and the exposed sexual partner is at a high risk of developing the disease. Therefore, they have the full right to know about it, while on the other end, the patient with an STI diagnosis has the right to confidentiality. Federal and state laws prevail in these scenarios with institutional policies as guidelines."

STIs are reportable conditions, and the exposed sexual partner is at a high risk of developing the disease. Therefore, they have the full right to know about it, while on the other end, the patient with an STI diagnosis has the right to confidentiality. Federal and state laws prevail in these scenarios with institutional policies as guidelines. As a primary care provider, a multidisciplinary approach with the involvement of a social worker, risk management, and infection control representative should be considered in such scenarios.

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- QI/QA work, case studies, or a poster from a scientific meeting may be submitted..
- Submission should be from a medical student, resident, fellow, or NNP in training.
- Topics may include Perinatology, Neonatology, and Younger Pediatric patients.
- No more than 20 references.
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STANDARDS AND SAMPLE RECOMMENDATIONS FOR INFANTS IN THE INTENSIVE CARE UNIT

SYSTEMS THINKING IN COMPLEX ADAPTIVE SYSTEMS

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

POSITIONING & TOUCH FOR THE NEWBORN

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

SLEEP AND AROUSAL INTERVENTIONS FOR THE NEWBORN

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

SKIN-TO-SKIN CONTACT WITH INTIMATE FAMILY MEMBERS

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

REDUCING AND MANAGING PAIN AND STRESS IN NEWBORNS AND FAMILIES

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

MANAGEMENT OF FEEDING, EATING AND NUTRITION DELIVERY

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

WANT TO KNOW MORE ABOUT THE STANDARDS AND RECOMMENDATIONS?
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Keeping Your Baby Safe

during the COVID-19 pandemic

How to protect your little one from germs and viruses

Even though there are some things we don't know about COVID-19 yet, there are many more things that we do know. We know that 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. Protecting your baby from flu and pertussis lowers their risks for complications from coronavirus.

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.

We can help protect each other.

Learn more

www.nationalperinatal.org/COVID-19

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

– Christine Theard, M.D.

Post-Traumatic Thriving

The Art, Science, & Stories of Resilience

Randall Bell, Ph.D.

Briefly Legal: In Utero Manipulation Leads to Adverse Outcome

Barry Schifrin, MD, Maureen Sims, MD, Robert Stavis, PhD, MD

The patient is a 26 y/o G5 P2 with a known sickle cell trait -with known Diamniotic, dichorionic (Di-Di) twins. She has a normal prenatal course with appropriate growth of both twins, who are about the same estimated weight. She is induced at 36+ wks EGA because of atypical preeclampsia.

"She has a normal prenatal course with appropriate growth of both twins, who are about the same estimated weight. She is induced at 36+ wks EGA because of atypical preeclampsia."

Upon admission to the hospital, a preliminary ultrasound exam reveals the twins to be in vertex / transverse lie presentations, and the decision is made to induce labor with the expectation of spontaneous delivery of Twin A and spontaneous conversion of Twin B to either vertex or breech after the delivery of Twin A.

She is observed on L&D for several hours before initiating Pitocin. With Pitocin, she makes rapid progress in cervical dilatation and receives epidural anesthesia within 3 hours. At fu1l dilatation of the cervix, she is transported to the delivery room in anticipation of vaginal delivery of Twin A. Appropriately, anesthesia is in readiness should problems develop with Twin B – and a double set up required. The fetal tracing of both twins remains reassuring despite very frequent uterine contractions. Within 15 minutes, Twin A, weighing 2438 grams, delivers spontaneously without incident.

Following the delivery of Twin A, with Pitocin still running, an ultrasound examination reveals that twin B is still a transverse lie. The EFM strip reveals no discernible tracing of Twin B after the delivery of Twin A, but it does reveal frequent uterine contractions coming every 2 minutes or less.

Without a readable fetal tracing or efforts to obtain uterine relaxation, efforts are made, without success, to convert the baby to a vertex presentation using an external version (from the mother's abdomen).

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The mother consented to cesarean delivery. The obstetrician then used an amnihook to rupture the membranes and pulled at what was thought to be the right leg (presumably the posterior leg) with the expectation of performing a total breech extraction. That extremity turned out to be the hand that was pushed back into the uterus. The obstetrician then identified the left leg (presumably the anterior leg) flexed, giving access to the foot, which he grabbed and pulled out the left leg. With sufficient descent, the right leg was flexed at the knee and also delivered. The baby, now a double-footling presentation, was then pulled to the scapula and rotated. One arm, splinted above the baby's head, was released by sweeping the arm across the chest. The obstetrician then delivered the shoulders and head without further difficulty.

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Twin B was born flaccid, pale with no cry, suck, or respiratory effort, and "decreased movement of his extremities." He was given PPV x 5 min and blow-by oxygen until 15 minutes of age. Apgar scores were 2,6,7 at 1,5,10 minutes, respectively. There was bruising and ecchymosis over the spine and foot. The head was molded with a decreased size of the fontanel. Cord blood gases were normal. The baby was sent to the normal newborn nursery.

"Within 20 minutes of life, retractions began. At 4 hours of life, the baby was transferred to the SCN. Within 5 hours, he could not latch and had a poor suck. He was found to have decreased activity, desaturation, and apneic episodes that became jerking rhythmic motions."

Within 20 minutes of life, retractions began. At 4 hours of life, the baby was transferred to the SCN. Within 5 hours, he could not latch and had a poor suck. He was found to have decreased activity, desaturation, and apneic episodes that became jerking rhythmic motions. A complete blood count and electrolytes were normal. Phenobarbital was started. A lumbar puncture revealed bloody cerebral spinal fluid (CSF) with 6,500 red blood cells per hpf, and 500 white blood cells per high power field, with a normal differential. Polymerase chain reaction (PCR) for herpes simplex virus (HSV) was negative. Blood and CSF cultures were negative. An electroencephalogram (EEG) was severely abnormal. Magnetic resonance imaging (MRI) showed diffuse cerebral, cerebellar, and brainstem infarctions within a watershed distribution. A magnetic resonance angiogram (MRA) and venogram (MRV) showed partial

left transverse sinus thrombosis. A coagulation evaluation was negative. He demonstrated cortical blindness, sensory hearing neural loss, speech, and developmental delays on follow-up.

"He demonstrated cortical blindness, sensory hearing neural loss, speech, and developmental delays on follow-up."

The lawsuit was brought against the physician. Pretrial discovery revealed the following allegations by the plaintiff:

- There was a failure to monitor Twin B immediately after delivery of Twin B properly.
- There was a failure to discontinue the Oxytocin in the face of excessive uterine activity and with the expectation of the need to manipulate the fetus.
- In choosing to manipulate the fetus, it was below the standard of care to fail to attempt to relax the uterus.
- With a back-down transverse lie, the prospects of a safe version were poor, and either a primary section for both twins or an elective cesarean section for Twin B was required.
- Given the immediate availability of the operating team and the initial difficulties in turning Twin B, efforts should have ceased and a cesarean section performed.

Concerning causation, the explanation of the depression and encephalopathy was attributed to umbilical cord compression caused by multiple manipulations or occult cord prolapse. Plaintiff experts maintained that the umbilical cord became compressed during various manipulations, ultimately leading to a total breech extraction. In addition, more probably than not, the problems of cord compression were abetted by the abruption of the placenta as the uterus, with frequent contractions, clamped down after the delivery of Twin A.

"Concerning causation, the explanation of the depression and encephalopathy was attributed to umbilical cord compression caused by multiple manipulations or occult cord prolapse. Plaintiff experts maintained that the umbilical cord became compressed during various manipulations, ultimately leading to a total breech extraction."

The defense experts maintained that the standard of care was met and that the outcome was related to unpreventable and unavoidable complications of delivery. After pretrial discovery, the case was settled before trial.

Comment

From the outset of pregnancy, it is anticipated that twin gestations will have a greater risk of prematurity malpresentation, preeclampsia, and postpartum hemorrhage. In addition, the labor-management of twin gestation can be challenging. While di-amniotic, di-chorionic (di-di) twins may adopt any possible combination of presentations, in perhaps 70% of cases, they present with the first twin in cephalic presentation. For the second twin, other than those in breech presentation or back down transverse lie, their presentations are considered unstable with the potential to convert to cephalic or breech presentation after the delivery of Twin A. In most cases, when both twins are cephalic, vaginal delivery will be attempted. When the leading twin is non-cephalic, the twins will be delivered by elective cesarean section.

There is considerable variation in how cephalic / non-cephalic combinations are handled. However, even when the leading twin is cephalic, the majority will be ultimately delivered by cesarean section, including about a 5-10% risk of performing a cesarean for the second twin after the successful delivery of twin A. The indications for discordant delivery routes include mechanical issues where Twin B is larger than Twin A or is in a transverse lie (especially back down). On occasion, the cervix clamps down after the delivery of the first twin. Fetal distress in Twin B from cord prolapse cord and placental abruption with hemorrhage are complications that demand emergency intervention, and hence, the availability of expertise in anesthesiology not only for the rescue of the fetus but to assist in uterine relaxation should manipulation of the fetus into a deliverable position be required.

"Fetal distress in Twin B from cord prolapse cord and placental abruption with hemorrhage are complications that demand emergency intervention, and hence, the availability of expertise in anesthesiology not only for the rescue of the fetus but to assist in uterine relaxation should manipulation of the fetus into a deliverable position be required."

It was initially thought that the longer the interval between deliveries, the greater the risk of adverse outcomes for the second twin. Indeed, as a generalization, second twins tend to have poorer outcomes than their preceding sibs; this seems to be true irrespective of the delivery route. (1) It has been shown, for example, that pH tends to fall during the interval between deliveries. This has led some investigators to recommend immediate internal podalic version and breech extraction of the aftercoming twin not presenting as cephalic or breech in the pelvis. This approach requires considerable experience and uterine relaxation for success. The procedure is known to be difficult with no guarantee of success (for which simultaneous preparation for cesarean sections must be made).

"The procedure is known to be difficult with no guarantee of success (for which simultaneous preparation for cesarean sections must be made)."

Persistent attempt(s) at delivery under such circumstances are likely contraindicated and, if attempted, permit only a single effort by the most experienced obstetrician in the room. Persistent attempts at manipulation delay the resolution of any fetal compromise from asphyxia and increase the risk of fetal trauma and adverse outcome.

"Persistent attempts at manipulation delay the resolution of any fetal compromise from asphyxia and increase the risk of fetal trauma and adverse outcome."

Studies have shown that the FHR pattern of Twin B after the delivery of twin A is the better determinant of the time (and urgency) of intervention, whether by spontaneous or operative vaginal delivery or cesarean section. (2) The properly obtained fetal tracing will not fail to reveal problems of abruption or cord prolapse.

Statistics on breech deliveries are in flux; the likelihood of cesarean section for both twins is increasing while the use of induction and cesarean section for the second twin is diminishing. (3) In a retrospective study of the long-term trends in twin pregnancies and mode of delivery over 30 years, the authors found statistically significant increases in maternal age, and nulliparity, and in the number of twin deliveries, especially those conceived after IVF. (4) There was also a statistically significant reduction in term deliveries, mean birth weight and assisted vaginal deliveries – diverse characteristics that appear to conspire to increase the rate of cesarean section.

While a well-publicized controlled trial of women with twins where the leading twin was cephalic showed no significant differences in outcome between mothers with planned vaginal delivery and elective cesarean section, this study and other initiatives to lower the cesarean section rate appear to have had little impact on the increasing trend to a cesarean section in cases of multiple gestations. (5)

"While a well-publicized controlled trial of women with twins where the leading twin was cephalic showed no significant differences in outcome between mothers with planned vaginal delivery and elective cesarean section, this study and other initiatives to lower the cesarean section rate appear to have had little impact on the increasing trend to a cesarean section in cases of multiple gestations. (5)"

The potential misadventures with the second twin are well-illustrated in this case, where multiple attempts were made to effect vaginal delivery in a second twin that likely presented as a back-down transverse lie. The most obvious failure from the outset relates to the lack of monitoring of the fetal heart rate pattern to determine its well-being after the delivery of Twin A. Its FHR pattern was demonstrably normal immediately prior to the delivery of Twin A. Secondly, considerable uterine activity was shown on the monitor that required consideration of efforts to relax the uterus. Frequent contractions would also likely confound any attempt to modify the fetal presentation from transverse to either cephalic or breech. The multiple maneuvers attempted illustrate the pitfalls of turning a back-down transverse lie, of mistaking a hand for a foot, and the need to replace the extremity before the proper leg was identified. The anterior leg must receive traction lest the fetal buttock impinge on the symphysis and cause dystocia. In addition, placental abruption is a known risk factor for Twin B after the delivery of Twin A as the uterus diminishes in size, potentially reducing the size of the implantation of the placenta.

"As mentioned, the proposed mechanism of the fetal neurological injury was compression or spasm (perhaps an occult prolapse) of the umbilical cord – a known complication with twins or non-vertex presentations abetted by placental abruption. Several mechanisms may impair umbilical blood flow."

As mentioned, the proposed mechanism of the fetal neurological injury was compression or spasm (perhaps an occult prolapse) of the umbilical cord – a known complication with twins or non-vertex presentations abetted by placental abruption. Several mechanisms may impair umbilical blood flow. Myocardial dysfunction secondary to hypoxia will create sluggish to absent blood flow secondary to poor heart contractility. Direct pressure or stretching of the cord, especially when the stretch is abrupt, can create vasospasm and narrowing in the umbilical vessels and impede blood flow. Stretching of the cord can occur as the fetus descends the birth canal, especially if the descent is rapid or the cord is short. The cords of monoamniotic twins can become entwined and restrict blood from flowing freely. The most plausible explanation involves the compression of the cord between the fetus and the uterine wall. This risk is enhanced in the presence of decreased amniotic fluid volume and when excessive uterine activity is present, manifested by either repetitive or strong contractions, as in this case. The turgor of the cord influences the presence or degree to which the cord is pressed. A large infant of a diabetic mother has a relatively thick cord that is less compressible than a thin cord which is typical of an intrauterine growth-restricted fetus.

"This risk is enhanced in the presence of decreased amniotic fluid volume and when excessive uterine activity is present, manifested by either repetitive or strong contractions, as in this case. The turgor of the cord influences the presence or degree to which the cord is pressed."

In order to explain the ubiquity of variable decelerations, especially in the 2nd stage of labor, it is believed that uterine contractions per se cause intermittent squeezing of the umbilical cord. These decelerations are probably related to head compression associated with maternal pushing. (6)

"Cord compressions typically result in variable decelerations, which appear as quick, irregular, often jagged drops in heart rate and reflect a fetal autonomic reflex response. Initially, compression of the umbilical cord occludes the thin-walled, compliant umbilical vein, decreasing fetal venous return and triggering a baroreceptor-mediated reflex rise in fetal heart rate (sometimes referred to as a "shoulder")."

Cord compressions typically result in variable decelerations, which appear as quick, irregular, often jagged drops in heart rate and reflect a fetal autonomic reflex response. Initially, compression of the umbilical cord occludes the thin-walled, compliant umbilical vein, decreasing fetal venous return and triggering a baroreceptor-mediated reflex rise in fetal heart rate (sometimes referred to as a "shoulder"). When intermittent and showing prompt return to the previously normal baseline rate and variability, variable decelerations are considered benign in the fetus with a good reserve. Further compression or vasospasm occludes the umbilical arteries, causing an abrupt increase in fetal peripheral resistance and blood pressure as the fetus again tries to protect itself. The abrupt rise in blood pressure triggers an increase in parasympathetic outflow and an abrupt decrease in heart rate. As the cord is decompressed, this sequence of events occurs in reverse. While variable decelerations represent anticipated physiologic reflexes to umbilical cord compression and do not represent periods of hypoxia or acidemia per se, severe and repetitive compression will eventually compromise oxygenation, especially and more so in a fetus with little reserve. Periods of tachycardia or prolonged recovery of the variable decelerations are secondary to a sympathetic response to hypoxemia. These spurts are referred to as "overshoots." There is no evidence that the FHR will fail to respond to cord compression and its pathophysiological consequences. In this case, no such surveillance was undertaken in haste to deliver Twin B vaginally.

"The average pH difference between the umbilical artery and the vein is 0.07. A pH difference of 0.11 or greater suggests umbilical vein occlusion. A wide difference between the two is the hallmark of occlusion of the umbilical cord."

This paradigm helps to explain the normal umbilical blood gases in this asphyxiated infant. (7) A cord blood gas sample reflects the status before the cord is compressed. The average pH difference between the umbilical artery and the vein is 0.07. A pH difference of 0.11 or greater suggests umbilical vein occlusion. A wide difference between the two is the hallmark of occlusion of the umbilical cord.

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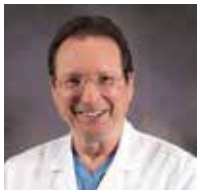

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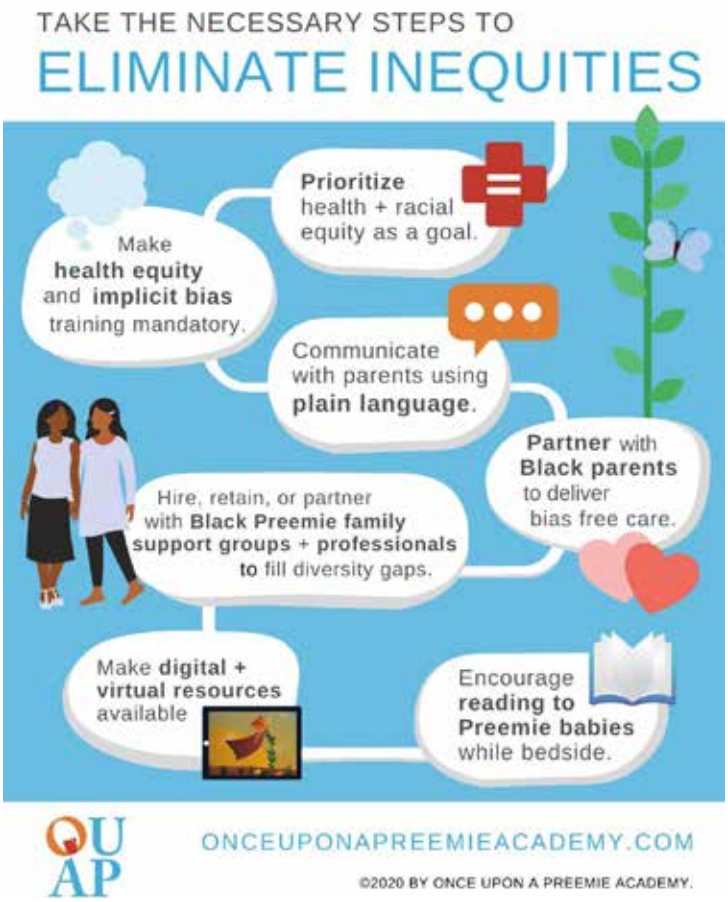

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SHARED DECISION-MAKING PROTECTS MOTHERS + INFANTS DURING COVID-19

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- HORIZONTAL INFECTION
- SEPARATION AND TRAUMA

EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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

TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

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

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY

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

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National Perinatal Association

Gravens By Design: Featured Conference: the 14th International Brain Conference in Clearwater Beach, Florida

Robert D. White, MD

"While normal neurodevelopment has always been a major indicator of successful NICU care, our understanding and tools have only recently become sufficient to impact outcomes substantially. "

One of the fastest-growing areas of neonatal expertise and care is in diagnosing and managing conditions affecting the newborn's brain function and development. While normal neurodevelopment has always been a major indicator of successful NICU care, our understanding and tools have only recently become sufficient to impact outcomes substantially.

The Newborn Brain Conference was founded 20 years ago as this field was entering a stage of rapid growth. Continuous EEG monitoring was recently introduced, methods for preventing intraventricular hemorrhage were being tested, and therapeutic hypothermia for hypoxic-ischemic encephalopathy was transitioning from the laboratory to the bedside. Over the years, the scope and attendance have grown; in 2022, this conference had 444 attendees from 71 countries, making it the premier conference for those seeking the most current information on the care of the newborn brain.

The 14th International Newborn Brain Conference will be held February 8-11, 2023, in Clearwater Beach, Florida. Highlights include sessions on

- New therapies for neuroprotection, including erythropoietin, cell therapy, and other agents still in development.
- Care for the preterm brain with neuroprotective bundles and specialty care teams, and an update on the status of an artificial placenta for ultra-early preemies.
- The NICU environment of care, both structural and operational, including the role of parents as partners in the care team
- Current status of classification and treatment of neonatal seizures

There will be many additional learning opportunities, including abstracts detailing the most recent scientific advances, workshops to enhance a number of clinical skills, debates on controversial topics in neonatal neurology, small group discussions on several topics of interest, and exhibits of the newest clinical tools for neonatal brain care.

"There will be many additional learning opportunities, including abstracts detailing the most recent scientific advances, workshops to enhance a number of clinical skills, debates on controversial topics in neonatal neurology, small group discussions on several topics of interest, and exhibits of the newest clinical tools for neonatal brain care."

"Special rates are offered for early bird registration, nurses, allied health personnel, and attendees from low- and middle-income countries. More details and registration information are available at https://www.mcascientificevents.eu/inbc/ "

The conference will have a hybrid format, though the optimal experience will be in-person - not only for the informal learning that can occur but also because not all concurrent sessions will be available virtually. Special rates are offered for early bird registration, nurses, allied health personnel, and attendees from low- and middle-income countries. More details and registration information are available at https://www.mcascientificevents.eu/inbc/

Members of the Newborn Brain Society also receive a reduced registration fee as well as educational and networking opportunities throughout the year; more information about the society's offerings and how to join can be found at https://newbornbrainsociety.org/

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COVID-19

STOP THE SPREAD AT HOME

What to do when you or a loved one is infected.

HYGIENE TIPS

MOUTH
- Wear a face mask or face shield.
- If in car, wear mask & put windows down.
- NO cloth face masks for children younger than 2yrs.
- Avoid kissing

EYES
Wear protective eye gear (glasses)

HANDS
ALWAYS wash your hands

CLOTHING
- Wear a jacket when dealing with infected.
- DO NOT share clothing, sheets, or pillows.

BATHROOM

- Sanitize EVERYTHING.
- Clean after every use.
- Patient gargle Listerine every morning & night.

PROTECT

- If infected, notify everyone in contact from the past 10 days.
- Ask Dept. of Health for further assistant.
- Call 211 for FREE delivery services.

If you are feeling sicker, DON'T WAIT. Call your doctor immediately.

SELF ISOLATION

- Sick should be separate from household.
- Room with window preferred
- Aerate room 3x day.
- Create a room divider with sheet.
- Keep water and sanitation liquids near
- Keep garbage bag in room.
- Don't cuddle with pets.

6 FT

Practice social distancing

KITCHEN

- Use SEPARATE utensils.
- Clean utensils separately.
- If sick avoid the kitchen.

TRACK COVID-19 NEAR YOU BY VISITING COVIDNEARYOU.ORG

#STOPTHESPREAD

MIORA

Visit Miora.org

Brought to by Miora in partnership with United2Care

COVID-19

DETENER LA PROPAGACIÓN EN CASA

Qué hacer cuando usted o un ser querido está infectado.

CONSEJOS DE HIGIENE

BOCA
- Use una mascarilla o careta
- Si está en el automóvil, use una máscara y baje las ventanas
- NO mascarillas de tela para niños menores de 2 años.
- Evitar besos

OJOS
Use equipo de protección para los ojos (lentes)

MANOS
SIEMPRE lávate las manos

ROPA
- Use una chaqueta cuando se trata de infectados.
- NO comparta ropa, sábanas o almohadas.

BAÑO

- Desinfecte TODO.
- Limpiar después de cada uso
- El paciente hace gárgaras con Listerine todas las mañanas y noches.

PROTEGER

- Si está infectado, notifique a todos los contactos de los últimos 10 días.
- Pídale al Departamento de Salud por más ayuda.
- Llame al 211 para obtener servicios de entrega GRATUITOS.

Si te sientes más enfermo, NO ESPERES. Llame a su médico de inmediato.

AISLAMIENTO

- Los enfermos deben estar separados del hogar.
- Habitación con ventana preferida
- Airear la habitación 3x al día
- Crea un separador de ambientes con sábana.
- Mantener agua y líquidos de saneamiento cerca
- Mantenga una bolsa de basura en la habitación.

6 FT

Practica el distanciamiento social

COCINA

- Use utensilios SEPARADOS.
- Limpie los utensilios por separado.
- Si está enfermo, evite la cocina.

SIGUIR COVID-19 VISTAR COVIDNEARYOU.ORG

#STOPTHESPREAD

MIORA

Visitar Miora.org

Traído por Miora en asociación con United2Care

Ways to Manage Covid 19 @ Home

Household

1. Stay 6 feet apart from others at all times.
2. Wear protective covering over mouth and eyes (mask AND shield/goggles/glasses) when near others. (Do not put masks on children under 2 years old)
3. Gargle with antiseptic mouthwash in the morning and evening.
4. Wash hands 10-12x a day, before each meal for at least 20 seconds.
5. Keep good ventilation throughout home. (open windows/doors) where possible
6. Do not share towels, blankets, pillows with sick.
7. Call 211 for assistance/free delivery of services.
8. Wear protective clothing (jacket, gloves, mask) that can be removed after being around infected.

Stop the Spread at HOME

MIORA

Sick

1. Self-isolate by staying in separate room with separate bathroom where possible. Don't go into shared spaces.
2. Create a room divider with sheet, if shared space is unavoidable.
3. Ventilate room with fresh air at least 3x per day.
4. Keep water and sanitation products in room.
5. Keep plastic garbage bag in room.
6. Protect pets - don't cuddle.
7. Notify contacts in last 10 days.
8. Don't wait! Call doctor if symptoms get worse.

Maneras de manajer COVID-19 en casa

Hogar

1. Manténgase 6 pies de distancia de los demas en todo momento.
2. Use una cubierta protectora sobre la boca y la máscara para los ojos Y el protector / gafas / anteojos cuando esté cerca de otras personas. No ponga máscaras a niños menores de 2 años.
3. Hacer gárgaras todas las mañanas y noches con productos de enjuague bocal antiséptico que contienen alcohol.
4. Lavesé la manos 10-11 veces al día, y antes de cada comida por lo menos 20 segundos.
5. Mantéga Buena ventilacion en toda la casa. Abra las ventanas y puertas cuando sea posible.
6. No compartá toallas, cobijas, y almohadas con personas que esten infectados.
7. Llame al 211 para obtener servicios de entrego gratuitos.
8. Use ropa protectora, chaqueta, guantes, máscara que se pueda quitar después de estar cerca de infectados.

Detén la propagacion en casa

MIORA

Enfermo

1. Aíslese permanecindo en una habitación separada con baño separado. No vayas a espacios compartidos
2. Si no se puede aislarse crea un separador de ambiente con una sabana.
3. Ventile la habitacion con aire fresco por lo menos 3 veces al dia.
4. Mantenga agua y productos de saneamiento en la habitacion.
5. Mantenga una bolsa de basura en la habitación.
6. Proteja a las mascotas, no las abrace.
7. Notifique a todos los contactos de los últimos 10 días.
8. No espere! Si se siente peor llame a su medico.

WEAR A MASK

PROTECT PARENTS + BABIES

COVID-19

When we all wear masks...

We protect parents and babies.

Project Sweet Peas + National Perinatal Association

USA UNA MASCARILLA

PROTEGER A LOS PADRES Y BEBÉS

COVID-19

Cuando todos usamos mascarillas ...

Protegemos a los padres y los bebés.

Project Sweet Peas + National Perinatal Association

Fragile Infant Forums for Implementation of IFCDC Standards Key Cornerstone of the IFCDC Standards – Environments Conducive to Developmental, Family-Centered Care

Robert D. White, MD

"Developmental and family-centered care in the NICU are deeply interdependent, beneficial practices that enhance the success of all other aspects of caregiving. Optimal outcomes for the newborn require that both aspects receive our full attention."

Developmental and family-centered care in the NICU are deeply interdependent, beneficial practices that enhance the success of all other aspects of caregiving. Optimal outcomes for the newborn require that both aspects receive our full attention. This article will explore how the environment of intensive care can be enhanced to support these optimal outcomes.

The optimal NICU environment for the development of high-risk infant

Opinions regarding the optimal care environment for high-risk newborns have changed drastically over the relatively short history of NICU care. These opinions have often been based on assumptions rather than evidence; even today, convincing evidence is rare. Conducting properly controlled trials of large numbers of patients is difficult for many reasons, so most evidence is suggestive at best. Even so, several principles are emerging from both evidence and experience:

- Interaction with parents is important, especially for the most immature infants (1,2).
- Sensory deprivation is a misguided overreaction to the sensory overload typical of the early days of NICU care. For example, we have taken the pendulum from very noisy NICUs where infants were frequently exposed to unpleasant or painful interventions with little regard to their sleep state to now often proscribing any interaction during sleep, including parental rocking, singing, or conversation. We have known for many years that infants learn during sleep (3) and that many of these practices, such as rocking and soft music, support sleep, yet many NICUs caution families and caregivers against their use once the infant falls asleep.
- What we do not know on this topic is still far greater than what we do. For example, we do not have good information on the ideal sensory input to offer at specific stages of development or during specific stages of recovery from a stressful incident; for the most part, we are still relying on our best guesses.

"The 2-day conference allowed participants to engage in dialog about how systems impact interventions at the bedside for the emphasis of this forum--feeding practices."

With these principles in mind, we can still make some basic statements regarding the sensory environment of care for high-risk newborns with structural implications. These statements are presented in greater detail with appropriate references in the Recommended Standards for NICU Design (4).

- Visual - there is little evidence that visual stimuli are important for infant development until near term. At that point, they seem most attentive to faces, so apart from encouragement for families and caregivers to actively engage infants as they become more attentive, there is no convincing evidence to suggest that other visual stimuli are beneficial.
- Non-visual optic stimuli – the eyes receive circadian and visual information. Infants receive circadian information from their mother's hormones and activity while *in utero*; after birth, they continue to receive circadian information from their mother via circadian variation in hormone and nutrient

levels (5.6), but light becomes the primary stimulus for circadian information. The non-visual circadian pathway is intact by at least the beginning of the third trimester, and there is good evidence that cycled lighting benefits infants from this point on (7). There is no evidence to suggest that presenting this circadian stimulus prior to the beginning of the third trimester is harmful to infants, so the general environment of care should provide modest indirect lighting (200-600 lux at the baby's eyes) during the day (except for infants who are under specific protocols such as IVH prevention or post-dilation for ROP exams), with dim light (<100 lux) at night.

- Auditory – noxious auditory stimuli should be avoided whenever possible. Audio equipment alarms at the bedside are the predominant source of noxious stimuli but, in most cases, can be converted to visual or remote (e.g., to a personal communication device for the caregiver). Other sources of noxious stimuli include cleaning equipment, loudspeakers, loud conversation, and moving equipment across hard flooring; all of these can be mitigated with good design, which should also include extensive use of sound-absorbent surfaces.
- **Of equal importance to removing noxious stimuli is the provision of nurturing stimuli**. The auditory cortex is in a rapid stage of development in the third trimester, and the normal fetal environment includes auditory stimuli, especially the mother's voice, which term infants can recognize immediately after birth, indicating exposure and learning *in utero* (8). Human voice and music are the predominant nurturing stimuli that should be available to the developing brain, ideally presented not as disembodied stimuli but in concert with multisensory support, including touch (e.g., holding skin-to-skin) and kinesthetic (e.g., gentle rocking).
- Touch, movement, taste, and smell – these stimuli, while important, do not have specific requirements within the physical environment; that is, they should be provided regardless of the NICU setting as long as sufficient bedside space exists for a parent rocking chair and care is taken not to introduce noxious odors into the baby's microenvironment (incubator).

"As a first principle, optimal family-centered care requires the removal of all barriers to family participation. Some barriers originate outside the NICU, such as lack of parental leave or child care, transportation challenges, and hospital visitation policies."

The optimal NICU environment for family-centered care

As a first principle, optimal family-centered care requires the removal of all barriers to family participation. Some barriers originate outside the NICU, such as lack of parental leave or child care, transportation challenges, and hospital visitation policies. However, many subtle and unwritten barriers exist within the NICU, starting with a failure to make families fully aware of their importance to their baby's health. While this paper does not fully explore these barriers, their importance must not be overlooked if optimal outcomes are desired.

First impressions

For many parents, having a baby admitted to the NICU is the first major crisis of their adult life. Especially if the baby is transferred from a community hospital to a medical center they may have never entered before, those first hours of communication, wayfinding, and introduction to a frightening new world are often the source of extreme anxiety and fear – but even if the birth hospital is also the location of the NICU, most parents are unprepared for this experience. There are many aspects to consider, but since this article is focused only on the environment of care, those structural aspects of importance include the following:

- Clear signage allows families to easily find their way to the NICU from wherever their baby was born.
- A welcoming, non-intimidating entrance to the NICU should be a warm, attractive space free of intimidating signs and broken equipment and staffed by an individual whose job description specifically includes welcoming and assisting families.
- A pathway to the baby's room should contain warm, encouraging messaging, both implicit and explicit, rather than grim reminders that one is about to enter a critical care space.

"While care of the infant is necessarily the first priority in the patient care space, families should not be a second thought; their importance to the care of the baby should be considered at every step. For example, the headwall design for equipment placement must consider not only the needs of the staff but should also facilitate easy transfer of the infant from the bed surface to the parent's arms,"

The patient care space

While care of the infant is necessarily the first priority in the patient care space, families should not be a second thought; their importance to the care of the baby should be considered at every step. For example, the headwall design for equipment placement must consider not only the needs of the staff but should also facilitate easy transfer of the infant from the bed surface to the parent's arms, even when the child requires considerable support. Unless this space is planned to include the family as an integral part of the care team, there will inevitably be inconveniences that will, at times, reduce the likelihood that the infant will benefit fully from this care. **The mindset should be that of a bedroom with high-tech capabilities rather than of a critical care room with family space as an add-on.** This philosophy will be evident to parents for years after the design process is complete since struc-

tural decisions convey numerous unspoken messages about the priorities of the hospital's caregiving team.

Family support areas

A family lounge within the NICU that supports family interaction and decompression space outside of the NICU, such as a garden area that affords some degree of privacy, are essential elements of the environment of care for families. For many parents, relationships with other families that begin in the NICU last for a lifetime and can provide support in ways NICU staff cannot, so there should be both structural and programmatic strategies to enhance these interactions. At times, though, the NICU can become a war zone for some families, so an escape space that does not require leaving the hospital grounds can be crucial to getting through difficult days.

Considerations for staff

The needs of staff within the environment of care should not be overlooked when attempting to provide the ideal environment for patients. Staff need suitable task lighting and communication systems that permit them to do their work without impinging on the protections noted above intended for infants. Equipment location and work surfaces/seating should be designed using modern ergonomic principles.

"NICU leaders can learn a great deal from the hospitality industry. One would never find a cleaning cart or broken equipment in the public hallways of a hotel or even a Wal-Mart. One would never find supplies on the front counter of a nice hotel or even a Motel (6)."

Final thoughts

NICU leaders can learn a great deal from the hospitality industry. One would never find a cleaning cart or broken equipment in the public hallways of a hotel or even a Wal-Mart. One would never find supplies on the front counter of a nice hotel or even a Motel (6). Yet in most NICUs, these are common occurrences except in the days leading up to and during a JCAHO inspection. To some degree, these are failures of good design, but far more often, they are simply decisions made by hospital staff that they would never make when welcoming visitors to their own home but do not consider the message families receive when they see these practices. Leaders who wish to provide the optimal environment of care for NICU families must use fresh eyes to evaluate every step a family takes from a referring hospital to their baby's bedside to appreciate the unspoken messages, good and bad, conveyed by the physical environment of our NICUs.

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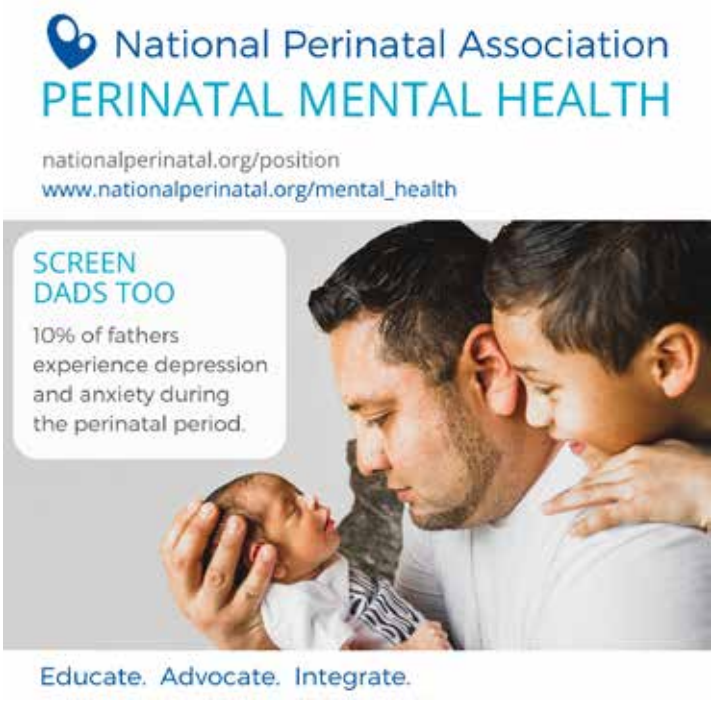

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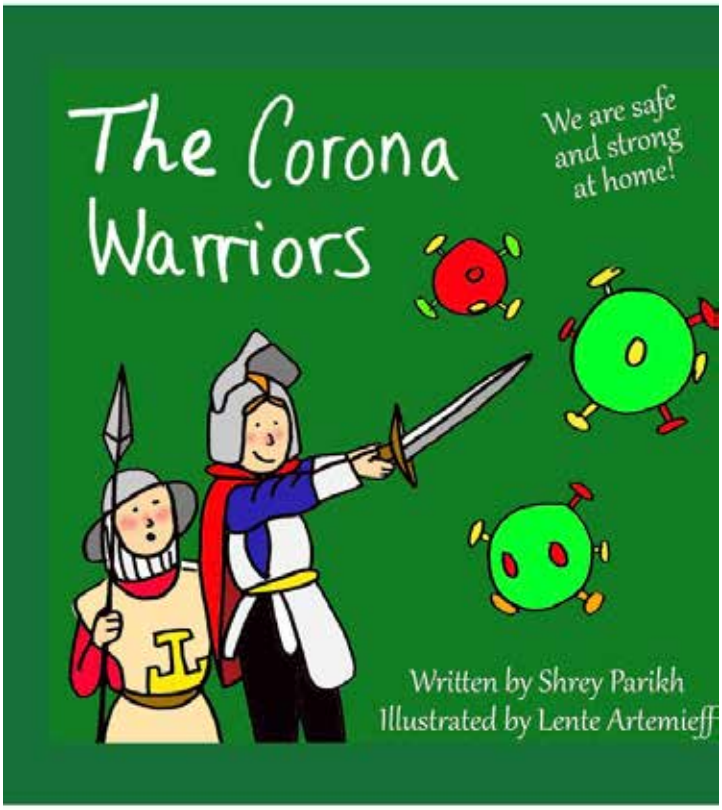

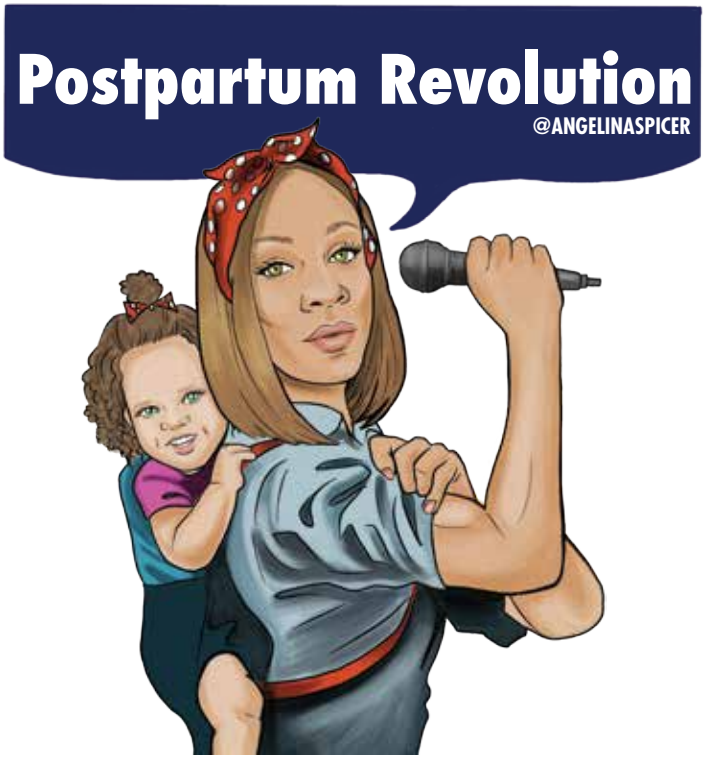

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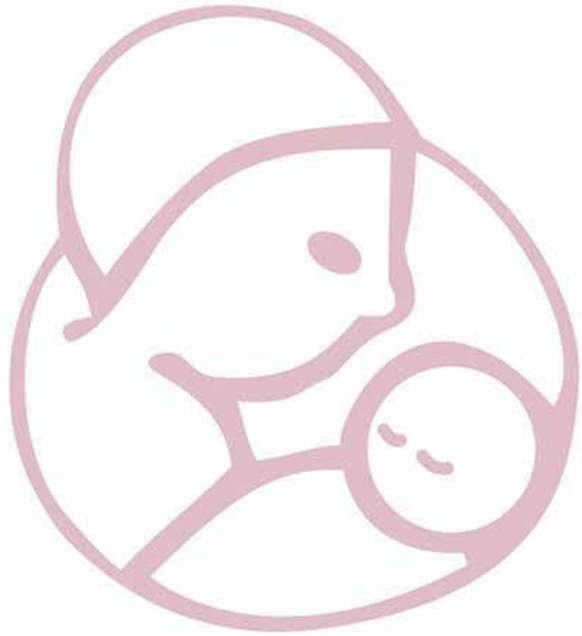

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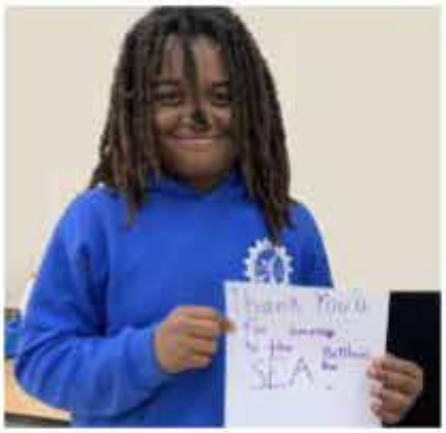

1 session	$15
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1 year	$1,080
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Lost to Follow-Up

Kelly Welton, BA, RRT-NPS

"Complex, complicated surgeries. Custom shunts and conduits. This was the stuff of my RT world in the '80s and '90s. I worked in a cardiac surgery unit that admitted adults, kids, and neonates. Before robotics or catheter surgeries, we still had children's most complicated complex cardiac defects to repair or palliate."

Complex, complicated surgeries. Custom shunts and conduits. This was the stuff of my RT world in the '80s and '90s. I worked in a cardiac surgery unit that admitted adults, kids, and neonates. Before robotics or catheter surgeries, we still had children's most complicated complex cardiac defects to repair or palliate. These children often returned yearly for a revision as they outgrew their shunts and patches or needed more pulmonary blood flow as they got older. We often remembered these kids when they came back. The families remembered us. And then – they would disappear. "Lost to follow-up" was the term that went in their chart to anticipate their return for a check-up and to schedule surgery. Some families would move, requesting surgical and pediatric cardiology records as they went.

" In the same way as these cardiac kids, many families move around a lot and when presenting to the new clinic or doctor, simply stating, 'my kid was born at 28 weeks' does not cover all of the possible future issues the child may have."

Moreover, some would just never be seen again. How would the parents ever explain the type of surgery performed, how many times, and the expected outcomes if the kid is still growing? In an upcoming symposium, one of the talk titles is *Primary Care Physicians – what to look for in a former preemie*. In the same way as these cardiac kids, many families move around a lot and when presenting to the new clinic or doctor, simply stating, 'my kid was born at 28 weeks' does not cover all of the possible future issues the child may have. Here are some things to definitely be on the lookout for if a former preemie comes to you for care, either in your MD office or in your ED if you are an RT or RN:

- When did your child reach any milestones, such as walking and talking?
- What percentile on the growth chart is the child?
- Have any vision or hearing problems been diagnosed?
- How is the child's appetite/how are feeds going?
- Is the child active when at a playground or park?
- Does the child have recurrent respiratory issues?
- How is the child doing overall in school?

" The difference between a standard 'Well Baby Check' and spending time taking a thorough NICU history can mean the difference between success and failure on many levels, from school to chosen profession to general health."

Many former preterm infants are not diagnosed correctly with cerebral palsy, autism, or ADHD until much later in life. If the parents can state how long the child was on a ventilator and how long they were in the NICU, that information can help you determine a course of care over several systems. The difference between a standard 'Well Baby Check' and spending time taking a thorough NICU history can mean the difference between success and failure on many levels, from school to chosen profession to general health.

Disclosures: The author has no conflicts noted.

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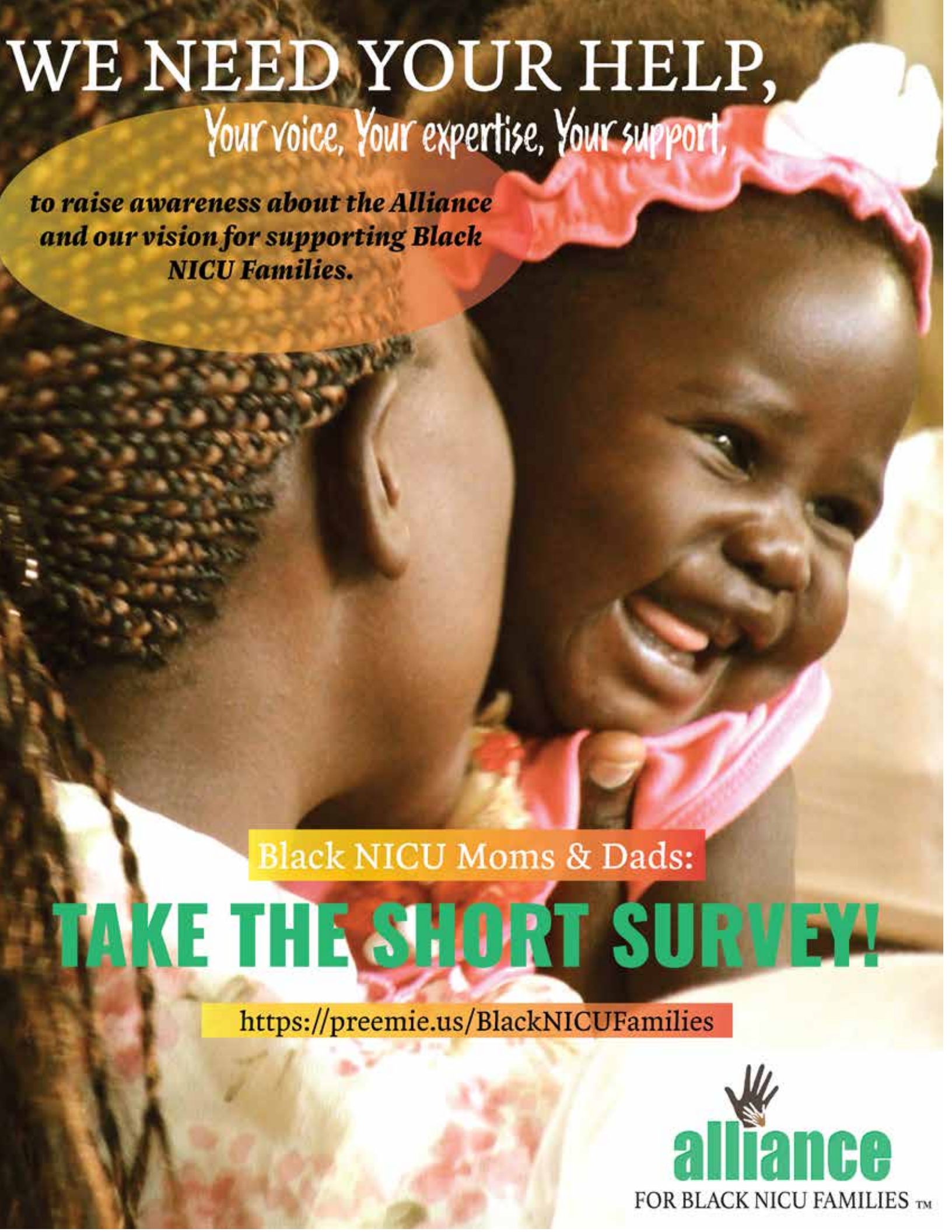
The Village Son

A Life's Journey

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

Houchang D. Modanlou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Addressing Structural Racism in Infant Safe Sleep Education: HHS to Fund First Candle Community-Based Project

Alison Jacobson

Saving babies. Supporting families.

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

"First Candle, the national non-profit organization committed to ending Sudden Unexpected Infant Death, has been awarded a $385,000 grant by the U.S. Department of Health and Human Services (HHS) for a three-year project to assess infant safe sleep policies concerning structural racism and to develop community-based practices designed to reduce Black infant sleep-related mortality in the Atlanta, Georgia region."

First Candle, the national non-profit organization committed to ending Sudden Unexpected Infant Death, has been awarded a $385,000 grant by the U.S. Department of Health and Human Services (HHS) for a three-year project to assess infant safe sleep policies concerning structural racism and to develop community-based practices designed to reduce Black infant sleep-related mortality in the Atlanta, Georgia region.

"The grant was issued through the department's Office of Minority Health (OMH) and is part of a total award of more than $4.8 million in grants to 10 organizations under its Community-Driven Approaches to Address Factors Contributing to Structural Racism in Public Health initiative."

The grant was issued through the department's Office of Minority Health (OMH) and is part of a total award of more than $4.8 million in grants to 10 organizations under its Community-Driven Approaches to Address Factors Contributing to Structural Racism in Public Health initiative. Grant recipient projects range across seven states, including California, Connecticut, Indiana, Massachusetts, New Mexico, New York, and South Carolina.

First Candle will be working with the Healthy Mothers, Healthy Babies Coalition of Georgia (HMHBGA) to form a multi-sector team of government officials, community advocates, and healthcare providers to review national and state policies and practices surrounding infant safe sleep that might adversely affect families of Color.

Upon completion of the review, the team, together with First Candle and HMHBGA, will develop programs designed to improve maternal and infant care, increase safer infant sleep practices, and strengthen support for families during prenatal and postnatal periods.

The program will be evaluated by the Morehouse School of Medi-

cine's Center for Maternal Health Equity, and results will be disseminated to community partners and through national networks to support the development of new local, state, and national policies.

"Georgia has the 11th highest rate of Sudden Unexpected Infant Death (SUID) in the U.S., according to the Centers for Disease Control (CDC). SUID includes sudden infant death syndrome (SIDS), accidental suffocation and strangulation in bed (ASSB), and death by an unknown cause before a child's first birthday."

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"HMHBGA has been committed to improving the health and well-being of moms and babies since our founding almost 50 years ago," said Ky Lindberg, Executive Director. "We are excited to embark on this new endeavor with First Candle to strengthen safe sleep practices in communities that experience higher incidents of SUID.

"This is particularly important as families try to understand the updated American Academy of Pediatrics recommendations while also navigating the many stressors that have only been exacerbated by COVID-19."

First Candle has been a strong supporter of the Healthy Mothers Healthy Babies Coalition of Georgia for many years, and when we became aware of the grant, we knew we could find no better partner than HMHBGA. Their dedication to improving health outcomes for mothers and infants aligns perfectly with our mission to decrease the rates of Sudden Unexpected Infant Death and to support families.

This grant will allow us to understand better the challenges families face in adopting recommendations by the AAP and government agencies and create viable solutions to reduce the rates of infant deaths finally. These solutions can also benefit healthcare providers as they assist families in making decisions regarding their infant's safe sleep practices.

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

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About First Candle

First Candle, based in New Canaan, CT, is a 501c (3) committed to eliminating Sudden Infant Death Syndrome and other sleep-related infant deaths while providing bereavement support for families who have suffered a loss. Sudden unexpected infant death (SUID), which includes SIDS and accidental suffocation and strangulation in bed (ASSB), remains the leading cause of death for babies one month to one year of age.

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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.
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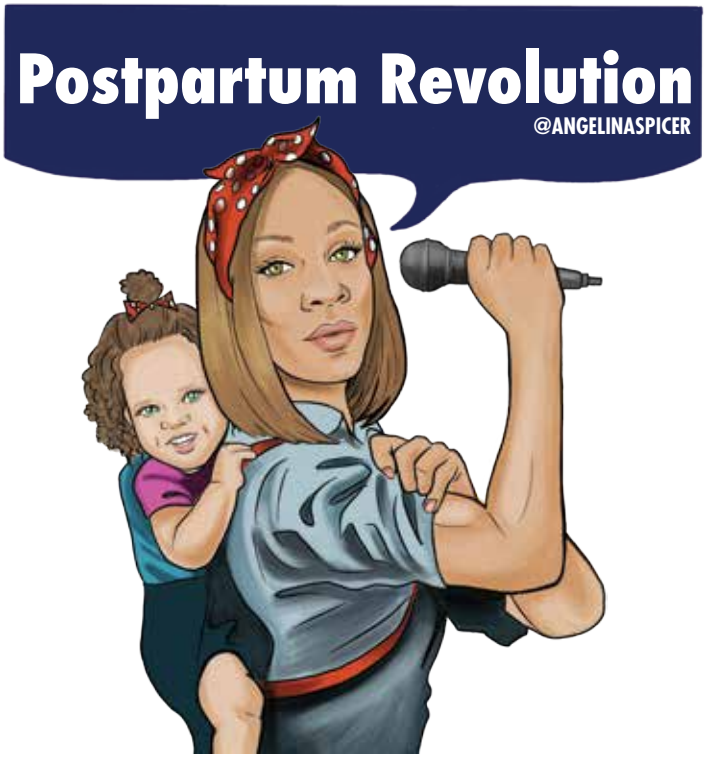

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A Case Report of Ileoileal Intussusception in a Premature Neonate

Benjamin Hopkins, BS; Anabel Goulding, BA; Emily Ong, BA; Kenny Lam, BS

"Intussusception is the telescoping, or invagination, of a part of the intestine into itself; it is the most common abdominal emergency in children under two years of age (1). However, intussusception is extremely rare in the neonatal period, accounting for 1% of cases in children less than three months of age, and is encountered even less frequently in premature neonates (2)."

Keywords: Intussusception, neonate, ileoileal, preterm, premature, peritoneal, spontaneous intestinal perforation

Introduction:

Intussusception is the telescoping, or invagination, of a part of the intestine into itself; it is the most common abdominal emergency in children under two years of age (1). However, intussusception is extremely rare in the neonatal period, accounting for 1% of cases in children less than three months of age, and is encountered even less frequently in premature neonates (2). Establishing intussusception as a diagnosis in a neonate is further complicated due to clinical similarities with Necrotizing Enterocolitis (NEC), a more common disease in premature neonates (3). The clinical similarities between intussusception and NEC and the lack of imaging findings associated with intussusception often lead to a delay in diagnosis, increasing the risk of complications (3). We present a case of a 22.2 week (gestational age) female diagnosed with ileoileal intussusception after exploratory laparotomy on day of life 15. To our knowledge, this is the youngest reported case of intussusception. There have been other intussusception cases where the neonate was born at 23 weeks (3).

Case Presentation:

An extremely preterm, 22.2-week-old female weighing 464 grams was born vaginally to a G2P1 woman who had prenatal care. Pregnancy was complicated by vaginal bleeding and preterm labor. Antenatal steroids were not given. Mother was GBS negative, Rh-positive, and otherwise negative serology.

The newborn (NB) required PPV and intubation at delivery due to respiratory failure. On admission, she had pulmonary insufficiency and was given surfactant and placed on a High-frequency Jet ventilator (HFJV) with 100% FiO2.

Labs at birth revealed elevated WBCs, neutrophils, lymphocytes, monocytes, and bands. The NB was started on Ampicillin and Gentamicin while a blood culture was pending for sepsis. An Umbilical arterial catheter (UAC) was placed to gain central arterial access.

"At 23.3 weeks adjusted gestational age, a KUB showed a perforation in the small bowel. A peritoneal drain was inserted, and a Spontaneous Intestinal Perforation (SIP) diagnosis was made."

At 23.3 weeks adjusted gestational age, a KUB showed a perforation in the small bowel. A peritoneal drain was inserted, and a Spontaneous Intestinal Perforation (SIP) diagnosis was made. An additional KUB two days later showed no signs of perforation.

Six days after the peritoneal drain was placed, at 24.3 weeks gestational age, bleeding was noted from the insertion site. The NB was anesthetized, and the peritoneal drain was removed. Exploratory laparotomy was performed, and an ileoileal intussusception was discovered; additional perforations at the site of intussusception and proximal ileum were also noted, confirming the previous diagnosis of SIP. Surgery consisted of segmental distal ileal resection at the intussusception site with primary anastomosis. Additionally, mid-segmental ileal resection with the creation of ileostomy and the mucous fistula was also performed.

The bowel appeared pink without evidence of necrosis, and the NB handled the procedure well. The postoperative period was uneventful, and the patient was transferred to a Level Four NICU, where the patient eventually expired due to further complications.

Discussion:

Most intussusceptions in children are idiopathic, with only 25% caused by a pathological lead point, most commonly lymphoid hyperplasia (4). Intussusception typically occurs between 6 and 36

months of age, with 90% being under 24 months, while only 1% is found in infants younger than three months (5, 6). When intussusception is found outside the typical age range, it is most often associated with a pathological lead point (7). The site of intussusception can be anywhere throughout the bowel and, although rare, can also present at multiple sites throughout the bowel.

"When present in children aged 6 to 36 months, intussusception is most frequently (>90%) identified as involving the ileocecal junction (2). Despite the high prevalence of the ileocolic type of intussusception in children, this is not the case for preterm neonates."

When present in children aged 6 to 36 months, intussusception is most frequently (>90%) identified as involving the ileocecal junction (2). Despite the high prevalence of the ileocolic type of intussusception in children, this is not the case for preterm neonates. A 2021 review of 52 cases of intussusception in premature neonates found that the site involved most frequently in this age group was ileoileal intussusception (61%), while ileocolic intussusception was only found to be the third most common site for intussusception (8%) in a premature neonate (3). Also discussed in this review was the frequency of presenting symptoms for premature neonates that were diagnosed with intussusception. Abdominal distension was reported in 85% of cases, gastric residue in 77% of cases, bloody stool in 44%, and an abdominal mass in 16% (3). Only a few aspects of our case are consistent with the most common presentation outlined in this review paper. Abdominal distension and ileoileal intussusception were both found in the presenting case; however, gastric residue, bloody stool, and an abdominal mass were absent. Furthermore, the co-occurrence of SIP and intussusception further complicated the case. The lack of clinical manifestations in this case and the rarity of this condition contributed to the difficulty of diagnosing an intussusception prior to exploratory laparotomy.

Intussusception and NEC present similar symptoms: abdominal distention, bilious vomiting, feeding difficulties, and bloody stool (8). When these similar symptoms are presented in a premature infant, NEC would be the first differential due to the prevalence in this population and the need for rapid diagnosis. Following suspicion of NEC, serial abdominal x-rays would be performed. Radiologic findings of pneumatosis intestinalis and portal venous gas are found in NEC, while free abdominal air is the usual finding in neonates with intussusception (8). Spontaneous intestinal perforation (SIP) is also common in extremely premature infants (9). SIP is usually located in the terminal ileum, with the rest of the bowel showing no abnormalities (8). The diagnosis of SIP was made intraoperatively in this patient at eight days of life. While SIP and NEC are common diagnoses in premature infants, SIP presents in the first two weeks of life, whereas NEC usually occurs from the second to the third week of life (8).

The exact etiology of neonatal intussusception is still unknown. A possible explanation includes an intestinal stricture caused by hypoperfusion acting as a lead point for the intussusception (10). Meconium was found during the explorative laparotomy in our patient. Dysmotility of the intestine could be due to a combination of abdominal ganglia immaturity and ischemia with reperfusion causing meconium ileus (11). The congealed nature of meconium can subsequently act as a lead point for intussusception (12).

Conclusion:

Intussusception is exceedingly rare in a premature neonate. Moreover, this case presents the youngest diagnosed incidence of intussusception. The common causes of intussusception in infants include hyperplasia of lymphoid tissue or congenital anomalies; however, the exact etiology of this case has yet to be identified. Infants with intussusception can present variably from the symptoms of abdominal distention, vomiting, and occult blood in the stool to just lethargy. The rarity of intussusception in premature neonates and the difficulties of differentiating it from more common bowel disorders, such as NEC, presents a challenge for rapid diagnosis and prompt management of intussusception.

"The rarity of intussusception in premature neonates and the difficulties of differentiating it from more common bowel disorders, such as NEC, presents a challenge for rapid diagnosis and prompt management of intussusception."

Furthermore, a premature infant may present with both disorders simultaneously. A high degree of clinical suspicion is often needed to make this diagnosis early to prevent treatment delay and subsequent complications of perforation and bowel resection. Further research of intussusception in conjunction with other abdominal disorders like NEC and SIP in extremely premature neonates is warranted to improve the understanding of GI abnormalities in this age group.

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COPING WITH COVID-19

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

Provide culturally-informed and respectful care.

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

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

myNICUnetwork.org

and

National Perinatal Association
NICU Parent Network

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

TOP 10

RECOMMENDATIONS FOR THE PSYCHOSOCIAL SUPPORT OF NICU PARENTS

SUPPORT 4 NICU PARENTS

Essential evidence-based practices that can transform the health and well being of NICU families and staff

based on the National Perinatal Association's Interdisciplinary Recommendations for Psychosocial Support of NICU Parents

1 PROMOTE PARTICIPATION

Honor parents' role as primary caregiver. Actively welcome parents to participate during rounds and shift changes. Remove any barriers to 24/7 parental involvement and avoid unnecessary separation of parents from their infants.

Welcome!

2 LEAD IN DEVELOPMENTAL CARE

Teach parents how to read their baby's cues. Harness your staff's knowledge, skills, and experience to mentor families in the principles of neuroprotection & developmental care and to promote attachment.

3 FACILITATE PEER SUPPORT

Invest in your own NICU Parent Support program with dedicated staff. Involve veteran NICU parents. Partner with established parent-to-parent support organizations in your community to provide continuity of care.

4 ADDRESS MENTAL HEALTH

Prioritize mental health by building a team of social workers and psychologists who are available to meet with and support families. Provide appropriate therapeutic interventions. Consult with staff on trauma-informed care - as well as the critical importance of self-care.

5 SCREEN EARLY AND OFTEN

Establish trusting and therapeutic relationships with parents by meeting with them within 72 hours of admission. Follow up during the first week with a screening for common maternal & paternal risk factors. Provide anticipatory guidance that can help normalize NICU distress and timely interventions when needed. Re-screen prior to discharge.

6 OFFER PALLIATIVE & BEREAVEMENT CARE

Support families and NICU staff as they grieve. Stay current with best practices in palliative care and bereavement support. Build relationships with service providers in your community.

7 PLAN FOR THE TRANSITION HOME

Set families up for success by providing comprehensive pre-discharge education and support. Create an expert NICU discharge team that works with parents to find specialists, connect with service providers, schedule follow-up appointments, order necessary medical supplies, and fill Rx.

8 FOLLOW UP

Re-connect with families post-discharge. Make follow-up calls. Facilitate in-home visits with community-based service providers, including Early Intervention. Partner with professionals and paraprofessionals who can screen families for emotional distress and provide timely therapeutic interventions and supports.

9 SUPPORT NICU CARE GIVERS

Provide comprehensive staff education and support on how to best meet families' psychosocial needs, as well as their own. Acknowledge and address feelings that lead to "burnout."

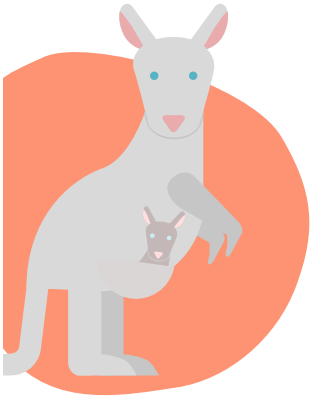
10 HELP US HEAL

Welcome the pastoral care team into your NICU to serve families & staff.

SUPPORT4NICUPARENTS.ORG

SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

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

PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

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

National Perinatal Association

nicuparentnetwork.org

NPN NICU PARENT NETWORK

nationalperinatal.org/skin-to-skin

ONCE UPON A PREEMIE ACADEMY

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+ Chavis A. Patterson, Ph.D.
Children's Hospital of Philadelphia

+ Shanté Nixon
Connect2NICU

+ Deidre McDaniel, MSW, LCSW
Health Equity Resources and Strategies

+ Dalia Feltman, MD, MA, FAAP
Univ. of Chicago Pritzker School of Medicine

+ Terri Major- Kincade, MD, MPH
Pediatrician and Neonatologist

+ Ashley Randolph
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Continuing Education Partner, paclac.org/continuing-education

Raising Global Awareness of RSV

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

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

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

RSV GOLD

A Global Mortality Database for Children with RSV Infection

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

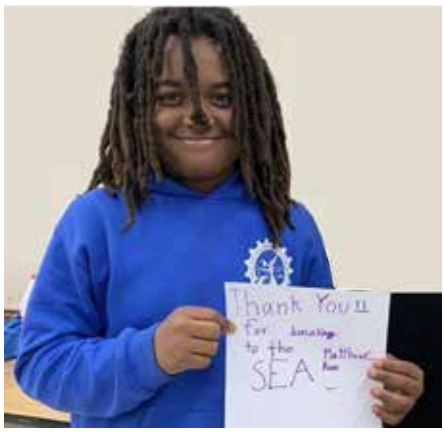
Thirteen-year-old Emily Rose Shane was tragically murdered on April 3, 2010 on Pacific Coast Highway in Malibu, CA. Our foundation exists to honor her memory.

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

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

Sponsor a Child in the SEA Program

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



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

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

Call to Action: RSV is a Serious Concern: A National Response is Urgently Needed

Angela Patterson, MD, FAAP; Jerasimos Ballas, MD, MPH; Erika Goyer, BA; Kristy Love; Melissa Scala, MD; Viveka Prakash-Zawisza, MD, MS, MBA, Mitchell Goldstein, MD, MBA, CML

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.

National Perinatal Association

Educate. Advocate. Integrate.

"Cases of respiratory syncytial virus (RSV) infections are surging across the country as we enter the holiday season - a time when families will be gathering and when babies and young children will be especially vulnerable."

Cases of respiratory syncytial virus (RSV) infections are surging across the country as we enter the holiday season - a time when families will be gathering and when babies and young children will be especially vulnerable.

RSV began circulating unseasonably early this year, prompting special precautions for those younger than 6 months or with underlying medical conditions.

"The National Perinatal Association fully supports the American Academy of Pediatrics in its call to action and urges the Biden Administration to launch an emergency response to the predicted but unprecedented surge of RSV cases across the nation. (1)"

Now a surge of infections - resulting in record levels of hospitalizations - reveals a greater risk. Some of our communities are **currently seeing populations with low immunity to the virus**.

The National Perinatal Association fully supports the American Academy of Pediatrics in its call to action and **urges the Biden Administration to launch an emergency response** to the predicted but unprecedented surge of RSV cases across the nation. (1)

The recent rise in RSV infections comes on the heels of the COVID-19 pandemic. We know that **RSV immunity is typically fleeting**, waning from season to season. Predictive analytics show that, because of necessary COVID-19 precautions, we have decreased exposure to other viruses including RSV. Infection patterns have been altered, secondary to effective isolation, masking, and decreased social contact in response to COVID-19. (2, 3)

With the gradual removal of COVID-19 restrictions, RSV infection rates have reached a crisis proportion in what already promises to be an especially challenging cold and flu season. (3) **Immunizations for all eligible infants and family members is key**. In addition to staying up-to-date with their **immunizations for pertussis, flu, and COVID-19, families should ask their providers if their infants and children are candidates for RSV prophylaxis.**

The National Perinatal Association also calls for better testing and data collection during this unprecedented cold, flu, and RSV season. Data collection in the Neonatal Intensive Care Unit (NICU), Pediatric Intensive Care Unit (PICU), and Emergency Department settings is especially important. Current data has been unreliable as many providers in these settings are testing symptomatic patients and contacts for COVID-19 but not for RSV

or other viral infections. **RSV, influenza, rhinovirus, and metapneumovirus can cause significant morbidity and mortality.** Completing a full respiratory panel test will not only further define the risks for individual patients in these settings, it will also help inform care guidelines, public health policy, and unit policies going forward.

The National Perinatal Association reaffirms our position that RSV prophylaxis should be offered according to the evidence-based, Food and Drug Association Indication.

"The Food and Drug Association (FDA) indication represents the best guide to effective prophylaxis. It has stood the test of time and addresses the need for prophylaxis that more fully protects the indicated populations. Restrictive policies that exclude up to 75% of the indicated population are inappropriate and should not be utilized. (4)"

The Food and Drug Association (FDA) indication represents the best guide to effective prophylaxis. It has stood the test of time and addresses the need for prophylaxis that more fully protects the indicated populations. **Restrictive policies that exclude up to 75% of the indicated population are inappropriate and should not be utilized**. (4)

National Perinatal Association's RSV guidance provides support, insight, and corroboration - as well as further evidence-based support for the FDA indication. (5) **The exigency of the present increases in RSV-swamped emergency rooms, over-capacity pediatric wards, and neonatal intensive care units informs the need for increased vigilance and prophylaxis according to the NPA guidance** along the lines of the full FDA indication.

"The exigency of the present increases in RSV-swamped emergency rooms, over-capacity pediatric wards, and neonatal intensive care units informs the need for increased vigilance and prophylaxis according to the NPA guidance along the lines of the full FDA indication."

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Disclosure: The National Perinatal Association www.nationalperinatal.org is a 501c3 organization that provides education and advocacy around issues affecting the health of mothers, babies, and families.

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Position available for Neonatal Nurse Pretensioner (NNP)

Excellent practice opportunity for a NNP in an established Los Angeles neonatal practice. The Neonatal Hospitalist Group (NHG) is interviewing for an NNP to join the practice. The practice includes four NICU's in the Burbank and Glendale area. Call is from home with excellent work life balance. If you are interested, please email Robert Gall, MD, at robertgallmd@gmail.com.

Protecting your baby from

Respiratory Viruses:

What parents need to know this RSV and flu season

RSV (Respiratory Syncytial Virus) and flu infections affect the lungs and can cause serious breathing problems for children and babies.

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

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

The fewer germs your baby is exposed to, the less likely they are to get sick. Limit visitors. Avoid crowds. Stay away from sick people.

Immunizations save lives. Stay up-to-date with your family's flu and COVID-19 vaccinations. This helps stop the spread of deadly viruses.

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

National Perinatal Association

www.nationalperinatal.org/rsv

Respiratory Syncytial Virus:

How you can advocate for babies this RSV season

Track national data and trends at the CDC's website www.cdc.gov/rsv

Identify the babies at greatest risk

including those with CLD, BPD, CF, and heart conditions

Teach families how to protect

their babies from respiratory infections

Advocate broader insurance coverage for palivizumab prophylaxis so more babies can be protected *

Use your best clinical judgement

when prescribing RSV prophylaxis

Tell insurers what families need

and provide the supporting evidence

National Perinatal Association

*See the NPA's evidence-based guidelines at www.nationalperinatal.org/rsv

Respiratory Syncytial Virus

Really Serious Virus

Here's what you need to watch for this RSV season

Coughing that gets worse and worse

Breathing that causes their ribcage to "cave-in"

Rapid breathing and wheezing

Bluish skin, lips, or fingertips

RSV can be deadly. If your baby has these symptoms, don't wait. Call your doctor and meet them at the hospital.

Thick yellow, green, or grey mucus

that clogs their nose and lungs, making it hard to breathe

Fever that is more than 101° Fahrenheit

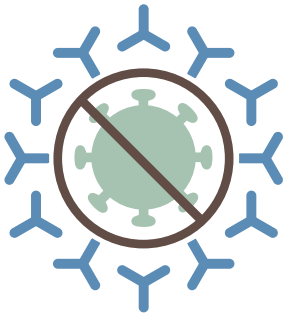
which is especially dangerous for babies younger that 3 months

National Perinatal Association

www.nationalperinatal.org/rsv

Protecting your baby and family from

Respiratory Viruses:



What parents need to know this RSV and flu season

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

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

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

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

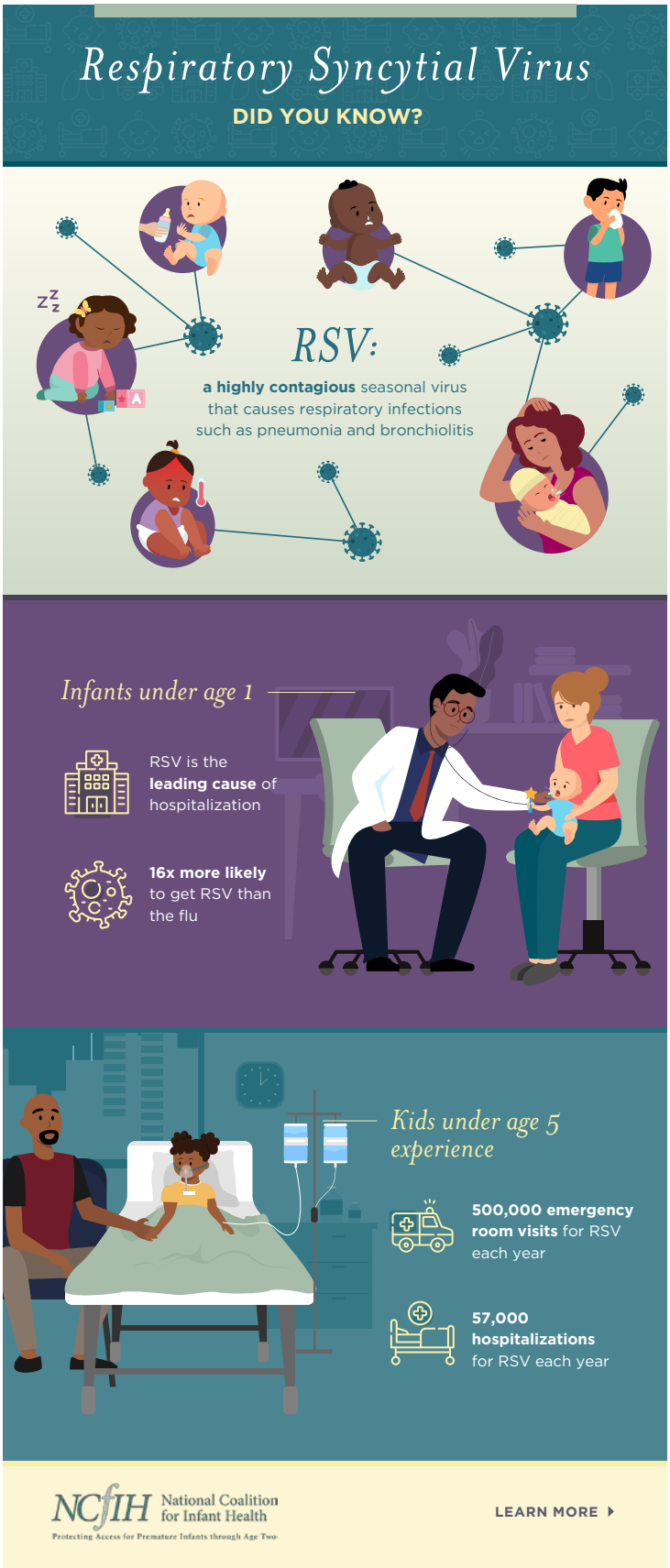
Immunizations save lives. Stay up-to-date with your family's flu vaccinations and COVID-19 boosters. This helps our community stay safe by stopping the spread of deadly viruses.

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

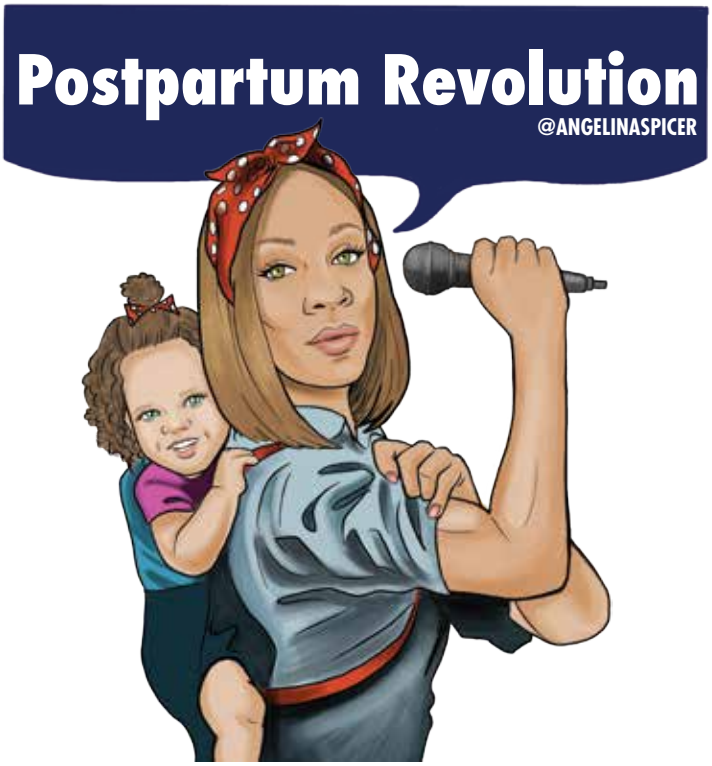
WE CAN HELP PROTECT EACH OTHER.

National Perinatal Association

www.nationalperinatal.org/rsv



The Gap Baby: An RSV Story



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FCC Taskforce Webinar

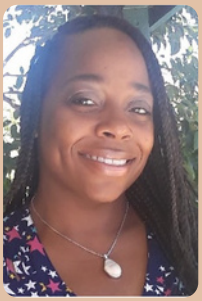
NOVEMBER 10TH, 11-12:30PM PT

REGISTER USING THE QR CODE OR THE LINK HERE

The need for more mental health professionals in the NICU

PRESENTERS:

Mike Hynan, PhD
he/him
Emeritus Board Member, National Perinatal Association



Necole McRae
she/her
VP, GloPreemies
Exec. Director, Free2Read Education Recovery Services

Ways to Support Parents at Local NICU

PRESENTERS:

Michelle Wrench, RN, CCRN
she/her
CPQCC Family Advisory Council Chair

Dharshi Sivakumar, MD
she/her
Clinical Professor, Stanford University
Medical Director, El Camino Health NICU

The Power of Peer Support at the National Level

PRESENTERS:

Meegan Snyder
she/her
Director, Preemie Parent Mentor Program Graham's Foundation

Keira Sorrells
she/her
Founder and Exec. Director, NICU Parent Network

Family Centered Care (FCC) Taskforce: How to build a Family Advisory Council in your local NICU

Chavis A Patterson, PhD

This is the second of a series of Webinars from the Family Centered Taskforce. In this first interview, Mary Coughlin, MS, NNP, RNC-E described responding to " The Biological Urgency of Families in NICU Based on our Understanding of Trauma."

"Thank you so much for the invitation and for participating in this organization with its amazing activity of non-birthing support to NICU parents."

Chavis Patterson:

Thank you so much for the invitation and for participating in this organization with its amazing activity of non-birthing support to NICU parents. Just to give a little overview of the institution for those who are not familiar with CHOP, it is located in Philadelphia. Here is a picture of the outside and inside of CHOP. It is a level four NICU with 98 beds. We transfer in babies up to three months of age, and we work with approximately 1300 babies per year. We provide surgery and ECMO to the babies. We have approximately 400 nurses and approximately 44 neonatologists, and then a host of other support. This includes respiratory therapy, dietitian, OT/PT, speech, lactation, social work, psychology, child life and chaplain, and a host of others. That just gives you an outline of the institution at CHOP.

" I wanted to expand on what we think of for non-birthing parents and to be a little broader in my discussion today. This is when we talk about families that have two moms, families that have two dads, families that have a mom and a dad where there might have been a surrogate, there might have been an adoption or a gestational carrier."

I wanted to use this graphic as an example of what families might look like. You can read all the different arrows, and it can be a combination of one, two, or three. I wanted to expand on what we think of for non-birthing parents and to be a little broader in my discussion today. This is when we talk about families that have two moms, families that have two dads, families that have a mom and a dad where there might have been a surrogate, there might have been an adoption or a gestational carrier. I will talk about a broader range of what a family might look like. So I want to talk about the non-birthing parent. Sometimes the non-birthing parent is mom, sometimes it's dad, sometimes they are biologically related, and sometimes they are not. To give an idea of my discussion as a psychologist, when I think about supporting parents, and certainly non-birthing parents, I think about, Why people get pregnant? Usually, if I'm in person, I would pause and ask the audience. Virtually, it's a little tougher.

"You have a range of more positive and then sometimes negative reasons. This might be, again, pressure from families. It might be a way to stay connected with an individual. It might be a result of incest or rape. There's a wide range of reasons why people become pregnant, and as a psychologist, as a psychosocial person, I always think about that when I walk into the room."

It might be family pressure. There might be a financial reason to get pregnant. You have a range of more positive and then sometimes negative reasons. This might be, again, pressure from families. It might be a way to stay connected with an individual. It might be a result of incest or rape. There's a wide range of reasons why people become pregnant, and as a psychologist, as a psychosocial person, I always think about that when I walk into the room. This helps me get an understanding of what this pregnancy means to the family. Sometimes the pregnancy has been many years of trying to get pregnant. There's a lot of pressure on having this pregnancy. I think about how in my experience, this is what families imagine having a baby might be like, or the birthing process might be like. And if you look, everybody is very happy, and there's smiles, and there are no tubes or wires. Unfortunately, in my world, this is the reality of the family's experience. You have ECMO, bili lights, tubes, and wires. So again, understand that walking into the NICU is a very traumatic experience for families if we look at some of the rates of depression, post-traumatic stress disorder, and perinatal mood and anxiety disorders. You can see differences across NICU parents and non-NICU parents.

When I talk to parents, I get a wide variety of emotions that they express, from happy to sad to a sense of loss. There's anger and feeling overwhelmed. There's shame! There's hopelessness, sadness, and isolation. I'm thinking about these wide varieties of emotions that come into play and the different roles.

We have fathers and their roles. Some of the myths and truths that come out that society has put upon them. They think about fathers as providers, the emotional rock, the need to not be emotional. They need to be detached, so they can help the family. These are some of the pressures that some non-birth parents might feel. Their role, in terms of the birth of a child, and with men, society may big boys aren't supposed to cry. They're asking about, "How's your wife doing? How's the mom doing? How's the family holding up?" and not talking about how they are, what their experience was like as a result of this pregnancy and birth.

" Their role, in terms of the birth of a child, and with men, society may big boys aren't supposed to cry. They're asking about, "How's your wife doing? How's the mom doing? How's the family holding up?" and not talking about how they are, what their experience was like as a result of this pregnancy and birth."

The quote that I like to share is, "As a dad, I feel like we were often overlooked in the family picture. I was terrified when we had our son seven weeks early." Jeff Stimson stated, 'It's not a matter of a good hand, but playing a bad hand well."

So thinking about different types of families, we wonder if some or many of the emotions are shared by the non-birth parent. We wonder if some are unique and if some are shared. With all families, no matter the makeup, there are many layers that come into play. There's the institution where you're being cared for, there's the race and ethnicity of the family and the family members, there's the age, and there's how they identify. So, there are a lot of different layers. These were some of the emotions when I spoke to some of the parents, where there were two moms or two dads. These are some of the feelings that came up.

The non-birth parent is envious or jealous. They feel like the baby might not like them and might like the birthing parent more because of breastfeeding and that closeness. In a family where there were 2 Dads, one of the dads in the family talked about feeling unimportant or invisible, or unequal as an outsider. Many times they felt that they were being judged as not one of the families that might ordinarily come into the hospital. Dads who were in situations where there was a donor, a surrogate, or gestational carrier. They talked about being worried or scared about the donor egg. There was some background in genetic testing. But what is this donor egg going to bring into the family? What is it going to be like in terms of the donor? It was the same idea with donor sperm. When thinking about the surrogate, they think, how is the mental health or the physical health of the surrogate going to impact the birth or gestational period of their child? So again, there's a lot of worries when a mother and father are genetically connected to the family. When we have families with two moms or two dads, there may or may not be a genetic connection.

Some of the worries that come up are a fear of genetic complications when families are choosing between which mom's egg to use or which donor sperm to use. For the donor egg or donor sperm, what is that going to mean in terms of the genetic make-up? How is it going to combine with the egg or the sperm? When I talked with two moms, we talked about empathy in this process.

In terms of going through the process of birthing together, the non-birthing mom had a special empathy to the birthing mom. This was in terms of also having a woman's body and knowing the changes occurring to her body if she had carried a child. That doesn't always happen in families with a mother and a father. There's the stereotype that it might be harder for the non-birthing parent to ask for help because all the focus is on the birthing parent.

Maybe there's hesitation to express the emotion for fear that there might not be any support. In the cases with two dads or with two moms, we talked about being overwhelmed by the financial investment and commitment going through the process of finding a gestational carrier and an egg and sperm donor. There's a lot of things that go along with all families and have to be managed in some of my conversations.

We talked about the range of interactions, and it can vary depending on race, ethnicity, where you are, and the people you're dealing with.

"But in the best-case scenario, when I spoke with the dads, I was very surprised that they had a surrogate coordinator. So their experience was amazing. From the day that they connected with the hospital and said they wanted to have their child there, they were connected with the surrogate coordinator, who walked them through the whole process."

But in the best-case scenario, when I spoke with the dads, I was very surprised that they had a surrogate coordinator. So their experience was amazing. From the day that they connected with the hospital and said they wanted to have their child there, they were connected with the surrogate coordinator, who walked them

through the whole process.

With the two moms, in their experience, the hospital was very welcoming, which was really wonderful. They also found the same thing as the dads. These are best-case scenarios. The worst-case scenario was from my conversation with another set of dads. They talked about the staff and some interactions where their role as a parent was trivialized.

"The worst-case scenario was from my conversation with another set of dads. They talked about the staff and some interactions where their role as a parent was trivialized."

The staff didn't truly recognize that these were the dads of the baby, and there was some homophobia that came with that. It was interesting that even though there was a biological connection to the baby, they still felt like they were outsiders to that process.

Again with the two moms, there was some phobia involved. There was a hard time understanding that they were two moms and not sisters, or one wasn't an aunt. They felt like they had to come out every time they had an interaction with a new provider. They had to explain who they were and what their relationship was to the child.

With the mom and dad, there was the idea that everything was focused on the mom, and the dad was an afterthought like he was disregarded and not part of the process and didn't have a role to play. It was very interesting in my interviews with some of these families. If we do have some non-birthing parents in the audience, what can you do?

As a non-birthing parent, some of the things are to wash the pump supplies and help the nurse, staff, or birthing parent. Also, watch the baby, hold the baby, change the baby, take time to sing, read, and talk to the baby. Support your partner, talk with your partner, and see how your partner is managing all the ups and downs. For the partner, it's important to be there for some of those bumps along the road in terms of non-specific things.

"Support your partner, talk with your partner, and see how your partner is managing all the ups and downs. For the partner, it's important to be there for some of those bumps along the road in terms of non-specific things."

This includes trying to be a buffer with staff, other families, relatives, and friends. Helping with health insurance if that's something that's needed. Helping care for other children, if you do have other children. If you need to go to work, it's okay. Play your role in the larger family. If you can, manage the food train or the meal train, that is always great. Also, encourage self-care both for yourself and for your partner.

In terms of providers, the list goes on. These are some I want to highlight, but as a provider, if you're not sure about who's in the room and their relationship with the baby, just ask. How are you related? How are you connected with the baby? They will say I'm mom, or I'm dad, or I'm Ted. Try to explain the role of the team. Everyone is not medically savvy and may not know what a fellow NP, PA, or even attending is. Explain the roles of the team.

Offer some anticipatory guidance about what this experience might look like. Try to help connect the family with the appropriate staff within the hospital or within the unit. I certainly encourage self-care for all family members. Help them find folks from the extended family that can help support the family. Always take pictures to mark the milestones that the infant makes and that the family makes. When you're working with family, acknowledge the trauma and the emotional impact that this experience has on the child. Try to offer social media links, Instagram posts, and podcasts. There is a lot out there that these families can connect with so they don't feel isolated. During COVID, families felt really isolated, and I tried to connect them with online resources where they could feel connected and recommended community support if that is something the family is interested in.

"When you're working with families, always remember that they're not always on the same page and they're experiencing this hospitalization differently. They all react differently in terms of sadness, post-traumatic stress, and perinatal mood and anxiety."

When you're working with families, always remember that they're not always on the same page and they're experiencing this hospitalization differently. They all react differently in terms of sadness, post-traumatic stress, and perinatal mood and anxiety. It can come out in many different ways, like being tired, being sad, being exhausted, getting angry easily, or being hyper-vigilant.

As staff and as a partner, we need to remember that. Discuss the impact of grief and loss of the normal pregnancy that they might have imagined, or even had, with the previous child. Certainly acknowledge society's message related to gender, the couple, the family structure, race, and ethnicity, because all that plays a part, and sometimes it's the elephant in the room. Nobody wants to talk about it, but everybody knows that it plays a role. Encourage families about different ways to communicate when words fail, so it can be tough, art therapy, journaling. Talking is great, but there are also other ways to communicate how you're feeling and express your emotions. Create special moments for the non-birthing parent, like encouraging them to hold the baby, speak to the baby, bathe them, change them, participate, and take pictures.

I really liked this quote and will use it to end this presentation. "The inability of some people to verbally express their pain and emotional reactions should not be taken as a sign that they suffer any less." I think sometimes people fall between the cracks or suffer in

silence. We need to work harder on reaching out and checking in with people more often. Thank you again to everyone for their time and attention. Thank you for the invitation, and also, thank you to the families that I was able to interview to collect the information for this presentation.

Caroline Toney-Noland (she/her):

Thank you so much for sharing that. I would love to open it up to see if there are specific questions that folks have for Dr. Patterson.

Do you offer a psychologist in the NICU for parents at CHOP?

Chavis Patterson:

Thank you very much for your question. At CHOP, yes, we're very fortunate to have a few psychologists. I'm one of the psychologists that has 50% clinical time in terms of working with parents, and the other time is academic. We also have other psychologists who split their time between the NICU and other units within the hospital. So again, we're very fortunate to be able to have psychological services in our queue.

Colby Day:

Dr. Patterson, that is wonderful that you are able to have those services. I think it's something that many of us aspire to in our hospitals. I'm curious about the logistics of how you use the psychologists in your unit, particularly whether you approach or your group approaches all families. Or do you wait for families to reach out, saying that they need help? Or are there specific screens that are done? If so, who performs those screens?

Chavis Patterson:

Thank you for the question. In our NICU, referral comes in a number of ways. The medical team, will usually connect with the social worker. Then the social worker will do their assessment and talk to the families. They ask the family about having the psychologists come and speak with them.

"We don't screen, but we're working on a universal screening. We have not nailed that down in terms of logistics. We're a freestanding pediatric hospital, and we don't have a system of support for adults. So if one of the family members needed adult care, we would have to refer out."

We don't screen, but we're working on a universal screening. We have not nailed that down in terms of logistics. We're a freestanding pediatric hospital, and we don't have a system of support for adults. So if one of the family members needed adult care, we would have to refer out. We don't have adult psychiatry to manage medication. So, we're a little limited in that way, but we do have psychology.

Social work connects with all families and does the assessment. They do a great job, and they usually reach out to us in psychology as a result. Sometimes we get referrals from bedside nurses or other medical care providers. But we usually have the social workers go out and do an assessment. There are other families who come in and ask to speak with a psychologist on staff. Then we would get connected in that way. Now, to go back to the first part of your question. It is unique that some institutions have a psychologist. There is some information on the web about how to encourage your hospital to get a psychologist.

There's information on the National Perinatal Association (NPA) with a link to support NICU parents. It gives a job description and a whole PR package about how to ask your institution to support a psychologist in the hospital. Is there anyone from that group that can put the link to that information in the chat? It really helps to bring a package of information to your organization to help convince them.

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I'm going to do some sleuthing because I don't think any of us are very good at that. I can send you a packet of information. It's a really great website. I know Sue Hall, and some folks from NPA did a lot of work to pull this information together because we were really trying to get the word out about psychology, what we can do, and how we can be helpful.

Colby Day:

That would be wonderful. We can put it on our tablet resources for everyone to see. Thank you.

Caroline Toney-Noland (she/her):

We have another comment about a really great idea about using EPIC to allow sticky notes so you can make the different family member roles clearly visible to all staff. Another question from Sara. Can you talk about how you bridge psychology and care after discharge?

Chavis Patterson:

Yes, that's a great question. It's very challenging because providers are very difficult to find. We work really hard to create a list of providers. We take advantage of the Postpartum Support International (PSI) link. You type in the zip code, and then you get providers in certain areas of the country, and I think they're moving towards the world.

It's really trying to create a network. I think PSI is a good place to start, but just creating a network. Many hospitals treat not only families in their area but sometimes out of state, and it's really hard to find those providers. But usually, when families are midway in, I start thinking about where they live and encouraging them to look into it, or I help find them providers in their area. There is a national network of NICU psychologists.

Caroline Toney-Noland (she/her):

To add, for families who lack insurance or may not be able to afford psychosocial support after discharge, are there any resources that CHOP has for them?

Chavis Patterson:

Well, not necessarily CHOP. But I usually try to link them to the Internet because there are a lot of organizations and foundations that have mentors. Graham's Foundation is run by Nick and Jen Hall. They have mentors. I know PSI and NPA also do that. There are a lot of foundations and organizations that help because not everyone is local. If they don't have insurance, I usually try to again find things on the Internet. But I also try to go through local city agencies to find community groups that offer a free or low-fee service.

"Then the HOPE Family Project also has a social worker on staff for therapy services. PSI has a lot of online support groups across the U.S. There's also a shortage right now of mental health providers. I think finding support may be even more challenging for families."

Caroline Toney-Noland (she/her):

Another comment about Project NICU, it has connections with better health online. I have seen them advertise on Instagram, so they're able to get free counseling for NICU families. Then the HOPE Family Project also has a social worker on staff for therapy services. PSI has a lot of online support groups across the U.S. There's also a shortage right now of mental health providers. I think finding support may be even more challenging for families. I've been trying to waitlist some for 2-3 months.

Chavis Patterson:

And families can't wait 2-3 months.

Caroline Toney-Noland (she/her):

Any other final questions for Dr. Patterson before we move on to our family panel?

I just want to say from my part. This has been really great to see and hear so many different family structures represented and celebrated. Then making sure that we, as health care providers, are doing our best to ensure that family is still welcome into the NICU. It's hard enough to align transportation, time off work, and care for other children or other responsibilities. It's hard enough to make it into the NICU and have family members come. We really want to make sure that we're doing our best and they are supported. Thank you so much for your talk.

Colby Day:

Wonderful, and I echo those comments. Thank you so much for that talk, Dr. Patterson.

Disclosures: No conflicts have been identified. .

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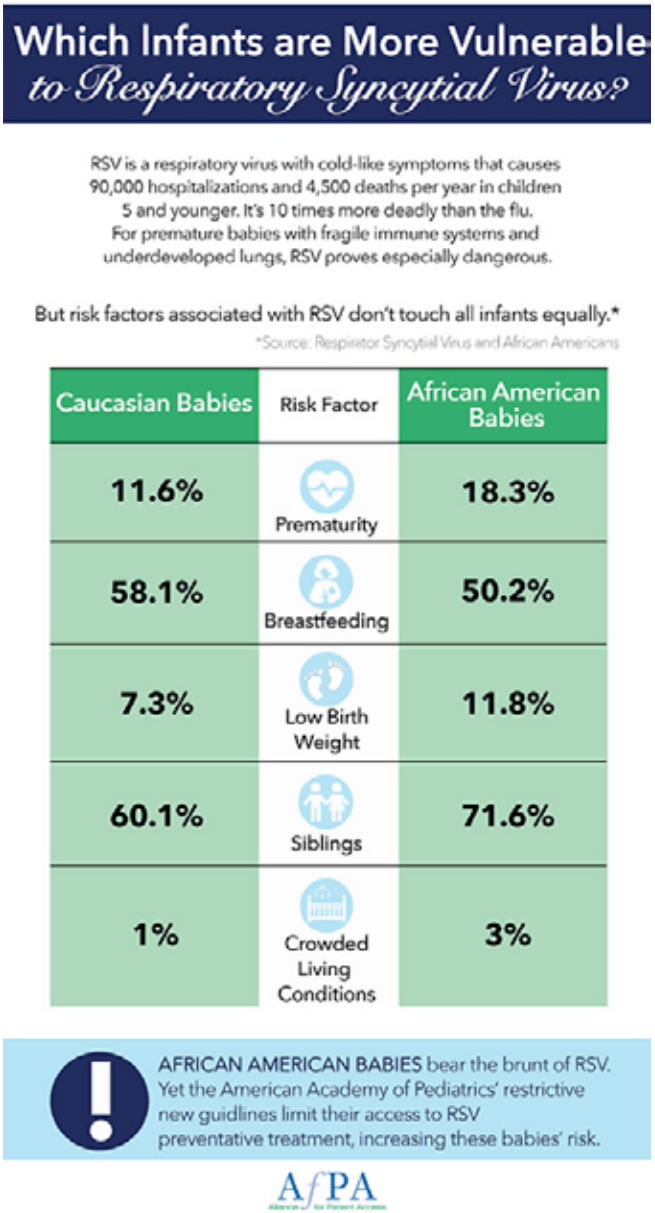

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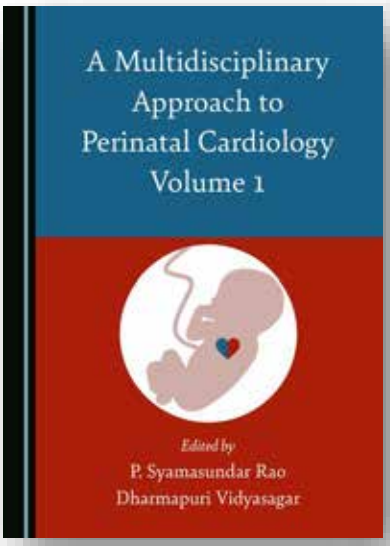
A Multidisciplinary Approach to Perinatal Cardiology *Volume 1*

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



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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.

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Interpreting Umbilical Cord Blood Gases: Section 9: Deciphering Multiple Issues

Jeffrey Pomerance, MD, MPH

"In clinical practice, accurately interpreting umbilical cord blood gas values may be quite difficult. Following are two cases in which the issues are multiple but, in the end, mostly decipherable."

In clinical practice, accurately interpreting umbilical cord blood gas values may be quite difficult. Following are two cases in which the issues are multiple but, in the end, mostly decipherable.

Case 26: Cord Occlusion with Release Just Before Delivery

The mother was a 27-year-old, 226 lb, gravida 3, para 2, aborta 0, with an intrauterine pregnancy at 40 5/7 weeks gestation. The mother had two previous difficult vaginal deliveries. One required vacuum extraction (birth weight 3034 g) and the other suprapubic pressure for shoulder dystocia (birth weight 3289 g). One day before admission, the mother complained of decreased fetal activity; however, an NST was reactive. On admission, the FHR tracing had a baseline heart rate of 145 bpm with good variability. Over the next six hours, both late and variable decelerations occurred with increasing frequency.

"Thirty-five minutes before delivery, Tucker forceps were applied. The FHR declined slowly from 180 to 40 bpm. This was followed by a rapid increase to 140, a rapid decrease to 75, an unstable heart rate between 75 and 130, a return to 180, and finally, a deceleration to 80 bpm without variability."

Thirty-five minutes before delivery, Tucker forceps were applied. The FHR declined slowly from 180 to 40 bpm. This was followed by a rapid increase to 140, a rapid decrease to 75, an unstable heart rate between 75 and 130, a return to 180, and finally, a deceleration to 80 bpm without variability. Further attempts at vaginal delivery were abandoned, and an emergency cesarean section was ordered. Twenty-five minutes later, the infant was delivered. The FHR was 145 bpm three minutes before delivery, still without variability. Apgar scores were 2, 4, and 4 at one, five, and 10 minutes, respectively.

Cord blood gas results were as follows:

	Umbilical Vein	Umbilical Artery
pH	7.00	6.75
Pco_2 (mmHg) ***(kPa)***	71 *9.47*	132 *17.60*
Po_2 (mmHg) ***(kPa)***	35 *4.67*	5 *0.67*
BD (mmol/L)	14	17

At delivery, the umbilical cord was wrapped tightly around the shoulders "like suspenders." Thick meconium was present. Resuscitation included intubation, suctioning, positive pressure ventilation, and oxygen. Oxygen was increased to 100% when the baby was slow to respond. The Birth weight was 3318 g.

Follow-up arterial blood gases from the infant at 37 minutes of age were:

	Infant's ABG
pH	7.13
Pco_2 (mmHg) ***(kPa)***	37 *4.93*
Po_2 (mmHg) ***(kPa)***	48 *6.40*
BD (mmol/L)	17

A CBC at age 42 minutes had a hematocrit of 49.3% and a WBC count that was mildly elevated with a shift to the left. A follow-up WBC count at age 18 hours was normal; the hematocrit was 47.6%. The blood culture was negative.

The infant was found to have a right non-depressed parietal skull fracture, developed seizures that resolved, and had an MRI that was compatible with a hypoxic-ischemic event. Intracranial hemorrhage was absent. Subsequently, the infant was found to have cerebral palsy, spastic quadriparesis, and moderate to severe

mental retardation.

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Interpretation

The umbilical venous gas has a low pH secondary to severe respiratory acidosis and moderate to severe metabolic acidosis. The umbilical arterial blood gas has a very low pH secondary to a combination of very severe respiratory acidosis and severe metabolic acidosis. The differences between the umbilical venous and arterial values are quite wide; the pH difference is 0.25 (7.00 minus 6.75), the Pco_2 difference is 61 mmHg (132 minus 71) (kPa difference of 8.13), and the base deficit difference is 3 mmol/L (17 versus 14).

In uteroplacental insufficiency, typically, both the umbilical venous and the umbilical arterial blood gas values are about equally abnormal. In umbilical cord occlusion with terminal fetal bradycardia, typically, the umbilical venous blood gas is normal or nearly so. Additionally, the differences between umbilical venous and arterial pH, Pco_2, and sometimes base deficit are widened.

In this case, the umbilical venous gas is far from normal, *and* the veno-arterial differences are marked, suggesting the possibility of initial uteroplacental insufficiency, followed by umbilical vein occlusion as the functionally shortened cord (umbilical cord wrapped tightly around the shoulders "like suspenders") was stretched during fetal descent.

"How, then, to account for the combined moderate venous respiratory and severe metabolic acidoses? Close to the time of delivery, there was probably a period in which the cord occlusion was released, and acid that had accumulated on the arterial side began to be transferred to the umbilical venous side before the cord was again occluded by clamping at birth."

Against the argument of uteroplacental insufficiency playing a role in the umbilical cord blood gas outcome is the umbilical venous Po_2 of 35 mmHg, a value too high to be associated with uteroplacental insufficiency but frequently associated with cord occlusion and terminal bradycardia with a brief preceding period of slowed umbilical venous blood flow allowing for improved downloading of oxygen from the mother to the fetus. (1) How, then, to account for the combined moderate venous respiratory and severe metabolic acidoses? Close to the time of delivery, there was probably a period in which the cord occlusion was released, and acid that had accumulated on the arterial side began to be transferred to the umbilical venous side before the cord was again occluded by clamping at birth. The most likely scenario would appear to be as follows: initial complete cord occlusion, reactive fetal hypertension overcoming occlusive forces with the restoration of umbilical arterial blood flow, and finally, restoration of umbilical venous blood flow with mixing of umbilical arterial blood (that has just passed through chorionic villi) and sequestered placental blood. This would result in umbilical venous cord gases that are no longer normal or near-normal but not as abnormal as the umbilical arterial sample. This theory is appealing as three minutes before delivery, the recorded FHR was 145 bpm with absent variability, and the heart rate at birth was over 100 bpm. Unless the mother was critically ill or had received an atropine-like medication, the poor variability on the fetal heart rate tracing precludes the possibility of the heart rate being maternal. What caused the occlusion to be relieved is unknown, but unless the occlusion were released, the FHR would have remained severely depressed. The initial hematocrit of 49.3% (which didn't change much over time) suggests that a significant portion of the blood transferred to the placenta had already been returned to the fetus.

"This case provides insight into the cord blood gases of a fetus/newborn with cord occlusion and terminal fetal bradycardia in whom the occluding forces are released prior to irreversible fetal bradycardia. "

This case provides insight into the cord blood gases of a fetus/newborn with cord occlusion and terminal fetal bradycardia in whom the occluding forces are released prior to irreversible fetal bradycardia. When the period of umbilical venous occlusion with restored umbilical arterial blood flow is prolonged (much-widened pH and Pco_2 differences), apparently, it takes more than three minutes for the equilibration of umbilical venous and arterial blood gases.

Lastly, a diagnosis of septic shock (see Case 21) should be mentioned. This diagnosis as a cause of the cord gas values seems unlikely as umbilical cord metabolic acidosis had entirely normalized in less than two hours, the WBC count and differential normalized within 18 hours of birth, and the blood culture was negative.

Please note that the interpretation of this case in the 1st edition of this book was quite different (concomitant uteroplacental insufficiency and umbilical cord occlusion). Experience and continuing cogitation can make a difference.

Key Points

- In umbilical vein occlusion, the umbilical venous blood gas tends to be normal or near-normal. There are widened differences between venous and arterial pH, Pco_2, and sometimes base deficit.
- When severe cord occlusion is released before irreversible fetal bradycardia, which occurs just before birth, there will be

a resultant transfer of umbilical arterial abnormalities to the umbilical venous side. Umbilical arterial blood (that has just passed through chorionic villi) will mix with sequestered placental blood. This results in umbilical venous cord gases that are no longer normal or near-normal but not as abnormal as the umbilical arterial sample.

- If an infant has an adequate heart rate at birth, delayed cord clamping with the infant held below the level of the uterus may result in a substantial return of blood from the placenta to the newborn. In the absence of an adequate heart rate, stripping the cord may provide a similar benefit. This is not yet recommended therapy.

Case 27: Fetal Deterioration During Cordocentesis

The mother was a 22-year-old, gravida 3, para 2, aborta 0, with an intrauterine pregnancy at 31 3/7 weeks gestation with known Rh isoimmunization. (2) Early in pregnancy, the serum Rh titer was 1:64; at 23 weeks gestation, the Δ OD was mid-zone II. At 25 weeks gestation, the fetus developed ascites and pericardial effusion. Twenty-five mL of packed red blood cells (PRBCs) were transfused by cordocentesis.

Additional transfusions were given by cordocentesis at 27 and 29 weeks gestation. At 31 weeks gestation, cordocentesis was repeated under pancuronium immobilization. The pre-transfusion fetal hematocrit was 26%. After 55 mL of PRBCs had been infused through the umbilical vein, brief fetal bradycardia occurred. After recovery, another 20 mL of PRBCs were infused. The needle became dislodged, and a post-transfusion fetal hematocrit was not obtained. One hour later, the FHR monitor showed fetal tachycardia with poor variability. This was followed by a sudden deceleration to 50 bpm. An emergency cesarean delivery resulted in an infant with Apgar scores of 2, 6, and 7 at one, five, and 10 minutes, respectively.

Cord blood gas results were as follows:

	Umbilical Vein	Umbilical Artery
pH	7.04	7.26
Pco_2 (mmHg) ***(kPa)***	51 *6.80*	47 *6.27*
Po_2 (mmHg) ***(kPa)***	36 *4.80*	61 *8.13*
BD (mmol/L)	17	6

At age 36 minutes, the initial neonatal hematocrit was 39%. A follow-up hematocrit two hours later was 37%.

"The first step is to correctly deduce which sample should be labeled venous and which arterial. In this case, the easiest approach is to remember that the base deficits in the venous and arterial samples are usually approximately the same."

Interpretation

This set of umbilical cord blood gas results presents a severe challenge in interpretation. One must rely heavily on previous knowledge and experience. The first step is to correctly deduce which sample should be labeled venous and which arterial. In this case, the easiest approach is to remember that the base deficits in the venous and arterial samples are usually approximately the same. Still, if one is significantly worse (i.e., a greater metabolic acidosis), it must be the umbilical artery specimen (see Relationship between umbilical venous and arterial blood gases, Section 2). A base deficit of 17 indicates a far worse metabolic acidosis than six. Therefore, the specimens must be mislabeled.

Cord blood gas results with correct labeling were:

	Umbilical Vein	Umbilical Artery
pH	7.26	7.04
Pco_2 (mmHg) ***(kPa)***	47 *6.27*	51 *6.80*
Po_2 (mmHg) ***(kPa)***	61 *8.13*	36 *4.80*
BD (mmol/L)	6	17

Now it can be seen that the umbilical venous pH, Pco_2, and base deficit are all normal. However, the umbilical venous Po_2 is quite high (normal, 17 to 41). The only reasonable explanation for this is exposure to an air bubble. Exposing the sample to an air bubble will not only increase the Po_2 but also will decrease the Pco_2 and increase the pH. The only parameter reported in the umbilical venous cord gas that is not affected by the air bubble is the base deficit. Changing the Pco_2, a "respiratory" event, has no effect on the metabolic component, the base deficit. We do not know how much exposure to an air bubble affected the pH, the Pco_2, or the Po_2. We can only ascertain the direction in which they are affected. Therefore, we know the true pH is lower than 7.26, the true Pco_2 is higher than 47 mmHg, and the true Po_2 is lower than 61 mmHg.

"This case provides insight into the cord blood gases of a fetus/newborn with cord occlusion and terminal fetal bradycardia in whom the occluding forces are released prior to irreversible fetal bradycardia."

In the umbilical arterial sample, the pH is low, the Pco_2 is normal, the Po_2 is high (normal 6 to 31 mmHg), and the base deficit of 18 mmol/L reflects a severe metabolic acidosis. The elevated Po_2 of 36 mmHg also suggests exposure to an air bubble in this sample. Therefore, we know the actual pH is lower than 7.04, the true Pco_2 is higher than 51 mmHg, and the true Po_2 is lower than 36 mmHg. The base deficit of 18 remains unaffected.

Umbilical cord occlusion with terminal fetal bradycardia should be suspected whenever differences between venous and arterial pH, Pco_2, and sometimes base deficit, are widened (see Case 11). Recognizing this is more difficult when one or both specimens have been exposed to an air bubble. However, since the base deficit is not affected by exposure to an air bubble, significantly differing base deficits suggest umbilical cord occlusion with terminal

fetal bradycardia as the etiology.

The final question to be answered is: What caused the umbilical cord occlusion? It is possible that when the needle became dislodged, a portion of the fetal transfusion went into the substance of the umbilical cord outside of the umbilical vein. This may have caused enough compression of the umbilical vein over time to result in occlusion of this vessel and subsequent fetal distress.

Additionally, an umbilical cord hematoma secondary to *in-utero* intravascular transfusion has been reported to cause umbilical arterial vasospasm. (3) Furthermore, a slowed umbilical venous blood flow before the total cessation of blood flow may have resulted in more time for downloading oxygen from the placenta to the fetus. (1) However, if the Po_2 of 61 mmHg represents improved downloading of oxygen rather than contamination with an air bubble, this would represent a personal new high by a considerable margin as previously, I have never seen a Po_2 as high as 50 mmHg secondary to improved downloading. When the placenta and attached cord were examined, an umbilical cord hematoma was not identified. Widened base deficits are also associated with fetal heart failure. However, following birth, there were no signs of heart failure, making this explanation of the etiology unlikely. The pathophysiology, in this case, remains unexplained.

"When the placenta and attached cord were examined, an umbilical cord hematoma was not identified. Widened base deficits are also associated with fetal heart failure. However, following birth, there were no signs of heart failure, making this explanation of the etiology unlikely. The pathophysiology, in this case, remains unexplained."

A final thought – one might have theorized that the blood gas initially labeled "venous" was an inadvertent sampling of blood given by transfusion via cordocentesis. However, the Po_2 of 61 mmHg in the correctly labeled venous sample is too high for that found in transfused blood; transfused blood is very dark. If the venous sample had been transfused blood that in turn was contaminated with an air bubble, this would have resulted in a falsely elevated Po_2 and would explain this particular "problem" away. However, other issues addressed above would remain unexplained.

Key Point

- Mislabeling of umbilical cord blood gas samples, contamination of both samples with an air bubble, and a possible unappreciated hematoma of the cord resulting in occlusion of the umbilical vein have tended to confound the interpretation of these blood gas results. Yet a deliberate, systematic approach permits deciphering many of these complex issues.

References:

1. *Johnson JWC, Richards DS. The etiology of fetal acidosis as determined by umbilical cord acid-base studies. Am J Obstet Gynecol 1997;177:274-81.*
2. *Pomerance J. Umbilical cord blood gas casebook: Interpreting umbilical cord blood gases, Part X. J Perinat 2002;22:504-5.*
3. *Moise KJ Jr, Carpenter RJ Jr, Huhta JC, Deter RL. Umbilical cord hematoma secondary to in utero intravascular transfusion for Rh isoimmunization. Fetal Ther 1987;2:65-70.Disclosures:*

Disclosure: The author has no disclosures

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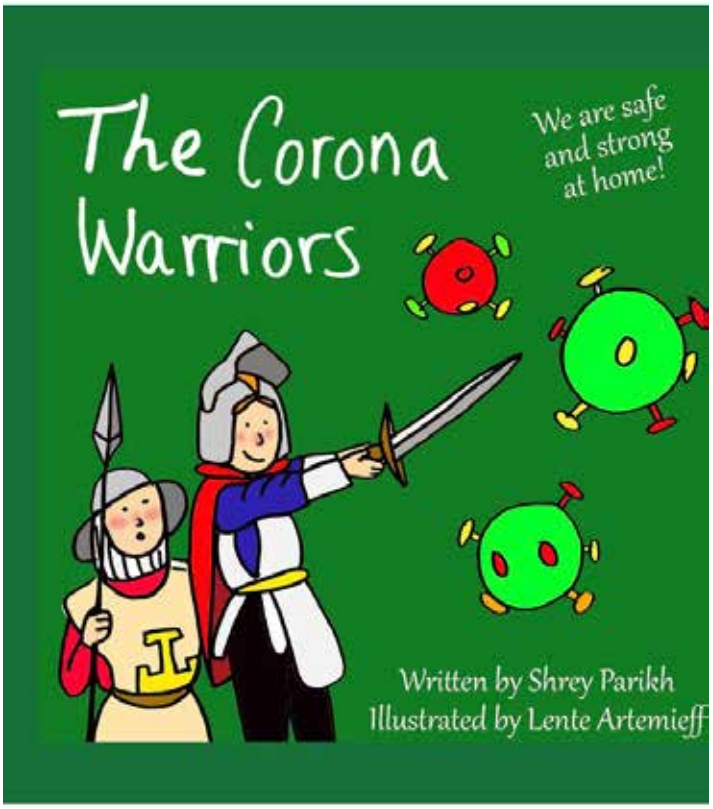

My NICU Network
My Perinatal Network

National Perinatal Association + NICU Parent Network

Online L&D Staff Education Program

Caring for Pregnant Patients & Their Families:

Providing Psychosocial Support During Pregnancy, Labor and Delivery

WWW.MYPERINATALNETWORK.ORG

Continuing education credits provided by

pac-lac

About the Program

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

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

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

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

Program Objectives

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

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

PROGRAM CONTENT

COMMUNICATION SKILLS CEUs offered: 1

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

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

PERINATAL MOOD AND ANXIETY DISORDERS CEUs offered: 1

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

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

PROVIDING ANTEPARTUM SUPPORT CEUs offered: 1

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

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

PROVIDING INTRAPARTUM SUPPORT CEUs offered: 1

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

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

PROVIDING POSTPARTUM SUPPORT CEUs offered: 1

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

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

SUPPORTING STAFF AS THEY SUPPORT FAMILIES CEUs offered: 1

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

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

Cost

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

Contact help@myperinatalnetwork.org to learn more.

Faculty

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

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

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

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

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

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

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

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

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

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

Parent/Patient Contributers:

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

Angela Davids
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
Founder and Executive Director, The PPROM Foundation, Denver, CO.

CANCELLATIONS AND REFUNDS

- For Individual Subscribers:
  - If you elect to take only one course, there will be no cancellations or refunds after you have started the course.
  - If you elect to take more than one course and pay in advance, there will be no cancellations or refunds after payment has been made unless a written request is sent to help@myperinatalnetwork.com and individually approved.
- For Institutional Subscribers:
  - After we are in possession of a signed contract by an authorized agent of the hospital and the program fees have been paid, a 50% refund of the amount paid will be given if we are in receipt of a written request to cancel at least 14 (fourteen) days prior to the scheduled start date for your hospital's online program.
  - Refunds will not be given for staff members who neglect to start the program. Also, no refunds for those who start the program, but do not complete all 6 courses within the time frame allotted.

For Physicians: This activity has been planned and implemented in accordance with the Institute for Medical Quality and the California Medical Association's CME Accreditation Standards (IMQ/CMA) through the Joint Providership of the Perinatal Advisory Council: Leadership, Advocacy and Consultation (PAC/LAC) and the National Perinatal Association. PAC/LAC is accredited by the Institute for Medical Quality/California Medical Association (IMQ/CMA) to provide continuing education for physicians. PAC/LAC takes responsibility for the content, quality and scientific integrity of this CME activity. PAC/LAC designates this activity for a maximum of 6 *AMA PRA Category 1 Credit(s)TM*. Physicians should only claim credit commensurate with the extent of their participation in the activity. This credit may also be applied to the *CMA Certification in Continuing Medical Education*.

For Nurses: The Perinatal Advisory Council: Leadership, Advocacy and Consultation (PAC/LAC) is an approved provider by the California Board of Registered Nursing Provider CEP 5862. When taken as a whole, this program is approved for 7 contact hours of continuing education credit.

For CAMFT: Perinatal Advisory Council: Leadership, Advocacy, and Consultation (PAC/LAC) is approved by the California Association of Marriage and Family Therapists to sponsor continuing education for LMFTs and LCSWs. CE Provider #128542. PAC/LAC maintains responsibility for the program and its content. Program meets the qualifications for 6 hours of continuing education credit for LMFTs and LCSWs as required by the California Board of Behavioral Sciences. You can reach us at help@myperinatalnetwork.org.

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- **HORIZONTAL INFECTION**
- **SEPARATION AND TRAUMA**

EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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

TRAUMA-INFORMED

Both parents and providers are confronting significant...

- **FEAR**
- **GRIEF**
- **UNCERTAINTY**

LONGITUDINAL DATA

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

- **MENTAL HEALTH**
- **POSTPARTUM CARE DELIVERY**

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

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and

National Perinatal Association
NICU Parent Network

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

COVID-19

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- Caregivers Need Care Too

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We Should Protect Every Baby from RSV

Heidi Turley

The Alliance for Patient Access, 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 di[1]rectors. Its physician leadership is supported by policy advocacy management and public affairs consultants.

In 2012, AfPA established the Institute for Patient Access, a related 501(c)(3) non-profit corporation. The Institute for Patient Access is a physician-led policy research organization dedicated to maintaining the primacy of the physician-patient relationship in the provision of quality health care. In furtherance of its mission, IfPA produces educational materials and programming designed to promote informed discussion about patient access to approved therapies and appropriate clinical care.

Visit allianceforpatientaccess.org and instituteforpatientaccess.org to learn more about each organization.

Health officials, the media, and even the president continue to urge Americans to protect themselves by getting vaccinated and boosted against COVID-19. I hope they will take the same dedicated approach if protection from RSV is one day a reality for all babies and young children.

"Health officials, the media, and even the president continue to urge Americans to protect themselves by getting vaccinated and boosted against COVID-19."

The respiratory syncytial virus remains the leading cause of hospitalization in children younger than one. Unfortunately, my daughter is part of this scary statistic. When she was 12 weeks old, she was hospitalized for eight days due to complications from RSV. It was a frightening experience for our family and one I would not wish on anyone.

"Then, after vomiting, things worsened to the point where she could barely breathe and was pale. We called 911, and she was transported to a hospital that was an hour away. RSV was taking a serious toll on her, and she needed a higher level of care than could be provided at our local or regional hospitals."

Luna became increasingly congested, and we were worried. Then, after vomiting, things worsened to the point where she could barely breathe and was pale. We called 911, and she was transported to a hospital that was an hour away. RSV was taking a serious toll on her, and she needed a higher level of care than could be provided at our local or regional hospitals. We were transported to another hospital three hours away.

While admitted, she received around-the-clock breathing treatments and supportive care, as there is no cure for RSV. She received excellent care but still came home on oxygen.

"While admitted, she received around-the-clock breathing treatments and supportive care, as there is no cure for RSV. She received excellent care but still came home on oxygen."

Luna was born three weeks early after a traumatic delivery; she was resuscitated at birth. She had jaundice and a blood disorder that was diagnosed at birth. A few weeks later, she contracted a severe gastrointestinal illness that hospitalized her for another week.

Even in her fragile state at birth and with ongoing health issues early on in life, she did not qualify for a preventive RSV treatment. It is only approved for pre-term infants with certain underlying

health conditions. I often wonder, would she have gotten so sick if she had access to preventive treatment?

I have seen the lasting effects of RSV on her. Luna struggles through colds and infections and takes weeks to recover from small colds. Her experience is always worse than that of her siblings. I am scared she may always struggle with these complications from RSV.

> ***"And while a preventive treatment is available to a small subset of infants, new innovations are in the pipeline that could offer protection to every single infant."***

I share our family's experience during RSV Awareness Month this October to help parents understand that RSV should be taken seriously. And while a preventive treatment is available to a small subset of infants, new innovations are in the pipeline that could offer protection to every single infant. I hope that when those interventions are approved, there will be an aggressive approach to ensure all infants have access to prevention from this very scary virus.

Heidi Turley is a mom of three children who lives in Arizona. She is a member of the RSV Parent and Caregiver Advisory Council for the National Coalition of Infant Health, a coalition partner of the Alliance for Patient Access.

This article was also published at healthpolicytoday.org.

NT

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Keeping Your Baby Safe

during the COVID-19 pandemic

How to protect your little one from germs and viruses

Even though there are some things we don't know about COVID-19 yet, there are many more things that we do know. We know that 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. Protecting your baby from flu and pertussis lowers their risks for complications from coronavirus.

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.

We can help protect each other.

Learn more

www.nationalperinatal.org/COVID-19

National Perinatal Association

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

I CAN Digitally Involved (I CANDI): Thankfulness and Excitement

Abby Clark

iCAN
International Children's Advisory Network

"November is a time of both thankfulness and excitement as we head into the holiday season! iCAN is thankful for our local and global community, especially our volunteer network working tirelessly to help kids share their voices."

November is a time of both thankfulness and excitement as we head into the holiday season! iCAN is thankful for our local and global community, especially our volunteer network working tirelessly to help kids share their voices. iCAN supports an international community of youth members, doctors, parents, and volunteers who come together for one special mission: to foster a greater global understanding of the importance of the pediatric patient and caregiver voice in healthcare, clinical trials, and research. iCAN does this through a chapter network comprised of 38 chapters around the world, each full of youth members impacted by a rare or chronic disease. Our youth members are true experts in their own conditions and invaluable advisors to the medical community.

This past October, iCAN visited the American Academy of Pediatrics's 2022 AAP Conference and National Exhibition (AAP NCE). Thank you to everyone who stopped by the iCAN booth to connect and share support for iCAN Youth Members. iCAN will be at the 2023 AAP NCE to be held in Washington, D.C, on October 20 - 24 at booth 1841.

In addition to the AAP NCE, iCAN traveled internationally to the Patient Engagement Open Forum (PEOF) sponsored by PFMD on patient engagement and patient involvement in different clinical and research practice areas. Led by President Leanne West, iCAN represented pediatric viewpoints to support patient voice.

"Through the collaboration of multi-stakeholder organizations, iCAN supports the ongoing effort to help spotlight the need for acceleration of Pediatric Drug Development through sharing the voice of our youth members, parents, and other community stakeholders."

iCAN CHAPTER NEWS

On October 21, 2022, President Leanne West and a youth member from iCAN KIDS Georgia partnered with the Multi-Regional Clinical Trials Center of Brigham and Women's Hospital and Harvard (MRCT) to speak on a panel regarding including adolescents and youth in research at the 2nd Caribbean Congress on Adolescent and Youth Health. This event helped to create awareness of the need for youth in decisions for care, and the hope is to build a new chapter of iCAN from this experience.

On November 1, 2022, an iCAN Youth member from KIDS Illinois traveled to the 12th Annual Lilly Pediatric Symposium on Accelerating Drug Development in Pediatrics and bravely shared their story with over 200 doctors, researchers, scientists, and medical professionals. This in-person session, the first in three years, sparked learnings on patient experience with research and shared support for better supporting patient (and family) needs during

clinical trials.

iCAN's Parent Chapter has developed a brief survey for our parent community about pediatric clinical trials. The goal of this survey is to help families better understand as well as navigate the process of clinical trials. We would love to hear your input on this important topic. To learn more, contact iCANParent@icanresearch.org.

iCAN's Sibling Chapter has been launched! This special chapter is a unique space for youth that are siblings of diagnosed children. iCAN values the voice of all children and understands the need to be inclusive of kids everywhere. Additionally, iCAN hopes to gather critical perspectives from our siblings to better provide insight and clarity to challenges and opportunities within pediatric healthcare. To learn more, contact iCANSiblings@icanresearch.org.

"iCAN's Sibling Chapter has been launched! This special chapter is a unique space for youth that are siblings of diagnosed children. iCAN values the voice of all children and understands the need to be inclusive of kids everywhere."

For all interested doctors, iCAN is collecting quotes answering the question, "Why is Clinical Research Important?" to be included in the collaborative anthology project held in conjunction with the Pediatric Trials Network (PTN) and Duke Clinical Research Institute (DCRI). Click this link to the submission page or contact info@icanresearch.org to submit a quote.

iCAN Youth Council: This is the next leadership level for youth members interested in supporting iCAN in a more significant way. The iCAN Youth Council is active in creating, overseeing, executing, and disseminating pediatric issues/topics through the unique perspective of youth throughout research, science, advocacy, technology, and medicine. Interested young people can learn more at https://www.icanresearch.org/our-youth.

New for 2023: iCAN is seeking a youth member to lead the iCAN Youth Council. To learn more about this position and how to apply, please get in touch with Abby Clark at abbyclark@icanresearch.org.

iCAN Young Adult Professionals: This dedicated group of young adults ages 18+ helps to support iCAN at a professional and higher educational level. iCAN offers internships and greater leadership roles to help retain and engage young adults as they begin their careers. To learn more about this group, head over to https://www.icanresearch.org/ican-young-adult-professionals.

New for 2023: iCAN is seeking a young adult to lead the iCAN Young Adult Professionals. To learn more about this position and how to apply, please get in touch with Abby Clark at abbyclark@icanresearch.org.

iCAN YoungAdultProfessionals

NEW! iCAN Siblings:

Starting this month, iCAN is launching a brand-new chapter for Siblings! This special group will meet to share their unique perspective about sibling viewpoints within pediatric clinical research, medicine, innovation, and science. To sign up, visit https://www.icanresearch.org/siblings-chapter.

iCAN Siblings

SAVE THE DATE:

- iCAN's unique youth series **'Ask the Experts'** has a new session planned for **November 19, 2022, at 10:00 a.m.EST.** To join this fun and free event, please register at www.icanresearch.org/events. All are welcome to attend, and kids of all ages are invited to join. Additional registration sessions are open, and we welcome all doctors, researchers, and community leaders to join us. This

month, we will have multiple special speakers joining to share their voices as they discuss pediatric rights! Sign up for this session, as you won't want to miss it.

- **iCAN 2023 Summit Information -**The summit next year will be held in Southern California from July 10 - July 14, 2023. You can stay up to date on all the coming information and updates by bookmarking www.icanresearch.org/2023-summit. We need sponsors, speakers, and donations. To join in, email us at abbyclark@icanresearch.org. In case you missed the week-long event of the summer, the International Children's Advisory Network, Inc. (iCAN) is pleased to share our excitement about the 2022 iCAN

  Summit presented by Jumo Health in a video highlighting the fantastic event. Check it out at: https://youtu.be/5faoza6ONFA.

If you want to create a project or initiate a new chapter, please get in touch with Abby Clark at abbyclark@icanresearch.org to get started today. Chapter groups can be as small or large - with the emphasis on helping to spotlight the youth voice. To learn more, check out https://www.icanresearch.org/chapters.

Disclosure: *The author has no conflicts of interests to disclose.*

NT

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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?

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

TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

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

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY

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

Partnering for patient-centered care when it matters most.

National Association of Neonatal Nurses
nann.org

National Perinatal Association
nationalperinatal.org

Your Pregnancy and Substance Use

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

Get Prenatal Care

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

Reduce Your Use

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

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

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

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

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

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

Take Good Care of Yourself

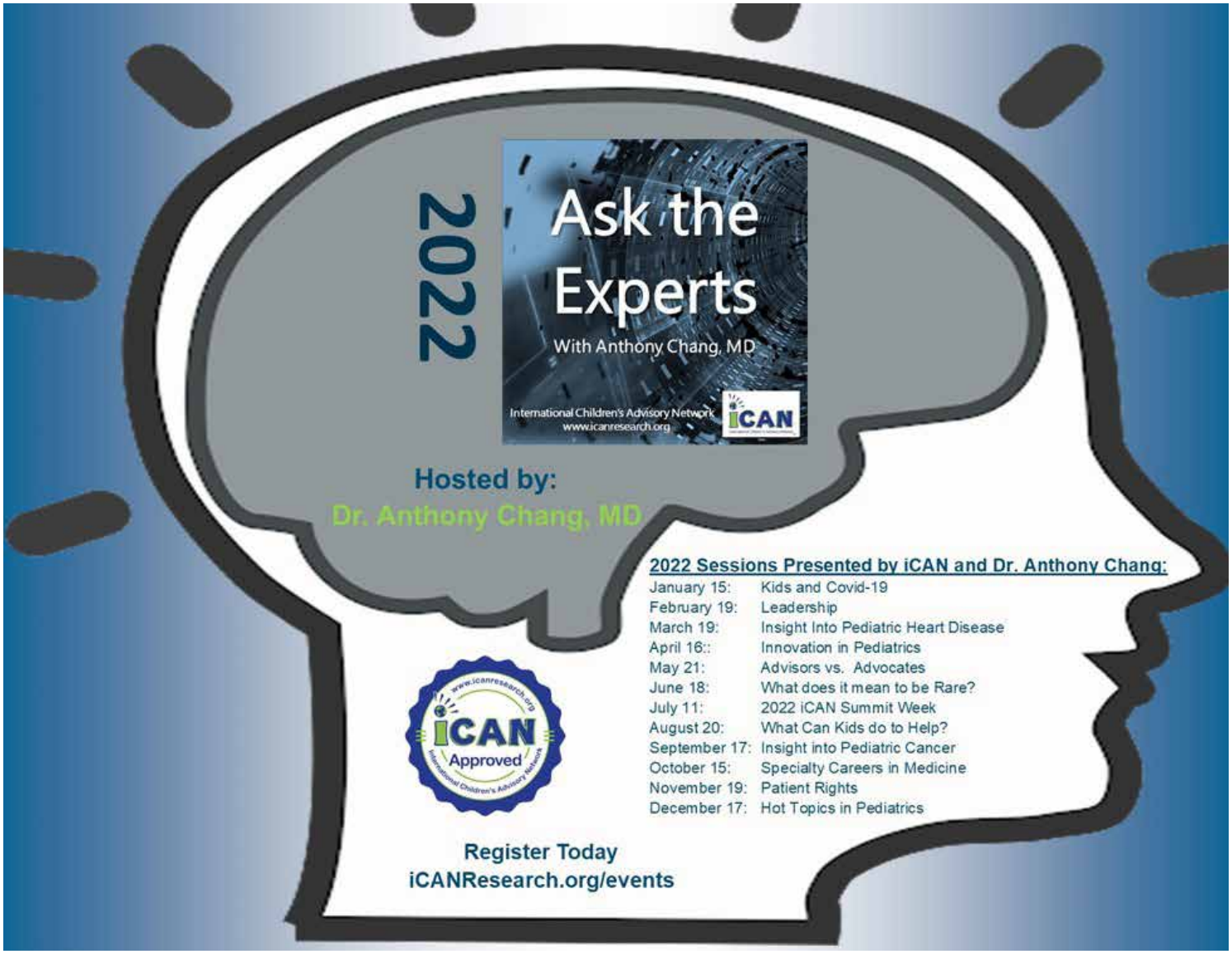
You deserve a healthy pregnancy & childbirth.

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

Your Health Matters

Academy of Perinatal Harm Reduction
www.perinatalharmreduction.org

National Perinatal Association
www.nationalperinatal.org



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.


PROTECT YOUR FAMILY FROM
RESPIRATORY VIRUSES
flu
coronavirus
pertussis
RSV
SOAP
WASH YOUR HANDS
often with soap and warm water.
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.
National Perinatal Association
www.nationalperinatal.org


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

Respiratory Syncytial Virus:

How you can advocate for babies this RSV season

Track national data and trends at the CDC's website www.cdc.gov/rsv

Identify babies at greatest risk

including those with CLD, BPD, CF, and heart conditions

Teach families how to protect

their babies from respiratory infections

Advocate for insurance coverage for palivizumab prophylaxis so more babies can be protected *

Use your best clinical judgement

when prescribing RSV prophylaxis

Tell insurers what families need

and provide the supporting evidence

National Perinatal Association

*See the NPA's evidence-based guidelines at www.nationalperinatal.org/rsv

Level of Evidence and Level of Effort

Shabih Manzar, MD, MPH

"In academic medicine, literature reviews and publications are pivotal in promoting knowledge and career. (1) With the advent of online open-access publication options, the quantity of publications has increased."

In academic medicine, literature reviews and publications are pivotal in promoting knowledge and career. (1) With the advent of online open-access publication options, the quantity of publications has increased. In order to assess the quality of the publications, the metrics looked at are the number of shares, tweets, impact factor, PubMed index, etc. (2,3). When looked at from the evidence perspective, systematic review and meta-analysis (SR-MA) are at the top of the level of evidence, followed by randomized control trial (RCT), and case reports and editorials are at the bottom (Figure 1). (4,5) Due to this hierarchy, there is a tendency to undermine or look down upon the bottom levels of evidence work, although these publications also require significant effort.

Figure 1: The hierarchy of the level of evidence

We propose a 3-level efforts hierarchy for publications (Figure 2). The level of effort could be classified into three categories: extensive (SR-MA, RCT), intensive (cohort study, case-control study), and comprehensive (cross-sectional study, case series, case reports). While it is essential to look at the level of evidence, the effort involved in publishing these studies should be graded differently. For example, RCT involves actual patients and bedside / clinic evaluation. It is longitudinal and more time-consuming.

Similarly, a case report should not be looked at as something of lesser educational value than a narrative review. Some case reports bring insight into future research. Similarly, a letter to the editor keeps the transparency and discussion venues open and helps assess the evidence.

"The purpose of the level of evidence hierarchy is to help clinicians evaluate the evidence's strength in developing clinical guidelines and management plans. The level of evidence should not be viewed synonymously with the level of effort."

Figure 1

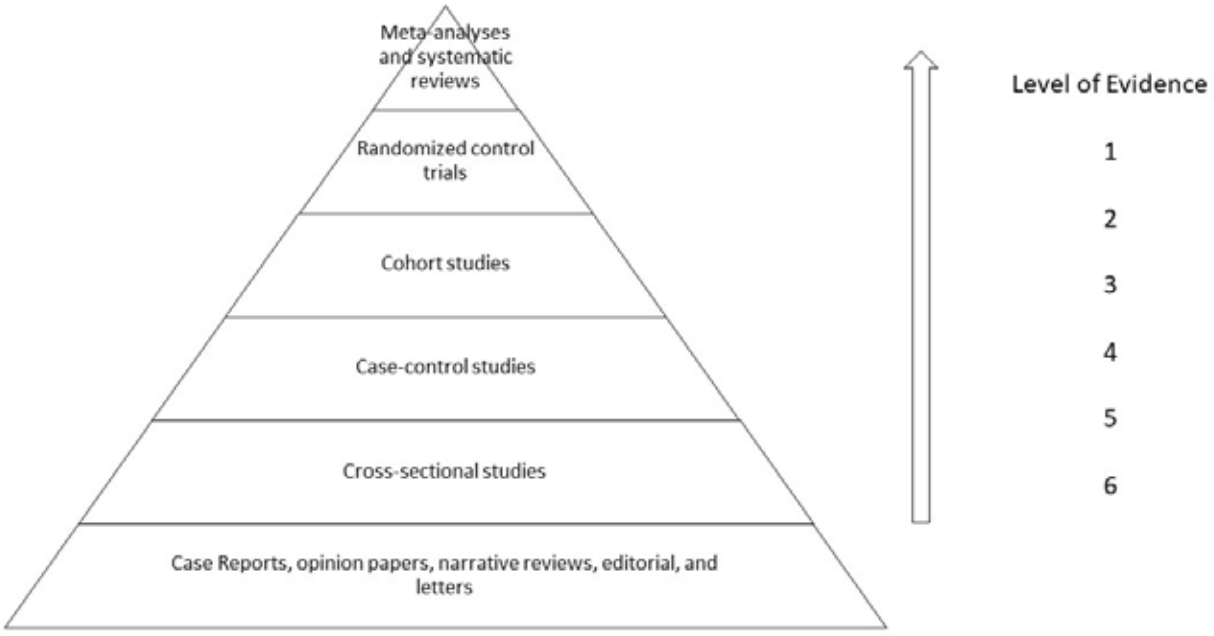
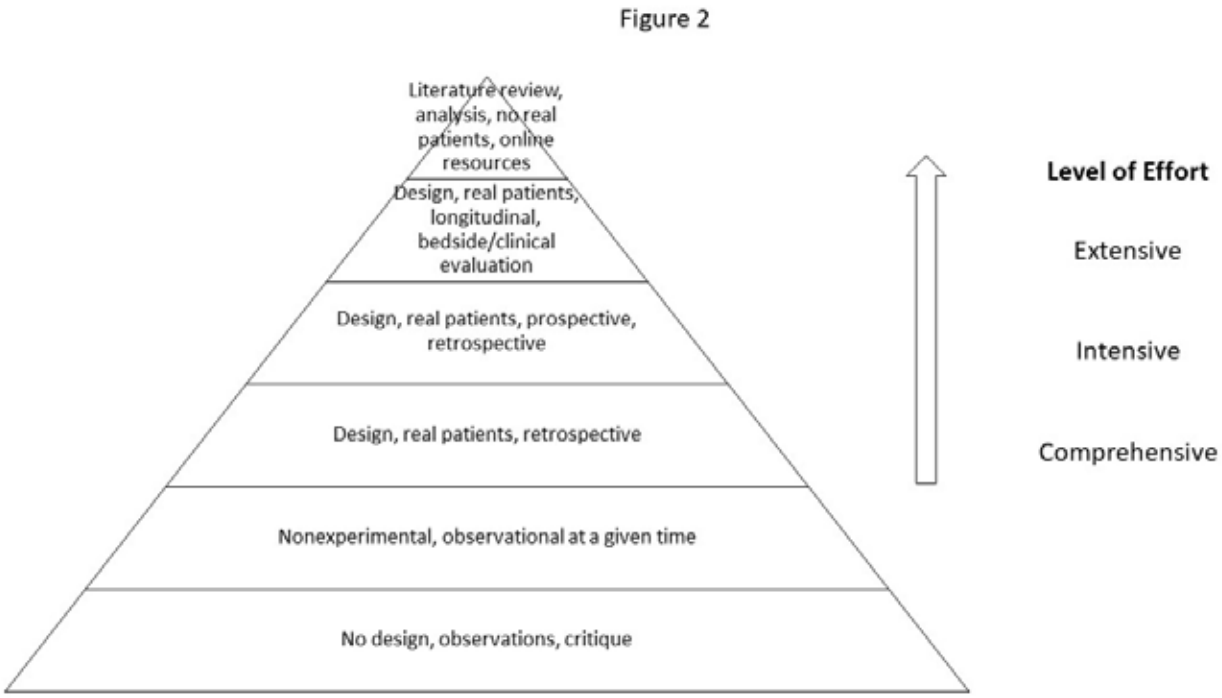


Figure 2: The suggested level of effort



All types of publications have their place in literature. As academicians, we should refrain from using a demeaning attitude towards publications at the lower level of evidence (case reports, letters, editorials, opinion articles). The purpose of the level of evidence hierarchy is to help clinicians evaluate the evidence's strength in developing clinical guidelines and management plans. The level of evidence should not be viewed synonymously with the level of effort.

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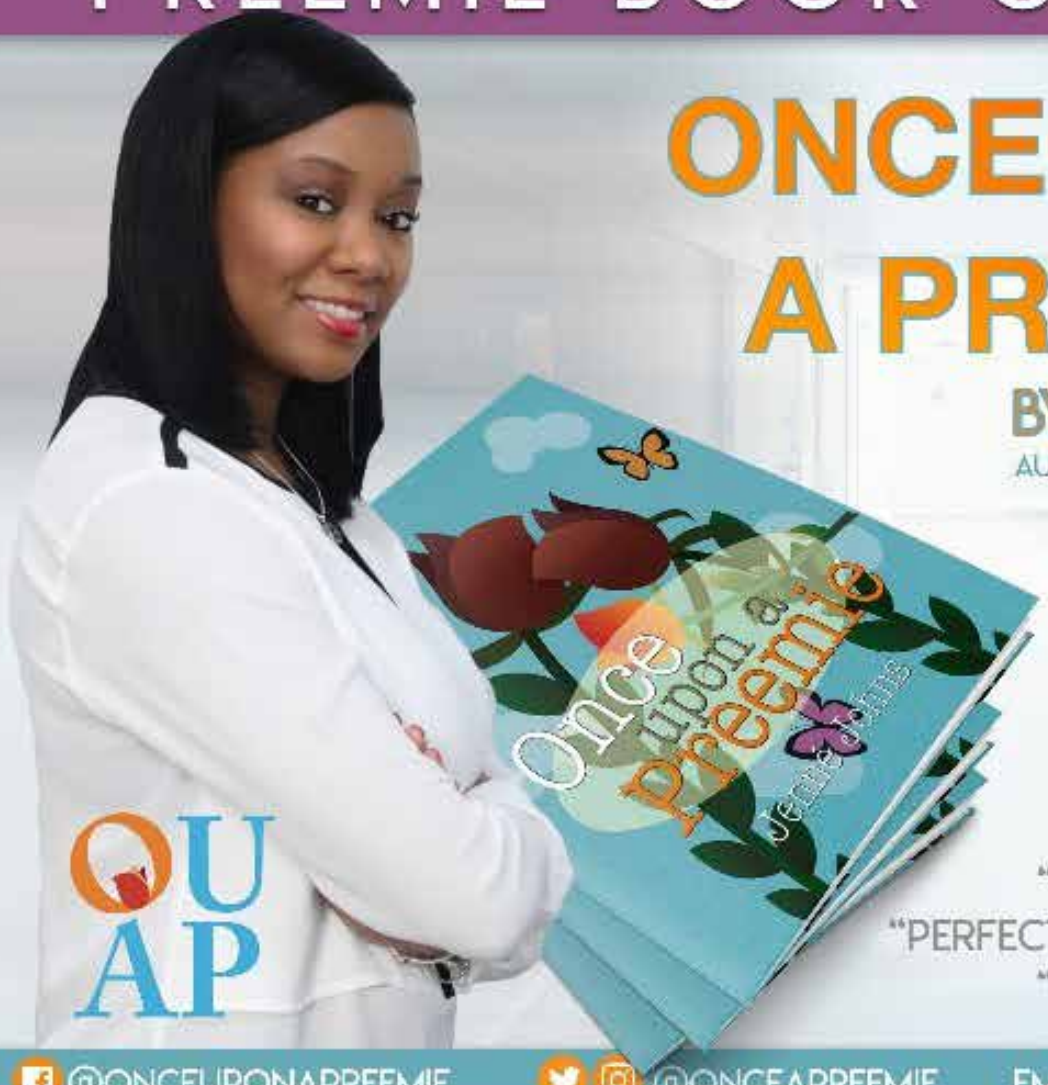
PREEMIE BOOK ON SALE



ONCE UPON A PREEMIE

BY JENNÉ JOHNS

AUTHOR | SPEAKER | ADVOCATE

QUAP

"ONE OF A KIND"
"PERFECT FOR PREEMIE FAMILIES"
"ENCOURAGING"

@ONCEUPONAPREEMIE @ONCEAPREEMIE EMAIL: HI@ONCEUPONAPREEMIE

ONCE UPON A PREEMIE IS A BEAUTIFUL NEW WAY TO LOOK AT THE LIFE OF A PREEMIE BABY. IT EXPLORES THE PARENT AND CHILD NEONATAL INTENSIVE CARE UNIT (NICU) JOURNEY IN A UNIQUE AND UPLIFTING WAY.

SPEAKING ENGAGEMENTS

PREEMIE PARENT ALLIANCE SUMMIT
NATIONAL ASSOCIATION OF PERINATAL SOCIAL WORKERS
CONGRESSIONAL BLACK CAUCUS ANNUAL LEGISLATIVE CONFERENCE
NATIONAL MEDICAL ASSOCIATION ANNUAL CONFERENCE
HUDSON VALLEY PERINATAL PUBLIC HEALTH CONFERENCE
MATERNITY CARE COALITION ADVOCACY DAY

MEDIA APPEARANCES

Preemie Family

PEBBLES of Hope

WDAS 105.3 FM

CBS RADIO

wgts 91.9 Washington, D.C.

MAJIC 102.3 92.7 The Real Sound of the DMV

AVAILABLE FOR $12.99 ON AMAZON OR ONCEUPONAPREEMIE.COM

Still a **Preemie?**

Some preemies are born months early, at extremely low birthweights. They fight for each breath and face nearly insurmountable health obstacles.

But that's not every preemie's story.

Born between 34 and 36 weeks' gestation?

STILL A PREEMIE

Just like preemies born much earlier, these "late preterm" infants can face:

Jaundice · Feeding issues · Respiratory problems

And their parents, like all parents of preemies, are at **risk for postpartum depression and PTSD.**

Born preterm at a "normal" weight?

STILL A PREEMIE

Though these babies look healthy, they can still have complications and require NICU care.

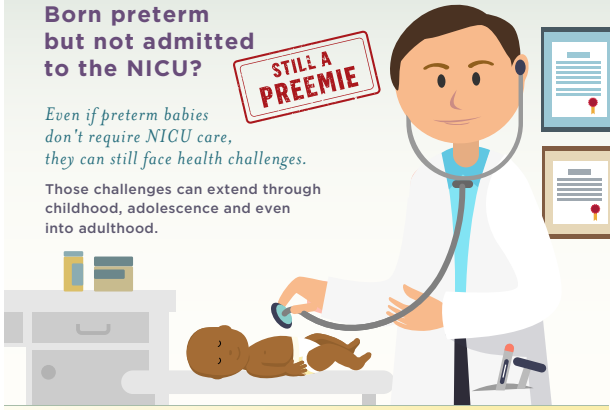
But because some health plans determine coverage based on a preemie's weight, **families of babies that weigh more may face access barriers and unmanageable medical bills.**

Born preterm but not admitted to the NICU?

STILL A PREEMIE

Even if preterm babies don't require NICU care, they can still face health challenges.

Those challenges can extend through childhood, adolescence and even into adulthood.



Some Preemies

- Will spend weeks in the hospital
- Will have lifelong health problems
- Are disadvantaged from birth

All Preemies

- Face health risks
- Deserve appropriate health coverage
- Need access to proper health care

NCfIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

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

National Perinatal Association

FREE Online CE Activity

Nurses: parents trust you.

You can help reduce the risk of Sudden Infant Death Syndrome (SIDS), the leading cause of death among infants between 1 month and 1 year of age. Take our **free continuing education (CE) activity** to stay up to date on the latest safe infant sleep recommendations. Approved for 1.5 contact hours.

Learn more about the free online activity at **https://nichd.nih.gov/SafeSleepCE.**

The CE activity explains safe infant sleep recommendations from the American Academy of Pediatrics and is approved by the Maryland Nurses Association, an accredited approver of the American Nurses Credentialing Center's Commission on Accreditation.

NIH *Eunice Kennedy Shriver* National Institute of Child Health and Human Development

SAFE TO SLEEP®

Compiled and Reviewed by Saba Saleem, BS, OMS 4

Abbott Voluntarily Recalls Certain Lots of 2 Fl. Oz./59 mL Bottles of Ready-to-Feed Liquid Products; Recall Is Not Expected to Impact U.S. Infant Formula Supply

NEWS PROVIDED BY

FDA Recalls, Market Withdrawals, & Safety Alerts

Summary

Company Announcement Date: October 14, 2022

FDA Publish Date: October 14, 2022

Product Type: Food & Beverages, Infant Formula & Foods

Reason for Announcement: Potential for spoilage

Company Name: Abbott

Brand Name: Multiple brand names

Product Description: Ready-to-feed liquid products for infants and children

Company Announcement

Abbott is initiating a proactive, voluntary recall of certain lots of 2 fluid ounce/59 milliliter bottles of Ready-to-Feed liquid products for infants and children, including the brands Similac® Pro-Total ComfortTM, Similac® 360 Total Care®, Similac 360 Total Care Sensitive, Similac® Special Care® 24, Similac Stage 1, Similac® NeoSure®, Similac Water (Sterilized) and Pedialyte Electrolyte Solution. The products included in the recall were manufactured at our Columbus, Ohio, manufacturing facility.

These products are being recalled because a small percentage of bottles (less than 1%) in the recalled lots have bottle caps that may not have sealed completely, which could result in spoilage. If spoiled product is consumed, gastrointestinal symptoms such as diarrhea and vomiting may occur.

This recall does not include any other liquid or powder formula brands or other nutrition products produced in our Columbus facility or elsewhere within our global nutrition manufacturing network.

It also does not include any amino acid-based formulas or metabolic nutrition formulas.

This recall equates to less than one day's worth of the total number of ounces of infant formula fed in the U.S. and is not expected to impact the overall U.S. infant formula supply. Abbott is continuing production of Similac 2 fluid ounce/59 milliliter Ready-to-Feed liquid formula products for hospitals and healthcare providers' offices on a different production line. Similac infant formula will continue to be produced in alternative product sizes and formats for delivery to retail locations, in addition to increased production throughout our global manufacturing network.

The products included in the recall were distributed primarily to hospitals and to some doctors' offices, distributors, and retailers in the U.S., including Puerto Rico; one lot of products was sent to Barbados, Bermuda, Colombia, the Dominican Republic, Haiti, Jamaica, St. Croix and St. Thomas; and two lots were sent to Canada, Curacao, Panama, and Trinidad and Tobago.

What Parents and Caregivers Should Do

If a product is included in the recall, do not use the product. For all feeding-related questions or questions about your child's health, contact a healthcare professional.

To identify if your product is included, please visit similacrecall.com to view a list of impacted lot numbers or use the lot number checker on the webpage.

"We take our responsibility to deliver high-quality products very seriously," said Joe Manning, executive vice president, nutritional products, Abbott. "We internally identified the issue, are addressing it, and will work with our customers to minimize inconvenience and get them the products they need."

If you have questions, please contact Abbott's Consumer Relations hotlines below in the country where you received product:

U.S.: +1-800-986-8540

Puerto Rico: +1-787-622-5454

Barbados: 246-417-0777

Bermuda: 279-5568

Canada: 1-855-733-4201

Colombia: 1-800-518-9379

Curacao: 737-2222 Ext. 235, 205

Dominican Republic: +1-849-200-1564

Haiti: 868-687-0223

Jamaica: 876-927-7098

Panama: 800-0410

St. Croix: 1(340) 690-7222

St. Thomas: 1(340) 690-7222

Trinidad & Tobago: 868-687-0223

Company Contact Information

Consumers: Abbott's Consumer Relations 1-800-986-8540

SOURCE FDA

NT

CHOP Study Shows Nearly One-Third of Extremely Premature Infants Develops Late-Onset Sepsis

NEWS PROVIDED BY

Children's Hospital of Philadelphia News

Nov 11, 2022

Nearly one-third of very premature infants develop late-onset sepsis, a life-threatening infection that occurs more than three days after birth, according to new research from Children's Hospital of Philadelphia (CHOP), in collaboration with the Vermont Oxford Network. The study, published today in *Pediatrics*, also found that 1 in 2 infants born at 23 weeks or earlier either died and/or developed the infection.

"Late-onset sepsis is associated with a greater chance of death or, for those who survive, technology-dependent chronic illness," said first author Dustin D. Flannery, DO, MSCE, an attending neonatologist at Children's Hospital of Philadelphia and Assistant Professor of Pediatrics at the University of Pennsylvania.

The researchers analyzed a large national sample of very preterm infants born at Vermont Oxford Network centers. Infants who died in the first 3 days after birth were excluded from the study. Of 118,650 infants included in the study, 10,501 (8.9%) developed late-onset sepsis. The researchers identified 34 pathogens causing late-onset sepsis, the most common being coagulase negative staphylococci (29%) and *Staphylococcus aureus* (23%). Infected infants were less likely to survive, and those who did had increased risks of requiring home oxygen, tracheostomy, and gastrostomy. One in 2 infants born 23 weeks or earlier either died later and/or developed the infection.

"These results shine a light on a current challenge in our field: despite successful, coordinated national prevention efforts, infection rates have plateaued in recent years," Dr. Flannery said. "As resuscitation at the limit of viability increases, we must identify innovative ways to improve late-onset sepsis prevention in order to improve outcomes for these patients."

Contact: Kaila Revello, The Children's Hospital of Philadelphia, 267-426-6054 or contikm@email.chop.edu

SOURCE CHOP News

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CHOP Researchers Find COVID-19 Vaccination Leads to Higher Antibody Levels than Natural Infection in Both Pregnant People and their Babies

NEWS PROVIDED BY

Children's Hospital of Philadelphia News

Nov 9, 2022

Pregnant people who received one of the mRNA COVID-19 vaccines had 10-fold higher antibody concentrations than those who were naturally infected with SARS-CoV-2, a finding that was also observed in their babies, according to a new study by researchers at Children's Hospital of Philadelphia (CHOP) and the University of Pennsylvania. The study, published today in *JAMA Network Open*, also found that vaccine timing played an important role in maximizing the transfer of antibodies, with antibodies detected as early as 15 days after the first vaccine dose and increasing for several weeks after.

"These findings suggest that COVID-19 vaccination not only provides robust protection for mothers during pregnancy – it also provides higher concentrations of antibodies to babies than COVID-19 infection," said first author Dustin D. Flannery, DO, MSCE, an attending neonatologist at Children's Hospital of Philadelphia and Assistant Professor of Pediatrics at the University of Pennsylvania. "Given that pregnancy is a risk factor for severe COVID-19, this study suggests pregnant people should prioritize getting vaccinated to protect themselves and their babies."

To compare antibody responses in pregnant people who had been vaccinated versus naturally infected, the researchers analyzed a unique timeframe: patients who gave birth at Pennsylvania Hospital between August 9, 2020 and April 25, 2021. COVID-19 vaccines were not widely available until December 2020, and booster shots were not available until September 2021, so by focusing on a period within the pandemic that shouldered the introduction of the first vaccines, the researchers could more easily tease out the origin of the patients' antibodies.

Dr. Scott Hensley's laboratory in the Penn Department of Microbiology has taken a leading role in evaluating antibody responses to COVID-19 from the beginning of the pandemic. In collaboration with CHOP researchers, his laboratory evaluated cord blood serum from 585 pregnant people who had detectable SARS-CoV-2 antibodies. Of the 585 pregnancies, they identified 169 patients who had been vaccinated but never infected and 408 who had been infected but not vaccinated. They found that antibody levels among vaccine recipients were approximately 10-times higher than in people who had been naturally infected.

The researchers detected IgG antibodies to SARS-CoV-2 in the cord blood from more than 95% of newborns (557 of 585) in the study. Of those newborns with detectable antibodies, the researchers found that levels were 10-times higher in the vaccinated group than in the naturally infected group. However, they also observed that transfer ratios – that is, the extent to which the antibody levels in the cord blood match the antibody levels in the mother – were slightly lower in the vaccinated group compared with the naturally infected group. The researchers analyzed a variety of factors that might influence the transfer ratio, including gestational age at birth and maternal medical issues such as hypertension, diabetes and obesity.

"Our study suggests that time from infection or vaccination to delivery was the most important factor in transfer efficiency, and these findings can inform optimal COVID-19 vaccination strategy during pregnancy," said senior author Karen M. Puopolo MD, PhD, an attending neonatologist at Children's Hospital of Philadelphia and Chief of the Section on Newborn Medicine at Pennsylvania Hospital. "Patients should plan to get vaccinated with ample time before their due date, so that they – and their babies – can benefit from a robust immune response."

Flannery et al. "Comparison of Maternal and Neonatal Antibody Levels After COVID-19 Vaccination vs SARS-CoV-2 Infection," JAMA Network Open, November 9, 2022, DOI: 10.1001/jamanetworkopen.2022.40993

Contact: Kaila Revello, The Children's Hospital of Philadelphia, 267-426-6054 or contikm@email.chop.edu

SOURCE CHOP News

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AAP, CHA call for emergency declaration to address surge of pediatric illnesses

NEWS PROVIDED BY

American Academy of Pediatrics News

By Melissa Jenco

November 15, 2022

The AAP and Children's Hospital Association (CHA) are asking federal officials to declare a public health emergency as pediatricians' offices and hospitals are inundated with children seeking care for respiratory viruses and mental health concerns.

The emergency declarations requested in

a letter to President Joe Biden and U.S. Department of Health and Human Services Secretary Xavier Becerra, J.D., would provide flexibility in how hospitals share resources, use space, move patients and manage workforce shortages.

"Pediatricians are rising to this challenge once again but we need federal action to allow the flexibilities and resources to support this care," AAP CEO/Executive Vice President Mark Del Monte J.D., said in a statement. "And, we need to remain focused on how this emergency is disproportionately impacting historically underresourced communities."

The letter comes as more than three-quarters of the country's pediatric hospital beds are full and many states are at 90% of capacity. Respiratory syncytial virus (RSV) levels are near season peaks in some regions, while flu hospitalizations are higher than the same periods in previous seasons over the past decade, according to the Centers for Disease Control and Prevention (CDC). These challenges come on top of continuing mental health emergencies and workforce shortages. Pediatricians' offices are facing similar demand and workforce shortages.

"Our system is stretched to its limit and without immediate attention the crisis will only worsen," CHA CEO Mark Wietecha said in a statement.

The AAP and CHA made several requests of federal officials.

Declare emergencies through the Stafford Act or National Emergencies Act and a public health emergency, allowing a waiver of certain Medicare, Medicaid and Children's Health Insurance Program requirements.

Encourage state Medicaid agencies to support telehealth, out-of-state care and needed flexibilities to manage capacity in health care facilities.

Free up resources to support increased costs associated with capacity and workforce issues.

Mitigate supply, equipment and drug shortages.

Prioritize rental and excess equipment to pediatric providers.

Provide visibility into pediatric supplies and equipment in the national stockpile.

"These flexibilities have been provided under COVID-19 and were critical during the height of the surge and ongoing fluctuations of the virus," the groups wrote. "Children and children's providers require the same capacity support as they strive to keep up with increasing needs of our youngest Americans."

SOURCE AAP News

NT

Outline of FDA's Strategy to Help Prevent Cronobacter sakazakii Illnesses Associated with Consumption of Powdered Infant Formula

NEWS PROVIDED BY

FDA New Era of Smarter Food Safety

November 15, 2022

Cronobacter sakazakii is a pathogen found naturally in the environment that can enter manufacturing facilities and home environments on hands, shoes, and other contaminated surfaces.

Cronobacter sakazakii is especially good at surviving in dry foods, like powdered infant formula, powdered milk, herbal teas, and starches. For most people, it is harmless, but it can be life-threatening for infants younger than two months, infants who are born prematurely, and for infants who have weakened immune systems.

Overview of recent *Cronobacter sakazakii* illnesses and contamination of powdered infant formula

Between September 2021 and February 2022, the U.S. Food and Drug Administration (FDA) received complaints about four cases of illness or death in infants who consumed powdered infant formula. After learning that each of these infants consumed powdered infant formula products manufactured by Abbott Nutrition in Sturgis, Michigan, the FDA initiated an onsite inspection at the facility and commenced an investigation that revealed unsanitary conditions, including the presence of five different strains of *Cronobacter sakazakii* within the facility. However, those samples did not genetically match the available clinical isolates from the two case-patients for whom whole genome sequencing (WGS) results were available or any other clinical isolates in the limited number of *Cronobacter sakazakii* isolates in the National Center for Biotechnology Informatics (NCBI) database. And the two case-patients' isolates didn't match each other. While the FDA was unable to determine whether the infants became sick from the firm's product or contamination by other means, these findings raised serious concerns about the safety of the powdered infant formula and other products produced at this facility. On Feb. 17, 2022, the FDA warned consumers not to use certain products manufactured at this facility. That same day, Abbott Nutrition issued a voluntary recall of certain infant formula products manufactured in Sturgis, Michigan, and temporarily ceased production to safeguard public health while corrective actions were taken.

Typically, the Centers for Disease Control and Prevention (CDC) receives 2-4 reports of severe *Cronobacter* infections in infants annually from health departments across the country. Public health investigations primarily link these infections to formula contamination during preparation. Although during recent investigations, the FDA was unable to determine whether the infants became sick from contaminated product or contamination by other means, the agency has identified opportunities to enhance the safety of powdered infant formula, which are reflected in the strategy outlined below.

Outline of FDA's strategy to help prevent future illnesses linked to consumption of powdered infant formula

The outline below is intended to guide discussions during further development of FDA's strategy to prevent Cronobacter sakazakii illnesses associated with consumption of powdered infant formula. Stakeholder engagement and feedback are central to development and implemen-

pac-lac

Perinatal Advisory Council:
Leadership, Advocacy and Consultation

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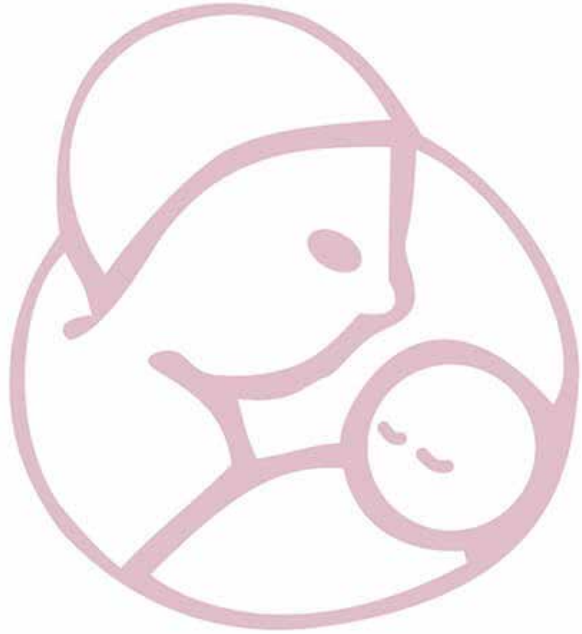

PAC/LAC's core values for improving maternal and child health have remained constant for over 30 years – a promise to lead, advocate and consult with others.

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.

tation of this strategy. Over the next several months, the Agency intends to work with stakeholders to finalize this strategy. Following this engagement an updated strategy summary will be posted on FDA.gov.

Below is an outline of the FDA's prevention strategy to help prevent Cronobacter sakazakii illnesses associated with consumption of powdered infant formula:

- Collaborate with stakeholders to better understand best practices in the manufacturing of powdered infant formula and what could be done to enhance safety.
- Strengthen regulatory activities and current systems for effective oversight of powdered infant formula, including:
  - Consider whether to establish a dedicated cadre of investigators to conduct infant formula inspections.
  - Explore realigning staff across the Center for Food Safety and Applied Nutrition and the Office of Regulatory Affairs to better support regulatory oversight of infant formula.
  - Review and update the Infant Formula Compliance Program, as needed, to reflect current science on *Cronobacter*, and ensure investigators and compliance officers are equipped with the tools and resources needed to enable a consistent and comprehensive approach to inspections of infant formula manufacturing facilities and compliance activities.
  - Provide additional education/training to FDA regulatory staff on inspecting powdered infant formula manufacturing facilities.
- Review and update current guidance and rules applicable to the production of powdered infant formula, as appropriate.
- Evaluate current testing requirements and determine whether improvements might be appropriate to enhance the safety of finished product.
- Continue developing and improving communications for consumers about safe formula preparation and storage.
- Work with federal, state and local partners to strengthen the ability of public health officials and firms to identify and investigate illnesses of *Cronobacter* spp. including increased genomic surveillance and supporting elevation of *Cronobacter sakazakii* infection among infants as a nationally notifiable disease.
- Conduct and support research to help fill knowledge gaps in the scientific understanding of *Cronobacter*. Such research will improve the public health community's ability to help protect the health of powdered infant formula consumers and will drive improvements in industry practices that can enhance the safety of these products. For example, FDA will collaborate with the National Advisory Committee on Microbiological Criteria for Foods (NACMCF) to enhance our understanding of, and gain key insights and recommendations on, *Cronobacter.*

Through development and implementation of this strategy the FDA seeks to:

- Broaden scientific knowledge and understanding of *Cronobacter sakazakii* and public health interventions for controlling it.
- Improve oversight of safe production of powdered infant formula.
- Enhance communications and engagement with industry, consumers, federal, state, local, and other public health partners about infant formula safety.

SOURCE FDA News

NT

Pandemic anxiety in mothers-to-be shows up in fetal neuroimaging

NEWS PROVIDED BY

Radiology Business Journal, Women's Imaging

By Dave Pearson

November 8, 2022

Pregnant women who felt stressed by healthcare disruptions caused by the COVID-19 pandemic radiated the unease to their developing offspring. The effects were observable on fetal MRI of both brainstem structure and functional activity.

The researchers who made the findings, from Children's Hospital Los Angeles and Children's Hospital of Pittsburgh, suggest their work may help inform stress management and behavioral healthcare for pregnant women and their babies.

The preprint server medRxiv has posted the study ahead of peer review [1].

For the study, lead author Vidya Rajagopalan, PhD, senior author Ashok Panigrahy, MD, and colleagues prospectively recruited 45 women from in and around Los Angeles.

The participants completed self-assessment forms designed to gauge perceptions of stress and solicit descriptions of coping behaviors related to pandemic-related disruptions. The women completed the forms at multiple time points between 2020 and 2022.

The participants also agreed to undergo fetal MRI, which neuroradiologists interpreted using quantitative multimodal measures.

Analyzing the results, the researchers found significant correlations between participants' self-reported stress and fetuses' brainstem structure and brain activity.

In their discussion, Rajagopalan and coauthors clarify the finding, stating that

higher maternal stress was associated with increased brainstem volume—suggesting accelerated brainstem maturation—and globally decreased temporal variability of function, suggesting reduced functional connectivity, in the fetal brain.

They also found differences in the prevalence of specific coping behaviors between pregnant women who reported high stress compared to those who reported low stress.

These behaviors included "maladaptive" actions such as substance abuse, self-blame and denial as well as "adaptive" actions like seeking social support, praying and enjoying situation-appropriate humor.

Rajagopalan and co-authors believe their research represents the first multimodal study of fetal brain development in the context of maternal stress owing to pandemic-related factors.

They note the consistency of their findings with those of previous studies suggesting the observability of alterable fetal programming.

The authors conclude:

Comparing coping behaviors between pregnant women reporting higher and lower stress, our study provides insight into potential avenues for improved stress management and mental health outcomes among pregnant women."

The so-far unpublished study manuscript is posted in full for free.

Reference:

Vidya Rajagopalan, Ashok Panigrahy, et al, "Impact of COVID-19 related maternal stress on fetal brain development: A Multimodal MRI study." medRxiv, Oct. 27, 2022. DOI: https://doi.org/10.1101/2022.10.26.22281575

SOURCE *Radiology Business Journal*

10.1056/NEJMc2210828

NT

American Academy of Pediatrics, Section on Advancement in Therapeutics and Technology

Released: Thursday 12/13/2018 12:32 PM, updated Saturday 3/16/2019 08:38, Sunday 11/17/2019 and Friday 11/20/2020

The American Academy of Pediatrics' Section on Advances in Therapeutics and Technology (SOATT) invites you to join our ranks! SOATT creates a unique community of pediatric professionals who share a passion for optimizing the discovery, development and approval of high quality, evidence-based medical and surgical breakthroughs that will improve the health of children. You will receive many important benefits:

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- Receive the SOATT newsletter containing AAP and Section news.
- Access the Section's Website and Collaboration page – with current happenings and opportunities to get involved.

- Network with other pediatricians, pharmacists, and other health care providers to be stronger advocates for children.
- Invitation for special programming by the Section at the AAP's National Conference.
- Access to and ability to submit research abstracts related to advancing child health through innovations in pediatric drugs, devices, research, clinical trials and information technology; abstracts are published in Pediatrics.

AAP members can join SOATT for free. To activate your SOATT membership as an AAP member, please complete a short application at http://membership.aap.org/Application/AddSectionChapterCouncil.

The Section also accepts affiliate members (those holding masters or doctoral degrees or the equivalent in pharmacy or other health science concentrations that contribute toward the discovery and advancement of pediatrics and who do not otherwise qualify for membership in the AAP). Membership application for affiliates: http://shop.aap.org/aap-membership/ then click on "Other Allied Health Providers" at the bottom of the page.

Thank you for all that you do on behalf of children. If you have any questions, please feel free to contact:

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The American Academy of Pediatrics is an organization of 67,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults. For more information, visit www.aap.org*. Reporters can access the meeting program and other relevant meeting information through the AAP meeting website at* http://www.aapexperience.org/

NT

Infants Born Following SARS-CoV-2 Infection in Pregnancy

NEWS PROVIDED BY

American Academy of Pediatrics

Maria Grazia Capretti, MD, PhD; Concetta Marsico, MD; Liliana Gabrielli, MD; Caterina Vocale, PhD; Santo Arcuri, MD; Giuliana Simonazzi, MD, PhD; Anna Rita Piccinini, MD; Cristina Brandolini, MD; Tiziana Lazzarotto, PhD; Luigi Tommaso Corvaglia, MD

October 26, 2022

Objectives: To evaluate outcomes of neonates born to mothers with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection during pregnancy, the dynamics of placental transfer of maternal antibodies, and its persistence during infancy.

Methods: Cohort study enrolling neonates born to mothers with SARS-CoV-2 infection in pregnancy. All infants were evaluated at birth. Those born to women with infection onset within 2 weeks before delivery were excluded from further analyses. Remaining infants underwent cerebral and abdominal ultrasound, fundoscopy evaluation, and were enrolled in a 12 month follow-up. Qualitative immunoglobulin G (IgG)/immunoglobulin M and quantitative IgG to S1/S2 subunits of spike protein were assessed in mother-neonate dyads within 48 hours postdelivery and during follow-up.

Results: Between April 2020 and April 2021, 130 of 2745 (4.7%) neonates were born to mothers with SARS-CoV-2 infection in pregnancy, with 106 of 130 infections diagnosed before 2 weeks before delivery. Rates of preterm and cesarean delivery were comparable between women with and without infection (6% vs 8%, P = .57; 22% vs 32%, P = .06). No clinical or instrumental abnormalities were detected at birth or during follow-up. There was a positive correlation between maternal and neonatal SARS-CoV-2 IgG levels (r = 0.81, P < .001). Transplacental transfer ratio was higher after second-trimester maternal infections as compared with first and third trimester (P = .03). SARS-CoV-2 IgG level progressively decreased in all infants, with 89 of 92 (97%) infants seronegative at 6 months of age.

Conclusions: Clinical outcomes were favorable in all infants. Matching peak IgG level after infection and higher IgG transplacental transfer might result in the most durable neonatal passive immunity.

What's Known on the Subject:

In utero transmission of SARS-CoV-2 is considered rare but possible. SARS-CoV-2 infection in pregnancy has been associated with an increased risk of preterm birth, cesarean deliveries, and other adverse pregnancy outcomes. Transplacental transfer of SARS-CoV-2 maternal antibodies has been documented.

What This Study Adds:

Long-term outcomes were favorable in all SARS-CoV-2–exposed infants, including

those born to mothers with severe disease and first-trimester infections. Transplacental transfer ratio was higher after second-trimester infections. Most infants lost maternal antibodies by 6 months of age.

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Pediatrics (2022) 150 (5): e2022056206.

https://doi.org/10.1542/peds.2022-056206

SOURCE AAP

NT

US gets D+ grade for rising preterm birth rates, new report finds

NEWS PROVIDED BY

CNN Health & March of Dimes 2022 Report Card

By Jacqueline Howard

November 15, 2022

The rate of premature birth in the United States is climbing, according to the infant and maternal health nonprofit March of Dimes.

On Tuesday, the organization released its annual "report card" on maternal and infant health, which involves a newly updated calculation system. Taking an in-depth look at premature births, the new report found that the US preterm birth rate rose to 10.5% last year, representing an increase of 4% since 2020 and the worst national rate since March of Dimes started tracking this data in 2007, based on its new calculation system.

"This is actually a 15-year high in the preterm birth rate in this country," said Dr. Zsakeba Henderson, senior vice president and interim chief medical and health officer at March of Dimes.

The US preterm birth rate peaked in 2006 at 12.8%, according to data from the National Center for Health Statistics.

Since then, some March of Dimes reports have found US preterm birth rates much higher than 10.5%, but those rates were based on calculations that have since been updated, according to March of Dimes.

"There are too many babies being born too soon: 1 in 10. If you were to have 10 babies in front of you and one of them is having to face the complications that comes with prematurity, that's unacceptable, and we need to do better," Henderson said, adding that those 1 in 10 are more likely to be Black, American Indian or Alaska Native.

March of Dimes data in the new report shows that infants born to Black and Native American mothers are 62% more likely to be born preterm than those born to White women.

States with the highest and lowest rates

The new March of Dimes report also highlighted state-by-state differences in the rate of babies born prematurely across the country.

The report grades a preterm birth rate less than or equal to 7.7% as an A and a preterm birth rate greater than or equal to 11.5% as an F.

The national preterm birth rate of 10.5% is graded as a D+.

No state has achieved an A rate, and only one has a state-level preterm birth rate that would be graded as an A-: Vermont, which has the lowest preterm birth rate in the US at 8%.

Meanwhile, nine states and one territory have preterm birth rates that received an F grade: Georgia and Oklahoma with 11.9%; Arkansas, Kentucky and Puerto Rico with 12%; South Carolina with 12.1%; West Virginia with 12.8%; Alabama with 13.1%; Louisiana with 13.5%; and Mississippi with the highest preterm birth rate of all states at 15%.

"The areas that have the worst grades are the same areas we've been seeing consistently for a long time, and it's past time for us to do what we need to do to make health better and make our country a better place to give birth and be born," Henderson said. "It's unfortunate that we don't have policies in place to protect the most vulnerable in our country, and without protecting our moms and babies, we can't secure the health of everyone else."

To address these state-by-state disparities in preterm births and help improve the national preterm birth rate as a whole, March of Dimes has been advocating for certain policies, Henderson said, including the Black Maternal Health "Momnibus" Act of 2021, a sweeping bipartisan package of bills to provide pre- and postnatal support for Black mothers – but most of the bills in the package are still making their way through Congress.

March of Dimes also has been urging more states to adopt legislation expanding access to doulas and midwives, among other maternal health care services, and reduce the prevalence of maternity care deserts across the country.

How Covid-19 plays a role

There are many potential factors contributing to the nation's rising preterm birth rate, and Henderson said the Covid-19 pandemic remains one of the biggest.

"We cannot forget about the impact of the Covid-19 pandemic and recognize that there is likely a huge contribution of that, knowing that Covid-19 infection increases the risk of preterm birth," she said. "But we also know that this pandemic brought many other issues to the forefront, knowing that issues around structural racism and barriers to adequate prenatal care, issues around access, were brought to the forefront during this pandemic as well."

She added that many mothers in the United States are starting pregnancies later in life, and there has been an increase in mothers with chronic health conditions, who are at higher risk of having to give birth early due to pregnancy complications.

Henderson also said that preterm birth is one of the top causes of infant deaths and disproportionately affects babies born to women of color.

"The United States is one of the worst places to give birth and be born among industrialized countries, unfortunately. When we look at maternal deaths and infant deaths, we're at the bottom of the pack among countries with similar profiles in terms of gross domestic product," Henderson said. "It's because of our disproportionate numbers of preterm births – particularly for populations that are disproportionately impacted, such as Black families and American Indian and Alaskan Native families – that our rates are so much higher than other countries."

An 'urgent public health issue'

Globally, about 10% of births are preterm worldwide – similar to the US preterm birth rate.

About 15 million babies are born preterm each year, amounting to more than 1 in 10 of all births around the world, according to the World Health Organization, which has called prematurity an

"urgent public health issue" and "the leading cause of death of children under 5."

Separate from the March of Dimes report, WHO released new guidelines Tuesday on how nations can improve survival and health outcomes for babies born too early, at 37 weeks of pregnancy or less, or too small, at 5½ pounds or less.

These WHO recommendations advise that skin-to-skin contact, also known as kangaroo mother care, be provided to a preterm infant immediately after birth, without any initial time spent in an incubator.

"Previously, we recommended that kangaroo mother care to only be for babies that were completely stable," said pediatrician Dr. Karen Edmond, medical officer for newborn health at WHO, who was the lead on the new guidelines.

"But now we know that if we put babies in skin-to-skin contact, unless they are really critically ill, that this will vastly increase their chances of surviving," she said. "So what's new is that we now know that we should provide kangaroo mother care immediately after birth, rather than waiting until the baby's stable."

Edmond added that immediate kangaroo mother care can help infants better regulate their body temperature and help protect against infections, and she said that these guidelines are for on-the-ground health care providers as well as families.

The new WHO guidelines also recommend that emotional, financial and workplace support be provided for families of babies born too early or at low birth weights.

"Preterm babies can survive, thrive, and change the world – but each baby must be given that chance," WHO Director-General Tedros Adhanom Ghebreyesus said in a news release.

"These guidelines show that improving outcomes for these tiny babies is not always about providing the most high-tech solutions," he said, "but rather ensuring access to essential healthcare that is centered around the needs of families."

SOURCES CNN Health & March of Dimes

NT

WHO advises immediate skin to skin care for survival of small and preterm babies

NEWS PROVIDED BY

World Health Organization News Release

November 15, 2022

WHO today launched new guidelines to improve survival and health outcomes for babies born early (before 37 weeks of pregnancy) or small (under 2.5kg at birth).

The guidelines advise that skin to skin contact with a caregiver – known as kangaroo mother care – should start immediately after birth, without any initial period in an incubator. This marks a significant change from earlier guidance and common clinical practice, reflecting the immense health benefits of ensuring caregivers and their preterm babies can stay close, without being separated, after birth.

The guidelines also provide recommendations to ensure emotional, financial and workplace support for families of very small and preterm babies, who can face extraordinary stress and hardship because of intensive caregiving demands and anxieties around their babies' health.

"Preterm babies can survive, thrive, and change the world – but each baby must be given that chance," said Dr. Tedros Adhanom Ghebreyesus, WHO Director-General**.** "These guidelines show that improving outcomes for these tiny babies is not always about providing the most high-tech solutions, but rather ensuring access to essential healthcare that is centered around the needs of families."

Prematurity is an urgent public health issue. Every year, an estimated 15 million babies are born preterm, amounting to more than 1 in 10 of all births globally, and an even higher number - over 20 million babies - have a low birthweight. This number is rising, and prematurity is now the leading cause of death of children under 5.

Depending on where they are born, there

remain significant disparities in a preterm baby's chances of surviving. While most born at or after 28 weeks in high-income countries go on to survive, in poorer countries survival rates can be as low as 10%.

Most preterm babies can be saved through feasible, cost-effective measures including quality care before, during and after childbirth, prevention and management of common infections, and kangaroo mother care – combining skin to skin contact in a special sling or wrap for as many hours as possible with a primary caregiver, usually the mother, and exclusive breastfeeding.

Because preterm babies lack body fat, many have problems regulating their own temperature when they are born, and they often require medical assistance with breathing. For these babies, previous recommendations were for an initial period of separation from their primary caregiver, with the baby first stabilized in an incubator or warmer. This would take on average, around 3-7 days. However, research has now shown that starting kangaroo mother care immediately after birth saves many more lives**,** reduces infections and hypothermia, and improves feeding.

"The first embrace with a parent is not only emotionally important, but also absolutely critical for improving chances of survival and health outcomes for small and premature babies," said Dr. Karen Edmond, Medical Officer for Newborn Health at WHO**.** "Through COVID-19 times, we know that many women were unnecessarily separated from their babies, which could be catastrophic for the health of babies born early or small. These new guidelines stress the need to provide care for families and preterm babies together as a unit, and ensure parents get the best possible support through what is often a uniquely stressful and anxious time."

While these new recommendations have particular pertinence in poorer settings that may not have access to high-tech equipment, or even reliable electricity supply, they are also relevant for high-income contexts. This calls for a rethink of how neonatal intensive care is provided, the guidelines state, to ensure parents and newborns can be together at all times.

Throughout the guidelines, breastfeeding is strongly recommended to improve health outcomes for preterm and low birthweight babies, with evidence showing it reduces infection risks compared to infant formula. Where mother's milk is not available, donor human milk is the best alternative, though fortified 'preterm formula' may be used if there are no donor milk banks.

Integrating feedback from families gathered through over 200 studies, the guidelines also advocate for increased emotional and financial support for caregivers. Parental leave is needed to help families care for the infant, the guidelines state, while government and regulatory policies and entitlements should ensure families of preterm and low birthweight babies receive sufficient financial and workplace support.

Earlier this year, WHO released related recommendations on antenatal treatments for women with a high likelihood of a preterm birth. These include antenatal corticosteroids, which can prevent breathing difficulties and reduce health risks for preterm babies, as well as tocolytic treatments to delay labour and allow time for a course of corticosteroids to be completed. Together, these are the first updates to WHO's preterm and low birth weight guidelines since 2015.

The guidelines were released ahead of World Prematurity Day, which is marked every year on 17th of November.

SOURCE WHO News

NT

Pfizer Announces Positive Top-Line Data of Phase 3 Global Maternal Immunization Trial for its Bivalent Respiratory Syncytial Virus (RSV) Vaccine Candidate

Tuesday, November 01, 2022 - 06:30am

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- *Vaccine efficacy of 81.8% was observed against severe medically attended lower respiratory tract illness due to RSV in infants from birth through the first 90 days of life with high efficacy of 69.4% demonstrated through the first six months of life*
- *The RSVpreF investigational vaccine was well-tolerated with no safety concerns for both vaccinated individuals and their newborns*
- *Results met one of the study protocol's pre-specified regulatory success criteria, and Pfizer plans to submitits first regulatory application by end of 2022*
- *If approved, Pfizer's RSV vaccine candidate could be the first maternal vaccine available to help prevent this common and potentially life-threatening respiratory illness in young infants*
- *Pfizer currently the only company with an investigational vaccine being prepared for regulatory applications for both infants through maternal immunization and older adults to help protect against RSV*

NEW YORK--(BUSINESS WIRE)-- Pfizer Inc. (NYSE: PFE) today announced positive top-line data from the Phase 3 clinical trial (NCT04424316) **MATISSE** (**MAT**ernal **I**mmunization **S**tudy for **S**afety and **E**fficacy) investigating its bivalent RSV prefusion vaccine candidate, RSVpreF or PF-06928316, when administered to pregnant participants to help protect their infants from RSV disease after birth.

The pre-planned, interim efficacy analysis conducted by an external and independent Data Monitoring Committee (DMC) met the success criterion for one of two primary endpoints. The observed efficacy for severe medically attended lower respiratory tract illness (severe MA-LRTI) was 81.8% (CI: 40.6%, 96.3%) through the first 90 days of life. Substantial efficacy of 69.4% (CI: 44.3%, 84.1%) was demonstrated for infants over the six-month follow-up period.

Although the statistical success criterion was not met for the second primary endpoint, clinically meaningful efficacy was observed for MA-LRTI of 57.1% (CI: 14.7%, 79.8%) in infants from birth through the first 90 days of life. Efficacy for MA-LRTI of 51.3% (CI: 29.4%, 66.8%) was observed over the six-month follow up period.

Pre-planned safety reviews conducted at regular intervals throughout the duration of the study by the DMC also indicate the investigational vaccine is well-tolerated with no safety concerns for both the vaccinated individuals and their newborns.

"We are thrilled by these data as this is the first-ever investigational vaccine shown to help protect newborns against severe RSV-related respiratory illness immediately at birth," said Annaliesa Anderson, Ph.D., Senior Vice President and Chief Scientific Officer, Vaccine Research & Development, Pfizer. "These data reinforce Pfizer's resolve to bring our expertise in the research and development of innovative vaccines to address critical public health needs using new approaches and technologies. We look forward to working with the FDA and other regulatory agencies to bring this vaccine candidate to expectant mothers to help protect their infants against severe RSV during their most vulnerable first six months of life, which has the highest burden of RSV illness in infants. We would like to thank the pregnant women who volunteered for this trial, along with their infants, and all the investigators around the world who participated in the study for their contribution to this landmark research."

At the recommendation of the DMC, and in consultation with the U.S. Food and Drug Administration (FDA), Pfizer has stopped enrollment in the study. Based on these positive results Pfizer plans to submit a Biologics License Application (BLA) to the FDA by the end of 2022 for the vaccine candidate followed by other regulatory authorities in the coming months.

"Every year we see high levels of RSV cases among babies in the U.S. with some regions reporting hospital admission rates higher than normal this year," said Eric A.F. Simões, M.D., Clinical Professor, Pediatrics-Infectious Diseases, University of Colorado School of Medicine and Children's Hospital Colorado, Aurora. "A maternal vaccine with high efficacy that can help protect infants from birth could substantially reduce the burden of severe RSV among newborns through six months of age, and, if approved by regulatory authorities, will likely have a significant impact on disease in the U.S. and globally."

MATISSE is an ongoing randomized, double-blinded, placebo-controlled Phase 3 study designed to evaluate the efficacy, safety, and immunogenicity of RSVpreF against medically attended lower respiratory tract illness (MA-LRTI) and severe MA-LRTI in infants born to healthy women vaccinated during pregnancy. The study enrolled approximately 7,400 pregnant individuals. Maternal participants ≤ 49 years of age were randomized in a 1:1 ratio to receive a single dose of either 120 µg of Pfizer's RSVpreF or placebo during the late second to third trimester of their pregnancy. The trial also assessed safety throughout the study and immunogenicity of the vaccine in pregnant individuals and their infants. Maternal participants were followed for safety through vaccination and for six months after delivery. Infants were followed for at least one year for safety and efficacy, with over half of the infants followed for two years. This was a global study in 18 countries and started in June 2020, so it spanned multiple RSV seasons in both the northern and southern hemisphere.

Pfizer intends to submit these results for peer-review in a scientific journal.

On March 2, 2022, Pfizer announced that its vaccine candidate received Breakthrough Therapy Designation from the FDA for the prevention of RSV-associated lower respiratory tract disease in infants up to six months of age by active immunization of pregnant women. The FDA designation was informed by the results of the Phase 2b proof-of-concept study of RSVpreF (NCT04032093), which evaluated the safety, tolerability and immunogenicity of RSVpreF in vaccinated pregnant women ages 18 through 49 and their infants. This followed the FDA's November 2018 decision to grant Fast Track status to RSVpreF.

Burden of RSV in Infants

RSV is a contagious virus and a common cause of respiratory illness.[1] The virus can affect the lungs and breathing passages of an infected individual and can be potentially life-threatening for young infants, persons with certain chronic medical conditions, and older adults.[2,3,4,5] In the United States alone, approximately 2.1 million outpatient visits and 58,000 hospitalizations due to RSV occur each year among children younger than five years old.[6,7] Worldwide, RSV results in death of approximately 102,000 children annually, with about half of those in infants less than 6 months old and the vast majority in developing countries.[8,9]

RSV bronchiolitis is the leading cause of infant hospitalization due to viral respiratory illness, characterized by respiratory distress that can result in death. There is no specific treatment for RSV, only supportive care measures like oxygen and fluids. Currently there is no vaccine to prevent RSV. The only available preventive agent is recommended for use in limited settings in the highest-risk infants as a monthly injection with 5 doses administered during the RSV season, leaving most infants without protection.

About RSVpreF

Pfizer's investigational RSV vaccine candidate builds on foundational basic science discoveries including those made at the National Institutes of Health (NIH), which detailed the crystal structure of prefusion F, a key form of the viral fusion protein (F) that RSV uses to enter human cells. The NIH research showed that antibodies specific to the prefusion form were highly effective at blocking virus infection, suggesting a prefusion F-based vaccine may confer optimal protection against RSV. After this important discovery, Pfizer tested numerous versions of a stabilized prefusion F protein and identified a candidate that elicited a strong anti-viral immune response in pre-clinical evaluations. The bivalent vaccine candidate is composed of equal amounts of recombinant RSV prefusion F from subgroups A and B.

Pfizer is currently the only company with an investigational vaccine being prepared for regulatory applications for both infants through maternal immunization and older adults to help protect against RSV. In August 2022, Pfizer announced positive top-line results of an interim analysis for **RENOIR** (**R**SV vaccine **E**fficacy study i**NO**lder adults **I**mmunized against **R**SV disease), a Phase 3 clinical trial (NCT05035212) evaluating the efficacy, immunogenicity, and safety of a single dose of RSVpreF, in adults ages 60 years or older. This study was initiated in September 2021 and remains ongoing. RENOIR and MATISSE assessed severe LRTI differently among the distinct study populations of older adults and infants, respectively.

In March 2022, Pfizer announced RSVpreF received Breakthrough Therapy Designation from the U.S. Food and Drug Administration (FDA) for the prevention of RSV-associated lower respiratory tract disease caused by RSV in individuals 60 years of age or older. The FDA designation was primarily informed by the positive results of a proof-of-concept, Phase 2a study evaluating the safety, immunogenicity, and efficacy of a single dose of 120 µg RSVpreF in a human viral challenge model in healthy adults 18 to 50 years of age.

About Pfizer: Breakthroughs That Change Patients' Lives

At Pfizer, we apply science and our global resources to bring therapies to people that extend and significantly improve their lives. We strive to set the standard for quality, safety and value in the discovery, development and manufacture of health care products, including innovative medicines and vaccines. Every day, Pfizer colleagues work across developed and emerging markets to advance wellness, prevention, treatments and cures that challenge the most feared diseases of our time. Consistent with our responsibility as one of the world's premier innovative biopharmaceutical companies, we collaborate with health care providers, governments and local communities to support and expand access to reliable, affordable health care around the world. For more than 170 years, we have worked to make a difference for all who rely on us. We routinely post information that may be important to investors on our website at www.Pfizer.com. In addition, to learn more, please visit us on www.Pfizer.com and follow us on Twitter at @Pfizer and @Pfizer News, LinkedIn, YouTube and like us on Facebook at Facebook.com/Pfizer.

DISCLOSURE NOTICE:

The information contained in this release is as of November 1, 2022. Pfizer assumes no obligation to update forward-looking statements contained in this release as the result of new information or future events or developments.

This release contains forward-looking information about Pfizer's respiratory syncytial virus vaccine candidate (RSVpreF), including its potential benefits and planned regulatory submissions, that involves substantial risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Risks and uncertainties include, among other things, the uncertainties inherent in research and development, including the ability to meet anticipated clinical endpoints, commencement and/or completion dates for our clinical trials, regulatory submission dates, regulatory approval dates and/or launch dates, as well as the possibility of unfavorable new clinical data and further analyses of existing clinical data; risks associated with interim data; including the risk that final results from the Phase 3 trial could differ from the interim data discussed in this release; the risk that clinical trial data are subject to differing interpretations and assessments by regulatory authorities; whether regulatory authorities will be satisfied with the design of and results from our clinical studies; whether and when biologic license applications may be filed in any jurisdictions for RSVpreF for any potential indications (including the planned BLA submission in the U.S.); whether and when any such applications may be approved by regulatory authorities, which will depend on myriad factors, including making a determination as to whether the product's benefits outweigh its known risks and determination of the product's efficacy and, if approved, whether RSVpreF will be commercially successful; decisions by regulatory authorities impacting labeling, manufacturing processes, safety and/or other matters that could affect the availability or commercial potential of RSVpreF; uncertainties regarding the ability to obtain recommendations from vaccine advisory or technical committees and other public health authorities regarding RSVpreF and uncertainties regarding the commercial impact of any such recommendations; uncertainties regarding the impact of COVID-19 on our business, operations and financial results; and competitive developments.

A further description of risks and uncertainties can be found in Pfizer's Annual Report on Form 10-K for the fiscal year ended December 31, 2021 and in its subsequent reports on Form 10-Q, including in the sections thereof captioned "Risk Factors" and "Forward-Looking Information and Factors That May Affect Future Results", as well as in its subsequent reports on Form 8-K, all of which are filed with the U.S. Securities and Exchange Commission and available at www.sec.gov and www.pfizer.com.

[Category: Vaccines]

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Genetics Corner: A Neonatal Case of Shwachman-Diamond Syndrome with Prominent Skeletal Anomalies Diagnosed by Whole Exome Sequencing

Hua Wang M.D., Ph.D, Subhadra Ramanathan M.S., Faith Hamamura M.D, PGY-2, Robin Clark M.D

"Ilnitial echocardiogram revealed a small patent ductus arteriosus, moderate to severe elevation of pulmonary pressures, mild dilatation of the right ventricle, and mild hypertrophy of the right ventricle that later resolved on repeat echocardiogram. Chest x-ray findings were significant for a small thoracic cage concerning for asphyxiating thoracic dystrophy. Genetics consultation was requested."

Case History:

This is a 16-day-old male born at 36w4d via repeat C-section to a 38-year-old G9P3 mother. Prenatal history was significant for polyhydramnios, maternal UDS positive for marijuana use, and concern for cigarette smoking. Mother has a history of 4 spontaneous abortions and 2 ectopic pregnancies. GBS status was unknown. Prenatal labs were otherwise unremarkable. He was admitted to the referring hospital for one day and required CPAP due to acute respiratory distress and concern for cardiomegaly with a Grade III-IV murmur. Initial echocardiogram revealed a small patent ductus arteriosus, moderate to severe elevation of pulmonary pressures, mild dilatation of the right ventricle, and mild hypertrophy of the right ventricle that later resolved on repeat echocardiogram. Chest x-ray findings were significant for a small thoracic cage concerning for asphyxiating thoracic dystrophy. Genetics consultation was requested.

Genetic Evaluation:

A genetics consult was requested. The initial genetic consult was conducted when the infant was 16 days old. The dysmorphic features were noticed. The baby has frontal bossing, down slanting of the palpebral fissures, and deep-set eyes. The left ear helix appears thin and misshapen, broad nasal bridge, micrognathia, redundant skin fold, decreased chest diameter (see Figure 1), and sacral dimple. The X-ray suggests the possibility of asphyxiating thoracic dystrophy (see Figure 2, 3).

"Genetic consultations were requested. The initial genetic evaluation considered 1) Kagami-Ogata syndrome and 2) Asphyxiating thoracic dystrophy or Jeune syndrome. The chromosome microarray was normal, the skeletal dysplasia gene panel was non-diagnostic, and the uniparental disomy (UPD) study for chromosome 14 was negative."

The family history was significant for recurrent pregnancy losses in parents. A 13-year-old sister was born with a pelvic kidney but was otherwise healthy. A paternal uncle died at age 2 of liver failure of unknown etiology. A paternal half-aunt and both of her children have a mental illness, as did the paternal grandmother. A maternal first cousin, once removed, also had recurrent pregnancy losses and a son with birth defects and autism. There was no other family history of skeletal dysplasia, other birth defects, early infant deaths, intellectual disability, or known genetic disorders. Parents were of Caucasian ancestry.

"There was no other family history of skeletal dysplasia, other birth defects, early infant deaths, intellectual disability, or known genetic disorders."

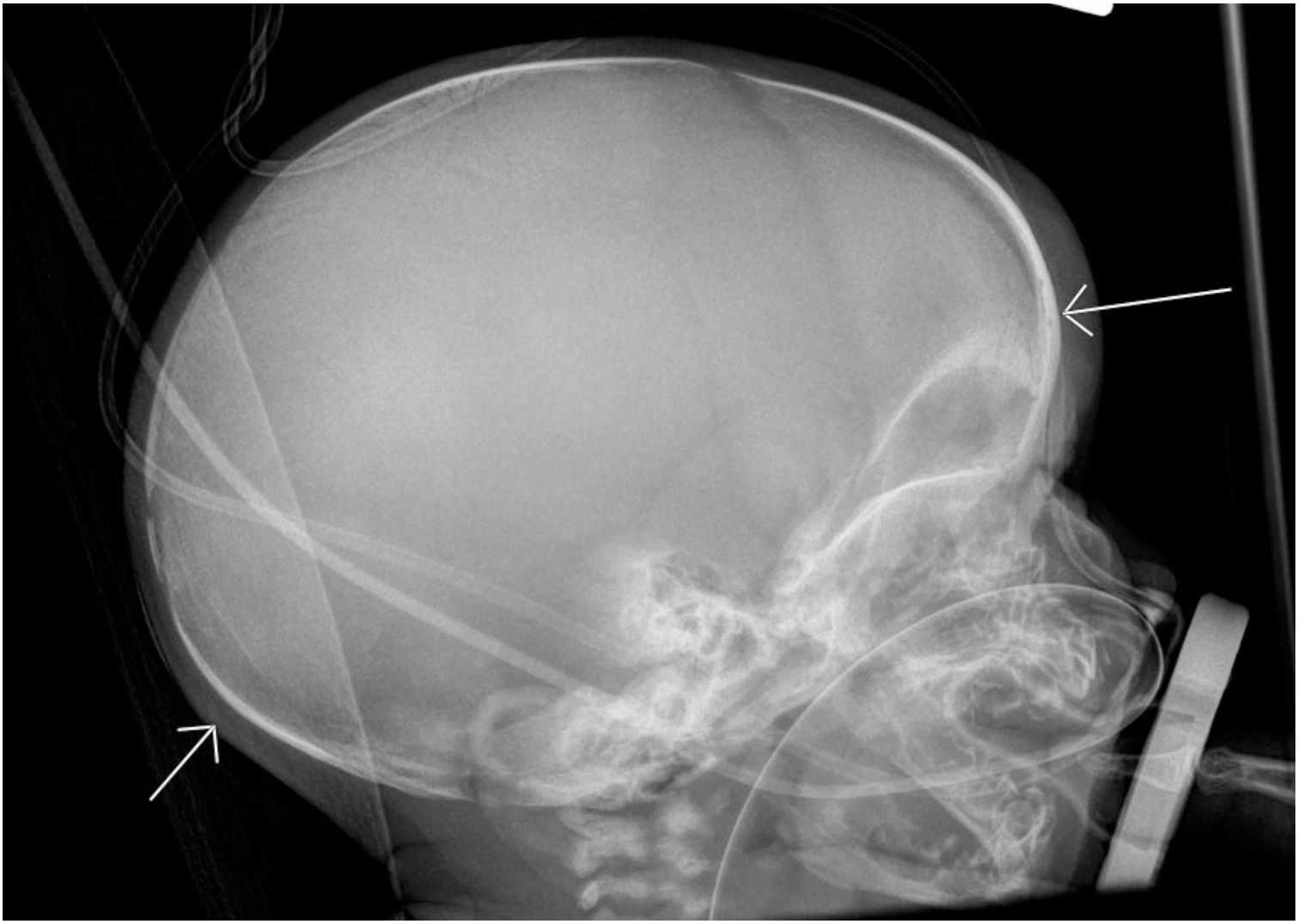


Figure 1. Mild scaphocephalic shape of the skull.

The initial differential diagnoses included 1) Kagami-Ogata syndrome; 2) Asphyxiating thoracic dystrophy, or Jeune syndrome 3) Chromosome abnormality.

Chromosome microarray analysis was normal, and a skeletal dysplasia gene panel was non-diagnostic. The patient was readmitted three months later due to 3 episodes of seizure-like activities. Genetics was again consulted. This time, uniparental disomy 14 testing was completed to evaluate for Kagami-Ogata syndrome and was negative. Trio Whole Exome Sequencing (WES) was then recommended.

"Chromosome microarray analysis was normal, and a skeletal dysplasia gene panel was non-diagnostic. The patient was readmitted three months later due to 3 episodes of seizure-like activities."

At five months of age, he failed to thrive and was being assessed for G-tube placement.

"The whole exome sequencing (trio) was performed and detected compound heterozygosity for two likely pathogenic genetic variants in the SBDS gene, consistent with a diagnosis of Shwachman-Diamond syndrome. "

Whole exome sequencing (WES) revealed that the patient has two different pathogenic variants (mutations), one on each copy of the *SBDS* gene (see Figure 4). The maternally inherited variant c.258+2T>C is predicted to disrupt the GT donor site and interfere with normal splicing. This variant has been reported in the homozygous and compound heterozygous states in individuals with Shwachman-Diamond Syndrome. The paternally-inherited variant, c.183_184delinsCT, is predicted to result in premature protein termination (p.Lys62*). This variant has been reported in many patients with Shwachman-Diamond Syndrome when found with

another pathogenic variant. Currently, in ClinVar, 11 pathogenic and 11 likely pathogenic variants are curated.

Whole Exome Sequencing Result

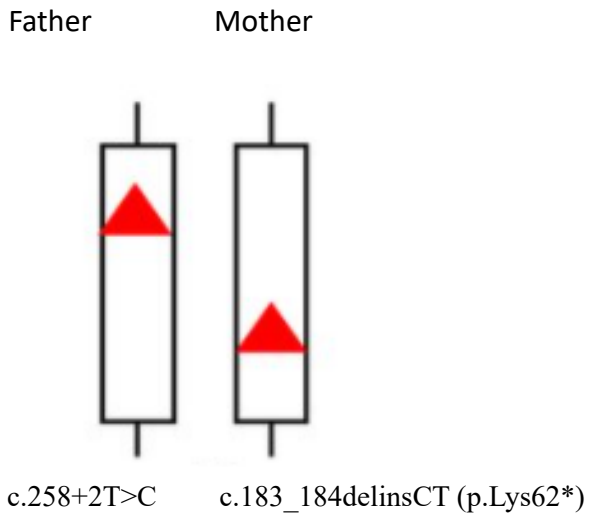


Figure 3: Compound heterozygotes with two likely pathogenic variants in SBDS were detected; parental testing confirmed one variant was inherited from each parent.

"SDS is a rare autosomal recessive, multisystem disease. SDS presents with exocrine pancreatic insufficiency, impaired hematopoiesis, and a predisposition for the development of leukemia. Skeletal, immunologic, hepatic, and cardiac disorders have been described. (1)"

Discussion:

SDS clinical presentations:

SDS is a rare autosomal recessive, multisystem disease. SDS presents with exocrine pancreatic insufficiency, impaired hematopoiesis, and a predisposition for the development of leukemia. Skeletal, immunologic, hepatic, and cardiac disorders have been described. (1)

Neutropenia is the most common hematologic abnormality affecting 88–100% of patients with SDS. Anemia has also been described in 42%–82% of patients. Thrombocytopenia has been reported in 24%–88% of patients. Patients with SDS have an increased risk for myelodysplasia and malignant transformation, particularly the development of acute myelogenous leukemia. Patients with SDS are susceptible to recurrent bacterial, viral, and fungal infections. Neutropenia is likely a contributing factor. SDS can present with exocrine pancreatic dysfunction of varying severities. This dysfunction is caused by the absence of acinar cells in early infancy leading to malabsorption, steatorrhea, failure to thrive, and low levels of fat-soluble vitamins A, D, E, and K. Patients with SDS have normal sweat chloride tests. This feature distinguishes them from patients with cystic fibrosis whose pancreatic defect involves the exocrine pancreatic ducts. Several case reports have described SDS associated with neonatal cardiac issues. (2, 3)

"Patients with SDS have normal sweat chloride tests. This feature distinguishes them from patients with cystic fibrosis whose pancreatic defect involves the exocrine pancreatic ducts."

The Skeletal Phenotype in Patients with SDS

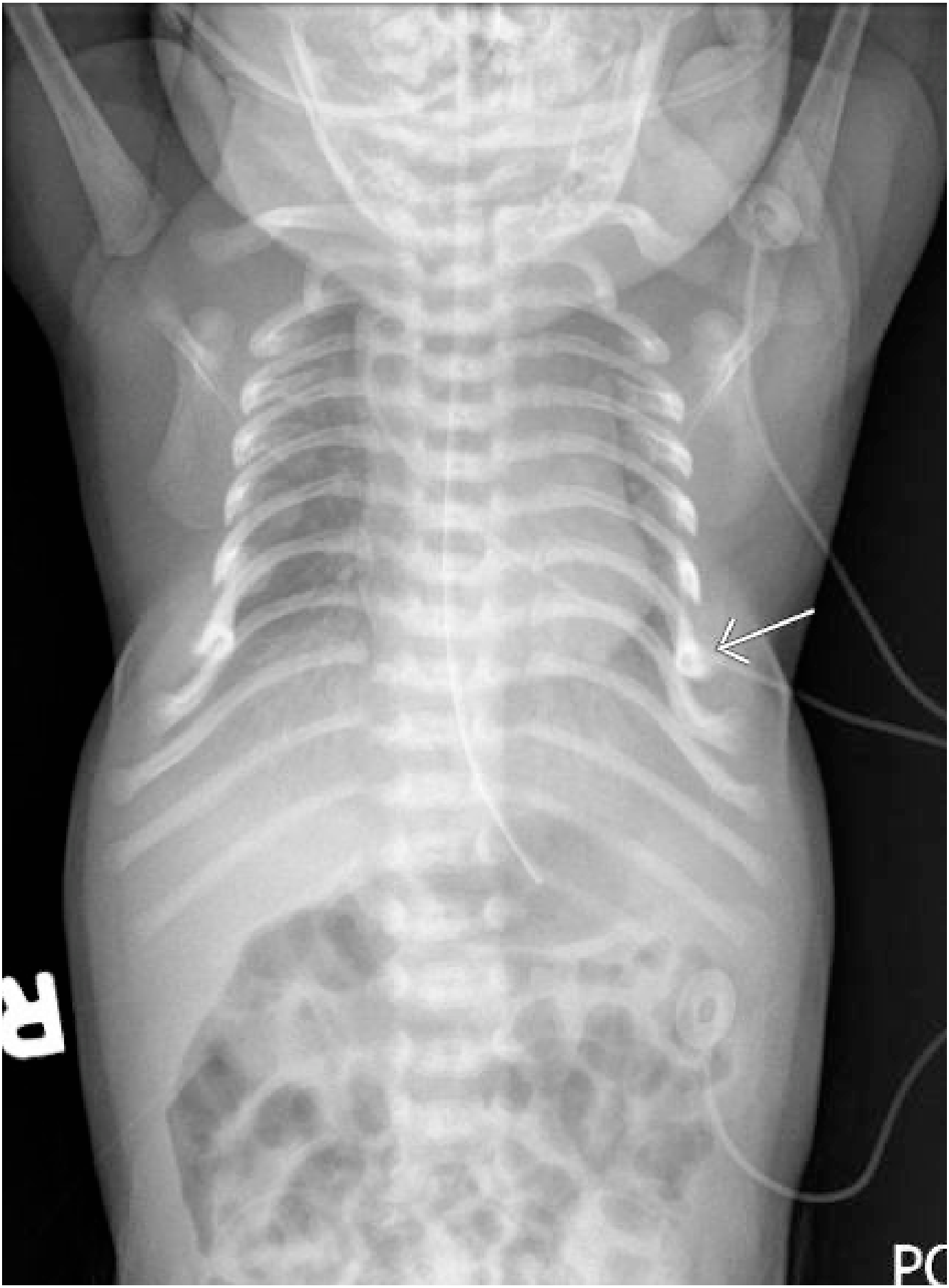
While pancreatic exocrine and bone marrow dysfunctions are considered universal features of SDS, the associated skeletal dysplasia is variable and not consistently observed. (4) The primary skeletal defect is abnormal growth plate development. The metaphyses are profoundly affected. Metaphyseal dysostosis has been reported in roughly 50% of the patients, is usually asymptomatic, and most commonly involves the femoral head. (5, 6) The knees, humeral heads, wrists, ankles, and vertebrae may also be affected. Rib-cage abnormalities are found in 30%–50% of patients, including narrow rib cage, shortened ribs with flared anterior ends, and costochondral thickening. Case reports have described respiratory failure in newborns due to these rib cage abnormalities. (2)

" After the diagnosis was made, almost one year after the initial genetics consult, the laboratory workup showed he had moderate pancreatic insufficiency with low pancreatic elastase. He is on supplemental pancreatic lipase (Creon), started by peds GI right after diagnosis, and has no hematological abnormalities."

Neonatal SDS

While the diagnosis of SDS has classically relied on exocrine pancreatic dysfunction and bone marrow failure, a publication based on the North American SDS Registry reported that almost half of 37 individuals with genetically confirmed SDS did not have this classic combination of manifestations

The typical clinical, laboratory, and imaging features of SDS are often lacking in the first months of life, which may delay diagnosis. (7) A few cases of SDS presentation and molecular diagnosis have been documented in the first months of life (8, 9) and



misdiagnosed as asphyxiating thoracic dystrophy. (9) Our case presented with prominent skeletal phenotype with an X-ray image suggesting asphyxiating thoracic dystrophy. After the diagnosis was made, almost one year after the initial genetics consult, the laboratory workup showed he had moderate pancreatic insufficiency with low pancreatic elastase. He is on supplemental pancreatic lipase (Creon), started by peds GI right after diagnosis, and has no hematological abnormalities.

"After the diagnosis was made, almost one year after the initial genetics consult, the laboratory workup showed he had moderate pancreatic insufficiency with low pancreatic elastase. He is on supplemental pancreatic lipase (Creon), started by peds GI right after diagnosis, and has no hematological abnormalities."

Practical Applications

1. Shwachman–Diamond syndrome (SDS, MIM 260400) is an autosomal recessive disorder characterized by exocrine pancreatic dysfunction, bone marrow failure, skeletal abnormalities, short stature, and a variety of other less common features.
2. Pancreatic exocrine and bone marrow dysfunctions are considered universal features of Shwachman–Diamond syndrome (SDS), whereas the associated skeletal dysplasia is variable and not consistently observed.
3. In addition to the pancreatic and bone marrow insufficiency, the skeletal manifestations should be considered an integral diagnostic feature of the syndrome and carefully assessed with a complete skeletal survey at presentation.
4. The typical clinical, laboratory, and imaging features of SDS are often lacking in the first months of life, which may delay diagnosis.
5. Skeletal dysplasia mimicking asphyxiating thoracic dystrophy with respiratory failure could be the major presentation in an infant with SDS.
6. Whole exome sequencing is a powerful tool for the early diagnosis of SDS for atypical presentations essential for the neonate.

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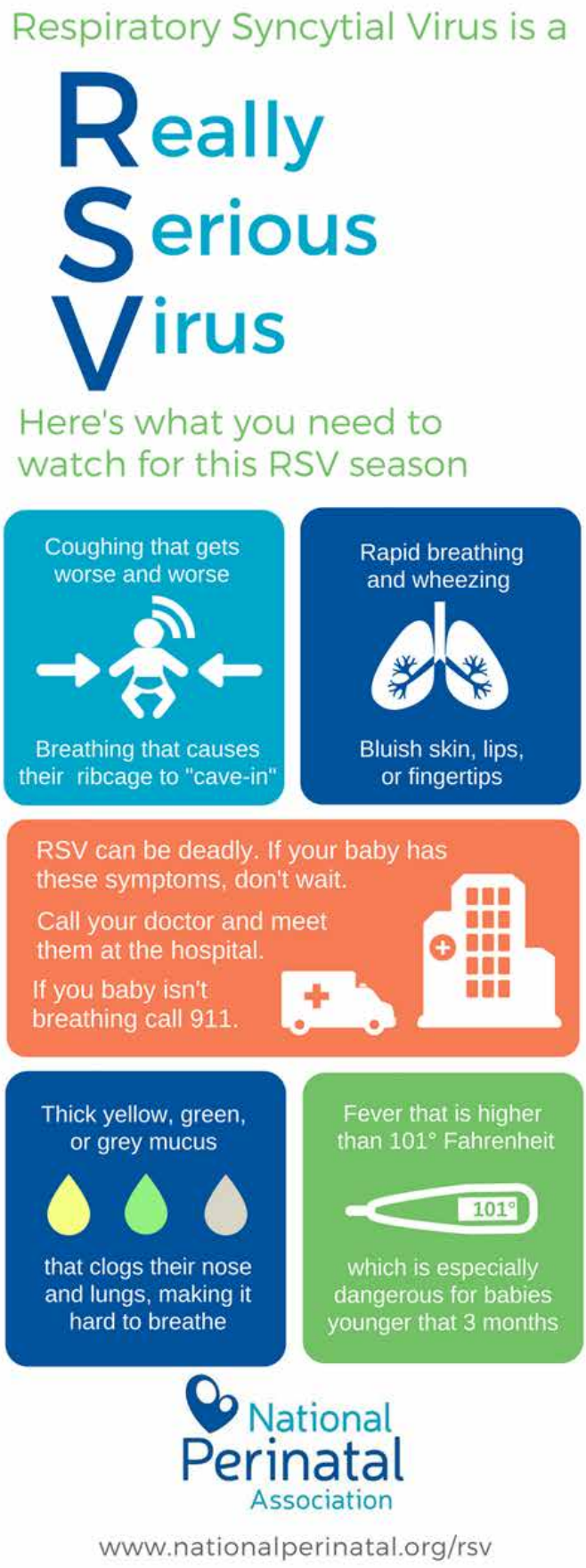


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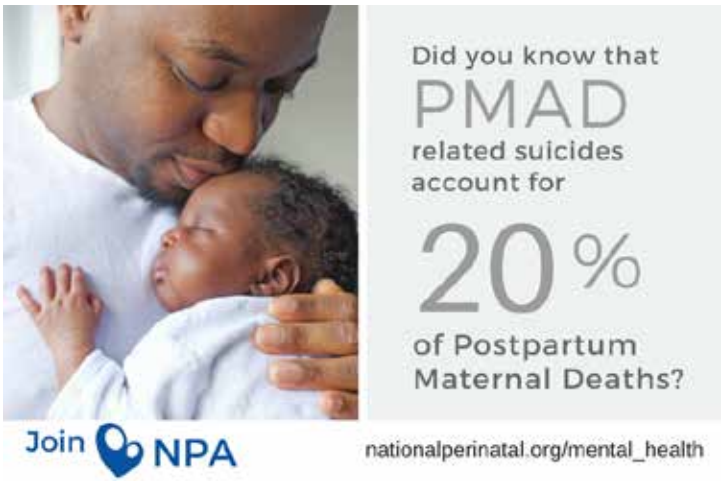
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PMAD
related suicides
account for
20%
of Postpartum
Maternal Deaths?
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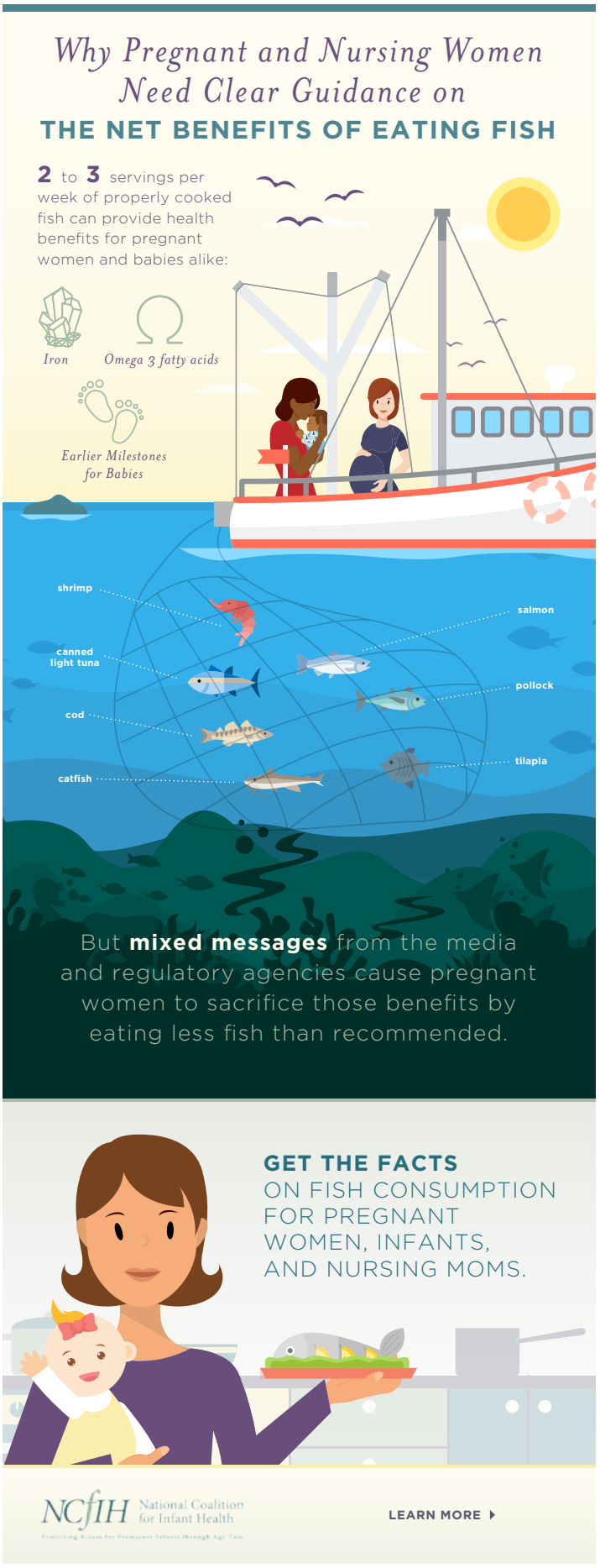
Why Pregnant and Nursing Women
Need Clear Guidance on
THE NET BENEFITS OF EATING FISH
2 to 3 servings per
week of properly cooked
fish can provide health
benefits for pregnant
women and babies alike:
Iron
Omega 3 fatty acids
Earlier Milestones
for Babies
shrimp
salmon
canned
light tuna
pollock
cod
tilapia
catfish
But mixed messages from the media
and regulatory agencies cause pregnant
women to sacrifice those benefits by
eating less fish than recommended.
GET THE FACTS
ON FISH CONSUMPTION
FOR PREGNANT
WOMEN, INFANTS,
AND NURSING MOMS.
NCfIH National Coalition
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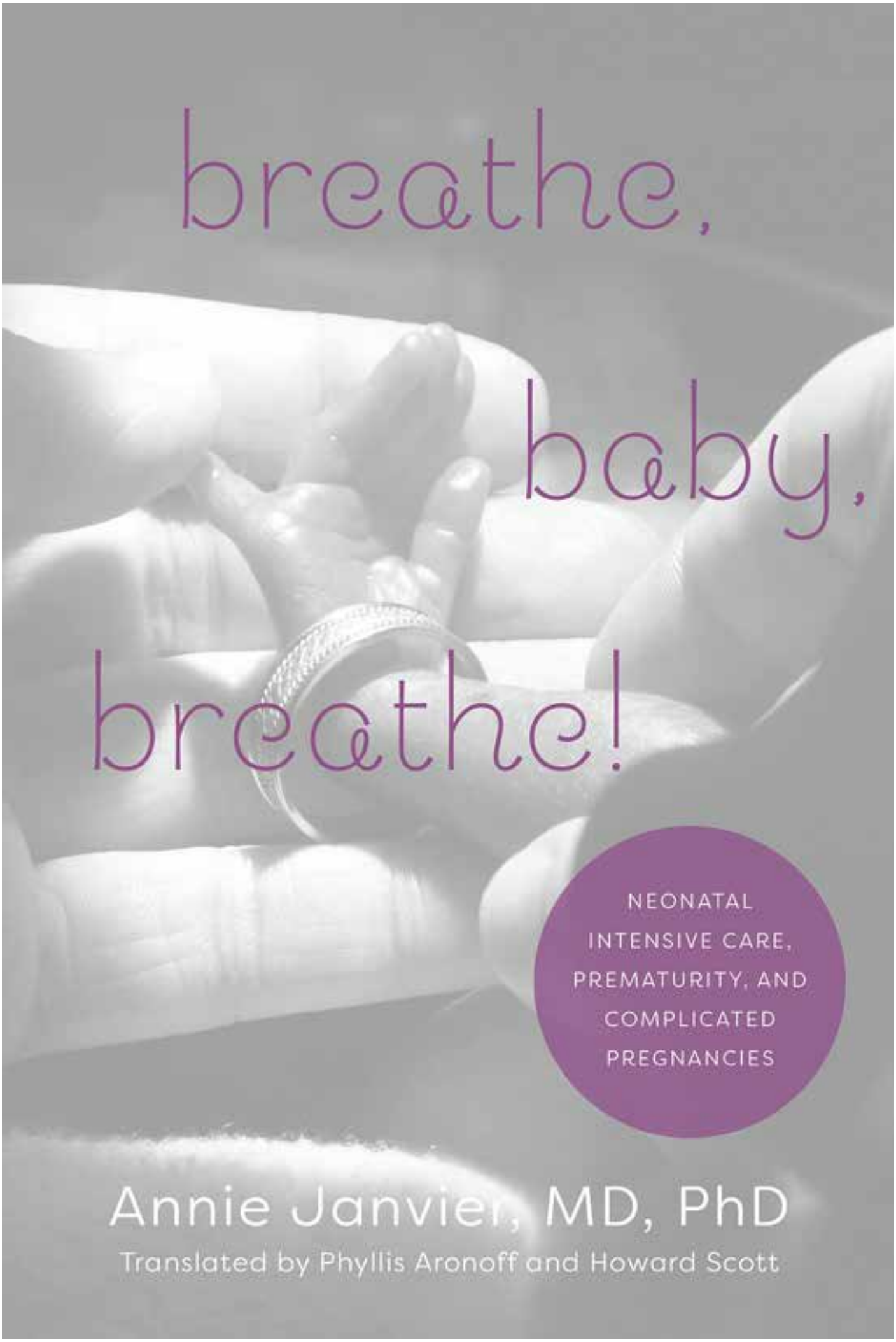


breathe, baby, breathe!

NEONATAL INTENSIVE CARE, PREMATURITY, AND COMPLICATED PREGNANCIES

Annie Janvier, MD, PhD

Translated by Phyllis Aronoff and Howard Scott

Vaccines and Preventive Monoclonal Antibodies

WHAT'S THE DIFFERENCE?

The Importance of Immunization

Vaccines and preventive monoclonal antibodies are two different types of immunization. While they function differently, they both serve the same purpose: protecting people from serious illnesses and diseases.

Different Technology, Same Protective Value

AfPA

https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work#:~:text=Vaccines%20contain%20weakened%20or%20inactive,rather%20than%20the%20antigen%20itself.

https://static1.squarespace.com/static/5523fcf7e4b0fef011e668e6/t/62445afd0134140ff954f3f6/1648646910485/NCIIH_Monoclonal+Antibodies+Inclusion+in+the+VFC+Program_Position+Paper_Mar+2022.pdf

VACCINES	PREVENTIVE MONOCLONAL ANTIBODIES
Teach the body to create antibodies that fight off a specific disease.	Introduce antibodies that are ready to ward off disease in the body.
How does it work?	
By introducing an inactive piece of a disease or proteins that look like the disease, they trigger an immune response, training the body to create antibodies that defeat the disease.	Instead of teaching the body to create antibodies and defenses, they provide antibodies that are readily available.
Both support the immune system's defenses.	
What are the benefits?	
Many vaccines are readily and easily available. The technology behind vaccines has been around for decades.	Preventive monoclonal antibodies can provide protection for diseases where there isn't an existing vaccine or there isn't an existing vaccine for certain patient groups.
Both protect against disease and provide a public health benefit by decreasing the burden of disease.	
What can this immunization protect against?	
Polio Measles COVID-19 And more	RSV COVID-19
Both can provide tailored protection from a variety of diseases.	
Is it safe?	
Yes	Yes
Both vaccines and preventive monoclonal antibodies undergo extensive testing for safety and efficacy.	

READ NPA's statement: BLACK LIVES MATTER

Peer Reviewed

2022

Infant Health Policy Summit

Susan Hepwoth, Mitchell Goldstein, MD, MBA, CML

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

AfPA Alliance for Patient Access

IfPA Institute for Patient Access

Overview

The eighth annual Infant Health Policy Summit welcomed health care providers, parents, policymakers, advocates and other stakeholders to explore how policy solutions can improve the health and lives of infants and their families.

This year's event, held both in-person and virtually, examined issues such as:

- The Black maternal health crisis
- RSV preventive interventions
- Parents as partners in their baby's care
- Donor human milk quality and safety
- Drug, formula and product shortages

Christy Gliniak, PhD, the communications manager for the National Association of Neonatal Therapists, delivered opening remarks. She called for advocates, parents and other stakeholders to unite in their efforts of promoting infant health.

"Not all babies are born with the same advantages, and not all parents are prepared or equipped to advocate for their child. That's where we come in," she explained, emphasizing the need to continue advocating even when there may be challenges. "It requires us to constantly push forward," she urged, "not letting up until the job is done."

She called on advocates to increase cooperation to create a better future for infants, citing the summit as a starting point. "It's a launchpad for advocacy, giving us fresh perspective, new information and valuable insights."

The Infant Health Policy Summit, which included a series of panel discussions, pre-recorded testimonials and one-on-one interviews, was convened by the National Coalition for Infant Health and co-hosted by the Alliance for Patient Access and the Institute for Patient Access.

Congressional Update

U.S. Rep. Alma S. Adams, PhD
Member of Congress

Black maternal health suffered during the COVID-19 pandemic, with barriers impacting Black women's ability to receive quality care. U.S. Rep. Adams urged policymakers and advocates to put aside partisan differences to overcome this crisis.

The congresswomen used her keynote speech to stress the importance of quality care. Black moms face significant disparities at all stages of pregnancy, Rep. Adams explained, from prenatal care to after delivery. Black maternal mortality and morbidity are significantly higher in the United States than other developed countries, the congresswoman pointed out. She also described how families have lost too many Black moms to medical mistakes during or after childbirth.

> ***"Black women are three times more likely to die of pregnancy-related causes than white women are."***

To address the challenges that Black women face, Rep. Adams introduced the Black Maternal Health Momnibus Act of 2021, a bipartisan bill aiming to invest in social determinants of health that influence maternal health outcomes. It would also invest in federal programs that address the pregnancy-associated risks of COVID-19.

"We have the policy solutions to this crisis, so there is no excuse for inaction," the congresswoman said. She requested that policymakers diversify the prenatal workforce and improve data collection.

The congresswoman envisions the creation of a taskforce that works to close the care gap that Black moms face, identifying federal resources to support new mothers among other tactics. She explained that some mothers haven't enjoyed normal prenatal care or moral support from family and friends since the pandemic started.

Rep. Adams urged advocates to speak out against these injustices and push members of Congress to act. "The Black maternal health crisis is preventable," she reminded summit attendees, noting that, with the right policies, the United States can improve the state of Black maternal health.

Finding Solutions to the Black Maternal Health Crisis

This year's summit took a deeper look into the root causes of the Black maternal health crisis to identify effective solutions.

Valencia Walker, MD, MPH

Nationwide Children's Hospital

Dr. Walker stressed the Black maternal health crisis is worsened by Black moms' suffering the ongoing effects of racism.

> ***"It is important to understand that whatever affects the pregnant woman also affects the baby."***

Health implications to the baby are exacerbated when Black moms suffer from subpar maternal health care, in addition to the stress placed on the mother while dealing with the impacts of racism in everyday life.

"As a clinician, I want them to have the best possible care," Dr. Walker stated. Fellow providers can fill these gaps in care by partnering with maternal health advocacy groups, reviewing their internal biases and examining the impacts of all social determinants on every mother's health.

Kanika Harris, PhD, MPH

Black Women's Health Imperative

Dr. Harris shared her story as a mom who lost twins at 32 weeks and experienced postpartum depression. Her struggles gave her firsthand insight into the immense difficulties Black mothers face. The way Black women are treated by the maternal health care system may vary, from receiving disrespectful care to clinical inertia to being implicitly blamed for being high risk.

The impacts of racism influence Black mothers' everyday lives. "Either you're succumbing to racism or you're trying to overcome it," Dr. Harris emphasized. Being at a clinic or hospital doesn't change that fact of life. Policies that support Black mothers, such as trainings that help providers eliminate the harm caused by bias and structural changes in hospitals, are needed to resolve the crisis.

Redefining the Essential Care Team for Babies

Michael Hynan, PhD

Retired Clinical Psychologist

Dr. Hynan described his experience as a parent whose child was admitted to the NICU. His son's birth significantly altered the direction of his research, and he began studying post-traumatic stress disorder in the parents of NICU babies.

> *"Trauma is real and can have long-lasting effects."*

There are avenues to mitigate families' distress, however. Including mental health professionals in the NICU is an important first step, Dr. Hynan emphasized. The main focus of any approach to infant health should be focusing on the family's health, rather than simply placing the baby in isolation. Parents play an integral role as members of that baby's care team, and NICUs should recalibrate with that in mind.

Wakako Minamoto Eklund, DNP

Council of International Neonatal Nurses

Wakako Minamoto Eklund discussed the pandemic practice of separating babies from COVID-positive mothers and imposing restrictions on contact with family. It became normal, and thereby comfortable, for many health care professionals to keep parents and the babies separated. In Europe and the United States, however, many hospitals are working to eliminate that separation.

> ***"Parents should be defined as essential caregivers."***

She also spoke in favor of letting parents be with their children in the NICU and other health care settings.

Language and cultural barriers also present a challenge in the United States, Eklund explained. Nurses and hospital staff may speak to families less if there is not a shared language or if parents are not fluent. The lack of communication can worsen social isolation that many families already experience. She suggested that translators who encourage families, in addition to providing both medical updates, can help bridge this divide.

Nicole Nyberg, MSN

Novant Healthcare

Nicole Nyberg described how the hospital protocols established during the pandemic have created a space where providers now expect parents to be less present. But separation can have lasting effects for families, she explained. Babies lose out on early skin-to-skin contact and initial bonding experiences with their parents, which can impact their development.

Parents should be allowed into the NICU and other hospital spaces, Nyberg made clear. "They will do skin-to-skin care. They will begin to bond, which we know positively affects the neurodevelopmental outcomes of the baby and the family unit as a whole," Nyberg explained.

The State of RSV Prevention

Joseph Domachowske, MD
SUNY Upstate Medical University

Joseph Domachowske, MD, spoke on the impact of respiratory syncytial visual and what is being done to combat the virus' burden.

RSV is the leading cause of hospitalizations for infants under the age of one in the United States. Despite the virus' devastating impact, RSV and its burden aren't well known outside of the health care community. And, as Dr. Domachowske explained, there have been no new treatment options since 1998. The drug introduced then, palivizumab, has become more difficult for babies to access in recent years.

Preventing RSV continues to a be a challenge. Maternal immunity can provide some protection but having RSV once does not significantly protect against contracting it again. For now, parents should take commonsense precautions, such as regular handwashing and frequent cleaning of surfaces and toys, to protect infants from RSV.

Monoclonal antibodies may be the solution health care providers and advocates have been searching for, Dr. Domachowske explained. This technology is being developed to create a preventive intervention that would provide infants and young children with viable protection from RSV.

Including these monoclonal antibodies in the Vaccines for Children program would ensure that all children can access this critical intervention.

> *"We have the potential to change the landscape of RSV."*

He encouraged summit attendees to advocate for monoclonal antibodies when approved to to be broadly accessible.

The Direct & Indirect Impact of RSV

U.S. Rep. Bruce Westerman
Member of Congress

U.S. Rep. Westerman outlined the multifaceted impact of RSV, sharing his own family's experience with the virus.

When Rep. Westerman's one-month-old son became ill and had to be hospitalized, the experience shook his entire family. While at the hospital and relying on health care providers to care for his ill son, the congressman felt "anxious and helpless," he recalled.

> ***"Money becomes secondary when your child's life is on the line."***

Rep. Westerman also remarked on the financial burden of RSV for many families. The drug used to treat his son while hospitalized was not covered by insurance, forcing his family to pay out of pocket.

Rep. Westerman also acknowledged that not all families could afford to pay for medications out of pocket.

One way policymakers can address the burden of RSV is through continued research, Rep. Westerman highlighted. He explained that the diseases that receive the most funding are those that appear in the public eye.

Though RSV is common, Rep. Westerman observed, it does not receive much media attention.

The congressman noted that federal funding for disease research and development of an RSV treatment would be important moving forward.

Ensuring Donor Human Milk Quality & Safety

Liesl Sheehan

Prolacta Bioscience

Liesl Sheehan highlighted the importance of donor human milk, which provides valuable nutrition for infants.

Though donor milk is a source of infant nutrition, it does not receive the same level of scrutiny from the Food and Drug Administration as infant formula does. Sheehan explained that there are multiple risks with donor milk, including the cleanliness of the breast pump, the health and habits of the donor mother, and the normal risks of bacteria developing through the pasteurization process.

In addition to introducing safety concerns, a lack of oversight can also make it more difficult for infants to access donor milk because Medicaid won't cover the expense. "We need the right level of scrutiny to increase access," Sheehan explained.

Sandra Sullivan, MD

University of Florida

Fragile infants and babies in the NICU are often the recipients of donor milk, and any contaminants could worsen their condition.

> ***"The bar for safety should be set for those extremely fragile tiny humans. Everyone else is safer by default."***

Without proper FDA oversight, milk banks and hospitals are left to establish their own safety standards, Dr. Sullivan argued. This can lead to a patchwork of rules that introduce the possibility of gaps in quality. Regulations, Dr. Sullivan summarized, must strike a balance that enables access while also protecting babies' health.

Drug, Formula & Product Shortages Impacting Infants & Children

Suzanne Staebler, DNP

Emory University

Suzanne Staebler talked about how shortages – from nursing to medications to supplies – impact care in medical settings like the NICU.

Even when there is a shortage, patients must still be treated, Staebler emphasized. It is up to providers to find a way.

> *"We have to work creatively and collectively to figure out how to not compromise care, but to get what we need for the patient even if we are in short supply of something."*

Staebler also applauded the work of many physicians and nurses who regularly find a workaround. Policymakers have an important role to play as well, she highlighted, in curbing the impacts of shortages.

CAPT Valerie Jensen, USPHS (Ret.)

U.S. Food and Drug Administration

Capt. Jensen focused on the events that lead to drug shortages. "The root cause of shortages really deals with quality, whether that be the quality of the manufacturing site or the quality of the product," she explained.

The pandemic had a unique impact on shortages, Jensen noted, describing how the high demand for vaccines undercut the production or availability of other life-saving drugs. Jensen suggested that risk mitigation plans may be a valuable option to help curb the effects of shortages.

Susan Mayne, PhD

U.S. Food and Drug Administration

Dr. Mayne discussed the Food and Drug Administration's actions to address infant health-related shortages.

To combat the highly publicized shortages of infant formula, the FDA worked closely with manufacturers at home and abroad to ensure families have access to nutrition for their babies.

> ***"The FDA works with manufacturers to ensure that stringent safety and nutrition standards are implemented and carried out."***

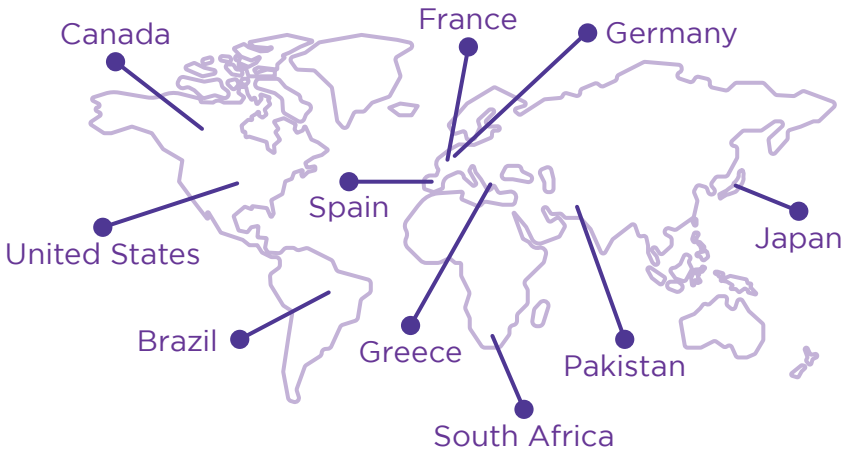
Along with providing the public with educational information about the formula shortages, Dr. Mayne noted, the FDA encouraged the diversification of formula manufacturers to prevent future shortages.

Audience Overview

TOTAL ATTENDEES
209

PAGE VIEWS
901

ATTENDEE BREAKDOWN



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

AfPA Alliance for Patient Access

IfPA Institute for Patient Access

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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.

The Signs & Symptoms of RSV

RESPIRATORY SYNCYTIAL VIRUS

Know the Signs & Symptoms of RSV

- Cough
- Runny Nose
- Struggling to Breathe *(breastbone sinks inward when breathing)*
- Difficulty Eating
- Lethargy
- Wheezing

RESPIRATORY SYNCYTIAL VIRUS
is a highly contagious seasonal virus that can lead to hospitalization for some babies and young children.

Know the Signs.

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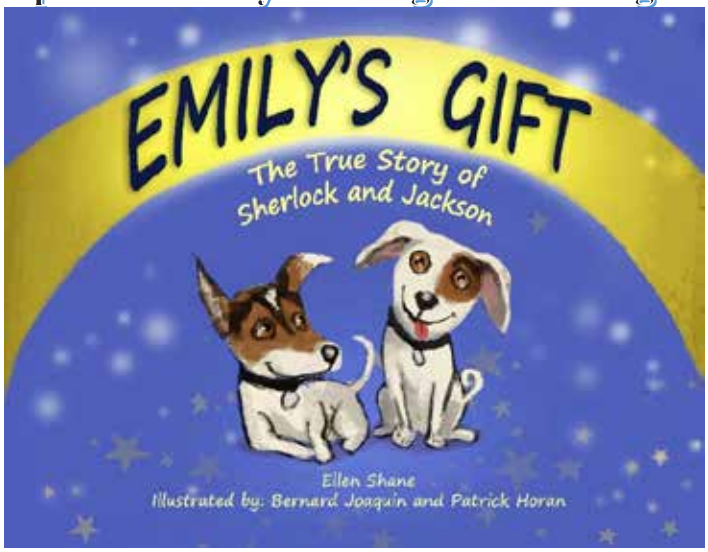

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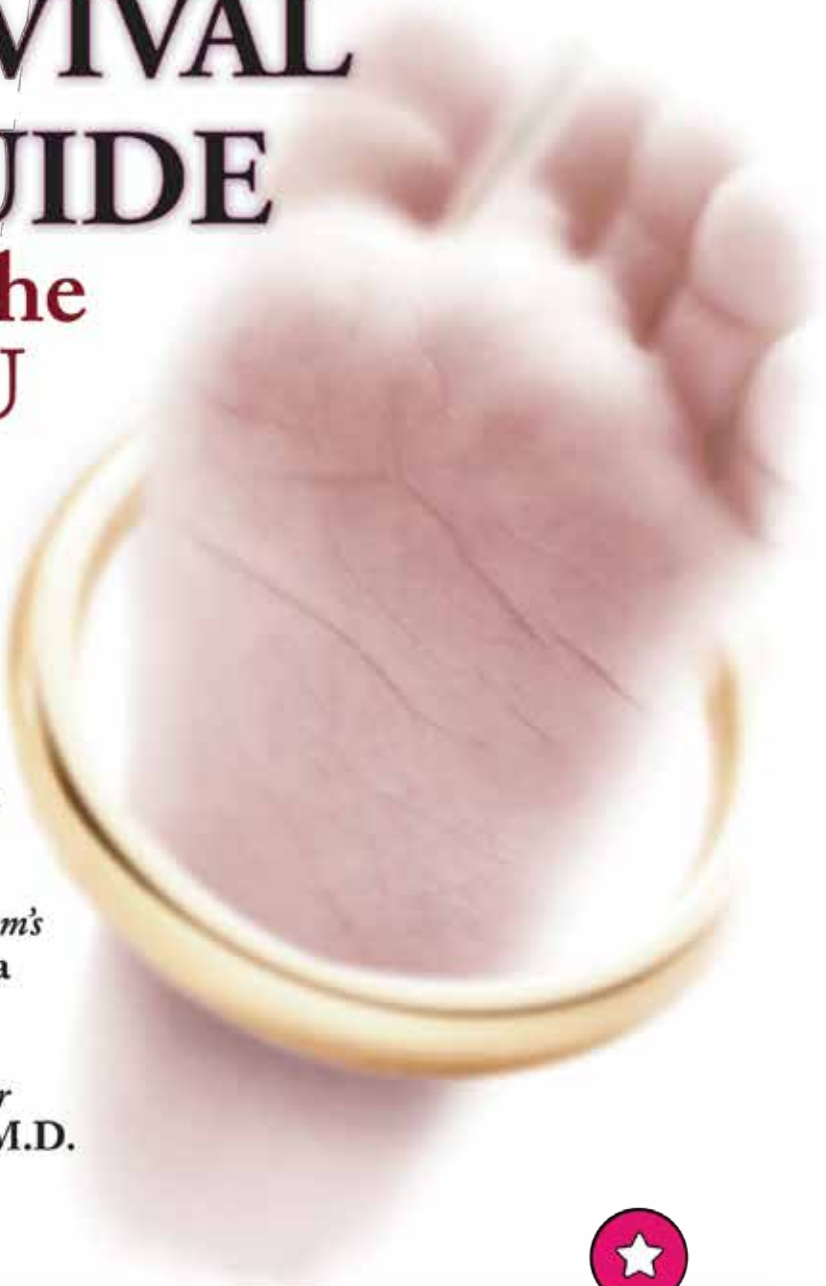
The Preemie Parent's SURVIVAL GUIDE to the NICU



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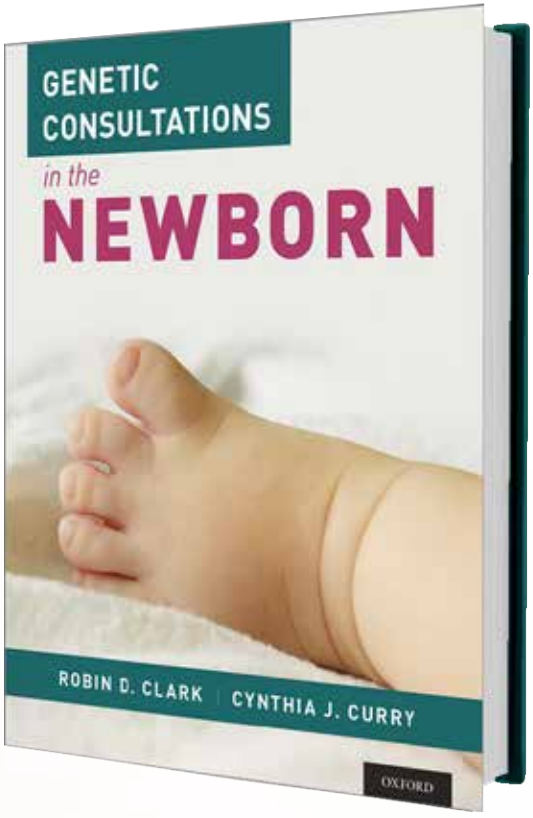

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Clinical Pearl: Outcomes of infants Born to Pregnant People with SARS-CoV-2 Infection: Very Positive for the Most Part

Joseph R. Hageman, MD , Mitchell Goldstein, MD, MBA, CML

"Yes, the outcomes out to 6-12 months of age of infants born to pregnant mothers with SARS-CoV-2 infection are very positive based on two studies from Italy by Grazia Capretti from Bologna and 10 United States jurisdictions by Gosdin and colleagues from the Center for Disease Control and Prevention (CDC) (1,2). "

Yes, the outcomes out to 6-12 months of age of infants born to pregnant mothers with SARS-CoV-2 infection are very positive based on two studies from Italy by Grazia Capretti from Bologna and 10 United States jurisdictions by Gosdin and colleagues from the Center for Disease Control and Prevention (CDC) (1,2). None of the 106 infants born to pregnant mothers with SARS-CoV-2 infections diagnosed two weeks before delivery were clinically sick or had any evidence of developmental or central nervous system abnormalities, hearing abnormalities, or congenital abnormalities in the Italian cohort study (1). All 106 nasopharyngeal swabs were negative when obtained within 24 hours of postnatal life (1).

"Six months of all-cause hospitalization was 4.1% (2.0-6.2) (2). All-cause mortality was higher in infants born to people with infection < or equal to 14 days (1.0%) than > 14 days (0.3%) prior to delivery (2). None of the infant mortality was secondary to SARS-CoV-2 infection (2)."

The US CDC study confirmed the same clinical outcomes for 6601 exposed infants (2). IgG levels were present in both studies in the babies and the mothers and were persistent until about six months of age (1, 2). Six months of all-cause hospitalization was 4.1% (2.0-6.2) (2). All-cause mortality was higher in infants born to people with infection < or equal to 14 days (1.0%) than > 14 days (0.3%) prior to delivery (2). None of the infant mortality was secondary to SARS-CoV-2 infection (2).

In the Italian study, there was evidence of possible in-utero infection in one infant (1) and no recurrent respiratory or SARS-CoV-2 infections in the 12-month follow-up period (1).

Breastfeeding initiation was lower when maternal infection occurred < or equal to 14 days prior to delivery (77.6 vs. 88.3%) compared with > 14 days in the U.S. study (2).

It remains to be seen whether maternal infection confers significant protection to their baby or whether the IgG level increases are incidental to maternal infection in association with a protective home environment.

"However, the US CDC study acknowledges that 84.7% were born at term, or 15.3% were born prematurely (2). In light of the recent March of Dimes report card with a grade of D+ given to the United States due to its increased prematurity rate, could this disparity be tracked to widespread SARS-COV-2 infection in pregnancy (3)?"

However, the US CDC study acknowledges that 84.7% were born at term, or 15.3% were born prematurely (2). In light of the recent March of Dimes report card with a grade of D+ given to the United States due to its increased prematurity rate, could this disparity be tracked to widespread SARS-COV-2 infection in pregnancy (3)?

References:

1. *Grazia Capretti M, Mersico C, Gabrelli L, et al. Infants born following SARS-CoV-2 infection in pregnancy. Pediatrics 2022; 150(5): November 2022 e2022056206.*
2. *Goadin L, Wallace B, Lanzieri T, et al. Six month outcomes of infants born to people with SARS-CoV-2 in pregnancy. Pediatrics 2022; 150(6), December 2022:e2022059009.*
3. *https://www.marchofdimes.org/sites/default/files/2022-11/March-of-Dimes-2022-Full-Report-Card.pdf*

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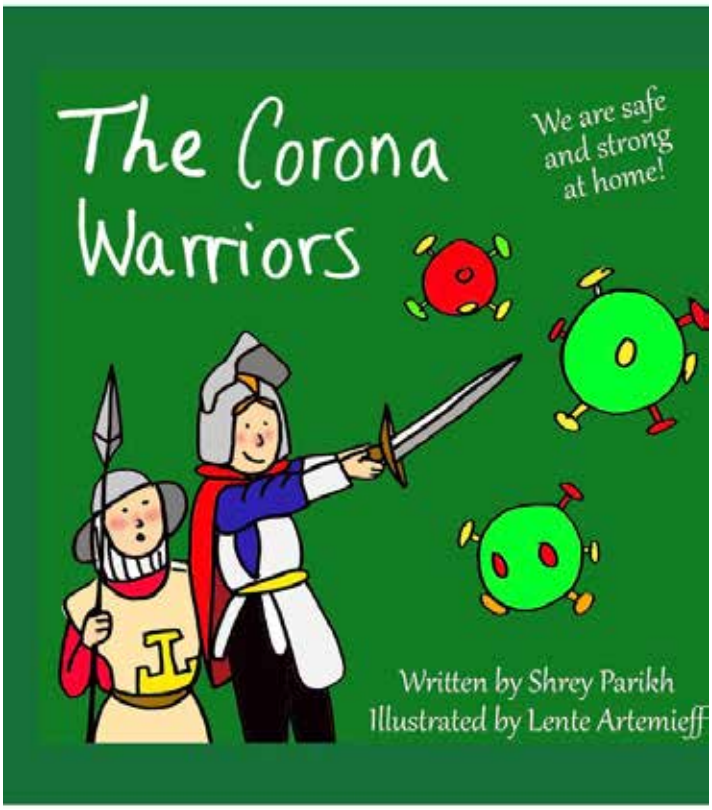

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REMARKS BY:

DR. MITCHELL GOLDSTEIN
MD,MBA,CML.FAAP
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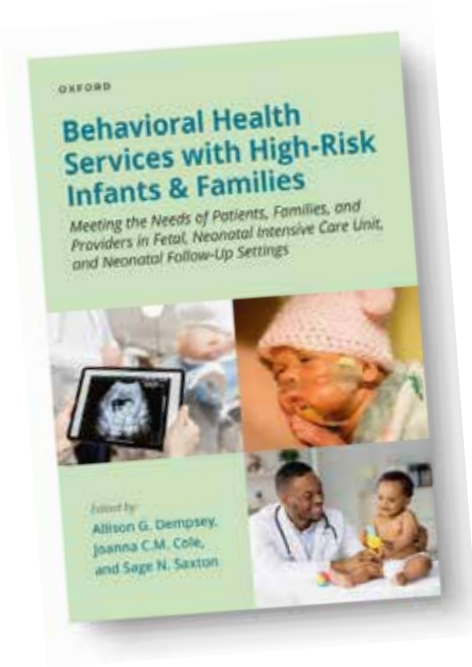

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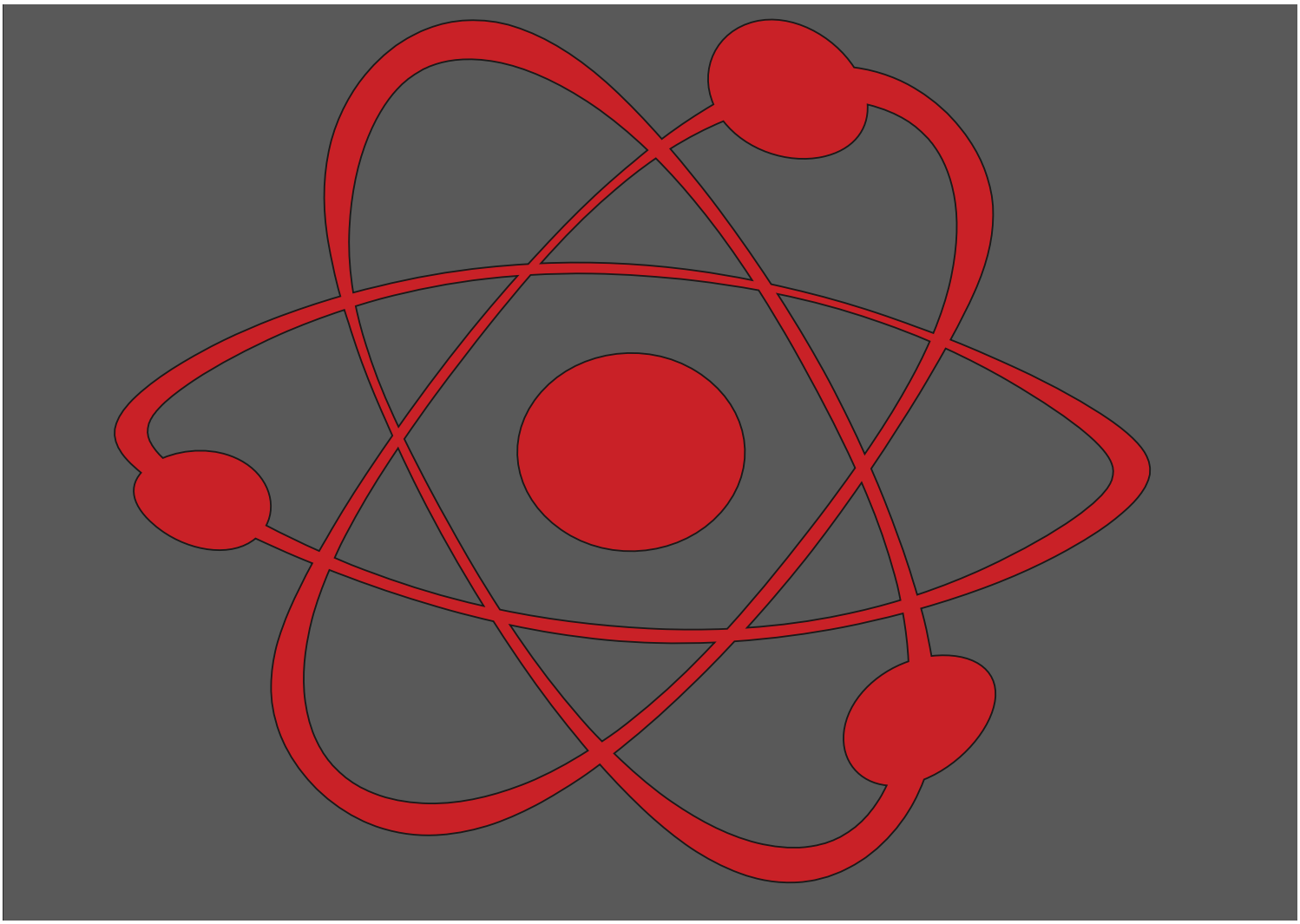

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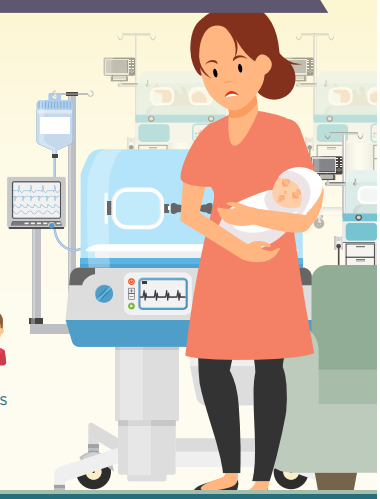
Will your **PRETERM INFANT** *need* **EARLY INTERVENTION** *services?*

Preterm infants are:

2x more likely to have developmental delays

5x more likely to have learning challenges

1 in **3** preterm infants will require support services at school

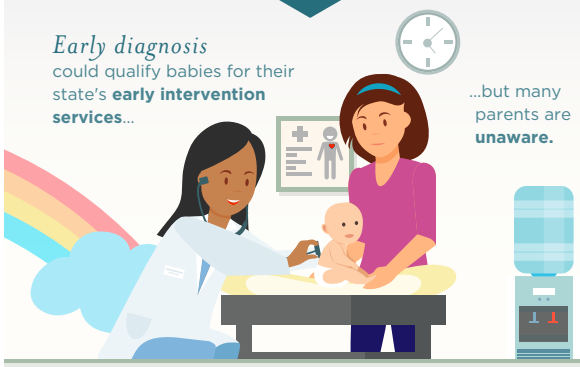


Early intervention can help preterm infants:

- Enhance language and communication skills
- Build more effective learning techniques
- Process social and emotional situations
- Address physical challenges
- Prevent mild difficulties from developing into major problems

Early diagnosis could qualify babies for their state's **early intervention services**...

...but many parents are **unaware.**



NICU staff, nurses, pediatricians and social workers **should talk** with NICU families about the challenges their baby may face.

Awareness, referral & timely enrollment in early intervention programs can help **infants thrive** and grow.

NCFIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

Visit **CDC.gov** to find contact information for your state's early intervention program.

Las nuevas mamás necesitan acceso a la detección y tratamiento para **LA DEPRESIÓN POSPARTO**

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- Ideas de hacerse daño a sí mismas o al bebé
- Distanciamiento de amigos y familiares

Sin embargo, sólo el 15% recibe tratamiento[1]

LA DEPRESIÓN POSTPARTO **NO TRATADA** PUEDE AFECTAR:

- *La salud de la madre*
- *El sueño, la alimentación y el comportamiento del bebé a medida que crece*[2]
- *La capacidad para cuidar de un bebé y sus hermanos*

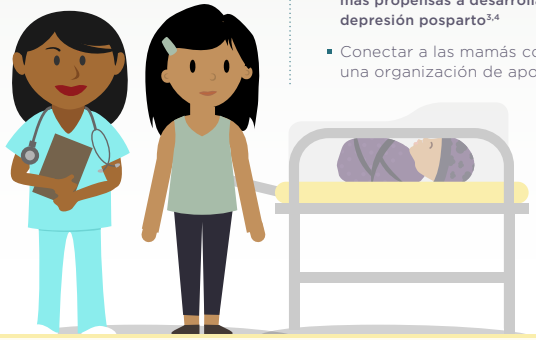
PARA AYUDAR **A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSPARTO**

LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnostico
- Proteger el acceso al tratamiento

LOS HOSPITALES PUEDEN:

- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión posparto**[3,4]
- Conectar a las mamás con una organización de apoyo



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NEONATOLOGY TODAY

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Outstanding BC/BE Neonatologist Opportunities in Florida's Collier County

Nicklaus Children's Health System and Nicklaus Children's Pediatric Specialists (NCPS), the health system's physician-led multispecialty group practice, have three exceptional opportunities for board-certified or board-eligible (BC/BE) fellowship-trained neonatologists with a minimum of three years of experience (preferred) for a 19-bed Level II NICU located on Florida's Gulf Coast in Collier County.

Each position will be part of a comprehensive perinatal and neonatal program for babies in a Level II NICU. These roles present a unique and exciting opportunity for motivated candidates to flourish in a burgeoning market. Applicants should possess a passion for advocacy and improving care for all children. The BC/BE neonatologists will be responsible for attending deliveries, providing prenatal consultations to high-risk babies, resuscitating and stabilizing newborns in the delivery room, rounding on well babies, as well as provide leadership, oversight and supervision in the Level II nursery. Candidates should be proficient in newborn resuscitation, including neonatal intubation, umbilical line placement and peripheral cannulation, lumbar punctures, etc. These roles offer salaries that are competitive and commensurate with experience.

Nicklaus Children's neonatology program is consecutively ranked among the best in the nation by *U.S. News & World Report*. It was the first of its kind in South Florida and receives referrals of the most critically ill neonates from hospitals throughout Florida, Latin America and the Caribbean. The Level II NICU will be a part of the NCPS Section of Neonatology and the neonatologists will have access to the educational and professional development resources of Nicklaus Children's Health System.

Founded in 1950, the rebranded Nicklaus Children's Hospital, a 309-bed freestanding children's hospital and Level I trauma center, is renowned for excellence in all aspects of pediatric medicine and has numerous subspecialty programs that are routinely ranked among the best in the nation. It is also home to the largest pediatric teaching program in the southeastern U.S. Many of our physicians have trained or worked at other leading medical institutions. Join a phenomenal team that brings lifelong health and hope to children and their families through innovative and compassionate care.

Collier County is located on the Southwest Coast of Florida with easy access to Southwest Florida International Airport. Outdoor activities include golf, boating, fishing and beautiful beaches.

Competitive compensation and benefits package.

Qualified candidates please contact:

Joyce Berger, Physician Recruiter

joyce.berger@nicklaushealth.org or 786-624-3510

nicklauschildrens.org/NCPS

DFW

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.

Able to read, write and speak with professional quality; use computer and software programs necessary to the position, e.g., Word, Excel, PowerPoint, Access; operate/troubleshoot basic office equipment required for the position. Able to relate and communicate positively, effectively, and professionally with others; provide leadership; be assertive and consistent in enforcing policies; work calmly and respond courteously when under pressure; lead, supervise, teach, and collaborate; accept direction. Able to communicate effectively in English in person, in writing, and on the telephone; think critically; work independently; perform basic math and statistical functions; manage multiple assignments; compose written material; work well under pressure; problem solve; organize and prioritize workload; recall information with accuracy; pay close attention to detail. Must have documented successful research administration experience focused on managing clinical trials function. Able to distinguish colors as necessary; hear sufficiently for general conversation in person and on the telephone; identify and distinguish various sounds associated with the workplace; see adequately to read computer screens and written documents necessary to the position. Active California Registered Nurse (RN) licensure preferred. Valid Driver's License required at time of hire.

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.

Additional Information

- Organization: Loma Linda University Health Care
- Employee Status: Regular
- Schedule: Full-time
- Shift: Day Job
- Days of Week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

LOMA LINDA UNIVERSITY

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

*Offering a **sign-on bonus** with relocation reimbursement for full-time, direct applicants who meet requirements.

For more information, please contact:

Karin Colunga, MSN, RN, PNP-BC
Director of Advanced Practice Nursing
kecolunga@llu.edu | 909-558-4486

BEST CHILDREN'S HOSPITALS U.S.News & World Report NEONATOLOGY 2022-23

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NEONATOLOGY TODAY

News and Information for BC/BE Neonatologists and Perinatologists

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Neonatology Today's Policy on Animal and Human Research

Neonatology Today's policies ensure the protection and responsible use of animals and humans in all research articles under consideration. Authors are encouraged to follow the guidelines developed by the National Centre for the Replacement, Refinement & Reduction of Animals in Research (NC3R), International Committee of Medical Journal Editors, and the Guide for the Care and Use of Laboratory Animals and U.S. Public Health Service's Policy on Humane Care and Use of Laboratory Animals (PHS Policy). Authors are expected to demonstrate to their institutional review board or suitable proxy that ethical standards are met. If there is doubt whether research conducted was in accordance with ethical standards, then there must be verification that the institutional review body approved the uncertain aspects. Research not following these policies on participating animal and human subjects may be rejected. Researchers have a moral obligation towards the humane treatment of animals and ethical considerations for humans participating in research and are expected to consider their welfare when designing studies.

https://www.nc3rs.org.uk/arrive-guidelines

http://www.icmje.org

https://olaw.nih.gov/policies-laws/phs-policy.htm

NT

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 one page as well as photographs of birds on another. This month's original artwork again features Paula Whiteman, MD who submitted Superwoman. Our bird of the month is again submitted by me this month. This is a Rooster from Calle Ocho in Miami.

Mita Shah, MD,
Neonatal Intensive Care Medical Director
Queen of the Valley Campus
Emanate Health, West Covina, CA

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Manuscript Submission: Instructions to Authors

1. Manuscripts are solicited by members of the Editorial Board or may be submitted by readers or other interested parties. Neonatology Today welcomes the submission of all academic manuscripts including randomized control trials, case reports, guidelines, best practice analysis, QI/QA, conference abstracts, and other important works. All content is subject to peer review.

2. All material should be emailed to: LomaLindaPublishingCompany@gmail.com in a Microsoft Word, Open Office, or XML format for the textual material and separate files (tif, eps, jpg, gif, ai, psd, or pdf) for each figure. Preferred formats are ai, psd, or pdf. tif and jpg images should have sufficient resolution so as not to have visible pixilation for the intended dimension. In general, if acceptable for publication, submissions will be published within 3 months.

3. There is no charge for submission, publication (regardless of number of graphics and charts), use of color, or length. Published content will be freely available after publication. There is no charge for your manuscript to be published. NT does maintain a copyright of your published manuscript.

4. The title page should contain a brief title and full names of all authors, their professional degrees, their institutional affiliations, and any conflict of interest relevant to the manuscript. The principal author should be identified as the first author. Contact information for the principal author including phone number, fax number, e-mail address, and mailing address should be included.

5. A brief biographical sketch (very short paragraph) of the principal author including current position and academic titles as well as fellowship status in professional societies should be included. A picture of the principal (corresponding) author and supporting authors should be submitted if available.

6. An abstract may be submitted.

7. The main text of the article should be written in formal style using correct English. The length may be up to 10,000 words. 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 may also be used). Bibliography Software should be used to facilitate formatting and to ensure that the correct formatting and abbreviations are used for references.

9. Figures should be submitted separately as individual separate electronic files. Numbered figure captions should be included in the main file after the references. Captions should be brief.

10. Only manuscripts that have not been published previously will be considered for publication except under special circumstances. Prior publication must be disclosed on submission. Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

11. NT recommends reading Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals from ICMJE prior to submission if there is any question regarding the appropriateness of a manuscript. NT follows Principles of Transparency and Best Practice in Scholarly Publishing(a joint statement by COPE, DOAJ, WAME, and OASPA). Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

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

Please submit your manuscript to: LomaLindaPublishingCompany@gmail.com

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:

NPN
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.**

NANT 13 - Call for Abstracts

Presented by the National Association of Neonatal Therapists (NANT)

Conference Dates:

Main Conference: April 14-15, 2023

Pre-Conference: April 13

Location: Tucson, AZ USA*

*Barring any restrictions to the contrary, NANT 13 is scheduled to be held in- person. However, in the event such restrictions occur, the event will be hosted online including all accepted sessions/posters.

The theme for NANT 13 is ***Inspiring Competence & Confidence***.

NANT and our Members aim to deliver best practices for NICU babies and parents all over the world. This advanced practice area requires a high level of competence, fueled by interprofessional collaboration and research.

Competence is not finite—it is an ongoing commitment to the pursuit of scientific knowledge and skill proficiency. We never arrive or are experts in all areas of practice. We rely on each other and use our unique professional lenses and experiences to advance the field of neonatal therapy.

We are calling upon you to share your research and clinical expertise. What can you contribute to the standard of care? How can you fill the gaps in neonatal therapy competency?

NANT intends to develop attendees' confidence to serve, lead, and implement collaboratively. We seek the right individuals, research, and tools to make that happen.

Sharing your valuable work in this internationally attended conference is a powerful way to inspire new levels of competence and confidence in this specialty.

We invite you to submit an abstract to present an oral or poster presentation at NANT 13.

Click here to submit an abstract.

Abstract Submission Deadline: Monday, August 15, 2022

Save the Date for the Second Fragile Infant Forum for the Implementation of Standards (FIFI-S)

January 18-20, 2023

"Implementing Evidence Based Strategies to Alleviate Stress in the Baby and Family in Intensive Care"

For more information contact

PACLAC.org

"Storyteller" painting by Sharron Montague Loree, 1982


@drpaulawhiteman


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