

NEONATOLOGY TODAY

Peer Reviewed Research, News and
Information in Neonatal and Perinatal
Medicine



Volume 17 / Issue 9 | September 2022

Cleaning of Cell Phones in the Neonatal Intensive Care Unit Kari Wood, DNP, Sandy Ewell MBA BSN, Dale Gerstmann, MDPage 3	I CAN Digitally Involved (I CANDI): "What I Wish Doctors Knew" and a Review of a Clinical Research Trial Protocol Involving Wearable Devices Amy OhmerPage 109
Response to Bedside Crisis, the Nursing Shortage Larry Ngo, MD, Mitchell Goldstein, MD, MBA, CMLPage 16	Maternal Kratom Use: A Cause of Neonatal Opioid Withdrawal Syndrome - A Case Series and Literature Review Farida Karim, MD, Tony Hampton, MD, MBI, Giang Truong, MDPage 117
Consequences – Initiating the Path to High-Reliability Organizing (HRO) Daved van Stralen, MD, FAAP, Sean D. McKay, Thomas A. Mercer, RAdm, USN (Retired)Page 24	Medical News, Products & Information Compiled and Reviewed by Saba Saleem, BS, OMS 4Page 124
Fellow's Column: Congenital Dislocated Nasal Septum Hannah Cummins, DO, Randi Domingue, MD Shabih Marzar, MDPage 37	Genetics Corner: Menkes Disease in an Infant who Presented with Recurrent Infections Robin Dawn Clark MDPage 138
Briefly Legal: Delay in Diagnosis of Neonatal Herpes Simplex Virus Infection in a NICU Maureen E. Sims, MD, Barry Schifrin, MDPage 41	Featured Conference: Section on Neonatal-Perinatal Medicine Agenda for the 2022 AAP-NCE in Anaheim, CA Lily J. Lou, MD, FAAPPage 143
Gravens By Design: The 36th Annual Gravens Conference on the Environment of Care for High-Risk Newborns: The Future is NOW for Babies, Families, and Systems Robert D. White, MD, Joy Browne, PhD, Vincent Smith, MD, Mitchell Goldstein, MD, MBA, CMLPage 48	Book Review: Breathe, Baby, Breathe: A Book for Clinicians and Parents in the NICU Annie Janvier, MD, PhDPage 147
Fragile Infant Forums for Implementation of IFCDC Standards, "The Mother-Baby Relationship: The Key Cornerstone of the IFCDC Standards" Kelly McGlothen-Bell, PhD, RN, IBCLC, Brianna Flowers-Joseph MSN, APRN, CPNP, Patricia De La CruzPage 53	NCfIH 2022 Infant Health Policy Summit: Closing Remarks Mitchell Goldstein, MD, MBA, CMPage 152
I Think About Those Babies Often. Kelly Welton, BA, RRT-NPSPage 61	Clinical Pearl: Trisomy 13 and Trisomy 18: Current Approach Joseph R. Hageman, MD, Mitchell Goldstein, MD, T Allen Merritt, MDPage 159
Baby Safety Month: JPMA Outlines Steps for Keeping Infants Safe Lisa R. Trofe, CAEPage 66	Medical Legal Forum: Choosing an Expert Witness: a Lawyer's Perspective Mike MeyerPage 163
The Impact of Structural Health Inequities on the AAP's 2022 Policy: Breastfeeding and the Use of Human Milk Saba Saleem BS, Kristina Burger BSPage 71	Upcoming Meetings, Subscriptions and Contact InformationPage 170
Abstracts From the National Perinatal Association's 2022 Conference Perinatology at the Intersection of Health Equity and Social Justice May 2-4 in Aurora, Colorado Jerasimos (Jerry) Ballas, MD, MPHPage 80	Editorial BoardPage 176
FCC Task Force webinar and Newsletter Malathi Balasundaram, MDPage 89	Animal and Human Research, Manuscript Submission, Neonatology & the Arts Mita Shah, MDPage 178
Advocates Call for Adding Migraine Screening to Well-Woman Visit Michelle Winokur, DrPHPage 105	Roster Paula Whiteman, MDPage 182
	Callroom Art, A Pair of Swans Mitchell Goldstein, MD, MBA, CMLPage 183



NEONATOLOGY TODAY
© 2006-2022 by Neonatology Today
Published monthly. All rights reserved.
ISSN: 1932-7137 (Online), 1932-7129 (Print)
All editions of the Journal and associated manuscripts are available on-line:
www.NeonatologyToday.net
www.Twitter.com/NeoToday



Loma Linda Publishing Company
A Delaware "not for profit" 501(c) 3 Corporation.
c/o Mitchell Goldstein, MD
11175 Campus Street, Suite #11121
Loma Linda, CA 92354
Tel: +1 (302) 313-9984
LomaLindaPublishingCompany@gmail.com

Sheraton Sand Key Resort in
Clearwater Beach, FL

The Gravens Conference

March 8-11, 2023

**2023 THEME:
THE FUTURE IS NOW FOR BABIES,
FAMILIES, AND SYSTEMS**

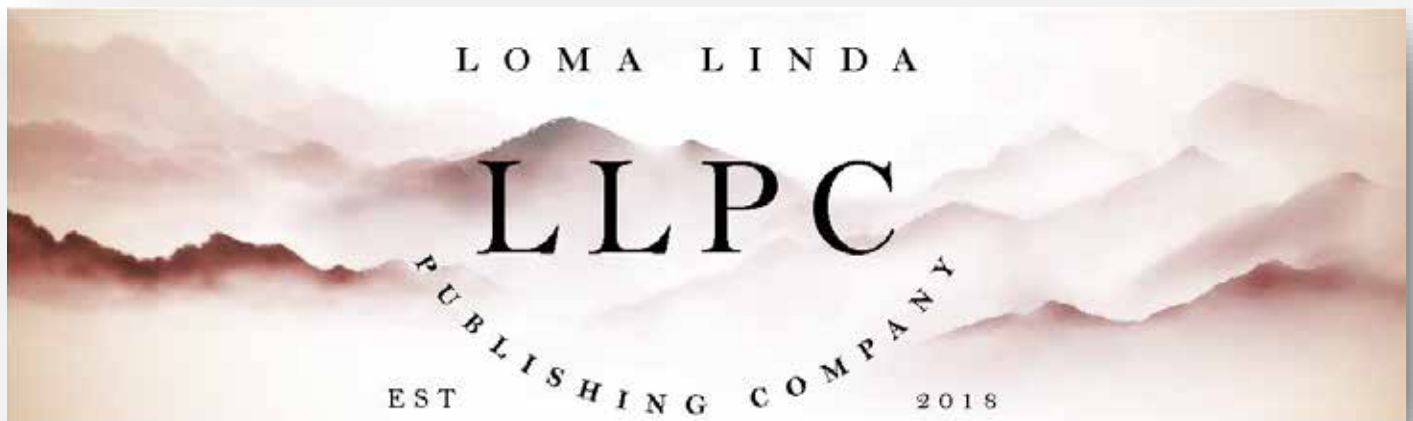
Connect & Learn



The abstract submission site is now open until November 15,
2022 <https://event.fourwaves.com/gravens36/>

<https://www.facebook.com/The-Gravens-Conference-146594362088476/>

<https://www.neonatologytoday.net/>



Cleaning of Cell Phones in the Neonatal Intensive Care Unit

Kari Wood, DNP, Sandy Ewell MBA BSN, Dale Gerstmann, MD

“Mobile devices are known to harbor bacteria and viruses. Since these devices, including cell phones, are now more common in the neonatal intensive care unit (NICU), it can be postulated that thorough cleaning of these devices may help protect immunocompromised neonates.”

Abstract:

Background: Mobile devices are known to harbor bacteria and viruses. Since these devices, including cell phones, are now more common in the neonatal intensive care unit (NICU), it can be postulated that thorough cleaning of these devices may help protect immunocompromised neonates.

Purpose: This project explored whether improvement can be achieved in the routine cleaning of cell phones among providers and families in the NICU and whether a cleaning method using antibacterial wipes and UV-C light is effective.

Methods: Participants included parents, visitors, and health care workers entering or working in a community-based level three NICU in Orem, Utah. A survey was developed to assess cleaning practices, attitudes, and barriers to cell phone cleaning. The survey was administered, and cell phone culture swabs were taken before the staff's educational intervention. Educational materials, including a PowerPoint presentation and video of the correct cleaning procedure, were developed. These addressed knowledge deficits and barriers identified in the initial survey. Surveys were administered, and swabs of cell phones were obtained again two weeks after the intervention was completed.

Results: 50 surveys and 15 swabs were obtained pre- and post-educational intervention. Comparison between surveys showed improvement in the number of people who had changed their cell phone cleaning habits, 62% vs. 84% ($p=.009$), but not in the number who cleaned their cell phone daily, 38% vs. 44% ($p=.685$). One hundred percent of cell phones swabbed before educational intervention had bacterial contamination, while only 67% showed bacterial contamination post-intervention ($p=.042$).

Implications for Practice and Research: Decreased bacterial contamination indicated that the cleaning procedure was effective. Although the educational intervention did not improve cleaning frequency, bacterial load and pathogenic organisms were significantly reduced on cleaned cell phones. A comprehensive cell phone cleaning program may reduce infectious exposure to NICU patients.

Keywords: Cell phone cleaning, NICU, digital device, fomite

Abbreviations: NICU, Neonatal Intensive Care Unit; ICU, Intensive Care Unit; NNP, Neonatal Nurse Practitioner; UV, Ultraviolet.

Introduction :

Problem Description:

Nosocomial, or hospital-acquired infection, is a term that causes clinicians in any specialty, sub-specialty, or hospital department to take pause. It leads to additional care, morbidity, and sometimes death. This issue is especially true in the neonatal population. Neonates are often already challenged by an extremely extended hospital stay, pulmonary inflammation, the need for prolonged indwelling and invasive lines, immature immune systems, poor reserves, and heightened pro-inflammatory systems. (1,2) Extended stays in the intensive care unit expose them to multiple bacteria and viruses through contact with caregivers and during standard procedures. Nosocomial infection significantly increases morbidity and mortality rates. (1,3-5) Neonatal intensive care units (NICUs) have been aware of these issues and have been trying to improve care and minimize nosocomial infection risk for years. (1,6) No single cause has been identified for this multifactorial problem, and no solution has been found. Clinicians have worked on handwashing, skincare, central line education bundles, pneumonia/early extubation protocols, feeding protocols, etc.; this work has improved nosocomial infection rates but has not eliminated nosocomial infection from the NICU.

“Neonatal intensive care units (NICUs) have been aware of these issues and have been trying to improve care and minimize nosocomial infection risk for years. (1,6) No single cause has been identified for this multifactorial problem, and no solution has been found.”

It is difficult for neonatal intensive care patients to assess how much of their morbidity and mortality is related to their underlying prematurity and diagnosis versus a newly-acquired nosocomial infection. Unfortunately, we know that nosocomial infections are more common in the most vulnerable and immature infants. (7) Several researchers have tried to differentiate what change in outcomes can be directly attributed to nosocomial infection in hospitalized newborns. (3,7,8) They have linked increased rates of meningitis, chronic pulmonary issues, increased length of stay, and mortality to this disease. (3,7,9) Bizzarro et al. were even able to show that genetic predispositions lead some infants to be more

susceptible to nosocomial infection. (10) The mortality rate with nosocomial infection has been between 29% and 66%. (7,11) Increased levels of illness, such as nosocomial infection, raised risk ratios from 3.15 for intensive care in the NICU to 6.58 for patients who received high-dependency care in the NICU. (12) Because many small and fragile infants go home on oxygen, it is hard to determine whether the oxygen need is related to nosocomial infection or chronic lung disease as a complication of prematurity. Undoubtedly, episodes of inflammation do not improve chronic lung disease and can only exacerbate it. Most neonates are discharged by their due date, so extensions over the due date may be attributable to nosocomial infection. In the neonatal population, it is hard to determine causal relationships with a single patient, so large studies are the only way to obtain good data. (5,9,11)

“Most neonates are discharged by their due date, so extensions over the due date may be attributable to nosocomial infection. In the neonatal population, it is hard to determine causal relationships with a single patient, so large studies are the only way to obtain good data. (5,9,11)”

Over the past several years, digital devices have become more ingrained in medical and nursing practice. Most neonatal intensive care nurseries require charting, order entry, and reference data to be in an electronic format. This digitization has led to increasing providers carrying digital devices and cell phones. Families have also begun to take their own digital devices and cell phones into hospital units and to feel that they are essential to their care and vital for their families. (13)

Available Knowledge:

One of the new sources of bacterial load found in the NICU has been electronic devices. (13-16) Initially, it was felt that these devices were unlikely to be carriers of opportunistic bacteria, but that belief has been disproven.

These digital devices can be a severe source of bacterial and viral contamination associated with nosocomial infections. (13) This is especially concerning in the NICU because the premature infant is immunocompromised. Guidelines on cleaning these devices have been inconsistent and early studies suggested that good handwashing may be adequate to reduce the transmission of organisms. (14) However, Beckstrom et al. found that good hand hygiene and anti-microbial gel did not eliminate bacterial contamination of the cell phone in the NICU. (14) Russotto et al. showed that current cleaning products used in the ICU do not adequately clean inanimate objects. (18)

Given these findings, new and more effective cleaning methods must be identified and implemented. Neonatal intensive care units around the country are attempting to implement guidelines and protocols for cleaning electronic devices used in the NICU. (16,19)

Rationale :

Many NICU care practices are guided by habit or routine. The

theory that guides this clinical process proposal is the Practice Theory, which describes how habits are formed. A habit can be defined as routine behavior that does not require motivation or even a specific choice. (20) It is a way of reproducing the same behavior with each corresponding element, such as scrubbing upon entry to a medical unit. This theory started with Triandis' 1977 "Theory of Interpersonal Behavior" (21), which appears to be one of the only theories that discuss habits and their formation in behavior change. (20) It is a theory that seeks to understand why we develop behaviors that require multiple steps, without significant decision making, in an everyday manner. (20,22) Practice theory explains how routines can become habits and how the behavior or habit becomes a common practice. (20) The theory is not individually focused but instead works on changing behavior through modifying the environment and social behavior norms until the habit or practice takes place without specific individual motivation. (20,22) The environment can be adjusted to facilitate behavior change.

This project focuses on creating a cleaner environment in the NICU by teaching health care workers and families to wipe down their cell phone at a cell phone cleaning station at or near a scrub sink with a sanitizing wipe and to place it into a sanitizing light box as soon as they enter the NICU, before starting their scrub. Families check into the front to gain access to the NICU. Both families and caregivers complete lengthy handwashing as they enter the patient care area.

Establishing an environment where everyone who enters the NICU performs this same routine and sees others do the same produces societal pressure, which encourages normalizing the behavior. (20,22) Thus, the cell phone cleaning routine will become a habit. This means that the environment can be very conducive to encouraging the behavior. The task can be easy to perform without significant one-on-one education. The process is openly visible so that there are social norms to follow. (20,22)

“This means that the environment can be very conducive to encouraging the behavior. The task can be easy to perform without significant one-on-one education. The process is openly visible so that there are social norms to follow. (20,22)”

Specific Aims:

This project aims to improve routine cell phone cleaning frequency among neonatal providers and families in a neonatal intensive care unit. While the project does not look at nosocomial infection rates, the hope is that this may decrease fomite exposure and nosocomial infection in the NICU.

Methods:

Context :

This intervention was performed in a community-based level three neonatal intensive care unit of 24 beds in Orem, Utah. Admissions to the facility have minimal diversity. Most patients are Cauca-

Table 1 - Demographics Frequency Table

Occupation		Pre-Education Survey (n=50) n (%)	Post-Education Survey (n=50) n (%)
Health Care Worker			
	MD	0 (0%)	3 (6%)
	NNP	2 (4%)	2 (4%)
	Lab Tech	0 (0%)	0 (0%)
	X-Ray Tech	0 (0%)	0 (0%)
	Student	0 (0%)	2 (4%)
	Other (RN, RT, Misc)	26 (52%)	20 (40%)
	Unspecified	3 (6%)	4 (10%)
Family/Visitors			
	Parent	10 (20%)	15 (30%)
	Grandparent	5 (10%)	2 (4%)
	Sibling	0 (0%)	0 (0%)
	Other	2 (4%)	0 (0%)
	Unspecified	2 (4%)	1 (2%)
Racial Heritage			
	American Indian or Alaskan Native	0 (0%)	2 (4%)
	Asian	0 (0%)	2 (4%)
	Black or African American	0 (0%)	0 (0%)
	Hispanic or Latino	3 (6%)	2 (4%)
	Native Hawaiian or Other Pacific Islander	0 (0%)	0 (0%)
	White	46 (92%)	44 (88%)
	Missing	1 (2%)	0 (0%)
Gender			
	Male	9 (18%)	14 (28%)
	Female	40 (80%)	36 (72%)
	Other	0 (0%)	0 (0%)
	Missing	1 (2%)	0 (0%)
Age			
	< 20 years of age	2 (4%)	1 (2%)
	20-29 years of age	14 (28%)	14 (28%)
	30-39 years of age	17 (34%)	15 (30%)
	40-49 years of age	3 (6%)	11 (22%)
	50-59 years of age	11 (22%)	7 (14%)
	60-69 years of age	3 (6%)	2 (4%)
	70-79 years of age	0 (0%)	0 (0%)
	>79 years of age	0 (0%)	0 (0%)

sian, of European descent, and have families belonging to the predominant religion in the area. However, the presence of three large universities within 50 miles attracts more diverse patients and families. Most mothers who have infants in the NICU are over

18 years of age, have received adequate prenatal care, and have at least a high school education. There is a low rate of homeless families in the NICU, and many families have social support structures. This NICU serves approximately 300 infants per year.

Table 2 - Descriptive Statistics: Pre and Post-Education Survey Questions and Data

	Pre-Education Survey (n=50) n (%)	Post-Education Survey (n=50) n (%)	p-value
Respondents who have cleaned their cell phone today			
Yes	27 (54%)	38 (76%)	0.035
No	23 (46%)	12 (24%)	
How often respondents think of cleaning their cell phone			
Daily	25 (50%)	26 (53%)	0.842*
Weekly	15 (30%)	16 (33%)	
Monthly	4 (8%)	1 (2%)	
Yearly	0 (0%)	2 (4%)	
Never	6 (12%)	4 (8%)	
Missing	0 (0%)	1 (0%)	
Respondents typically clean their cell phone			
Daily	19 (38%)	22 (44%)	0.685*
Weekly	19 (38%)	16 (32%)	
Monthly	5 (10%)	9 (18%)	
Yearly	1 (2%)	2 (4%)	
Never	5 (10%)	1 (2%)	
Missing	1 (2%)	0 (0%)	
What respondents typically use to clean their phone			
Pant or shirt edge	5 (10%)	4 (8%)	0.685*
Wet Washcloth	2 (4%)	4 (8%)	
Screen cleaner wipe or spray	4 (8%)	4 (8%)	
Antibacterial wipe	13 (25%)	11 (22%)	
UV light	1 (2%)	2 (4%)	
None of the Above	3 (6%)	0 (0%)	
A combination of the above	21 (42%)	24 (48%)	
Missing	1 (2%)	1 (2%)	
Respondents that have changed cleaning habits since NICU			
Yes	31 (62%)	42 (84%)	0.009
No	18 (36%)	6 (12%)	
Missing	1 (2%)	2 (4%)	
I have been told/taught to clean my cell phone in the NICU			
Yes	28 (56%)	41 (82%)	0.004
No	22 (44%)	8 (16%)	
Missing	0 (0%)	1 (2%)	
Respondents who have been taught how to clean their phone in the NICU			

Table 2 - Descriptive Statistics: Pre and Post-Education Survey Questions and Data

	Yes	21 (42%)	41 (82%)	0.0001
	No	28 (56%)	8 (16%)	
	Missing	1 (2%)	1 (2%)	
I think about bacteria or viruses on my cell phone				
	Yes	38 (76%)	44 (88%)	0.282
	No	10 (20%)	6 (12%)	
	Missing	2 (4%)	0 (0%)	
How many bacteria/viruses people think are on their cell phone (Likert Scale, 0-5)				
	Few - 0	7 (14%)	3 (6%)	
	1	0 (0%)	0 (0%)	
	2	0 (0%)	2 (4%)	
	3	0 (0%)	3 (6%)	
	4	2 (4%)	3 (6%)	
	Many - 5	38 (76%)	33 (66%)	0.614*
	Missing	3 (6%)	6 (12%)	
Reasons given for not cleaning cell phone upon NICU entry				
	I do	23 (46%)	27 (54%)	0.419*
	I don't want to	0 (0%)	0 (0%)	
	I don't know how	3 (6%)	1 (2%)	
	I don't have time	0 (0%)	2 (4%)	
	I don't have materials	2 (4%)	1 (2%)	
	I don't think it is important	1 (2%)	1 (2%)	
	None of the above	20 (40%)	16 (32%)	
	Missing	1 (2%)	2 (4%)	
Correct way to clean cell phone per participant written description				
	Correct	6 (12%)	10 (20%)	0.048
	Partially Correct	30 (60%)	29 (58%)	
	Wrong	10 (20%)	2 (4%)	
	Missing	4 (8%)	9 (18%)	

* Fisher Exact test for line item versus rest of items in the question

The NICU has a neonatology staff of two neonatologists, four full-time neonatal nurse practitioners (NNPs), and three part-time NNPs. The author is one of the full-time NNPs in this NICU and is Master's Degree prepared. The NICU staff has approximately 60 nurses dedicated to the unit, 20 hospital-wide respiratory therapists, four lactation consultants, one NICU dietitian, and one neonatal occupational therapist. The department provides clinical teaching for registered nurses, respiratory therapists, and neonatal nurse practitioner students.

In order to qualify for data collection, the participants must have a cell phone with them, be older than 18 years of age, be a parent of a NICU infant or a healthcare worker entering the NICU, and be

willing to participate in the data collection. Participants entered the NICU between October 2018 and February 2019. Data was collected for 1-2 weeks, both pre and post-intervention. Exclusion criteria include visitors or families who urgently need to transfer their infant to a level 4 NICU, families who do not have a cell phone or families who do not wish to participate. The health care providers and visitors who take the survey must meet the inclusion criteria and be willing to participate.

Overall, this community follows most medical advice and is willing to make changes if they feel the changes will improve the lives of their family members. This contextual factor may impact this intervention's success and may not represent all NICU visitors in

Table 3 - Characteristics of Culture Swabs

	Pre-Intervention (n=15) n (%)	Post-Intervention (n=15) n (%)	p-value
Bacterial Growth Levels			
No growth	0 (0%)	5 (33%)	
Rare Bacteria	0 (0%)	0 (0%)	
Scant Bacteria	2 (13%)	2 (13%)	
Few Bacteria	4 (27%)	4 (27%)	0.065 ¹
1+ Bacteria	8 (53%)	4 (27%)	
2+ Bacteria	1 (7%)	0 (0%)	
3+ Bacteria	0 (0%)	0 (0%)	
4+ Bacteria	0 (0%)	0 (0%)	
Bacterial Identification (NP, non-pathogenic)			
Coag Negative Staph (NP)	15/15 (100%)	9/15 (60%)	0.069
Strep Veridans (NP)	8/15 (53%)	8/15 (53%)	1.000
Group D Strep	1/15 (7%)	0/15 (0%)	1.000
Fungus	1/15 (7%)	0/15 (0%)	1.000
Lactobacillus (NP)	1/15 (7%)	0/15 (0%)	1.000
Bacillus Species	3/15 (20%)	0/15 (0%)	0.224
Haemophilus Species	2/15 (13%)	0/15 (0%)	0.480
Micrococcus Species	1/15 (7%)	0/15 (0%)	1.000
Staph Aureus	2/15 (13%)	0/15 (0%)	0.480
Corynebacterium Species	1/15 (7%)	0/15 (0%)	1.000
Swabs with One or More Pathogens	7/15 (47%)	0/15 (0%)	0.028
Number of swabs with organisms	15/15 (100%)	05/15 (33%)	0.042
¹ Few or less vs. 1+ or more			

other communities.

“Overall, this community follows most medical advice and is willing to make changes if they feel the changes will improve the lives of their family members. This contextual factor may impact this intervention’s success and may not represent all NICU visitors in other communities.”

Intervention(s) :

The project had four objectives to improve the frequency of routine cleaning of cell phones among neonatal providers and families at a neonatal intensive care unit. The first was to assess the current

frequency of cleaning of cell phones among health care providers and families at a local NICU. The second objective was to identify current evidence-based guidelines for frequency and modes of cleaning cell phones. The third objective was to develop and deliver education material addressing the knowledge deficits and barriers identified in the survey for staff and families. The fourth and final objective was to evaluate the frequency of cell phone cleaning after education.

This intervention assessed cell phone cleaning and cell phone cleaning attitudes and skills of visitors and workers at the NICU. There was data collection before and after an educational intervention given to both health care providers and families. Data was collected for approximately 1-2 weeks, pre-and post-intervention. The data collection assessed knowledge and attitudes via survey and evaluated bacterial load on cell phones with swabs.

The author developed a survey to determine the current frequency of cell phone cleaning and attitudes toward cleaning and cleaning knowledge of those entering the NICU. The survey was given to health care workers, families, and visitors entering the NICU. Before setting up a cleaning station and any educational interven-

tions, the pre-intervention survey was given to teach visitors and health care providers the best way to clean their cell phones. The follow-up survey asked the same questions and was given three weeks after the cleaning station set-up and educational intervention.

“The survey was given to health care workers, families, and visitors entering the NICU. Before setting up a cleaning station and any educational interventions, the pre-intervention survey was given to teach visitors and health care providers the best way to clean their cell phones. The follow-up survey asked the same questions and was given three weeks after the cleaning station set-up and educational intervention.”

The second data collection section was a swab of cell phones for bacterial load after entering the NICU at patient bedsides. Swabs were collected from the cell phones at the patient’s bedside after entry to the NICU, labeled with the date, time, and NICU bed space or NICU bed space 26, if taken from a hospital employee’s phone. Swabs were all collected by the investigator and then walked to the laboratory for plating and incubation. Microbiology then assessed swabbed plates for bacterial load and reported findings to the investigator. The educational intervention developed was a PowerPoint presentation with a real-time demonstration of cell phone cleaning. The author developed the educational intervention. The content addressed deficiencies in knowledge and attitudes identified by the survey and information obtained through a literature review about the latest evidence-based practice in cleaning inanimate objects. It was reviewed by the medical director and the author’s DNP project chair. The first educational intervention was started in small groups for each shift of the NICU on Jan 21, 2019. The intervention was then placed on the NICU mandatory computer education site with a due date of Feb 7, 2019. It included a demonstration of the cleaning technique and the new cleaning station installed when the first educational intervention was given. The second educational intervention was again a PowerPoint presentation discussing the importance of cell phone cleaning, with a video demonstrating proper cell phone cleaning. This dual educational intervention was played on a monitor above the scrub sink for everyone to watch as they scrubbed into the NICU but had not been implemented by the end of the study.

Study of the Intervention(s):

The approach chosen to determine the impact of the intervention was change statistics. Survey data were compared before the educational intervention and three weeks after the intervention. Bacterial colonization was also assessed before and three weeks after the educational intervention.

The educational intervention participants were counted, and the hospital’s education department recorded their education com-

pletion. The time spent on the educational intervention was also tracked. The author and content experts felt that the information collected could better relate to a culture change toward cell phone cleaning in the NICU by waiting three weeks after the educational intervention.

There was no comparison group in this project. The two groups analyzed were those who entered before and after the educational intervention.

Before this project was initiated, the author checked with the NICU director, hospital administration, and the quality improvement director to ensure that no similar projects were happening in the hospital that may have impacted this project’s outcomes.

Measures:

The survey chosen was not a published reliable tool, as the process and evaluation of cell phone cleaning are new to the NICU. The author developed the study with the input of advisors and experts, including their content experts, chair, and mentor. It was then checked for readability and measurability with a small test group of nurse practitioners completing their doctoral degrees. A statistical mentor also suggested improvements in the tool to assess the information more accurately.

A content expert on the project assisted the author with the statistical measures. The hospital administration was approached and agreed to fund this project. The hospital also approved the time needed to present the project and training to the hospital workers. In addition, the hospital donated the lab supplies and microbiology analysis. Administrative support for the project contributed to the study’s success. The author routinely assessed the missing survey data and double-checked data entered into the spreadsheet to analyze the completeness of the survey data.

“The hospital also approved the time needed to present the project and training to the hospital workers. In addition, the hospital donated the lab supplies and microbiology analysis. Administrative support for the project contributed to the study’s success.”

Analysis:

Analysis was done pre and post-educational intervention on survey data and cell phone swab data. Demographic and outcome variables were described using frequency distributions and appropriate summary statistics for central tendency and variability. A Fisher Exact Test (using an online calculator) was used to measure the change between pre-intervention frequency of cell phone cleaning and post-intervention frequency of cell phone cleaning and for categorical values. The Mann-Whitney U test was used for Likert scale variables. The author had statistical advice and analysis oversight from a statistical expert at the University of Utah, College of Nursing. Descriptive statistics were performed using Excel. A content analysis was conducted on the open-ended survey questions. The words were read word for word and then

coded. Next, the coded data were categorized, organized, and summarized.

Ethical Considerations:

While done in the NICU, this quality improvement study exclusively involved adult subjects and their cell phones. Therefore, none of the data or information was obtained from a protected group. Consent was obtained with voluntary involvement in the project. There was no incentive or deterrent to participation in this project. This study was determined to be non-human subject research by the University of Utah Institutional Review Board and the Timpanogos Hospital Institutional Review Board. No conflicts of interest were discovered or disclosed by any project team members.

“ There was a statistical improvement in the number of respondents who had changed their cleaning habits since coming to the NICU, the number who had been taught/told to clean their cell phones, and the number trained to clean their cell phones after the educational intervention.”

Results:

Intervention Steps and Process Measures and Outcomes:

Demographic data are presented (Table 1). There were an equal number of completed pre and post-surveys (n=50). There was no statistical difference between the respondents who were family or visitors (36-38%) or healthcare workers (62-64%) between the pre and post-surveys. Survey data are shown (Table 2). There was also no difference between the pre and post-surveys in the percentages of respondents who had never cleaned their cell phones (10% vs. 2%). There was a statistical improvement in the number of respondents who had changed their cleaning habits since coming to the NICU, the number who had been taught/told to clean their cell phones, and the number trained to clean their cell phones after the educational intervention.

The number of respondents who typically cleaned their cell phones daily did not significantly change pre and post-intervention. Also unchanged was the number of respondents who tended to their cell phones every time they entered the NICU and the number of respondents who could correctly answer the best way to clean their cell phones. There was also no significant change in the rank-sum score on the Likert scale for the perception of bacterial load.

Secondary analysis showed that most health care workers already had the habit of cleaning their cell phones upon entry to the NICU both before and after the intervention (71% and 72%, respectively, NS). However, a statistical improvement was noted for families and visitors in the percentage who had cleaned their cell phones on entry to the NICU compared to pre and post-intervention (37% vs. 83%, $p=.0069$).

Swab data can be viewed (Table 3). Fifteen swabs were obtained pre-intervention, and 15 swabs were obtained post-intervention.

There was a statistical difference between pre-intervention swabs, showing 100% bacterial colonization, and post-intervention swabs, which had 67% bacterial colonization after a 72-hour incubation period. There were also statistical differences found between pre-intervention swabs with ten different organisms and a total of 35 isolates compared to 2 other organisms and 17 isolates for post-intervention swabs. The level of bacterial load between pre-intervention swabs and post-intervention swabs with greater than a few organisms showed a statistically significant decrease ($p=.065$) at a cutoff of 0.1 but not at an alpha of 0.05. Bacteria-specific isolates are noted (Table 3) on pre-and post-intervention swabs. Post-intervention swabs had no pathogens recovered.

Contextual Elements:

The investigator initially planned to give the educational intervention in a NICU staff meeting. However, the staff meeting date was changed to a date and time that the investigator could not attend. Steps were then made for the medical director to give the educational intervention at the staff meeting. However, the discussion of a requested case study lasted for the session. New arrangements had to be made for the delivery of the educational intervention. Because the educational intervention could not be given in a single day to all staff, teaching only during nursing shifts delayed the post-survey and swab analysis by approximately two weeks. The investigator presented the educational intervention in person to about 30% of the staff until the PowerPoint, which included a video, was provided as a mandatory online education module for staff for NICU staff.

“ Unit census and level of parental involvement were different during the pre-intervention and post-intervention periods. During the pre-intervention surveys, the NICU had fewer patients but a more significant number of families with longer lengths of stay.”

Unit census and level of parental involvement were different during the pre-intervention and post-intervention periods. During the pre-intervention surveys, the NICU had fewer patients but a more significant number of families with longer lengths of stay. Surveys were of interest to both health care workers and families. During the post-intervention surveys, the NICU had increased census but shorter lengths of stay. Both health care workers and families seemed to be more likely to say that they would consider completing the survey the next time they were in. However, in both periods, families and health care workers expressed interest in the results, and several requested that the swab result be made available. This request was denied as swabs were anonymously labeled, and no structure was in place to discuss swab findings one-to-one. Health care workers had been present with the pre-intervention swabs and often attempted to determine which day post-intervention swabs would be obtained. The investigator had to privately coordinate this with microbiology and ensure that both departments did not know which day swabs would be obtained. Swabs were all obtained in the same manner by the investigator,

plated, and analyzed by the microbiology department lead.

Details about missing data:

Because surveys were anonymous, data could not be requested if the content was missing. If data were written that coincided with categories, but the answer was not circled, it was coded to the corresponding category. If the investigator could not interpret the written response or did not match any of the answers, then the answer for that question was left blank. Questions left blank were not used in the analysis, but the remaining survey questions were still used for the completed questions.

Discussion:

Summary:

This project aimed to improve the frequency of routine cleaning of cell phones among those who enter the NICU. This key measure was achieved for families and visitors but not health care workers. Health care workers appeared not to have been affected by the educational intervention. There was no difference in the number of participants who cleaned their cell phones daily or those who cleaned them every time they entered the NICU. However, it was a measure of success that all participants did change their cell phone cleaning habits and acknowledged they had been taught how to clean their cell phones. The eradication of pathogens and decreased bacterial load shown by cell phone swab cultures confirmed that an appropriate and effective cleaning procedure had been identified.

“The eradication of pathogens and decreased bacterial load shown by cell phone swab cultures confirmed that an appropriate and effective cleaning procedure had been identified.”

Interpretation:

The lack of daily cell phone cleaning and participants' inability to verbalize the correct cleaning process post-intervention may be related to several factors. The high rate of staff cleaning their cell phones when entering made statistical improvement difficult. Most nursery staff do not work every day, and many visitors do not visit every day so the investigator may have picked an unattainable measure for analysis. The video playing above the scrub sink to solidify the education had not been implemented during the post-intervention analysis, which may have been a factor in the lack of retention of the educational information.

Kirkby & Biggs implemented a cleaning procedure with antibacterial wipes in a NICU in 2014 and found that they could drop cell phone contamination from 100% to 72% in a convenience sample of 18 cell phones. (19) These phones were swabbed, then cleaned then swabbed again. Unfortunately, they did not collect data about the bacteria noted on cell phones or if any isolates were pathogenic. They also collected their data before entry to the NICU instead of at the NICU bedside. They then implemented an education program and mandatory cell phone cleaning. Four

months later, a series of random audits found 100% compliance with this new cleaning procedure. This pilot program helped guide the current project's choice of the cleaning procedure, and the investigator was disappointed that the current program could not meet the 100% compliance reached by Kirkby and Biggs. (19)

Tekerokoglu et al. obtained 200 swabs of health care workers, patients, and visitors' cell phones brought into the hospital. (16) They found that approximately 20-40% held pathogenic bacteria, with patient/visitor cell phones having a higher rate of pathogens than the phones of health care workers. They recommended implementing a cell phone cleaning procedure and considering new techniques, including UV light. This helped guide the cleaning procedure chosen and the current project's analysis of bacteria and pathogens on swabs.

The cleaning procedure and educational intervention were low cost and had little time impact on the NICU unit personnel. Previously, the unit supplied antibacterial wipes and clear sleeves in which cell phones could be placed. They continued to provide the antibacterial wipes and purchased the UV lightboxes for cleaning. The UV lights are not medical grade and are low enough cost to obtain unit discretionary funds.

“The cleaning procedure and educational intervention were low cost and had little time impact on the NICU unit personnel. Previously, the unit supplied antibacterial wipes and clear sleeves in which cell phones could be placed. They continued to provide the antibacterial wipes and purchased the UV lightboxes for cleaning.”

Limitations :

This was a small quality improvement project in a single unit. The survey may not have adequately evaluated why the expected change to more frequent cell phone cleaning did not occur. A larger sample size of swabs may have achieved a statistically significant decrease in bacterial load at 0.05. A mandatory cell phone cleaning area may have achieved 100% compliance with cleaning upon entry to the NICU.

It may be that in a larger unit with an increased number of swabs, an evaluation of pathogen eradication from cell phones using UV light and antibacterial wipes would be feasible.

Conclusions :

These results show that we were able to develop an effective cell phone cleaning procedure for the NICU but could not impact the frequency of cell phone cleaning in a hoped-for manner. It appeared to sustain awareness of the need for cell phone cleaning in the NICU, but the educational intervention did not improve cell phone cleaning frequency. Improving cell phone cleaning in the subset of visitors and families upon entry was significant. While

not statistically significant, the reduction in bacterial load may be clinically significant. The decrease in pathogens on cell phones is both clinically and statistically significant.

This cleaning procedure could easily be implemented in other hospital areas where patients are deemed immunocompromised. If this cell phone cleaning procedure were implemented in a larger unit or a collaborative group, a link between nosocomial infection and pathogens on cell phones might be found.

“This cleaning procedure could easily be implemented in other hospital areas where patients are deemed immunocompromised. If this cell phone cleaning procedure were implemented in a larger unit or a collaborative group, a link between nosocomial infection and pathogens on cell phones might be found.”

Acknowledgments:

This investigator had help from many resources. Catherine Schultz, DNP, FNP-BC and project chair; Dale Gerstmann, MD, and content expert; Sandy Ewell, MBA, BSN, and mentor. Sandy Ewell also helped to arrange hospital support and funding of swabs. Heather Hutchison, BS, Microbiology MT, ASCP, was my microbiology liaison and content expert. Their help has been immeasurable and appreciated

References:

1. Chen YC, Lin CF, Rehn YF, et al. Reduced nosocomial infection rate in a neonatal intensive care unit during a 4-year surveillance period. *J Chin Med Assoc.* 2017;80(7):427-431. doi:10.1016/j.jcma.2017.02.006
2. Zhao J, Kim KD, Yang X, Auh S, Fu YX, Tang H. Hyper innate responses in neonates lead to increased morbidity and mortality after infection. *Proc Natl Acad Sci U S A.* 2008;105(21):7528-7533. doi:10.1073/pnas.0800152105
3. Green N, Johnson AP, Henderson KL, et al. Quantifying the Burden of Hospital-Acquired Bloodstream Infection in Children in England by Estimating Excess Length of Hospital Stay and Mortality Using a Multistate Analysis of Linked, Routinely Collected Data. *J Pediatric Infect Dis Soc.* 2015;4(4):305-312. doi:10.1093/jpids/piu073
4. Stoll BJ, Hansen NI, Bell EF, et al. Trends in Care Practices, Morbidity, and Mortality of Extremely Preterm Neonates, 1993-2012. *JAMA.* 2015;314(10):1039-1051. doi:10.1001/jama.2015.10244
5. Zhang DS, Xie DK, He N, Dong WB, Lei XP. *Zhongguo Dang Dai Er Ke Za Zhi.* 2017;19(8):866-871. doi:10.7499/j.issn.1008-8830.2017.08.005
6. Alcock G, Liley HG, Cooke L, Gray PH. Prevention of neonatal late-onset sepsis: a randomised controlled trial. *BMC Pediatr.* 2017;17(1):98. Published 2017 Apr 4. doi:10.1186/s12887-017-0855-3
7. Jiang N, Wang Y, Wang Q, Li H, Mai J, Lin Z. *Zhonghua Er Ke Za Zhi.* 2014;52(2):137-141.
8. Wu IH, Tsai MH, Lai MY, et al. Incidence, clinical features, and implications on outcomes of neonatal late-onset sepsis with concurrent infectious focus. *BMC Infect Dis.* 2017;17(1):465. Published 2017 Jul 3. doi:10.1186/s12879-017-2574-7
9. Lapcharoensap W, Kan P, Powers RJ, et al. The Relationship of Nosocomial Infection Reduction to Changes in Neonatal Intensive Care Unit Rates of Bronchopulmonary Dysplasia. *J Pediatr.* 2017;180:105-109.e1. doi:10.1016/j.jpeds.2016.09.030
10. Bizzarro MJ, Conrad SA, Kaufman DA, Rycus P; Extracorporeal Life Support Organization Task Force on Infections, Extracorporeal Membrane Oxygenation. Infections acquired during extracorporeal membrane oxygenation in neonates, children, and adults. *Pediatr Crit Care Med.* 2011;12(3):277-281. doi:10.1097/PCC.0b013e3181e28894
11. Kumar, S., Shankar, B., Arya, S., Deb, M., & Chellani, H. (2018). Healthcare-associated infections in neonatal intensive care unit and its correlation with environmental surveillance. *Journal of Infection and Public Health,* 11(2), 275-279. doi:10.1016/j.jiph.2017.08.005
12. Leighton P, Cortina-Borja M, Millar M, Kempley S, Gilbert R. Risk-adjusted comparisons of bloodstream infection rates in neonatal intensive-care units. *Clin Microbiol Infect.* 2012;18(12):1206-1211. doi:10.1111/j.1469-0691.2011.03733.x
13. Brady RR, Verran J, Damani NN, Gibb AP. Review of mobile communication devices as potential reservoirs of nosocomial pathogens. *J Hosp Infect.* 2009;71(4):295-300. doi:10.1016/j.jhin.2008.12.009
14. Beckstrom AC, Cleman PE, Cassis-Ghavami FL, Kamitsuka MD. Surveillance study of bacterial contamination of the parent's cell phone in the NICU and the effectiveness of an anti-microbial gel in reducing transmission to the hands. *J Perinatol.* 2013;33(12):960-963. doi:10.1038/jp.2013.108
15. Pillet S, Berthelot P, Gagneux-Brunon A, et al. Contamination of healthcare workers' mobile phones by epidemic viruses [published correction appears in *Clin Microbiol Infect.* 2016 Sep;22(9):e21]. *Clin Microbiol Infect.* 2016;22(5):456.e1-456.e4566. doi:10.1016/j.cmi.2015.12.008
16. Tekerekoğlu MS, Duman Y, Serindağ A, et al. Do mobile phones of patients, companions and visitors carry multi-drug-resistant hospital pathogens? *Am J Infect Control.* 2011;39(5):379-381. doi:10.1016/j.ajic.2010.10.026
17. Mark D, Leonard C, Breen H, Graydon R, O'Gorman C, Kirk S. Mobile phones in clinical practice: reducing the risk of bacterial contamination. *Int J Clin Pract.* 2014;68(9):1060-1064. doi:10.1111/ijcp.12448
18. Russotto V, Cortegiani A, Fasciana T, et al. What Healthcare Workers Should Know about Environmental Bacterial Contamination in the Intensive Care Unit. *Biomed Res Int.* 2017;2017:6905450. doi:10.1155/2017/6905450
19. Kirkby S, Biggs C. Cell Phones in the Neonatal Intensive Care Unit: How to Eliminate Unwanted Germs. *Adv Neonatal Care.* 2016;16(6):404-409. doi:10.1097/ANC.0000000000000328
20. Darnton A, Verplanken B. Habits, Routines, and Sustainable Lifestyles: A summary report to the Department for the Environment, Food, and Rural Affairs. Gov.UK; 2011.
21. Triandis HC. Cross-cultural social and personality psychology. *Personality and Social Psychology Bulletin.* 1977;3(2):143-158. doi.org/10.1177/014616727700300202

Financial Disclosure Statement: Kari Wood and Dale Gerstmann have no funding to disclose. Sandy Ewell provided hospital microbiology services to perform cultures of the cell phone swabs.

Ethical Approval: Ethical approval was provided by the Institutional Review Board of Timpanogos Regional Hospital before implementation. Written informed consent was not required.

Clinical Trial Registration: Not Applicable.

Author Contribution: Kari Wood conceived and executed the project and acted as the primary author/investigator. Sandy Ewell refined and contributed to project development and execution. Dale Gerstmann provided study development and editorial contributions.

Completing Interests Statement: Kari Wood, Sandy Ewell, and Dale Gerstmann have no competing interests to declare.

NT



Sandy Ewell MBA BSN
Chief Nursing Officer
Timpanogos Regional Hospital
Orem, Utah

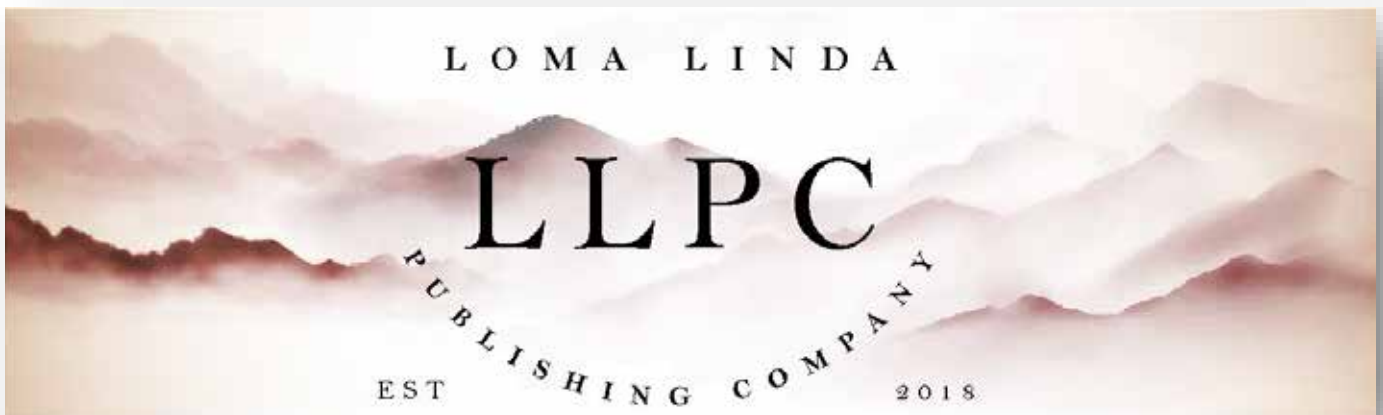
Corresponding Author



Kari Wood, DNP
Neonatal Nurse Practitioner,
Timpanogos Regional Hospital,
Orem, Utah
939 N 900 W, Orem, UT, 84057, USA
Email: kari.wood@comcast.net
Phone: (801) 376-6336 (cell, text)



Dale Gerstmann, MD
3NICU Medical Director,
Timpanogos Regional Hospital,
Orem, Utah



Medtronic

Listen to our new podcast:
MedEd Learning Experience

Listen every Wednesday when clinical experts share safe and effective use of therapies in patient monitoring and respiratory interventions.

Topics include:

- Anesthesia and brain monitoring
- Unplanned extubation situation in the NICU
- Routine intubation with video laryngoscopy
- Challenges in the NICU
- The value of NIRS in clinical practice in the NICU
- Non-invasive and invasive ventilation in the NICU

((•)) Tune in every Wednesday



Learn more on our website:
medtronic.com/mededpodcast

Clinical study demonstrates the value and efficacy of in NICU MRI using the Embrace[®] Neonatal MRI System

Newly published research conveys the clinical utility of the 1T Embrace[®] inside a Level III NICU.

The results of a 2 year clinical study were published in the Journal of Perinatology earlier this year, illustrating the value of having the Embrace[®] Neonatal MRI system in the NICU to provide critical data for the detection and evaluation of brain injury or abnormalities in preterm and critically ill infants.

The study, which began in 2019 following the installation of the FDA cleared Embrace[®] System in the level III neonatal intensive care unit at Brigham and Women's Hospital, included MR imaging of 207 infants for clinical indications and research cases. Co authors of the study, Kristen R. Thiim, Elizabeth Singh, Srinivasan Mukundan, P. Ellen Grant, Edward Yang, Mohamed El Dib, and Terrie E. Inder, concluded that the Embrace[®] MRI scans detected clinically relevant brain abnormalities and, in a subset, were also found to be clinically comparable to scans generated by a 3T Siemens Trio.



Scan or use the link below to read the full study in the *Journal of Perinatology*.

<https://www.nature.com/articles/s41372-022-01387-5>

Discover the value of in-NICU MRI for your most vulnerable neonatal patients.

CALL: +1 866 609 1554



embracemri.com

Letters to the Editor

Response to Bedside Crisis, the Nursing Shortage

Dear Dr. Goldstein:

Our shortage of nursing staff is not a new crisis but one that the recent Covid-19 pandemic has intensified. Prior to the pandemic, it was projected that several states, including Alaska, California, Georgia, New Jersey, South Carolina, South Dakota, and Texas, are projected to have a combined shortage of approximately 91,700 nurses by the year 2030. (1) The stresses of the pandemic strained the system and the workforce of nurses in various ways and have accelerated this nursing shortage crisis. The American Nursing Foundation (ANF) conducted a recent survey evaluating the impact of the Covid-19 pandemic on the nurses' perception of their work, insights into their profession, and intent to leave their position. This survey showed that 52% of nurses are considering leaving their position within the following year. This sentiment is more prevalent among younger nurses, with 63% of nurses under 35 years of age considering leaving their position. (2)

“Even as we look towards a bleak forecast of a worsening nursing shortage crisis, we are currently amidst a shortage directly impacting our ability to provide patient care. 89% of nurses responded that their current organization is experiencing a nursing shortage. (2) ”

Even as we look towards a bleak forecast of a worsening nursing shortage crisis, we are currently amidst a shortage directly impacting our ability to provide patient care. 89% of nurses responded that their current organization is experiencing a nursing shortage. (2) This shortage has decreased the number of experienced core nursing staff and increased reliance on fulfilling the nursing requirements with less experienced, extradepartmental, and traveling nurses. As a result, there has been a significant increase in the number of sentinel events, patient care errors, medication administration errors, healthcare-associated infections, and decreased workflow efficiency. (3,4) There is also a direct decrease in patient care access and longer wait times as we often struggle with available patient beds. The rate-limiting factor is often due to a lack of a sufficient number of nurses available to provide patient care rather than an available physical admission bed.

In order to address the nursing staff shortage, it is crucial to understand the factors that led to our decreased supply of nurses and why nurses are leaving their position.

The nursing workforce has an aging population with an average age of 52 years. Currently, 19% of nurses are beyond the retirement age of 65 years, and up to 20% have plans to retire within

the next five years. (5) This aging cohort of nurses represents bedside nurses and those in nursing leadership and faculty positions. As these educators leave the workforce, there is a vacuum of qualified faculty to educate, train, and precept nursing students. This results in fewer nursing graduates being able to join the workforce.

“The reason for nurses leaving the workforce is complex and often multifactorial. In recent surveys and reports, the leading reasons to leave their position include job dissatisfaction, burnout, family/life determinates, and seeking higher-paid positions. (2,6,7)”

The reason for nurses leaving the workforce is complex and often multifactorial. In recent surveys and reports, the leading reasons to leave their position include job dissatisfaction, burnout, family/life determinates, and seeking higher-paid positions. (2,6,7)

Job dissatisfaction has multiple contributing factors, varying for each individual and organization. Nurses report dissatisfaction due to insufficient staffing leading to high workload, perception of poor support for the staff, distrust of leadership, lack of promotional opportunities, concerns about workplace safety, work flexibility, and dissatisfaction with their compensation. (6,7)

As frontline workers, nurses face many daily challenges that tax their mental health and well-being. The AFN survey found that younger nurses were less emotionally healthy, with 66% feeling anxious and 43% feeling depressed in those less than 35 years of age. By focusing on intensive or critical care nurses, 46% do not feel emotionally healthy. Furthermore, among nurses less than 35 years of age, only 19% of nurses feel that their organization cares for their well-being. In addition, there has been a significant increase in concerns about workplace violence, bullying, and concerns for safety. (2)

“What are the solutions to the nursing shortage that we face today? There may not be a single solution that can address the problem, and each organization will have unique challenges to address. With introspection, we can find solutions to support mental health well-being, improve job satisfaction, and improve nursing retention.”

Work-life balance has been challenged during the pandemic. Nearly 92% of the nurse workforce is female. (5) During the pandemic, female health care providers were often pulled to provide

health care for a family member, childcare, and support for homeschooling, among many other challenges. Even though many nurses can find balancing solutions for these challenges, a number of nurses transition from nursing to focus on their family and life goals. (6)

What are the solutions to the nursing shortage that we face today? There may not be a single solution that can address the problem, and each organization will have unique challenges to address. With introspection, we can find solutions to support mental health well-being, improve job satisfaction, and improve nursing retention.

References:

1. US Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Workforce, National Center for Health Workforce Analysis. *Supply and Demand Projections of the Nursing Workforce: 2014-2030* [Internet]. Available from: <https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nchwa-hrsa-nursing-report.pdf>
2. American Nurses Foundation. *Pulse on the Nation's Nurses Survey Series: COVID-19 Two-Year Impact Assessment* [Internet]. 1955 p. 48. Available from: <https://www.nursingworld.org/~492857/contentassets/872ebb13c63f44f6b11a1bd0c74907c9/covid-19-two-year-impact-assessment-written-report-final.pdf>
3. Ross J. *Nursing Shortage Creating Patient Safety Concerns*. *J Perianesth Nurs*. 2022;37(4):565–567. PMID: 35786503
4. Tubbs-Cooley HL, Mara CA, Carle AC, Mark BA, Pickler RH. *Association of Nurse Workload With Missed Nursing Care in the Neonatal Intensive Care Unit*. *Jama Pediatr*. 2019;173(1):44. PMID: PMC6583427
5. Smiley RA, Ruttinger C, Oliveira CM, Hudson LR, Allgeyer R, Reneau KA, Silvestre JH, Alexander M. *The 2020 National Nursing Workforce Survey*. *J Nurs Regul*. 2021;12(1):S4–S96.
6. Berlin G, Lapointe M, Murphy M. *Surveyed nurses consider leaving direct patient care at elevated rates* [Internet]. Available from: <https://www.emergingnleader.com/wp-content/uploads/2022/02/Mckinsey-Report-2022.pdf>
7. Halter M, Boiko O, Pelone F, Beighton C, Harris R, Gale J, Gourlay S, Drennan V. *The determinants and consequences of adult nursing staff turnover: a systematic review of systematic reviews*. *Bmc Health Serv Res*. 2017;17(1):824. PMID: PMC5732502

Larry Ngo, MD

Assistant Professor, Pediatrics,

Neonatology Division

School of Medicine

Loma Linda University Children's Hospital

Loma Linda, CA

Dear Dr. Ngo,

Thank you for your comments. The nursing shortage is genuine and has dramatically changed how we think about providing care. It is no longer a matter of having the best medications or equipment. Without adequate nursing resources, even the most rudimentary hospital services are imperiled. (1) The path to obtaining RN training is not as long as the path to obtaining training as a physician but is, as you have pointed out, no longer as attractive to those seeking to enter the workplace as it once was. (2, 3)

“Hospitals, desperate to curtail costs, have decreased over time, eliminated incentives for retention, or in some cases, encouraged early retirement of more experienced staff in the interest of hiring younger nurses with fewer years of experience whom they can pay less.”

When you compare the opportunities offered by bedside nursing to those offered by industry or other careers where an initial nursing degree is regarded as a jump point to management or business, nursing still occupies the lower end of the pay spectrum. (4) Hospitals, desperate to curtail costs, have decreased over time, eliminated incentives for retention, or in some cases, encouraged early retirement of more experienced staff in the interest of hiring younger nurses with fewer years of experience whom they can pay less. Because supply constraints limit this group, these same hospitals have now resorted to paying various incentives to attract these new grads whose loyalty is tested by competing hospitals with still richer incentives. Nursing shortages at these hospitals and less than ideal working conditions brought on by nursing working “short” drive further defections and result in many hospitals having to bring in registry or contract staff to work at a cost that may preclude hiring incentives and training regular staff. (2, 5, 6) Remaining nurses may make significantly less than registry staff and are further disgruntled by the realization that registry staff may have guaranteed regular employment by the registry, sometimes with benefits that exceed those offered by the hospitals.

“Remaining nurses may make significantly less than registry staff and are further disgruntled by the realization that registry staff may have guaranteed regular employment by the registry, sometimes with benefits that exceed those offered by the hospitals.”

Where does this end? The fundamental problem is the need to value loyalty, seniority, and excellence. Offering incentives over a base pay that results in a new grad making more than a bedside nurse with years of experience and loyalty to a particular hospi-

tal jeopardizes retention. Looking at finances with an annualized cost model and not extending this cost model out to five and ten years with the expected loss of these incentivized staff to other hospitals, the cost of additional training of subsequent new hires, and the loss of excellence through this attrition process results in a budget that continues to miss its mark. (5, 7)

“Looking at finances with an annualized cost model and not extending this cost model out to five and ten years with the expected loss of these incentivized staff to other hospitals, the cost of additional training of subsequent new hires, and the loss of excellence through this attrition process results in a budget that continues to miss its mark. (5, 7)”

It is not a “single” solution. Nevertheless, the valuation of commitment, loyalty, and excellence must manifest in pay and benefit gradations that always favor the bedside nurse with years of experience at that facility over the incentivized new grad or registry contract workers. The ultimate financial model must consider recognizing the actual costs of training, worker separation, lost opportunities to provide patient care, and achieving excellence. (7)

References:

1. Brinster CJ, Escousse GT, Rivera PA, Sternbergh WC, 3rd, Money SR. Drastic increase in hospital labor costs led to a sustained financial loss for an academic vascular surgery division during the coronavirus disease 2019 pandemic. *J Vasc Surg.* 2022. Epub 2022/07/17. doi: 10.1016/j.jvs.2022.07.004. PubMed PMID: 35842201; PubMed Central PMCID: PMCPCMC9277993.
2. Almost J, Mildon B. R-E-S-P-E-C-T: A Key to Nurse Retention. *Nurs Leadersh (Tor Ont).* 2022;35(2):12-28. Epub 2022/08/18. doi: 10.12927/cjnl.2022.26876. PubMed PMID: 35976780.
3. Park CS, Kabak M, Kim H, Lee S, Cummings GG. No more unimplementable nurse workforce planning. *Contemp Nurse.* 2022:1-11. Epub 2022/03/22. doi: 10.1080/10376178.2022.2056067. PubMed PMID: 35306957.
4. Lewis R. The evolution of advanced nursing practice: Gender, identity, power and patriarchy. *Nurs Inq.* 2022:e12489. Epub 2022/03/14. doi: 10.1111/nin.12489. PubMed PMID: 35279899.
5. Boston-Fleischhauer C. Confronting the Workforce Tsunami: Nonnegotiable Tactics to Reverse the Exodus of RNs. *J Nurs Adm.* 2022;52(1):1-3. Epub 2021/12/16. doi: 10.1097/NNA.0000000000001093. PubMed PMID: 34910702.
6. Hosny EK, Morsy SM, Ahmed AM, Saleh MSM, Alenezi A, Sorour MS. Management of the COVID-19 pandemic: challenges, practices, and organizational support. *BMC Nurs.* 2022;21(1):196. Epub 2022/07/23. doi: 10.1186/s12912-022-00972-5. PubMed PMID: 35869492; PubMed Central PMCID: PMCPCMC9306231.

7. Virkstis K, Boston-Fleischhauer C, Rewers L, Critchley N, Whitmarsh K, Paiewonsky A, et al. 7 Executive Strategies to Stabilize the Nursing Workforce. *J Nurs Adm.* 2022;52(4):194-6. Epub 2022/03/30. doi: 10.1097/NNA.0000000000001129. PubMed PMID: 35348481.

Mitchell Goldstein, MD, MBA, CML

Editor in Chief



Loma Linda Publishing Company

A Delaware “not for profit” 501(c) 3 Corporation.

c/o Mitchell Goldstein, MD

11175 Campus Street, Suite #11121

Loma Linda, CA 92354

Tel: +1 (302) 313-9984

LomaLindaPublishingCompany@gmail.com

© 2006-2022 by Neonatology Today ISSN: 1932-7137 (online)

Published monthly.

All rights reserved.

www.NeonatologyToday.net

Twitter: www.Twitter.com/NeoToday

NT

Erratum (Neonatology Today August, 2022)

Neonatology Today is not aware of the erratum affecting the August, 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.

NT

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

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

NT



NATIONAL PERINATAL ASSOCIATION

CORONAVIRUS COVID-19

RELIABLE RESOURCES:

- **CDC:** 2019 Novel Coronavirus
- **The Lancet:** COVID-19 and pregnancy
- **MotherToBaby:** Coronaviruses
- **WHO:** Emerging respiratory viruses

STAY INFORMED.



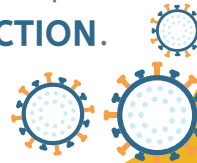
www.nationalperinatal.org

Should Infants Be Separated from Mothers with COVID-19?

FIRST DO NO HARM

SEPARATION

may not prevent
INFECTION.



SKIN to SKIN CARE

supports newborns' physiology.



SEPARATION

stresses parents and babies.



SEPARATION

weakens immune protections.



SEPARATION

disrupts breastfeeding putting babies' health at risk.



SEPARATING the DYAD

doubles providers' workload, burdening systems.



BASED ON THE ARTICLE:

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

© Alison Stuebe, 2020. Published by Mary Ann Liebert, Inc.



Envision is built for your career in neonatology — wherever it takes you.

With Envision Physician Services, you'll find opportunities that fit your needs, schedule and goals no matter where you are in your career journey.

We are currently featuring **leadership** and **staff opportunities** across the nation, so there's never been a better time to find your perfect fit.

WHY NEONATOLOGISTS CHOOSE ENVISION

- Diverse practice environments in attractive locations nationwide
- Competitive compensation and benefits
- Physician-led practices and collaborative work environments
- Flexible scheduling
- Career development and leadership opportunities
- Comprehensive clinician wellness support

Contact our experienced recruiters today at **855.367.3650** to learn more about our featured opportunities and see how you can advance your career with Envision.

[VIEW OPPORTUNITIES](#)

 **Envision**
PHYSICIAN SERVICES



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

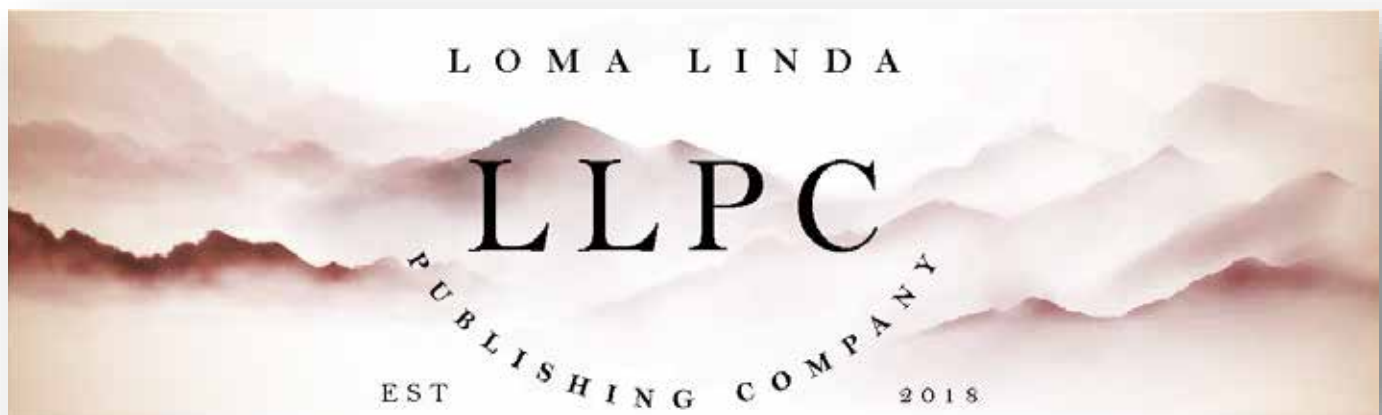


“Storyteller” painting by Sharron Montague Loree, 1982

99nicu

Sign up for free membership at 99nicu, the Internet community for professionals in neonatal medicine. Discussion Forums, Image Library, Virtual NICU, and more...

www.99nicu.org





39th Annual Conference

DoubleTree by
Hilton Ontario, CA

SAVE THE DATE

January 11-13, 2023

Advances in Therapeutics and Technology: Critical Care of Neonates, Children, and Adults

Formerly:

*High-Frequency Ventilation of Infants, Children
& Adults*

This conference will present high quality education and networking opportunities to healthcare professionals who provide care for critically ill neonatal, pediatric, and adult patients with a focus on respiratory problems and management. Along with featured speakers, the conference includes abstract presentations on research in the field of respiratory and cardiovascular issues.

For more information, contact:

Perinatal Advisory Council:
Leadership, Advocacy, and
Consultation



1010 N. Central Ave.
Glendale, CA 91202

(818) 708-2850

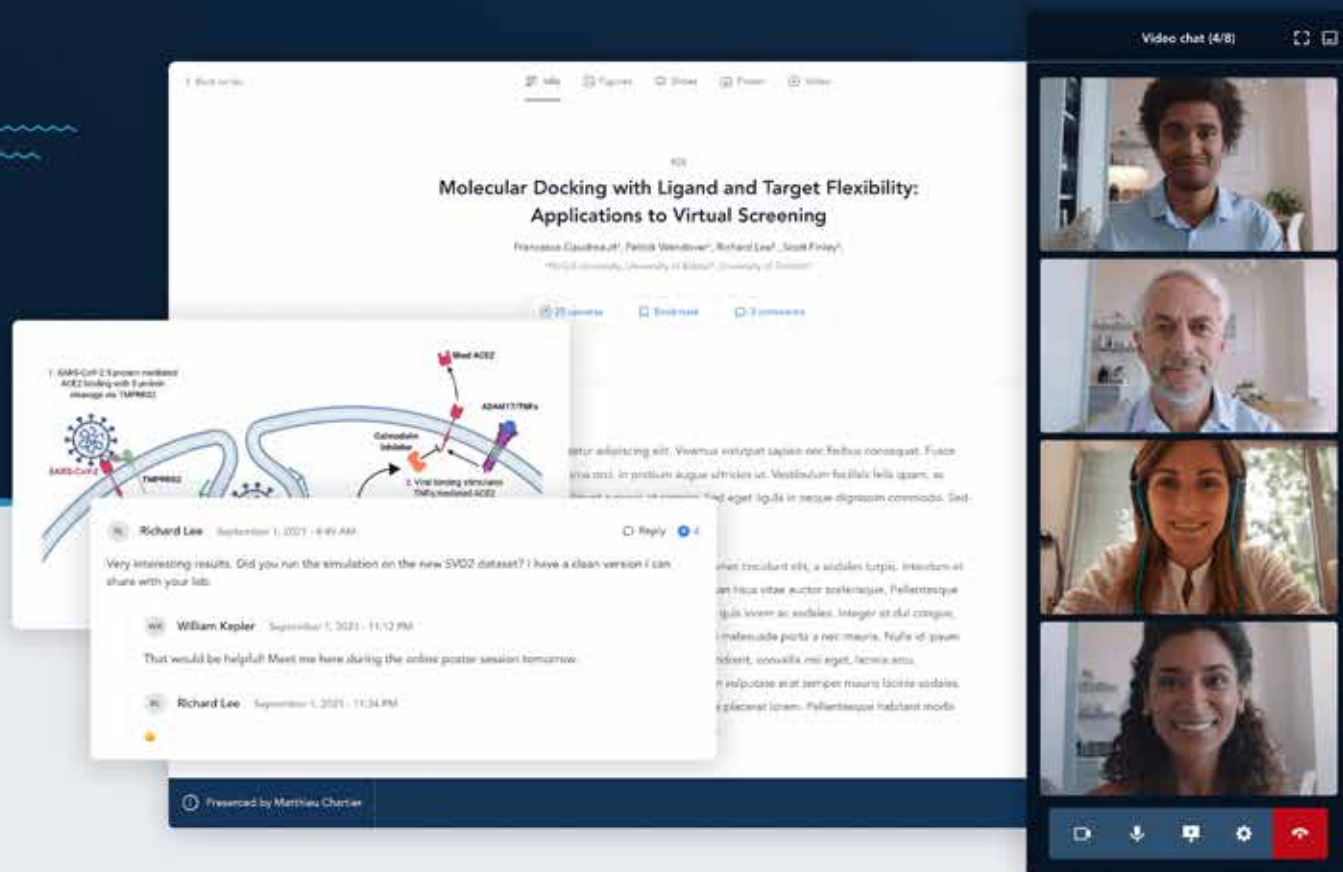
www.paclac.org



For virtual, hybrid and in-person events

The Preferred Conference Management System

The best platform for academics and scientific communities to meet, collaborate and present their most recent research projects.



Trusted by top organizations worldwide



Event Website

Share event info to participants.



Registration and Payments

Collect registration and payments.



Virtual poster sessions

Deliver interactive poster sessions.



Abstract Management

Manage submissions and reviews

Discover more on: fourwaves.com

Consequences – Initiating the Path to High-Reliability Organizing (HRO)

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

Abstract:

High-Reliability Organizations emerged as an effective response to consequences. Designing a response from the antecedent events, causation, or the situation misses vital subtle, and nuanced information. Immediate consequences from apparently mundane circumstances, forcing functions, or abrupt catastrophic events share the same possibility of outcomes – dramatic failure. They also share the same approach to engagement. Appreciating the effect of consequences guides every member of an organization toward vigilance for early heralds and engagement that creates enactment.

“Appreciating the effect of consequences guides every member of an organization toward vigilance for early heralds and engagement that creates enactment.”

Introduction

In the 1930s, a man was told he had an intrapericardial foreign body. Upon learning this, he could not work and sought several surgical consultations. The surgeons found the intrusion was extrapericardial; there was no need for an operation. This spurred Harry R. Decker, one of the surgeons, to review 100 cases of foreign bodies in the heart and pericardium between 1900 and 1939. The study showed that operative mortality was higher than non-operative mortality (1, 2). It turned out that the man's incapacitation came from *the knowledge* of the presence of a foreign body, not from the foreign body itself (3).

In Decker's (1) study, patients with retained foreign bodies in the heart lived 5-22 years. The best prognoses for a retained foreign body in the heart were placement in the pericardium or ventricular wall. Sharp foreign bodies could cause fatal perforation, and a foreign body free in the right heart could cause pulmonary embolism and infarction. These should be removed. A later study of intra- or extrapericardial intrusions found that, if there was no hemorrhage or tissue damage, survival could be thirty years before pain, aneurysmal dilatation, migration, thrombosis, or embolism necessitated removal (2).

Before WWII, Dwight E. Harken and Evelyn M. Glidden [4] studied heart surgery and found that one major difficulty with the operative approach was visualization during intracardiac surgery. To prevent

anoxemia, they listed only three alternatives:

1. Work “blindly;”
2. Utilize endoscopic visualization; there was no such scope available; or
3. Devise a temporary mechanical substitute for the heart and lungs; there was no technology enabling this.

Thus, during WWII, only the first alternative was available. Operations to remove a foreign body were considered a last resort, even amongst military surgeons (1-4).

During the D-Day landing in France in June 1944, a soldier with a chest wound lay on the operating table. The chest X-ray showed shrapnel near the heart. On opening the chest, the surgeon, Harken, found the shrapnel was in the right ventricle. He inserted a clamp into the ventricle, able to grasp the fragment. “Then, suddenly, with a pop as if a champagne cork had been drawn, the fragment jumped out of the ventricle, forced by the pressure within the chamber...Blood poured out in a torrent!” (Harken in a letter to his wife). Sutures along the edge of the wound did not stop the bleeding. “I told the first and second assistants to cross the sutures, and I put my finger over the awful leak. The torrent slowed, stopped, and with my finger in situ, I took large needles swedged with silk and began passing them through the heart muscle wall, under my finger, and out the other side...Blood pressure did drop, but the only moment of panic was when we discovered that one suture had gone through the glove on the finger that had stemmed the flood. I was sutured to the wall of the heart! We cut the glove, and I got loose...” (4).

The patient recovered.

“Harken was aware of the risks and the sentiment toward the removal of a foreign body from within a beating ventricle. However, he thought in terms of consequences. He held the view that “some missiles should be removed for the outlined reasons (3)”

Harken was aware of the risks and the sentiment toward the removal of a foreign body from within a beating ventricle. However, he thought in terms of consequences. He held the view that “some missiles should be removed for the outlined reasons (3):

1. to prevent embolus of the foreign body or associated thrombus;
2. to reduce the danger of bacterial endocarditis;
3. to avoid recurrent pericardial effusions;
4. to reduce damage to the myocardium.”

Discussing Harken's experience, Decker further commented, “Statistics do not mean very much.” Each case should be decided

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

individually, referencing symptoms, interference with cardiac function, and neuropsychiatric reaction. Harken also considered the psychological response to “harboring an unwelcome visitor in one of the citadels of his well-being” (3).

“One surgeon who had reviewed heart and pericardial injuries felt that patients without symptoms during the first few days in a forward surgical unit would probably do better waiting for an operation at a base hospital. He then described a patient who died due to an embolic foreign body ten days after seeming to recover.”

One surgeon who had reviewed heart and pericardial injuries felt that patients without symptoms during the first few days in a forward surgical unit would probably do better waiting for an operation at a base hospital. He then described a patient who died due to an embolic foreign body ten days after seeming to recover. On autopsy, shrapnel was found in the right ventricle – “the overlying myocardium for a distance of several centimeters was black, and death was due to the presence of the foreign body and the squeezing action of the myocardium on that foreign body.” The surgeon had privately told Harken, “he is sure that this patient could have been salvaged by the removal of the foreign body” (3).

Harken advocated the removal of all intracardiac foreign bodies measuring 1.0 cm. or more in two dimensions (2, 5).

Harken responded to the possible consequences of shrapnel retained in the ventricle by removing it. He acted against statistics, conventional wisdom, and the technical impossibility of visualization within the ventricle. This was not trial and error nor a foolhardy act of desperation. His was a well-thought-out synthesis of science, practice, context, and experience within the environment. Harken considered potential outcomes and consequences to make a confident guess as to the *consequences* of his decisions.

His actions directly led to mitral valve repair, open-heart surgery, physiological monitoring in intensive care units, and consideration of the patient’s psychological response to illness (2, 4, 6).

Mastery in High-Reliability Organizing is not a body of knowledge but the ability to solve problems never before encountered. Mastery and specialization in an area continue to exist in HRO. But specialization in domains risks specialization in language, including the development of arcane knowledge, jargon, and specialized terms. With specialization comes categorization. How we define categories and their purpose is heavily influenced by regulators, for example, the ICD codes used in medicine—identifying problems that cross the boundaries of different domains functions as boundary objects, contributing to the distribution of information and distributed problem-solving.

In HRO, the problems we solve prevent or are in response to **consequences**, often developing from various **gaps** that impede our ability to act (7). Through **engagement** with reciprocal **feedback**, we bring structure and resolution to the situation. Systemic and routine response to consequences supports effective, early engagement of the situation by individuals.

Jim Denney, Capt., LAFD, a veteran of two Vietnam combat tours, would remind his medic and fire crews, “The emergency has a vote. In the face of a void, move forward.” A Los Angeles City firefighter, arriving on a confusing, volatile scene to assist one of the authors (DvS) on the Fire Rescue Ambulance, uttered a powerful version of a pragmatic stance: “I don’t know what’s happening, but I know what to do.” Bill Corr, one of the authors’ (DvS) fire captains, and WWII US Navy veteran, South Pacific Theater, gave meaning to rescue work, “What we do is help people when they cannot help themselves.”

“Engaging uncertainty challenges our abilities of perception, sensemaking, and “thinking on the fly” when our actions produce unwanted responses. Some call this “trial-and-error,” except that learning by trial and error is foolhardy when the first trial could be fatal.”

Uncertainty, Risk, Error, Hazard

Engaging uncertainty challenges our abilities of perception, sensemaking, and “thinking on the fly” when our actions produce unwanted responses. Some call this “trial-and-error,” except that learning by trial and error is foolhardy when the first trial could be fatal. Some productive technologies can become destructive in such situations. These technologies have potentially grave consequences. There is *absolute avoidance* of failure when the consequences of major failures are greater than the value of their lessons. The result is an organizational process to “engage *in trials without errors*, lest the next error be the last trial” Todd R. LaPorte and Paula M. Consolini (8).

“Operators in the liminal or VUCA-2T (Volatility, Uncertainty, Complexity, Ambiguity, Threat, and Time compression) expect to encounter grave consequences that necessitate trials without error, possibly a hallmark of an HRO (Tables 1 and 2).”

Operators in the liminal or VUCA-2T (Volatility, Uncertainty, Complexity, Ambiguity, Threat, and Time compression) expect to encounter grave consequences that necessitate trials without error, possibly a hallmark of an HRO (Tables 1 and 2). HRO operators would call “trial without error” “learning by doing,” or the ability to improvise. Rather than “trial” as a singular action, the operator continues engagement in serial trials. There are no failures in common sense, as failure means the operator stopped too soon. What was just learned for each serial iteration generates a series of solutions, reducing damage in unforeseen ways. Engagement can be described as the act of learning by doing in context, not an outcome of rational deliberation, and cannot be objectified for theory-making (9, 10).

Table 1. VUCA-2T (11)

Volatility	The 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

Conventional Operations	Liminal Operations	High-Reliability Operations
Familiar Structured	Threshold of transition Passage	A potential unexpected abrupt change
White noise Closed system	Red and pink noise "Cosmology episode" (12)	Red and pink noise Open system
Prevent Failure	Consequence driven	Consequences
Knowledge by description	Gaps in knowledge (7)	Knowledge by acquaintance
Standards Known rules Familiar relations	Learn by doing Old rules do not apply New rules unknown	Adaptive Relations from shared experience
Hierarchical support	Alone	Mutual support
Euclidean space Newtonian physics	Topological space, but learning relations Collapse sensemaking and leadership (12)	Topological space Non-Newtonian physics
	"They attained a sort of tranquility in spite of their anxiety. They had very little need for defensive mechanisms of any sort to deceive themselves or anyone else" (13)	

"We act to prevent consequences, though in our mind, we interpret our actions as our response to the situation, with our understanding of the situation being derived from antecedent events. The central problem of this act comes from theories that don't match the situation and, as the event evolves, plans that do not match the flux of events. Unrecognized in this process is the gratuitous effects of stress and fear on our thinking and acting."

Consequences develop from uncertainties in gaps that form between stable and unstable situations. *Intrinsic* uncertainties come from the essential nature of the system. They can be *information-insensitive* uncertainties natural to the system or *information-sensitive* uncertainties from information analysis. *Extrinsic* uncertainties arise from the performance of tasks or the development of knowledge (14). Novel situations and problems emerge from the

environment that people cannot or will not solve themselves. HRO supports engagement to reduce consequences.

We act to prevent consequences, though in our mind, we interpret our actions as our response to the situation, with our understanding of the situation being derived from antecedent events. The central problem of this act comes from theories that don't match the situation and, as the event evolves, plans that do not match the flux of events. Unrecognized in this process is the gratuitous effects of stress and fear on our thinking and acting. By its temporal-spatial proximity, a threat initiates *functional* stress-restricted cognition, protective fear circuits, and adaptive threat behaviors. When not modulated, threats cause unrecognized situational cognitive distortions (15, 16), stress-induced disorders, fear circuitry disorders, and amygdala-driven behaviors (15-18). Because we use our judgment to judge our judgment, these maladaptive threat effects only become visible in others or after failure. They can become normalized, making the ecology of fear inevitable and invisible (19).

The above approach produces high reliability. Academicians codified HROs from environments where failure could be catastrophic, yet failures were rare or nonexistent despite working with hazards or in hazardous conditions (20). Mistranslated field terms into the business and management science lexicon caused some wash-out of essential concepts and themes. This borrowing has been restricted, mainly from the normative frame for preventing system failure. The inordinate focus on error and failure diminished the pragmatic frame for early identification and engagement of errors. Instead, the organization relies on the normative frame to reduce

the number of errors through plans, structures, and rules (9).

“Out of this concern that operational failures can result in dangerous and harmful consequences, business and management science distinguishes the concepts of risk, error, and hazard (8).”

Out of this concern that operational failures can result in dangerous and harmful consequences, business and management science distinguishes the concepts of risk, error, and hazard (8).

Risk. In the engineering sense, the risk is the product of the magnitude of a consequence and the probability of an event causing the consequence. In management science, the risk is a calculated value from a *measured probability* multiplied by the *cost of that failure*. In the HRO environment, causation of an event or complete knowledge of any significant situation are uncertainties and cannot be reliably known (8).

The International Organization for Standardization (ISO) developed standards for risk, ISO 31000:2009 (21). Risk is the “effect of uncertainty on objectives.” “Risk management” is the “coordinated activities to direct and control an organization with regard to risk.” Risk as an operational measure is less helpful for an HRO.

HROs can continually access and manage *extrinsic* uncertainties to develop effective ‘barriers’ to assess and manage *system risks*. The HRO makes efforts to reduce the uncertainties, reduce the effects of uncertainties, and increase the proper detection, analysis, and correction of the adverse effects of uncertainties (2). Decision-making approaches can generate Shannon information (changing uncertainty to certainty) (22) through what Bob Bea, Professor Emeritus, Civil Engineering, University of California, Berkeley (23), called *interactive-real-time assessment and management of risks*. Harken used this approach when he removed shrapnel from the ventricles of soldiers in WWII.

“This approach was completely overlooked [by academicians] until the early 1990s. We were taught that there was only *proactive* (before operations) and *reactive* (after) - and that was it. And we thought we could capture all of the risks with the proactive approaches - and then provide adequate defenses if ‘justified’ - but we were missing some really major risks that were fundamentally unpredictable and unknowable.”

Bob Bea, 8/30/2005, personal communication

Error. “Inherent or natural uncertainties that are fundamentally information insensitive” cause errors (Bob Bea, 8/8/2007, personal communication). *Extrinsic* uncertainties frequently are identified as ‘human errors’ though they result from human and organizational processes. Human errors are results, not causes (14).

Errors and failures do not appear with the full force of an overt, decompensated state. Such events start from mundane actions and events or routine procedures that work in most contexts but not all (9). Some mundane events stay small, some self-resolve, and a few must be engaged. Though uncommon, if not rare, mundane events can entrain energy and resources, cascading into irreversible failure. It all starts from a covert, compensated event (24-26).

Errors are not errors at first. An act becomes a mistake only late in its development as events evolve (27). Sensemaking appreciates that the smallness of errors and disturbances is not insignifi-

cant. Micro-level actions can have significant consequences (28). For the operator, errors are valuable by making the boundaries of knowledge, capabilities, and performance visible. Errors make the system safe through early identification and management (29).

“From the operator’s view, until we experience something, we don’t know exactly how we would act or what to expect. Error emerges from local, nonlinear interactions, manifesting the environment entwined with human intent. One person’s error, then, becomes another person’s information.”

From the operator’s view, until we experience something, we don’t know exactly how we would act or what to expect. Error emerges from local, nonlinear interactions, manifesting the environment entwined with human intent. One person’s error, then, becomes another person’s information. Environments where people must move between ill-structured and well-structured problems confound people anchored in the normative stance. For the HRO, *error corrects heuristic bias* (26).

Focus on error prevention to achieve HRO has consequences. Behaviors to prevent failure or reduce liability exposure include “doing everything through channels,” “refer all matters to committees,” which should be “as large as possible — never less than five,” “advocate caution,” “urge your fellow conferees to be reasonable and avoid haste,” “worry about the propriety of any decision — raise the question of whether such action as is contemplated lies within the jurisdiction of the group or whether it might conflict with the policy of some higher echelon,” and “apply all regulations to the last letter.” The above quotations exemplify a “type of simple sabotage” that requires “no destructive tools whatsoever and produces physical damage, if any, by highly indirect means.”

“The United States Office of Strategic Services (OSS) used these methods to undermine industrial efforts in occupied Europe during World War II. Operatives taught civilian workers these “simple sabotage” methods (30). Today’s business and healthcare leaders commonly accept these methods as prudent means to prevent error and reduce liability in healthcare.”

The United States Office of Strategic Services (OSS) used these methods to undermine industrial efforts in occupied Europe during World War II. Operatives taught civilian workers these “simple sabotage” methods (30). Today’s business and healthcare leaders commonly accept these methods as prudent means to prevent error and reduce liability in healthcare.

Hazards. Hazard refers to characteristics that, if failure were to occur, can result in significant damage to life and property (8). Hazard is objective and dispassionate, if not passive, while the threat is subjective and can be directed intentionally toward an object.

Hazards, Consequences, Capabilities. During a rope training exercise, a Special Forces (SF) operator asked one of the authors (DvS) about risk management. He was working toward his MBA and didn't quite grasp the concept. The author described it as a calculated value to help a business make investment decisions – how much to spend depending on what can be lost. Too great a risk, and the business does not pursue the venture. The author pointed out that SF cannot refuse an assignment. Instead, they look at the capabilities necessary for the mission. If they don't have the necessary capabilities, or their support groups do not have the required capabilities, they develop them. They match capabilities to expected hazards. They received the mission *because of* the consequences of not completing it. This is the type of thinking Harkens followed standing by a soldier with a rare type of wound.

“If they don’t have the necessary capabilities, or their support groups do not have the required capabilities, they develop them. They match capabilities to expected hazards. They received the mission because of the consequences of not completing it. This is the type of thinking Harkens followed standing by a soldier with a rare type of wound.”

This may better be appreciated when we consider two orthogonal axes to describe the environment – one formed by abstractions and one contextual. Abstract concepts comprise discrete elements and time measures that do not influence other elements on the axis. The other contextual axis oscillates from environmental influences due to internal feedback (auto-correlation) and external feedback with different frequencies. The first axis of abstractions

is stable and can be described by a gaussian distribution, producing the statistics and probabilities necessary for evidence-based medicine. The oscillations of the contextual axis have frequencies with long-period events that carry greater energy. The system must respond to these long-period frequencies that act as infrequent forcing functions.

Consequences and Color of Noise

Stable environments measurable by the gaussian distribution are “white noise” environments. Environments where stability is at risk from forcing functions, are “red noise” environments (24). The interaction between the orthogonal axes of abstractions and contextuality produces periods that have stability or the appearance of stability. 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 (31). Our drive is to prevent 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 (32). ”

Table 3. Patterns and Characteristics of Noise (24)

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

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 (32). Problem-solving for red and pink noise environments tends toward practical common sense, focusing on consequences and a broad knowledge base (33).

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 approaches" become the problem. Using white noise predictions of what would happen during forcing functions or catastrophes is a matter of life or death – inaccurate models could kill (34).

"I Am Data-Driven"

Said with pride by various executives, administrators, and managers. Data is a product of a gaussian distribution, found only in white noise environments. Consequences in red and pink noise environments emerge from forcing functions and abrupt catastrophes. Data provides less support for these emergencies than a focus on capabilities would.

Executives, administrators, and managers learn to rely on data from their experience in white noise environments. These systems have information-sensitive uncertainties that arise from information analysis. Data forms a gaussian distribution; more data decreases variance while providing the information necessary to resolve these uncertainties. Hence, being "data-driven" makes sense.

"Executives, administrators, and managers learn to rely on data from their experience in white noise environments. These systems have information-sensitive uncertainties that arise from information analysis. Data forms a gaussian distribution; more data decreases variance while providing the information necessary to resolve these uncertainties."

In an environment influenced by reddened noise, more data increases variance while forming a power distribution rather than a Gaussian distribution. The uncertainties natural to such systems are *information insensitive*. Hence, "data-driven" approaches can mislead, if not confusing. Data then becomes a tool one may want to drop during an exigency.

In our environments, data becomes stale relatively quickly. Misconstrued data can take away from developing the depth and breadth necessary for reddened noise surges. Data production for a distant administrator may have less operational relevance than more qualitative measures.

Leadership for Consequences

To feel the severity of lung disease in a patient with status asth-

maticus, one of the authors (DvS) hand ventilated a child. Blood gas analysis revealed continuing decreases in arterial pH. In looking at the cardiorespiratory monitor, the author noted the T wave on the EKG was increasingly becoming peaked, an indicator that the heart was becoming affected by increasing serum potassium due to refractory respiratory acidosis. Verbal orders for treatments to lower serum potassium were met with doubt and resistance. "The amplitude on the monitor is high," remarked staff. Adjusting the amplitude revealed the seriousness. The author quickly explained how respiratory acidosis could cause hyperkalemia, influencing some staff to begin preparations. Other staff held the too common belief that if it does not make sense, then it won't happen, or "If I haven't seen it, it can't be."

Cardiac arrest ensued, but because some staff were present in the process of preparing treatment, the child recovered. Two days later, the scenario, exactly as described above, occurred again but with new staff with the same comments. The child again recovered.

An adolescent dependent on long-term mechanical ventilation in a subacute care facility was anxious, not wanting to be left alone. Pulse oximetry revealed variable oxygen saturation ranging from decreasing peaks of 96% to 88% and lows to 78%. Staff prepared to call 9-1-1 to send the patient to the emergency department. The Respiratory Care Practitioner (RCP) noted the ventilator peak pressure was set at 18 cm H₂O, yet she used both hands to expand the chest, effectively a pressure of 32-35 cm H₂O. She also noted his tracheal secretions had changed from thick to sticky while under fluid restriction. The RCP requested a stepwise increase of ventilator peak pressure and enteric fluids for the secretions.

"Healthcare providers want to relieve suffering quickly and not keep a patient in deteriorating condition. They also do not want to leave their patient in extremis. This created tension between rapid engagement and early transport – both will reduce consequences."

Healthcare providers want to relieve suffering quickly and not keep a patient in deteriorating condition. They also do not want to leave their patient *in extremis*. This created tension between rapid engagement and early transport – both will reduce consequences. One of the authors (DvS) reframed the problem as one of hydration and 'interoception.' Administration of an oral or enteric rehydration solution can hydrate the airways in 20 minutes. The new rheological characteristics then mobilize airway secretions, relieving the obstruction. The greater chest expansion brings an interoceptive state of relaxation.

Following the RCPs recommendation, peak pressure was increased stepwise to 32 cm H₂O while a stepwise decrease in the respiratory rate occurred, and oxygen saturation increased. After the enteric administration of an oral rehydration solution, tracheal suctioning recovered copious secretions. Within one hour, the oxygen saturation was 98% on F₀₂ of 0.36; the respiratory rate was 22, and the patient was comfortably breathing, asking for ice chips, and feeling comfortable being alone in his room.

We experience a sense of danger when we are in circumstances

we cannot adequately control without the threat of negative consequences. This only occurs when we must interact with the problem in context, that is, the problem embedded in the environment. Context accentuates consequences (33, 35, 36). Leaders can accentuate the situation to intensify circumstances (the increasing T wave from acute respiratory failure) or to attenuate the level of concern (focusing on chest expansion and secretions) (37).

“Failures occur, the damage is done, and people are injured or die. Faced with such risks and the desire to operate failure-free, we act carefully, think prudently, and lead judiciously. We become secure in believing we will prevent or mitigate negative consequences. We prepare our workforce, surveil for indicators of problems, generate plans, and create algorithms for actions that prevent or support responses to that failure.”

Failures occur, the damage is done, and people are injured or die. Faced with such risks and the desire to operate failure-free, we act carefully, think prudently, and lead judiciously. We become secure in believing we will prevent or mitigate negative consequences. We prepare our workforce, surveil for indicators of problems, generate plans, and create algorithms for actions that prevent or support responses to that failure. The result is a safer program with few failures but failures that can be attributed to some error or a failure from which we can learn.

This describes more than an ideal system; it describes how someone in an authority or leadership position may see the program they have or aspire to have.

“Leadership scholarship has focused on relatively stable operating conditions with low ambiguity, accessible information, and plentiful time for action (38). Leadership models developed in organizational science or military organizations may not generalize “live-or-die” situations where one must actively avoid death (39).”

Leadership scholarship has focused on relatively stable operating conditions with low ambiguity, accessible information, and plentiful time for action (38). Leadership models developed in organizational science or military organizations may not generalize “live-or-die” situations where one must actively avoid death (39). In such cases, leaders and followers personally face dynamic and

unpredictable situations where outcomes include severe physical or psychological injury (40). This type of leadership requires context-dependent factors and the development of effective thought processes (15, 41, 42).

Sensemaking against consequences is not a matter of gathering information. It is retrospective and ongoing as the situation changes and capabilities come into play, punctuated and not following single sequences (43). We must update our knowledge from the unfolding situation or risk being caught up in dangerous events if we still act upon what happened in the recent past (12).

Sensemaking is actively shared by all who generate information. The leader is receptive to new, especially disconfirming, information. The leader may change plans from a subordinate’s recommendation, not because the original plan had flaws, but to acknowledge the subordinate’s initiative and insight. Subordinates may notice the leader lost focus on events and, through reciprocal sensemaking and sense-giving, might intervene to interpret a situation, suggest appropriate action, or encourage communication with other leaders (44).

Rather than sensemaking or sense-giving, abstractions, decontextualizing, and reliance on data contribute to misconstrual and miscommunication (44). While these approaches can develop into teaching, they can make surmountable problems deadly in instability with high consequences. The leader in these situations strives for distributed cognition.

“Participation in decision-making by subordinates contributes to them crossing the gap from competence to proficiency or proficiency to expertise while developing moral agency that the individual makes a difference (45).”

Participation in decision-making by subordinates contributes to them crossing the gap from competence to proficiency or proficiency to expertise while developing moral agency that the individual makes a difference (45). Through discussions with the leader, subordinates learn of the impact of adverse consequences and inherent moral implications of decisions and actions taken during an unstable event (37). The leader increases performance by modeling and sharing sensemaking and meaning-making to (46):

- foster meaning;
- build competence or self-efficacy;
- encourage the pursuit of value-congruent goals;
- strengthen social identification with a group, department, or organization;
- help subordinates perceive themselves as important, influential, effective, and worthwhile.

Engagement reduces certitude. Certitude is an early herald of failure. Engagement at the point of contact, where line workers operate, is nearly always a liminal space. Neonatal physiology, parents, families, and the local circumstances will never be the same. While creating a PICU, Ron Perkin would tell staff he didn’t care what they did. . .they just had to stay at the bedside (DvS, personal communication). That is, engagement continued past the point of action, continuing through observation for complications,

effectiveness, and sustainability. The further away one moves from the event, the consequences of certitude decrease. In some sense, certitude can be a hazard from limited field experience or higher status (47).

“Leadership models do not incorporate the characteristics necessary for close-in, quick identification and interpretation of weak signals, uncertainty, and ambiguous information. “A story always sounds clear enough at a distance, but the nearer you get to the scene of events, the vaguer it becomes,” George Orwell, Shooting an Elephant (48).”

Leadership models do not incorporate the characteristics necessary for close-in, quick identification and interpretation of weak signals, uncertainty, and ambiguous information. “A story always sounds clear enough at a distance, but the nearer you get to the scene of events, the vaguer it becomes,” George Orwell, *Shooting an Elephant* (48).

Design for Consequences:

HROs, as an organization, focus on function and consequences. As Karl Weick observed (personal communication), a disruption can distract an organization leading it to misjudge what is happening. While collecting sufficient information to act, circumstances will have changed. Act immediately, and you don't have the necessary information. This is the uncertainty principle bedeviling all who arrive at an exigent situation. With insufficient information as a given, the HRO generates information through action. HROs focus on consequences (49).

Faced with such a situation having a possible uncertain or bad outcome, individuals may hesitate to act. Consequences, in these situations, drive engagement. Yet consequences also arise from inaction and actions taken. Focusing on the consequences of our actions and bottom-up feedback from the environment, rather than a central authority, has common elements with the brain function of motor cognition (9).

“When we engage, we build from perception to observation, which drives inquiry and experience. From our experience, we give meaning to our actions and the information we generate. In the liminal space, we do not have certainty, particularly for antecedent events, which impairs our ability to act from what happened earlier. ”

When we engage, we build from perception to observation, which drives inquiry and experience. From our experience, we give meaning to our actions and the information we generate. In the liminal space, we do not have certainty, particularly for antecedent events, which impairs our ability to act from what happened earlier. This also interferes with scientific logic and the Cartesian approach to reaching truth (50) 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 (51, 52).

Conclusion:

Dwight E. Harken thought of preventing consequences but would act against the consensus of surgeons (3). He would work blindly in the ventricle. He didn't know if he would succeed and, if he succeeded, would he prevent the complications some casualties never experienced.

The RCP observed a patient in distress with poor chest expansion, a large amount of tracheal secretions, and oxygen saturation that did not improve after suctioning. Wanting to make the patient comfortable and appreciating that patient-ventilator asynchrony can be fatal (53), the RCP began hand ventilating for greater chest expansion. Greater tidal volume increased the mean airway pressure, increasing oxygen saturation while also increasing the flow of mucus.

Mobilized secretions created a vibration in the ventilation bag. Suctioning produced thick, then sticky secretions. The RCP, engaging the consequences of discomfort, had changed to the consequences of patient-ventilator asynchrony due to poor chest expansion, then to the effects of sticky secretions and mucous plugs that can rapidly become fatal.

“The dynamic viscoelastic, non-Newtonian properties of mucus ensure efficient clearance, maintain adhesive and elastic strength to resist gravity and coughing and prevent loss of these properties from ambient water. As a hydrogel of glycosylated proteins, mucus rapidly becomes hydrophobic once released from the cell. ”

The dynamic viscoelastic, non-Newtonian properties of mucus ensure efficient clearance, maintain adhesive and elastic strength to resist gravity and coughing and prevent loss of these properties from ambient water. As a hydrogel of glycosylated proteins, mucus rapidly becomes hydrophobic once released from the cell. Airway hydration determines mucus stickiness and thickness. If mucus becomes sufficiently thick, bacterial overgrowth and infections can occur (54, 55).

Interoception is the sensation of the internal body, specifically its sense of well-being (56-58). Veterans of combat and public safety from before WWII have encouraged novices to “take a deep breath” during their early experiences under stress. In the past few decades, such deep breathing has been found to reduce stress through interoception to the extent it can help with the symptoms of PTSD (59, 60). Cardiorespiratory vagal activity is the most rapid way to increase activity in the insular or interocep-

tive cortex. We achieve this with a larger tidal volume and shorter inspiratory time (60, 61).

ICU physicians had a greater influence on hospital and facility administration to support early 9-1-1 response and transfer to the Emergency Department or ICU. The standard ED and ICU treatment is n-acetylcysteine, bronchodilators, mechanical devices, and bronchoscopy. Concern by the nursing staff was to follow these newer, informal protocols that had unintentionally created the ecology of fear (19).

One of the authors (DvS) arrived and began using treatments established over 30 years of personal experience described above. The RCP and author worked with physical examination and response to therapy, otherwise blind to standard studies – without arterial blood gas analysis, chest X-ray, or sedation. The child recovered in 30-45 minutes, as described, and remained in the facility.

This description of the incident is a compilation of dozens of such cases regarding smiles (62) and secretions (63). When possible, we use a smile as an endpoint with some children, for the first time, smiling, communicating (64), or talking. The absence of a smile has been used as a sign of serious illness (65), while the smile itself is a sign of joy (66).

“Aside from medical consequences, Dwight Harken considered the psychological reaction to a retained foreign body in the heart (3). In a recent case, Laura Elliot, the RCP considered the suffocation sensation from a low peak pressure and the improved comfort from interoception produced by a faster inspiratory time and higher peak pressure (both hands to expand the chest) (56, 61).”

Aside from medical consequences, Dwight Harken considered the psychological reaction to a retained foreign body in the heart (3). In a recent case, Laura Elliot, the RCP considered the suffocation sensation from a low peak pressure and the improved comfort from interoception produced by a faster inspiratory time and higher peak pressure (both hands to expand the chest) (56, 61). This combination reduces PTSD symptoms and reduces overactivity of the amygdala (59, 67). This type of ventilation also counteracts the synergistic activation of the sympathetic nervous system O₂ and CO₂-sensitive chemoreflexes from hypoxia and hypercapnia (60).

Driven to make the patient comfortable, Elliot uncovered complex ventilator settings and potentially lethal sticky secretions that had not responded to n-acetylcysteine, bronchodilators, and mechanical devices. She was concerned about **consequences**, then came across a series of **gaps** through **engagement** using reciprocal **feedback**. Systemic and routine response to consequences supports effective, early engagement of the situation by individuals. By engaging consequences, we create a living, High-Reliability Organization.

“We do in an emergency what we do every day.”

James P. Denney, Captain, Los Angeles Fire Department, and Vietnam Combat Veteran.

References:

1. Decker HR. Foreign bodies in the heart and pericardium—should they be removed? *Journal of Thoracic Surgery*. 1939;9(1):62-79.
2. Holdefer Jr WF, Lyons C, Edwards WS. Indications for removal of intracardiac foreign bodies: review and report of four case. *Annals of Surgery*. 1965;163(2):249-56.
3. Harken DE. The removal of foreign bodies from the pericardium and heart: A Moving Picture Demonstration. *Journal of Thoracic Surgery*. 1947;16(6):701-9.
4. Miller GW. *King of hearts: the true story of the maverick who pioneered open heart surgery*. New York, NY: Crown Publishers; 2000. 304 p.
5. Harken DE, Williams AC. Foreign bodies in and in relation to the thoracic blood vessels and heart: Migratory foreign bodies within the blood vascular system. *The American Journal of Surgery*. 1946;72(1):80-90.
6. Lefemine AA, Harken DE. Postoperative care following open-heart operations: routine use of controlled ventilation. *The Journal of Thoracic and Cardiovascular Surgery*. 1966;52(2):207-16.
7. van Stralen D, McKay SD, Mercer TA. Identifying Gaps – Entering the Path to High Reliability Organizing (HRO). *Neonatology Today*. 2022;17(8):29-42.
8. LaPorte TR, Consolini PM. Working in Practice but Not in Theory: Theoretical Challenges of “High-Reliability Organizations”. *Journal of Public Administration Research and Theory*. 1991;1(1):19-48.
9. van Stralen D. Pragmatic High-Reliability Organization (HRO) During Pandemic COVID-19. *Neonatology Today*. 2020;15(4):3-9.
10. Zundel M, Kokkalis P. Theorizing as engaged practice. *Organization Studies*. 2010;31(9-10):1209-27.
11. van Stralen D, Mercer TA. High-Reliability Organizing (HRO) in the COVID-19 Liminal Zone: Characteristics of Workers and Local Leaders. *Neonatology Today*. 2021;16(4):90-101. doi: 10.51362/neonatology.today/2021416490101.
12. Weick KE. The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative science quarterly*. 1993;38(4):628-52.
13. Hastings DW, Wright DG, Glueck BC. *Psychiatric Experiences of the Eighth Air Force: First Year of Combat (July 4, 1942-July 4, 1943)*. New York, NY The Josiah Macy, Jr. Foundation; 1944.
14. Bea R. What is safe? *MOJ Civil Engineering*. 2016;1(1):7. doi: 10.15406/mojce.2016.01.00002.
15. van Stralen D, Byrum S, Inozu B. *High Reliability for a Highly Unreliable World: Preparing for Code Blue through Daily Operations in Healthcare*. North Charleston, SC: CreatSpace Publishing; 2017.
16. van Stralen D, McKay SD, Hart CA, Mercer TA. Implementation of High-Reliability Organizing (HRO): The Inherent Vice Characteristics of Stress, Fear, and Threat. *Neonatology Today*. 2022;17(6):26-38.
17. Bracha HS, Bracha AS, Williams AE, Ralston TC, Matsukawa JM. The human fear-circuitry and fear-induced fainting in healthy individuals. *Clinical Autonomic Research*. 2005;15(3):238-41.
18. van Stralen D, Mercer TA. During Pandemic COVID-19, the

- High-Reliability Organization (HRO) Identifies Maladaptive Stress Behaviors: The Stress-Fear-Threat Cascade. *Neonatology Today*. 2020;15(11):113-24. doi: 10.51362/neonatology.today/2020111511113124.
19. van Stralen D, Mercer TA. Pandemic COVID-19, the High-Reliability Organization (HRO), and the Ecology of Fear. *Neonatology Today*. 2020;15(12):129-38. doi: 10.51362/neonatology.today/2020121512129138.
 20. Bourrier M. The Legacy of the High Reliability Organization Project. *Journal of Contingencies and Crisis Management*. 2011;19(1):9-13. doi: 10.1111/j.1468-5973.2010.00628.x.
 21. TMB WGoRM. ISO Guide 73:2009 - Risk management — Vocabulary. Geneva, Switzerland: 2009 Nov 2009. Report No.
 22. Shannon CE. A Mathematical Theory of Communication. *Bell System Technical Journal*. 1948;27(3):379-423. doi: 10.1002/j.1538-7305.1948.tb01338.x.
 23. Prud'homme A. Bob Bea, the Master of Disaster. *Men's Journal* 2013;5:72-5.
 24. van Stralen D, McKay SD, Mercer TA. Disaster Series: High Reliability Organizing for (HRO) Disasters—Disaster Ecology and the Color of Noise. *Neonatology Today*. 2021;16(12):96-109. doi: <https://doi.org/10.51362/neonatology.today/2021161296108>.
 25. van Stralen D, McKay SD, Hart CA, Mercer TA. High Reliability Organizing (HRO) for the Color of Noise: Forcing Functions, Collaboration, and Safety. 17. 2022;4:19-30.
 26. van Stralen D, McKay SD, Mercer TA. Flight Decks and Isolettes: High-Reliability Organizing (HRO) as Pragmatic Leadership Principles during Pandemic COVID-19. *Neonatology Today*. 2020;15(7):113-21. doi: 10.51362/neonatology.today/20207157113121.
 27. Paget MA. *The unity of mistakes: A phenomenological interpretation of medical work*. Philadelphia, PA: Temple University Press; 2004.
 28. Weick KE, Sutcliffe KM, Obstfeld D. Organizing and the Process of Sensemaking. *Organization Science*. 2005;16(4):409-21. doi: 10.1287/orsc.1050.0133.
 29. van Stralen D, Gambino W. Error as a Faulty Failure Signal. *Neonatology Today*. 2020;15(9):114-7. doi: 10.51362/neonatology.today/20209159114117.
 30. OSS OoSS. *Simple Sabotage Field Manual — Strategic Services (Provisional) [DECLASSIFIED]*. Washington, DC: Office of Strategic Services; 1944.
 31. Wolfberg A. Full-spectrum analysis: A new way of thinking for a new world. *Military Review*. 2006;86(4):35-42.
 32. van Stralen D, Mercer TA. High-Reliability Organizing (HRO), Decision Making, the OODA Loop, and COVID-19. *Neonatology Today*. 2021;16(8):86-96.
 33. van Stralen D, Mercer TA. Common Sense High Reliability Organizing (HRO) in the Response to COVID-19. *Neonatology Today*. 2021;16(7):90-102. doi: 10.51362/neonatology.today/2021716790102.
 34. Heggie V. Experimental physiology, Everest and oxygen: from the ghastly kitchens to the gasping lung. *The British Journal for the History of Science*. 2013;46(1):123-47. doi: 10.1017/s0007087412000775.
 35. van Stralen D, McKay SD, Mercer TA. High-Reliability Organizing (HRO) is Contextual. *Neonatology Today*. 2022;17(7):36-50.
 36. Karrasch A, Levine A, Kolditz T. Leadership When It Matters Most: Lessons on Influence from In Extremis Contexts. In: Sweeney PJ, Matthews MD, Leste PB, editors. *Leadership in Dangerous Situations: A Handbook for the Armed Forces, Emergency Services, and First Responders*. Annapolis, MD: Naval Institute Press; 2011. p. 218-29.
 37. Hannah ST, Uhl-Bien M, Avolio B, Cavarretta FL. A framework for examining leadership in extreme contexts. *The Leadership Quarterly*. 2009;20:897-919. doi: doi:10.1016/j.leaqua.2009.09.006.
 38. Baran BE, Scott CW. Organizing ambiguity: A grounded theory of leadership and sensemaking within dangerous contexts. *Military Psychology*. 2010;22(S42-S69). doi: 10.1080/08995601003644262.
 39. Kolditz TA. Research in In Extremis Settings: Expanding the Critique of 'Why They Fight'. *Armed Forces & Society*. 2006;32(4):655-8. doi: 10.1177/0095327x05283853.
 40. Campbell DJ, Hannah ST, Matthews MD. Leadership in Military and Other Dangerous Contexts: Introduction to the Special Topic Issue. *Military Psychology*. 2010;22:S1-S14. doi: 10.1080/08995601003644163.
 41. van Stralen D, McKay SD, Williams GT, Mercer TA. *Tactical Improvisation: After-Action/ Comprehensive Analysis of the Active Shooter Incident Response by the San Bernardino City Fire Department December 2, 2015*. San Bernardino, CA: San Bernardino County Fire Protection District; 2018.
 42. Palmer NF, Hannah ST, Sosnowik DE. Leader Development for Dangerous Contexts. In: Sweeney PJ, Palmer NF, Hannah ST, Sosnowik DE, editors. *Leadership in Dangerous Situations: A Handbook for the Armed Forces, Emergency Services, and First Responders*. Annapolis, MD: Naval Institute Press; 2011. p. 350-69.
 43. Weick KE. *Sensemaking in organizations*. Dickens G, editor. Thousand Oaks, CA: Sage; 1995.
 44. Dixon DP, Weeks M, Boland R, Perelli S. Making Sense When It Matters Most: An Exploratory Study of Leadership In Extremis. *Journal of Leadership & Organizational Studies*. 2016;24(3):294-317. doi: 10.1177/1548051816679356.
 45. Benner P. *From Novice to Expert: Excellence and Power in Clinical Nursing Practice*. Menlo Park, CA: Addison-Wesley; 1984.
 46. Grant AM. Leading with Meaning: Beneficiary Contact, Prosocial Impact, and the Performance Effects of Transformational Leadership. *Academy of Management Journal*. 2012;55(2):458-76. doi: 10.5465/amj.2010.0588.
 47. van Stralen D, Mercer TA. The Nature of Neonatal Experience during Pandemic COVID-19. *Neonatology Today*. 2021;16(3):87-97. doi: 10.51362/neonatology.today/202131638797.
 48. Orwell G. Shooting elephant. In: Packer G, editor. *Facing Unpleasant Facts: Narrative essays*. Boston, MA: Mariner Books; 2008. p. 29-37.
 49. van Stralen D, Mercer TA. High Reliability Organizing (HRO) is the Extension of Neonatology during Pandemic COVID-19. *Neonatology Today*. 2021;16(5):97-109. doi: 10.51362/neonatology.today/2021516597109.
 50. Legg C, Hookway C. Pragmatism. In: Zalta EN, editor. *The Stanford Encyclopedia of Philosophy*: Stanford University Press; 2020.
 51. Star SL. Living grounded theory: Cognitive and emotional forms of pragmatism. In: Bryant A, Charmaz K, editors. *The Sage handbook of grounded theory*. Los Angeles, CA: Sage

- Publications; 2007. p. 75-94.
52. van Stralen D, Mercer TA. High Altitude Climbing, High Reliability, COVID-19, and the Power of Observation. *Neonatology Today*. 2021;16(1):68-79. doi: 10.51362/neonatology.today/20211616879.
 53. Epstein SK. How often does patient-ventilator asynchrony occur and what are the consequences? *Respiratory care*. 2011;56(1):25-38.
 54. Verdugo P. Supramolecular dynamics of mucus. *Cold Spring Harbor Perspectives in Medicine* 2. 2012;11(a009597):14. doi: 10.1101/cshperspect.a009597.
 55. Lai SK, Wang Y-Y, Wirtz D, Hanes J. Micro-and macro-rheology of mucus. *Advanced drug delivery reviews*. 2009;61(2):86-100.
 56. Strigo IA, Craig AD. Interoception, homeostatic emotions and sympathovagal balance. *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2016;371(1708):9. doi: 10.1098/rstb.2016.0010.
 57. Brown RP, Gerbarg PL, Muench F. Breathing practices for treatment of psychiatric and stress-related medical conditions. *Psychiatric Clinics* 2013;36(1):121-40.
 58. Jerath R, Edry JW, Barnes VA, Jerath V. Physiology of long pranayamic breathing: neural respiratory elements may provide a mechanism that explains how slow deep breathing shifts the autonomic nervous system. *Medical hypotheses* 2006;67(3):566-71.
 59. Zucker TL, Samuelson KW, Muench F, Greenberg MA, Gevirtz RN. The effects of respiratory sinus arrhythmia biofeedback on heart rate variability and posttraumatic stress disorder symptoms: A pilot study. *Applied psychophysiology and biofeedback*. 2009;34(2):135-43.
 60. Jouett NP, Watenpaugh DE, Dunlap ME, Smith ML. Interactive effects of hypoxia, hypercapnia and lung volume on sympathetic nerve activity in humans. *Experimental physiology*. 2015;100(9):1018-29.
 61. Strauss-Blasche, Moser GM, Voica M, McLeod DR, Klammer N, Marktl W. Relative timing of inspiration and expiration affects respiratory sinus arrhythmia. *Clinical and Experimental Pharmacology and Physiology*. 2000;27:601-6. doi: 10.1046/j.1440-1681.2000.03306.x.
 62. van Stralen D, Calderon R, Padgett J, Clements P, Eachus T. Smile and Laughter During Mechanical Ventilation in Children. *Mastering the Challenges Across the Spectrum of Long Term Care; March 16-29, 2006; Dallas, Texas: America Medical Directors Association, 29th Annual Symposium; 2006.*
 63. van Stralen D, Sorensen D, Calderon R, Padgett J, Clements P, Klein S, et al. Fluid Bolus Therapy to Treat Thick Secretions in Ventilator-Dependent Children. *9th International Conference on Home Mechanical Ventilation; April 2005; Lyon, France 2005.*
 64. Eachus HT. Generating Responses in Vegetative Children. *Technology and Persons with Disabilities, 16th Conference; March 17-22, 2001; California State University, Northridge, Los Angeles, CA 2001.*
 65. McCarthy PL, Sharpe MR, Spiesel SZ, Dolan TF, Forsyth BW, DeWitt TG, et al. Observation scales to identify serious illness in febrile children. *Pediatrics*. 1982;70(5):802-9.
 66. Messinger DS, Fogel A, Dickson KL. All Smiles Are Positive, But Some Smiles Are More Positive Than Others. *Developmental Psychology*. 2001;37(5):642-53. doi: 10.1037//0012-1649.37.5.642.
 67. Streeter CC, Gerbarg PL, Saper RB, Ciraulo DA, Brown RP. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Medical hypotheses*. 2012;78(5):571-9.

NT

Corresponding Author



Daved van Stralen, MD, FAAP
Associate Professor, Pediatrics
Department of Pediatrics
Loma Linda University School of Medicine
11175 Campus Street
CP-A1121
Loma Linda, CA 92350
Email: DVanStra@llu.edu



Sean McKay
Executive Partner / Director, Disruptive Rescue & Austere
Medicine
Element Rescue - Response Solutions within Nonlinear Complex
Environments
Greenville, South Carolina, United States



Thomas A. Mercer
Rear Admiral
United States Navy (Retired)

Acknowledgments

Karl Weick, Rensis Likert Distinguished University Professor of Organizational Behavior and Psychology, Emeritus, University of Michigan

William J. Corr, formerly with the Los Angeles City Fire Department, now deceased

Errol van Stralen, Ancora Education

Ronald D. Stewart, Professor, Emergency Medical Services, Dalhousie University, Nova Scotia, Canada



National Perinatal Association PERINATAL MENTAL HEALTH

nationalperinatal.org/position
www.nationalperinatal.org/mental_health



Educate. Advocate. Integrate.



New subscribers are always welcome!

NEONATOLOGY TODAY

To sign up for a free monthly subscription, just click on this box to go directly to our subscription page



READ

NPA's
statement:

BLACK LIVES MATTER



31st Annual Course
*Jen-Tien Wung Respiratory Care of
the Newborn: A Practical Approach*

Saturday & Sunday, October 8 & 9, 2022
VIRTUAL /IN PERSON COURSE

Course Directors

Rakesh Sahni, MD
Jen-Tien Wung, MD, FCCM

Guest Faculty

Hany Aly, MD
Foong-Yen Lim, MD
Guilherme Sant'Anna MD, PhD
Vadim Ten, MD, PhD

Registration link

<https://web.event.com/event/75f2cd1d-c859-4d96-88c8-6efafee2273/summary>

Attendance by complete physician-nurse-respiratory therapist teams is strongly recommended

Fellow's Column: Congenital Dislocated Nasal Septum

Hannah Cummins, DO, Randi Domingue, MD Shabih Manzar, MD

“We present a case of a newborn infant who was noted to have abnormal nasal deviation at birth and found to have dislocated NS. The infant subsequently underwent a closed nasal reduction shortly after birth.”

Nasal septal (NS) dislocation at birth presents as septal deviation. The incidence of neonatal NS deviation varies from 3-30%.^{1,2} We present a case of a newborn infant who was noted to have abnormal nasal deviation at birth and found to have dislocated NS. The infant subsequently underwent a closed nasal reduction shortly after birth.

“The blunt end of a scalpel handle was placed into the right nare, and medial and upwards pressure was exerted on the septum to reduce it back onto the maxillary crest. The process was repeated several times until adequate reduction was achieved, and patency was confirmed by introducing a small cottle that could pass through the nasal cavity with little resistance (Figure 1 B).”

Case:

A term female infant is delivered to a primigravida mother. Antenatal ultrasound showed normal nasal anatomy of the fetus. A cesarean section was performed due to fetal intolerance to labor. The Apgar scores were 8 and 9 at one and five minutes. On physical examination, a deformed nasal bridge with asymmetrical nares was noted (Figure 1 A). The infant was breathing normally with no signs of respiratory distress. An otolaryngology consult was obtained, and a decision was made to proceed with surgery. The infant was taken to the operating theater, placed under general anesthesia, and intubated. The blunt end of a scalpel handle was placed into the right nare, and medial and upwards pressure was exerted on the septum to reduce it back onto the maxillary crest. The process was repeated several times until adequate reduction was achieved, and patency was confirmed by introducing a small cottle that could pass through the nasal cavity with little resistance (Figure 1 B). The infant was transferred back to the neonatal ICU. The postoperative course was unremarkable. Ultimately, the patient was discharged home in stable condition with scheduled outpatient follow-up with physical therapy for the treatment of the torticollis and plastic surgery for ear molding.

“The infant was transferred back to the neonatal ICU. The postoperative course was unremarkable. Ultimately, the patient was discharged home in stable condition with scheduled outpatient follow-up with physical therapy for the treatment of the torticollis and plastic surgery for ear molding.”

Discussion:

Due to fetal intolerance to labor, there was a history of cesarean section; an acquired (traumatic) dislocation was questioned. However, upon further evaluation in the NICU, the infant was noted to have a lidding ear deformity on the right and torticollis and plagiocephaly. Given the numerous asymmetrical physical exam findings, the nasal septal deviation was considered congenital. While a higher incidence of nasal deformities and torticollis has been as-



Figure 1 A: Pre-op nasal view showing asymmetrical nares with septal deviation .

Figure 1 B: Post-op nasal view showing less asymmetry of nares

sociated with birth difficulties, instrumental deliveries, and cesarean sections, fetal positioning may also contribute to craniofacial abnormalities.^{3,4} Asymmetric physical features can be due to fetal malpositioning and should prompt further evaluation to ensure diagnoses and early interventions are integrated into a patient's care. A thorough physical examination remains quintessential to the practice of medicine.

“4 Asymmetric physical features can be due to fetal malpositioning and should prompt further evaluation to ensure diagnoses and early interventions are integrated into a patient’s care. A thorough physical examination remains quintessential to the practice of medicine.”

References:

1. Chintapatla S, Kudva YC, Nayar RC, Raghuveer TS, Prasad D. Septal deviation in neonates. *Indian Pediatr.* 1989;26(7):678-682.
2. Kent SE, Reid AP, Nairn ER, Brain DJ. Neonatal septal deviations. *J R Soc Med.* 1988;81(3):132-135.
3. Harrop AS, Mudhol RS, Hajare PS, Nargund AI, Metgudmath VV, Chakrabarti S. Prevalence of Nasal Septal Deviation in New-borns and Its Precipitating Factors: A Cross-Sectional Study. *Indian J Otolaryngol Head Neck Surg.* 2012;64(3):248-251. doi:10.1007/s12070-011-0247-1
4. Hollier, L, Kim, J, Grason, B.H., McCarthy, J.G. Congenital Muscular Torticollis and the Associated Craniofacial Changes. *Plastic and Reconstructive Surgery.* 2000; 105 (3): 827-835. Dio

Conflict of Interest Disclosures (includes financial disclosures):

The authors have no conflicts of interest to disclose.

Funding/Support: No funding was secured for this report.

NT



Hannah Cummins, DO
Resident PGY-1
Department of Pediatrics
LSU Health Sciences Center
1501 Kings Highway
Shreveport, LA 71103



Randi Domingue, MD
Resident PGY-1
Department of Medicine-Pediatrics
LSU Health Sciences Center
1501 Kings Highway
Shreveport, LA 71103

Corresponding Author



Shabih Manzar, MD
Clinical Associate Professor
LSU Health Sciences Center
1501 Kings Highway
Shreveport, LA 71103
Telephone: 318-626-1623
Fax: 318-675-6059
Email: shabih.manzar@lsuhs.edu

Fellow's Column is published monthly.

- Submission guidelines for “Fellow's Column”:
- 2000 word limit not including references or title page. Exceptions will be made on a case by case basis
- 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.
- Please send your submissions to:

Elba Fayard, MD, Interim Fellowship Column Editor
or Japmeet Sandhu, OMS IV Fellowship Column Assistant Editor
LomaLindaPublishingCompany@gmail.com

INFANT AND FAMILY-CENTERED DEVELOPMENTAL CARE (IFCDC)

STANDARDS AND SAMPLE RECOMMENDATIONS FOR INFANTS IN THE INTENSIVE CARE UNIT

SYSTEMS THINKING IN COMPLEX ADAPTIVE SYSTEMS



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

POSITIONING & TOUCH FOR THE NEWBORN

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



SLEEP AND AROUSAL INTERVENTIONS FOR THE NEWBORN

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



SKIN-TO-SKIN CONTACT WITH INTIMATE FAMILY MEMBERS

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



REDUCING AND MANAGING PAIN AND STRESS IN NEWBORNS AND FAMILIES

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



MANAGEMENT OF FEEDING, EATING AND NUTRITION DELIVERY

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



WANT TO KNOW MORE ABOUT THE STANDARDS AND RECOMMENDATIONS? VISIT: [HTTPS://NICUDESIGN.ND.EDU/NICU-CARE-STANDARDS/](https://nicudesign.nd.edu/nicu-care-standards/)

©CONSENSUS PANEL ON INFANT AND FAMILY-CENTERED DEVELOPMENTAL CARE 2022

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



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: Delay in Diagnosis of Neonatal Herpes Simplex Virus Infection in a NICU

Maureen E. Sims, MD, Barry Schifrin, MD

“A 26-year-old G5P1 Ab3 presented at 35 weeks gestation with rupture of membranes and contractions. Her childhood was spent in foster care, where she was sexually abused. Her medical history included bipolar disorder, hepatitis C, and chlamydia. She had Group B streptococcal urinary tract infections during this pregnancy, and her recto/cervical culture was positive for GBS. She denied having had genital herpes.”

A 26-year-old G5P1 Ab3 presented at 35 weeks gestation with rupture of membranes and contractions. Her childhood was spent in foster care, where she was sexually abused. Her medical history included bipolar disorder, hepatitis C, and chlamydia. She had Group B streptococcal urinary tract infections during this pregnancy, and her recto/cervical culture was positive for GBS. She denied having had genital herpes. Her labor was quite prolonged, during which time she received multiple doses of penicillin prophylactically for her positive GBS status. She eventually reached full dilatation three hours prior to birth. With the onset of pushing, the fetus showed increasingly severe variable decelerations in response to which an amnioinfusion was performed using the previously inserted intrauterine pressure catheter (IUPC). After 43 hours of rupture of membranes and labor, a 2451g male infant was born by a normal spontaneous vaginal delivery. The Apgar scores were 8¹ and 9⁵. The baby was admitted to the Newborn Intensive Care Unit (NICU) because of prematurity. After the initial assessment, he was placed in an open crib wrapped in a blanket under a radiant warmer. His physical examination was unremarkable and consistent with a late preterm infant. He was breastfed and noted to have a strong suck. A peripheral intravenous line was placed to supplement fluid. A complete blood count was sent and found to be normal; a blood culture was drawn and ultimately reported as negative.

Three days after birth, the baby required gavage feeding because of an increasing lack of interest in oral intake. Additionally, he was hypothermic and required extra blankets to maintain his temperature. **On deposition, the nurses did not acknowledge that the temperature and feeding issues documented in the records could be secondary to illness but emphasized that premature babies often have problems with feeding and temperature regulation. The plaintiff neonatologist pointed out that the baby would be expected to be better at feeding and needing less support to maintain temperature with time.** Based on his progress notes, the treating neonatologist was unaware of these issues. By DOL 7, he began having periodic breathing and desaturations and was placed on a nasal cannula.

“In depositions, both nursing and physicians again attributed this symptomatology to late prematurity. The baby also developed intermittent tachycardia and watery green stools. A complete blood count (CBC) and C-reactive protein (CRP) were unremarkable, and blood and urine cultures were sent and ultimately read as negative.”

In depositions, both nursing and physicians again attributed this symptomatology to late prematurity. The baby also developed intermittent tachycardia and watery green stools. A complete blood count (CBC) and C-reactive protein (CRP) were unremarkable, and blood and urine cultures were sent and ultimately read as negative. A lumbar puncture (LP) was not done. ***The plaintiff's neonatologist was critical of their failure to perform an LP.***

By DOL 11, he developed lethargy, hypotonia, intermittent apnea with bradycardia, and deteriorating temperature instability. An LP was still not performed. Ampicillin and gentamicin were started but discontinued after 48 hours when the blood cultures were again negative. The cranial ultrasound was unremarkable. A neurologist was consulted at 2 weeks to rule out neurological etiologies of hypotonia. The consulting neurologist noted altered mental status and was concerned about inborn error of metabolism and recommended serum and urine assessments as well as CSF tests to rule out metabolic diseases.—The note pointed out that since the holiday was upcoming the following day, there was no urgency in performing the laboratory evaluation until after the holiday. Two days after the neurology consult, blood, urine, and CSF were sent to rule out various inborn errors of metabolism. A lumbar puncture was done; the CSF was sent for amino acids, lactate, and glucose. The CSF findings: glucose 29 mg/dL, protein 137mg/dL, 2 red blood cells and 1110 white blood cells.

“An MRI performed the following day showed multiple small foci of ischemic changes. The baby remained in the NICU for six weeks. During his hospitalization, the mother's cervix was culture-positive for HSV. On follow-up, the baby had developmental delay and recurrent seizures.”

In her note, the **neurologist** wrote that the low glucose was concerning for GLUT-1 deficiency, a rare disorder that causes decreased transport of glucose across the blood-brain barrier caused by an abnormality in SLC2A1. Later that day, the **neonatologist** was apprised of the CSF findings and immediately ordered ampicillin, cefotaxime, acyclovir, and PCR for HSV on blood and CSF. The PCR on the blood and CSF was positive. An MRI performed the following day showed multiple small foci of ischemic changes. The baby remained in the NICU for six weeks. During his hospitalization, the mother's cervix was culture-positive for HSV. On follow-up, the baby had developmental delay and recurrent seizures. The neonatologist and the hospital were sued and settled without going to court.

Allegations:

1. The neonatologist should have properly and timely evaluated the baby's symptomatology beginning DOL 3 and worsened with each passing day.
2. The evaluation should have included a lumbar puncture and HSV PCR, surface cultures, and PCR for herpes
3. It was below a reasonable standard of care to attribute the signs and symptoms to prematurity without a thorough evaluation of other potentially harmful causes. This illustrated the dysfunctional hospital culture that resulted in an adverse outcome
4. The evaluation should have included a lumbar puncture and HSV PCR, surface cultures, and PCR for herpes
5. The dysfunctional hospital culture resulted in an adverse outcome

“Neonatal herpes is usually the result of HSV-2 infection, which is the primary type of HSV associated with genital infection and be transmitted from mother to Infant via three different routes”

Discussion:

Neonatal herpes is usually the result of HSV-2 infection, which is the primary type of HSV associated with genital infection and be transmitted from mother to Infant via three different routes:

Intrapartum:

In the majority of cases (88% to 93%), HSV infection in the newborn is acquired during the intrapartum period as the fetus passes through the birth canal or through ascending infection after rupture of the membranes; typically, the virus is acquired by direct contact of the Infant's skin, eye, or oral cavity with the virus in the mother's birth canal. Because of the importance of direct contact, it is understandable that when the newborn does have vesicular lesions, they are usually over the scalp and face in cephalic presentations and over the buttocks in breech presentations. Overt maternal herpetic lesions are uncommonly present. The chance of a woman who has a history of genital herpes shedding virus at the time of delivery is approximately 1%. However, in most cases of neonatal infection, mothers do not give a history of active genital herpes at the time of delivery. Infants born to mothers who have primary first-episode genital herpes infections at the time

of delivery, however, have a 50% risk of developing infection compared with a 25% risk when mothers with an active lesion have antibodies to HSV-1 only (nonprimary first episode) and less than 2% in cases of recurrent infections in seropositive mothers.

“ Infants born to mothers who have primary first-episode genital herpes infections at the time of delivery, however, have a 50% risk of developing infection compared with a 25% risk when mothers with an active lesion have antibodies to HSV-1 only (nonprimary first episode) and less than 2% in cases of recurrent infections in seropositive mothers.”

In the United States, the prevalence of neonatal herpes is 0.05 to 0.3 per 1,000 live births, with 1,500 cases occurring yearly. The risk of transmission to the newborn is more than 10-fold greater when the mother is shedding HSV-1 versus HSV-2 at delivery. The five most important factors known to affect the transmission of HSV from mother to neonate are the type of maternal infection (primary vs. recurrent), maternal antibody status, duration of rupture of membranes, the integrity of mucocutaneous barriers (use of scalp electrodes, for instance), and mode of delivery (cesarean vs. vaginal). It is estimated that about one-third of women who asymptotically shed HSV during labor have been recently infected and that their infants have a 10-fold or more significant risk of being infected than the infants of mothers with recurrent disease.

“Because recurrent infections are so much more common, half of all neonatal HSV-2 infections occur secondary to a recurrent maternal infection, even though transmission from mother to Infant occurs in only 2% of the cases.”

Because recurrent infections are so much more common, half of all neonatal HSV-2 infections occur secondary to a recurrent maternal infection, even though transmission from mother to Infant occurs in only 2% of the cases. The higher the amount of neutralizing antibody the mother has at the time of delivery, the less likely the Infant will develop disseminated disease. Prolonged rupture of membranes (>4-6 hours) also increases the risk of viral transmission, presumably from ascending infection. Delivery via cesarean section, preferably before rupturing membranes, but at least before 4-6 hours of rupture, reduces the risk sevenfold. Vacuum extraction increases the risk of HSV infection sevenfold compared to spontaneous vaginal or cesarean delivery. Antenatal

maternal viral culture screening for HSV shedding is not of predictive value in determining who will be shedding the virus at delivery.

“In 2-5% of cases of neonatal HSV infection is acquired transplacentally with the acquisition of the infection during early gestation with prematurity being uniformly present.”

Transplacental:

In 2-5% of cases of neonatal HSV infection is acquired transplacentally with the acquisition of the infection during early gestation with prematurity being uniformly present. Clinically the infants may present with growth restriction, characteristic skin lesions with vesicles and scarring, neurologic damage (intracranial calcifications, microcephaly, hypertonicity, and seizures), and eye involvement (microphthalmia, cataracts, chorioretinitis, blindness, and retinal dysplasia)

“Restriction enzyme DNA analysis has been used to document the postnatal acquisition of HSV and its spread within a nursery by identifying infection with the same herpes strain in infants of different mothers.”

Postpartum:

Individuals with HSV having contact with the baby may transmit the infection, accounting for 5%-10% of OSV neonatal infections. Restriction enzyme DNA analysis has been used to document the postnatal acquisition of HSV and its spread within a nursery by identifying infection with the same herpes strain in infants of different mothers. Symptomatic and asymptomatic shedding among hospital personnel is a concern. Orolabial lesions should be covered with a mask, and skin lesions should be covered with clothing or a bandage. Counseling on good hand hygiene is important.

Presentation of HSV:

Neonatal HSV infection acquired during the intrapartum route typically presents within 1-3 weeks after birth and can be classified into 1 of 3 categories: disseminated disease; CNS infection; or skin, eyes, and mouth (SEM) infection. The disseminated disease involves multiple organs, including, but not limited to, the lung, liver, adrenal glands, brain, and skin. CNS disease involves the brain, with or without skin involvement, but no visceral organ dysfunction. SEM disease is limited only to these areas of the body. Disseminated disease has the most significant mortality, and CNS disease has the most significant morbidity. The localized

disease presents as vesicles on the skin, eyes, or mouth. If left untreated, 70% of cases progress to disseminated disease. Nonspecific presentation with the disseminated disease includes poor feeding, temperature instability, lethargy, apnea, respiratory distress, seizures, jaundice, and disseminated intravascular coagulopathy. There are no skin lesions in 40% with disseminated disease and 30% with CNS disease.

Cruz reported in 2021 8 independent predictors of invasive HSV infection on babies who presented to the Emergency Department: age, prematurity, seizure before hospital arrival, ill appearance, abnormal triage temperature, vesicular rash, thrombocytopenia, and CSF pleocytosis. When combined into an invasive HSV risk score, these variables accurately identified infants at extremely low risk for invasive HSV infection and for whom routine HSV testing and treatment can be safely avoided.

The central nervous system (CNS) and its covering membranes may become involved in various infectious processes, devastatingly affecting structure and function. HSV is distinctive among the diseases caused by organisms of the TORCH complex because the infection is acquired during the intrapartum period, and the babies become symptomatic during the neonatal period. **TORCH** is an acronym representing infections caused by **T**oxoplasma gondii, **O**ther agents, **R**ubella, **C**ytomegalovirus (CMV), and **H**erpes simplex virus (HSV). HSV infection is distinctive among the disease caused by organisms of the TORCH complex presenting with symptomatic disease. TORCHS has been expanded to be more inclusive **SCRATCHEZ**, where **s** stands for **S**yphilis, **C** for **CMV**, **R** for **rubella**, **A** for **A**cquired immunodeficiency syndrome (AIDS or HIV infection), **T** for **t**oxoplasmosis, **C** for **chickenpox** or **varicella**, **H** for **herpes**, **ES** for **E**nterovirus infections, and **Z** for **Z**ika virus.

“TORCHS has been expanded to be more inclusive SCRATCHEZ, where s stands for Syphilis, C for CMV, R for rubella, A for Acquired immunodeficiency syndrome (AIDS or HIV infection), T for toxoplasmosis, C for chickenpox or varicella, H for herpes, ES for Enterovirus infections, and Z for Zika virus.”

Diagnosis:

Isolation of virus is definitive diagnostically. Swabs of mouth, nasopharynx, conjunctivae, and rectum should be tested for HSV surface cultures and/or polymerase chain reaction (PCR), but should be delayed to 24-48 hours after birth to differentiate viral replication in the newborn from transient colonization of the newborn at birth. Specimens of skin vesicles should be tested for culture or PCR. Cerebrospinal fluid (CSF) specimens should be tested for HSV PCR. An early sampling of CSF may not detect HSV; therefore, repeating an LP should be considered when the diagnosis is suspected but not confirmed on an earlier sample. The CSF in HSV cases exhibits findings of meningoencephalitis (i.e., pleocytosis and elevated protein content). In the past,

the presence of red blood cells in CSF was suggestive of HSV CNS infection, likely due to relatively advanced disease due to diagnostic limitations. However, with the development of more advanced imaging and diagnostic capabilities, hemorrhagic HSV encephalitis is less commonly seen now, and as such, most HSV CNS do not have red blood cells. Whole blood samples should be tested for HSV PCR. Alanine aminotransferase should be measured as an indicator of hepatic involvement. Serologic testing is not helpful in neonatal disease because transplacentally transferred maternal antibody confounds the interpretation. PCR testing has become invaluable, especially for CSF, which has a very low recovery rate for HSV cultures.

“Alanine aminotransferase should be measured as an indicator of hepatic involvement. Serologic testing is not helpful in neonatal disease because transplacentally transferred maternal antibody confounds the interpretation. PCR testing has become invaluable, especially for CSF, which has a very low recovery rate for HSV cultures.”

Therapy:

Acyclovir is the only drug recommended for use in neonates with neonatal HSV disease. The recommended dose is 60 mg/kg/day in three divided doses for 21 days for disseminated or CNS disease and 14 days for disease localized to the skin, eyes, or mouth. Infants with an abnormal creatinine clearance need to have the acyclovir dose adjusted, and all infants need to be monitored for neutropenia. All neonates should have ophthalmologic and MRI examinations. CT and ultrasonography may be used alternatively but are not as sensitive to abnormalities. Infants with CNS disease need to have a repeat lumbar puncture at the end of treatment. Treatment should be continued until the CSF's PCR is negative. Infants who continue to have detectable HSV DNA in CSF by PCR at the end of therapy are more likely to die or have moderate to severe impairment. Oral acyclovir suppressive therapy for six months after parenteral treatment is recommended.

“Infants with CNS disease need to have a repeat lumbar puncture at the end of treatment. Treatment should be continued until the CSF's PCR is negative.”

Prevention:

In 1999, the American College of Obstetrics and Gynecology recommended that cesarean delivery be performed if a mother has HSV genital lesions or prodromal symptoms at the time of delivery. Seventy percent of mothers of infants with the neonatal disease

do not have a history or symptoms of HSV infection; however, their partners do not have a history of HSV infection, and neonatal infection may still occur even if a cesarean delivery is performed. Repetitive cervical cultures do not predict whether a mother will be shedding virus at delivery. Mothers should be counseled regarding the signs and symptoms of disease, and some may then recognize the infection. If rupture of membranes has been present longer than 6 hours, some experts still recommend cesarean delivery in the face of genital lesions, but data are lacking, and controversy exists. Scalp electrodes should be avoided. There is also no consensus about treatment when a mother has genital lesions and ruptured membranes, except in the case of a very immature fetus. If an infant is delivered vaginally to a mother with recurrent genital lesions (5% risk of infection), most experts do not recommend treating the Infant. The Infant does not need contact precautions. Cultures and PCR of the neonate should be obtained at 24 hours of life, and the Infant should be observed. Circumcision should be delayed until cultures are known to be negative. Hand washing should be emphasized. The Infant should be managed with contact precautions. If the mother has an active labialis or stomatitis, she should wear a disposable surgical mask while handling her Infant until the lesions have crusted and dried. She should not kiss the Infant. Breastfeeding may be allowed if there are no lesions on the breast. The mother needs to be taught the signs and symptoms of the neonatal disease because culture does not always detect neonatal disease.

“The initial presentation of HSV disease is indistinguishable from other causes of neonatal sepsis, meningitis, or encephalitis. Delays in treatment for HSV can be devastating. Therefore, HSV should be considered in the differential diagnosis of sick neonates. While in a NICU, babies' vital signs should be monitored closely for clinical changes. Any time temperature instability or the development of poor feeding appears for a previously stable baby requires a workup that includes testing for HSV.”

Conclusion:

The initial presentation of HSV disease is indistinguishable from other causes of neonatal sepsis, meningitis, or encephalitis. Delays in treatment for HSV can be devastating. Therefore, HSV should be considered in the differential diagnosis of sick neonates. While in a NICU, babies' vital signs should be monitored closely for clinical changes. Any time temperature instability or the development of poor feeding appears for a previously stable baby requires a workup that includes testing for HSV. The case presented above was unique because he was still hospitalized, not arriving in the Emergency Room with a vague history. Nevertheless, despite the

multitude of signals with temperature instability, poor feeding, and the development of lethargy and hypotonia despite initially having been a vigorous baby, the signals were ignored. Because most mothers with HSV do not have active genital HSV lesions at the time of birth, a high vigilance is necessary to screen ill infants for HSV infection.

Suggested Reading:

1. American Academy of Pediatrics. Herpes simplex. In: Kimberlin DW, Barnett E, Lynfield R, Sawyer M eds. Red Book: 2021 Report of the Committee on Infectious Diseases, 32nd ed. Itasca IL American Academy of Pediatrics; 2021 407-4417
2. Cruz, A, Nigrovic L, et al. Predictors of Invasive Herpes Simplex Virus Infection in Young Infants Pediatrics 2021; 148(3): e2021050052
3. Curfman AL, Glissmeyer EW, Ahmad FA, et al. Initial presentation of neonatal herpes simplex virus infection. J Pediatr. 2016;172:121–126.e1
4. Kimberlin D Unraveling the Enigma of Neonatal Herpes: A Novel Tool for Assessing Risk of Infection
5. Mahant S, Hall M, Schondelmeyer AC, Berry JG, et al. Pediatric Research in Inpatient Settings Network and the Collaborative Antiviral Study Group. Neonatal herpes simplex virus infection among Medicaid-enrolled children: 2009-2015. Pediatrics. 2019;143 (4):e20183233
6. Sims, ME Could Herpes Meningocephalitis Have Been Prevented in this Infant? NeoReviews 2018; 19 e773—e774
7. Sims ME. The Red Eye NeoReviews 2011; 4: e228-231



Barry Schifrin, M.D,
Western University of Health Sciences, Pomona, California
Formerly, Professor of Obstetrics & Gynecology
Keck School of Medicine, University of Southern California, Los Angeles

Disclosures: The authors have indicated no conflicts of interest.

NT



Corresponding Author:

Maureen E. Sims, M.D.
Professor of Pediatrics
Geffen School of Medicine,
University of California, Los Angeles
Los Angeles, California
email: mes@g.ucla.edu



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

ONCE UPON A PREEMIE ACADEMY

eLearning Courses

Health and Racial Equity Continuing Education Courses

- + An Intro to Health and Racial Equity and Implicit Bias
- + Solutions for Addressing Inequities and Implicit Bias In the NICU
- + Black NICU Mother's Mental and Emotional Health
- + Black Premie Parents as Partners in Premie Care

Register at
OnceUponAPremieAcademy.com

\$150

physicians

\$175

equity-focused
solutions for
healthcare
professionals



The first and only virtual training academy focused on delivering health and racial equity educational programs for perinatal and neonatal healthcare professionals. Our purpose is to raise awareness and offer real-time solutions for addressing health and racial equity.

- + Earn Continuing Education Credits
- + Learn from nationally recognized perinatal and neonatal professionals and premie parents
- + Gain actionable tools to drive health and racial equity solutions in your organization!

SHARED DECISION-MAKING PROTECTS MOTHERS + INFANTS

DURING COVID-19

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing
the risks of...

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



EVIDENCE

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

PARTNERSHIP

What is the best
for this unique dyad?

SHARED DECISION-MAKING

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



TRAUMA-INFORMED

Both parents and providers
are confronting significant...

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

LONGITUDINAL DATA

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

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



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

Partnering for patient-centered care
when it matters most.

nann.org nationalperinatal.org



National
Association of
Neonatal
Nurses



National
Perinatal
Association

Gravens By Design: The 36th Annual Gravens Conference on the Environment of Care for High-Risk Newborns: The Future is NOW for Babies, Families, and Systems

Robert D. White, MD, Joy Browne, PhD, Vincent Smith, MD, Mitchell Goldstein, MD, MBA, CML

The 36th Annual Gravens Conference on the Environment of Care for High-Risk Newborns: The Future is NOW for Babies, Families, and Systems will be held March 8-11, 2023, in Clearwater Beach, FL, and Online Worldwide

“The 2021 meeting was entirely virtual, and then in 2022, we had our first hybrid meeting with technology that was still rudimentary. The 2023 meeting and future meetings will be hybrid, with robust programming for in-person and those who participate online.”

The Gravens Conference continues to evolve, conceptually and operationally, along with neonatology and the needs of caregivers and families. Operationally, virtual presentations were introduced in 2018. The 2020 meeting was held in person the week before most of the country went into a COVID lockdown. The 2021 meeting was entirely virtual, and then in 2022, we had our first hybrid meeting with technology that was still rudimentary. The 2023 meeting and future meetings will be hybrid, with robust programming for in-person and those who participate online. Day 1 of each Gravens Conference focuses on the scientific foundations for that year’s theme. In 2023, we will highlight the evolution of developmental and family-centered care from a “nice to have” adjunct of traditional medical and surgical care to its role now as an essential aspect of neonatal care, one that research has established as an important element for achieving optimal outcomes in high-risk newborns.

In 2023, Day 1 will include presentations that review and enlarge the importance of the family in comprehensive neonatal care. The stage will be set in our first presentation, which asks, “What happens with babies and families after they leave the NICU?” Dr. Saraj Saigal, who co-founded a global organization that has followed those babies into adulthood, and April Laramy, an adult born extra early, will give us a perspective on the physiological, social, and emotional outcomes that they have researched and experienced.

Several presentations will follow that present the evidence that families have a crucial role in caring for NICU babies. Dr. Raylene Phillips and Dr. Kristina Reber will present their experience with specialized Small Baby Units in Loma Linda and Columbus, Dr. Bjorn Westrup will present the experience with NICU Couplet Care in Sweden, and Dr. Liisa Lehtonen will review the European experience with the Close Collaboration with Parents program. Dr. Sonia Bonifacio will present the upcoming Vermont Oxford initiative entitled “All Care is Brain Care,” for which family participa-

tion is an integral component.

“The final presentation on Day 1 will address the ethics of family-centered care. Dr. Annie Janvier, a neonatologist and a parent of a baby who spent time in the NICU, will provide a personal and professional perspective on supporting families.”

The final presentation on Day 1 will address the ethics of family-centered care. Dr. Annie Janvier, a neonatologist and a parent of a baby who spent time in the NICU, will provide a personal and professional perspective on supporting families. As a researcher and writer, she is a well-known advocate for individualized parent and family care in the NICU. She will give us her perspective on ethical and practical approaches to supporting parents.

“Day 2 of Gravens is devoted to concurrent tracks, further exploring the primary theme of the meeting. The Developmental and Family Centered Care track will bring together representatives from the major evidence-based developmental and family-centered programs.”

Day 2 of Gravens is devoted to concurrent tracks, further exploring the primary theme of the meeting. The Developmental and Family Centered Care track will bring together representatives from the major evidence-based developmental and family-centered programs. Often it is challenging for NICU staff to determine the best evidence-based program to implement in their unit, so speakers representing NIDCAP, NBO, FNI, COPE, SENSE, and FICare will each give an overview of their respective programs. These presentations will help the audience understand the importance of implementing an evidence-based program and the similarities and differences among the programs presented. Attendees will be encouraged to discuss with the presenters to help them determine if one of these programs will formally meet their desire to implement key elements of family-centered care.

The second track of Day 2 is devoted to NICU Design. While the topics in this track are most relevant to those considering new construction or major renovation of their NICU in the next few years, many of the concepts and experiences presented can be

implemented in existing NICUs where major construction may not be feasible in the near future. The first two presentations, "Use of Color in Hospital Design" and "Access to Nature in the NICU," will stimulate consideration of possible enhancements for most NICUs regardless of their age or design. New Unit presentations will follow these, one each from a level II, III, and IV NICU. This track will conclude with a discussion of proposed changes to the Recommended Standards for Newborn ICU Design and a "crowd-sourcing" session, in which attendees can pose questions to experts in the audience to help them pursue new construction or renovation projects.

The afternoon of Day 2 will be free of formal presentations but is often used for informal meetings and conversations among participants. That evening, the hotel's beachfront will serve as the backdrop for dinner, music, dancing, and networking.

"Day 3 will begin with a plenary session entitled "Difficult Conversations," in which Natalie Johnson, a consultant in wellness promotions for large organizations, will help attendees address this common challenge in neonatal care."

Day 3 will begin with a plenary session entitled "Difficult Conversations," in which Natalie Johnson, a consultant in wellness promotions for large organizations, will help attendees address this common challenge in neonatal care. Day 3 will continue with workshops, including one by Ms. Johnson and many of the Plenary speakers. These are designed for attendees to interact with speakers in a small group format and ask questions "up close and personal." Additional workshops will focus on supporting sleep in the NICU, implementing the Infant and Family-Centered Developmental Care Standards, the new Family-Centered Care Task Force Quality Improvement Learning Community, and family engagement, especially concerning diversity and equity.

"Day 4 is a Saturday; that half-day session will begin with a parent's perspective, during which Kimberly Novod will take the group through her NICU parent journey, describing how she was able to turn tragedy into triumph."

Day 4 is a Saturday; that half-day session will begin with a parent's perspective, during which Kimberly Novod will take the group through her NICU parent journey, describing how she was able to turn tragedy into triumph. Then we will focus on factors outside the NICU that affect what happens in the NICU; Dr. Gaby Cordova Ramos will discuss social determinants of health and how they affect NICU care. Dr. Yarden Fraiman will discuss race, ethnicity,

culture, and antiracism in clinical care. Troy Savage will explore health equity and help the audience understand what they can do in their specific unit to engender health equity. Dr. Susan Niermeyer will discuss healthy equity at a global level and how individuals can make a macro difference. Finally, Joy Browne and Bob White sum up the conference and motivate everyone for March 2024.

"The full Gravens Conference agenda and further information, including how to register, can be found at <https://paclac.org/https-paclac-org-gravens-conference/>"

The full Gravens Conference agenda and further information, including how to register, can be found at <https://paclac.org/https-paclac-org-gravens-conference/>

Disclosure: The authors have no conflicts of interest

NT

Corresponding Author



Robert D. White, MD
Director, Regional Newborn Program
Beacon Children's Hospital
615 N. Michigan St.
South Bend, IN 46601
Phone: 574-647-7141
Fax: 574-647-3672
Email: Robert_White@pediatrix.com

Corresponding Author



Joy Browne, Ph.D., PCNS, IMH-E(IV)
Clinical Professor of Pediatrics and Psychiatry
University of Colorado School of Medicine
Aurora, Colorado
Telephone: 303-875-0585
Email: Joy.browne@childrenscolorado.org

Corresponding Author



Vincent C. Smith, MD, MPH
Professor of Pediatrics
Boston University, School of Medicine
Boston Medical Center
Boston, MA
(617) 414-3989 (T)
(617) 414-3833 (F)
Email: Vincent.smith@bmc.org

Corresponding Author



Mitchell Goldstein, MD, MBA, CML
Professor of Pediatrics
Loma Linda University School of Medicine
Division of Neonatology
Department of Pediatrics
Email: mgoldstein@llu.edu

TAKE THE NECESSARY STEPS TO ELIMINATE INEQUITIES



ONCEUPONAPREEMIEACADEMY.COM

©2020 BY ONCE UPON A PREEMIE ACADEMY.

Postpartum Revolution

@ANGELINASPICER



Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

The PREGNANT MOM'S Guide To Staying SAFE DURING COVID-19

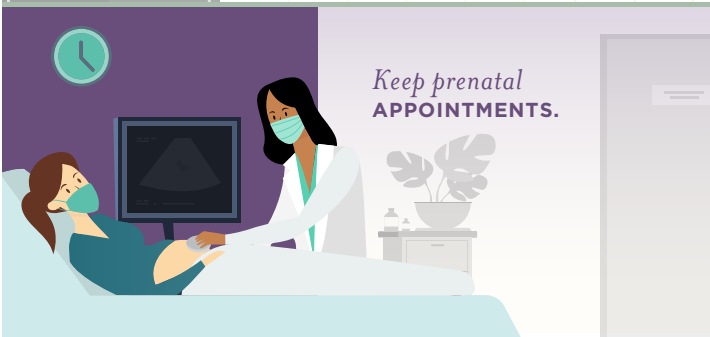


Take precautions & LIMIT INTERACTIONS.

6 FT



Maintain at least A 30-DAY SUPPLY OF YOUR MEDICATIONS.



Keep prenatal APPOINTMENTS.



Talk to your health care provider about STAYING SAFE DURING COVID-19.

LEARN MORE >

NCfIH National Coalition for Infant Health
Protecting Science for Perinatal Infants through Age Two

New subscribers are always welcome!

NEONATOLOGY TODAY

To sign up for a free monthly subscription, just click on this box to go directly to our subscription page

PROTECT YOUR FAMILY FROM RESPIRATORY VIRUSES

flu

coronavirus

pertussis

RSV



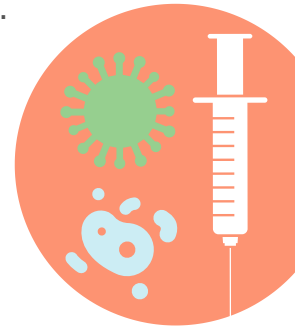
SOAP

WASH YOUR HANDS

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

GET VACCINATED

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



COVER COUGHS AND SNEEZES.

Sneeze and cough into your elbow.

USE A HAND SANITIZER THAT IS 60%+ ALCOHOL.



STAY AWAY FROM SICK PEOPLE

Stay at home to protect vulnerable babies and children. Avoid crowds when out.



nicuparentnetwork.org
nationalperinatal.org



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 room.
- Don't cuddle with pets.
- Use SEPARATE utensils.
- Clean utensils separately.
- If sick avoid the kitchen.

KITCHEN

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



Visit Miora.org



COVID-19

DETENER LA PROPAGACION 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.
- Limpia 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
- Alinea la habitación 3x al día
- Crear un separador de ambientes con sábanas.
- Mantener agua y líquidos de saneamiento cerca
- Mantenga una bolsa de basura en la habitación.
- Use utensilios SEPARADOS.
- Limpie los utensilios por separado.
- Si está enfermo, evite la cocina.

COCINA

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



Visitar Miora.org



Ways to Manage Covid 19 @ Home

Household

- Stay 6 feet apart from others at all times.
- 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)
- Gargle with antiseptic mouthwash in the morning and evening.
- Wash hands 10-12x a day, before each meal for at least 20 seconds.
- Keep good ventilation throughout home. (open windows/doors) where possible
- Do not share towels, blankets, pillows with sick.
- Call 211 for assistance/free delivery of services.
- Wear protective clothing (jacket, gloves, mask) that can be removed after being around infected.

Sick

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

Stop the Spread at HOME Miora



Maneras de manejar COVID-19 en casa

Hogar

- Manténgase 6 pies de distancia de los demás en todo momento. 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.
- Hacer gárgaras todas las mañanas y noches con productos de enjuague bucal antiséptico que contienen alcohol.
- Lavé la manos 10-11 veces al día, y antes de cada comida por lo menos 20 segundos.
- Mantenga Buena ventilación en toda la casa. Abra las ventanas y puertas cuando sea posible.
- No compartá toallas, cobijas, y almohadas con personas que estén infectados.
- Llame al 211 para obtener servicios de entrega gratuitos.
- Use ropa protectora, chaqueta, guantes, máscara que se pueda quitar después de estar cerca de infectados.

Enfermo

- Aíslase permaneciendo en una habitación separada con baño separado. No vayas a espacios compartidos
- Si no se puede aislar crea un separador de ambiente con una sábana.
- Ventile la habitación con aire fresco por lo menos 3 veces al día.
- Mantenga agua y productos de saneamiento en la habitación.
- Mantenga una bolsa de basura en la habitación.
- Proteja a las mascotas, no las abraza.
- Notifique a todos los contactos de los últimos 10 días.
- No espere! Si se siente peor llame a su médico.

Detén la propagacion en CASA Miora



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

Quando todos usamos mascarillas ...

Protegemos a los padres y los bebés.



Project Sweet Peas + National Perinatal Association

Fragile Infant Forums for Implementation of IFCDC Standards, “The Mother-Baby Relationship: The Key Cornerstone of the IFCDC Standards”

Kelly McGlothen-Bell, PhD, RN, IBCLC, Brianna Flowers-Joseph MSN, APRN, CPNP, Patricia De La Cruz



“Promotion of mother-baby relationships during the ICU stay requires advocacy, systems thinking, and support of the mother-baby bond for effective implementation of practices. This article will explore the importance of mother-baby bonding in ICUs and developing a conducive environment for the dyad.”

Abstract:

Promotion of mother-baby relationships during the ICU stay requires advocacy, systems thinking, and support of the mother-baby bond for effective implementation of practices. This article will explore the importance of mother-baby bonding in ICUs and developing a conducive environment for the dyad.

Background

The Infant and Family Centered Developmental Care (IFCDC) Consensus Committee maintains that the baby’s relationship with

their primary caregiver, most often their mother, is critical to their early and long-term developmental processes (1). Positive mother-baby relationships play a role in a broad range of optimal developmental outcomes for babies, including social, emotional, and cognitive development, especially in those considered medically fragile and complex (2). However, at the most fundamental level, positive mother-baby relationships serve the purpose of meeting the babies’ basic needs (3). Nonetheless, establishing the mother-baby relationship can be complicated for babies admitted to the intensive care unit (ICU) (4).

“The critical nature of the ICU environment can pose significant threats to establishing the mother-baby relationship (5). Upon admission to the ICU, the central focus is on the stabilization of the baby as they transition to extra-uterine life (6).”

The critical nature of the ICU environment can pose significant threats to establishing the mother-baby relationship (5). Upon admission to the ICU, the central focus is on the stabilization of the baby as they transition to extra-uterine life (6). During this initial transition, mother-baby separation is common as the primary care of the baby shifts to the healthcare team; however, this issue may persist through the duration of the baby’s ICU stay (2). Moreover, the stress of having a baby in the ICU may challenge maternal role attainment and impede mother-baby bonding and attachment (7). As such, the healthcare team must recognize the non-normative nature of the ICU and its implication on the mother-baby relationship (6,7).

By incorporating the principles of systems thinking, the healthcare team is well positioned to promote the essentialness of the mother and family to the overall health and development of the medically compromised baby (1,5). Supportive measures have been well established within the literature, and the healthcare team must remain current on evidence-based approaches to advocate for and promote the mother-baby relationship in the ICU (8). Several IFCDC Standards and Competencies provide guidelines for incorporating the mother and family in the care of the baby, underscoring the importance of promoting bonding and attachment (See Box 1). For example, one of the IFCDC Standards focuses on the recommendation of skin-to-skin contact (SSC) with intimate family members, prioritizing SSC with the mother (1).

Skin-to-skin contact (SSC) poses significant biological benefits for healthy, term babies and those of higher risk (9,10). Literature suggests that direct SSC influences cardiorespiratory outcomes and indicators for stress (cortisol) and attachment (oxytocin) (11);

Box 1.

Examples of the Integration of the Mother-Baby Relationship into the Developmental Care Standards for Infants in Intensive Care:

- **Systems Thinking, Standard 2:** The intensive care unit shall provide a professionally competent interprofessional collaborative practice team to support the baby, parent, and family's holistic physical, developmental, and psychosocial needs from birth through the transition of hospital discharge-to-home and assure continuity to follow-up care.
- **Competency 2.1:** Teams will demonstrate IFCDC through interaction, practice implementation, and documentation that they are baby, parent, and family-centered.
- **Positioning and Touch, Standard 4:** Babies in ICU settings shall experience human touch by family and caregivers.
 - **Competency 4.1:** A parent should be invited to participate with the primary caregiver to support the baby during potentially stressful caregiving and medical procedures. When parents are unavailable, a second caregiver should support the infant.
- **Sleep and Arousal, Standard 3:** The ICU shall encourage family presence at the baby's bedside and family participation in caring for their baby.
 - **Competency 3.1:** Policies and procedures in support of parent participation in routine care and sleep-promoting skin-to-skin holding shall be developed, implemented, monitored, and routinely evaluated.
- **Skin-to-Skin Contact, Standard 1:** Parents shall be encouraged and supported in early, frequent, and prolonged skin-to-skin contact (SSC) with their babies.
 - **Competency 1.9:** Parents shall be encouraged to have vocal and singing interactions with their baby during SSC to enhance parental-infant connections, reduce parental anxiety, increase newborn vocal/listening interactions, and improve the baby's autonomic stability.
- **Pain and Stress, Families, Standard 1:** The interprofessional team shall document increased parental/caregiver well-being and decreased emotional distress (WB/D) during the intensive care hospital (ICU) stay. Distress levels of the baby's siblings and extended family should also be considered.
 - **Competency 1.1:** Parents shall have unlimited opportunities to be with their babies and be encouraged to engage with them, including skin-to-skin interactions.
 - **Competency 1.2:** Education shall be provided to all parents on how to (a) recognize their baby's behavioral communications of pain and distress as well as signs of comfort and (b) support parents to use practical ways to comfort and soothe their baby safely.
- **Feeding, Standard 4:** Mothers shall be supported to be the primary feeders of their babies.
 - **Competency 4.1:** ICU professionals shall actively work with m/others to assist them in feeling confident and competent with feeding their babies.
 - **Competency 4.2:** Where relevant/necessary, bottle feeding shall be conducted by the m/other when she/he is present rather than by ICU professionals so that m/other is supported to be the expert. M/others or their designees shall be identified as the primary provider(s) of sustenance and nurturing.
 - **Competency 4.3:** Professionals shall support the parents' understanding of their baby's communicative behaviors while guiding and supporting the feeding experience.

these processes are specifically important for both preterm and medically compromised full-term babies (9). Furthermore, bonding interventions, such as SSC, have important implications for the mother and family, including reducing maternal stress and stimulating human milk production (11,12). Other support measures may include breastfeeding, baby positioning, touch, and maternal voice utilization to soothe the baby (See Box 1).

Despite the known benefits of supportive bonding interventions, disparities in care provision exist among diverse families in the ICU (13–15). Inequities in access to high-quality ICU care should

be considered in racial/ethnic, socio-economic, and socially stigmatized identities (13,14). Evidence suggests historically marginalized families are less likely to receive supportive care measures in the ICU (14). For example, Black and Hispanic mothers with babies in the ICU were reported to experience higher rates of discrimination and disrespectful care when compared to their White counterparts (14, 15). Similarly, in a study conducted by McGlothen et al. (2021), mothers with opioid use disorders reported feeling both stigmatized and unsupported in their efforts to engage in their baby's care. Bias, discrimination, and stigmatization may have detrimental implications on the provision of respectful care (16) and the support for mother and family engagement in

Box 2.

- Despite the known benefits of supportive bonding interventions, care provision disparities exist among diverse ICU families. Inequities in access to high-quality ICU care should be considered in the context of racial/ethnic, socio-economic, and socially stigmatized identities.
- Constraints on maternal engagement may impede supportive care practices that largely affect the baby's health, including SSC and breastfeeding.
- The healthcare team should be responsive to the ongoing needs of the mother-baby dyad as a unit and work to ensure that support for maternal engagement is at the forefront of the baby's care plan, empowering the mother and family in shared decision-making and making every effort to reduce mother-baby separation.

the ICU setting (14). Constraints on maternal engagement may impede supportive care practices that largely affect the baby's health, including SSC and breastfeeding (14).

“Several studies continue to demonstrate that mothers are needed to help support babies’ health and development (7). Specifically, maternal engagement in care helps medically compromised babies adapt to the chaotic environment of the ICU and supports physiological process development (6). ”

Several studies continue to demonstrate that mothers are needed to help support babies’ health and development (7). Specifically, maternal engagement in care helps medically compromised babies adapt to the chaotic environment of the ICU and supports physiological process development (6). Likewise, the enhancement of mother-baby bonding interventions offers an opportunity to support the mental health of the baby, the mother, and the family (17). Mothers’ engagement in their babies’ care must move from being considered an optional nicety to an essential part of the baby’s care (18). Moreover, the healthcare team should be responsive to the ongoing needs of the mother-baby dyad as a unit and work to ensure that support for maternal engagement is at the forefront of the baby’s care plan, empowering the mother and family in shared decision-making and making every effort to reduce mother-baby separation (19). Safeguarding the dynamic nature of the mother-baby relationship in the ICU is key to the long-term health and well-being of society’s smallest, most important members.

References:

1. IFCDC Consensus Committee. Report of the First Consensus Conference on Standards, Competencies and Recommended Best Practices for Infant and Family Centered Developmental Care in the Intensive Care Unit [Internet]. Clearwater, FL; 2019 [cited 2022 Aug 28]. Available from: https://nicude-sign.nd.edu/assets/350964/website_manuscript_complete_document_w_references_november_2019_1_.docx.pdf
2. Treyvaud K, Spittle A, Anderson PJ, O'Brien K. A multilayered approach is needed in the NICU to support parents after the preterm birth of their infant. *Early Human Development* [Internet]. 2019 Dec 1 [cited 2022 Aug 28];139:104838. Available from: <https://www.sciencedirect.com/science/article/pii/S0378378219304761>
3. Lisanti AJ, Vittner D, Medoff-Cooper B, Fogel J, Wernovsky G, Butler S. Individualized Family Centered Developmental Care: An Essential Model to Address the Unique Needs of Infants with Congenital Heart Disease. *J Cardiovasc Nurs* [Internet]. 2019 [cited 2022 Aug 28];34(1):85–93. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6283700/>
4. Makris NM, Vittner D, Samra HA, McGrath JM. The PREEMI as a measure of parent engagement in the NICU. *Appl Nurs Res*. 2019 Jun;47:24–8.
5. Franck LS, O'Brien K. The evolution of family-centered care: From supporting parent-delivered interventions to a model of family integrated care. *Birth Defects Res*. 2019 Sep 1;111(15):1044–59.
6. D'Agata AL, Sanders MR, Grasso DJ, Young EE, Cong X, McGrath JM. UNPACKING THE BURDEN OF CARE FOR INFANTS IN THE NICU: Burden of Care. *Infant Ment Health J* [Internet]. 2017 Mar [cited 2022 Aug 28];38(2):306–17. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/imhj.21636>
7. Fernández Medina IM, Granero-Molina J, Fernández-Sola C, Hernández-Padilla JM, Camacho Ávila M, López Rodríguez MDM. Bonding in neonatal intensive care units: Experiences of extremely preterm infants’ mothers. *Women Birth*. 2018 Aug;31(4):325–30.
8. Weber A, Harrison TM. Reducing toxic stress in the NICU to improve infant outcomes. *Nurs Outlook* [Internet]. 2019 [cited 2022 Aug 28];67(2):169–89. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6450772/>
9. Cleveland L, Hill CM, Pulse WS, DiCioccio HC, Field T, White-Traut R. Systematic Review of Skin-to-Skin Care for Full-Term, Healthy Newborns. *J Obstet Gynecol Neonatal Nurs*. 2017 Dec;46(6):857–69.
10. Pados BF. Physiology of Stress and Use of Skin-to-Skin Care as a Stress-Reducing Intervention in the NICU. *Nurs Womens Health*. 2019 Feb;23(1):59–70.
11. Pados BF, Hess F. Systematic Review of the Effects of Skin-to-Skin Care on Short-Term Physiologic Stress Outcomes in Preterm Infants in the Neonatal Intensive Care Unit. *Adv Neonatal Care*. 2020 Feb;20(1):48–58.
12. Oras P, Thernström Blomqvist Y, Hedberg Nyqvist K, Gradin M, Rubertsson C, Hellström-Westas L, et al. Skin-to-skin contact is associated with earlier breastfeeding attainment in preterm infants. *Acta Paediatr*. 2016 Jul;105(7):783–9.
13. McGlothen-Bell K, Recto P, McGrath JM, Brownell E, Cleveland LM. Recovering Together: Mothers’ Experiences Providing Skin-to-Skin Care for Their Infants With NAS. *Adv Neonatal Care*. 2021 Feb 1;21(1):16–22.
14. Ravi D, Jacob A, Profit J. Unequal care: Racial/ethnic disparities in neonatal intensive care delivery. *Seminars in Perinatology* [Internet]. 2021 Jun [cited 2022 Aug 28];45(4):151411. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0146000521000240>
15. Sigurdson K, Mitchell B, Liu J, Morton C, Gould JB, Lee HC, et al. Racial/Ethnic Disparities in Neonatal Intensive Care: A Systematic Review. *Pediatrics* [Internet]. 2019 Aug [cited 2022 Aug 28];144(2):e20183114. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6784834/>
16. Respectful Maternity Care Framework and Evidence-Based Clinical Practice Guideline. *Journal of Obstetric, Gynecologic & Neonatal Nursing* [Internet]. 2022 Mar [cited 2022 May 27];51(2):e3–54. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0884217522000016>
17. McGlothen-Bell K, Browne JV, Jaeger CB, Kenner C. Promoting Infant Mental Health in the Newborn Intensive Care Unit: Considerations in the Time of COVID-19. *Adv Neonatal Care*. 2021 Jun 1;21(3):169–70.
18. Behr JH, Brandon D, McGrath JM. Parents Are “Essential” Caregivers. *Adv Neonatal Care*. 2021 Apr 1;21(2):93–4.
19. van Veenendaal NR, van Kempen AAMW, Broekman BFP, de Groof F, van Laerhoven H, van den Heuvel MEN, et al. Asso-

ciation of a Zero-Separation Neonatal Care Model With Stress in Mothers of Preterm Infants. JAMA Network Open [Internet]. 2022 Mar 28 [cited 2022 Aug 28];5(3):e224514. Available from: <https://doi.org/10.1001/jamanetworkopen.2022.4514>

Disclosure: The author has no conflicts of interest

NT

Corresponding Author



Kelly McGlothen-Bell, PhD, RN, IBCLC
Assistant Professor
UT Health San Antonio, School of Nursing
7703 Floyd Curl Dr., San Antonio, TX 78229
(210) 450-8518
Email: mcglothen@uthscsa.edu

Corresponding Author



Brianna Flowers-Joseph MSN, APRN, CPNP
PhD Student
UT Health San Antonio, School of Nursing
7703 Floyd Curl Dr., San Antonio, TX 78229
(210) 450-8518
Email: FlowersJosep@livemail.uthscsa.edu

Corresponding Author



Patricia De La Cruz
BSN Student
UT Health San Antonio, School of Nursing
7703 Floyd Curl Dr., San Antonio, TX 78229
(210) 450-8518
Email: delacruzp2@livemail.uthscsa.edu



Readers can also follow
NEONATOLOGY TODAY
via our Twitter Feed
@NEOTODAY

New subscribers are always welcome!
NEONATOLOGY TODAY
To sign up for a free monthly subscription,
just click on this box to go directly to our
subscription page



Perinatal Advisory Council:
Leadership, Advocacy and Consultation

CONTINUING MEDICAL EDUCATION

The Continuing Education Department at PAC/LAC is pleased to consider requests to be a joint provider of your CME activity. PAC/LAC is actively involved in direct and joint-providership of multiple continuing education activities and programs and works with our partners to ensure the highest standards of content and design. PAC/LAC is the recipient of the 2018 Cultural & Linguistic Competency Award. This award recognizes a CME provider that exemplifies the goal of integrating cultural and linguistic competency into overall program and individual activities and/or a physician who provides leadership, mentorship, vision, and commitment to reducing health care disparities

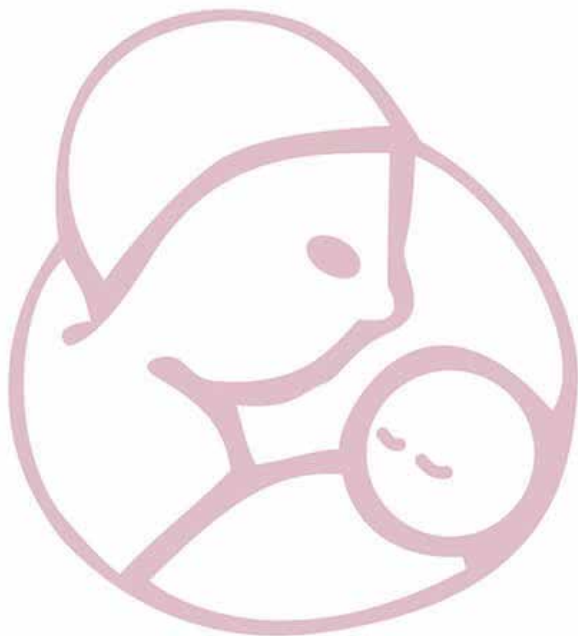
PAC/LAC is an accredited provider of continuing education by Accreditation Council for Continuing Medical Education / Institute for Medical Quality, the California Board of Registered Nursing, the California Association of Marriage and Family Therapists, the National Commission for Health Education Credentialing, and the American Association for Respiratory Care.

To inquire about Continuing Education Joint-Providership opportunities for your event please visit our website and complete the online request form.

PAC/LAC offers continuing education for:

- Continuing Medical Education (CME)
- California Registered Nurses (CEU)
- Licensed Clinical Social Workers (LCSW)
- Licensed Marriage and Family Therapists (LMFT)
- Licensed Professional Clinical Counselors (LPCC)
- Licensed Educational Psychologists (LEP)
- Certified Health Education Specialists (CHES)
- Continuing Respiratory Care Education (CRCE)

www.paclac.org



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.

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



99nicu

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

MedEd On The Go® presents
3 Accredited Education Programs in Short-Form Video Format
Available for CME/CNE Credits

The Role of Nutrition & Exclusive Human Milk for Very Low Birth Weight Infants



Preventing Bronchopulmonary Dysplasia

1.75 credit hours

WATCH NOW



www.MedEdOTG.com/video/program/599

Preventing Neonatal Sepsis

0.5 credit hours

WATCH NOW



www.MedEdOTG.com/video/program/609

Preventing Retinopathy of Prematurity

1.0 credit hour

WATCH NOW



www.MedEdOTG.com/video/program/608



Stephen E. Welty, MD
Clinical Professor of Pediatrics
University of Washington
School of Medicine
Seattle, WA



Dan L. Stewart, MD
Professor of Pediatrics & International Pediatrics
University of Louisville School of Medicine
Co-Director of NICU & ECMO
Norton Children's Hospital
Louisville, KY



Jonathan R. Swanson, MD, MSc
Associate Professor of Pediatrics
University of Virginia
Children's Hospital
Charlottesville, VA



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.

In Loving Memory

August 9, 1996 - April 3, 2010



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

Make a Difference in the Life of a Student in Need Today!

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.

Let's Talk About Light and Health

Join a monthly Q&A following interviews with experts in light and health
Hosted by Randy Reid of the NLB; **produced by Allison Thayer** of the LHRC
Last Monday of each month at 12:00 PM, ET

- JAN 31** **Your daily light:** How does light impact your health?
Mariana Figueiro, PhD Sponsored by LEDVANCE
- FEB 28** **Out of the womb:** Lighting up the NICU
Robert White, MD Sponsored by GE Current
- MAR 28** **A new kind of lullaby:** Robust light/dark pattern for babies
Sofia Axelrod, PhD
- APR 25** **Hold the coffee:** Perking up the office with light
Bryan Steverson, MA
- MAY 23** **Skip the nap:** Consolidating sleep for older adults
Mariana Figueiro, PhD
- JUN 27** **Fee-fi-fo fungicide:** Light as a natural pesticide
David Gadoury, PhD
- JUL 25** **It's a complicated world out there:** Exposomics and light
Robert Wright, MD, MPH
- AUG 29** **Safety first:** Making driving less lethal
John Bullough, PhD Sponsored by GE Current
- SEP 26** **Beyond the visible:** UV disinfection
Bernard Camins, MD Sponsored by GE Current
- OCT 31** **Let's get deep:** Lighting in submarines
Commander Christopher Steele, PhD
- NOV 28** **Equal lights:** Projects focused on health equity
Charles Jarboe, MS
- DEC 19** **Not your typical design:** Circadian-effective lighting
Allison Thayer, MS

Sponsor a topic

Contact Randy Reid at randy@nlb.org

Register today

<https://lightandhealth.eventbrite.com>

2022 SERIES

I Think About Those Babies Often.

Kelly Welton, BA, RRT-NPS

“he images from the nightly news that are burned into my psyche do not represent who they are, except that they have shown themselves to be true fighters and survivors. Air-raid sirens be damned, there are still people working 24/7 in makeshift NICUs in hospital basements across the country.”

I think about those babies often. Thousands of miles away, in a country I envisioned as – well, I didn't envision them as anything, as I don't personally know anyone from Ukraine. The images from the nightly news that are burned into my psyche do not represent who they are, except that they have shown themselves to be true fighters and survivors. Air-raid sirens be damned, there are still people working 24/7 in makeshift NICUs in hospital basements across the country. And parents that make the dangerous trip there to see their babies. Many Ukrainian women went into preterm labor from the stress of war itself. Many women went into labor due to infections, no food, stress, and lack of medical help. Since February 24, the preterm birth rate in Ukraine has tripled. The stress of sirens and shelling, or from lack of food and water, or making the dangerous trek from cities under siege to safer places on the West side of Ukraine all contribute. Here in the U.S., as we wrapped up our last day of teaching the NICU beginner's class, I made my way home. It had been several days since I looked in on the news to see what else had happened to reduce their country to rubble.

When the first regions of Ukraine were attacked, babies got moved to other hospitals, quickly overwhelming the units. When Lviv and Kyiv were attacked, where a lot of the babies had been transferred, this is where the story goes fuzzy. Some of those babies got moved again, and some hospitals moved their NICU to the basement. Other hospitals sandbagged the windows and stayed on the upper floors because the basement had no oxygen piped in.

Hospitals have not been spared from shelling in Ukraine. My only glimpse into Ukraine's NICUs is from YouTube videos from months ago. Things we take for granted – like clean water and heat – seem visible in these video clips. There is a baby on a servo I ventilator and another on what appears to be a Drager. One shows a Fisher Paykel humidifier and chamber on it. Which prompts my brain to ask: where are they getting those specific supplies, such as neonatal ventilator circuits? IV tubing? And

chambers and sterile water?

I can see IV pumps, an oxygen concentrator, and someone hand-bagging one baby off an E cylinder of oxygen. One basement NICU appears to have piped in oxygen, to which I ask: how is the hospital receiving the oxygen they need?

Some babies are all together on a cot, wrapped in blankets, while others are in warmers or isolettes.

“ One small thing we can do is find a local chapter of a Canadian company, Not Just Tourists. They are asking for donations of clean suitcases in good condition. When someone travels to Europe, they fill a donated suitcase full of medical supplies. You can visit them at <https://www.njt.net>.”

Ukraine still has a functional nuclear power plant, and water treatment systems are intact in some areas. Sanitation is another issue. The shortage of Medical personnel overall has made urgent C- sections a luxury. While I await updates on Ukraine NICU specifics, I am confident Ukraine could use all the help and medical supplies they can get. In another video, a representative from UNICEF is shown opening boxes of supplies sent, although I can't see all of the contents. What can any of us do without going there and helping in person? One small thing we can do is find a local chapter of a Canadian company, Not Just Tourists. They are asking for donations of clean suitcases in good condition. When someone travels to Europe, they fill a donated suitcase full of medical supplies. You can visit them at <https://www.njt.net>.

Suggested Reading:

1. <https://reports.unocha.org/en/country/ukraine/>
2. <https://njt.net/about-us/articles-on-njt/>
3. <https://reliefweb.int/report/ukraine/unicef-ukraine-humanitarian-situation-report-no-19-26-july-24-august-2022>
4. https://www.youtube.com/watch?v=30W5uD8oN5M&t=40s&ab_channel=BBCNews

Disclosures: The author has no conflicts noted.

NT

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



Corresponding Author

--
Kelly Welton, BA, RRT-NPS
President,
Academy of Neonatal Care
La Quinta, California, United States
Website: www.AcademyofNeonatalCare.org
Phone: 877-884-4587
Email: Educator@academyofneonatalcare.org



Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/ Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



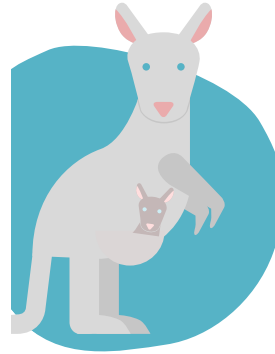
Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING

COVID-19



**GET INFORMED
ABOUT THE
RISKS + BENEFITS**

work with your medical team to create a plan

GET CLEAN
WASH YOUR HANDS,
ARMS, and CHEST

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



**PUT ON
FRESH CLOTHES**

change into a clean gown or shirt.

**IF COVID-19 +
WEAR A MASK**

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



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



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

Paperback
USD 24.99

WE NEED YOUR HELP,

Your voice, Your expertise, Your support,

*to raise awareness about the Alliance
and our vision for supporting Black
NICU Families.*

Black NICU Moms & Dads:

TAKE THE SHORT SURVEY!

<https://preemie.us/BlackNICUFamilies>



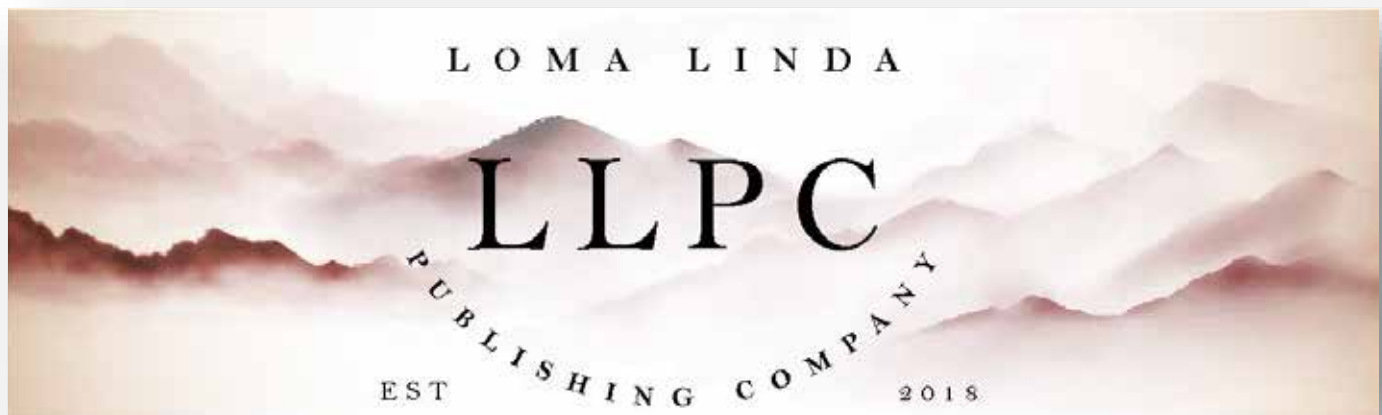
alliance
FOR BLACK NICU FAMILIES™

There's new information and rulings on safe sleep. Are you ready to speak with your patients?



Bring First Candle's Straight Talk for Infant Safe Sleep program to your hospital so that everyone is up to date on the latest information from the AAP on safe sleep and the CPSC on safe products.

For more information contact Barb Himes
at barb@firstcandle.org



National Network
of NICU
Psychologists

www.nationalperinatal.org/psychologists

COVID-19

FREE RESOURCES for your NICU

- Helping Children and Families Cope
- Bonding with Your Baby
- Caregivers Need Care Too

Baby Safety Month: JPMA Outlines Steps for Keeping Infants Safe

Lisa R. Trofe, CAE

first candle

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.



September is Baby Safety Month, an annual time to focus on safety considerations unique to babies and young children. Baby Safety Month was established by the Juvenile Products Manufacturers Association (JPMA) nearly four decades ago to help parents safely navigate early childhood. With unintentional injury being the leading cause of death for children ages one to four,⁽¹⁾ JPMA offers parents and caregivers critical safety tips and useful

resources to help them choose and safely use age-appropriate products in the home and while on the go.

“To participate in Baby Safety Month, health care providers can visit BabySafetyMonth.org to access JPMA’s turnkey Baby Safety Month toolkit.”

To participate in Baby Safety Month, health care providers can visit **BabySafetyMonth.org** to access JPMA’s turnkey Baby Safety Month toolkit. The toolkit offers many baby safety tips across the four themes selected for this year, including:

Locks & Latches:

According to Safe Kids Worldwide, in the United States, nearly 7.7 million children are treated for injuries in emergency departments every year, and these are often serious injuries that can affect them for a lifetime. Many injuries can be prevented by using locks & latches to secure household items that are dangerous to babies and young children.

- Place locks and latches on all cabinets in the bathrooms, the kitchen, the garage, and the laundry room.
- Even with locks and latches, make sure to move all chemicals and medicine to a high location where little hands cannot reach them.
- Keep the number of the poison control center on your phone and your refrigerator in case of an emergency (1-800-222-1222).

“According to the American Academy of Pediatrics, each year in the United States, about 3,500 infants die of sleep-related infant deaths.”



Did you know that premature and low birth weight babies have a 4x greater risk for SIDS?

At First Candle we're educating parents, grandparents and caregivers about safer sleep to make sure all babies reach their first birthday. Learn more at firstcandle.org

Safe Sleep:

According to the American Academy of Pediatrics, each year in the United States, about 3,500 infants die of sleep-related infant deaths. For this reason, parents and caregivers need to learn and implement safe sleep practices for babies and young children.

- The safest place for a baby to sleep is in a bare, JPMA Certified crib or other approved sleep product.
- Use a new crib that has not been recalled.
- The crib must be assembled with manufacturer hardware and following manufacturer instructions only. Keep instructions for future use.
- Always use a properly fitting mattress in the baby's crib.
- Never add extra bedding, pillows, blankets, or stuffed animals to the baby's crib or other sleep products.

“According to the National Highway Traffic Safety Administration, car crashes are a leading cause of death for children ages 1-13. Car seats can help reduce the risk of crash injuries overall and can reduce the risk of fatal injury by as much as 71 percent.”

Car Seats & Child Passenger Safety:

According to the National Highway Traffic Safety Administration, car crashes are a leading cause of death for children ages 1-13. Car seats can help reduce the risk of crash injuries overall and can reduce the risk of fatal injury by as much as 71 percent. However, mistakes in choosing, installing, or correctly using car seats can compromise the protection they offer.

- Delay transitions from rear-facing to forward-facing, forward-facing to booster, and booster to the seat belt. Use each restraint mode until reaching the maximum height or weight allowed by the instructions for that mode.
- Keep car seat harnesses snug. Correctly adjusted harnesses limit how a child's body would move in a crash to help reduce injury.
- Properly attach and adjust the top tether on your forward-facing car seat to reduce head injury risk.
- Use a booster seat from when your child outgrows a forward-facing car seat with harnesses until the seat belt alone fits correctly. Booster seats help keep seat belts on strong bones to protect internal organs.

Safety & Sustainability:

According to BabyCenter and What to Expect, 42 percent of mothers surveyed who are pregnant or have a baby under six months old acquired or plan to acquire baby products secondhand. While reusing products is sustainable, baby and children's

products must adhere to the latest safety standards. Beyond using secondhand products, there are other ways parents can take care of babies safely while also protecting the environment.

- To create a sustainable nursery, look for products with sustainably sourced materials, organic cotton, or recycled components.
- Clothes, toys, and books are great to buy secondhand, but prioritize buying new baby gear like car seats, cribs, and mattresses.
- Rely on manufacturers with buy-back or repair/replacement programs and retailer trade-in programs where products are recycled sustainably.

“JPMA has several initiatives planned for Baby Safety Month and encourages the health care community to become involved. Its social media channels offer monthly updates (Facebook: JPMA: Built for Baby and JPMA Parents; Instagram: @jpmabuiltforbaby and @jpmaparents; Twitter: @JPMA and @JPMAparents; and LinkedIn: JPMA: Built for Baby).”

JPMA has several initiatives planned for Baby Safety Month and encourages the health care community to become involved. Its social media channels offer monthly updates (Facebook: JPMA: Built for Baby and JPMA Parents; Instagram: @jpmabuiltforbaby and @jpmaparents; Twitter: @JPMA and @JPMAparents; and LinkedIn: JPMA: Built for Baby). And its turnkey Baby Safety Month toolkit at BabySafetyMonth.org provides safety tip images, blogs and videos focused on baby safety topics and more resources and information to share with parents and caregivers.

About the Juvenile Products Manufacturers Association (JPMA):

The Juvenile Products Manufacturers Association (JPMA) is the industry's voice on quality and safety for baby and children's products in North America. It works to advance the interests of manufacturers, parents, children, and the industry at large by advocating for safety through product certification programs and legislative and regulatory involvement. It supports a broad and diverse membership through member-only programming and industry promotion and acts as a comprehensive source for baby product information and education. Established in 1962, JPMA marks its 60th year of helping protect future generations by advancing the availability and safety of products used to care for babies and young children.

References:

1. <https://www.childstats.gov/americaschildren/phys7.asp>

Disclosure: The author is the Executive Director of the Juvenile

NT

Corresponding Author



Lisa R. Trofe, CAE
 Executive Director
 Juvenile Products Manufacturers Association (JPMA)
 1120 Route 73, Suite 200
 Mt. Laurel, NJ 08054
 856.380.6896
 Email: ltrofe@jpma.org
www.jpma.org

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, resulting in 3,600 infant deaths nationwide per year.

<https://drtomharris.com/>



**Dr. Thomas R. Harris Memorial
 Wednesday, September 21, 2022,
 8 pm EST on Zoom**

Which Infants are More Vulnerable to Respiratory Syncytial Virus?

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

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

*Source: Respirator Syncytial Virus and African Americans

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



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



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.

Neonatology Today's Digital Presence

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

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

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

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

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

fu-sheng.chou@neonatologytoday.net

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

Postpartum Revolution

@ANGELINASPICER

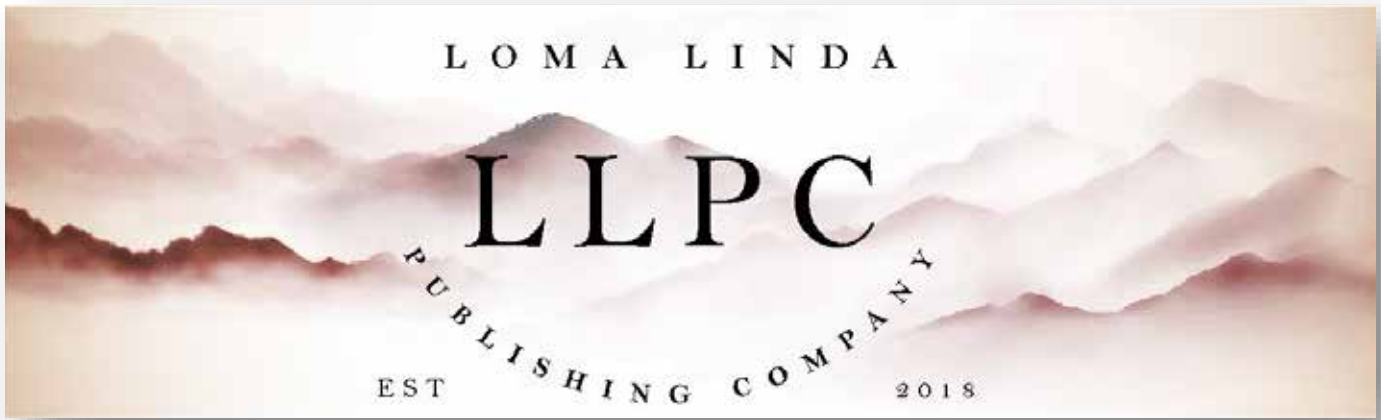


Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY



Supporting NICU Staff so they can support families



Providing online education that is...

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



The preeminent provider of compelling perinatal education on psychosocial support created through interprofessional collaboration

www.mynicunetwork.org



The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

The Impact of Structural Health Inequities on the AAP's 2022 Policy: Breastfeeding and the Use of Human Milk

Saba Saleem BS, Kristina Burger BS,

“Over the past decade, extensive research has highlighted the health benefits of breastfeeding in both infants and their mothers. In premature infants, it decreases the incidence of chronic lung disease, necrotizing enterocolitis (NEC), sepsis, and the length of the NICU stay (2).”

Introduction

Over the past decade, extensive research has highlighted the health benefits of breastfeeding in both infants and their mothers. In premature infants, it decreases the incidence of chronic lung disease, necrotizing enterocolitis (NEC), sepsis, and the length of the NICU stay (2). In term babies, breastfeeding is associated with a lower incidence of diarrhea, gastroenteritis, asthma, allergies, ear infections, respiratory illnesses, thrush, and sudden infant death syndrome (2). As these infants slowly grow into adulthood, the positive implications are a higher IQ, better eyesight, and a decreased incidence of leukemia, obesity, and Type 1 and 2 Diabetes (2).

“We will also investigate how structural determinants of health block adherence to guidelines set by the American Academy of Pediatrics (AAP) regarding breastfeeding and the use of human milk (6).”

Similarly, breastfeeding mothers experience immediate advantages, including increased oxytocin, decreased postpartum depression, and improved weight loss. As they reach menopause, breastfeeding reduces the incidence of osteoporosis, heart disease, T2DM, and breast, uterine, and ovarian cancers (2,3). Thus, breastfeeding improves short-term health outcomes and provides

long-term protection against chronic diseases (3). This translates into cost savings and a lower fiscal burden on the US healthcare system (4,5). However, in this discussion, we will address how past and current US policies regarding parental leave are hindering this economic progress. We will also investigate how structural determinants of health block adherence to guidelines set by the *American Academy of Pediatrics* (AAP) regarding breastfeeding and the use of human milk (6).

2012 AAP Guidelines:

In March 2012, the AAP released a policy statement that strongly encouraged new mothers to exclusively breastfeed for six months with continued breastfeeding for at least one year to experience the widespread health benefits (2). Less than a year before this recommendation, the AAP also published a study that contributed to the growing evidence that new mothers who delay their time to return to work have a longer duration of breastfeeding. (1) Considering these findings, it was reasonable to expect a structural change in parental leave policies that complemented the 2012 guidelines. Unfortunately, this did not occur. To this day, the United States is one of six countries worldwide and the only wealthy nation that does not have a formalized federal policy to guarantee paid parental leave to workers (7,8). The Family and Medical Leave Act (FMLA), established in 1993, provides up to 12 weeks of unpaid leave for new parents. However, unpaid leave is not feasible for most people, and 44% of US workers do not qualify for benefits through FMLA (8). This paradox occurs because FMLA eligibility requirements are to work for a company with at least 50 employees within a 75-mile radius, to be employed for at least one year, and to complete 1,250 hours within the last 12 months (14). FMLA ineligibility disproportionately affects families of color (8). As of 2022, only 11 individual US states provide some form of paid family and medical leave, but the length and qualification requirements drastically vary between states (9). This failure to enact a uniform policy protecting parental leave is reflected in mothers struggling to meet the 2012 AAP guidelines and in staggering US healthcare spending costs.

The Center for Disease Control (CDC) found that for infants born in 2011, only 27% were breastfeeding at 12 months. After the AAP guidelines were released in 2012, it was found that for infants born in 2013, this percentage rose to 30.7%, and of that, only 22.3% of moms were exclusively breastfeeding until six months (10,11). In response to this stagnation, the *Healthy People 2020* objectives aimed to increase worksite lactation support programs and live births in facilities that provide care for lactating mothers and their babies. It also sought to reduce the proportion of breastfed newborns who receive formula supplementation within the first two days of life (10,11). However, despite these initiatives and

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

increased access to lactation specialists, it was found that for infants born in 2019, only 35.9% were breastfeeding at one year, with 24.9% of moms exclusively breastfeeding until six months (12). The reality is that more than half of new mothers stop exclusively breastfeeding at three months, which coincides with the typical length of maternity leave in the United States (8,12). Of the American women who work during pregnancy, 52% of women work until the time of delivery, and 59% of them are back to work within three months of giving birth (7,14). This is because American women, compared to their non-U.S. counterparts with protected maternity leave, are more apprehensive about taking advantage of these benefits due to their perceived impact on future employment, career advancement, and gender equity (14). The financial implications of this are profound. As of 2020, the United States spends 4.1 trillion dollars annually on healthcare, with 31% of this reflected in hospital care services (13). Paid parental leave is a straightforward solution to this high fiscal spending. It promotes better health outcomes and behaviors and is associated with a 47% reduced risk of infant re-hospitalization and a 51% reduced risk of re-hospitalizing mothers after delivery (8,15). This would help mitigate in-hospital care spending.

“The reality is that more than half of new mothers stop exclusively breastfeeding at three months, which coincides with the typical length of maternity leave in the United States (8,12).”

2022 AAP Policy:

A decade after the 2012 guidelines, the AAP issued a revised policy statement in June 2022 regarding breastfeeding and the use of human milk. The new policy aligns with the World Health Organization (WHO) recommendations and extends the recommended breastfeeding duration to at least two years (16). This extension helps ensure that mothers who choose to breastfeed beyond one year do not feel ashamed, judged, or alienated (17). The history of negative attitudes toward breastfeeding can be traced back to infant formula companies using marketing techniques described as “unacceptably pervasive, misleading, and aggressive” by the Director-General of WHO (20). Nevertheless, cultural differences and sociodemographic factors (occupation, education level, age, marital status) play considerable roles in breastfeeding initiation rates and health disparities. African American and American Indian populations are less likely to initiate breastfeeding than non-Hispanic white and Hispanic people (16). Yet, in contrast, the US Bureau of Labor Statistics recorded higher access to paid leave for African American parents (41%) compared to Hispanic parents (23%) (8). This may contradict the previous assumption that access to paid parental leave will improve breastfeeding rates. However, it is important to note that parental leave, while significant in dictating maternal and child health outcomes, is not the only driving factor (7). It has been reported that African American mothers experience structural racism and barriers to care, seen through a lack of social support and inadequate counseling by healthcare providers, at higher levels than any other group. This is associated with earlier cessation of breastfeeding (21). Simi-

larly, low-income, young (age less than 20 years) or low-education (high school or less) mothers also have lower rates of breastfeeding (16,19). The downstream consequences are health inequities across racial, ethnic, and socioeconomic classes.

The recommendation to extend the breastfeeding duration to two years has encountered criticism from some mothers. Mothers already feel pressure to pump more frequently due to the ongoing formula shortage crisis. However, current workplace policies do not give moms adequate time to accomplish this, nor do they support a breastfeeding duration past one year (18). The Fair Labor Standards Act (FLSA) is a federal law that requires employers to provide “reasonable break time” for nursing employees to express their breast milk, but this provision is only for one year after the child’s birth (22). Furthermore, the FLSA does not require these breaks to be compensated, which forces working moms to utilize their allotted break time to provide milk (22). On average, a working mom should be pumping for 15 minutes every 3-4 hours (23). Understandably, there is a palpable frustration among these mothers, who felt inadequate for being unable to reach 2012 guidelines. Under these circumstances, the new guidelines are simply unattainable without policy changes.

“Nevertheless, cultural differences and sociodemographic factors (occupation, education level, age, marital status) play considerable roles in breastfeeding initiation rates and health disparities.”

Discussion:

During the height of the COVID-19 pandemic, one study examined how “lactation in quarantine” magnified the pre-existing inequities regarding breastfeeding. The author summarized the key issues by stating that “in the United States, most people feed their children human milk against all odds in the absence of universal basic income, paid parental leave for at least six months, paid lactation leaves and breaks, affordable housing, universal health care, equal access to high-quality, non-discriminatory, and culturally appropriate healthcare (including lactation support), sliding fee childcare programs, and more” (24). Our suggested action plan to address these issues incorporates policy, hospital, and individual provider changes.

“Our suggested action plan to address these issues incorporates policy, hospital, and individual provider changes.”

The primary item for change on a policy level is for lawmakers to update the Family and Medical Leave Act (FMLA) to expand eligibility and provide paid leave for women who undergo childbirth. It has been 29 years since this legislation was implemented, but it falls severely short of guaranteeing basic protection to new

mothers and families. The current eligibility criteria based on work site, number of employees, and duration of employment unfairly exclude vulnerable populations, particularly women who are part-time workers or receiving welfare assistance (14).

The modifications on a hospital level include promoting equitable postpartum breastfeeding support to alleviate racial disparities. An example is the Baby-Friendly Hospital Initiative developed by The World Health Organization (WHO) and United Nations Children's Fund (UNICEF). This includes interventions that provide a prenatal infant feeding plan, postpartum educational video with teach-back, cue-based feeding log, breastfeeding education guidelines, and team engagement (25). Additionally, facilitating videoconferencing between mothers and hospitalized premature infant helps improve their pumping experience and connect the whole family to the infant (26).

“The modifications on a hospital level include promoting equitable postpartum breastfeeding support to alleviate racial disparities. An example is the Baby-Friendly Hospital Initiative developed by The World Health Organization (WHO) and United Nations Children’s Fund (UNICEF). This includes interventions that provide a prenatal infant feeding plan, postpartum educational video with teach-back, cue-based feeding log, breastfeeding education guidelines, and team engagement (25).”

Personal and healthcare provider developments increase awareness of implicit and systemic bias to help improve the structural and social landscape surrounding lactation. The research supports that having pediatricians communicate with families about the benefits of breastfeeding increases the initiation, duration, and exclusivity. Furthermore, peer-supported interventions by Women, Infant, and Children (WIC) programs also improve breastfeeding and reduce disparities (16,19).

Conclusion

The period from conception through the first few years of life is critical for family development. However, the only federal legislative guarantee of job protection during this time is 12 weeks of unpaid leave for about half of the US workforce (7). The lack of uniform laws to protect growing families further solidifies health inequities. The children most at risk of not being breastfed, being born preterm or low birth weight, or dying in the first years of life, are those whose parents cannot take time off work (7). We are paying a financially heavy price for this social injustice done to society's most vulnerable members. The United States is the highest-spending country on healthcare worldwide. Yet, it has the lowest life expectancy and the highest rate of chronic disease, suicide, hospitalizations from preventable causes, and avoidable deaths compared to 10 other high-income nations (27). However,

all hope is not lost. When other countries, such as Norway, converted from 12 weeks of unpaid parental leave to 18 weeks of paid job-protected leave, the benefits observed in child development lasted for decades (7). Therefore, while the 2022 AAP guidelines are a step in the right direction, the most pressing need is for policy changes that provide paid parental leave and lactation breaks. By shifting our focus to address these structural issues, we will alleviate disparities and provide more reasonable expectations for mothers in achieving the new guidelines.

“The children most at risk of not being breastfed, being born preterm or low birth weight, or dying in the first years of life, are those whose parents cannot take time off work (7). We are paying a financially heavy price for this social injustice done to society’s most vulnerable members.”

References:

1. Chinelo Ogbuanu, Sandra Glover, Janice Probst, Jihong Liu, James Hussey; *The Effect of Maternity Leave Length and Time of Return to Work on Breastfeeding*. *Pediatrics*. 2011; 127 (6): e1414–e1427. [10.1542/peds.2010-0459](https://doi.org/10.1542/peds.2010-0459)
2. Arthur I. Eidelman, Richard J. Schanler, Margreete Johnston, Susan Landers, Larry Noble, Kinga Szucs, Laura Viehmann; *Breastfeeding and the Use of Human Milk*. *Pediatrics*. 2012; 129 (3): e827–e841. [10.1542/peds.2011-3552](https://doi.org/10.1542/peds.2011-3552)
3. Binns C, Lee M, Low WY. *The Long-Term Public Health Benefits of Breastfeeding*. *Asia Pacific Journal of Public Health*. 2016; 28(1):7-14. [doi:10.1177/1010539515624964](https://doi.org/10.1177/1010539515624964)
4. Quesada, J.A., Méndez, I. & Martín-Gil, R. *The economic benefits of increasing breastfeeding rates in Spain*. *Int Breastfeed J*. 2020; 15(34) <https://doi.org/10.1186/s13006-020-00277-w>
5. Santacruz-Salas E, Aranda-Reneo I, Hidalgo-Vega Á, Blanco-Rodríguez JM, Segura-Fragoso A. *The Economic Influence of Breastfeeding on the Health Cost of Newborns*. *Journal of Human Lactation*. 2019; 35(2):340-348. [doi:10.1177/0890334418812026](https://doi.org/10.1177/0890334418812026)
6. Chai Y, Nandi A, Heymann J. *Does extending the duration of legislated paid maternity leave improve breastfeeding practices? Evidence from 38 low-income and middle-income countries*. *BMJ Global Health*. 2018;3:e001032.
7. Burtle A, Bezruchka S. *Population Health and Paid Parental Leave: What the United States Can Learn from Two Decades of Research*. *Healthcare (Basel)*. 2016; 4(2):30. [doi:10.3390/healthcare4020030](https://doi.org/10.3390/healthcare4020030).
8. Abrams, Z. (2022, April). *The urgent necessity for paid parental leave*. *Monitor on Psychology*, 53(3). <https://www.apa.org/monitor/2022/04/feature-parental-leave>
9. Hultin, Suzanne, and Glenn Jacoby. “State Family and Medical Leave Laws.” *National Conference of State Legislatures (NCSL)*, 13 July 2022, <https://www.ncsl.org/research/labor-and-employment/state-family-and-medical-leave-laws.aspx>.
10. “Breastfeeding Report Card 2014.” *Center for Disease Control*, <https://www.cdc.gov/breastfeeding/>

- pdf/2014breastfeedingreportcard.pdf.
11. "Breastfeeding Report Card 2016." Center for Disease Control, <https://www.cdc.gov/breastfeeding/pdf/2016breastfeedingreportcard.pdf>
 12. "Breastfeeding Among US Children Born 2012-2019, CDC National Immunization Survey." Centers for Disease Control and Prevention, 1 Aug. 2022, https://www.cdc.gov/breastfeeding/data/nis_data/results.html.
 13. "National Health Expenditure Data." Centers for Medicare & Medicaid Services, 15 Dec. 2021, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical#:~:text=U.S.%20health%20care%20spending%20grew,For%20additional%20information%2C%20see%20below>.
 14. Vahratian A, Johnson TR. Maternity leave benefits in the United States: today's economic climate underlines deficiencies. *Birth*. 2009; 36(3):177-9. doi: 10.1111/j.1523-536X.2009.00330.x.
 15. Jou J, Kozhimannil KB, Abraham JM, Blewett LA, McGovern PM. Paid Maternity Leave in the United States: Associations with Maternal and Infant Health. *Matern Child Health J*. 2018; 22(2):216-225. doi: 10.1007/s10995-017-2393-x.
 16. Meek, Joan Younger, and Lawrence Noble. "Policy Statement: Breastfeeding and the Use of Human Milk." *American Academy of Pediatrics*, 27 June 2022, <https://publications.aap.org/pediatrics/article/150/1/e2022057988/188347/Policy-Statement-Breastfeeding-and-the-Use-of>.
 17. "American Academy of Pediatrics Updates Breastfeeding Guidelines." KETV Omaha, 11 Aug. 2022, <https://www.ketv.com/article/american-academy-of-pediatrics-breastfeeding-guidelines/40873535#>.
 18. Reneau, Annie. "Why Some Parents Are Cheering the New AAP Breastfeeding Recommendations." *Upworthy*, 18 July 2022, <https://www.upworthy.com/new-aap-breastfeeding-recommendations>.
 19. "Updated AAP Guidance Recommends Longer Breastfeeding Due to Benefits." Edited by Alyson Sulaski Wyckoff, *American Academy of Pediatrics*, 27 June 2022, <https://publications.aap.org/aapnews/news/20528/Updated-AAP-guidance-recommends-longer>.
 20. "Baby Formula Marketing 'Pervasive, Misleading and Aggressive' – UN Report." *United Nations*, 22 Feb. 2022, <https://news.un.org/en/story/2022/02/1112452>.
 21. Moore AM, Smith JJ, Stansfield BK, Savage JS, Lavner JA. Patterns and Predictors of Breast Milk Feeding from Birth to Age 4 Months among Primiparous African American Mother-Infant Dyads. *Nutrients*. 2022; 14(11):2350. <https://doi.org/10.3390/nu14112350>
 22. "Frequently Asked Questions – Break Time for Nursing Mothers." *United States Department of Labor*, <https://www.dol.gov/agencies/whd/nursing-mothers/faq>.
 23. Marcin, Ashley. "A Complete Guide to Pumping Breast Milk for Your Baby." *Healthline*, 31 July 2019, <https://www.healthline.com/health/pregnancy/how-often-should-i-pump#working-moms>.
 24. Cohen, M., Botz, C. Lactation in quarantine: The (in)visibility of human milk feeding during the COVID-19 pandemic in the United States. *Int Breastfeed J*. 2022; 17(22). <https://doi.org/10.1186/s13006-022-00451-2>
 25. Knutson J, Butler J. Providing Equitable Postpartum Breast-

feeding Support at an Urban Academic Hospital. *Nurs Womens Health*. 2022; 26(3):184-193. doi: 10.1016/j.nwh.2022.03.002.

26. Adrienne E. Hoyt-Austin, Iesha T. Miller, Kara M. Kuhn-Riordon, Jennifer L. Rosenthal, Caroline J. Chantry, James P. Marcin, Kristin R. Hoffman, and Laura R. Kair. Bonding, Relaxation, Separation, and Connection: Expressing Human Milk While Videoconferencing with the Hospitalized Preterm Infant. *Breastfeeding Medicine*. 2022;17(8): 653-659.
27. Tikkanen, Roosa, and Melinda K. Abrams. "US. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?" *The Commonwealth Fund*, 30 Jan. 2020, <https://www.commonwealthfund.org/publications/issue-briefs/2020/jan/us-health-care-global-perspective-2019>.

Financial Disclosures: The authors have no financial disclosures to report.

Conflict of Interest: The authors have no conflict of interest.

NT

Corresponding Author



Saba Saleem BS
DO, MPH Candidate 2023
Western University of Health Sciences
College of Osteopathic Medicine of the Pacific
Johns Hopkins Bloomberg School of Public Health
Pomona, CA
USA
Email: saba.saleem@westernu.edu
Phone: (916) 337-7819



Kristina Burger BS
DO Candidate 2023
Western University of Health Sciences
College of Osteopathic Medicine of the Pacific
Pomona, CA
USA

COPING WITH COVID-19

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



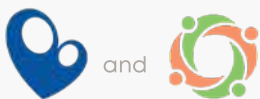
Provide culturally-informed and respectful care.

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



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



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.



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."

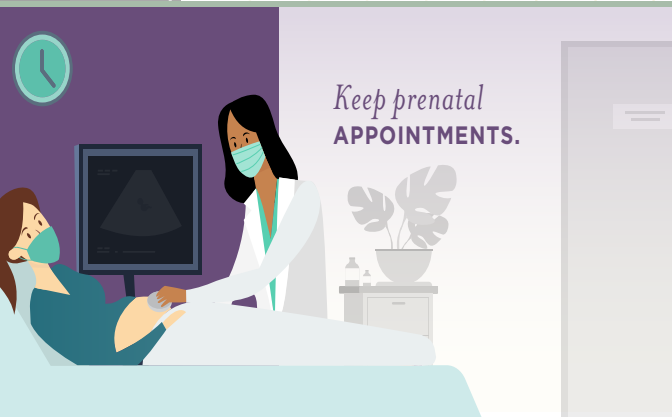


10 HELP US HEAL

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

SUPPORT4NICUPARENTS.ORG

The PREGNANT MOM'S Guide To Staying SAFE DURING COVID-19



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

SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN WASH YOUR HANDS, ARMS, and CHEST

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



PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

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



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



eLearning Courses

Health and Racial in the NICU

Meet Our Faculty



+ Jenné Johns, MPH
Once Upon A Premie Academy



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



+ Dawn Godbolt, Ph.D.
National Birth Equity Collaborative



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



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



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



+ Shanté Nixon
Connect2NICU



+ Ashley Randolph
Glo Premies



REGISTER TODAY

OnceUponAPremieAcademy.com

Health and Racial Equity + On-Demand Continuing Education

The first and only virtual training academy focused on delivering health and racial equity educational programs for perinatal and neonatal healthcare professionals. Our purpose is to raise awareness and offer real-time solutions for addressing health and racial equity.

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.





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.

In Loving Memory

August 9, 1996 - April 3, 2010



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

Make a Difference in the Life of a Student in Need Today!

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.

Abstracts From the National Perinatal Association's 2022 Conference Perinatology at the Intersection of Health Equity and Social Justice May 2-4 in Aurora, Colorado

Jeramos (Jerry) Ballas, MD, MPH

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*.



“Here is the link to the poster page from the NPA 2022 conference website: <https://www.npaconference.org/posters>”



NPA2022-1

The effects of childhood and adulthood social determinants of health on psychological stress during pregnancy: The role of mindfulness and social support to improve health equity

Alsop, S., * Dugoni, H., * Doyle, O., Mac-

kiewicz Seghete, K. & Graham, A.

*These authors contributed equally to this project.

Introduction. Pregnant individuals are at heightened risk of experiencing psychological stress,^{1,4} which may contribute to long-term adverse health consequences for pregnant and postpartum individuals,^{5,6} and their offspring.⁷⁻⁸ It is well-established that psychological stress is more prevalent in individuals with marginalized identities and contributes to health disparities.⁹ Social determinants of health (SDoH), characterized as environmental circumstances that affect health, help explain disparate health outcomes.¹⁰⁻¹² Mindfulness-based interventions are gaining support as effective treatments for reducing psychological stress during pregnancy.¹³ Further, social support may also be a protective factor against psychological stress.¹⁴ Interventions are needed to identify how childhood and adulthood SDoH contribute to psychological stress during pregnancy. Our research aims to serve as a foundation for identifying mindfulness and social support practices for pregnant individuals to reduce health disparities across generations. The current study sought to examine if protective practices (mindfulness and social support) improved the prediction of psychological stress during pregnancy.

Method. Participants were pregnant individuals (N= 187) who completed self-report measures at baseline (14-23 weeks gestation) about physical and psychological health, social and demographic factors, and coping behaviors prior to eligibility review for an ongoing longitudinal clinical trial examining the effects of Mindfulness-Based Cognitive Therapy on maternal and offspring health outcomes. **Results.** Two hierarchical multiple regressions were run to determine if the addition of mindfulness and social support improved the prediction of maternal psychological stress during pregnancy beyond gestational age, body mass index, and Model 1) childhood SDoH and Model 2) adulthood SDoH. Childhood SDoH included race; childhood public assistance, family finances, and healthcare; and childhood trauma. In Model 1, the addition of mindfulness and social support accounted for 45% of the variance, $R^2 = .457$, $F(9, 130) = 12.160$, $p < .001$; adjusted $R^2 = .419$, and significantly contributed to the model beyond childhood SDoH. For Model 2, adulthood SDoH included race; objective and subjective income; education level; likelihood of food insecurity;

and adulthood trauma. In Model 2, the addition of mindfulness and social support accounted for 45% of the variance, $R^2 = .451$, $F(10, 130) = 10.700$, $p < .001$; adjusted $R^2 = .409$, and significantly contributed to the model beyond adulthood SDoH. Semi-partial correlations suggested that mindfulness uniquely explained the greatest variance when controlling for all other variables. Interestingly, given the overlap in childhood and adulthood SDoH findings, semi-partial correlations indicated that childhood trauma uniquely explained the greatest variance for childhood SDoH, whereas the likelihood of food insecurity uniquely explained the greatest variance for adulthood SDoH. **Discussion.** The addition of mindfulness and social support to the prediction of maternal psychological stress further explained variance in the model, beyond childhood and adulthood SDoH; preliminary findings indicate that as mindfulness and social support increase, maternal psychological stress during pregnancy decreases. Initiatives and policies that promote healthy coping practices may support long-term maternal and offspring health,¹⁵⁻¹⁶ particularly for those with marginalized identities who are at increased risk of psychological stress during pregnancy. Findings should be interpreted with caution, given that they are preliminary in nature. Future analyses will examine mediators and moderators of psychological stress, with the overarching goal of using childhood and adulthood SDoH to inform interventions that improve the health of pregnant individuals and their offspring.

Abstract Submission for National Perinatal Association's 42nd Annual Interdisciplinary Conference (Applied or Basic Research)

Shelby Alsop, MS & Hannah Dugoni, MA (alsop@ohsu.edu & dugoni@ohsu.edu)

References

1. Farias, D. R., Pinto, T. D. J. P., Teofilo, M. M. A., Vilela, A. A. F., dos Santos Vaz, J., Nardi, A. E., & Kac, G. (2013). Prevalence of psychiatric disorders in the first trimester of pregnancy and factors associated with current suicide risk. *Psychiatry Research*, 210(3), 962-968.
2. Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, 75(10), 1153-1184.
3. Rubertsson, C., Hellström, J., Cross, M., & Sydsjö, G. (2014). Anxiety in

- early pregnancy: prevalence and contributing factors. *Archives of Women's Mental Health*, 17(3), 221-228.
4. Uguz, F., Yakut, E., Aydogan, S., Bayman, M. G., & Gezginc, K. (2019). Prevalence of mood and anxiety disorders during pregnancy: A case-control study with a large sample size. *Psychiatry Research*, 272, 316-318.
 5. Ahmed, A., Bowen, A., Feng, C. X., & Muhajarine, N. (2019). Trajectories of maternal depressive and anxiety symptoms from pregnancy to five years postpartum and their prenatal predictors. *BMC Pregnancy and Childbirth*, 19(1), 1-10.
 6. Hasanjanzadeh, P., & Faramarzi, M. (2017). Relationship between maternal general and specific-pregnancy stress, anxiety, and depression symptoms and pregnancy outcome. *Journal of Clinical and Diagnostic Research: JCDR*, 11(4), VC04.
 7. Glover, V. (2014). Maternal depression, anxiety and stress during pregnancy and child outcome; what needs to be done. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 28(1), 25-35.
 8. Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S., & Katon, W. J. (2010). A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Archives of General Psychiatry*, 67(10), 1012-1024.
 9. Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*, 25(2), 141.
 10. Satcher, D. (2010). Include a social determinants of health approach to reduce health inequities. *Public Health Reports*, 125(4_suppl), 6-7.
 11. Shick, S., Adebambo, I., & Perzynski, A. (2019). Health Disparities and Social Determinants of Health. In *Health Disparities* (pp. 7-15). Springer, Cham.
 12. World Health Organization. (n.d.). *Mental health: strengthening our response*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>.
 13. Shapero, B. G., Greenberg, J., Pedrelli, P., de Jong, M., & Desbordes, G. (2018). Mindfulness-based interventions in psychiatry. *Focus*, 16(1), 32-39
 14. Razurel, C., Kaiser, B., Antonietti, J. P., Epiney, M., & Sellenet, C. (2017). Relationship between perceived perinatal stress and depressive symptoms, anxiety, and parental self-efficacy in primiparous mothers and the role of social support. *Women & Health*, 57(2), 154-172.
 15. Bayrampour, H., Tomfohr, L., & Tough, S. (2016). Trajectories of perinatal depressive and anxiety symptoms in a community cohort. *The Journal of Clinical Psychiatry*, 77(11), 0-0.
 16. Chojenta, C., Loxton, D., & Lucke, J. (2012). How do previous mental health, social support, and stressful life events contribute to postnatal depression in a representative sample of Australian women?. *Journal of Midwifery & Women's Health*, 57(2), 145-150.

NPA2022-2

For low-income women receiving prenatal care, race matters

Lindsey Garfield, Dina Tell, Lisa Masinter, Jena Wallander Gemkow, Cara Joyce, Sandi Tenfelde

Abstract

Introduction: In the United States (US), Black women suffer disproportionate poor birth outcomes, including increased morbidity

and mortality for mothers and babies. Federally Qualified Health Centers (FQHCs) serve under-resourced populations in the US and these populations are at higher risk for poor birth outcomes. Little is known about how race and ethnicity affect perinatal risk factors for women who receive care at FQHCs. The purpose of this study is to explore racial/ethnic differences in women receiving prenatal care in Federally Qualified Health Centers (FQHCs).

Methods: We conducted a retrospective secondary analysis of 17,086 prenatal women receiving care at FQHCs between 2012–2017.

Results: Compared to both white and Latinx pregnant women, Black women were less likely to initiate prenatal care in the first trimester and less likely to be partnered during their pregnancy. Black women are at greater risk for elevated pre-pregnancy body mass index (BMI) compared to White women and more at risk for hypertension compared to Latinx women.

Conclusion: This study highlights prenatal differences in Black, white and Latinx women. Education on the importance of first trimester entry into prenatal care, adequate social support and healthy nutrition are important to include in the care of Black women of childbearing age.

NPA2022-3

Maternal Perceptions of the Impact of COVID-19 on Visitation Practices in a Level IV Neonatal Intensive Care Unit

Monica Garza Saenz, M.A., Melissa A. Faith, Ph.D., ABBP, Sunita Stewart, Ph.D., ABBP, Dailyn Acosta, Ph.D.

Introduction: Maternal neonatal intensive care unit (NICU) presence is critical for infants' medical recovery and overall neurodevelopmental trajectory (Reynolds et al., 2013). Yet, studies conducted in the United States suggest that caregivers' NICU presence vary significantly (Greene et al., 2015). Since March 2020, many NICUs have enacted policies that restrict caregiver visitation because of COVID-19. This study evaluates mothers' perceptions of COVID-19 impact on their NICU presence.

Methods: Data were collected as part of a larger, funded, ongoing study evaluating a motivational interviewing intervention to increase maternal NICU presence. We enrolled a diverse and representative sample of 62 NICU mothers (age $M(SD)=28(7.6)$, 46% Hispanic, 20% Spanish-speaking, 80% government subsidized insurance), 8% of whom reported testing COVID-19 positive at the time of their infant's admission. Participants were recruited if 1) their infant's initial treatment plan included ≥ 2 weeks of NICU hospitalization, and 2) the mother's preferred language was English or Spanish. Exclusion criteria included active Child Protective Services involvement, the biological mother not having custody, and/or maternal cognitive impairment. As part of the larger study, participants were randomized into the motivational interviewing intervention (MI) group ($N = 29$) or a treatment-as-usual control (TAU) group ($N = 33$). Prior to randomization, participants completed an assessment battery that included whether they tested COVID-19 positive during or after pregnancy. At the time of their infant's NICU discharge, participants completed the COVID-19 NICU Visitation Impact scale, a 20-item self-report measure developed in English and Spanish for this study. Themes included understanding visitation restrictions and guidelines, availability and engagement at bedside, perceived distress, and socioeconomic resources. Participants reported the impact of COVID-19 visitation restrictions on a 4-point Likert-type scale (1=Not true at all, 4=Very true), with higher scores indicating greater impact. We determined maternal visitation rate using concierge electronic visitation data as well as electronic medical record flowsheets where

nursing staff document visitation information.

Results: For participants who completed discharge measures ($N=53$), the most commonly endorsed COVID-19 NICU visitation barrier was having other children in the home. Mothers tended to rate the hospital's COVID-19 policies as a minimal barrier to NICU presence. A subset of mothers reported that COVID-19-related stressors caused them to visit the NICU more than they may have otherwise visited.

Discussion: To our knowledge, this is one of the first studies to develop a self-report measure to assess maternally reported COVID-19 impact on NICU presence. We suspect the hospital's 'one visitor only' policy during COVID-19 may have introduced a barrier particularly for parents of multiple children. Preliminary findings suggest mothers may continue to benefit from additional resources during the COVID-19 pandemic, especially related to childcare, COVID-19 related stress, and finances.

NPA2022-4

Introducing Drexel University's NPASS: The First Psychology Student-Led Chapter of the National Perinatal Association Student Society

Alison R. Hartman, M.S.¹, Ariana Albanese, M.S.¹, Leah B. Sodo-wick, B.A.¹, Chavis Patterson, Ph.D.², & Pamela A. Geller, Ph.D.^{1,3}

¹Department of Psychological and Brain Sciences, Drexel University, Philadelphia, PA

²Division of Neonatology, The Children's Hospital of Philadelphia, Philadelphia, PA

³Department of Obstetrics and Gynecology, Drexel University, Philadelphia, PA

Introduction:

The National Perinatal Association's Student Society (NPASS) is the student arm of NPA that seeks to advance NPA's mission of improving perinatal care in the United States through student education, advocacy, and collaborative integration across health-care disciplines. The newly-formed Drexel NPASS is the first and only chapter of this national society that is based in a psychology department rather than a medical school. Led by psychology graduate students and faculty advisors, this new chapter shares leadership with and aims to be the student voice of the National Network of NICU Psychologists (NNNP), whose mission is improving psychosocial outcomes across neonatal settings. The Drexel NPASS chapter will function as part of the Maternal and Child Health Student Organization at Drexel's Dornsife School of Public Health, further extending opportunities for interdisciplinary student collaboration and exchange of ideas.

Content:

The Drexel NPASS seeks to further the goals and mission of NPA by bringing together an interdisciplinary group of students interested in perinatal and neonatal care to learn from and collaborate



with one another, creating mentorship and networking opportunities for these students with established professionals, promoting the best evidence-based practices through research, education, and outreach, and supporting and advocating for perinatal individuals, infants, their families, and their healthcare providers across the country. This poster will present programming and other initiatives of the Drexel NPASS based on NPA's three pillars: education, advocacy, and integration. We plan to further NPA's dedication to *education* through quarterly journal clubs (presenting and discussing recent relevant literature as a group), preparation of conference submissions, webinars, position statements, guidelines, and publications, and presentation of community talks through our connections with local experts, including members of the NNNP. In alignment with NPA's dedication to *advocacy*, the Drexel NPASS will work collaboratively with NNNP to promote awareness and evidence-based policy recommendations in our home city of Philadelphia, our home state of Pennsylvania, and beyond. Though our collaborations with students in the Drexel Maternal and Child Health Student Organization and NICU psychologists in NNNP, we will *integrate* interdisciplinary perspectives through social events, research projects, networking and mentorship opportunities, and practice application.

Practice Application:

We hope to inspire other students, particularly in the field of psychology, who are dedicated to pursuing careers aimed at improving mental health and psychosocial aspects of perinatal care in the U.S. We also hope to serve as a model for other NPASS chapters operating within psychology departments across the country. As one of the first chapters of its kind, Drexel NPASS hopes to give student voice to efforts that will pave the way for improving perinatal mental health and wellbeing. By harnessing the power of multiple disciplines and perspectives, we hope to create a warm community of future professionals who feel empowered to pursue careers dedicated to making a real difference in the lives of perinatal individuals and their families.

NPA2022-5

A Needs Assessment for Recently Incarcerated Birthing People

Sydney Morris, BS, Reilly Gallin, BA, Alinne Z. Barrera, PhD

The number of birthing people who are incarcerated has increased significantly over the years, with about 6-10% of birthing



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

people in the legal system being pregnant at the time they enter correctional facilities. (Kelsey et al., 2017). Young, low-income, birthing people are disproportionately incarcerated, and the majority endorse a history of physical or sexual abuse (Richie, 2001). Consequently, birthing people may enter and exit the legal system with a unique set of concerns that impact their mental health. It is estimated that anywhere from 17-48% of incarcerated birthing people currently have PTSD (Harner et al., 2013). Harner et al. (2013) found that over half of participants experienced assault (sexual and nonsexual) or sexual contact before the age of 18. The authors also reported that participants who endorsed experiencing more severe symptoms of PTSD used mental health services within prison and took medication for depression or anxiety (Harner et al., 2013).

In addition to the mental health needs of incarcerated birthing people, medical care is not usually sufficient, particularly reproductive health care (Mignon, 2016). Prisons and correctional facilities are not required to follow standards set by the American College of Obstetricians and Gynecologists (ACOG), which has resulted in a decline of adequate reproductive healthcare (Kelsey et al., 2017). Correctional facilities continue to use restraints throughout labor, interfering with the ability to detect complications and other medical issues that may arise due to these kinds of restrictions. (Kelsey et al., 2017). Due to the longer duration of prison sentences compared to jail time, prisons tend to have more of a system in place for birthing folks care, however, Kelsey et al. (2017) highlighted the issues that continue to arise, such as using restraints, for folks in prison as well. During the labor and delivery process, Kelsey et al. (2017) found that the jails reviewed for their study allowed almost half of birthing people to apply for furlough, and of those who are not granted furlough, 10% and 19% were allowed to have the baby's second parent or another family member present, respectively (Kelsey et al., 2017). The restrictions on birthing choices and support may have a negative impact on birthing people in correctional facilities and create unique adverse experiences for them while in the legal system and when they exit.

The impact these issues have may stay with birthing people beyond their time in correctional facilities, which highlights the importance of assessing and creating plans for their needs upon reentry into their communities and homes. Birthing people have additional stressors to manage as they make this transition back into their community due to significant changes physically, mentally, and emotionally, and in their new role as parents. Little attention has been given to the needs of pregnant and birthing people in prison settings as demonstrated by the lack of medical and adequate mental health resources as discussed earlier. This presentation will propose and outline a needs assessment for birthing people and their reintegration into their communities. A reproductive justice and community based participatory framework will be used to examine this issue and think about potential solutions for reducing and treating mental health and other concerns birthing people have. The implications of this research can lead to improved mental health outcomes for birthing people by informing clinicians and healthcare professionals about the support needed and gaps in care to be filled with this specific population. Fully understanding the experience of birthing people in correctional facilities is difficult for those who have not done so themselves, which highlights the importance of having the voices of birthing people, their families, and communities involved in their care.

NPA2022-6

“Me? Am I the Trauma?”: Shifting Perinatal Nursing Culture to a New Standard of Advocacy

Amanda Irby, BSN, RNC-OB, C-EFM, LCCE, Paula Richards,

MSN, RNC-OB, C-EFM, Margaret Runyon, MSN, RNC-OB, C-EFM, CYT-200

Introduction

Nursing education and professional development about systemically-oppressed groups has historically been dependent on stereotypes and saviorship, which causes considerable harm and perpetuates dismissive and patriarchal attitudes. Nurses are often trained to focus on supporting providers and policies, and a shift in this mindset is necessary for collaborative care founded on patient autonomy. (1) Standard birthcare is inadequate to meet the needs of families and nurses. Current studies indicate birth trauma occurs in an estimated 34% of all births, (2) mistreatment rates are elevated in birthing people of color, (3) and 54% of nurses suffer from moderate burnout. (4) A new framework is necessary that centers nursing around a standard of trauma-informed advocacy for each and every person in their care. Trauma-informed care (TIC) has been heralded nationally by SAMHSA for decades, but application to birthing families' bedsides has been inconsistent.

Content

The Trauma-Informed Birth Nurse Program (TIBN) centers nurses' perspectives around the disenfranchised within our birthcare system, and illuminate why TIC is necessary for all patients at all times. We have defined TIC as “one element of organizational change that prioritizes the individual as the leader of their own health, and recognizes how person-centered care shifts unhealthy power dynamics to mitigate the potential for trauma found in each care interaction.” Nurses are invited to question the foundation and motivation of our healthcare practices, examine their own biases, and reflect upon further resources as they work through the program. Each of the 6 modules in the TIBN Foundations program is anchored by a parent sharing their lived experiences, and content incorporates SAMHSA's 4 Rs of TIC. (5) Nurses are called to journal through the content as they review case studies, create scripts, and apply these concepts to their own practice. This high-touch, asynchronous virtual learning environment is supported through several group live video processing calls with a trauma therapist, and the three labor and birth nurse co-creators.

Practice Application

To date, two cohorts have entered the program, serving a total of 55 nurses. For course preparation, students participated in an in-depth pre-survey to gauge their understanding of trauma-informed care principles and their secondary trauma symptoms. Administration of the Secondary Trauma Stress Scale (STSS) revealed 42% evidenced secondary trauma stress, consistent with recent research. (6)

Results: Preliminary feedback from students has been overwhelmingly positive, with many voicing frustration at lacking this information earlier in their career. Student K.R. reflects “[Going into this course,] I knew I wanted to be crafting my practice to be trauma-informed but I really didn't know what that would look like. This course has been showing me the full dimensionality of what trauma in our specialty looks like. This is useful both in connecting with our patients and to keep from being complicit in causing harm to these patients who place their trust in us to keep them safe.” Students also share how they translate these concepts into care: A.Q. explains “I posted a flyer on my unit sharing the TIBN definition of TIC and simple actions individual nurses can take” and J.V. said “I've stopped using dark humor; it's insidious and results in us losing sight of centering our patient.”

Opportunities: As students complete the course we are evaluating their STSS scores and their confidence embodying trauma-informed care in their personal practice. Further levels of the TIBN program in development focus on quality improvement projects and nurse leadership at the bedside. Additionally, we are prioritizing

ing efforts to increase program reach so the voices and experiences of parents inform a broader swath of nurse education and care practices.

References:

1. Kuzma, E.K., Pardee, M., Morgan, A. (2020). *Implementing Patient-Centered Trauma-Informed Care for the Perinatal Nurse*
2. Simkin, P. (2020). *Birth Trauma: Definition and Statistics*.
3. Vedam, S. Stoll, K., Taiwo, T.K., Rubashkin, N., Cheyney, M. Strauss, N. McLemore, M. Cadena, M., Nethery, E., Rush-ton, E. Schummers, L., Declercq, E. (2019). *The Giving Voice to Mothers study: inequity and mistreatment during pregnancy and childbirth in the United States*
4. Kelly, L.A., Gee, P.M., & Butler, R.J. (2021). *Impact of nurse burnout on organizational and position turnover*.
5. SAMHSA. (2014). *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*.
6. Nicholls, E.M., Hermann, R.M., Girordano, N.A., & Trotta, R.L. (2021) *SECONDARY TRAUMATIC STRESS AMONG LABOR AND DELIVERY NURSES*.

NPA2022-7

The Imperative of Equitable, Accessible Childbirth Education

Denise Bolds, MSW, AdvCD(DONA), CLC, CBE, EBB® Instructor, Michelle Gabriel-Caldwell, PhD, CD, EBB® Instructor, Meredith Strayhorn, M.Ed, CD, Student Midwife, EBB® Instructor, Sasha Sumling, LMT, CD, EBB® Instructor, Margaret Runyon, MSN, RNC-OB, CYT-200

Introduction

The abysmal, worsening perinatal morbidity and mortality rates in the US are fueled by large disparities in the treatment of Black individuals. (1) Black and Brown families deserve equitable access to childbirth classes that prepare them for the realities of birth while bolstering their community connections. It is necessary to prioritize classes that center Black joy, where parents are safely supported in exploring and voicing their goals and desires for birth, and where evidence around typical birthcare interventions is shared. Childbirth education must address the racism-driven disparities in birthcare outcomes, and research demonstrates the importance of cultural-congruence between students and instructors of color with lived experience navigating these issues. (2)

Content

Your BIRTH Partners' (YBP) Evidence Based Birth (EBB®) Childbirth Class Imperative was created in response to the call for accessible childbirth education that meets the needs of Black and Brown families navigating the tremendous inequities in our current birthcare environment. The partnership between YBP, a 501c3 non-profit organization, and the above named EBB® mentors & instructors developed due to our shared interest in cultivating birthcare communities rooted in autonomy, respect, and equity. The EBB® organization prioritizes the provision of accurate childbirth information by synthesizing research findings so families are aware of current evidence-based care and prepared to advocate for themselves. (3) Our mentor partners have been serving birthing families in their communities for decades; their passion and awareness of local birthing places, providers, and policies informs their practice. YBP provides funding for all Imperative class costs; grants are distributed to the mentors to eliminate the financial burden of a reimbursement model on students.

Practice Application

This initiative was piloted with 19 families in 2021 spread out across New Jersey, New York, and Texas. Class sizes ranged from private instruction up to 6 families per class depending on the needs of the family and their anticipated birthing time. The six week class series is offered virtually to account for a shifting pandemic landscape and remain parent-centered with an option for an in-person element dependent on the individual cohort's preferences. Small class instruction encourages deep diving into the topics from each content module with time for application of real-life examples and answering questions pertaining to the individual concerns of each family.

Outcomes: Parent feedback has been very encouraging: A.S. says "I feel so prepared for birth, I can't thank you enough for being so supportive and informative." S.G. shares "you had all the tools to self-advocate," and K.C. states "we love the community we created." C.P. explains "As a first time Mom and a Black Woman, Black Maternal Health is super important to me. I wanted to make sure that I understood the birthing process, and was educated on all of the options available to me...I had a few friends ask me if I would take the EBB course again, during my future pregnancies and the answer is "of course!" This warmth is echoed by instructor Sasha Sumling: "mentoring Black and Brown Families with EBB Childbirth Classes is gratifying, especially the younger adults 21-25 years of age. They start the classes with so much unknown and end the classes empowered, able to self advocate, and use a voice they never knew they had. The "Comfort Measures Rehearsal" is one of my favorites. I had the opportunity to teach it in-person during the pandemic. The families were engaged and eager to participate. It was almost like a family reunion. We communed virtually for 5 weeks then finally met up with open arms. No more air hugs! Fun fact: I hosted one of my mommas in class despite the fact that she was in early labor. She was determined to get her comfort measures rehearsal in, so she can be well prepared for her birthing time."

Opportunities: A new survey developed for upcoming cohorts will gain more insights into their education experiences, birth, and postpartum outcomes. YBP has expanded this initiative in 2022 with ambitions of supporting 64 or more families, and is pursuing additional funding.

References:

1. March of Dimes. (2021). *Birthing While Black: Examining America's Black Maternal Health Crisis*.
2. Taylor, J., Novoa, C., Hamm, K., & Phadke, S. (2019). *Eliminating Racial Disparities in Maternal and Infant Mortality: A Comprehensive Policy Blueprint*
3. Gluck, O., Pinchas-Cohen, T., Hiaev, Z., Rubinstein, H., Bar, J., Kovo, M. (2020). *The impact of childbirth education classes on delivery outcome*.

NPA2022-7

Forging Perinatal Mental Health Support in an Early Pediatric Healthcare System

by Erin M. Sadler, PsyD, PMH-C, Anna Koozmin, LGSW, Caroline Van Buskirk, BA, Sasha Zients, BA

Background

Children's National Hospital (CNH) is a free-standing *pediatric* hospital in Washington, DC providing quality health care for children and families in DC, MD, and VA. In 2020, CNH received a five-year, \$36 million philanthropic donation from the A. James & Alice B. Clark Foundation's Parent-Child Health Initiative de-

velop culturally responsive systems of care to advance innovation and reduce health inequities for families living in marginalized DC communities. With this gift, CNH established a Perinatal Mood and Anxiety Disorder Team (PMAD Team) to improve access to quality and equitable care for caregivers at greatest risk of maternal mortality and morbidity, including Black, Indigenous and/or people of color (BIPOC) and families living in rural communities in MD and VA. The PMAD Team secured additional funding during the COVID-19 pandemic to expand the program and make in-house, perinatal psychotherapy more readily accessible by leveraging the use of technology.

Content/Action

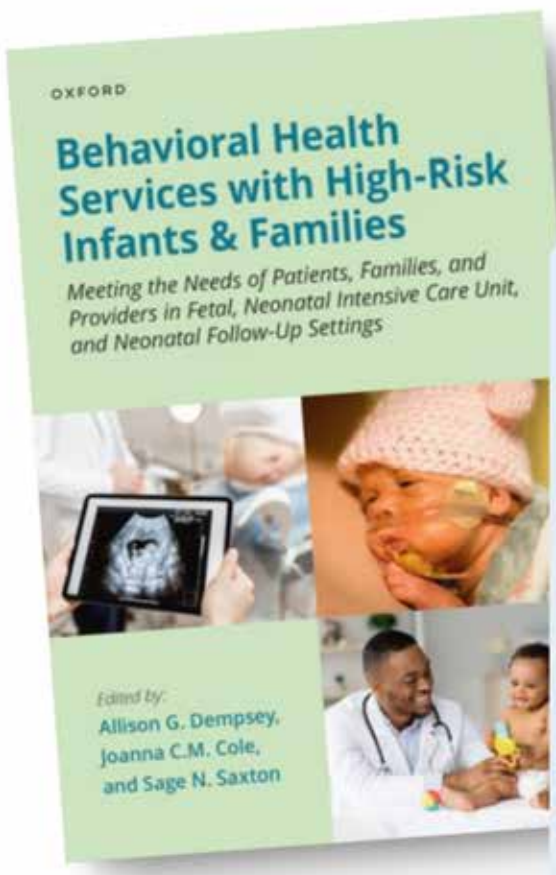
The PMAD Team is comprised of trained Family Services Associates (FSAs) and social workers (SW) who lead screening in the NICU and ED, and a dedicated NICU psychologist who provides

psychotherapy in-person and via telehealth. The Team is on-site daily from 8am - 11:30pm to reach caregivers who may not otherwise have access to perinatal support. Screening and treatment is offered to *all* newborn (<7 months) caregivers (biological and adoptive caregivers, next of kin, and foster parents), while honoring caregiver choice to opt-in or out. Universal EPDS screening is conveniently administered on a tablet in the caregiver's primary language. Interpreters are also used to administer and review EPDS results. The table below outlines intervention responses for each level of screen result:

EPDS Total Score	Interpretation	Prevention/Intervention
0-9	Negative	Provide Universal Education and Prevention Materials



Education, Resources, and Support for Perinatal Mental Health Professionals



We are pleased to announce the Publication of this **NEW** Essential Resource

Behavioral Health Services with High-Risk Infants and Families

Meeting the Needs of Patients, Families, and Providers in Fetal, Neonatal Intensive Care Unit, and Neonatal Follow-Up Settings

Use discount code **ASPROMP8** and save **33%** online at www.oup.com

\$56.00



NATIONALPERINATAL.ORG/PSYCHOLOGISTS

≥10 to 30	Positive	Provide Universal Education and Prevention Materials + Social Work Consult + Referral
Endorse SI on question #10	Positive	Provide Universal Education and Prevention Materials + Social Work Consult + Risk Assessment, Safety Planning, & Warm Hand-Off to Appropriate Psychiatric Services

Caregivers who score positively or endorse suicidal ideation (SI), receive an immediate SW consultation and referral to community providers or the in-house psychologist. In the event of active SI, a crisis response is initiated with warm hand-offs to the proper psychiatric services. The Team also arranges care coordination by linking families to community resources, helping navigate social service applications, and connecting with local therapists and support groups. Information is also given to caregivers who request to pursue resources independently. Caregivers seen in-house receive psychotherapy during their newborn's NICU admission at bedside or virtually, *and* after discharge through telehealth in an effort to maintain continuity of care while the Team helps parents establish care with a community provider. Most recently, the Team has partnered with a perinatal wellbeing group to pilot a HIPAA-compliant, remote, app-based screening approach, and began a Wi-Fi-enabled iPad Loaner program to ensure low-income families have access to telehealth therapy at no cost to them. The app can send screens via email or SMS, and includes crisis response, wraparound care that is coupled with the Team SW follow-up. Together, these services support and empower caregivers to be self-advocates for their own perinatal mental health and their newborn's care.

Lessons Learned

By using a quality improvement approach, the Team has increased the number of caregivers served by employing feedback from caregivers and staff. Strengthening staff awareness of PMADs and the team's services has been instrumental to the success of this program. Providers have begun to initiate requests for screening and consultation as a direct result of the relationships and training. NICU caregivers prevented from being at bedside due to the pandemic required innovative means of engagement. The integration of remote screening and virtual treatment options was vital to decreasing disparities in access for caregivers. The Team actively engages non-birthing and non-native English-speaking caregivers and thus developed specific educational materials, given the dearth of information available for these populations.

Implications for Practice

The PMAD Team continues to maintain a family-centered approach that is responsive to caregivers' needs and collaborative with hospital staff. The Team will continue to prioritize perinatal services as a standard of care and is working directly with the NICU Parent Advisory Council to elicit feedback and input regarding program initiatives. The Team is developing a robust community-based resource network that can be readily accessible to caregivers in person, remotely via text, email, and on the CNH website. In response to caregivers' requests and to enhance service convenience, the Team is identifying a HIPAA-compliant texting system. To further ensure equitable access to services, the Team is particularly driven to locate and offer in-house services in languages other than English. The Team plans to expand staff education and identify PMAD Champions to serve as liaisons between the Team and the Champion's respective specialty groups (e.g., nursing, child life, nutrition, etc.). Hospital staff will continue to receive additional training on the prevalence of PMADs, which

will increase referrals and access to caregivers. Finally, as the nature of the COVID-19 pandemic evolves, remote outreach capacities will continue to grow.

NPA2022-8

Maternal Social Emotional Maturity and Child Development

Morgan A. Staver BSN, RN; Tiffany A. Moore PhD, RN

Introduction: Repeated exposure to adverse childhood events (ACEs), otherwise known as toxic stress, is associated with physical and mental health problems in adulthood. Experiencing toxic stress increases the likelihood for preterm birth and birth complications. Toxic stress can also have downstream effects on adult emotional intelligence, behavior, and judgement.

Emotional abuse in childhood is an ACE of particular interest in the context of adult emotional intelligence due to the developmental processes inherent in achieving emotional maturity in adulthood. The nature of the relationships between maternal emotional abuse in childhood, social emotional intelligence in adulthood, and child social emotional development is currently unknown. Therefore, the current exploratory analysis aimed to examine the relationships between childhood emotional abuse, maternal social emotional intelligence, and social emotional development in early childhood.

Methods: Participants who completed all data collection requirements for the study *Toxic Stress and Social Emotional Maturity at 16 Months* were included in this preliminary analysis (n=21). Study enrollment is ongoing. Participants were recruited from a developmental clinic visit post NICU hospitalization. Instruments used to collect data included in this analysis were the Adverse Childhood Experience Questionnaire, the Emotional Quotient Inventory, and the Survey of Wellbeing of Young Children. Statistical analyses included descriptive statistics, Kruskal-Wallis H tests, Spearman's rho correlations, and Fisher's Exact tests.

Results: There was a statistically significant difference in maternal sociability between infants who met age-specific developmental milestones and those who did not, $\chi^2 = 4.237, p = 0.04$, with a mean rank maternal sociability score of 7.07 for infants who did not meet developmental milestones and 12.96 for infants who met developmental milestones. There was also a strong positive linear relationship between maternal sociability and the degree of difference from expected developmental milestones ($r = 0.553, p = 0.009$). There was a moderate positive linear

relationship between maternal wellbeing and the degree of difference from expected milestones that trended towards significance ($r = 0.39, p = 0.111$). There were no significant differences found in maternal total trait emotional intelligence, self-control, or emotionality between infants who did and did not meet expected developmental milestones. There were no statistically significant differences found in any domain of emotional intelligence between women who were emotionally abused in childhood and women who were not emotionally abused. There were also no statistically significant differences found in child development between women who were emotionally abused in childhood and women who were not emotionally abused.

Discussion: Children who met age adjusted developmental milestones had mothers who were more sociable upon self-assessment. Maternal sociability in adulthood was also shown to be related to the degree of difference from expected developmental milestones, with higher sociability being associated with higher developmental achievements than expected given the child's age.

The relationship between maternal wellbeing and the degree of difference from expected developmental milestones was not statistically significant, but the data trended towards higher maternal wellbeing being associated with higher developmental achievements than expected given the child's age. The lack of statistical significance may be related to the study's power and the small sample size. Given that no other aspects of maternal emotional intelligence were significantly associated with child development, the exact mechanism of the relationship between maternal sociability and child development should be investigated further. No statistically relevant relationships were found between emotional abuse in childhood and adult emotional intelligence or child development at this time. Further investigation into these relationships is warranted given the small sample size and exploratory nature of this analysis.

NPA2022-9

Essential Care in the NICU: Parent perspectives of neonatal hospitalization during COVID-19

Ashlee J. Vance PhD, MA, RN, RNC-NIC, Henry Ford Health System, Center for Health Policy and Health Services Research, avance2@hfhs.org, Kathryn J. Malin PhD, RN, NNP-BC, APNP, Marquette University, College of Nursing, kathryn.malin@marquette.edu, Clayton J. Shuman PhD, MSN, RN, University of Michigan, School of Nursing, clayshu@umich.edu, Tiffany A. Moore PhD, RN, University of Nebraska Medical Center, College of Nursing tamoore@unmc.edu

Introduction: Parenting and family life were exceptionally susceptible to unanticipated changes during the COVID-19 pandemic. Pandemic-related changes can result in elevated levels of stress and uncertainty especially for families experiencing an infant's admission to the NICU. Prior to the COVID-19 pandemic, parental presence was encouraged through unrestricted visitation and family-centered care practices in neonatal intensive care units (NICU). Parental caregiving is essential to an infant's healthy development, especially during hospitalization. While there is sufficient evidence demonstrating the negative parental outcomes secondary to having an infant hospitalized in the NICU prior to the COVID-19 pandemic, it is unknown how parents experienced neonatal hospitalization during the COVID-19 pandemic. Therefore, the aim of this study was to describe parent perceptions of a neonatal hospitalization during the COVID-19 pandemic.

Methods: We conducted an online survey from May 2020 – July 2020 to investigate parent's experiences of neonatal hospitalization. We invited parents to participate via social media (e.g., Facebook, Instagram, and Twitter). Inclusion criteria required an infant admission to a US NICU between February 1 – July 31, 2020. Free text responses from five open-ended questions covering topics such as visitation experience, transition to home, and clinician interactions were thematically analyzed using NVivo 11 qualitative data analysis software.

Results: Our sample included 169 parent responses on one or more open-ended questions. We focused on examining continuities and discontinuities and shared patterns of experiences among parents. Through this lens, we identified three broad themes: 1) Emotional isolation and exhaustion, 2) Parents desire to be "essential", and 3) NICU providers exacerbated or alleviated distress. To quote a parent, "hospital policies [were] not in touch with the reality of families, making the impossible pain of [having] a baby in the NICU even more impossible." Overall, parents of infants in the NICU experienced and expressed feelings of painful separation, disconnection, isolation, splitting, and alienation. Parents desired more empathy from providers and hospital administrators.

Discussion: This qualitative study included parents of infants admitted to a NICU during the COVID-19 pandemic. The descriptions of parent experiences document the emotional struggle of being separated from support systems, feelings of isolation, lack of family-centered care, and exacerbation of emotional distress already known to be common to the NICU journey. The experience of parents included intense and frequent disappointment at the system level of having their visitation rights restricted and desire for more empathy, validation, and inclusion in decision making. To support families and institutions, a consensus statement entitled "Essential Care in the NICU during the Covid-19 Pandemic" was developed in response to these findings and endorsed by the National Association of Neonatal Nurses (NANN), and National Perinatal Association (NPA), and Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN).

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.

NT

Corresponding Author



Jerry Ballas, MD, MPH

Past-President,

National Perinatal Association

Associate Professor, Maternal-Fetal Medicine

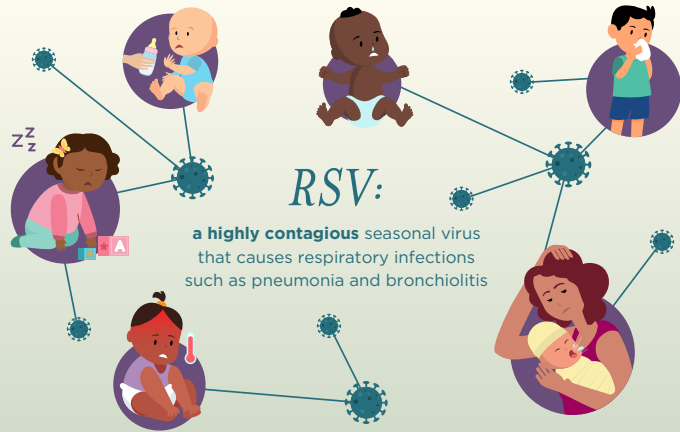
University of California, San Diego

Email: [Jerry Ballas <jerry.ballas@nationalperinatal.org>](mailto:jerry.ballas@nationalperinatal.org)



Respiratory Syncytial Virus

DID YOU KNOW?



The Gap Baby: An RSV Story



Infants under age 1



RSV is the leading cause of hospitalization



16x more likely to get RSV than the flu



Postpartum Revolution

@ANGELINAPICER



Kids under age 5 experience



500,000 emergency room visits for RSV each year



57,000 hospitalizations for RSV each year



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

LEARN MORE >

Readers can also follow
NEONATOLOGY TODAY
via our Twitter Feed
@NEOTODAY



FCC TASKFORCE WEBINAR

Join us on October 13, 11-12:30 PT

Speaker:



Dr. Chavis A. Patterson, PhD

Director of Psychosocial Services
Division of Neonatology
The Children's Hospital of Philadelphia
Pronouns: he/him



Register using the
QR code or this [link](#)

Providing support to non-birthing NICU Partners

Late Preterm & Term Family Partner Speakers:



Dr. Amanda Yeaton-Massey, MD

Clinical Assistant Professor,
Maternal-Fetal Medicine, UCSF
Pronouns: she/her
NICU Children: Simon, Willow



Sha Sha Chu

Pronouns: she/her
NICU Children: Simon, Willow



Dr. Theresa Urbina, D.O

Regional Fellow Rep TECaN
Pronouns: she/her
NICU child: Louis



Michelle Wrench, RN, CCRN

CPQCC Family Advisory Council Chair
Pronouns: she/her
NICU children: Elin, Mischa, Vivienne



Dr. Vishal Kapadia, D.O

Palliative Care Physician
NICU Parent Advocate
Pronouns: he/him
NICU children: Niyati, Nishtha



Betsy Pilon

Exec. Director, Hope for HIE
Pronouns: she/her
NICU child: Max

Vol. 01

FCC TASK FORCE

NEWSLETTER

FCC Executive Board

Co-Chairs

Malathi Balasundaram MD
Colby Day MD

Program Manager

Caroline Toney-Noland MSc

Newsletter Committee

Chair

Vargabi Ghei MD, MSHS

Members

Robert White MD
Malathi Balasundaram MD
Colby Day MD
Daphna Barbeau MD
Caroline Toney-Noland MSc

Graphic Design

Kavya Wazhi



Want to strengthen FCC in your NICU? Click this [link](#) or scan the QR code to join our FCC Task Force

Mission Statement

The Family Centered Care (FCC) Task Force aims to educate, create guidelines, and facilitate unit-based interventions related to FCC in the Neonatal Intensive Care Unit.

The Newsletter provides commentary on the latest publications related to FCC work, showcases a dedicated section for family partners to share expert insights, and shines a spotlight on practical unit-based FCC ideas.

Follow us on twitter:
[@FccTaskforce](#)

Contact us:
familycenteredcaretaskforce@gmail.com



In this issue

Expert Insights – In promoting family centered care, it is imperative that we partner with families from the inception of our programs. Thusly, in our first newsletter, we've chosen to have our family partners speak for themselves.

**Dedicated to
their NICU
children**



EXPERT INSIGHTS

TRAUMA

"I was
terrified,
OVERWHELMED,
and
SCARED."

"After I gave birth at
24 weeks, I felt such

guilt.
I had
failed
the boys."

"I am not a good
mother.

I do not recognize my own
children."

"I blamed
myself."

"A lot of our birth parents are going through their own physical trauma... honoring and validating those lived experiences and feelings is such an important piece."



EXPERT INSIGHTS

EMPOWERMENT

“FCC helps families gain
CONFIDENCE
before taking their babies home.”

“As a parent,
I actually had the

OPPORTUNITY

to
contribute

what we were

OBSERVING

and what we were

seeing.”

“I’ll invite all clinicians to

EXPLORE

ways to design

culture

that is truly

inclusive.”

“Knowing that
when I was there, I was
participating

as her

MOM,

was really huge”



EXPERT INSIGHTS

EMPOWERMENT CONT.

"FCC is about being
SUPPORTIVE
holistically of the
baby
and the
FAMILY."

"Being able to be a
participant in that
CONVERSATION
during rounds as a parent
really made a
significant
difference."

"How can you help us be
EMPOWERED
parents?"

"Meet
families
where they are at."

"They said [the baby] needs you and I needed that to know that I was needed and supposed to be there because I could help... I would have been much more hands off without that kind of nudge."



EXPERT INSIGHTS

COMMUNICATION

"Take a little bit of extra time to

calm

the parents.

Explain to them from the start
that it is okay to ask

QUESTIONS."

"DRAW BACK

after you have delivered difficult
news and allow families to

process

without much prodding."

"A

NECESSARY

ingredient to having
family centered care is having a

consistent relationship

with caregivers. "

"Having open

COMMUNICATION

with families enables you
to be a

better

care provider."

"I want to re-emphasize not making

ASSUMPTIONS

about families."

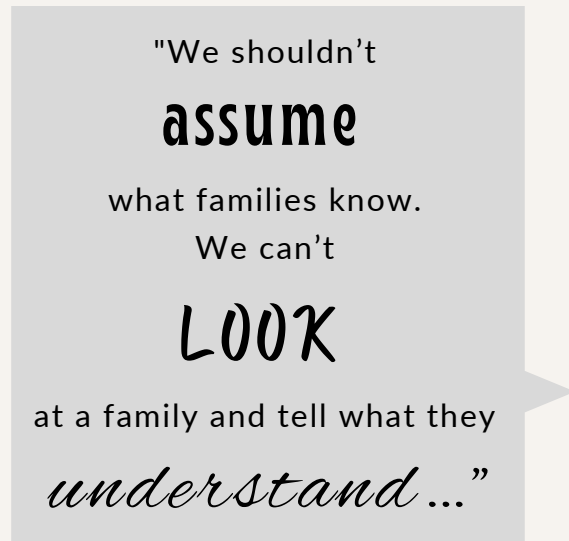


EXPERT INSIGHTS

MENTAL HEALTH & EQUITY



"Sometimes families
WANT
to be at the bedside, but there are
OBSTACLES
keeping them from being there."



"Having parental support from veteran parents is, for me, something that ought to be included in the definition of family centered-care."



DEDICATIONS

FAMILY PARTNER SPEAKERS



Jennifer Canvasser
NICU Children:
Micah, Zachary



Molly Fraust-Wylie
NICU Child: Max



Marybeth Fry
NICU Child: Sophia



Nicholas Hall
NICU Children:
Graham, Reece



Katherine Huber
NICU Children:
Finn, Ethan



Dr. Mike Hynan
NICU Child:
Christopher



Necole McRae
NICU Child:
Ahmaari



Keira Sorrells
NICU Children:
Zoe, Avery, Lily



Meegan Snyder
NICU Child: Kensie



Kimberly Novod
NICU Child: Saul



Lelis Vernon
NICU Children:
Charlie, Bobby

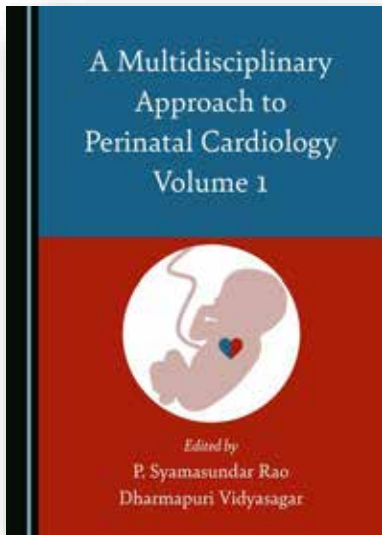


Michelle Wrench
NICU Children:
Mischa, Elin,
Vivienne



A Multidisciplinary Approach to Perinatal Cardiology Volume 1

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



Hardback

ISBN-13:

978-1-5275-6722-1

ISBN-10:

1-5275-6722-2

Date of Publication:

24/04/2021

Pages / Size:

794 / A5

Price:

£99.99

Book Description

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

About the Editors

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

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

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



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



About the Program

- **WHO SHOULD TAKE THE PROGRAM?** This program is designed for both office and hospital staff in all disciplines that interact with pregnant patients and their families. A key focus is recognizing risk factors for perinatal mood and anxiety disorders, and mitigating their impact through provision of trauma-informed care.
- **WHY TAKE THE PROGRAM?** Families will benefit when staff have improved skills, through enhanced parental resilience and better mental health, and improved parent-baby bonding leading to better developmental outcomes for babies. Benefits to staff include improved skills in communicating with patients; improved teamwork, engagement and staff morale; reduced burnout, and reduced staff turnover.
- **HOW DOES THE PROGRAM ACHIEVE ITS GOALS?** Program content is representative of best practices, engaging and story-driven, resource-rich, and developed by a unique interprofessional collaboration of obstetric and neonatal professionals and patients. The program presents practical tips and an abundance of clinical information that together provide solutions to the emotional needs of expectant and new parents.
- **HOW WAS THE PROGRAM DEVELOPED?** This program was developed through collaboration among three organizations: a multidisciplinary group of professionals from the National Perinatal Association and Patient + Family Care, and parents from the NICU Parent Network. The six courses represent the different stages of pregnancy (antepartum, intrapartum, postpartum), as well as perinatal mood and anxiety disorders, communication techniques, and staff support.

Program Objectives

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

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

PROGRAM CONTENT



COMMUNICATION SKILLS CEUs offered: 1

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

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



PERINATAL MOOD AND ANXIETY DISORDERS CEUs offered: 1

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

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



PROVIDING ANTEPARTUM SUPPORT CEUs offered: 1

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

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



PROVIDING INTRAPARTUM SUPPORT CEUs offered: 1

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

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



PROVIDING POSTPARTUM SUPPORT CEUs offered: 1

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

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



SUPPORTING STAFF AS THEY SUPPORT FAMILIES CEUs offered: 1

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

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

Cost

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

Contact help@myperinatalnetwork.org to learn more.

Faculty

Linda Baker, PsyD

Psychologist at Unstuck Therapy, LLC, Denver, CO.

Jerasimos (Jerry) Ballas, MD, MPH

Associate Clinical Professor, UCSD Health System, Maternal-Fetal Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California at San Diego, San Diego, CA.

Amanda Brown, CNM, MSN, MPH

University of North Carolina-Chapel Hill Hospitals, Chapel Hill, NC.

Sara Detlefs, MD

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

Sue L. Hall, MD, MSW, FAAP

Neonatologist, Ventura, CA.

Claire Hartman, RN, IBCLC

Labor & Delivery, University of North Carolina Hospital, Chapel Hill, NC.

MaryLou Martin, MSN, RNC-NIC, CKC

Women's and Children's Services Nurse Educator, McLeod Regional Medical Center, McLeod, SC.

Cheryl Milford, EdS.

Former NICU and Developmental psychologist, in memoriam.

Karen Saxer, CNM, MSN

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

Amina White, MD, MA

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

Parent/Patient Contributors:**Brittany Boet**

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

Angela Davids

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

Crystal Duffy

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

Tracy Pella, MA

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

Erin Thatcher, BA

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

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

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

Follow us online at @MyNICUNetwork

www.myperinatalnetwork.org Phone: 805-372-1730



SHARED DECISION-MAKING PROTECTS MOTHERS + INFANTS

DURING COVID-19

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing
the risks of...

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



EVIDENCE

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

PARTNERSHIP

What is the best
for this unique dyad?

SHARED DECISION-MAKING

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



TRAUMA-INFORMED

Both parents and providers
are confronting significant...

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

LONGITUDINAL DATA

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

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



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

Partnering for patient-centered care
when it matters most.

nann.org nationalperinatal.org



National
Association of
Neonatal
Nurses



Coping with COVID-19



A viral pandemic

A racial pandemic within a viral pandemic



Will mental illness be the next inevitable pandemic?

WWW.MYNICUNETWORK.ORG



COVID-19

National Network of NICU Psychologists FREE for our NICU COMMUNITY

- Helping Children and Families Cope
- Bonding with Your Baby
- Caregivers Need Care Too



Download at www.nationalperinatal.org/psychologists

newly
validated

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

7- Module Online Course in NICU Staff Education



National Perinatal Association PERINATAL SUBSTANCE USE

nationalperinatal.org/position
www.nationalperinatal.org/Substance_Use



Educate. Advocate. Integrate.



Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

The National Urea Cycle Disorders Foundation



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

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

Advocates Call for Adding Migraine Screening to Well-Woman Visit

Michelle Winokur, DrPH

The Alliance for Patient Access (allianceforpatientaccess.org), founded in 2006, is a national network of physicians dedicated to ensuring patient access to approved therapies and appropriate clinical care. AfPA accomplishes this mission by recruiting, training and mobilizing policy-minded physicians to be effective advocates for patient access. AfPA is organized as a non-profit 501(c)(4) corporation and headed by an independent board of directors. Its physician leadership is supported by policy advocacy management and public affairs consultants. In 2012, AfPA established the Institute for Patient Access (IfPA), a related 501(c)(3) non-profit corporation. In keeping with its mission to promote a better understanding of the benefits of the physician-patient relationship in the provision of quality healthcare, IfPA sponsors policy research and educational programming.



“For many women, her annual well-woman appointment may be the one time a year she speaks with a doctor about her health. And given that women suffer from migraines at a rate three times that of men, amending the Well-Women screening to include questions about the disease can benefit many women. (1)”

For many women, her annual well-woman appointment may be the one time a year she speaks with a doctor about her health. And given that women suffer from migraines at a rate three times that of men, amending the [Well-Women](#) screening to include questions about the disease can benefit many women. (1)

Updating the Well-Women Chart:

The Women’s Preventive Services Initiative is the lead agency

responsible for outlining screening recommendations for women by age range – from 13-17 years old to over 75. The organization annually updates the [Well-Women Chart](#), (2) which includes screening recommendations for topics ranging from alcohol use and contraceptive care to infectious diseases and certain cancers.

Despite the range of conditions included, neither headache nor migraine is on the chart. [The Headache and Migraine Policy Forum](#) is among the advocacy organizations working to change that. (3)

It proposes using a simple and valid ID Migraine screener to help health care providers diagnose migraine disease earlier and initiate treatment. In recent years, many new treatment options have become available to prevent and acutely treat migraine disease, providing renewed hope for many patients.

“It proposes using a simple and valid ID Migraine screener to help health care providers diagnose migraine disease earlier and initiate treatment. In recent years, many new treatment options have become available to prevent and acutely treat migraine disease, providing renewed hope for many patients.”

Migraine Burden and Chronification:

Migraine disease and headache disorders affect nearly [40 million Americans](#). (4) The conditions are widespread yet still widely underdiagnosed. Migraine also disproportionately affects women and is known to peak during prime working years – from 25 to 55.

Migraine is the [second most](#) disabling disease in the world, after lower back pain. (5) Without proper treatment, migraine can become chronic, meaning the more migraines a person has, the more vulnerable they are to having more.

The Cost of Migraine Disease:

Migraine is also costly. Migraine causes more than [1.2 million visits](#) to emergency departments each year. (6) The painful and sometimes sudden symptoms also cause a loss in work productivity and daily activities.

And, like a ripple in the water, the impact of a woman’s migraine extends to her family, workplace, and community. In contrast, diagnosing migraines earlier can help prevent costly [emergency department visits](#), lessen chronic pain and retain women in the workforce. (7)

Adding migraine screening to the Well-Women Chart is a great way to acknowledge – and is a first step toward addressing – a

condition that continues to disable too many women.

“And, like a ripple in the water, the impact of a woman’s migraine extends to her family, workplace, and community. In contrast, diagnosing migraines earlier can help prevent costly emergency department visits, lessen chronic pain and retain women in the workforce. (7)”

References:

1. <https://www.womenspreventivehealth.org/wellwomanchart/>
2. https://www.womenspreventivehealth.org/wp-content/uploads/FINAL_WPSI_WWC_11x17_2022Update-1.pdf
3. <https://www.headachemigraineforum.org/>
4. <https://headaches.org/#:~:text=Almost%2040%20million%20Americans%20live,often%20feel%20isolated%20and%20alone.>
5. <https://thejournalofheadacheandpain.biomedcentral.com/articles/10.1186/s10194-020-01208-0/tables/2>
6. <https://headachejournal.onlinelibrary.wiley.com/doi/10.1111/head.13216>
7. <https://americanmigrainefoundation.org/resource-library/migraine-stroke-heart-disease/>

Michelle Winokur, DrPH, is the Executive Director of the Institute for Patient Access. This article was also published at healthpolicytoday.org.

Michelle Winokur, DrPH, is the Executive Director of the Institute for Patient Access. This article was also published at healthpolicytoday.org.

NT

Corresponding Author



Michelle Winokur, DrPH,
Policy Communications Director
Alliance for Patient Access (AfPA) Government Affairs Team
2020 K Street NW, Suite 505
Washington, DC 20006
(202) 964-2625
Email: info@allianceforpatientaccess.org

National Perinatal Association
PERINATAL MENTAL HEALTH

nationalperinatal.org/position
www.nationalperinatal.org/mental_health

**OFFER
ANTICIPATORY
GUIDANCE**

Families need to know that women are more likely to develop depression and anxiety during the first year after childbirth than at any other time in their life.

Educate. Advocate. Integrate.

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

SHARED DECISION-MAKING

PROTECTS PARENTS + BABIES

COVID-19

**INFORMED
PROVIDERS**

Seek participation
Help explore options
Assess preferences
Reach a decision
Evaluate the decision

CARE DELIVERY REQUIRES
PARTNERSHIP

nationalperinatal.org/NPAandNANN





DID YOU KNOW?

Postpartum depression affects

10%

of fathers

Join  NPA

www.nationalperinatal.org/mental_health



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

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



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): “What I Wish Doctors Knew” and a Review of a Clinical Research Trial Protocol Involving Wearable Devices

Amy Ohmer



“Welcome Fall! The International Children’s Advisory Network, Inc. is kicking off ‘back-to-school’ with various new and exciting iCAN chapter activities.”

Welcome Fall! The International Children’s Advisory Network, Inc. is kicking off ‘back-to-school’ with various new and exciting iCAN chapter activities.



Above: Students from iCAN Chapters worldwide connect at the summer 2022 iCAN Summit held in Lyon, France.

At the KIDS Walter-Payton Chapter in Chicago, Illinois, KIDS leader Stefanie McCormick welcomed a new class of medical seminar students to start the new school year at iCAN. Stefanie invited iCAN Director Amy Ohmer as a virtual guest speaker to meet with youth members to share their voices by participating in two activities for gathering information on “What I Wish Doctors

Knew” and a review of a clinical research trial protocol involving wearable devices—as active collaborators and youth members, participating in iCAN projects and opportunities provides a unique way to connect with the pediatric medical community.



Screenshot of KIDS Walter-Payton participating in person with teacher Jacqueline Barge and virtually through Zoom with iCAN Director Amy Ohmer.

If you have patients or parents that would also like to share in the “What I Wish Doctors Knew” survey, please join in using the link and the survey code below. https://uconn.co1.qualtrics.com/jfe/form/SV_cvxUkzQs0jLvyNE

If needed, the code to access the survey is 06019.

The survey was designed by medical students from UCONN under the guidance of Dr. Sharon Smith, Connecticut Children’s Hospital (*Dr. Smith shown on the right with KIDS France Chapter Leader Segolene Gaillard on the left*), and is another excellent example of the collaboration iCAN relies upon to support patient needs. If you want to create a project or initiate a new chapter, please reach out to Amy Ohmer at amyohmer@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>. (1)





Email Us:
info@iCANResearch.org



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>. (2)

iCAN Young Adult Professionals

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 more significant leadership roles in helping 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>. (3)

iCAN Parents

iCAN Parents: All parents (and family members) are welcome to join iCAN to participate as advisors for the littlest patients (0-7 years old). Joining is free and can be done by visiting www.icanresearch.org (4) or sending an [email](mailto:icanparent@icanresearch.org) to icanparent@icanresearch.org. To learn more, check out this page at <https://www.icanresearch.org/parents-families>. (5)

SAVE THE DATE:

- iCAN's unique youth series 'Ask the Experts' has a new session planned for **September 17 at 10:00 AM EST**. To join this fun and free event, please register at www.icanresearch.org.

org/events. (6) All are welcome to attend, and kids of all ages are invited to join. Additional sessions are open for registration, and we welcome all doctors, researchers, and community leaders to join us.

“Join iCAN and the American Academy of Pediatrics National Conference and Exhibition from October 7th - 11th, 2022, at the Anaheim Convention Center, Anaheim, California. We can't wait to see you at our booth #2034! ”

- Join Amy Ohmer, Director, iCAN, at the **ABMS, Partnering with Patients in Board Certification Session on Wednesday, September 21, 2022, from 11:00 AM – 12:00 PM** in Chicago, Illinois. <https://www.abmsconference.com/> (7)
- Join iCAN and the American Academy of Pediatrics National Conference and Exhibition from **October 7th - 11th, 2022**, at the Anaheim Convention Center, Anaheim, California. We can't wait to see you at our booth #2034! Look for the iCAN colors and stop by and say hello!



2023 iCAN SUMMIT

to be held July 10-14th in Southern California

Join Us In-Person for 2023 Kids - Make Your Summer Count!

- Travel to California
- Share your expert voice
- Shape the future of clinical research
- Support new pediatric innovation
- Learn about careers in healthcare
- Engage with global leaders
- Meet friends from around the world
- Make a positive impact in healthcare

Learn more: www.iCANResearch.org
Registration opens March 1st, 2023

- **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. (8) We need sponsors, speakers, and donations. To join in, email us at amyohmer@icanresearch.org. In case you missed the week-long, International Children's Advisory Network, Inc. (iCAN) is pleased to share our excitement from the 2022 iCAN Summit presented by Jumo Health in a [video](https://youtu.be/5faoza6ONFA) highlighting the fantastic event. Check it out at: <https://youtu.be/5faoza6ONFA>. (9)

References:

1. <https://www.icanresearch.org/chapters>
2. <https://www.icanresearch.org/our-youth>
3. <https://www.icanresearch.org/ican-young-adult->

2022

Ask the Experts
With Anthony Chang, MD

International Children's Advisory Network
www.icanresearch.org

iCAN

Hosted by:
Dr. Anthony Chang, MD

2022 Sessions Presented by iCAN and Dr. Anthony Chang:

January 15:	Kids and Covid-19
February 19:	Leadership
March 19:	Insight Into Pediatric Heart Disease
April 16::	Innovation in Pediatrics
May 21:	Advisors vs. Advocates
June 18:	What does it mean to be Rare?
July 11:	2022 iCAN Summit Week
August 20:	What Can Kids do to Help?
September 17:	Insight into Pediatric Cancer
October 15:	Specialty Careers in Medicine
November 19:	Patient Rights
December 17:	Hot Topics in Pediatrics

iCAN Approved
International Children's Advisory Network

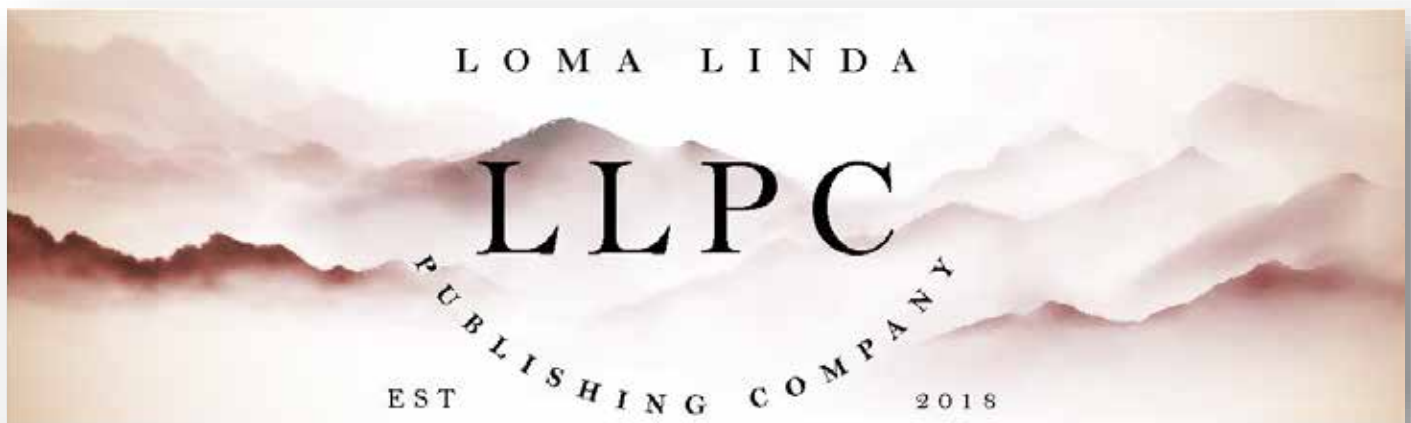
Register Today
[iCANResearch.org/events](http://www.icanresearch.org/events)

- professionals
4. <http://www.icanresearch.org/>
5. <https://www.icanresearch.org/parents-families>
6. <http://www.icanresearch.org/events>
7. <https://www.abmsconference.com/>

8. <http://www.icanresearch.org/2023-summit>
9. <https://youtu.be/5faoza6ONFA>

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

NT



Corresponding Author



Amy Ohmer
Director, International Children's Advisory Network
Website: www.icanresearch.org
Phone: (+1)734-545-2831
Email: amyohmer@icanresearch.org

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- HORIZONTAL INFECTION
- SEPARATION AND TRAUMA



EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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



TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

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

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY



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

Partnering for patient-centered care when it matters most.
nann.org nationalperinatal.org



National Association of Neonatal Nurses



National Perinatal Association

Respiratory Syncytial Virus is a

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.

If your baby isn't breathing call 911.



Thick yellow, green, or grey mucus



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

Fever that is higher than 101° Fahrenheit



which is especially dangerous for babies younger than 3 months



www.nationalperinatal.org/rsv

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

*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

ONCE UPON A PREEMIE INC. PRESENTS



**1ST ANNUAL CONFERENCE:
ACCELERATING HEALTH AND RACIAL EQUITY
IN BLACK MATERNAL AND NEONATAL CARE**

THURSDAY,
NOVEMBER 17TH
2022
8AM - 4PM

SAVE THE DATE

**UNIVERSITY CITY
SCIENCE CENTER**

3675 Market St, 2nd Floor
Philadelphia PA 19104



newly
validated

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

7- Module Online Course in NICU Staff Education



National Perinatal Association
and NICU Parent Network

mynicunetwork.org

PROTECT YOUR FAMILY FROM RESPIRATORY VIRUSES

flu

coronavirus

pertussis

RSV



WASH YOUR HANDS
often with soap and warm water.

SOAP

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



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

USE AN ALCOHOL-BASED HAND SANITIZER.



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

www.nationalperinatal.org

 National Perinatal Association

FREE RESOURCES FOR YOUR NICU

Coping During COVID-19



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

BONDING WITH YOUR BABY



HELPING CHILDREN AND FAMILIES COPE

CAREGIVERS NEED CARE TOO



 National Network of NICU Psychologists

nationalperinatal.org/psychologists

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



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

Survey Says: RSV

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

- Hospitalization
- Lifelong health complications
- Death

for infants and young children



ACCORDING TO A NATIONAL SURVEY, Specialty Health Care Providers say:

- 80% They treat RSV as a priority, "often" or "always" evaluating their patients
- 77% RSV is the "most serious and dangerous" illness for children under four
- 77% Barriers to access and denials from insurance companies limit patients' ability to get preventive RSV treatment



But Parents are Unprepared.

- 18% Only 18% know "a lot" about RSV
- 22% Only 22% consider themselves "very well" prepared to prevent RSV



RSV EDUCATION & AWARENESS CAN HELP

After parents learned more about RSV, they were:

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



NCJIH National Coalition for Infant Health
Preventing RSV in Preterm Infants through Age Five

Learn More about RSV at www.infanthealth.org/rsv

Maternal Kratom Use: A Cause of Neonatal Opioid Withdrawal Syndrome - A Case Series and Literature Review

Farida Karim, MD, Tony Hampton, MD, MBI, Giang Truong, MD

“Kratom is a psychoactive herbal supplement with opioid activity and is marketed as a non-opioid remedy for opioid withdrawal. Many health care professionals are still unaware of kratom use and availability. Kratom is undetectable by standard drug screens.”

Abstract:

Maternal opioid use is a well-known cause of neonatal opioid withdrawal syndrome (NOWS). Pregnant women may seek non-opioid alternatives to manage opioid dependence to avoid NOWS. Kratom is a psychoactive herbal supplement with opioid activity and is marketed as a non-opioid remedy for opioid withdrawal. Many health care professionals are still unaware of kratom use and availability. Kratom is undetectable by standard drug screens. Neonates are withdrawing and developing NOWS when their mother's history is positive for kratom use. We present two NOWS cases secondary to maternal kratom exposure. Both neonates developed withdrawal signs and symptoms within the first 36 hours of life. Subsequently, they were successfully treated with methadone. Awareness of the effects of maternal use of kratom is essential for better care for neonates by both pregnant women and healthcare providers.

Keywords: Kratom, Neonatal Abstinence syndrome, withdrawal

Introduction:

NOWS is a withdrawal syndrome observed in neonates after exposure to opioids *in utero*. (1-2). The incidence of NOWS alarmingly increased fivefold in the previous decade. Public health strategies have been implemented to increase awareness with mutual efforts to prevent and treat opioid use before and during pregnancy among patients and healthcare personnel. Recognition of potential NOWS has driven many women of reproductive age to less studied herbal remedies. Recently, *Mitragyna speciosa*, more commonly known as kratom, has been found as an emerging substance of abuse that can cause NOWS due to maternal use during pregnancy.

Kratom is a plant-derived substance that can cause a stimulant

effect, which may increase energy levels and help combat fatigue when used in low doses (3). When used in higher doses, kratom has been shown to mimic the analgesic and sedative effects of opioids (1). When used regularly, like substances that act on opioid receptors, dependence on kratom can develop, resulting in withdrawal after cessation of use (4). Kratom is legally and readily available in stores and via Internet sales in the United States (5). There have been estimates of 3–5 million users within the United States (6). An online cross-sectional study obtained over 10,000 individual responses primarily from within the United States in under a month from an announcement on the American Kratom Association's homepage, demonstrating kratom's increasing prevalence and popularity (6).

Diagnosis of kratom dependence relies largely on history as it is not detected on standard toxicology screens. Several case reports describing adult patients with kratom dependence and consequential withdrawal currently exist in the literature (7, 8). However, a limited number of NOWS cases have been reported secondary to maternal kratom use. Neonates whose mothers have a history of kratom use have exhibited comparable symptoms to adults who have shown kratom withdrawal. Although the management of NOWS due to kratom lacks sufficient guidelines, affected neonates respond to traditional NOWS management.

“Diagnosis of kratom dependence relies largely on history as it is not detected on standard toxicology screens. Several case reports describing adult patients with kratom dependence and consequential withdrawal currently exist in the literature (7, 8).”

Case Presentation:

Case 1: A white male born at 38 weeks' gestation vaginally to a 29-year-old G6 P4 A2 mother was transferred to our facility from a sister institute at the age of life eight hours. The patient was suspected of having NOWS in the newborn nursery since he was exhibiting tremulousness without any other etiologies. Upon arrival, the newborn had hypertonia, tremulousness, and inconsolable high-pitched cry. Mother had a history of polydrug use, including marijuana, methamphetamines, suboxone (combination buprenorphine and naloxone), and tobacco for ten years but reported undergoing successful rehabilitation. Her last use of any opioid or sedative substance was at least one year before the delivery. The patient's urine and meconium drug screens (MDS) were positive for marijuana only.

Similarly, the mother's UDS was also only positive for marijuana. However, the mother later revealed that she was using kratom as a non-opioid alternative to help relieve the pain associated with uterine contractions over the last two weeks before delivery. He was suspected of having NOWS from kratom withdrawal. The patient then had seizure-like activities. He was treated with a load-

Readers can also follow
NEONATOLOGY TODAY
 via our Twitter Feed
 @NEOTODAY

ing dose of phenobarbital. MRI brain and EEG were normal. His Finnegan scores were persistently above 12. He was started on methadone per unit protocol. Slowly methadone was weaned as tolerated, and he was discharged after 17 days.

Case 2: A term white male born vaginally to a 34-year-old G6P2A4 mother was transferred from the newborn nursery at 36 hours of age. He demonstrated tachypnea, hypertonia, high-pitched cry, and jitteriness. The mother had a history of heroin dependence. The infant's MDS and UDS were negative. The mother's UDS was also negative. The mother reported that to stay away from heroin, she had been taking kratom purchased over the counter and at gas stations over the past four years. The patient required a 32-day methadone wean before he was discharged home.

“Similarly, the mother’s UDS was also only positive for marijuana. However, the mother later revealed that she was using kratom as a non-opioid alternative to help relieve the pain associated with uterine contractions over the last two weeks before delivery. He was suspected of having NOWS from kratom withdrawal.”

Discussion:

Kratom leaves are indigenous to Southeast Asia and have long been used recreationally and medicinally (9). The pharmacological activities of kratom are primarily due to the indole alkaloids, mitragynine, and 7-hydroxymitragynine (10). These components act as partial agonists at μ -opioid receptors and competitive antagonists at κ -opioid and δ -opioid receptors (11). Mitragynine and 7-hydroxymitragynine demonstrate biased agonism at μ -opioid receptors, activating G-protein receptors without engaging β -arrestin, a signaling molecule linked to noxious opioid side effects such as constipation and respiratory depression (11). Mitragynine is less potent than morphine, while 7-hydroxymitragynine has a higher potency than morphine, with fewer gastrointestinal effects. Although 7-hydroxymitragynine is structurally different from morphine, chronic exposure to μ -opioid receptors can result in dependence, tachyphylaxis, and cross-tolerance to morphine (12). Unlike traditional opioids, kratom is not associated with respiratory depression; its biased agonism may be explained by μ -opioid receptors, δ -opioid antagonism, and its action at non-opioid receptors, including α -2 adrenergic, serotonin, and dopamine receptors (13).

“The main objective of our report is to raise awareness among pediatricians, particularly neonatologists, about the unconventional substance kratom that is commercially available yet can lead to the development of withdrawal in neonates who have had intrauterine exposure.”

The main objective of our report is to raise awareness among pediatricians, particularly neonatologists, about the unconventional substance kratom that is commercially available yet can lead to the development of withdrawal in neonates who have had intrauterine exposure. This highlights the need to inquire specifically about the consumption of herbal and over-the-counter substances on at-risk patients, facilitating maternal counseling, early recognition, and prompt treatment of NOWS.

Another objective that this report focuses on is the paucity of data on managing withdrawal with kratom. Previously, NOWS caused by maternal kratom use has been reportedly managed with clonidine and morphine. The reported cases were successfully managed with the unit's standard NOWS treatment with methadone for commonly used opioids.

Kratom is a legal, widely-available herbal supplement with opioid-like properties increasingly used by those with opioid dependence to self-treat opioid withdrawal (7). Although internet-based surveys of kratom users report less severe withdrawal from kratom compared to traditional opioids (14), there is sufficient evidence to support a dose-dependent abstinence syndrome similar to opioid withdrawal (10). Reports of kratom use among pregnant women are increasing, especially among women with histories of chronic opioid use (12). Reports of NOWS due to maternal kratom use are also increasing (11). Infants usually exhibit withdrawal symptoms 1-2 days after birth (10). Mitragynine has an estimated terminal half-life of $\sim 24 \pm 16$ hours (14).

“Reported cases of NOWS suspected from kratom were managed with morphine, clonidine, and benzodiazepines (2). However, our patients were treated with methadone successfully.”

Reported cases of NOWS suspected from kratom were managed with morphine, clonidine, and benzodiazepines (2). However, our patients were treated with methadone successfully. The length of pharmacological treatment for NOWS due to kratom has been reported from 5 days to 2 months (19). Although there are no formal studies of kratom transmission through breastmilk, The American Kratom Association (<https://www.amerikanatom.org/science>) recommends against use among pregnant or breastfeeding women. (7)

Kratom cannot be detected by routine toxicology screening. Definitive testing requires Liquid Chromatography or Tandem Mass Spectrometry, although qualitative immunologic-based tests are in development (10). It is unclear for what duration kratom can be detected in urine; however, one case reports the detection of kratom 48 days after last use (13). Without readily available testing, medical providers must solely rely on history taking (10). To provide optimal care for pediatric patients, obstetricians, neonatologists, and pediatricians must remember to ask about kratom use in those with histories of opioid dependence.

Conclusion:

Kratom use in the United States is increasing, especially among those with histories of opioid dependence, to alleviate opioid withdrawal. Physicians caring for those with histories of opioid dependence will likely encounter kratom users and kratom-related morbidity. Providers must familiarize themselves with the substance

and its consequences for adult and pediatric patients' dependence, withdrawal, and toxicity. Currently, physicians are limited to history-taking to diagnose kratom use as it is not detected on routine toxicology screening. Patients should disclose kratom use to their medical providers as they would other legal substances such as alcohol or tobacco. In turn, medical providers should counsel patients on the risks of kratom use. Further research is needed to educate the general public about kratom's side effects and help guide medical providers in the optimal management of kratom-related complications.

“Kratom use in the United States is increasing, especially among those with histories of opioid dependence, to alleviate opioid withdrawal. Physicians caring for those with histories of opioid dependence will likely encounter kratom users and kratom-related morbidity.”

Conflict of Interest: None of the authors have any conflict of interest.

Funding: None of the authors have any financial affiliations to disclose.

Author Contributions: All the authors contributed to the conception and design of the work. Farida Karim drafted the work, and Tony Hampton and Giang Truong revised it critically for important intellectual content and final approval of the version to be published. All the authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References:

1. Nellhaus E, Andrews L, Haas J, Miskell D, Kurek K, Hansen Z et al. Neonatal withdrawal following in utero exposure to kratom. *International Journal of Clinical Pediatrics*. 2018 Dec 26;7(4):55-8.
2. Eldridge WB, Foster C, Wyble L. Neonatal Abstinence Syndrome Due to Maternal Kratom Use. *Pediatrics*. 2018;142(6):e20181839. doi:10.1542/peds.2018-1839
3. Centers AA. Kratom withdrawal, detox, and tapering. 2018. Available from: <https://americanaddictioncenters.org/withdrawal-timelines-treatments/kratom/>.
4. Anwar M, Law R, Schier J. Notes from the field: Kratom (*Mitragyna speciosa*) exposures reported to Poison Centers - United States, 2010-2015. *MMWR Morb Mortal Wkly Rep*. 2016;65(29):748-749.
5. Diep J, Chin DT, Gupta S, Syed F, Xiong M, Cheng J. Kratom, an emerging drug of abuse: a case report of overdose and management of withdrawal. *A&A Practice*. 2018 Apr 15;10(8):192-4.
6. Grundmann O. Patterns of kratom use and health impact in the US—results from an online survey. *Drug Alcohol Depend*. 2017;176:6370.
7. Eldridge WB. Kratom: An Opioid-like Herbal Supplement Pediatricians Should Know About. *J Pediatr Pediatr Med*. 2019; 3(1): 1-5
8. Takayama H. Chemistry and Pharmacology of Analgesic Indole Alkaloids from the Rubiaceae Plant, *Mitragyna speciosa*. *Chem Pharm Bull*. 2014; 52(8): 916-928.

9. Kreugel A, Gassaway M, Kapoor A, Váradí A, Majumdar S, Filizola M, Javitch JA, et al. Synthetic and receptor signaling explorations of the *Mitragyna* alkaloids: *Mitragynine* as an atypical molecular framework for opioid receptor modulators. *J Am Chem Soc*. 2016; 138(21): 6754-6764.
10. Takayama H, Ishikawa H, Kurihara M, Aimi N, Ponglux D, Koyama F, et al. Studies on the Synthesis and Opioid Agonistic Activities of *Mitragynine*-Related Indole Alkaloids: Discovery of Opioid Agonists Structurally Different from Other Opioid Ligands. *J Med Chem*. 2002; 45: 1949-1956.
11. Boyer EW, Babu KM, Macalino GE. Self-treatment of opioid withdrawal with a dietary supplement, kratom. *Am J Addict*. 2007; 16 (5): 332- 336.
12. Murthy P, Clark D. An unusual cause for neonatal abstinence syndrome. *Paediatr Child Health*. 2018; pxy084. Doi: 10.1093/pch/pxy084.
13. Khazaeli A, Jerry J, Vazirian M. Treatment of Kratom Withdrawal and Addiction with Buprenorphine. *J Addict Med*. 2018; 12(6): 493-495
14. Smid MC, Charles JE, Gordon AJ, Wright TE. Use of Kratom, an opioid-like traditional herb, in pregnancy. *Obstetrics & Gynecology*. 2018; 132(4): 926-928.

Disclosures: No disclosures noted.

NT



Farida Karim, MD
Ascension Sacred Heart Hospital,
Pensacola.
University of Florida
Email: Farida.karimc@gmail.com



Tony Hampton, MD, MBI
Clinical Assistant Professor
Pediatrix Medical Group FL, Inc.

Corresponding Author:



Giang Truong, MD
Associate Professor of Pediatrics
Loma Linda University School of Medicine
Pediatrix Medical Group - Pensacola
Email: giang.truong@pediatrix.com



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



Position available for Neonatal Nurse Practitioner (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.

Readers can also follow
NEONATOLOGY TODAY
via our Twitter Feed
[@NEOTODAY](https://twitter.com/NEOTODAY)

99nicu
Sign up for free membership at 99nicu, the Internet community for professionals in neonatal medicine. Discussion Forums, Image Library, Virtual NICU, and more...
www.99nicu.org

PREEMIE BOOK ON SALE

ONCE UPON A PREEMIE

BY JENNÉ JOHNS
AUTHOR | SPEAKER | ADVOCATE



OU
AP

“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

Premie Family



wgts 91.9
Washington, D.C.

HEALTH & WELLNESS GUIDE
heart&soul

TARAJI P. HENSON
A GLIMPSE INTO TARAJI P. HENSON'S HEART & SOUL

HOLIDAY PARTIES MADE SIMPLE

THE ONCE UPON A PREEMIE STORY

ESSENCE PLANNING



PEBBLES of Hope
Using the world's smallest babies to lighten lives

MAJIC
102.3 92.7
The Real Sound of the DMV

WDAS
105.3 FM

CBS RADIO

AVAILABLE FOR \$12.99 ON AMAZON OR ONCEUPONAPREEMIE.COM

Still a Premie?

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 PREMIE

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



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



Born preterm at a "normal" weight?

STILL A PREMIE

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.

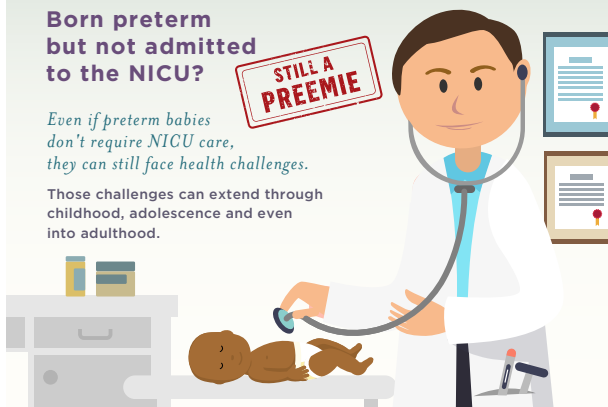


Born preterm but not admitted to the NICU?

STILL A PREMIE

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 Premies

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

All Premies

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

NCJFH 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



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.



Eunice Kennedy Shriver National Institute
of Child Health and Human Development



Compiled and Reviewed by Saba Saleem, BS, OMS 4

Donor Human Milk Use in Advanced Neonatal Care Units — United States, 2020

Weekly / August 19, 2022 / 71(33);1037–1041

Ellen O. Boundy, ScD¹; Erica H. Anstey, PhD¹; Jennifer M. Nelson, MD¹

Summary

What is already known about this topic?

Infants with very low birthweight (VLBW) are at increased risk for long- and short-term health problems. Human milk is the recommended nutrition source for infants with VLBW, who should receive supplemental donor milk when mother's own milk is insufficient or unavailable.

What is added by this report?

Analysis of CDC's 2020 Maternity Practices in Infant Nutrition and Care survey data found that donor milk was not available for infants with VLBW at 13.0% of U.S. hospitals with neonatal intensive care units (level III or IV).

What are the implications for public health practice?

Identifying and addressing barriers to provision of donor milk for infants with VLBW could help ensure that these infants receive donor milk when needed and help decrease associated morbidity and mortality.

Approximately 50,000 infants are born in the United States each year with very low birthweight (VLBW) (<1,500 g).^{*} Benefits of human milk to infants with VLBW include decreased risk for necrotizing enterocolitis, a serious illness resulting from inflammation and death of intestinal tissue that occurs most often in premature infants, especially those who are fed formula rather than human milk; late-onset sepsis; chronic lung disease; retinopathy of prematurity; and neurodevelopmental impairment (1). When mother's own milk is unavailable or insufficient, pasteurized donor human milk (donor milk) plus a multinutrient fortifier is the first recommended alternative for infants with VLBW (2). CDC's 2020 Maternity Practices in Infant Nutrition and Care (mPINC) survey was used to assess practices for donor milk use in U.S. advanced neonatal care units of hospitals that provide maternity care (3). Among 616 hospitals with neonatal intensive care units (level III or IV units),[†] 13.0% reported that donor milk was not available



for infants with VLBW; however, approximately one half (54.7%) reported that most ($\geq 80\%$) infants with VLBW do receive donor milk. Donor milk availability for infants with VLBW was more commonly reported among hospitals with a level IV unit, higher annual birth volume, location in the Midwest and Southwest regions, nonprofit and teaching status, and those designated Baby-Friendly.[§] Addressing hospitals' barriers to providing donor milk could help ensure that infants with VLBW receive donor milk when needed and help reduce morbidity and mortality in infants with VLBW (1,4).

The mPINC survey is a biennial census of all maternity care hospitals in the United States and territories to monitor practices and policies related to infant feeding. The survey is completed electronically by the persons most knowledgeable about the hospital's practices related to infant nutrition. In 2020, hospitals with advanced neonatal care units (level II, III, or IV) were asked how many infants (<1,500 g and $\geq 1,500$ g) receive donor milk at any time while in the unit: few (0%–19%), some (20%–49%), many (50%–79%), most ($\geq 80\%$), or donor milk not available.

The prevalence of donor milk use was examined by unit level and infant weight[¶] (<1,500 g and $\geq 1,500$ g). For infants weighing $\geq 1,500$ g, analyses included hospitals with level II, III, or IV units. Analyses for infants weighing <1,500 g were restricted to hospitals with level III or IV units, where infants with VLBW typically receive care (3). Donor milk use among infants with VLBW was also examined by hospital characteristics: hospital type, teaching hospital status, Baby-Friendly designation, number of annual births, and region.^{**} Availability was also examined by state or territory (state) by calculating the percentage of participating hospitals with a level III or IV neonatal intensive care unit in each state reporting that donor milk was available for infants with VLBW. Data were suppressed for states with fewer than five hospitals reporting. Descriptive analyses were conducted using SAS (version 9.4; SAS Institute). Because this is a census sample, SEs were not calculated, and statistical testing was not performed. This activity was reviewed by CDC and was conducted consistent with applicable federal law and CDC policy.^{††}

In 2020, among 2,810 eligible maternity hospitals, 2,103 (74.8%) participated in mPINC. Among participating hospitals, 1,260 (59.9%) reported having an advanced neonatal care unit, including 642 (60.0%) level II, 528 (41.9%) level III, and 90 (7.1%) level IV units. Hospitals that did not answer the donor milk question were excluded, resulting in analytic samples of 616 hospitals with level III and IV units for infants <1,500 g and 1,256 hospitals with

The National Urea Cycle Disorders Foundation



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

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

level II, III, or IV units for infants $\geq 1,500$ g.

Among hospitals with level III or IV units, 13.0% reported that donor milk was not available for infants with VLBW, and 54.7% reported it was received by $\geq 80\%$ of infants with VLBW (Table 1). Among hospitals with level II, III, or IV units, for infants weighing $\geq 1,500$ g, 40.1% reported that donor milk was not available, and 15.9% reported that it was received by most of these infants. For both weight categories, donor milk was more commonly available and used at hospitals with level IV units than in those with level II or III.

Donor milk was reported to be unavailable for infants with VLBW in 11.6% of nonprofit, 16.0% of for-profit, and 17.1% of government or military hospitals (Table 2). Among teaching hospitals, 12.4% reported that donor milk was not available, and 53.3% reported it was received by $\geq 80\%$ of infants with VLBW, compared with 16.9% and 64.0%, respectively, among nonteaching hospitals. Donor milk was not available for infants with VLBW in 11.1% of Baby-Friendly designated hospitals, compared with 14.3% of non-Baby-Friendly designated hospitals. Although donor milk was available for infants with VLBW in almost all (97.8%) level IV units (Table 1), its availability and use among hospitals with a level III unit varied by hospital size. Among the largest hospitals with a level III unit

($\geq 5,000$ annual births), 6.3% reported that donor milk was not available, and 40.6% reported it was received by $\geq 80\%$ of infants with VLBW, compared with 44.0% and 36.0%, respectively, among the smallest such hospitals ($< 1,000$ annual births). By region, nonavailability of donor milk for infants with VLBW ranged from 4.1% of hospitals in the Midwest to 23.8% in the Northeast, among those with level III or IV units.

Twenty-three U.S. states had at least 10 hospitals with a level III or IV neonatal intensive care unit, 13 had five to nine level III or IV hospitals, 15 had one to four level III or IV hospitals, and five had no hospital with level III or IV neonatal intensive care units participating in mPINC. Among the 36 states with five or more hospitals with a level III or IV unit, the statewide percentage of hospitals reporting donor milk availability for infants with VLBW ranged from 0% to 100% (median = 92.0%) (Figure). In 12 states (Alabama, Arkansas, Colorado, Indiana, Iowa, Massachusetts, Minnesota, New Mexico, Oregon, Utah, Washington, and Wisconsin), 100% of hospitals with level III or IV units reported donor milk was available for infants with VLBW; in seven states (Illinois, Maryland, North Carolina, Ohio, Pennsylvania, Texas, and Virginia), 90% to $< 100\%$ of hospitals reported donor milk availability; in 10 states (Connecticut, Florida, Kentucky, Louisiana, Michigan,

Mississippi, Nebraska, New Jersey, South Carolina, and Tennessee), 80% to $< 90\%$ of hospitals reported donor milk availability; and in seven jurisdictions (California, Georgia, Kansas, Missouri, New York, Oklahoma, and Puerto Rico), $< 80\%$ of hospitals reported that donor milk was available.

Discussion

Although human milk is the recommended nutrition source for infants with VLBW, with donor milk as the preferred alternative to mother's own milk when needed, this analysis found that donor milk was unavailable or not frequently used in some hospitals caring for those infants. In mPINC 2020, 13.0% of hospitals with a level III or IV unit reported donor milk was not available for infants with VLBW; however, availability might be improving. In CDC's 2018 mPINC survey, 16.5% of hospitals with a level III or IV unit reported donor milk was not available for infants with VLBW (CDC, unpublished data, 2022). In general, availability and use of donor milk for infants in advanced care units appears to be increasing over time. A 2011 study using mPINC data found that 45.2% of U.S. hospitals with a neonatal intensive care unit reported ever using donor milk (for infants of any birth-weight); an increase from 25.1% in 2007 and 28.7% in 2009 (5).

Supporting NICU Staff so they can support families



Providing online education that is...

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

National
Perinatal
Association

NPN
NICU PARENT NETWORK

The preeminent provider of compelling perinatal education on psychosocial support created through interprofessional collaboration

www.mynicunetwork.org

Limitations in the availability and use of donor milk for infants with VLBW might be due to a variety of factors. Most hospitals access donor milk from banks accredited by the nonprofit Human Milk Banking Association of North America, with 28 member milk banks currently operating in 25 states.^{§§} Availability of donor milk at hospitals might be affected by supply from milk banks, cost, and reimbursement, which can vary by state and payment source (6). Milk bank supply is in turn affected by barriers persons might face when considering milk donation, such as lack of knowledge about milk banking and beliefs about acceptability of donation (7). Hospital leadership support and logistical challenges to implementing donor milk programs might also play a role in donor milk availability (8).

When donor milk is available, additional hospital- and individual-level factors might affect how often it is used. These include lack of standardized policies and staff member training related to donor milk use, as well as staff member and parent knowledge and perceptions about the health benefits and safety of donor milk (6).

The findings in this report are subject to at least three limitations. First, the percentage of infants with VLBW needing supplementation to mother's own milk or full feedings with donor milk is not well documented, making interpreting prevalence estimates of donor milk use among hospitals where it is available challenging because the ideal prevalence is not known. Second, there is potential for social desirability bias or other measurement error because hospitals' use of donor milk is self-reported. Finally, mP-INC does not collect data from neonatal units in hospitals that do not provide maternity care, such as children's hospitals; therefore, donor milk use for infants with VLBW in those settings is not represented in this analysis.

Addressing barriers related to the availability of milk banks, donation to milk banks, use of donor milk in hospitals, and knowledge and attitudes about donor milk could potentially increase its availability and use for infants with VLBW. The American Academy of Pediatrics and Baby-Friendly USA recently published documents outlining recommended practices for promoting human milk use for infants with VLBW and in the neonatal intensive care setting,

which could provide guidance to hospitals implementing a donor milk program (1,4). State Perinatal Quality Collaboratives are another tool that could help birthing hospitals implement quality improvement initiatives to increase access to and use of donor milk to reduce morbidity and mortality in infants with VLBW.^{¶¶}

Corresponding author: Ellen O. Boundy, lwz9@cdc.gov, 770-488-4438.

¹Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, CDC.

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

* <https://www.cdc.gov/nchs/data/nvsr/nvsr70/nvsr70-02-tables-508.pdf>

† Level II = special care nursery; level III = neonatal intensive care unit; level IV = regional neonatal intensive care unit. <https://doi.org/10.1542/peds.2012-1999>

§ Baby-Friendly USA is the accrediting body and national authority for the Baby-Friendly Hospital Initiative (BFHI) in the United States. BFHI is a global program to encourage the broad-scale implementation of steps to provide mothers with information, confidence, and skills necessary to successfully initiate and continue breastfeeding. <https://www.babyfriendlyusa.org>

¶ In response to the survey question "How many infants receive donor human milk at any time while cared for in your hospital's Special Care Nursery (level II)/Neonatal Intensive Care Unit (levels III, IV)? Infants <1500 grams, infants ≥1500 grams."

** <https://www.fns.usda.gov/fns-regional-offices#>

†† 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

§§ <https://www.hmbana.org/find-a-milk-bank/overview.html>

¶¶ <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pgc.htm>

NT

Many Children with Sickle Cell Anemia Not Receiving Lifesaving Screening and Treatment

In 2019, less than half of children aged 2–16 years with sickle cell anemia received the recommended screening for stroke, a common complication of the disease, according to a new CDC *Vital Signs* report. In addition, many of these children are not receiving the recommended medication, hydroxyurea, which can reduce complications such as pain and acute chest syndrome. Hydroxyurea can also improve anemia and quality of life.

Sickle cell anemia is the most severe form of sickle cell disease, which is a red blood cell disorder that primarily affects Black and African American people. It's estimated that sickle cell disease affects approximately 100,000 Americans.

"We must take action to ensure that children with sickle cell anemia are receiving potentially lifesaving treatment," said CDC Acting Principal Deputy Director Debra Houry, M.D., M.P.H. "The pain and complications these children often experience can be excruciating and debilitating and can last for hours, days, or even weeks. Preventive care and medicines, such as hydroxyurea, can help ease the pain and suffering these children go through, and may extend their lives."

Data from more than 3,300 children with sickle cell anemia continuously enrolled in Medicaid during 2019 were analyzed in this report. The data came from the IBM® MarketScan® Multi-State Medicaid Database.

Key findings

About half (47%) of children aged 2–9

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

years and 38% of children aged 10–16 years received transcranial Doppler (TCD) ultrasound to assess their risk for stroke. Sickle cell anemia is a leading cause of childhood stroke.

Only 2 in 5 children aged 2–9 years and about half of children/teens aged 10–16 years with sickle cell anemia used hydroxyurea.

Both the stroke screening and hydroxyurea use were highest among children with high levels of health care use, as well as those with evidence of prior complications from their disease.

“Sickle cell anemia can shorten a person’s life expectancy by more than 20 years and can lead to complications affecting all parts of the body. These complications are preventable—not inevitable. We must do more to help lessen the pain and complications associated with this disease by increasing the number of children who are screened for stroke and using the medication that can help reduce painful episodes,” said Karen Remley, M.D., M.P.H., director, CDC’s National Center on Birth Defects and Developmental Disabilities.

Many people with sickle cell anemia report barriers to receiving the recommended screening and treatment. Structural racism is one of those barriers. For example, despite their extensive health care needs, many people with sickle cell anemia do not have access to providers with expertise in treating the disease or report feeling stigmatized and having their symptoms dismissed when they do receive care. Other barriers include concerns among parents and providers about potential side effects and effectiveness of hydroxyurea.

Much can be done to help children with sickle cell anemia and their families:

Health care providers can work to consolidate care by integrating screening into a single, comprehensive health care visit for children with sickle cell anemia.

Health care institutions can develop formal reporting systems to document and respond to racist behavior and empower people with sickle cell anemia to safely report concerns about prejudice or inequality.

Health care providers can work with policy makers and advocates to reverse the impact of years of structural racism on sickle cell anemia funding, research, and policy decisions.

Patients and their families can learn about the importance of getting an annual screening for stroke and talk to their health care provider about the results of the screening and next steps.

Community-based organizations and other partners can develop resources for both patients and health care providers to improve understanding of annual screening to prevent childhood stroke. They can also connect patients and families with resources and tools to help them schedule screening appointments, help address families’ transportation needs, and help them find financial assistance if needed.

For more information about this report, go to www.cdc.gov/vitalsigns.

Contact: Media Relations

(404) 639-3286

NT

FDA Approves First Potentially Curative Gene Therapy for Beta Thalassemia

A leading study site for nearly a decade, CHOP will be part of a network of treatment centers in the country offering the therapy to patients who require regular blood transfusions

Published on Aug 24, 2022 in CHOP News

In a major step forward for the treatment of beta thalassemia, the Food and Drug Administration (FDA) has approved beti-cel (brand name Zynteglo®), the first potentially curative gene therapy for people who require regular red blood cell transfusions to treat the condition. Children’s Hospital of Philadelphia (CHOP) will be one of the Qualified Treatment Centers (QTCs) offering the treatment, which is manufactured by bluebird bio.

“This treatment is a potential game changer for patients who have required regular red blood transfusions to manage their disease, an intense treatment burden that comes with its own risks,” said Janet Kwiatkowski, MD, MSCE, Director of the Thalassemia Center at Children’s Hospital

of Philadelphia (CHOP), CHOP lead investigator for the three clinical trials that led to beti-cel’s approval, and overall coordinating investigator for one of the studies. “Above all, it is important for patients to have choices about their treatment. This gene therapy offers a potentially curative option that far surpassed what we were expecting in terms of effectiveness. I am thrilled that CHOP’s Thalassemia Center, CuRED team, and Cell Therapy and Transplant Section (CTTS) will be able to provide this treatment to those patients for whom it is the best option.”

“There is a deep unmet need for a potentially curative treatment option for patients with transfusion-dependent beta thalassemia, whose quality of life is profoundly impacted by both the disease and the current standard of care,” said Alexis A. Thompson, MD, MPH, Chief of the Division of Hematology at Children’s Hospital of Philadelphia, who was a lead investigator of the phase 3 clinical trials and presented before the FDA Advisory Committee ahead of approval. “As a lead investigator in the clinical trials that led to beti-cel’s approval, I am thrilled that the FDA has approved this treatment, which has the potential to vastly improve patients’ lives.”

Study results show effectiveness of gene therapy for beta thalassemia

Beta thalassemia is an inherited blood disorder that affects the production of normal hemoglobin, a protein in red blood cells that carries oxygen to tissues throughout body. The most severe form of the disease involves mutations on both copies of the hemoglobin beta chain gene, requiring lifelong blood transfusions every two to five weeks and constant monitoring for complications caused by the disease as well as the transfusions themselves.

The FDA approval was based on clinical trial data from multiple study sites, including CHOP. The data showed that 89% of patients treated in the phase three trials no longer needed red blood cell transfusions after receiving gene therapy, while maintaining hemoglobin levels of at least 9 g/dL. The benefits extended across age groups (4 to 34 years) and in those with milder as well as more severe beta globin mutations.

The approval caps off nearly a decade of clinical research of gene therapy for beta thalassemia at CHOP, where screening of the patients and access to the therapy was centralized and streamlined through





Perinatal Advisory Council:
Leadership, Advocacy and Consultation

CONTINUING MEDICAL EDUCATION

The Continuing Education Department at PAC/LAC is pleased to consider requests to be a joint provider of your CME activity. PAC/LAC is actively involved in direct and joint-providership of multiple continuing education activities and programs and works with our partners to ensure the highest standards of content and design. PAC/LAC is the recipient of the 2018 Cultural & Linguistic Competency Award. This award recognizes a CME provider that exemplifies the goal of integrating cultural and linguistic competency into overall program and individual activities and/or a physician who provides leadership, mentorship, vision, and commitment to reducing health care disparities

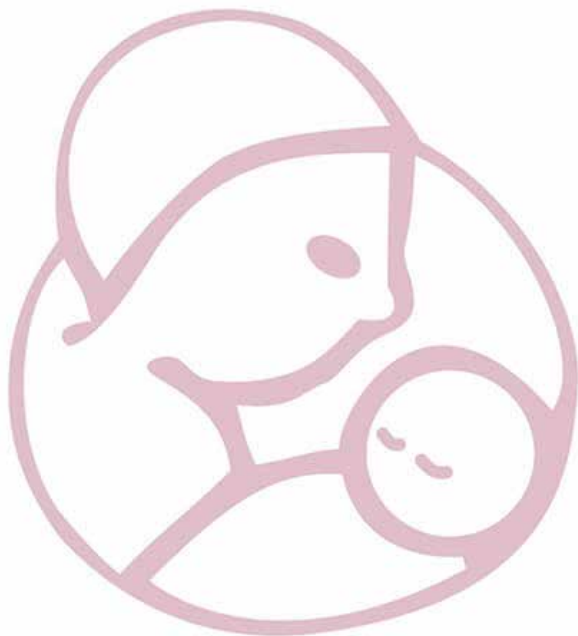
PAC/LAC is an accredited provider of continuing education by Accreditation Council for Continuing Medical Education / Institute for Medical Quality, the California Board of Registered Nursing, the California Association of Marriage and Family Therapists, the National Commission for Health Education Credentialing, and the American Association for Respiratory Care.

To inquire about Continuing Education Joint-Providership opportunities for your event please visit our website and complete the online request form.

PAC/LAC offers continuing education for:

- Continuing Medical Education (CME)
- California Registered Nurses (CEU)
- Licensed Clinical Social Workers (LCSW)
- Licensed Marriage and Family Therapists (LMFT)
- Licensed Professional Clinical Counselors (LPCC)
- Licensed Educational Psychologists (LEP)
- Certified Health Education Specialists (CHES)
- Continuing Respiratory Care Education (CRCE)

www.paclac.org



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.

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

its Sickle Cell and Red Cell Disorders Curative Therapy Center (CuRED). CuRED is a unique collaboration between Hematology and the CTTS transplant team. The program provides integrated and coordinated care for patients with red blood cell disorders, combining appointments with hematologists, stem cell transplanters, psychologists, social workers, fertility preservationists, and other specialists at a single visit. A key part of CuRED's role at CHOP will involve counseling patients with beta thalassemia on whether gene therapy is an appropriate treatment option.

FROM CHRONIC DISEASE TO CURE

CuRED offers an integrated care model to help patients with red blood cell disorders on their journey.

As part of this complex and highly collaborative effort, CTTS facilitates collection of patient cells and cell transfer for manufacturing. The cells are then returned to the Cell and Gene Therapy Lab. The patient is admitted to the transplant service to undergo the preparative chemotherapy, administration of the modified cells, and inpatient post-transplant care.

This approval also marks the fourth cell and gene therapy offered at CHOP, which has stood out as a pioneer in developing, studying, and administering these breakthrough therapies. From the first FDA-approved gene therapy to the first FDA-approved gene therapy for a genetic disease, CHOP has been at the forefront of cell and gene therapy discoveries that have transformed patients' lives.

Read more about the FDA approval of Zyn-teglo® in this press release from bluebird bio.

Contact: Dana Bate, The Children's Hospital of Philadelphia, 267-426-6055 or bated@email.chop.edu

NT

Vitamin Treatment May Alleviate Exercise Intolerance Caused by Mitochondrial Impairment

Published on Aug 29, 2022 in CHOP News

Researchers from Children's Hospital of Philadelphia (CHOP) demonstrated how a member of the vitamin B3 family can help alleviate exercise intolerance in an animal model exhibiting a genetic variation that leads to impaired mitochondrial function.

The findings were recently published in the journal *Molecular Metabolism*.

Since mitochondria effectively serve as the "powerhouses" of our cells, impaired mitochondrial function can lead to fatigue and exercise intolerance, which result in severe limitations to the everyday life of patients. Building off a prior study, researchers focused on a specific gene called adenine nucleotide translocator isoform 1 (ANT1), which helps transport energy out of the mitochondria. Previous studies have shown that impaired function of ANT1 results in cardiomyopathy and exercise intolerance in both animals and humans.

In this study, the researchers used an animal model deficient in ANT1 to study how the absence of this gene impacts exercise physiology and mitochondrial function and how that function could potentially be restored.

"The goal of this study was to better understand the molecular mechanism that underlies the exercise intolerance brought upon by ANT1-deficiency," said Patrick Schaefer, PhD, a postdoctoral fellow at the Center for Mitochondrial and Epigenomic Medicine at CHOP and first author of the study. "A more thorough understanding enables

us to uncover possible targets to improve exercise capacity and ultimately the quality of life of patients with defects in ANT1 and other mitochondrial disorders."

Using their ANT1-deficient model, the researchers showed that mitochondrial energy production within the skeletal muscle had the biggest impact on exercise capacity. Notably, the researchers observed reduced levels of nicotinamide adenine dinucleotide (NAD+), a coenzyme involved in hundreds of critical metabolic processes, which exacerbated the lack of energy in the skeletal muscle of the animal model.

When the ANT1-deficient model was treated with nicotinamide riboside, a member of the vitamin B3 family that is a precursor of NAD+, the researchers found increased NAD+ levels in skeletal muscle and liver tissue, which led to increased exercise capacity and mitochondrial respiration. This finding suggests that this vitamin, a freely available nutrient supplement, could improve exercise capacity and quality of life in mitochondrial disorders. However, two other animal models with different defects in their mitochondria did not positively respond to the nicotinamide riboside treatment, suggesting that the benefits are specifically related to ANT1 deficiency.

"This demonstrates the heterogeneity of mitochondrial disorders and emphasizes the need for personalized treatments," said senior study author Douglas C. Wallace, PhD, director of the Center for Mitochondrial and Epigenomic Medicine at CHOP and the Michael and Charles Barnett Endowed Chair in Pediatric Mitochondrial Medicine and Metabolic Diseases. "Nicotinamide riboside is no panacea for mitochondrial disorders, but it might be a promising approach for some patients and suggests NAD+ supplementation should be considered in the context of mitochondrial disease therapeutics."

This work was supported by the German Research Foundation grant SCHA2182/1-1 and National Institutes of Health grants Q2 NS021328, MH108592, OD010944

New subscribers are always welcome!

NEONATOLOGY TODAY

To sign up for a free monthly subscription, just click on this box to go directly to our subscription page



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

as well as U.S. Department of Defense grants W81XWH-16-1-0401 and W81XWH-21-1-0128.

Schaefer et al, "Nicotinamide Riboside alleviates exercise intolerance in ANT1-deficient mice." *Mol Metab*. Published online 2022 August 6. DOI: 10.1016/j.molmet.2022.101560.

Contact: Ben Leach, The Children's Hospital of Philadelphia, 267-426-2857 or leachb@email.chop.edu

NT

Formula May Be Right for Infants, but Experts Warn That Toddlers Don't Need It

By Christina Szalinski
Kaiser Family Foundation

September 21, 2022

Formulas for toddlers are a burgeoning business in the United States: Sales of the drinks more than doubled in recent years as companies convinced parents that their little ones needed the liquid boost. But many experts warn that these products, designed for children ages 1 to 3, fill no nutritional needs beyond what is available in a typical toddler diet, are subject to less regulation than infant formula, and are expensive.

In addition, some parents feed the toddler versions to infants even though they do not meet federal standards for infant formula and may not provide babies with adequate nutrients to sustain their growth.


Pediatricians and federal health officials say that when most children turn 1, they can begin drinking cow milk or an unsweetened plant-based milk substitute. In a 2019 "consensus" statement, the American Academy of Pediatrics and other health and nutrition organizations recom-

mended against using toddler formulas, saying "they offer no unique nutritional value beyond what could be obtained with healthy foods; furthermore, they may contribute added sugars to the diet." The toddler formulas often contain sweeteners and fats that add calories.

Some of the same companies that produce infant formula — including Enfamil, Gerber, and Similac — also make toddler formulas, as do some smaller, boutique brands that advertise that they have organic or other special qualities. Toddler formulas are available nearly everywhere infant formulas are sold and are marketed as providing extra nutrients to help children's brain, immune system, and eye development, among other benefits. They are different from medical formulas prescribed for children with specific needs.

A 2020 study found that sales of toddler formula in the U.S. rose to \$92 million in 2015 from \$39 million in 2006.

Parents are often confused by the marketing for the formulas, according to a study led by Jennifer Harris, a marketing and public health researcher at the Univer-



Do you know enough about
PMADs
Perinatal Mood and Anxiety Disorders
to make a difference?

Join  NPA

nationalperinatal.org/mental_health

sity of Connecticut. She found that [60% of caregivers](#) falsely believed toddler formulas have nutrients that toddlers can't get from other foods.

[Dr. Anthony Porto](#), a pediatric gastroenterologist and pediatrics professor at Yale University, said he is concerned these products could be giving toddlers more nutrients and calories than they need. Unlike what's designed for infants, toddler formula has no nutritional regulations: Experts say standardizing a supplement to toddlers' diets is impossible because no two children are alike.

Bottom of Form

In [focus groups](#), Harris said, parents report feeding their children toddler formula to fill nutritional gaps when a child isn't eating enough, a common concern among parents.

"Infants are often voracious eaters," said [Dr. Stephen Daniels](#), chair of pediatrics at Children's Hospital Colorado. But at around a year of age, children's growth plateaus, he said, and "they're suddenly not hungry in the way they used to be anymore." That can worry parents, he added, but "it's a completely normal phenomenon."

If parents have concerns about their children's diet, Daniels said, they should consult a pediatrician or family doctor.

Blanche Lincoln, president of the Infant Nutrition Council of America, which represents the makers of Enfamil, Gerber, Similac, and store brands, said in an email that the toddler formulas can be helpful because they can fill "nutritional gaps during this period of transition to table foods." Lincoln, a former U.S. senator from Arkansas, said the drinks "help contribute to the specific nutritional needs of toddlers by providing energy and important nutrients, as well as essential vitamins and minerals during this important period of growth and development."

But toddler formula isn't being ingested by toddlers alone — it's also being fed to infants. In a [recent study](#), Porto and col-

leagues found that 5% of infants' parents reported giving their babies drinks marketed for the older age group. And Harris' research indicated that [22% of parents](#) of infants older than 6 months had fed their babies toddler formula in the previous month. Both studies were conducted before the recent infant formula shortage, which may have exacerbated the problem.

"Infant formulas and toddler formulas tend to be next to each other in the supermarket," Harris said. "They look similar, but the toddler formulas are cheaper than the infant formulas. So people confuse them, and they grab the wrong one. Or they think, 'Oh, this one is less expensive. I'll get this one instead.'"

According to an email from FDA spokesperson Lindsay Haake, toddler drinks do not meet the definition of infant formula, so they are not subject to the same requirements. That means they do not have to undergo the clinical trials and pathogen safety testing that the infant versions do. "Unlike infant formulas, toddler formulas are not necessary to meet the nutritional needs of their intended consumers," Haake said.

In a statement to KHN, the Infant Nutrition Council of America said, "Toddler drinks have a distinctive use and nutritional makeup from infant formula; the two are not interchangeable. The labeling of toddler nutritional drinks explicitly identifies the product as a toddler drink intended for children 12 months and older on the front of the package label."

However, several expensive toddler formula brands made by smaller companies — often advertised as being made from goat milk, [A2 whole milk](#) (which lacks one common milk protein), or vegan ingredients that aren't soy — do meet nutritional requirements for infants, and some advertise that.

Harris argued that this confuses parents, too, and shouldn't be allowed. Just because a toddler formula has the nutritional ingredients required by the FDA for infant formula doesn't mean it has met the other

tests required of infant formula, she said.

Federal regulators have not forced any of the companies to withdraw those products. In an email, FDA spokesperson Marianna Naum said, "The FDA does not comment on potential compliance actions."

One company, Nature's One, whose toddler formulas are named "Baby's Only," received [warning letters](#) a decade ago from the FDA about marketing them for infants. That case was closed in 2016. The company's website says that Baby's Only formula "[meets nutrient requirements for infant](#)" and that "[Baby's Only Organic® can be served up to 3-years of age.](#)" Critics say that language implies the formula is fine for babies younger than 1. The company's website and its Instagram account feature customer testimonials from parents who report feeding the formula to their infants, as well as pictures of infants drinking it.

Jay Highman, CEO and president of Nature's One, said that Baby's Only is clearly labeled as a toddler formula and that the back of the can states that "Baby's Only is intended for a toddler 1-year of age or older OR when directed by a healthcare professional." He also said that since the company launched in 1999, its formulas have met all the nutritional, manufacturing, and safety standards required of infant formula even though they don't have to. "We behaved like we are an infant formula, but we were selling it as a toddler formula," Highman said.

He said that the clinical trials required by the FDA are a huge barrier to bringing a new infant formula to market and that many other countries don't require a clinical trial. Baby's Only recently completed a clinical trial, he said, and the company expects to be able to sell it as an infant formula soon.

Yet pediatricians and nutritional experts continue to caution parents about using the toddler drinks. "There's no question that infant formula is very important in the first year of life," Daniels said. But he doesn't recommend the toddler version "because it's not that useful, because it's confusing, because it's expensive."

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

Prenatal cannabis exposure associated with mental disorders in children that persist into early adolescence

September 12, 2022

NIH-funded results add to growing scientific evidence of negative health effects of cannabis use during pregnancy

What

Prenatal cannabis exposure following the middle of the first trimester—generally after five to six weeks of fetal development—is associated with attention, social, and behavioral problems that persist as the affected children progress into early adolescence (11 and 12 years of age), according to new research supported by the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health. These conditions may put these children at a greater risk of mental health disorders and substance use in late adolescence, when youth are typically most vulnerable to these disorders and behaviors.

Published today in *JAMA Pediatrics*, this study analyzed data from the ongoing [Adolescent Brain Cognitive Development \(ABCD\) Study](#) (link is external), the largest long-term study of brain development and health in children and teens in the United States, which is supported by NIDA and nine other Institutes, Centers, and Offices of the NIH. The study was conducted by scientists at Washington University in St. Louis.

These findings add to an expanding body of research on the effects of cannabis use during pregnancy. A [previous analysis](#) (link is external) using baseline data from the ABCD Study found an association between prenatal cannabis exposure and behavioral problems in these children at 9 to 10 years of age. Preclinical studies have shown that delta-9-tetrahydrocannabinol (THC), the main psychoactive substance in cannabis, can cross the placenta and potentially affect brain development.

Cannabis use among pregnant women [increased](#) from 3% in 2002 to 7% in 2017. In 2018, 4.7% of pregnant women

reported cannabis use and 5.4% did in 2019, according to the [National Survey on Drug Use and Health](#) (link is external). The results of this new analysis further support caution against using cannabis during pregnancy, the authors say.

The ABCD Study tracks nearly 12,000 youth as they grow into young adults. Investigators regularly measure participants' brain structure and activity using magnetic resonance imaging (MRI), and collect psychological, environmental, and cognitive information, as well as biological samples. The ABCD Study seeks to understand the factors that influence brain, cognitive, and social-emotional development, with the ultimate goal of providing actionable information to help educators, health professionals, and policymakers improve the lives of all children, today and for generations to come.

The Adolescent Brain Cognitive Development Study and ABCD Study are registered trademarks and service marks, respectively, of the U.S. Department of Health and Human Services.

Article

DAA Baranger, et al. [Association of Mental Health Burden With Prenatal Cannabis Exposure From Childhood to Early Adolescence](#): (link is external) [Longitudinal Findings From the Adolescent Brain Cognitive Development \(ABCD\) Study](#) (link is external). *JAMA Pediatrics*. DOI: 10.1001/jamapediatrics.2022.3191

Who

Nora D. Volkow, M.D., director, NIDA

Gaya Dowling, Ph.D., director ABCD Study, NIDA

For more information on substance and mental health treatment programs in your area, call the free and confidential National Helpline (link is external) *1-800-662-HELP (4357) or visit* <https://www.findtreatment.gov> (link is external).

About the National Institute on Drug Abuse (NIDA): NIDA is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug use and addiction. The Institute carries out a large variety of programs to inform policy, improve practice, and advance addiction science. For more information about NIDA and its programs, visit <https://www.nida.nih.gov/>.

About the National Institutes of Health (NIH): NIH, the nation's medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the

primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

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:

- Connect with other AAP members who share your interests in improving effective drug therapies and devices in children.
- 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 technol-

ogy; 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:

Christopher Rizzo, MD, FAAP, Chair, crizzo624@gmail.com

Mitchell Goldstein, MD, FAAP, Immediate Past Chair, MGoldstein@llu.edu and

Jackie Burke

Sections Manager

AAP Division of Pediatric Practice

Department of Primary Care and Subspecialty Pediatrics

630.626.6759

jburke@aap.org

Dedicated to the Health of All Children

###

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

Worse anxiety, depression symptoms in pregnant women with epilepsy

Stanford-led study gives new insight into how epilepsy, pregnancy and symptoms of mood disorders interact.

August 17, 2022 - By Erin Digitale

Women with epilepsy experience more anxiety and depression symptoms during and after pregnancy than other women, according to a new study led by researchers at Stanford Medicine.

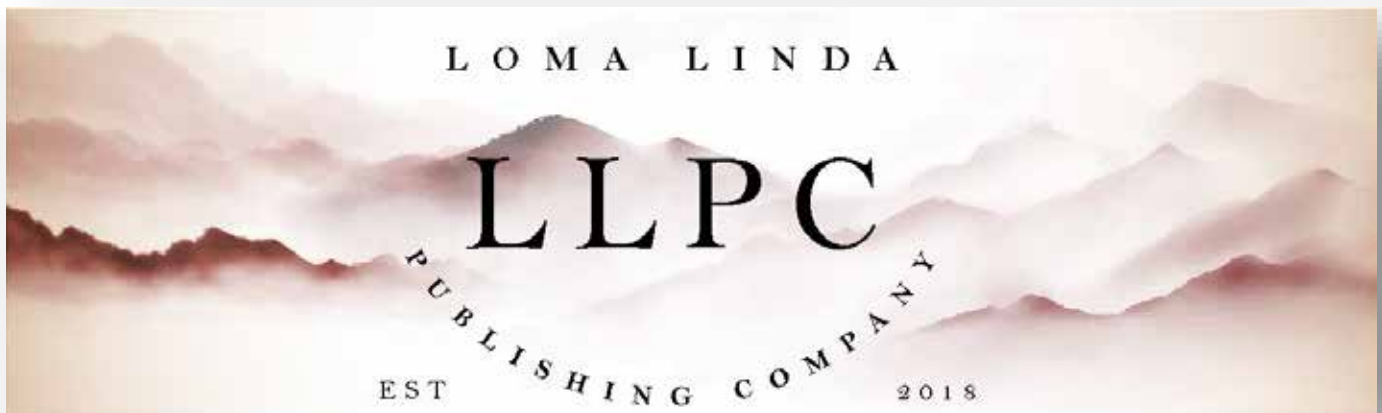
The study will be published online Aug. 17 in *Neurology*[®], the medical journal of the American Academy of Neurology. The study, which tracked more than 300 women with epilepsy during and after their


pregnancies, expands researchers' knowledge of how epilepsy interacts with mental health conditions. Scientists already knew that having epilepsy puts people at greater risk for depression, and vice versa, likely due to overlap in the brain networks involved in the two disorders. Pregnancy and the postpartum period are also well-known triggers of depression and anxiety. But the intersection of all three states — pregnancy, epilepsy and mood disorders — was poorly understood.

"We found that women with epilepsy have increased risk for mood and anxiety disorders during pregnancy," said Kimford Meador, MD, professor of neurology at the Stanford School of Medicine. "This makes it more important to monitor their well-being while they are pregnant."

Meador shares lead authorship of the study with Zachary Stowe, MD, of the University of Wisconsin at Madison.

Metabolism of anti-seizure drugs speeds up during pregnancy, which can leave patients with much less medication circulating in their blood than usual. Dosage adjustments are needed to prevent breakthrough seizures — and the new study adds protection of patients' mental health to the





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

COURSE PARTICIPANT

Learn How Now

validated online NICU staff education

WWW.MYNICUNETWORK.ORG

My NICU Network
My Perinatal Network



National Perinatal
Association



NICU Parent
Network

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

reasons this is prudent, since it found that having more seizures was linked to risk for experiencing major depression during pregnancy.

Tracking mental health

The study, conducted at 20 epilepsy centers across the United States, included 331 women with epilepsy who were recruited during the first half of pregnancy and followed until nine months after birth. Researchers also recruited two control groups: 102 healthy pregnant women, and 102 non-pregnant women with epilepsy who took part in the study for the same length of time.

Participants completed questionnaires assessing their symptoms of depression and anxiety six times, once every three months during pregnancy and the first nine postpartum months. Those with high scores on depression questionnaires were assessed for a current major depressive episode using a more detailed, structured interview.

Participants reported their age, marital status, education level, household income, whether their pregnancy was planned, whether they had ever been diagnosed with a mood or anxiety disorder, and whether they were using antidepressant medication. Women with epilepsy also reported the anti-seizure medication(s) they were using and the frequency and severity of their seizures.

Although the proportion of women who met formal criteria for major depression did not differ between groups, pregnant women with epilepsy had more and worse depression symptoms. This was true when they were compared with non-pregnant women with epilepsy throughout the study. Pregnant women with epilepsy also had worse postpartum depression symptoms than healthy pregnant women. Among pregnant women with epilepsy, taking multiple anti-seizure medications at once and having more than one seizure every 90 days — both indications of more severe epilepsy — as well as having a lifetime history of mood disorders and having an unplanned pregnancy were all linked to greater risk for a major depressive episode during the study.

Pregnant women with epilepsy also had worse anxiety symptoms than both control groups at all time points in the study. In both groups of pregnant women, anxiety symptoms decreased after giving birth. Higher anxiety scores and lifetime history of a mood disorder were also linked to greater risk of suicidal ideation, although suicidal ideation was infrequent in all groups and did not differ significantly between groups of participants.

The findings emphasize the need for men-

tal-health screening and care throughout pregnancy and the postpartum period. However, women with epilepsy should feel reassured that with the right care, they can have successful pregnancies, Meador said, adding that medical knowledge regarding epilepsy and pregnancy has improved significantly since the first half of the 20th century, when women with epilepsy were discouraged from becoming pregnant.

Ideally, women with epilepsy can work with their doctors before becoming pregnant to ensure they are taking an anti-seizure medication that is safe for pregnancy, and can receive care for anxiety or depression if needed via such treatments as cognitive behavioral therapy or antidepressant medications. A few antidepressants, such as bupropion, marketed as Wellbutrin, are poor options in epilepsy because they lower the seizure threshold, Meador noted, but most antidepressants can be taken safely by people with epilepsy.

“Women with epilepsy are at some increased risk for problems during pregnancy,” Meador said. “But with good health care, the large majority will have a normal pregnancy and a normal child.”

Meador is a member of Stanford Bio-X, the Stanford Maternal and Child Health Research Institute, and the Stanford Wu Tsai Neurosciences Institute.

The research was funded by the National Institutes of Health, the National Institute of Neurological Disorders and Stroke, and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (grant U01-NS038455).

Scientists from Emmes Company, the University of Southern California, Brigham & Women’s Hospital, Harvard Medical School, Northwestern University, Minnesota Epilepsy Group, Emory University, the University of Cincinnati, and the University of Pittsburgh also contributed to the research.

Erin Digitale is the pediatrics science writer in the Office of Communications. Email her at digitale@stanford.edu.

Media Contacts

Erin Digitale

Tel 650-724-9175

digitale@stanford.edu

NT

Infant BCG vaccination is beneficial, but not sufficient

The Lancet Global Health, Volume 10, Issue 9, E1220-E1221, September 1, 2022

Mark Hatherill, Frank Cobelens

Infant BCG vaccination is beneficial, but not sufficient. In *The Lancet Global Health*, Leonardo Martinez and colleagues¹ report the findings of a participant-level meta-analysis of 26 cohort studies of 68552 individuals, all of whom lived in countries that recommend BCG vaccination at birth and were evaluated for tuberculosis for at least 6 months after household or close exposure to a person with tuberculosis. The analysis included 1782 participants who developed tuberculosis and illustrates the value of collaborative data sharing to answer important questions about infrequent disease outcomes. This meta-analysis of observational studies done within the past 20 years confirms much of what was known about the effectiveness and durability of protection offered by infant BCG vaccination from historical randomised controlled trials (RCTs).² Infant BCG vaccination was 37% effective against all forms of tuberculosis in children younger than 5 years and 42% effective against pulmonary disease in children younger than 3 years, but did not offer protection to adolescents or adults after close exposure. There should be little debate about the effectiveness of infant BCG vaccination against tuberculosis in early childhood and particularly against the most severe forms of disease, including disseminated or miliary tuberculosis and tuberculosis meningitis.² The effectiveness of BCG vaccination against all tuberculosis seems to be lower in this meta-analysis of observational studies than in historical RCTs, even among young children, which might be due to selection bias. Contacts would have been enrolled from months to years after BCG vaccination, which could have led to a cohort that did not include the most clinically vulnerable, who would have died before enrolment started. If that

vulnerability was associated with poor access to BCG vaccination, the tuberculosis incidence among unvaccinated contacts could have been underestimated. Notwithstanding this possibility, the results also provide indirect support for the hypothesis that modern attenuated BCG vaccine strains might offer less protection against tuberculosis than the original strains used in early trials.³ Although the meta-analysis did not show significant protection against extrapulmonary disease, it would be important to disaggregate tuberculosis meningitis from mild forms of extrapulmonary disease, such as tuberculosis lymphadenopathy. It is not possible to draw conclusions from these data about the relative contribution of BCG vaccination to protection against *Mycobacterium tuberculosis* infection after exposure versus progression from infection to tuberculosis disease, in part due to the composite definition of M tuberculosis infection that included both IFN γ release assay or tuberculin skin test positivity, with skin test positivity potentially being induced by BCG vaccination.⁴ However, the finding that BCG vaccination was 32% effective in children younger than 5 years with a positive IFN γ release assay or tuberculin skin test is at least consistent with protection against progression from infection to tuberculosis disease. There remains some debate about the durability of BCG vaccine-induced protection beyond childhood. The findings of Martinez and colleagues, which did not show protection against tuberculosis among children aged 5 years or older, adolescents, or adults, accord with studies showing waning effectiveness 10–15 years after infant vaccination,⁵ although notable exceptions have reported long-term protection lasting several decades.⁶ There is also considerable debate about whether vaccinating older children, adolescents, and adults, and particularly those with previous M tuberculosis sensitisation (IFN γ release assay or tuberculin skin test positivity), with BCG offers any protection against tuberculosis;² the dataset used by Martinez and colleagues comprised individuals in settings that recommend BCG vaccination in infancy and so could not address this crucial question. Perhaps the most surprising finding from this metaanalysis is that BCG vaccination was consistently and highly protective against death ($\geq 80\%$ effectiveness) until 14 years of age in the four studies reporting mortality outcomes. These findings are consistent with reports of BCG vaccine-associated reductions in mortality

that appeared greater than the expected reduction in mortality from the prevention of deaths caused by tuberculosis among children younger than 5 years.⁷ It is tempting to ascribe the result to the benefits of trained immunity, whereby the functional reprogramming of innate immune cells by infant BCG vaccination results in non-specific, off-target protection against other pathogens.⁸ BCG vaccination has been shown to protect against experimental viral infection⁹ and to reduce mortality caused by infections in infants with low birthweights,¹⁰ but the magnitude and durability of the non-specific benefits of infant BCG vaccination remain unclear. Given the non-randomised exposure to BCG vaccination in the observational studies included in the meta-analysis and the unexpectedly large and durable mortality benefit, these data should be interpreted with caution. It is perhaps more likely that unmeasured factors associated with access, or the lack of access, to BCG vaccination in infancy contributed to long-term differences in individual mortality risk. For example, the mortality benefit might have been confounded by the HIV status of the contacts; among the 34 children younger than 15 years who died, the majority of deaths occurred in Africa in settings with a high HIV burden before the scale-up of antiretroviral treatment. The findings of this meta-analysis reinforce a consistent message for the community developing tuberculosis vaccines: infant BCG vaccination protects young children against tuberculosis, but waning effectiveness results in little or no protection against adult-type cavitary disease, which is primarily responsible for M tuberculosis transmission. A new tuberculosis vaccine strategy, one that offers either durable protection from childhood to adulthood or effective protection to adults who receive boosters, is urgently needed to impact the global tuberculosis pandemic.

We declare no competing interests.

Copyright © 2022 The Author(s). Published by Elsevier Ltd.

This is an Open Access article under the CC BY 4.0 license.

*Mark Hatherill, Frank Cobelens mark.hatherill@uct.ac.za

South African Tuberculosis Vaccine Initiative, Institute of Infectious Disease and Molecular Medicine (MH) and Division of Immunology, Department of Pathology (MH), University of Cape Town, Cape Town 7925, South Africa; Department of Global Health, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands (FC); Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands (FC)

1. Martinez L, Cords O, Liu Q, et al. Infant BCG vaccination and risk of pulmonary and extrapulmonary tuberculosis throughout the life course: a systematic review and individual participant data meta-analysis. *Lancet Glob Health* 2022; 10: e1307–16.

2. Mangtani P, Abubakar I, Ariti C, et al. Protection by BCG vaccine against tuberculosis: a systematic review of randomized controlled trials. *Clin Infect Dis* 2014; 58: 470–80.

3. Behr MA, Small PM. Has BCG attenuated to impotence? *Nature* 1997; 389: 133–34.

4. Roy A, Eisenhut M, Harris RJ, et al. Effect of BCG vaccination against *Mycobacterium tuberculosis* infection in children: systematic review and meta-analysis. *BMJ* 2014; 349: g4643.

5. Abubakar I, Pimpin L, Ariti C, et al. Systematic review and meta-analysis of the current evidence on the duration of protection by bacillus Calmette-Guérin vaccination against tuberculosis. *Health Technol Assess* 2013; 17: 1–372, v–vi.

6. Aronson NE, Santosham M, Comstock GW, et al. Long-term efficacy of BCG vaccine in American Indians and Alaska Natives: a 60-year follow-up study. *JAMA* 2004; 291: 2086–91.

7. Higgins JP, Soares-Weiser K, López-López JA, et al. Association of BCG, DTP, and measles containing vaccines with childhood mortality: systematic review. *BMJ* 2016; 355: i5170.

8. Kleinnijenhuis J, Quintin J, Preijers F, et al. Long-lasting effects of BCG vaccination on both heterologous Th1/Th17 responses and innate trained immunity. *J Innate Immun* 2014; 6: 152–58.

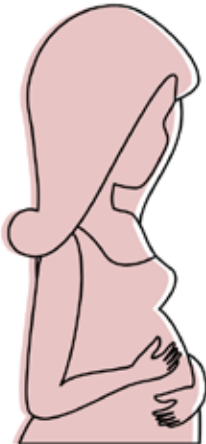
9. Arts RJW, Moorlag SJCFM, Novakovic B, et al. BCG vaccination protects against experimental viral infection in humans

through the induction of cytokines associated with trained immunity. Cell Host Microbe 2018; 23: 89–100.e5. 10 Aaby P, Roth A, Ravn H, et al. Randomized trial of BCG vaccination at birth to low-birth-weight children: beneficial nonspecific effects in the neonatal period? J Infect Dis 2011; 204: 245–52.


NT

NATIONAL PERINATAL ASSOCIATION

Update: **CORONAVIRUS**
COVID-19



According to data published in The Lancet
Pregnancy and the risk of VERTICAL TRANSMISSION
LOW

 National Perinatal Association

www.nationalperinatal.org

PROTECT YOUR FAMILY FROM RESPIRATORY VIRUSES

flu

coronavirus

pertussis

RSV



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



Genetics Corner: Menkes Disease in an Infant who Presented with Recurrent Infections

Robin Dawn Clark MD

Case History:

A 3 ½-month-old male was admitted for emesis, hypotonia, worsening baseline congestion, decreased urine output, and respiratory distress. He was diagnosed with *Moraxella* pneumonia and treated with Rocephin for seven days. He had a positive blood culture for *Staphylococcus epidermidis* and *Streptococcus mitis*, for which he was treated with vancomycin. He had been previously admitted at approximately two months of age for COVID pneumonia. A genetics consultation was requested for thrombocytopenia, low T cells, and recurrent infections.

“He had a positive blood culture for Staphylococcus epidermidis and Streptococcus mitis, for which he was treated with vancomycin. He had been previously admitted at approximately two months of age for COVID pneumonia. A genetics consultation was requested for thrombocytopenia, low T cells, and recurrent infections.”

He had normocytic anemia (Hgb trending down, 8.2-7.7, with normal MCV, possibly of iatrogenic origin), thrombocytopenia (43-128K), low T cells (CD4 39%, normal range 50-57%; CD4 count 831, normal range 2,800-3900, CD3 count 1,448, normal range 3,500-5,000). IgA and IgM were elevated, but IgE and IgG were normal. A brain MRI revealed stable widening of the bifrontal extra-axial fluid spaces without intracranial hemorrhage, likely representing benign enlargement of subarachnoid space in infancy. There was a left middle cranial fossa arachnoid cyst and brachycephaly. Other problems included chronic eczema, gross motor delay, poor head control, right inguinal hernia, pectus excavatum, GERD, and fair, friable hair. His parents were of Hispanic

(Mexican) ancestry. The mother also had fair hair. The family history was negative for consanguinity and was non-contributory.

He was born at 35 weeks gestation and was described by his mother as being a “floppy” baby.

The physical exam revealed an alert, smiling, pale infant with generalized hypotonia and a paucity of spontaneous movement. He had brachycephaly with fair, sparse scalp hair. There was no hair on the occiput. The facial features were nonspecific and dysmorphic: shallow orbits, short nose, anteverted nares, and a small mouth. He had a mild pectus excavatum. There was an eczematous rash in the skin folds around the neck, the antecubital fossae, and the right groin. He made good eye contact. His muscle mass was diminished throughout, and he had poor to no head control.

A chromosome microarray was normal. A gene panel for primary immunodeficiency disorders was negative. Still, reflex testing for whole exome sequencing (WES) resulted after his discharge: a *de novo* pathogenic variant in the X-linked gene responsible for Menkes disease, **ATP7A: c.2770C>T**. At 7 ½ months, copper and ceruloplasmin levels were both low: copper 16 mcg/dL (normal range 24-152); ceruloplasmin 10 mg/dL (15 - 48).

“A chromosome microarray was normal. A gene panel for primary immunodeficiency disorders was negative. Still, reflex testing for whole exome sequencing (WES) resulted after his discharge: a de novo pathogenic variant in the X-linked gene responsible for Menkes disease, ATP7A: c.2770C>T. At 7 ½ months, copper and ceruloplasmin levels were both low: copper 16 mcg/dL (normal range 24-152); ceruloplasmin 10 mg/dL (15 - 48).”

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

Discussion:

This infant with Menkes disease (MD) presented with recurrent infections, thrombocytopenia, and low T cells. The initial concern for an immune deficiency disorder may have prolonged the diagnostic process. In retrospect, other aspects, especially his sparse fair hair, were important clues to his diagnosis that were overlooked.

Menkes disease is a rare X-linked disorder of copper metabolism caused by a variant in *ATP7A*. (1) This gene encodes MNK, an essential copper transporting ATPase localized to the trans-Golgi network. Without MNK protein, copper cannot be absorbed from the gut. This leads to reduced activity of copper-dependent enzymes such as dopamine-beta-hydroxylase and lysyl oxidase. Most affected infants with MD are male, although some females with skewed X-inactivation or X-autosome chromosome translocations are rarely reported. About 1/3 of affected males do not have a positive family history of the disorder, as in this case.

Infants with MD appear healthy until 1 1/2 - 3 months, when they lose developmental milestones, fail to thrive, and classically present with hypotonia and seizures. Their hair is short, friable, sparse, kinky (pili torti) and lightly pigmented. Without treatment, there is an inexorable decline in neurologic function leading to early death, often by age 3.

“The early features of MD are nonspecific, which makes it difficult to diagnose in the newborn period. Although newborns with MD are more often preterm (34%), low birth weight (33%), or both (19%), more than half of patients with MD deliver normally without complications.”

The early features of MD are nonspecific, which makes it difficult to diagnose in the newborn period. Although newborns with MD are more often preterm (34%), low birth weight (33%), or both (19%), more than half of patients with MD deliver normally without complications. (2) During the neonatal period (<1 month), 29% of the patients reported by Fujisawa had abnormal hair growth, 24% had prolonged jaundice, 17% had feeding difficulties, 15% had hypothermia, 13% had hypotonia, and 3% experienced seizures. These signs and symptoms became more prevalent with time. Only 3/64 of the affected Japanese patients without a family history of MD visited a physician in the first month of life. Al-

Table 1. Serum concentrations of copper and ceruloplasmin at diagnosis.

	0–3 months of age		>3 months of age	
	Menkes disease ^a (n = 8)	Control ^b	Menkes disease (n = 52)	Control
Copper (µg/dL)	16.4 ± 7.4 (8–30)	20–70	6.9 ± 3.4 (3–12)	75–150
Ceruloplasmin (mg/dL)	6.9 ± 3.4 (3–12)	5–20	7.4 ± 3.3 (2.8–20)	20–45

Caption: From Table 1 in Fujisawa et al. (2022)(2). ^aData represent mean ± standard deviation; the range (minimum-maximum) is shown in parentheses. ^bControl values are based on the data from Kaler and DiStasio. (1)

though these three patients had symptoms (hair abnormalities, hypothermia, prolonged jaundice) during the neonatal period, the diagnosis of MD was not considered then. Among the cohort of 64 patients with MD, the mean age of diagnosis was 8.7 months, similar to our patient.

Although copper and ceruloplasmin levels are lower in newborns with MD, the values are not always diagnostic in the first few months of life because copper and ceruloplasmin are low in the newborn period, even among healthy newborns. As shown in Table 1, (2) the values for copper and ceruloplasmin in affected and healthy infants overlap in the first three months, with almost no overlap after three months of age:

“Although copper and ceruloplasmin levels are lower in newborns with MD, the values are not always diagnostic in the first few months of life because copper and ceruloplasmin are low in the newborn period, even among healthy newborns.”

In MD, systemic copper deficiency suppresses the immune response. As our patient demonstrated, increased susceptibility to infection, especially pulmonary, urinary and systemic infections, is a feature of Menkes disease. Secondary neutropenia and humoral immunodeficiency are the most likely reason for increased susceptibility to infections in MD. Bhat *et al.* found low levels of natural killer T cells in a child with MD. (3) White *et al.* showed that silencing *ATP7A* expression attenuated bacterial killing, suggesting a role for *ATP7A*-dependent copper transport in the bactericidal activity of macrophages. (4)

Early treatment for MD with subcutaneous Copper Histidinate (CuHis) enhances survival and improves neurodevelopmental outcomes in MD. (1) CuHis received FDA FastTrack (2018) and Breakthrough (2020) designations from the US Food and Drug Administration. The European Medicines Agency Committee for Orphan Medicinal Products issued a positive opinion for an Orphan Drug Designation in 2020. CuHis treatment is currently available for individuals with Menkes disease in the United States through an expanded access clinical trial (NCT04074512). Our patient is enrolling in that trial. For updated preliminary results on subcutaneous CuHis treatment for Menkes disease, click [here](#). The type and severity of the *ATP7A* pathogenic variant may partly

influence response to early copper treatment. For maximum effectiveness, CuHis treatment should be started within four weeks of birth (corrected for prematurity/gestational age), which makes the early diagnosis of MD critically important.

“Newborn screening for Menkes disease is not included in the current Recommended Uniform Screening Panel(5), a list of disorders that the United States Secretary of the Department of Health and Human Services (HHS) recommends for states to screen as part of their state universal newborn screening (NBS) programs.”

Newborn screening for Menkes disease is not included in the current Recommended Uniform Screening Panel(5), a list of disorders that the United States Secretary of the Department of Health and Human Services (HHS) recommends for states to screen as part of their state universal newborn screening (NBS) programs. Nevertheless, the feasibility of diagnosing MD through NBS has been demonstrated using a 544 gene panel designed for rapid genomic diagnostic evaluation of common phenotypes in newborns. Using this gene panel, Parad *et al.* applied next-generation sequencing in a blinded fashion to 22 dried blood spots from individuals known to have MD. They detected pathogenic variants in *ATP7A*, including copy number variants, in 95% of the affected patients (21/22).⁽⁶⁾

“Because the early signs of Menkes disease are underappreciated and nonspecific, newborn screening offers the best hope for its early diagnosis and treatment. Until then, the astute clinician should consider this diagnosis in males with fuzzy hair, frequent infections, failure to thrive, poor feeding or unexplained hypotonia.”

Early diagnosis of MD in a sporadic (nonfamilial) case is rare. The combination of sparse, friable, and depigmented hair and hypotonia, common signs of MD in the newborn, do not demand urgent medical intervention. Because our patient presented at 3 ½ months of age, his diagnosis was not established within the optimal time period to initiate CuHis treatment. Eventually, it became clear that important clues to his diagnosis had been missed

early in the course of his disease: his fair friable hair had not been appreciated as an important sign (pili torti). The family had downplayed it because his mother also had fair hair, and his hypotonia had been demoted to a secondary finding, a consequence rather than a cause of his multiple infections. When we framed his phenotype to conform to our expected diagnosis of primary immunodeficiency, it further delayed the diagnosis. A WES first approach was probably warranted in a delayed infant with multiple infections and failure to thrive.

Because the early signs of Menkes disease are underappreciated and nonspecific, newborn screening offers the best hope for its early diagnosis and treatment. Until then, the astute clinician should consider this diagnosis in males with fuzzy hair, frequent infections, failure to thrive, poor feeding or unexplained hypotonia.

Practical applications:

1. Remember that Menkes disease is not included in current Newborn screening protocols, so early diagnosis of this disorder relies on suspicion of an astute clinician. Consider Menkes disease in male newborns with nonspecific features of hypotonia, prolonged jaundice, hypothermia, or feeding problems, especially when scalp hair is kinky, sparse, fragile, or depigmented.
2. Recognize that serum copper and ceruloplasmin are lower in newborns with Menkes disease than in healthy newborns. Still, these values overlap because copper and ceruloplasmin are naturally lower in all infants in the first three months of life.
3. Understand that copper deficiency impairs the immune system, and infants with MD can present with recurrent infections.
4. Appreciate the importance of early diagnosis of Menkes disease and the benefits of starting treatment with copper-histidinate (CuHis) in the newborn period.

References:

1. Kaler SG, DiStasio AT. *ATP7A-Related Copper Transport Disorders*. 2003 May 9 [updated 2021 Apr 15]. In: Adam MP, Everman DB, Mirzaa GM, Pagon RA, Wallace SE, Bean LJH, Gripp KW, Amemiya A, editors. *GeneReviews*[®] [Internet]. Seattle (WA): University of Washington, Seattle; 1993–2022. PMID: 20301586.
2. Fujisawa C, Kodama H, Sato Y, Mimaki M, Yagi M, Awano H, Matsuo M, Shintaku H, Yoshida S, Takayanagi M, Kubota M, Takahashi A, Akasaka Y. Early clinical signs and treatment of Menkes disease. *Mol Genet Metab Rep*. 2022 Feb 17;31:100849. doi: 10.1016/j.ymgmr.2022.100849. PMID: 35242581; PMCID: PMC8861833.
3. Bhat JN, Maertens P. Low function of natural killer cells in treated classic Menkes disease. *Turk J Pediatr*. 2020;62(3):498-500. doi: 10.24953/turkjp.2020.03.021. PMID: 32558428.
4. White C, Lee J, Kambe T, Fritsche K, Petris MJ. A role for the *ATP7A* copper-transporting ATPase in macrophage bactericidal activity. *J Biol Chem*. 2009 Dec 4;284(49):33949-56. doi: 10.1074/jbc.M109.070201. Epub 2009 Oct 5. PMID: 19808669; PMCID: PMC2797165.
5. <https://www.hrsa.gov/advisory-committees/heritable-disorders/rusp>
6. Parad RB, Kaler SG, Mauceli E, Sokolsky T, Yi L, Bhat-

tacharjee A. Targeted next generation sequencing for newborn screening of Menkes disease. *Mol Genet Metab Rep*. 2020 Jul 21;24:100625. doi: 10.1016/j.ymgmr.2020.100625. PMID: 32714836; PMCID: PMC7378272.

Disclosures: The authors have no disclosures

NT

Corresponding Author



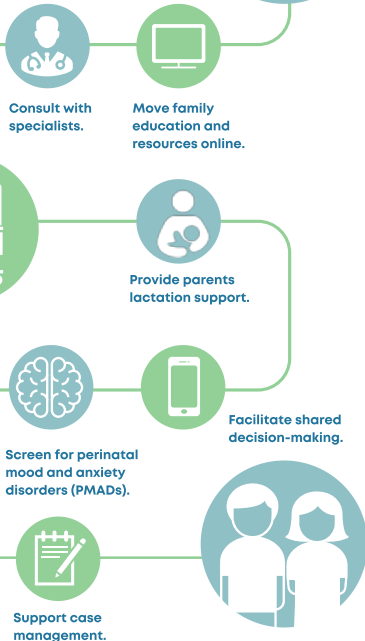
Robin Clark, MD
Professor, Pediatrics
Loma Linda University School of Medicine
Division of Genetics
Department of Pediatrics
Email: rclark@llu.edu

Telehealth in the NICU

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

Use technology to help parents bond with their babies when they can't be bedside.

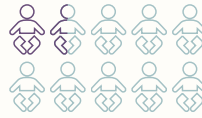
The move to telehealth services can compound inequities and disparities. Assess each family's technology skills and needs - including the need to use their preferred language.



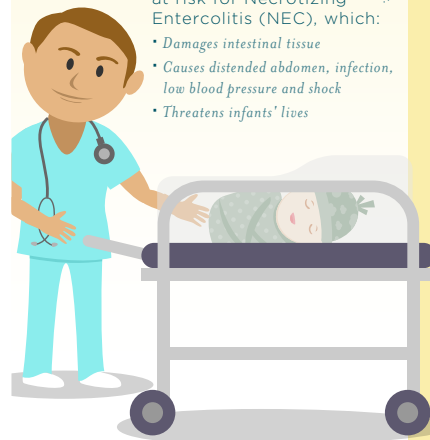
My Perinatal Network and My NICU Network are products of a collaboration between National Perinatal Association (NPA) and NICU Parent Network (NPN).

myNICUnetwork.org

Why PREMATURE INFANTS Need Access to an EXCLUSIVE HUMAN MILK DIET



In the United States, more than **1 IN 10** BABIES ARE BORN PREMATURE. Micro preemies are born severely premature, weighing less than 1,250 grams.

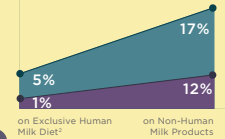


MICRO PREMIES are at risk for Necrotizing Enterocolitis (NEC), which:

- Damages intestinal tissue
- Causes distended abdomen, infection, low blood pressure and shock
- Threatens infants' lives

NEC occurrence increases when a preemie consumes non-human milk products.

When that happens:



30% of micro preemies needing surgery will die from NEC†

HOW TO HELP PREVENT NEC: EXCLUSIVE HUMAN MILK DIET

What is an Exclusive Human Milk Diet?

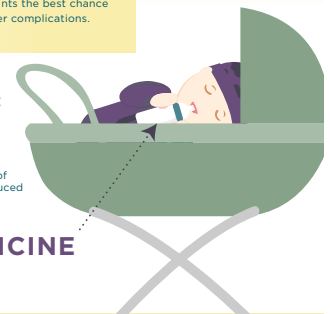


- ✓ mother's milk
- ✓ human donor milk
- ✓ human milk-based fortifier

Why Is An Exclusive Human Milk Diet Important?

An Exclusive Human Milk Diet gives vulnerable infants the best chance to be healthy and reduces the risk of NEC and other complications.

When a micro preemie can access an EXCLUSIVE HUMAN MILK DIET:



HUMAN MILK = MEDICINE

LEARN MORE >

NCFIH National Coalition for Infant Health
Preventing Injuries for Perinatal Infants through Age Two

* Hair AB, et al. "Beyond Necrotizing Enterocolitis Prevention: Improving Outcomes with an Exclusive Human Milk-Based Diet." *Resuscitating Medicine*. DOI: 10.1089/rev.2015.0124
 † Abrams SA, et al. "Greater Mortality and Morbidity in Extremely Preterm Infants Fed a Diet Containing Cow Milk Protein Products." *Resuscitating Medicine*. July/August 2014; 9(6): 281-285
 ‡ Hall MA, et al. "Mortality and management of surgical necrotizing enterocolitis in very low birth weight neonates: a prospective cohort study." *J Am Coll Surg*. 2014 Jun;218(6):1148-55.
 § Asaad M, Elliott AJ and Abraham JB. "Increased oral and improved feeding tolerance in VLBW infants fed an exclusive human milk diet." *Journal of Perinatology* advance online publication: 12 November 2015. DOI: 10.1093/jp.2015.188



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:



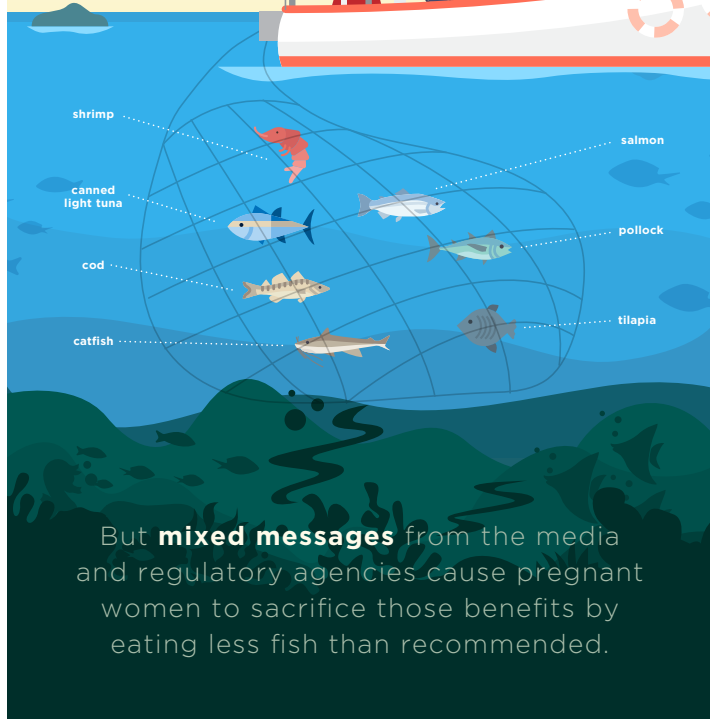
Iron



Omega 3 fatty acids



Earlier Milestones for Babies



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



Did you know that
PMAD
related suicides
account for

20%

of Postpartum
Maternal Deaths?

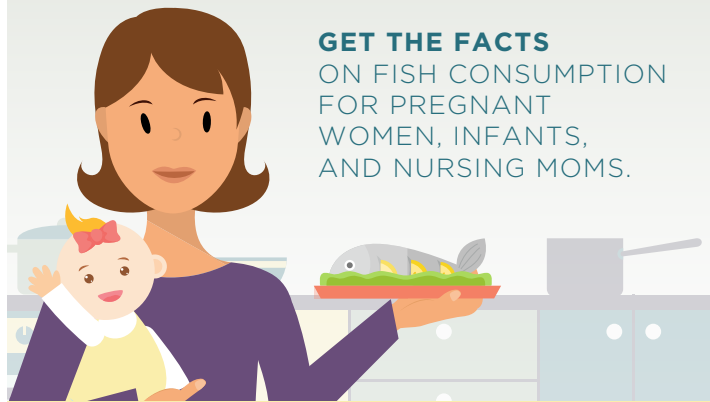
Join  **NPA**

nationalperinatal.org/mental_health

**Support the
Open Letter**



**Breastfeeding
Innovations
Team**



GET THE FACTS
ON FISH CONSUMPTION
FOR PREGNANT
WOMEN, INFANTS,
AND NURSING MOMS.

NCfIH National Coalition
for Infant Health

Protecting Access for Premature Infants through Age Two

LEARN MORE ▶

Featured Conference: Section on Neonatal-Perinatal Medicine Agenda for the 2022 AAP-NCE in Anaheim, CA

Lily J. Lou, MD, FAAP



Section of Neonatal Perinatal Medicine: Opening Session Organization Meetings and Keynote Lectures

Friday, October 7, 2022 8:00AM-6:00PM
PDT

8:00 AM to 4:00 PM	Organization of Neonatal Training Program Directors (ONTPD) Meeting
12:00 PM to 1:00 PM	ONTPD and TECaN Lunch <i>Sponsored by Mead Johnson Nutrition</i>
1:00 PM to 4:00 PM	MIDCaN Meeting
1:00 PM to 4:00 PM	Clinical Leaders Group Meeting
4:00 PM	Welcome and Opening Remarks <i>Michael Posencheg, M.D. – Program Chair</i>
4:10 PM	Thomas Cone Lectureship <i>Title: “Emerging infections then and now: my pandemic journey” Speaker: Anne Schuchat, M.D.</i> <i>Presenter: Lily Lou, M.D. Sponsored by Abbott Nutrition</i>
5:05 PM	Keynote Address: Gerald Merenstein Lecture <i>Title: “Disparities in Neonatal Follow-Up: A Call to Action” Speaker: Andrea Duncan, M.D.</i> <i>Presenter: Lily Lou, M.D. Sponsored by Abbott Nutrition</i>
6:00 PM	Adjourn and Welcome Reception <i>Sponsored by Abbott Nutrition</i>

Joint Program: Section on Neonatal Perinatal Medicine and Section on Nephrology

Renal Issues in Term and Preterm Infants

Saturday, October 8, 2022 8:00AM – 12:00PM
PDT

8:00 AM	Introduction of Session <i>Moderators: Alexis Davis, M.D. and Stephanie Jernigan, M.D.</i>
8:05 AM	Maturation of Renal Function – Embryology, Genetics, and Definition of Renal Failure <i>Matthew Harer, M.D.</i>
8:50 AM	Acute Kidney Injury in Term and Preterm Infants - Baby NINJA <i>Christine Stoops, D.O.</i>

9:35 AM	Acute Interventions for Infants with AKI <i>Shina Menon, M.D.</i>
10:20 AM	Break
10:30 AM	Short- and Long-Term Outcomes in Infants with AKI <i>David Selewski, M.D.</i>
11:15 AM	Management of Hypertension in Preterm Infants <i>Michelle Starr, M.D.</i>
12:00 PM	Adjourn

Section of Neonatal Perinatal Medicine: Oral Abstract Presentation

Original Abstracts and Section Update

Saturday, October 8, 2022 1:00PM-5:15PM PDT

1:00 PM	Welcome and Opening Remarks <i>Michael Posencheg, M.D. – Program Chair</i> <i>Ravi Patel, M.D. – Abstract Chair</i>
1:05 PM	Scientific Abstract Oral Presentations (abstracts 1-5) – 15 minutes each <i>Moderators: John Loyd, M.D. and Maria Estefania Barbian, M.D.</i>
1:05pm	Abstract 1: Decreased CaMKKβ Signaling Leads to Down-regulation of PGC-1α Expression in Pulmonary Artery Endothelial Cells (PAECs) in Persistent Pulmonary Hypertension of the Newborn (PPHN) <i>Emily Callan, M.D.</i>
1:20pm	Abstract 2: The Role of Growth and Differentiation Factor 15 (GDF15) in Bronchopulmonary Dysplasia (BPD) and Neonatal Lung injury <i>Faeq Almudares, M.D.</i>
1:35pm	Abstract 3: Mesenchymal Stem Cell Biomarkers Prevent Neonatal Chronic Lung Disease via Suppression of Lung Inflammation <i>Smrithy Jacob, M.D.</i>
1:50pm	Abstract 4: Spring-Mediated Distraction Enterogenesis Alters the Course of Adaptation in Porcine Small Bowel Syndrome <i>Geoanna Bautista, M.D.</i>
2:05pm	Abstract 5: Randomized controlled trial evaluating the safety and efficacy of SMOFlipid vs Intralipid in hospitalized neonates and infants <i>Steven Abrams, M.D.</i>
2:20 PM	Presentation of Marshall Klaus Research Awards <i>Hendrick Weitkamp, M.D.</i>

2:35 PM	Break
2:45 PM	Scientific Abstract Oral Presentations (abstracts 6-10) – 15 minutes each <i>Moderators: Theresa Urbina, M.D. and Ravi Patel, M.D.</i>
2:45pm	Abstract 6: Umbilical Cord Milking in Non-Vigorous Infants: A Pragmatic Cluster- Randomized Crossover Trial <i>Anup Katharia, M.D.</i>
3:00pm	Abstract 7: Randomized Trial of 21%, 50%, and 100% Inspired Oxygen During Chest Compressions in Neonatal Resuscitation <i>Clariss Blanco, M.D.</i>
3:15pm	Abstract 8: Should we wait to initiate chest compressions when a newborn is born with no heart rate? an animal study in an ovine model of cardiac arrest <i>Arun Prasath, M.D.</i>
3:30pm	Abstract 9: Neonates have preserved hospitalization volume and indications for admission throughout the Coronavirus 2019 (COVID-19) pandemic <i>Daria Murosko. M.D.</i>
3:45pm	Abstract 10: Kangaroo Care as a Cultural Norm in Neonatal Intensive Care Unit: A 7- Year Regional Quality Improvement Project <i>Maria Fe Villosis, M.D.</i>
4:00 PM	SONPM Update and Awards <i>Lily Lou, M.D., SONPM Chairperson</i>
4:30 PM	Presentation of Virginia Apgar Award <i>Presenter: De-Ann Pillars, M.D. Awardee: Wanda Barfield, M.D.</i> <i>Sponsored by Abbott Nutrition</i>
4:45 PM	Presentation of Avroy Fanaroff Neonatal Education Award <i>Presenter: Clara Song, M.D. Awardee: Lou Halamek, M.D.</i> <i>Sponsored by Mead Johnson Nutrition</i>
5:00 PM	Presentation of the Neonatal Landmark Award <i>Presenter: Jonathan Davis, M.D. Awardee: Jacob Aranda, M.D. Sponsored by Mead Johnson Nutrition</i>
5:15 PM	Adjourn

Joint Program: Section on Neonatal Perinatal Medicine and Section on Pediatric Pulmonology and Sleep Medicine

Recent Advances in Prevention and Management of Bronchopulmonary Dysplasia (BPD)

Sunday, October 9, 2022 8:00AM-12:00PM PDT

08:00 AM	Introduction of Session and Announcement of Young Investigator Awards <i>Moderators: Wendy Timpson, M.D. and Emily DeBoer, M.D. Young Investigator Awards: Ravi Patel, M.D.</i>
08:05 AM	The Changing Landscape of BPD: Current Management Controversies <i>Erik Jensen, M.D.</i>

08:50 AM	Outpatient Management of BPD: Updated ATS Guidelines <i>Ioana Cristea, M.D.</i>
09:35 AM	Planning for Tracheostomy and Long-Term Ventilation in Infants with BPD <i>Christopher Baker, M.D.</i>
10:20 AM	Break
10:30 AM	Diagnosis and Management of Pulmonary Hypertension in Infants with BPD <i>Shazia Bhombal, M.D.</i>
11:15 AM	Nutritional Strategies to Optimize Growth in Infants with BPD: Implications for Neurodevelopmental Outcomes <i>Susan Lynch, M.D.</i>
12:00 PM	Adjourn



Corresponding Author



Lily J. Lou, MD, FAAP
 Chair, AAP Section on Neonatal-Perinatal Medicine
 Co-chair, SONPM Advocacy Committee
 Immediate Past Chair, AAP-Alaska Chapter
 Professor of Clinical Pediatrics
 Director of Government Relations
 University of Illinois at Chicago
 Division of Neonatology, MC 856
 Department of Pediatrics
 1253 CSB
 840 S. Wood St.
 Chicago, IL 60612
 Email: lilylou@uic.edu
 (312) 996-4185 office
 (907) 632-4378 cell



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

Book Review: Breathe, Baby, Breathe: A Book for Clinicians and Parents in the NICU

Annie Janvier, MD, PhD

My husband and I are neonatologists, baby doctors, but also the parents of three children, one of whom was born preterm at 24 weeks gestation. When she was born, Violette weighed only 670 grams (less than 1.5 pounds). The doctors and nurses were a little afraid of this pair of parents: we knew every test, every bit of clinical information, and every treatment. Nothing could escape our scrutiny, and the clinicians likely feared we would be pitiless judges of their actions. We had all the medical knowledge, certainly, but in fact, we knew nothing, nothing at all. When Violette was sick, so were we. When she was one month old, we had to plan her funeral. I was completely empty. I learned the meaning of devastation and emotional void.

“We had all the medical knowledge, certainly, but in fact, we knew nothing, nothing at all. When Violette was sick, so were we. When she was one month old, we had to plan her funeral. I was completely empty. I learned the meaning of devastation and emotional void.”

The book *Breathe, Baby, Breathe* is not a thesis explaining the scientific aspects of neonatology and intensive care for babies. The Internet is full of statistics and has thousands of scientific articles on sick babies. I have written quite a few myself. I knew all the science. But knowing how a respirator works did not help me be the mom of a baby on a respirator. This book is about patience, becoming a parent, resilience, and transformation. These are stories of courageous families, and this is also our story.

I have always liked talking with the parents of my little patients. Throughout my career, I have spoken to them about things I have

rarely spoken about with my own family or best friends: the meaning of life, death, faith; whether to embrace religion, reject it, or continue to ignore it; the fears, the guilt, the uncertainty. And it was these parents who helped me become a mother when I found myself at Violette’s bedside.

“Seeing your child in critical condition, her life hanging by a thread (and some tubes!), has nothing to do with knowing and controlling. It’s about letting go, waiting, hoping, no longer being in control, and compartmentalizing your brain.”

Their stories took on a new meaning. This had nothing to do with the scientific or academic knowledge I had mastered so well. It was no longer a matter of theoretical knowledge nor of that automatic action-reaction mechanism that governed me as a doctor. It was the complete opposite. Seeing your child in critical condition, her life hanging by a thread (and some tubes!), has nothing to do with knowing and controlling. It’s about letting go, waiting, hoping, no longer being in control, and compartmentalizing your brain. The words of those parents came back to me concerning what I was experiencing, and I repeated them out loud. Those parents essentially saved me from drowning. Their stories taught me that I was not crazy, incompetent, or a bad parent.

“Before Violette’s birth, I had seen many parents who were, like me, tottering through the unit, hunched over, their eyes dull, dazed from hearing bad news, again and again, wondering if it all would end someday. Parents were afraid of calling because they did not want to hear bad news; parents were plunged into anxiety every time the phone rang—parents who felt guilty for not calling.”

Before Violette’s birth, I had seen many parents who were, like me, tottering through the unit, hunched over, their eyes dull, dazed

New subscribers are always welcome!

NEONATOLOGY TODAY

To sign up for a free monthly subscription, just click on this box to go directly to our subscription page



breathe,

baby,

breathe!

NEONATAL
INTENSIVE CARE,
PREMATURITY, AND
COMPLICATED
PREGNANCIES

Annie Janvier, MD, PhD

Translated by Phyllis Aronoff and Howard Scott

from hearing bad news, again and again, wondering if it all would end someday. Parents were afraid of calling because they did not want to hear bad news; parents were plunged into anxiety every time the phone rang—parents who felt guilty for not calling. Parents were praying for the cruel uncertainty to end, for the train to finally be put back on the tracks toward a familiar destination. Parents were doubting, wondering how to cope with it all when they were not tempted to throw themselves off the train. Yet, despite their exhaustion, those parents always found strength somewhere.

“Breathe, Baby, Breathe is intended for anyone interested in sick babies, neonatology, and prematurity but looking for an alternative to statistics and rational explanations. It is also intended for parents and families who are doing their best to support them.”

Breathe, Baby, Breathe is intended for anyone interested in sick babies, neonatology, and prematurity but looking for an alternative to statistics and rational explanations. It is also intended for parents and families who are doing their best to support them. Professionals in pediatrics and obstetrics, residents, medical students, and ethicists will learn how to cultivate empathy with their patients and families dealing with high-risk pregnancies and sick babies. Because, sometimes, in order to truly understand, one story is worth more than dozens of scientific chapters. This book is intended for anyone interested in the phenomenon of birth, the complexity of families, and the challenges of pediatrics.

My experience has given me a new perspective on life, that precious gift that does not come with an instruction manual. That is what I am sharing with you in this book.

“We are often stronger than we think. Even in our darkest moments.”

You can find the book *Breathe, Baby, Breathe* with the following links: <https://www.amazon.ca/Breathe-Baby-Prematurity-Complicated-Pregnancies/dp/1487523068?asin=1487523068&revisionId=&format=4&depth=1>

<https://utorontopress.com/9781487504014/breathe-baby-breathe/>

Disclosure: There are no reported conflicts.

NT

Corresponding Author



Annie Janvier, MD, PhD
Universite' de Montreal,
Montreal, Quebec, Canada
Email: anniejanvier@hotmail.com



New subscribers are always welcome!

NEONATOLOGY TODAY

**To sign up for free monthly subscription,
just click on this box to go directly to our
subscription page**



To every NICU nurse who has cared for these precious babies we say.....
"Thank you."

Did you know that premature and low birth weight babies have a 4x greater risk for SIDS?

At First Candle we're educating parents, grandparents and caregivers about safer sleep to make sure all babies reach their first birthday. Learn more at firstcandle.org

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

COURSE PARTICIPANT

Learn How Now

validated online NICU staff education

WWW.MYNICUNETWORK.ORG

My NICU Network
My Perinatal Network



— 2022 —



Infant Health

Policy Summit

WEDNESDAY, AUGUST 31

9:00 A.M. REGISTRATION & BREAKFAST
10:00 A.M. PROGRAM BEGINS

THE WILLARD INTERCONTINENTAL

1401 Pennsylvania Ave. NW
Washington, DC

TOPICS INCLUDE:

- Black maternal health crisis
- RSV vaccines and interventions
- Parents as partners in their baby's care
- Human donor milk quality and safety
- Drug, formula and product shortages

FEATURING:



The Honorable
**ALMA S.
ADAMS, PH.D.**
U.S. Representative

(NC-12)

Co-founder and
Co-chair, Black
Maternal Health
Caucus



The Honorable
**BRUCE
WESTERMAN**
U.S. Representative

(AR-04)

Republican Healthy Future
Task Force Subcommittee
on Treatments and Father
of a Son Hospitalized with
Respiratory Syncytial Virus

NCfIH 2022 Infant Health Policy Summit: Closing Remarks

Mitchell Goldstein, MD, MBA, CML



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

“The black maternal health crisis – We must remember the historical basis of this issue, work on improving access in the present, and never let this be deprioritized in the future.”

This brings us to the close of the 8th annual Infant Health Policy Summit.

We covered a lot today:

- The black maternal health crisis – We must remember the historical basis of this issue, work on improving access in the present, and never let this be deprioritized in the future.
- Infant and maternal health disparities – The progress is not enough. We advocate, but the words must become actions
- Infant health care teams – We must achieve whole-person care for infants and their families.
- The burden of RSV – RSV is not going away. Yet, access to effective prophylaxis is still limited. We must continue to advocate for effective solutions.
- Human donor milk safety – This is a critical need biologic, not simply a food source. Our most at-risk infants depend on it.
- And formula and product shortages. If you have not seen the May 22, 2022, 60 Minutes segment entitled “In Short Supply,” I would encourage you to watch it. The shortages of these critical need products should never happen. We must eliminate the safe harbor that facilitates GPO-mediated sole sourcing.

I know I have learned a great deal. And I hope all of you did as well.

Thank you to our sponsors, who made it possible for us to all come together today.

“And formula and product shortages. If you have not seen the May 22, 2022, 60 Minutes segment entitled “In Short Supply,” I would encourage you to watch it. The shortages of these critical need products should never happen. We must eliminate the safe harbor that facilitates GPO-mediated sole sourcing”

And thank you to our speakers. Sharing their knowledge and experiences with us gave us a trove of insights and helped sharpen our goals for the months ahead.

Finally, a huge thank you for joining us in person or virtually today. We all lead busy lives. But by simply taking the time to be here, you have shown your commitment to finding solutions and improving the lives of infants all across this country.

We are excited to work alongside each of you to benefit infants as we move forward.

Let me say this. The challenges and barriers we have discussed today are daunting. The solutions are neither simple nor quick.

But whether it is developing preventive treatments or reducing health disparities, we have a tremendous opportunity – even a calling – to use our time and energy to impact infants positively.

As we work alongside all of you – advocating together – we know the future of infants everywhere becomes brighter and brighter.

Our time together may be drawing to a close, but our work on behalf of infants does not stop here.

In the months ahead, let us push forward, advocate for policies to protect infants, increase awareness, and alleviate burdens on both infant and maternal health.

If you are interested in learning more about the topics we have discussed today, you can visit the National Coalition for Infant Health's website at infanthealth.org, or feel free to speak to one of our team members on your way out.

We look forward to seeing you all next year!

Disclosure: No relevant disclosures noted

NT



Corresponding Author

Mitchell Goldstein, MD, MBA, CML
Professor of Pediatrics
Loma Linda University School of Medicine
Division of Neonatology
Department of Pediatrics
Email: mgoldstein@llu.edu

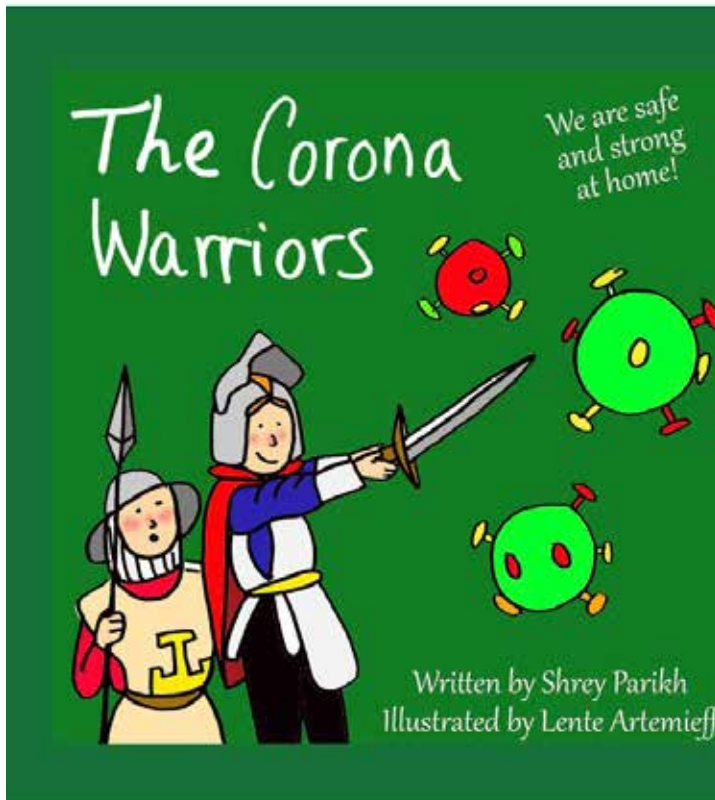
National Coalition for Infant Health Values (SANE)

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.



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

nicuawareness.org
nationalperinatal.org/NICU_Awareness
projectsweetpeas.com
nationalperinatal.org/skin-to-skin

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

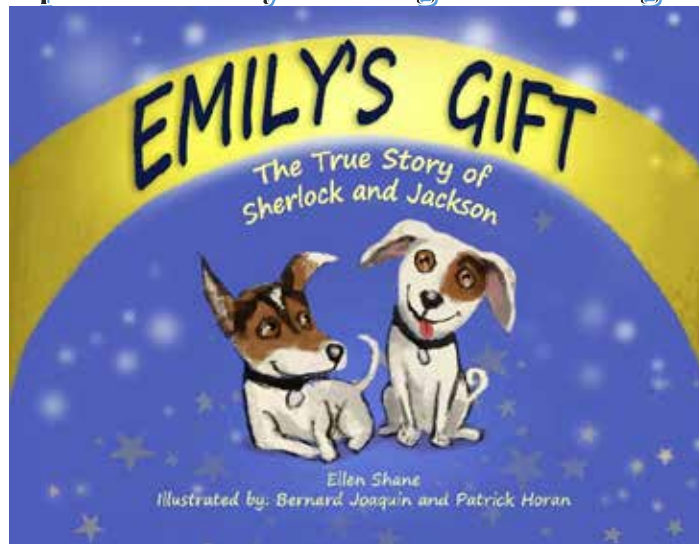
RESPIRATORY SYNCYTIAL VIRUS

is a highly contagious seasonal virus that can lead to hospitalization for some babies and young children.

Know the Signs.



“Emily’s Gift” can be purchased by clicking on the image of the cover below.



Purchases of this engaging **true story** provide disadvantaged middle school students, risking academic failure, the opportunity to attain their best personal and academic potential.

Purchasing options include a limited quantity of signed and numbered books specifically to support the SEA Program, an ebook, soft and hardcover versions, and the option to donate one or more books to support organizations supporting young children.

You can provide both reading entertainment for younger children, and make a difference in the lives of the disadvantaged middle schoolers we support.

Sales support our nonprofit charity's SEA Program. You can make a difference for these children!

[Emily's Gift-Click Here to Buy](#)

[Direct SEA Support-Click Here](#)



The Emily Shane Foundation is a 501(c)3 nonprofit charity. 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 fund the SEA Program, which make a difference in the lives of the students we serve.

For more information, please visit emilyshane.org.

The Premie Parent's SURVIVAL GUIDE to the NICU

By

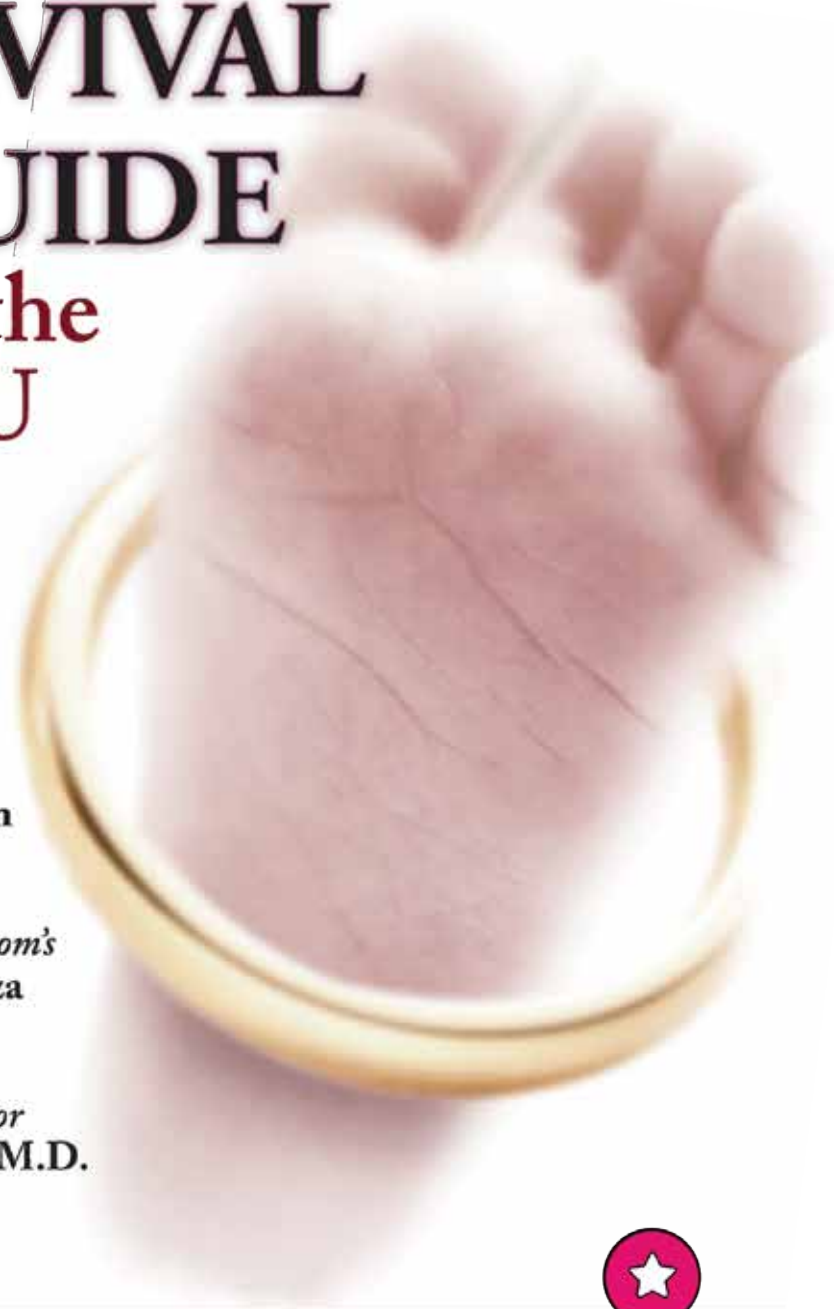
little man's
Nicole Conn

&

PremieWorld.com's
Deb Discenza

with

Medical Editor
Alan R. Spitzer, M.D.



HOW TO
MAINTAIN YOUR SANITY
& CREATE A NEW NORMAL

second edition

National Perinatal Association PERINATAL SUBSTANCE USE

nationalperinatal.org/position
www.nationalperinatal.org/Substance_Use



We know
that there are
barriers that
keep pregnant
people from
accessing care.
We believe
that perinatal
providers
have a duty to
help remove
those barriers.

Educate. Advocate. Integrate.



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication exclusively serving Pediatric and Adult Cardiologists that focus on Congenital/Structural Heart Disease (CHD), and Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

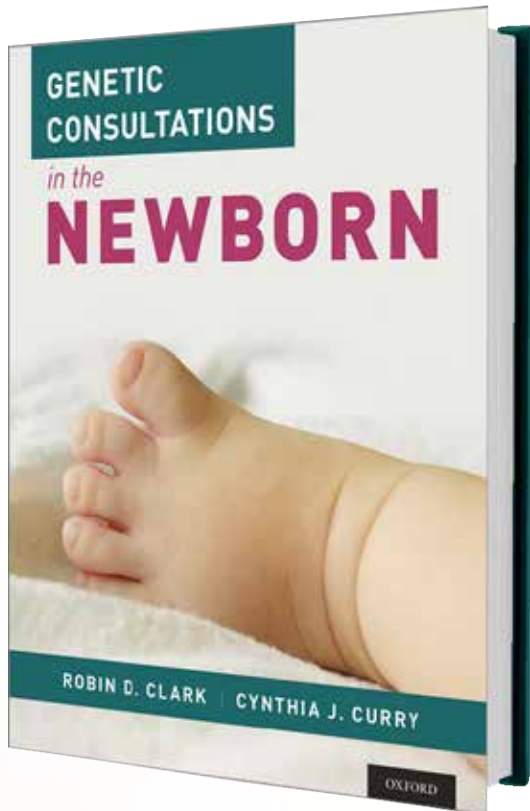


*“The definitive work in genetic evaluation of newborns”
- Judith G. Hall*

GENETIC CONSULTATIONS

in the **NEWBORN**

\$99.95
Hardcover



Robin D. Clark | Cynthia J. Curry

- A streamlined diagnostic manual for neonatologists, clinical geneticists, and pediatricians - any clinician who cares for newborns
- Organized by symptom and system, enriched with more than 250 photography and clinical pearls derived from authors' decades of clinical practice
- Includes “Syndromes You Should Know” appendix, distilling the most frequently encountered syndromes and chromosomal abnormalities in newborns
- OMIM numbers for each condition situate authors' practical guidance in the broader genetics literature, connecting readers to the most up-to-date references

Comprising of more than 60 chapters organized by system and symptom, *Genetic Consultations in the Newborn* facilitates fast, expert navigation from recognition to management in syndromes that manifest during the newborn period. Richly illustrated and packed with pearls of practical wisdom from the authors' decades of practice, it empowers readers to recognize the outward signs and symptoms crucial for an effective diagnosis.

Order now by [clicking here](#).

OXFORD

Clinical Pearl: Trisomy 13 and Trisomy 18: Current Approach

Joseph R. Hageman, MD, Mitchell Goldstein, MD, T Allen Merritt, MD

“She had a single central eye and a proboscis, which did not work; as long as she cried, she was pink. She also had polydactyly, and we sent chromosomes, as this was about 45 years ago. She had trisomy 13 and lived about 4 or 5 hours.”

It was my first morning as a neonatal attending, and my senior resident called and asked me to come to see this female newborn who had just been born. I said, “sure. I will be right there!” When I arrived at the ISCU, I heard the baby crying, and then she stopped. She had a single central eye and a proboscis, which did not work; as long as she cried, she was pink. She also had polydactyly, and we sent chromosomes, as this was about 45 years ago. She had trisomy 13 and lived about 4 or 5 hours. Later that month, we had a stillborn fetus with trisomy 13 and a liveborn newborn with Trisomy 18. Each time I called our excellent, thoughtful geneticist, a general pediatrician, Dr. Ira Salafsky, to see each newborn infant and counsel the families. This was before prenatal evaluations, including quad screens and evaluation of free fetal cells, were being evaluated. This was 1982 or 1983.

“What is clear from the literature is that each case should be individualized, and the family should be provided clinical information about their fetus and newborn as early as possible, along with outcome data depending on the potential clinical approach to management (1-3). It is also essential to provide parents with data about survival, quality of life, and developmental outcome for these infants (1-5)) so families and clinicians can make thoughtful decisions about management and approaches. (6)”

I decided to talk with my colleagues, and we started a multidisciplinary care group to evaluate each anomalous fetus and talk with each family, just as mentioned in the article by Cortezzo and colleagues and the editorial by Dr. John Carey regarding diagnostic evaluation and therapeutic approach (1,2). There are several excellent articles from around the world on clinical approaches to fetuses and newborns with Trisomy 13 and 18 referenced in the Cortezzo article, and I think the basic principles of the approach include serial discussions with families with relevant clinicians beginning in the prenatal period with the goal of formulation of a clinical plan. What is clear from the literature is that each case should be individualized, and the family should be provided clinical information about their fetus and newborn as early as possible, along with outcome data depending on the potential clinical approach to management (1-3). It is also essential to provide parents with data about survival, quality of life, and developmental outcome for these infants (1-5)) so families and clinicians can make thoughtful decisions about management and approaches. (6)

“A total of 92% were offered postnatal resuscitation (1). Seventy-two (58%) fetuses were liveborn. Forty seven% of families elected comfort care, and 43% elected to pursue invasive treatment to extend life (1). The remaining 10% chose noninvasive therapies (1). The median length of survival for Trisomy 13 and 18 infants was 7 and 29 days, respectively (1).”

To give each of us an idea, here are some outcome data from the 125 pregnancies from Cortezzo and colleagues. One hundred twenty-five pregnancies in this retrospective study, and 6% ended in a spontaneous loss, 19% in intrauterine fetal demise, 17% in termination of pregnancy, and 58% in a live birth (1). Univariate analysis, male fetal sex, lower maternal gravitate, and fetal hydropower resulted in higher spontaneous fetal loss (1). A total of 92% were offered postnatal resuscitation (1). Seventy-two (58%) fetuses were liveborn. Forty seven% of families elected comfort care, and 43% elected to pursue invasive treatment to extend life (1). The remaining 10% chose noninvasive therapies (1). The median length of survival for Trisomy 13 and 18 infants was 7 and 29 days, respectively (1).

Of the four infants with T 13 and 23 infants with T 18 who were alive at one month of age, 50% of T 13 and 48% of T 18 infants were alive at one year of age, with a median length of survival of 111 days and 590 days respectively. The one-month and one-year

survival rates of children managed initially with comfort care were 15% and 6%, respectively (1). 74% of T 18 infants and 44% of T 13 infants were discharged from initially from the NICU. Of the 32 infants discharged home, nearly 1/2 were readmitted, frequently with respiratory insufficiency and apnea (1). 90% had evidence of congenital heart disease (1). Consistent with our study data, a model shows that certain variables, including mechanical ventilation, cardiac surgery, gastrostomy, and parenteral nutrition, predict survival to 6 months (1). “Despite profound neurodevelopmental impairments, these patients meet early developmental milestones and have meaningful interactions with their families (1).”

References:

1. Cortezzo DE, Tolusso LK, Swarr DT. Perinatal Outcomes of Fetuses and Infants Diagnosed with Trisomy 13 or Trisomy 18. *J Pediatr.* 2022;247:116-23 e5. Epub 2022/04/23. doi: 10.1016/j.jpeds.2022.04.010. PubMed PMID: 35452657.
2. Duyzend MH. Optimizing care and consultation in trisomy 13 and 21. *J Pediatr* 2022; 247:1.
3. Carey J. Survival outcomes of infants with the Trisomy 13 or Trisomy 18 syndrome. *J. Pediatric* 2022; 247: 11-13.
4. Burns DA. Developmental status of 22 children with trisomy 18 and eight children with trisomy 13: implications and recommendations. *Am J Med Genet A* 2015; 167A: 1807-1815.
5. Liang CA, Braddock BA, Hekthaus JL, et al. Deported communication ability of persons with trisomy 18 and trisomy 13. *Dev Neurorehabil* 2015; 18. 322-329.
6. Haug S, Goldstein M, Cummins D, Fayard E, Merritt TA. Using Patient-Centered Care After a Prenatal Diagnosis of Trisomy 18 or Trisomy 13: A Review. *JAMA Pediatr.* 2017;171(4):382-7. Epub 2017/02/14. doi: 10.1001/jamapediatrics.2016.4798. PubMed PMID: 28192554.

Disclosures: The authors have no disclosures

NT



Mitchell Goldstein, MD, MBA, CML
 Professor of Pediatrics
 Loma Linda University School of Medicine
 Division of Neonatology
 Department of Pediatrics
 Email: mgoldstein@llu.edu



T. Allen Merritt, MD
 Professor of Pediatrics
 Loma Linda University School of Medicine
 Division of Neonatology
 Department of Pediatrics
 email: allenmerritt.md@gmail.com

Corresponding Author



Joseph R. Hageman, MD
 Senior Clinician Educator
 Pritzker School of Medicine
 University of Chicago
 MC6060
 5841 S. Maryland Ave.
 Chicago, IL 60637
 Phone: 773-702-7794
 Fax: 773-732-0764
 Email: jhageman@peds.bsd.uchicago.edu



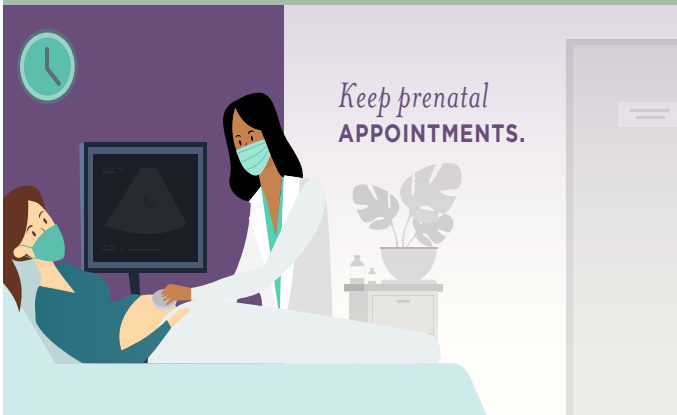
The PREGNANT MOM'S Guide To Staying SAFE DURING COVID-19



Maintain at least
A 30-DAY SUPPLY
OF YOUR MEDICATIONS.



Keep prenatal
APPOINTMENTS.



Talk to your health
care provider about
STAYING SAFE
DURING COVID-19.

LEARN MORE >

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

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
nationalperinatal.org/skin-to-skin

NPN
NICU PARENT NETWORK

New subscribers are always welcome!

NEONATOLOGY TODAY

To sign up for free monthly subscription, just click on this box to go directly to our subscription page

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

MedEd On The Go® presents

3 Accredited Education Programs in Short-Form Video Format
Available for CME/CNE Credits

The Role of Nutrition & Exclusive Human Milk for Very Low Birth Weight Infants



Preventing Bronchopulmonary Dysplasia

1.75 credit hours

WATCH NOW



www.MedEdOTG.com/video/program/599

Preventing Neonatal Sepsis

0.5 credit hours

WATCH NOW



www.MedEdOTG.com/video/program/609

Preventing Retinopathy of Prematurity

1.0 credit hour

WATCH NOW



www.MedEdOTG.com/video/program/608



Stephen E. Welty, MD

Clinical Professor of Pediatrics
University of Washington
School of Medicine
Seattle, WA



Dan L. Stewart, MD

Professor of Pediatrics & International Pediatrics
University of Louisville School of Medicine
Co-Director of NICU & ECMO
Norton Children's Hospital
Louisville, KY



Jonathan R. Swanson, MD, MSc

Associate Professor of Pediatrics
University of Virginia
Children's Hospital
Charlottesville, VA

Medical Legal Forum: Choosing an Expert Witness: a Lawyer's Perspective

Mike Meyer

Although many lawyers might wish that they could simply testify for themselves, medical malpractice cases must be proven or defended through expert testimony. Therefore, selecting the "right expert" for each case is paramount.

Generally speaking, an expert is anyone who is qualified through training, skill, and knowledge to aid the jury in understanding the evidence. However, several characteristics can set an expert apart. The following highlights some of those sought-after qualities.

"Generally speaking, an expert is anyone who is qualified through training, skill, and knowledge to aid the jury in understanding the evidence. However, several characteristics can set an expert apart."

Be A Teacher:

The primary task of the expert witness is to educate the jury. In medical-legal cases, most jurors will not just be unfamiliar with the subject matter; they will not have thought about biology or anatomy since high school. Accordingly, an expert must be able to explain the medicine in a way the jury can understand.

Most doctors are well-practiced in teaching their patients about medicine, but that typically involves a one-on-one conversation between the physician and the patient. In that setting, the audience (the patient) is more engaged and can ask questions, allowing both sides to confirm that the discussion has been understood. Most states do not permit jurors to ask witnesses questions. Therefore, the expert must anticipate areas where the medicine is particularly challenging and find ways to keep the jury engaged.

Additionally, research shows that a significant portion of the jury will be visual learners. Thus, experts should be prepared to identify and utilize visuals to help the jury understand their testimony.

Meet the Jury Where They Are:

The best experts are effective communicators. In addition to using clear, simple language, an expert should make the medical concepts more comprehensible for the jury. One proven way to do that is through analogies or comparing the material to a concept the jury will be familiar with. For example, in brachial plexus cases, experts may describe the nerves as telephone wires capable of carrying messages from the brain to the arm. Or, by way of other examples, an expert can emphasize that an important fac-

tor in a brain injury, like real estate, is location, location, location. Putting the medicine in a context the jury already understands can have a profound impact on reaching them.

"Or, by way of other examples, an expert can emphasize that an important factor in a brain injury, like real estate, is location, location, location. Putting the medicine in a context the jury already understands can have a profound impact on reaching them."

Be Willing to Dig In:

An expert is someone who possesses mastery over the material. The material in this context is the medicine and the facts of the case. An extremely well-credentialed expert can nevertheless torpedo a case by failing to have control over the facts in evidence. This not only exposes the expert to cross-examination but, more importantly, erodes the expert's credibility and, thus, the party's case. Therefore, experts must be willing to work with the attorney to have mastery over the facts of the case.

Be Reachable:

I thought lawyers were busy until I started working with doctors. A good lawyer will be sensitive to an expert's schedule. However, lawyers are under strict deadlines often beyond their control, so it is critical for the expert to make themselves available for consultations at key junctures of the case. This is particularly important before the expert's deposition, the defendant's deposition, and, often, the other side's expert's deposition.

"He responded, "I wouldn't have done it if I did not believe so strongly that it was important." Not only was that statement meaningful to my client and me, but it also confirmed why the testimony was so compelling. Juries can sense when the expert believes in the cause. "

Have Conviction:

I recently thanked an expert for his hard work preparing for his trial testimony. He responded, "I wouldn't have done it if I did

not believe so strongly that it was important.” Not only was that statement meaningful to my client and me, but it also confirmed why the testimony was so compelling. Juries can sense when the expert believes in the cause.

Be Demanding:

It is the lawyer’s job to make the expert’s life easier. But they cannot always anticipate an expert’s needs. Experts should tell the lawyer what would help them do their job – whether that is gathering information through discovery, creating visuals, or providing summaries of the evidence. Everyone benefits when an expert is empowered with the information and materials they need.

Disclosure: There are no reported conflicts.

NT



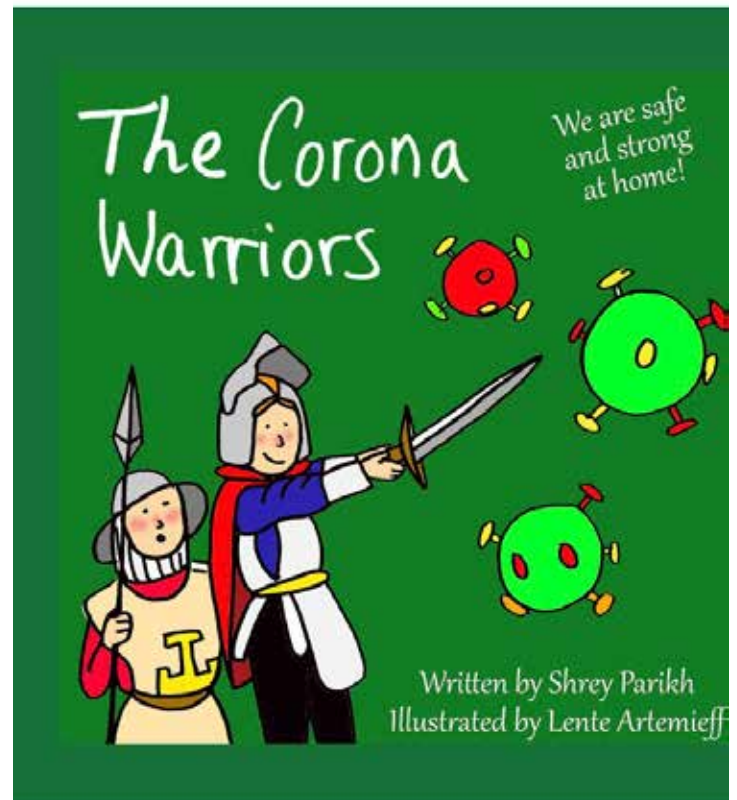
Corresponding Author



*Mike Meyer
Partner
Bartimus Frickleton Robertson Rader, PC
Leawood, Kansas
Email: mmeyer@bflawfirm.com*

Disclaimer:

This column does not give specific legal advice, but rather is intended to provide general information on medicolegal issues. As always, it is important to recognize that laws vary state-to-state and legal decisions are dependent on the particular facts at hand. It is important to consult a qualified attorney for legal issues affecting your practice.



99nicu

Sign up for free membership at 99nicu, the Internet community for professionals in neonatal medicine. Discussion Forums, Image Library, Virtual NICU, and more...”

www.99nicu.org

eLearning Courses

Health and Racial in the NICU

Meet Our Faculty



+ Jenné Johns, MPH
Once Upon A Premie Academy



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



+ Dawn Godbolt, Ph.D.
National Birth Equity Collaborative



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



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



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



+ Shanté Nixon
Connect2NICU



+ Ashley Randolph
Glo Premies



REGISTER TODAY

OnceUponAPremieAcademy.com

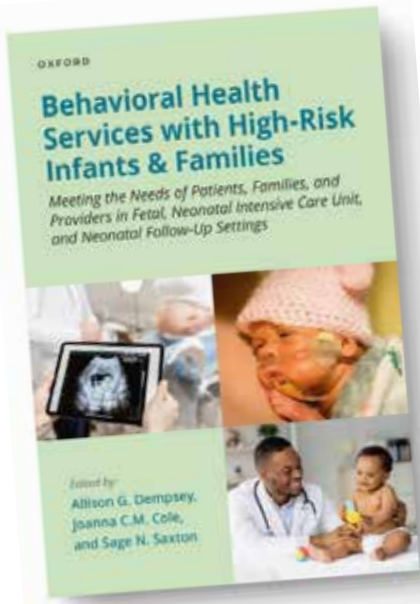
Health and Racial Equity + On-Demand Continuing Education

The first and only virtual training academy focused on delivering health and racial equity educational programs for perinatal and neonatal healthcare professionals. Our purpose is to raise awareness and offer real-time solutions for addressing health and racial equity.



National Network of NICU Psychologists

Education, Resources, and Support for Perinatal Mental Health Professionals



Preorder

Behavioral Health Services with High-Risk Infants and Families

Use discount code **ASPROMP8** and save **33%** online at www.oup.com

\$56.00



Free Resources

Empower families with the skills they need.

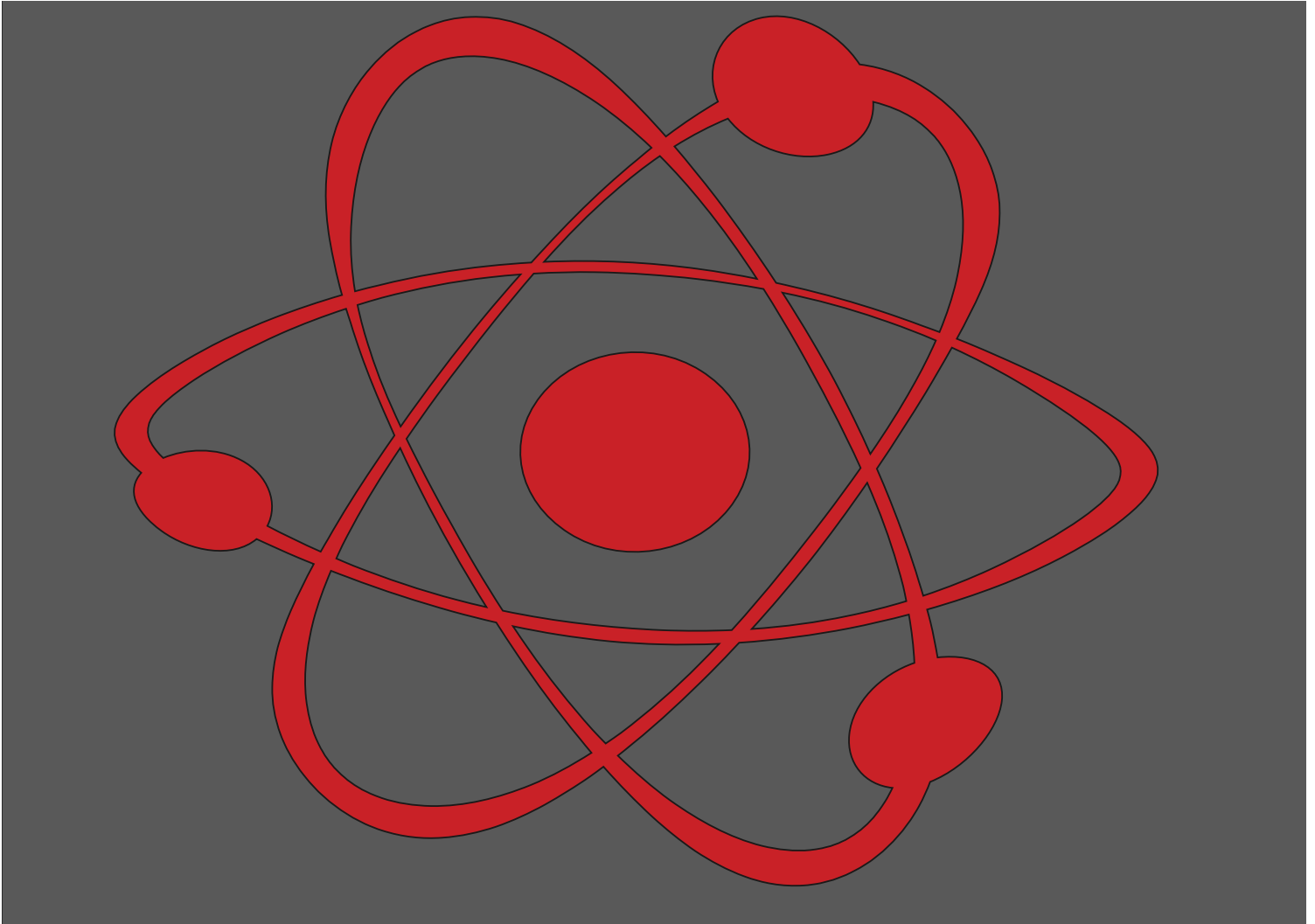
Download our perinatal Mental Health Plan worksheets.

Support NICU families and staff during COVID-19.

See resources created by the National Network of NICU Psychologists.



Academic True Open Model (ATOM)



Loma Linda Publishing Company supports the Academic True Open Model (ATOM)

Journals listed support the following principles:

1. Free subscriptions (electronic or paper) to all.
2. Peer review of all submitted manuscripts
3. Timely review of manuscripts
4. Timely response to letters to the editor
5. Listing and correction of erratum
6. Appropriate disclosure of any related conflicts of interest in published manuscripts
7. No charge for submission of manuscripts
8. No charge for review of manuscripts
9. No charge for processing of artwork, color, layout, or length of manuscript
10. No charge for publication of manuscript in electronic or digital form.
11. A commitment to the ethical treatment of humans and animals in research.
12. Documentation of informed consent where indicated.

NT

Any journal that supports the ATOM principles can be listed here, along with their logo and a link back to their site, free of charge. Please contact Loma Linda Publishing Company at LomaLindaPublishingCompany@gmail.com for additional details.



Neonatology Today, a publication of Loma Linda Publishing Company.
© 2006-2020 by Neonatology Today
Published monthly. All rights reserved.
ISSN: 1932-7137 (Online), 1932-7129 (Print)

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

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



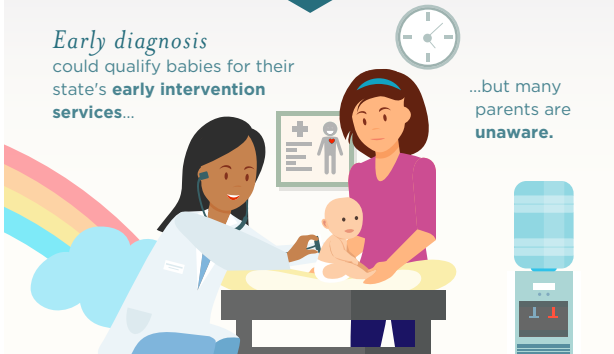
Address physical challenges



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 POSTPARTO**



1 DE CADA 7 MADRES AFRONTA LA DEPRESIÓN POSTPARTO, experimentando



Sin embargo, sólo el **15%** recibe tratamiento!

LA DEPRESIÓN POSTPARTO **NO TRATADA PUEDE AFECTAR:**

El sueño, la alimentación y el comportamiento del bebé a medida que crece?



La salud de la madre

La capacidad para cuidar de un bebé y sus hermanos

PARA AYUDAR A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSTPARTO



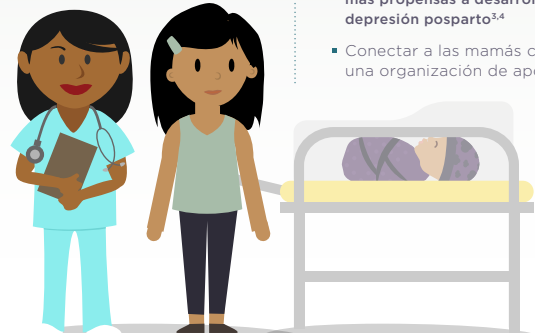
LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnóstico
- Proteger el acceso al tratamiento



LOS HOSPITALES PUEDEN:

- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión postparto**^{3,4}
- Conectar a las mamás con una organización de apoyo



NCFIH National Coalition for Infant Health
Protecting Access for Premature Infants through Age Two
www.infanthealth.org

¹ American Psychological Association. Accessed on: <http://www.apa.org/women/healthcare/reports/postpartum-depression.aspx>
² National Institute of Mental Health. Accessed on: <http://www.nimh.nih.gov/health/publications/postpartum-depression-facts/index.shtml>
³ Journal of Perinatology (2015) 35, 529–536. doi:10.1097/JP.0000000000000147
⁴ Prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants: a systematic review. Vigod SN, Villages L, Dennis CL, Ross LE BJOG. 2010 Apr; 117(5):540-50.

Pediatrics® Neonatology Grand Rounds Series: Hot topics in neonatal care



Hosted by the Pediatrics® Center for Research, Education, Quality and Safety (CREQS), our Pediatrics Neonatology Grand Rounds series occur the first Wednesday of every month at 4 p.m. Eastern Time. The monthly hour-long webinars are a great way to earn accredited CE and learn about the latest goings-on in neonatology. Join us as we explore relevant topics such as:

- **May 4** — Neurodevelopmental outcomes in the drug-exposed premature infant.
- **June 1** — Growth assessment and coding for malnutrition in the NICU.

Visit our [Neonatology Grand Rounds website](#) today to view future topics and reserve your spot!

**Webinar topics and speakers subject to change.*

Accreditation

The Pediatrics Center for Research, Education, Quality and Safety is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Pediatrics Center for Research, Education, Quality and Safety designates each Internet Live activity for a maximum of 1 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The Pediatrics Center for Research, Education, Quality and Safety is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.

The Pediatrics Center for Research, Education, Quality and Safety designates each Internet Live activity for a maximum of 1 *nursing contact hour*. Participants should claim only the credit commensurate with the extent of their participation in the activity.



CENTER FOR RESEARCH,
EDUCATION, QUALITY AND SAFETY

Upcoming Medical Meetings

2022 American Academy of Pediatrics National Conference and Exhibition

Anaheim Convention Center
Anaheim, CA

October 7-12, 2022

[https://aapexperience.org/
conference-event-locations/](https://aapexperience.org/conference-event-locations/)

Once Upon a Premie Presents 1st Annual Conference

Accelerating the Health and Racial
Equity in Maternal and Neonatal Care

University City Science Center

3675 Market Street, 2nd Floor

Philadelphia, PA 19104

November 17th, 2022

[https://www.eventbrite.com/e/
accelerating-health-and-racial-equity-
in-black-maternal-and-neonatal-care-
tickets-380986168887](https://www.eventbrite.com/e/accelerating-health-and-racial-equity-in-black-maternal-and-neonatal-care-tickets-380986168887)

39th Annual Advances In Care Conference – Advances In

Therapeutics And Technology:
Critical Care Of Neonates, Children,

And Adults

Ontario, CA

[https://paclac.org/advances-in-care-
conference/](https://paclac.org/advances-in-care-conference/)

AAP Workshop on Perinatal Strategies

February 3-5, 2023

Scottsdale, AZ

[https://shop.aap.org/2023-workshop-
on-neonatal-perinatal-practice-
strategies-scottsdale-az/](https://shop.aap.org/2023-workshop-on-neonatal-perinatal-practice-strategies-scottsdale-az/)

NEO: The Conference for Neonatology

February 22-24, 2023

Las Vegas, NV

[https://www.mednax.com/neo-
conference/](https://www.mednax.com/neo-conference/)

California Association of Neonatologists (CAN)

Annual Conference

San Diego, CA

March 3-5, 2023

<https://caneo.org>

36th Annual Gravens Conference on the Environment of Care for High Risk Infants

The Future is Now for Babies,

Families, and Systems

Sand Key, FL

March 8-11, 2023

Hold the Date

Southeastern Association of Neonatologists (SAN)

Marco Island, FL

May 25-28, 2023

www.southeastneo.com

Perinatal District 8 Conference

June 1-4, 2023

San Diego, CA

<https://district8sonpm.org/>

Perinatal District 6 Conference

Date: TBA

Chicago, IL

<https://www.d6an.org>

*For up to date Meeting
Information, visit
NeonatologyToday.net and click
on the events tab.*

NEONATOLOGY TODAY

© 2022 by Neonatology Today
ISSN: 1932-7137 (Online). ISSN: 1932-
7129 (Print). Published monthly. All rights
reserved.

Publication

Mitchell Goldstein, MD

Loma Linda Publishing Company

11175 Campus Street

Suite #11121

Loma Linda, CA 92354

www.NeonatologyToday.net

Tel: +1 (302) 313-9984

LomaLindaPublishingCompany@gmail.com

Editorial and Subscription

Mitchell Goldstein, MD

Neonatology Today

11175 Campus Street

Suite #11121

Loma Linda, CA 92354

Sponsorships and Recruitment Advertising

For information on sponsorships or

recruitment advertising call Andrea Schwartz

Goodman at: +1 (302) 313-9984 or send

an email to [andrea.schwartzgoodman@](mailto:andrea.schwartzgoodman@neonatologytoday.net)

neonatologytoday.net

FREE Subscription

Neonatology Today is available free to

qualified individuals worldwide interested in

neonatology and perinatology. International

editions are available in electronic PDF file

only; North American edition available in

print once a year in February. To receive

your free qualified subscription please click

[here](#).

Submit a Manuscript:

On case studies, clinical and bench

research, hospital news, meeting

announcements, book reviews, and “state of

the art” meta analysis.

Please submit your manuscript to:

LomaLindaPublishingCompany@gmail.com

We will respond promptly

Twitter Account: @NeoToday



CONGENITAL
CARDIOLOGY
TODAY

The only worldwide monthly publication
exclusively serving Pediatric and Adult
Cardiologists that focus on Congenital/
Structural Heart Disease (CHD), and
Cardiothoracic Surgeons.



Subscribe Electronically
Free on the Home Page

www.CongenitalCardiologyToday.com

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

Overview

St. Luke's Neonatology in Idaho is seeking an NNP to join 11 BC Neonatologists and 11 NNPs to assist with coverage of our four St. Luke's NICUs. This position is primarily based at the Level IV NICU in Boise, Idaho. An additional position is available in Twin Falls, Idaho, which is in the process of expanding its scope of coverage to Level III status.

The Level IV facility is within St. Luke's Children's Hospital, a CHA-designated children's hospital-within-a-hospital located in downtown Boise, Idaho. The NICU was built in 2002 and is a modern 61-bed unit, with advanced technology support (HFV, iNO, therapeutic hypothermia, noninvasive ventilation), semi-private rooms, and a priority of family-centered care. It maintains an ADC of 37 and approximately 900 admissions per year. NNPs provide daily rounding support and in-house night coverage with an in-house Neonatologist at this facility. Our Level II NICU is located 10 miles away in Meridian, Idaho, and this 12-bed facility was fully renovated in 2007. NNPs assist with weekend coverage and home call at the Meridian facility. Coming in fall of 2017 will be our new Nampa facility with 8 private NICU rooms and 7 NICU/LDRP Family Care Suites.

The Children's Hospital provides a full complement of Pediatric Subspecialty services with the exception of ECMO or complex congenital heart surgery. The program is supported by a skilled Obstetrical department including 4 full time MFM specialists.

ABOUT BOISE:

Known as the "City of Trees," [Boise](#) is Idaho's capital city—both a cultural center and a playground for those who love the outdoors. A vibrant downtown area affords fine dining, theatre, music, and college and semi-professional sports. Whole Foods, Trader Joe's, The Boise Co-op, and seasonal farmers markets are within a mile of the hospital. The Greenbelt follows the beautiful Boise River corridor for more than 30 miles, and the Boise foothills are home to miles of hiking and biking trails.

MINIMUM REQUIREMENTS:

1. Graduation from a School of Nursing, passing results on the certification examination administration by an organization recognized by the Idaho Board of Nursing, and a Nurse Practitioner Program with current RN, APRN and controlled substance licensure from Idaho.
2. Current, unrestricted DEA certificate.
3. Current national certification as NNP. Exception: Flex NNPs will not be required to maintain Idaho Controlled substance licensure or unrestricted DEA certificate.
4. Excellent communication skills to include oral and written comprehension/expression.

WHY ST. LUKE'S?

St. Luke's, Idaho's largest employer, has been recognized for distinguished patient care, named a best state to practice, and rated in the top 15 health systems in the country by Truven Health

<https://provider-slhs.icims.com/jobs/59747/neonatal-nurse-practitioner/job>

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

Nursing Opportunities

Many Strengths. One Mission.



GREAT
NURSES.



GREAT
MEDICINE.

Neonatal Nurse Practitioner

- Collaborative work environment
- Care of high acuity NICU patients
- State of the art technology
- 24/7 coverage provided by NNP team and Fellows



EOE/AAE

Who We Are

With over 900 beds in four hospitals, we operate some of the largest clinical programs in the nation. We also offer the only Level I Regional Trauma Center and Children's Hospital in the Inland Empire servicing the largest county in the US. We lead in many areas of excellence; pediatrics, cardiac services, cancer treatment and research, mental health, chemical dependency, and other essential clinical disciplines. All this adds up to endless possibilities for our patients and for you.

The Neonatal Intensive Care Unit (NICU) at Loma Linda University Children's Hospital is committed to providing high-quality, family-centered care with our highly skilled, multi-disciplinary neonatal team. Our unit has 84 licensed beds for the most critically ill infants and a new Tiny Baby Program focusing on improving survival and outcomes of extremely low birth weight infants (<1000g at birth). As one of the only level 3 tertiary centers in Southern California, we are equipped to provide the highest level of care for the most complex disorders. We have subspecialists in all medical and surgical areas that are available at all times and are supported by hospital staff with technical, laboratory, and service expertise.

At Loma Linda University Health, we combine the healing power of faith with the practices of modern medicine. We consist of a University, a Medical Center with four hospitals, and a Physicians Group. These resources have helped us become one of the best health systems in the nation.

Contact Us

Please visit our website <http://careers.llu.edu> or contact Jeannine Sharkey, Director of Advanced Practice Services at jsharkey@llu.edu or (909) 558-4486.

If you are an individual who understands and embraces the mission and purpose of Loma Linda University and its entities as premier Seventh-day Adventist Christian institutions, please visit our website or call 1-800-722-2770. EOE/AA/M/F/D/V



LOMA LINDA
UNIVERSITY
HEALTH

NEONATOLOGY TODAY

News and Information for BC/BE Neonatologists and Perinatologists



**We Can Help
You Recruit
from 1,045
NICUs in the
USA & Canada**

Your Recruitment Advertising Includes:

- Full color Recruitment Ad in the issue(s)
- Your recruitment listing in the e-mail blast for the issue(s) with a hot link
- 3-Step Special Recruitment Opportunity Website Section on three (3) areas of the website
- *We can create your recruitment ad at no extra charge!*

For more information, contact:

Andrea Schwartz Goodman

+1 (302) 313-9984 or

andrea.schwartzgoodman@neonatologytoday.net

NEONATOLOGY TODAY

Peer Reviewed Research, News and Information in Neonatal and Perinatal Medicine

Loma Linda Publishing Company | c/o Mitchell Goldstein, MD | 11175 Campus St, Ste. 11121 | Loma Linda, CA 92354 |

LomaLindaPublishingCompany@gmail.com

© 2020 Neonatology Today | ISSN: 1932-7137 (digital). Published monthly. All rights reserved.

Editorial Board



Mitchell Goldstein, MD - Editor-in-Chief
LomaLindaPublishingCompany@gmail.com
MGoldstein@llu.edu
Professor of Pediatrics
Loma Linda University School of Medicine
Division of Neonatology, Department of Pediatrics
Loma Linda University Children's Hospital



T. Allen Merritt, MD - Senior Associate Editor for
Contributions & Reviews
AllenMerritt.md@gmail.com
Professor of Pediatrics
Loma Linda University School of Medicine
Division of Neonatology, Department of Pediatrics
Loma Linda University Children's Hospital



Larry Tinsley, MD - Senior Managing Editor
LTinsley@llu.edu
Associate Professor of Pediatrics
Division of Neonatology-Perinatal Medicine
Loma Linda University Children's Hospital



Elba Fayard, MD - Interim Fellowship Editor
Efayard@llu.edu
Professor of Pediatrics
Division Chair
Division of Neonatology-Perinatal Medicine
Loma Linda University Children's Hospital



Munaf Kadri, MD - International Editor
MKadri@llu.edu
Executive Board
UMMA Clinic
Los Angeles, CA
Assistant Professor Loma Linda
Loma Linda University Children's Hospital



Michael Narvey, MD - Canada Editor
MNarvey@exchange.hsc.mb.ca
Section Head of Neonatology
Children's Hospital Research Institute of Manitoba



Joseph R. Hageman, MD - Clinical Pearls Editor
jhageman@peds.bsd.uchicago.edu
Senior Clinician Educator
Pritzker School of Medicine
University of Chicago



Clara H. Song, MD - Social Media Editor
clara.h.song@kp.org
Southern California Permanente Medical Group



Thomas A Clarke, MD - Western Europe Editor
tclarke347@gmail.com
Emeritus Consultant in Neonatology
The Rotunda Hospital,
Dublin, Ireland



Jan Mazela, MD - Central Europe Editor
janco@pol-med.com.pl
Associate Professor
Poznan University of Medical Sciences
Poznan, Greater Poland District, Poland



Stefan Johansson, MD PhD - Scandinavian Editor
stefan.johansson@99nicu.org
Consultant Neonatologist, Sachs' Childrens Hospital
Associate Professor, Karolinska Institutet
Stockholm, Sweden



Francesco Cardona, MD - European Editor at Large
francesco@99nicu.org
Consultant, Medical University of Vienna
Department of Paediatrics and Adolescent Medicine
Vienna, Austria



Arun Pramanick, MD - India Editor
aprama@lsuhsc.edu
Professor, Pediatrics,
Louisiana State University School of Medicine,
Shreveport, LA



Andrea Schwartz Goodman, MSW, MPH
Senior Editorial Project Director
Andrea.SchwartzGoodman@NeonatologyToday.net
Washington, D.C.



Mita Shah, MD - Arts Editor
Neonatal Intensive Care Unit Medical Director
Queen of the Valley Campus,
Emanate Health
West Covina, CA



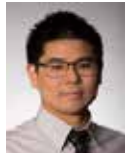
Giang Truong, MD - QI/QA Editor
GTruong@llu.edu
Associate Professor of Pediatrics
Division of Neonatology-Perinatal Medicine
Loma Linda University Children's Hospital



Jerassimos Ballas, MD, MPH - Perinatology Editor
jballas@ucsd.edu
Associate Professor of Obstetrics and Gynecology
University of California, San Diego



Maha Amr, MD - Academic Affairs Editor
maha.amr@neonatologytoday.net
 Assistant Professor of Pediatrics
 Division of Neonatology, Department of Pediatrics
 Loma Linda University Children's Hospital



Fu-Sheng Chou, MD, PhD - Senior Associate Editor,
 Director, Digital Enterprise
FChou@llu.edu
 Assistant Professor of Pediatrics
 Division of Neonatology, Department of Pediatrics
 Loma Linda University Children's Hospital



Mikko Hallman MD, Ph.D. - Finnish Editor
mikko.hallman@oulu.fi
 PEDEGO Research Unit, and MRC Oulu,
 University of Oulu
 Department of Children and Adolescents,
 Oulu University Hospital, Oulu, Finland



Kimberly Hillyer, DNP, RN, LNC, NNP-BC - News Anchor
KHillyer@llu.edu
 Neonatal Nurse Practitioner/ Neonatal Intensive Care
 Loma Linda University Health Advanced Practice
 Services

Dilip R. Bhatt, MD - Kaiser Fontana, Fontana, CA
 Barry D. Chandler, MD
 Anthony C. Chang, MD - Children's Hospital of Orange County
 K.K. Diwakar, MD - Malankara Orthodox Syrian Church Medical College
 Willa H. Drummond, MD, MS (Informatics)
 Philippe S. Friedlich, MD - Children's Hospital Los Angeles
 Andrew Hopper, MD, Loma Linda University Children's Hospital
 Lucky Jain, MD - Emory School of Medicine
 Prakash Kabbur, MBBS, DCH (UK), MRCPCH (UK) - Kapiolani
 Medical Center of Women & Children
 Gail Levine, MD - Loma Linda University Children's Hospital
 Lily Martorell, MD - Loma Linda University Children's Hospital
 Patrick McNamara, MD - Sickkids, Toronto, ON
 Rita Patel, NNP - Loma Linda University Children's Hospital
 John W. Moore, MD - Rady Children's Hospital
 Raylene Phillips, MD, Loma Linda University Children's Hospital
 Michael A. Posencheg, MD - Children's Hospital of Philadelphia
 DeWayne Pursley, MD, MPH - Boston Children's Hospital
 Luis Rivera, MD - Loma Linda University Children's Hospital
 Japmeet Sandhu, OMS IV - Western University of Health Sciences
 P. Syamasundar Rao, MD - UT-Houston Medical School
 Joseph Schulman, MD, MS - California Department of Health Care Services
 Steven B. Spedale, MD, FAAP - Woman's Hospital
 Alan R. Spitzer, MD
 Cherry Uy, MD, FAAP - University of California, Irvine
 Dharmapuri Vidysagar, MD - University of Illinois Chicago
 Farha Vora, MD, Loma Linda University Children's Hospital
 Leonard E. Weisman, MD - Texas Children's Hospital
 Stephen Welty, MD - Seattle Children's Hospital
 Robert White, MD - Memorial Hospital
 T.F. Yeh, MD - John H. Stroger Jr. Hospital of Cook County and
 Taipei Medical University

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.

www.nationalperinatal.org

 National
Perinatal
Association

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY

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 features Paula Whiteman, MD who submitted a Rooster. Our bird of the month is submitted by Mitchell Goldstein, MD -- Callroom Art, A Pair of Towel Swans by an unknown but very much appreciated artist from our very own callroom at Queen of the Valley.



Mita Shah, MD,
Neonatal Intensive Care Medical Director
Queen of the Valley Campus
Emanate Health, West Covina, CA

NT

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.

NT

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:



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.

copyright © 2020 NICU Parent Network

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



NANT 13 INSPIRING COMPETENCE & CONFIDENCE



CALL FOR ABSTRACTS OPEN
June 13 - August 15, 2022



CALL FOR ABSTRACTS
sponsored by National Association of Neonatal Therapists®



