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A Paradigm Shift in the Risk Assessment of Intraventricular Hemorrhage in Relation to Intravenous Fluid Bolus in Extremely Premature Newborns within Seventy-Two Hours of Birth

Bilal Manzoor, MD, Aashika Janwadkar, MD, Grace Jeehye Seol, BA, Dhaivat Shah, MBBS, MSCR; Ebuwa Joy Obaseki, MD; Christian Castillo, MD

Abstract:

Objective:

To investigate the association of IV (intravenous) fluid bolus given within 72 hours of birth to premature neonates between 22 weeks to 28 weeks of gestation with the risk of development of IVH (intraventricular hemorrhage).

Methods:

A retrospective cohort study was done in a tertiary-level neonatal intensive care unit from January 2017 to December 2022. The infants included in this study were extremely premature neonates between 22 weeks to 28 weeks of gestation who received at least one 10 ml/kg of IV normal saline bolus within 72 hours of birth and had head ultrasounds within seven days of birth—classification of IVH used as per J. Volpe. SAS 9.4 version was used. Univariable analysis of categorical variables was performed with the chi-square or Fisher's exact test and for continuous variables, done with the student's t-test. Multivariable logistic regression analysis was done to identify the predictors of IVH.

Results:

One hundred four infants were included in this study. Birthweight, gestational age, vasopressor use in the first 72 hours of life, and pH were significant (p=0.017, p=0.032, p=0.040, p=0.0027, respectively) (Table 1). Fluid bolus was not significant on univariable analysis (OR 1.8, 95%CI 0.345–9.399, p=0.486); however, pH was significant (OR 20.78, 95% CI 2.293–188.435, p= 0.007). On multivariable logistic regression, patients with initial pH value <7.2 had 16.6 times the odds of grade 3 or 4 IVH compared to the patients with pH value ≥7.2 (aOR=16.63, 95%CI=1.46–189.01, p=0.02) after adjusting for baseline variables. The IV bolus on multivariable logistic regression was not significant (aOR=0.46, 95%CI=0.061–3.555, p=0.46).

Conclusion:

This study reveals that IV fluid bolus administration to extremely premature neonates within 72 hours of birth is not associated with an increased risk of IVH. However, caution should be exercised when interpreting the results as the sample size for higher grades of IVH was small, and further large prospective studies are needed to find a direct association between IV fluid bolus and the risk of development of IVH.

"A retrospective cohort study was done in a tertiary-level neonatal intensive care unit from January 2017 to December 2022. The infants included in this study were extremely premature neonates between 22 weeks to 28 weeks of gestation who received at least one 10 ml/kg of IV normal saline bolus within 72 hours of birth and had head ultrasounds within seven days of birth—classification of IVH used as per J. Volpe.

Introduction:

IVH (intraventricular hemorrhage) is a common but significant complication that occurs in premature infants. Premature infants are at higher risk of developing IVH due to the presence of the germinal matrix. The germinal matrix is a highly metabolic region with a great degree of angiogenesis, most prominent at 23–24 weeks gestational age and less so by 28–32 weeks gestational age (**1**). Several factors contribute to the development of IVH in premature infants—including changes in cerebral blood flow and the lack of maturity to regulate this blood flow (2).

Administration of fluid bolus is common in NICU (Neonatal Intensive Care Unit), especially in premature infants, for resuscitation, metabolic acidosis, or hypotension. Hypotension is the most common indication for these extremely preterm infants to receive fluid bolus in the first few hours of life (3). Volume expansion to stabilize the cardiovascular system can increase vascular pressure in VLBW (very low birth weight) babies. Change in vasculature pressure is a risk factor for IVH (2). However,

there is insufficient data to support whether normal saline bolus administration in preterm infants leads to the development of IVH.

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Bakshi et al. studied VLBW infants retrospectively to find associations between the administration of IV fluid bolus and adverse outcomes of prematurity (3). They found a higher incidence of oxygen requirement, patent ductus arteriosus (PDA), and IVH for the infants that received a bolus. Though the incidence was higher, there was no clinical significance (3). An animal study by Coulter et al. on premature rabbits looked at the IVH development after inducing a hypertensive environment by giving phenyl epinephrine and boluses (4). Their rabbit models failed to demonstrate any IVH in the premature rabbits after the insult.

Osborn et al. conducted a meta-analysis comparing currently available randomized controlled studies on the effects of early volume expansion in very preterm infants (5). One study by Beverley et al. included in this meta-analysis showed a significant reduction in periventricular and intraventricular hemorrhage (P/IVH) in preterm infants under 34 weeks gestational age who received fresh frozen plasma and those who did not. However, a similar study by Ekblad et al. failed to replicate these findings. A meta-analysis of these two studies also failed to demonstrate a significant difference in P/IVH between the treatment and control groups. (5)

Various predictors associated with the development of severe intraventricular hemorrhage have been identified in the literature, such as failure to receive antenatal steroids, male sex, 5 min Apgar score <7, intubation at birth, extremely low gestational age, transfer from another NICU (Neonatal Intensive Care Unit) and vaginal delivery. However, there is a paucity of evidence on the impact of intravenous (IV) fluid boluses as a risk factor for IVH in extremely premature neonates. NRP (Neonatal Resuscitation Program) in the current edition (8th) states that while giving fluid bolus for hypovolemia or hemodynamic instability, caution should be taken regarding the amount of bolus and administration time when given to infants <32 weeks gestational age (6).

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Currently, no human population studies have identified an association between early fluid bolus administration and IVH. We aim to look at preterm infants, primarily focusing on gestational age from 22–28 weeks, as there is a paucity of evidence on the association between the risk of IVH and bolus administration in this population in the first 72 hours.

Methods/Materials:

A retrospective cohort study was done in a tertiary-level neonatal intensive care unit (level 3 NICU) from January 2017 to December 2022. The infants included in this study were extremely premature neonates between 22 weeks to 28 weeks of gestation. We included infants who received at least one 10 ml/kg IV normal saline bolus within 72 hours of birth and had head ultrasounds within seven days. We excluded neonates who had any coagulopathy, NTD (neural tube defects), CDH (congenital diaphragmatic hernia), cyanotic CHD (congenital heart diseases), major structural anatomic deformity of head and trunk, death or transfer to a higher level of care within the first week of life. The institutional review board approved the study.

We collected data on infants and mother's demographic (infant

sex, infant race/ethnicity); birth weight as non-LBW (low birth weight), ELBW (extremely low birth weight) (<1000 g), VLBW (very low birth weight) (1000–1500g), LBW (<2500g); infant gestational age; mode of delivery; maternal medical history; prenatal care utilization; resuscitation (APGAR 1 min, APGAR 5 mins); inotrope use during resuscitation; required chest compressions; inotrope use in the first week of life (dopamine, dobutamine, epinephrine, norepinephrine, none); and ventilation details at birth and first blood gas parameters. The first blood gas collected was not restricted to arterial type, and all types (arterial, venous, and capillary) were considered, though priority was given to arterial blood gas if the infant had two or more types of blood gas at birth. Our institute restricts boluses to 10 ml/kg, provided over 30 minutes to 1 hour. We collected data for the number of boluses infants received within the first 72 hours and the reason documented for the bolus given. Our unit defined hypotension as mean arterial pressure (MAP) less than the gestational age. Metabolic acidosis necessitating bolus was taken as pH <7.2. Classification of IVH used as per Papillae (7). IVH was graded as no evidence of IVH; grades 1 and 2 IVH were favorable outcomes; and Grades 3 and 4 were unfavorable outcomes.

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Statistical Analysis:

All statistical analyses were performed using the weighted survey methods in SAS (version 9.4). Statistical significance was defined as p <0.05. Univariate analysis of differences between categorical variables was tested using the Chi-square test or Fisher's exact test, and continuous variables were tested using unpaired student's t-test. Multivariable survey logistic regression models were used to determine the odds ratio (OR) and 95% confidence interval for the association between intraventricular hemorrhage and intravenous fluid bolus in extremely premature newborns within seventy-two hours of birth. C-index (a measure of goodness of fit for binary outcomes in a logistic regression model) was calculated to assess the model's accuracy. A C-index of >0.6 was considered a good fit for the model. All statistical tests were 2-sided; p <0.05 was deemed statistically significant.

Results:

One hundred four infants were included in this study. Table 1 shows the baseline characteristics of the patient population. The mean gestational ages of the infants with no IVH, grade 1 or 2 and grades 3 or 4, were 26.3 weeks, 26.2, and 24.67 weeks of gestation, respectively. On univariate analysis, birthweight, gestational age, and vasopressor use in first 72 hours of life were significant (p=0.017, p=0.032, and p=0.040, respectively). We had a similar distribution of sexes (female N=50, male N=54).

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Table 1 also demonstrated the first gas parameters (pH, pCO2, base excess, and hematocrit) available at birth on admission to the NICU. pH value was categorized as <7.2 being acidotic and ≥7.2 as non-acidotic. pH was significant (p=0.0027). pCO_2 was used as continuous data with a mean of 42.94 (infants with no IVH), 50.56 (infants with grade 1 or 2 IVH), and 49.03 (infants with grade 3 or 4 IVH).

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Of the total infants in this study, 83 had no IVH, 15 had either grade 1 or 2 IVH, and six had Grade 3 or 4 IVH. Of the infants with no IVH, 52 (62.65%) did not receive IV fluid bolus, and 31 did (37.34%) [Table 1]. The neonates who weighed less had an

Table 1: Univariate analysis of demographic data, resuscitation, and hospital course in infants less than or equal to 28 weeks gestation, and diagnosis of IVH within first seven days of life.

	No IVH N= 83, N (%) Mean (SD)	**Grade 1 or 2 IVH** N=15, N (%) Mean (SD)	**Grade 3 or 4 IVH** N= 6, N (%) Mean (SD)	**P-value**
Birth weight (g)	890.29 (268.49)	866.07 (235.78)	647.33 (158.51)	0.017
Gestational age	26.30 (1.65)	26.20 (1.32)	24.67 (1.21)	0.032
Sex				
Female	40 (48.2)	8 (53.3)	2 (33.33)	0.709
Male	43 (51.8)	7 (46.7)	4 (66.7)	
Mode of Delivery				
Vaginal	27 (32.5)	8 (53.3)	3 (50)	0.238
C-section	56 (67.5)	7 (46.7)	3 (50)	
Antenatal Steroids				
Yes	72 (86.7)	14 (93.3)	5 (83.3)	0.736
No	11 (13.3)	1 (6.7)	1 (16.7)	
Chest Compressions				
Yes	6 (7.2)	1 (6.7)	2 (33.3)	0.135
No	77 (92.8)	14 (93.3)	4 (66.7)	
Vasopressor use (during resuscitation)				
Yes	6 (6)	1 (6.7)	2 (33.3)	0.100
No	78 (94.0)	14 (93.3)	4 (66.7)	
Vasopressor use				
Yes	12 (64.5)	1 (6.7)	3 (50)	0.040
No	71 (85.5)	14 (93.3)	3 (50)	
Inborn/Outborn Delivery				
Inborn	65 (78.3)	11 (73.3)	4 (66.7)	0.758
Outborn	18 (21.7)	4 (26.7)	2 (33.3)	
APGAR at 1 min				
≤5	45 (55.6)	9 (60)	6 (100)	0.109
>5	36 (44.4)	6 (40)	0 (0)	
APGAR at 5 mins				
≤5	20 (24.7)	3 (20)	4 (66.7)	0.088
>5	61 (75.3)	12 (80)	2 (33.3)	
Blood gas parameters				
pH<7.2	15 (18.1)	4 (26.7)	5 (83.3)	0.0027
pH≥7.2	68 (81.9)	11 (73.3)	1 (16.7)	
pCO_2	42.94 (13.37)	50.56 (20.04)	49.03 (23.81)	0.3756
Base Excess				
≤ –5	49 (60.5)	12 (80)	5 (100)	0.1140
> –5	32 (39.5)	3 (20)	0 (0)	
Hematocrit	42.29 (8.27)	43.66 (9.65)	34 (8.54)	0.3402
Bolus administration in first 72 hours				
Yes	31 (37.35)	4 (26.67)	3 (50)	0.5386
No	52 (62.65)	11 (73.33)	3 (50)	

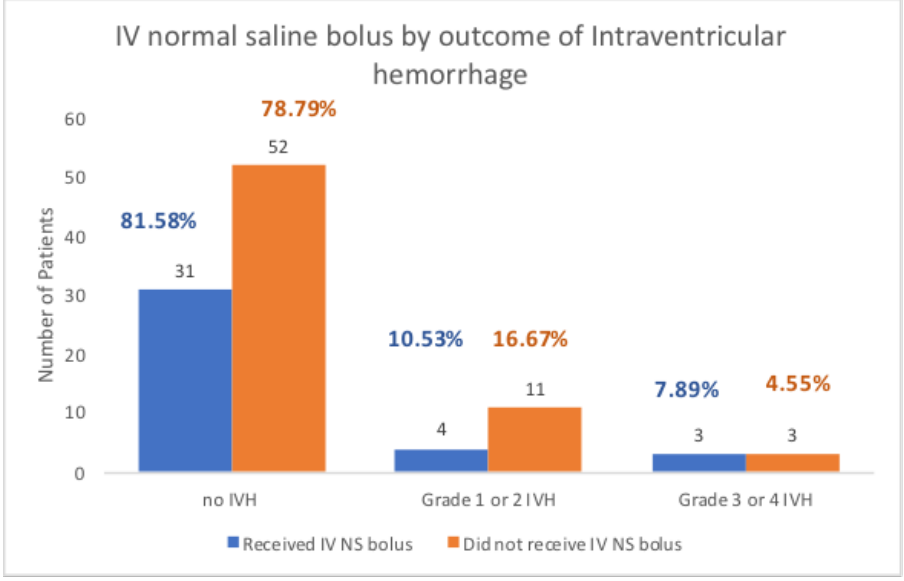

Figure 1: Percentages in the graphs are row%, which indicates the distribution of patients with Intravenous normal saline bolus and without bolus across different grades of IVH outcome.

"Of the total infants in this study, 83 had no IVH, 15 had either grade 1 or 2 IVH, and six had Grade 3 or 4 IVH. Of the infants with no IVH, 52 (62.65%) did not receive IV fluid bolus, and 31 did (37.34%)."

increased incidence of a higher degree of IVH, with the mean birth weights of the neonates with no IVH, grade 1 or 2 and grade 3 or 4 being 890.29 grams, 866.07 and 647.33 grams, respectively. Figure 1 shows the percentages in the graphs as row percentages, which indicates the distribution of patients with intravenous normal saline bolus and without bolus across different grades of IVH outcome. 11 (16.67%) babies with Grade 1 or 2 IVH did not receive bolus, and 4 (10.53%) received a bolus. Three (7.89%) babies with grade 3 or 4 IVH received a bolus, and three (4.55%) did not.

"Intravenous fluid bolus was not significant on univariable analysis (OR 1.8, 95% CI 0.345–9.399, p=0.486) or on multivariable logistic regression analysis as well (aOR=0.46, 95%CI=0.061–3.555, p=0.46). On univariable analysis, pH was significant (OR 20.78, 95% CI 2.293–188.435, p= 0.007). On multivariable logistic regression, patients with initial pH value <7.2 had 16.6 times the odds of grade 3 or 4 IVH compared to the patients with pH value ≥7.2 (aOR=16.63, 95% CI=1.46–189.01, p=0.02)."

Intravenous fluid bolus was not significant on univariable analysis (OR 1.8, 95% CI 0.345–9.399, p=0.486) (Table 1) or on multivariable logistic regression analysis as well (aOR=0.46, 95%CI=0.061–3.555, p=0.46). On univariable analysis, pH was significant (OR 20.78, 95% CI 2.293–188.435, p= 0.007) (Table 1). On multivariable logistic regression, patients with initial pH value <7.2 had 16.6 times the odds of grade 3 or 4 IVH compared to the patients with pH value ≥7.2 (aOR=16.63, 95% CI=1.46–189.01, p=0.02).

DISCUSSION:

This study is a retrospective cohort study carried out at a tertiary-level neonatal intensive care unit in the United States of America. We looked at six years of data from January 2017 to December 2022. Our sample size included 104 neonates between 22 and 28 weeks of gestation. Our study sample was significant for birth weight and gestational age (p=0.017 and p=0.032, respectively) to the risk of IVH, which is similarly reflected in current literature (p=0.04 and p=0.001, respectively) (8).

"Our study sample was significant for birth weight and gestational age (p=0.017 and p=0.032, respectively) to the risk of IVH, which is similarly reflected in current literature."

A prospective study by Lee et al. (9) investigated a relationship between acidosis within one hour after birth and severe IVH defined as grades 3 or 4 and found a significant association (p<0.001). Szpecht et al. (10) conducted a retrospective study that examined the risk factors of severe IVH grades 3–4 in premature infants less than 32 WGA (p<0.0001). This study found significance between severe IVH and premature infants with acidosis who were

subsequently treated with sodium bicarbonate, though whether this significance was due to the acidosis or due to the treatment cannot be determined. Similarly, the effect of pH (p=0.027) on IVH was noted to be significant in our study. On multivariable logistic regression, patients with pH value <7.2 had 16.6 times the odds of grade 3 or 4 IVH compared to the patients with pH value ≥7.2 (aOR=16.63, 95% CI=1.46–189.01, p=0.02) after adjusting for baseline variables.

Synnes et al. (11) did a prospective data analysis from 17 NICU centers in Canada to further investigate risk factors of severe IVH. The significant risk factors reported from this study included Apgar scores at 5 minutes (Apgar <4, OR 2.1; Apgar 4–6, OR 1.5), outborn deliveries (OR 1.9), incomplete maternal antenatal steroid treatment (OR 0.6), and vasopressor use (OR 1.7). Our study found a significant association between vasopressor use and IVH (p=0.040). However, we did not see significance in Apgar scores at 1 minute (p=0.109) or 5 minutes (p=0.088) or a significant difference between outborn and inborn deliveries (p=0.758).

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An interesting finding in our data, which is contrary to previous literature (11), is that neonates who received antenatal steroids showed an increased incidence of IVH when stratified for various grades of IVH (antenatal steroids and grade 1 or 2 93.3% and grade 3 or 4 83.3% versus no antenatal steroids grade 1 or 2 6.7% and grade 3 or 4 16.7%). However, this was not numerically and statistically significant (p-value = 0.736).

Goddard et al. sought to develop an animal model for IVH by introducing a hypercarbic mixture through a ventilator rapidly in one group of beagle puppies and slowly in another group (12). Hypercarbia causes vasodilation of cerebral arteries and subsequently increases cerebral blood flow. 2 of the 9 total beagle puppies demonstrated histological features of IVH, and both had been exposed to rapid hypercarbia. Similar results were seen in another study by Johnson et al. (13). Although our study did not demonstrate statistical significance in pCO_2, the mean values were different between no IVH (42.94) and various grades of IVH (Grades 1–2 = 50.56, grades 3–4 = 49.03).

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Of the 104 neonates, 83 had no IVH, 15 had Grade 1 or 2 IVH, and only six had Grade 3 or 4 IVH. The worldwide incidence of intraventricular hemorrhage (IVH) ranges from 3.70 to 44.68%. The overall frequency of PIVH grades I, II, III, and IV in preterm infants is 17.0%, 12.1%, 3.3%, and 3.8%, respectively (14). When PIVH occurs, about 50% occur on the first day of life, and by the third day of life, it is 90% (14). Thus, the goal was to screen infants within the first week of life to capture most IVH occurrences. The sample size for grade 3 and 4 IVH was small (six patients: three who received bolus, and three did not); hence, the study's results should be interpreted cautiously due to this limitation.

IVH is related to significant long-term complications such as cerebral palsy and language, cognitive and motor delays, and comorbidities. A retrospective study by Aslam et al. showed a higher incidence of bronchopulmonary dysplasia in very preterm infants who received saline bolus within their first week of life compared to those who did not (15). The persistence of the germinal matrix puts premature neonates at greater risk of developing intraventricular hemorrhage. Additionally, their decreased capacity for cerebral autoregulation has warranted caution in situations that may cause sudden changes in cerebral blood flow. We hypothesize that the previously held idea of the impact of IV fluid on IVH in extremely premature newborns is likely an extrapolation of studies done on newborns of a broader range of gestations and birth weights, as we were not seeing an increased incidence of IVH with IV fluid boluses on our unit in extremely premature neonates. There is no statistical difference in the risk of occurrence of IVH if they receive fluid bolus or not (aOR=0.46, 95%CI=0.061–3.555, p=0.46).

One limitation of our study was a small sample size for grade 3 and 4 IVH (six patients, three who received bolus and three who did not). Additionally, the interpretation of the pCO_2 and O_2 data is limited as the first blood gas collected was not restricted to the arterial type. Due to the study's retrospective nature, there was probably a lack of control over exposure factors and other potentially confounding variables. We also did not compare our results with neonates who developed IVH and did not receive IV saline bolus. The study's results should be interpreted cautiously with these limitations in mind. Further prospective studies are needed to develop an association between the relationship between IVH and the administration of IV fluid boluses, but these are difficult to conduct due to ethical reasons.

"The persistence of the germinal matrix puts premature neonates at greater risk of developing intraventricular hemorrhage. Additionally, their decreased capacity for cerebral autoregulation has warranted caution in situations that may cause sudden changes in cerebral blood flow. We hypothesize that the previously held idea of the impact of IV fluid on IVH in extremely premature newborns is likely an extrapolation of studies done on newborns of a broader range of gestations and birth weights, as we were not seeing an increased incidence of IVH with IV fluid boluses on our unit in extremely premature neonates. There is no statistical difference in the risk of occurrence of IVH if they receive fluid bolus or not (aOR=0.46, 95%CI=0.061–3.555, p=0.46)."

This study reveals that IV fluid bolus administration to extremely premature neonates within 72 hours of birth is not associated with an increased risk of IVH. Our findings support prior retrospective studies and animal models, which similarly failed to show an association between early volume expansion and IVH in premature infants (9, 10, 11). We encourage diligence while administering IV fluid bolus to extremely preterm infants. Although randomized control trials might be a challenge to run on this subject, further multi-center prospective trials are required on this study population before the findings of this trial can be used in clinical practice.

"This study reveals that IV fluid bolus administration to extremely premature neonates within 72 hours of birth is not associated with an increased risk of IVH. Our findings support prior retrospective studies and animal models, which similarly failed to show an association between early volume expansion and IVH in premature infants. We encourage diligence while administering IV fluid bolus to extremely preterm infants. Although randomized control trials might be a challenge to run on this subject, further multi-center prospective trials are required on this study population before the findings of this trial can be used in clinical practice."

Conclusion:

This study reveals that IV fluid bolus administration to extremely premature neonates within 72 hours of birth is not associated with an increased risk of IVH. However, caution should be exercised when interpreting the results as the sample size for higher grades of IVH was small, and further large prospective studies are needed to find a direct association between IV fluid bolus and the risk of development of IVH.

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Priya Jegatheesan, MD
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Chief, Division of Neonatology

Director, Regional NICU and High Risk Infant Follow-up Clinic

Santa Clara Valley Medical Center

Sangeeta Mallik, PhD
she/her

Director, Family-Centered Care Team

Santa Clara Valley Medical Center NICU

What it takes to implement Social Determinants of Health screening and referral in the NICU

Erika (Gaby) Cordova Ramos, MD
she/her/ella

Assistant Professor of Pediatrics, Boston University

Neonatologist, Boston Medical Center

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Assessing the Shifts: A 5-Year Analysis of Surfactant and Assisted Ventilation Trends in Neonatal Care in the United States (2016-2020)

Ramesh Vidavalur MD MBA FAAP

"Respiratory distress syndrome is the most common cause of respiratory problems in preterm infants."

Abstract:

Background: Respiratory distress syndrome is the most common cause of respiratory problems in preterm infants. Early nasal CPAP, combined with the INSURE method (INtubation-SURfactant-Extubation) as the primary respiratory support approach for preterm infants, has gained popularity over prophylactic surfactant with mechanical ventilation in recent years. Limited evidence exists to understand racial differences in resource usage among preterm infants.

Objective: To investigate the trends, gender, and racial differences in the use of surfactant and assisted ventilation for > 6 hours among newborns in the United States.

Methods: Using 2016-2020 population-based cohort data for all births from the Centers for Disease Control and Prevention's WONDER natality database, we calculated rates, examined trends, and investigated gender and racial differences for surfactant use and assisted ventilation. Contingency tables analyses and Chi-square calculations were performed to detect differences between the groups with statistical significance set at p<.05.

Results: Among >18 million newborn births, overall rates of surfactant use and assisted ventilation for the study period were 4.8 and 15.6 per 1000 live births, respectively. While surfactant use remained similar (p=.99), assisted ventilation rates increased from 13.6 to 17.8 per 1000 live births (p <.0001) during the study period. Subgroup analysis among term infants (37-42 weeks) showed statistically significant increases in surfactant use (4.3 to 5.1 per 1000 live births; p<.0001) and assisted ventilation (26.2 to 38.3 per 1000 live births; p< .0001). Late preterm infants (34-36 weeks GA) had increasing assisted ventilation rates (44 to 59 per 1000 live births; OR: 1.35; p<.0001) and trend toward lower surfactant use (11 to 10/1000 live births; OR: 0.95; p=.010) during the study period. Male and Black infants had the highest utilization rates of surfactant and assisted ventilation.

Conclusion: Assisted ventilation rates steadily increased across all gestational ages, while surfactant use remained stable during the study period. Racial and gender differences exist for surfactant use and assisted ventilation needs. Contemporary trends toward "gentle" approaches in early respiratory management and guidelines for surfactant administration might have contributed to the changes in utilization rates. Clinicians and stakeholders should consider such information when allocating assets to hospitals and planning regional perinatal programs.

"Assisted ventilation rates steadily increased across all gestational ages, while surfactant use remained stable during the study period. Racial and gender differences exist for surfactant use and assisted ventilation needs. Contemporary trends toward "gentle" approaches in early respiratory management and guidelines for surfactant administration might have contributed to the changes in utilization rates."

Introduction:

Over the past two decades, significant advancements in neonatal care have led to a transformative shift in the management of premature infants, particularly in surfactant use and mechanical ventilation (1,2). The prevalence of respiratory distress syndrome (RDS) among preterm infants necessitates critical interventions, where antenatal corticosteroids, surfactant administration, and assisted ventilation play pivotal roles. Fortunately, recent years have witnessed remarkable strides in surfactant therapy, with the development of new formulations and delivery techniques. Among these innovations, less invasive administration methods, such as minimally invasive surfactant therapy (MIST), have revolutionized the management of RDS (3,4). Notably, these developments not only enhance short-term respiratory outcomes but also reduce long-term complications associated with mechanical ventilation.

In parallel to the progress in surfactant therapy, the last decade has brought substantial improvements in the field of mechanical

ventilation for premature infants. Implementing novel strategies, such as lung protective ventilation, has significantly enhanced outcomes and mitigated the risk of long-term respiratory sequelae. Moreover, the integration of noninvasive ventilation modalities into the care of preterm infants has gained considerable traction in recent years (5). Both nasal continuous positive airway pressure (nCPAP) and nasal intermittent positive pressure ventilation (NIPPV) (6,7) have emerged as effective alternatives to invasive mechanical ventilation. By providing respiratory support while reducing the likelihood of lung injury, these noninvasive ventilation techniques have become indispensable components of contemporary care for premature infants.

The primary objective of this study was to examine national time trends in overall surfactant use and mechanical ventilation rates among all live births during birth hospitalization in the United States between 2016 and 2020.

"The primary objective of this study was to examine national time trends in overall surfactant use and mechanical ventilation rates among all live births during birth hospitalization in the United States between 2016 and 2020."

Methods:

In this cross-sectional study, we utilized data from the US National Vital Statistics System Expanded Natality (8) to examine trends in the use of surfactant and mechanical ventilation among all live births from 2016 to 2020. The data were obtained from 57 vital statistic jurisdictions of the Vital Statistics Cooperative Program (VSCP), which were collected by the National Center for Health Statistics (NCHS) and available for researchers through the Centers for Disease Control and Prevention (CDC)-WONDER platform. Since these data were publicly available, the Institutional Review Board at Cayuga Medical Center deemed this study exempt from review.

The inclusion criteria encompassed all live-born neonates categorized by their gestational age (GA) at birth, who required assisted ventilation for more than 6 hours and received surfactant replacement therapy. GA determination was based on the best obstetric estimate (OE) in completed weeks, following the guidelines provided by the American College of Obstetricians and Gynecologists (ACOG) (9). The study included cases of assisted ventilation for more than 6 hours, employing various methods of conventional or high-frequency mechanical ventilation (including CMV, IMV, HFV, IPPV, HFJV, INO, and NIPPV), as well as continuous positive airway pressure while excluding cases using only free-flow oxygen and nasal cannula supplementation. The surfactant therapy encompassed both natural and synthetic surfactant use.

The primary outcome was to assess the surfactant and mechanical ventilation usage trends over the study period for each GA category. To achieve this, we calculated the proportion of newborns who required these interventions by dividing the number of such newborns by the total number of live births for each specific GA. Additionally, we evaluated the utilization of mechanical ventilation and surfactant among different races.

For the presentation of descriptive statistics, we expressed the frequencies as percentages (%), and to compare rate differences among the groups, we utilized rate ratios along with their Poisson 95% confidence intervals (CI). Furthermore, we calculated odds ratios (ORs) with 95% CIs to measure associations, particularly for binary outcomes between groups. All p-values were obtained from two-sided tests, and results were considered statistically significant when $p < 0.05$.

Results:

In the CDC-WONDER database spanning from 2016 to 2020, out of 18,939,599 live births, 90,645 (0.48%) newborns received surfactant therapy, and 295,221 (1.56%) required mechanical ventilation during their birth hospitalization in the United States. The majority (93%) of surfactant use and assistant ventilation use occurred among infants born at <34 weeks GA (Figure 1).

Over the five-year period, overall surfactant use remained stable at 0.48% (Rate Ratio 0.99; [95% CI: 0.98, 1.01, p=0.91]), while assisted ventilation rates significantly increased from 1.4% to 1.8% (Rate Ratio 1.29 [95% CI: 1.28, 1.31, P<0.001]) among all live births.

Interestingly, among late preterm infants (34-36 weeks GA), surfactant use rates declined from 1.15% in 2016 to 1.09% in 2020 (Rate Ratio 0.94, [95% CI: 0.90, 0.99, p=.039]), while mechanical ventilation rates increased from 4.42% in 2016 to 5.90% in 2020 (Rate Ratio 1.33, 95% CI: 1.30, 1.36; p<.001]) (Figure 2). Subgroup analysis showed statistically significant increases in surfactant use (4.3 to 5.1 per 1000 live births ;p<.0001) and assisted ventilation (26.2 to 38.3 per 1000 live births; p< .0001) in term infants (Figure 3).

When comparing infants born to White individuals with those born to Black individuals, it was observed that infants of Black individuals had higher rates of both mechanical ventilation (OR 1.30, [95% CI: 1.28-1.31, p<.001]) and surfactant use (OR 1.49, [955 CI: 1.46, 1.50, p<.001]) (Table 1). Specifically, the surfactant use and mechanical ventilation rates among Black infants were 6.7 and 19.4 per 1000 live births, respectively, while among White infants, the rates were 4.5 and 15.1 per 1000 live births (Table 2)

Additionally, male infants displayed higher needs for both surfactant therapy and mechanical ventilation when compared to female infants (OR 1.23, [95% CI: 1.21, 1.24, p<.001].

Discussion:

In this cross-sectional study, we observed a consistent and noteworthy increase in the use of mechanical ventilation among newborns in the United States from 2016 to 2020. However, during the same period, rates of surfactant use remained stable. Additionally, we identified notable disparities, with significantly higher rates of surfactant use and need for mechanical ventilation among Black infants compared to White infants.

We speculate that the rise in mechanical ventilation rates was primarily attributed to the increased adoption of noninvasive assisted ventilation strategies aimed at avoiding intubation and invasive

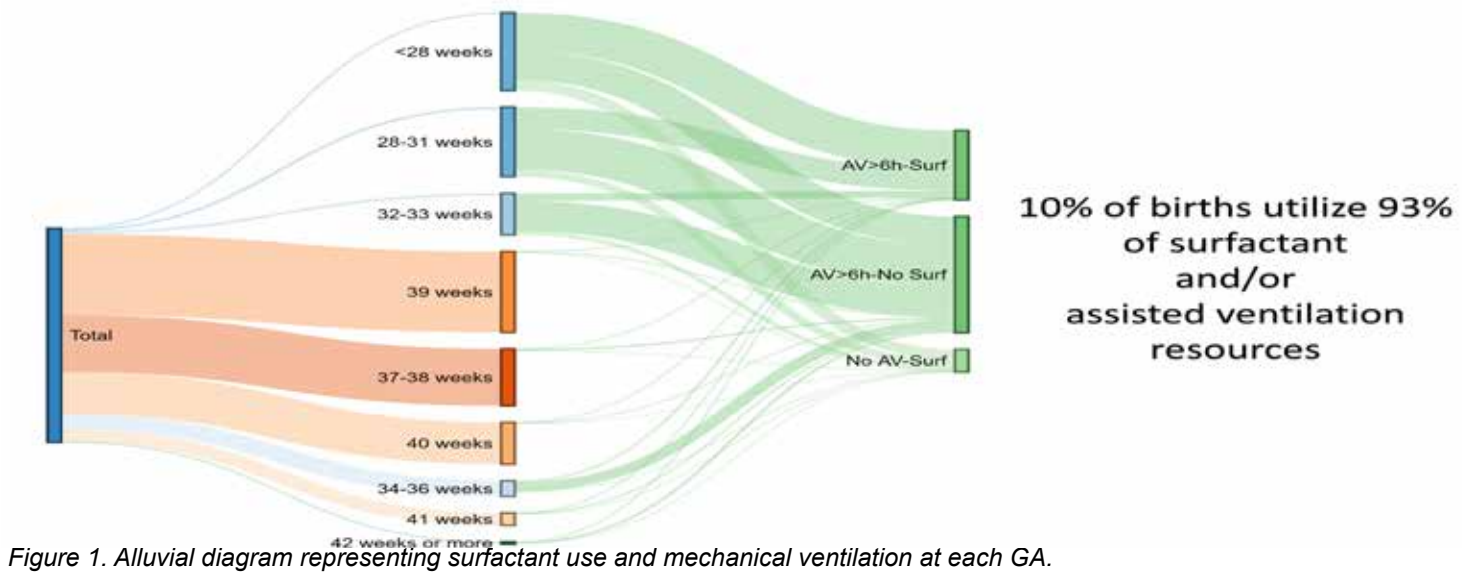

Figure 1. Alluvial diagram representing surfactant use and mechanical ventilation at each GA.

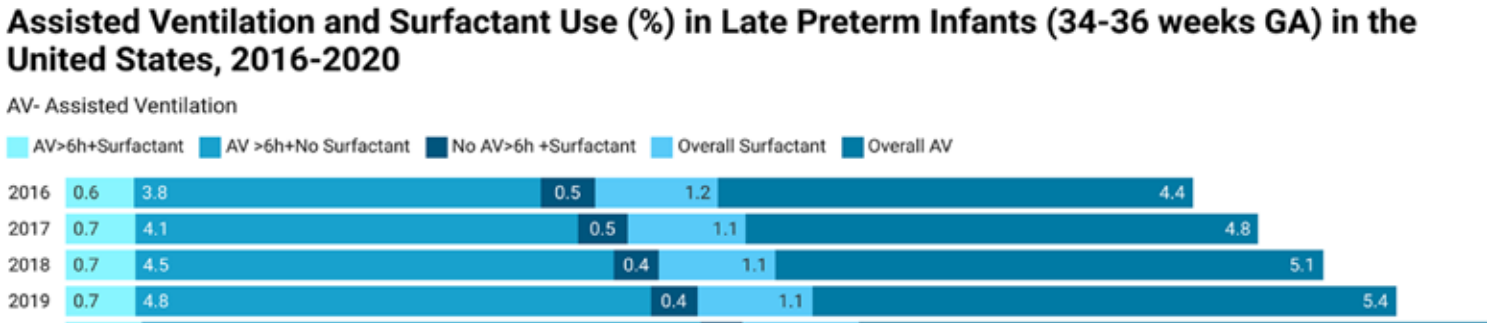

Figure 2. Assisted ventilation and surfactant use in late preterm infants (34-36 weeks GA)

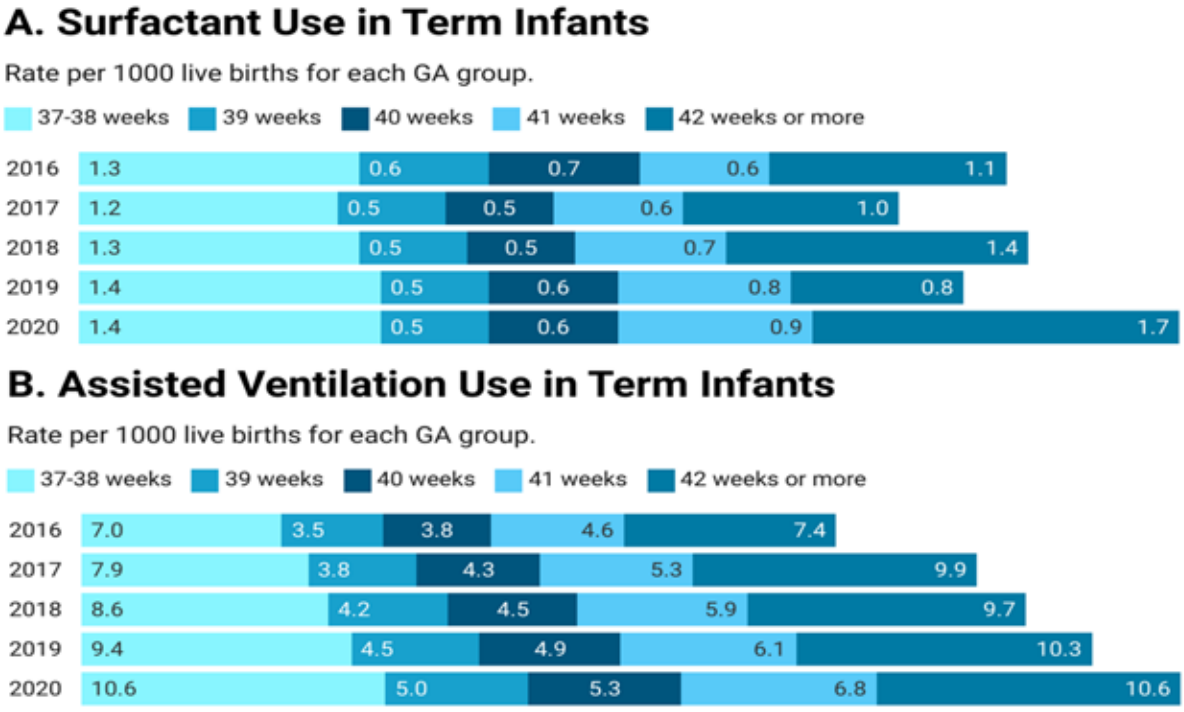

Figure 3. Surfactant and Assisted ventilation use rates per 1000 live births in term newborns.

Assisted Ventilation and Surfactant Use by Race.

Category	Assisted Ventilation	Surfactant
	OR (95% CI)	OR (95% CI)
White	Ref	Ref
American Indian or Alaska Native	1.29 (1.24-1.33)	1.26 (1.18-1.34)
Asian	0.67 (0.66-0.68)	0.57 (0.55-0.59)
Black or African American	1.30 (1.28-1.30)	1.49 (1.46-1.50)
Native Hawaiian or Other Pacific Islander	1.19 (1.12-1.26)	0.97 (0.86-1.1)*
More than one race	1.16 (1.13-1.18)	1.14 (1.10-1.19)

*OR- Odds Ratio; * p=not significant*

Table 1. Assisted ventilation and surfactant use by race, 2016-2020.

Assisted ventilation and Surfactant Use.

	Surfactant	Assisted Ventilation
	Rate per 1000 live births	Rate per 1000 live births
Race		
White	4.5	15.1
American Indian or Alaska Native	5.7	19.4
Asian	2.6	10.2
Black or African American	6.7	19.5
Native Hawaiian or Other Pacific Islander	4.4	17.9
More than one race	5.2	17.4
Sex		
Female	4.3	14.0
Male	5.3	17.1

Table 2. Assisted ventilation and surfactant use rates by sex and race, 2016-2020.

ventilation. Our findings align with those from recent studies conducted by the Vermont Oxford Network, which reported a 2.6-fold increase in the provision of continuous positive airway pressure among infants born between 30-36 weeks GA during the years 2011 to 2020 (10). In our study, we identified a 6% decrease in surfactant use and a 30% increase in the use of any form of mechanical ventilation among late preterm infants (34-36 GA). Other epidemiological studies, such as the one by Donda et al., also confirmed similar trends of consistently increased use of noninvasive mechanical ventilation among preterm infants (<34 weeks GA) during the years 2003 to 2014 (11). Similarly, a cohort study based on two large national datasets demonstrated a consistent increase in the use of noninvasive mechanical ventilation among preterm infants <35 weeks GA (12). Our study, encompassing all live births, aimed to shed light on the population-level use of surfactant therapy and mechanical ventilation.

However, it is essential to acknowledge the limitations of this study, such as the inability to differentiate noninvasive and invasive ventilation data due to the lack of standardized modes of ventilation in birth certificate data. Moreover, large administrative databases like CDC-WONDER are susceptible to misclassification of variables and inaccurate documentation. Despite these limitations, the strength of this study lies in its use of a large national dataset obtained from standardized and validated data sources providing valuable insights into the population-level use of surfactant therapy and mechanical ventilation.

"While overall surfactant use rates remained stable over the past few years, the implications of increasing evidence and popularity of MIST and less invasive surfactant administration (LISA) (13) remain to be seen. Consistent adherence to practice guidelines for surfactant administration among preterm infants (14, 15) may optimize outcomes and reduce costs. "

While overall surfactant use rates remained stable over the past few years, the implications of increasing evidence and popularity of MIST and less invasive surfactant administration (LISA) (13) remain to be seen. Consistent adherence to practice guidelines for surfactant administration among preterm infants (14, 15) may optimize outcomes and reduce costs. Recognizing the ongoing pursuit of personalized care for premature infants is crucial to individualizing therapeutic approaches, incorporating gestational age, lung maturity, and other clinical considerations. Collaborative research efforts, technological innovations, and an improved understanding of prematurity's pathophysiology hold the potential to optimize surfactant use, refine mechanical ventilation strategies, and embrace personalized care approaches that can significantly improve outcomes and quality of life for premature infants.

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

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

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

*Source: Respirator Syncytial Virus and African Americans

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

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

AfPA

Surfactant Redosing

Shabih Manzar, MD, MPH

"The NICU team was contemplating redosing with surfactant. However, based on the physical examination, a relatively clear lung field on the repeat x-ray and an oxygen saturation difference of 11% was noted between preductal (SpO2 95%) and postductal (84%); we decided to hold off on surfactant therapy suspecting persistent pulmonary hypertension (PPHN)."

A preterm infant is admitted to the NICU for management of respiratory distress. The gestational age was 23 1/7 weeks, and the birth weight was 595 grams. The infant was intubated in the delivery room, and one dose (2.5 mL/kg) of surfactant was given. The x-ray was obtained after line placement (Figure 1, panel A). The infant was weaned to 21% O_2 while on the high-frequency ventilator. The blood gas from the umbilical arterial catheter showed a pH of 7.38/ pCO_2 37, paO_2 41, HCO_3 22, and base deficit -2.3. At 10 hours of life, oxygen requirement went up to 70%. A repeat x-ray was obtained (Figure 1, panel B).

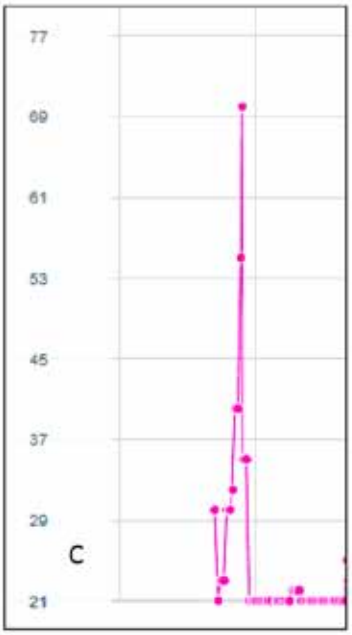
The NICU team was contemplating redosing with surfactant. However, based on the physical examination, a relatively clear lung field on the repeat x-ray and an oxygen saturation difference of 11% was noted between preductal (SpO2 95%) and postductal (84%); we decided to hold off on surfactant therapy suspecting persistent pulmonary hypertension (PPHN). An echocardiogram was ordered, and inhaled nitric oxide (iNO) was started as a rescue treatment for suspected PPHN. An immediate response was noted, and the infant was weaned back to 21% O_2 (Figure 1, panel C). The echocardiogram showed a patent ductus arteriosus, with a small, very low velocity left to right shunt consistent with near systemic RV systolic pressure.

"Recently, Lanciotti et al. (1) described significant surfactant redosing in preterm infants born to mothers with hypertension in pregnancy and those who were small for gestational age (SGA). The authors mentioned the antiangiogenic environment caused by maternal hypertension and the possibility of fetal and neonatal pulmonary vasculature underdevelopment."

Figure 1

45 minutes after birth, Surfactant was given in the delivery room

10 hr after birth, FiO_2 requirement up to 0.7. Preductal SpO_2 = 95%, Postductal SpO_2 = 84%



A quick response to iNO; see text for details

Recently, Lanciotti et al. (1) described significant surfactant redosing in preterm infants born to mothers with hypertension in pregnancy and those who were small for gestational age (SGA). The authors mentioned the antiangiogenic environment caused by maternal hypertension and the possibility of fetal and neonatal pulmonary vasculature underdevelopment. Interestingly, their paper did not consider persistent pulmonary hypertension (PPHN) as a possible cause of increased O_2 requirement in their cohort. Also, there was no mention of echocardiograms performed in infants requiring a second dose of exogenous surfactant. In a recent report, Mirza et al. (2) described the importance of recognizing PH in preterm infants. Although iNO is not a standard treatment in preterm infants with respiratory failure, it could be tried with the echocardiographic findings of PPHN (3).

"The authors mentioned the antiangiogenic environment caused by maternal hypertension and the possibility of fetal and neonatal pulmonary vasculature underdevelopment. Interestingly, their paper did not consider persistent pulmonary hypertension (PPHN) as a possible cause of increased O2 requirement in their cohort."

Considering our anecdotal experience with the case described above, we would like to raise the question about surfactant redosing in preterm infants merely based on increased oxygen requirements without targeted neonatal echocardiography.

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Evolution of a Family-Centered Care Program in a California Safety Net NICU

Priya Jegatheesan, MD
she/her

Chief, Division of Neonatology

Director, Regional NICU and High Risk Infant Follow-up Clinic

Santa Clara Valley Medical Center

Sangeeta Mallik, PhD
she/her

Director, Family-Centered Care Team

Santa Clara Valley Medical Center NICU

What it takes to implement Social Determinants of Health screening and referral in the NICU

Erika (Gaby) Cordova Ramos, MD
she/her/ella

Assistant Professor of Pediatrics, Boston University

Neonatologist, Boston Medical Center

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Ethics and Wellness Column: Ethics and Due Process

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

The United States Constitution provides "due process" in legal and administrative disputes. Due process extends beyond legal and administrative contexts and applies to medical licensure, privileges, and practices. It encompasses fair and equitable treatment in matters such as the conduct of physicians, practice standards, academic promotions, hospital privileges, or medical team assignments. Insufficient due process can hinder career advancement and result in an "injured" party (1-3). Due process guarantees decision-making and a sense of justice. Due process ensures that individuals are considered eligible to practice, relieved from probation, or even considered for promotion. Frustratingly, the absence of due process is occasionally used to obstruct opportunities that would enhance job satisfaction. This lack of transparency can disrupt one's life for extended periods, leaving them jobless, or hampered or unappreciated for their efforts.

"The United States Constitution provides "due process" in legal and administrative disputes. Due process extends beyond legal and administrative contexts and applies to medical licensure, privileges, and practices. It encompasses fair and equitable treatment in matters such as the conduct of physicians, practice standards, academic promotions, hospital privileges, or medical team assignments. Insufficient due process can hinder career advancement and result in an "injured" party (1-3)."

Incorporating the aspect of ethics into the discussion of due process in medicine further emphasizes its significance and underscores the moral imperative of adhering to due process principles. Here is a detailed exploration of the ethical considerations:

Ethical Imperative: Ethics in medicine are rooted in beneficence, nonmaleficence, justice, and autonomy. Practicing due process aligns with the principle of justice, ensuring that individuals are treated fairly and equitably. It is ethically imperative to provide healthcare professionals with the opportunity to excel based on their qualifications and merit rather than subjecting them to arbitrary decisions or biases (4).

Fairness and Equity: Ethical considerations underscore the importance of equity and treating individuals fairly and respectfully. Due process safeguards against discrimination and favoritism, ensuring that decisions are based on predetermined objective criteria rather than subjective or ad hoc judgments (5, 6). This ethical dimension is particularly crucial in healthcare, where people's lives and well-being are at stake.

"Due process safeguards against discrimination and favoritism, ensuring that decisions are based on predetermined objective criteria rather than subjective or ad hoc judgments (5, 6). This ethical dimension is particularly crucial in healthcare, where people's lives and well-being are at stake."

Patient Trust: A solid ethical foundation in medicine is built on trust, including patient trust and trust within the healthcare system. When healthcare professionals are granted privileges, promotions, or responsibilities through due process, it reinforces patient trust that decisions are made based on competence and ethical standards (2, 7). Conversely, a lack of due process can erode trust, raising ethical concerns about the integrity of the healthcare system.

Professional Integrity: Ethical principles within the medical profession demand professional integrity. Due process ensures that professionals are not subjected to undue pressures, personal biases, or unfair practices. Upholding due process upholds the integrity of the medical field, demonstrating a commitment to ethical standards (3, 8).

Mitigating Harm: The ethical principle of nonmaleficence underscores the importance of avoiding harm to individuals or groups of individuals. Failing to adhere to due process has harmed patients and healthcare professionals by impeding their autonomy and supplanting career advancement, thus causing undue stress and uncertainty (9). Ethical considerations call for mitigating such harm through a commitment and practice of transparent and equitable due process.

Accountability: Ethical frameworks emphasize the importance of accountability. Due process ensures that decisions and actions are transparent, well-documented, and accountable. It holds deci-

sion-makers responsible for their choices and actions and is both an ethical and legal necessity in healthcare professions (1, 3, 4).

Patient-Centered Care: Ethical medical practice centers on patient well-being. Adhering to due process guarantees that healthcare professionals are assigned roles and responsibilities based on their competence, ultimately contributing to better patient care (6, 8). A fair and just healthcare system benefits healthcare professionals and patients.

"Ethical medical practice centers on patient well-being. Adhering to due process guarantees that healthcare professionals are assigned roles and responsibilities based on their competence, ultimately contributing to better patient care (6, 8)."

In summary, ethics play a central role in discussions about due process in medicine. Adhering to due process principles aligns with ethical imperatives, such as fairness, justice, accountability, and integrity. It not only benefits healthcare professionals but also fosters patient trust and ultimately contributes to the delivery of ethical, patient-centered care. In contrast, a lack of due process can raise ethical concerns by potentially causing harm, eroding trust, and compromising professional integrity within the medical field. As such, promoting due process is not only a matter of fairness but also a matter of ethical responsibility in the healthcare sector (1, 3, 4).

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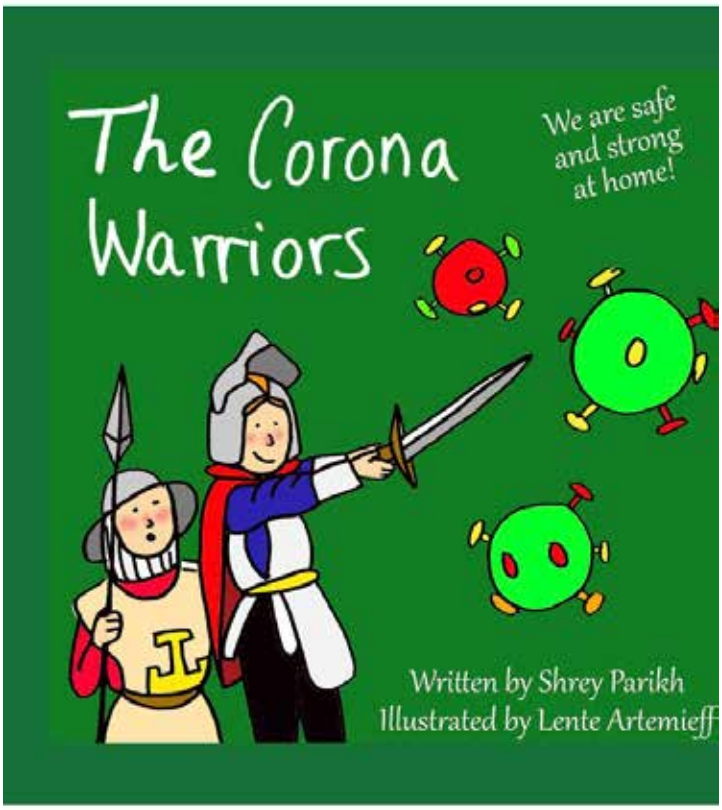

Letters to the Editor

Letter to Editor: "A New Milestone in the NICU: New Growth References for Preterm Infants"

Dear Editor,

I am writing to express my sincere appreciation for Dr. Fu-Sheng Chou's insightful article, "A New Milestone in the NICU: New Growth References for Preterm Infants." Dr. Chou's groundbreaking research sheds light on the importance of redefining growth reference for preterm infants.

In this article, Dr. Chou proposes a specific NICU postnatal growth chart for preterm infants that is more definitive for gender and gestation age growth charts while elucidating the significant limitation that the current intrauterine growth chart references. He calls the new method "Chou's NICU postnatal growth charts for preterm infants."

" It is crucial to rely on accurate growth references that serve as the benchmark for optimal postnatal growth. The references have several weaknesses. "The limitations of the infant portion of the references were thoroughly assessed in WHO's effort to develop a new international growth reference for infants and preschool children."

I commend Dr. Chou for his meticulous examination of the historical growth reference charts for preterm infants, starting with the 1977 statement by "The American Academy of Pediatrics Committee on Nutrition." It is crucial to rely on accurate growth references that serve as the benchmark for optimal postnatal growth. The references have several weaknesses. "The limitations of the infant portion of the references were thoroughly assessed in WHO's effort to develop a new international growth reference for infants and preschool children. There is a need for a single international reference to assess the nutritional status and growth of school-aged children and adolescents across different countries." (1)

Dr. Chou effectively communicates the limitations of current intrauterine growth charts, including infants affected by placental insufficiency and low oxygen tension. "Although the current National Center for Health Statistics and World Health Organization international growth reference continues to serve a unique and valuable role, it has some important technical limitations." (2) He suggests that the data from the 2013 Fenton growth charts are skewed when connected to the Who Child Growth Standard. "Whether or not the individual is growing normally is more complicated and not part of the information content that a growth chart aims to provide. This is not always appreciated by how growth charts are employed."(3)

"Utilizing data from the Pediatrix Clinical Data Warehouse, he employs a significant multilevel longitudinal analysis that allows for the derivation of growth estimates in a piece-wise fashion that unveils a more concise trajectory than traditional growth charts."

Dr. Chou's findings, particularly the revelation of three distinct phases of postnatal weight gain and consistent growth patterns across diverse gestational age groups, significantly advance how we understand preterm infants' development. Utilizing data from the Pediatrix Clinical Data Warehouse, he employs a significant multilevel longitudinal analysis that allows for the derivation of growth estimates in a piece-wise fashion that unveils a more concise trajectory than traditional growth charts. This groundbreaking research supplies healthcare providers with a new tool personalized to individual care, considering the variation in birth size and growth rate. Dr. Chou's NICU postnatal growth charts for preterm infants have the potential to simplify the interpretation of preterm infant growth, providing a better-informed decision regarding their treatment.

As a conscientious community member and aspiring healthcare provider, I appreciate Dr. Chou's effort in providing access to his work to the general public through a user-friendly nicu.growth.app. He delved into great detail on how to utilize the app and how it will simplify the interpretation of preterm infants' growth. His app can be utilized for multiple potential applications, including guiding nutrition delivery, supporting adequate growth, and facilitating "catch-up" growth for infants recovering from illnesses. Dr. Chou's commendable effort to improve our current use of NICU growth references is noteworthy. While Dr. Chou effectively communicates how to utilize his user-friendly "nicu.growth.app," including a screenshot or a brief demonstration on how to use the app would enrich comprehension.

"As a conscientious community member and aspiring healthcare provider, I appreciate Dr. Chou's effort in providing access to his work to the general public through a user-friendly nicu.growth.app. He delved into great detail on how to utilize the app and how it will simplify the interpretation of preterm infants' growth."

In conclusion, I extend my commendations to Dr. Chou for his outstanding research and your publication for providing a platform to showcase such impactful research that can potentially influence the well-being of preterm infants. I implore readers to read his article and explore his application, which has the potential to change the way we treat preterm infants.

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Sincerely,

Karim Hajjar OMS III

Dear Dr. to be Hajjar,

I appreciate the time and thought you invested in crafting a detailed letter expressing your appreciation for Dr. Fu-Sheng Chou's manuscript, "A New Milestone in the NICU: New Growth References for Preterm Infants." Your analysis highlights the significance of Dr. Chou's research and provides a nuanced understanding of the potential implications for the healthcare community.

"The references you cited further underscore the necessity for a unified international growth reference, reflecting the shortcomings in the current World Health Organization (WHO) efforts and emphasizing the need for a comprehensive approach to assessing the nutritional status and growth of children and adolescents globally."

Your commendation of Dr. Chou's meticulous examination of historical growth reference charts is a valuable reminder of the critical importance of accurate benchmarks for optimal postnatal growth. The references you cited further underscore the necessity for a unified international growth reference, reflecting the shortcomings in the current World Health Organization (WHO) efforts and emphasizing the need for a comprehensive approach to assessing the nutritional status and growth of children and adolescents globally.

"The elucidation of three distinct phases of postnatal weight gain and consistent growth patterns across diverse gestational age groups, as well as the utilization of data from the Pediatrix Clinical Data Warehouse, further emphasizes the groundbreaking nature of his research."

Dr. Chou's adept communication of the limitations in current intrauterine growth charts, particularly in cases of placental insufficiency and low oxygen tension, resonates with your observation that there is a need for a more definitive NICU postnatal growth chart. The elucidation of three distinct phases of postnatal weight gain and consistent growth patterns across diverse gestational age groups, as well as the utilization of data from the Pediatrix Clinical Data Warehouse, further emphasizes the groundbreaking nature of his research.

"The potential applications of the app in guiding nutrition delivery, supporting adequate growth, and facilitating "catch-up" growth for infants recovering from illnesses underscore the practical implications of this research for healthcare providers."

Your emphasis on Dr. Chou's efforts to make his work accessible to the general public through the user-friendly nicu.growth.app is commendable. The potential applications of the app in guiding nutrition delivery, supporting adequate growth, and facilitating "catch-up" growth for infants recovering from illnesses underscore the practical implications of this research for healthcare providers.

" Ensuring accessibility and user-friendly features are crucial for maximizing the impact of this tool, and your insight adds a practical dimension to the discussion."

I acknowledge your thoughtful suggestion regarding a brief demonstration or screenshot to enhance comprehension of how to use the app. Ensuring accessibility and user-friendly features are crucial for maximizing the impact of this tool, and your insight adds a practical dimension to the discussion.

In conclusion, your letter is valuable to the ongoing discourse surrounding Dr. Chou's outstanding research. We share your sentiments in commending Dr. Chou for his groundbreaking work and express gratitude for your thoughtful and insightful letter.

Sincerely,

Mitchell Goldstein, MD, MBA, CML

Editor in Chief

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

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

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Erratum (Neonatology Today October, 2023

Neonatology Today is not aware of the erratum affecting the October, 2023 edition.

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

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Navigating toward Neonatology: Newborn Fever

Benjamin Hopkins, OSM IV, Joseph Hageman, MD

"Let me start by introducing myself. My name is Benjamin Hopkins, and I am currently a fourth-year medical student at Western University of Health Sciences in Pomona, California. When 'I grow up,' I want to be a Neonatologist. Recently, my wife and I welcomed our first child and are learning to be first-time parents. Follow along with this column as I navigate my way to becoming a neonatologist."

Let me start by introducing myself. My name is Benjamin Hopkins, and I am currently a fourth-year medical student at Western University of Health Sciences in Pomona, California. When "I grow up," I want to be a Neonatologist. Recently, my wife and I welcomed our first child and are learning to be first-time parents. Follow along with this column as I navigate my way to becoming a neonatologist.

I am in the midst of residency application season and undergoing interviews. Knowing that I am heading towards fellowship, my application was sent solely to "Categorical pediatrics" programs, most with high match rates in neonatology and programs that will offer me broad exposure to neonatal patients.

This past month, I had the privilege of rotating through the Kaiser-Permanente system. It was a great experience to see how an organization with vertical control over all aspects of its care operates. The physicians I worked with were knowledgeable and kind, and the residents I collaborated with were excellent. I spent most of my time on the inpatient pediatrics floor, with an occasional journey to the Emergency Department to consult on presenting children.

During this rotation, a patient helped me understand newborn fever; she was a 13-day-old female who came in with a fever of 102.3 F for one day. She was clinically well-appearing and in no acute distress, so I followed the AAP Clinical Practice Guidelines and proceeded with a urinalysis (UA), urine culture (UCx), blood culture (BCx), complete blood count (CBC) with differential, C-reactive protein (CRP), and a lumbar puncture (LP) with a cerebral spinal fluid (CSF) culture and Herpes Simplex Virus (HSV) Polymerase chain reaction (PCR)(1). The patient was then started on Acyclovir, Ampicillin, and Gentamicin for parenteral coverage, pending negative lab results (1). Labs came back quickly, and the UA was clean; CBC showed elevated White blood cells with a left shift, and CRP was elevated in the low 100s. However, the UCx, BCx, CSF culture, and HSV PCR were still pending. Antibiotics and antivirals were continued as appropriate. We had little suspicion of HSV, and our suspicion was soon proven correct with a negative HSV PCR, which allowed us to stop Acyclovir. The patient was kept off of acetaminophen to observe for a recurrence of fever, which seemed to spike once a day. Otherwise, the patient had no constitutional symptoms and was feeding appropriately. At 24 hours, there was no culture growth, but the patient still presented with a fever. Later that day, the BCx returned positive for Staph Epidermidis, which was concluded to be contaminated, so a repeat BCx was taken. Nothing changed over the next 24 hours; there was no growth on any cultures, and the patient's only symptom was occasional fever. Holding the patient for 36 hours out of precaution is recommended in the AAP guidelines; however, that would discharge the family at 3 AM, so it was decided to discharge the following afternoon, close to 48 hours if there was no clinical change or change in labs. That is what happened exactly; there was no change in clinical presentation and no growth in labs, and the patient was discharged with a follow-up with their general pediatrician in 2 days. I know this story is nothing exciting, and there is no definitive conclusion as to what was causing the fever. We concluded it was most likely a viral process we did not test for.

"However, these 'everyday' cases teach you what is expected and what to look for. This is one of those diagnoses that can present in many ways and one of the reasons why clinical presentation is crucial in deciding patient treatment pathways. This patient presented in no acute distress, was otherwise healthy, and had a non-concerning birth history."

However, these "everyday" cases teach you what is expected and what to look for. This is one of those diagnoses that can present in many ways and one of the reasons why clinical presentation is crucial in deciding patient treatment pathways. This patient presented in no acute distress, was otherwise healthy, and had a non-concerning birth history. With this in mind, it is appropriate to follow the guidelines of a full sepsis workup to have time to discover what is causing the symptoms (2).

Guidelines struggle when the patient presents in any manner other than well-appearing, and the clinician's experience comes to the forefront in determining the best approach. With an ill-appearing child, it is crucial to start with a sepsis workup, but there are additional steps to take depending on the presentation. With respiratory symptoms, get a chest x-ray, COVID-19 PCR, rapid influenza swab, and a rapid RSV swab (3-5). With GI symptoms, add a stool

culture, serum AST and ALT, and a fecal calprotectin study (3-5). With signs of septic shock, add PT, aPTT, INR, Fibrinogen, D-dimer, serum lactate, total bilirubin, ALT, ionized calcium, rapid blood glucose, arterial/venous blood gas, BUN, creatinine, and serum electrolytes (3-5). Along with labs, it is of vital importance to stabilize the patient; this is typically done by providing oxygen support (if needed), obtaining two peripheral large bore IVs, and, if there are no signs of fluid overload, giving a bolus of Normal Saline or Lactated Ringers (3-5).

"Through the countless typical presentations, such as this one, physicians encounter, they learn to differentiate those who present as well-appearing vs ill-appearing and know which direction of treatment to begin. However, even with experience, it is essential to collaborate with others and ensure that multiple thought processes and experts are being consulted."

This is all determined by the clinical presentation of the newborn; since they cannot provide a history themselves, it is up to the clinician to observe and conclude which approach to take in treatment. Through the countless typical presentations, such as this one, physicians encounter, they learn to differentiate those who present as well-appearing vs ill-appearing and know which direction of treatment to begin. However, even with experience, it is essential to collaborate with others and ensure that multiple thought processes and experts are being consulted.

This is one of the many reasons I love medicine; even with a typical presentation and no definitive diagnosis, there is much to learn from each patient, and the experiences help us grow into better providers. I look forward to what my next "typical" patient will teach me while continuously watching for those once-in-a-lifetime cases.

I have also had the pleasure of meeting with Dr. Joseph Hageman, a retired neonatologist and the Director of NICU Quality Improvement at Comer Children's Hospital, as well as the editor-in-chief of Pediatric Annals, and speaking about what makes an outstanding neonatologist. *

My first question is, "What qualities are most essential to excel as a neonatologist?"

Patience, having patience with your coworkers, the patient's parents, and everyone in between. I feel that patience separates a doctor from "doing everything right" from "doing everything right except…" in the parent's eyes. Also, doing your best, even if the outcome is not what you want, by knowing you did your best, you can be confident you did all you could to help the patient.

Next, "What do you now know that you wish you knew before going into neonatology?"

How I dealt with grief: it is crucial to learn how you deal with death and traumatic events and make sure you have time to process them and work through them. Use the resources offered to you.

"Do rotations in multiple areas of neonatology and figure out where you want to spend your time; there are numerous directions you can take as a neonatologist and what you get involved in, and it's essential to learn where you want to be and where you want to spend your time."

Additionally, "What would you encourage future neonatologists to prioritize and be involved in?"

Do rotations in multiple areas of neonatology and figure out where you want to spend your time; there are numerous directions you can take as a neonatologist and what you get involved in, and it's essential to learn where you want to be and where you want to spend your time.

Further, "How do you think the critical care scenario of the NICU affects the chance of burnout? And how should we counter it?"

I think the amount of burnout has increased since the old "tough it out" days; there was a massive amount of burnout due to COVID-19, but there are other factors, too. We can combat this by monitoring our wellbeing; it's nice we now have therapists and mindfulness. We can practice mindfulness and work-life balance, which are much more encouraged than they used to be. If I had learned of these earlier, I think it would have helped my stress levels and stopped me from "working myself to death."

Lastly, "What are you currently working on?"

I am currently working on a clinical pearl about burnout; it will look at rates of burnout, suicidal ideation, and other mental health issues that affect healthcare providers.

"Neonatology and the journey to get there is wonderful. With plenty of ups and downs, complex and typical patients, and long days, it is a journey I am excited to embark on. Please stick around and follow me on my path as I navigate toward neonatology. I would like to also send a special thank you to Dr. Hageman for meeting with me this month."

Neonatology and the journey to get there is wonderful. With plenty of ups and downs, complex and typical patients, and long days, it is a journey I am excited to embark on. Please stick around and

follow me on my path as I navigate toward neonatology. I would like to also send a special thank you to Dr. Hageman for meeting with me this month.

*Answered paraphrased from a video call.

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

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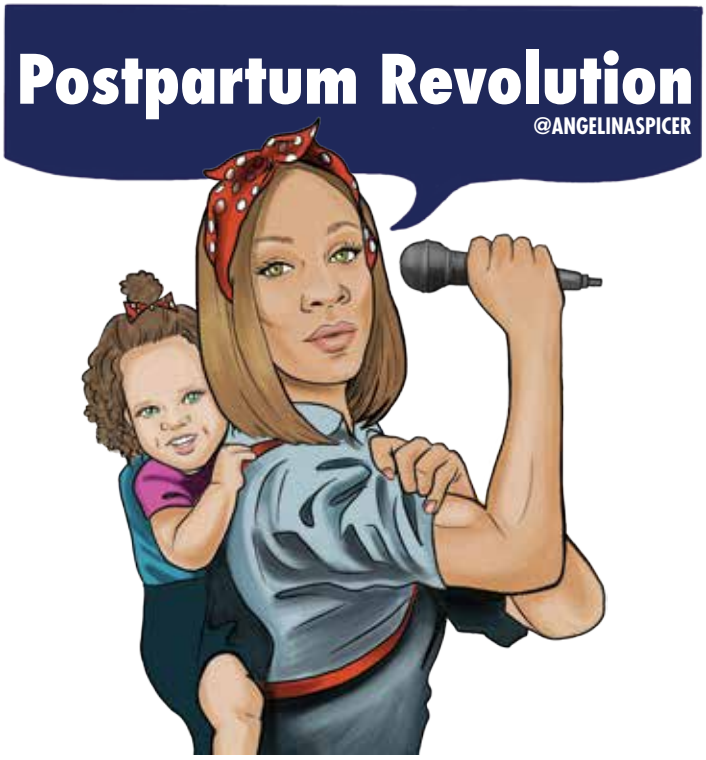
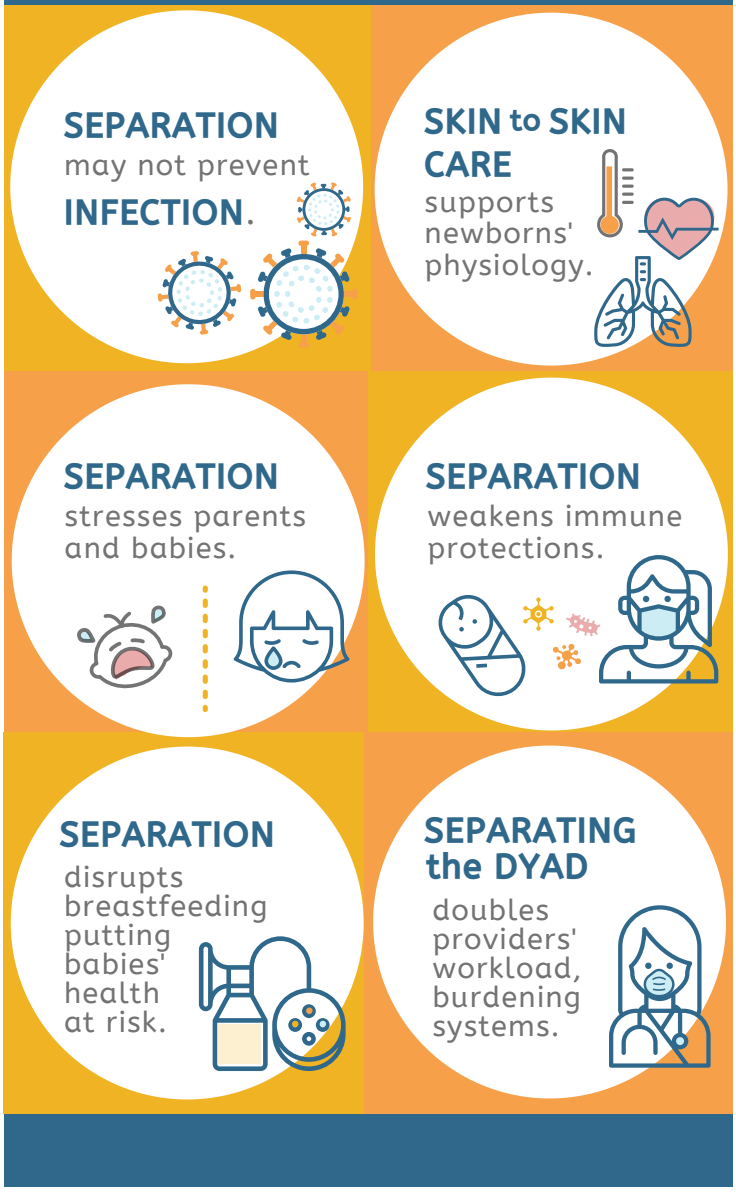


Should Infants Be Separated from Mothers with COVID-19?

FIRST DO NO HARM



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

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Fellows Column: Clinical Pearl: Maternal Marijuana Use and Its Lasting Impact

Suha Godil, OSM3

"The legalization of marijuana has become a highly debated topic in recent years, with 23 states, two territories, and the District of Columbia legalizing the drug for recreational use. (1) The legalization was a social justice initiative as marijuana laws disproportionately affected members of minority communities and led to mass incarceration. (2) "

The legalization of marijuana has become a highly debated topic in recent years, with 23 states, two territories, and the District of Columbia legalizing the drug for recreational use. (1) The legalization was a social justice initiative as marijuana laws disproportionately affected members of minority communities and led to mass incarceration. (2) Within the United States, marijuana is the most used federally illegal drug among pregnant women. (3) No amount of marijuana consumption is safe during pregnancy, as it is associated with adverse perinatal and neurodevelopmental outcomes. (3) With the increasing prevalence of marijuana use, there is a decreasing perception of the risk of harm, with impacts extending into all realms of our healthcare system. (4)

Prior to conception, maternal marijuana use can impact uterine receptivity during implantation and can also cause fallopian tube dysfunction as the fertilized egg flows into the uterus. (5)

Outside of recreational use, marijuana is also used during pregnancy as a potential treatment for hyperemesis gravidarum. (6) Despite this medicinal potential, it is critical to consider all associated risks. One rare but serious complication is cannabinoid hyperemesis syndrome, where marijuana use can have a paradoxical effect and cause severe nausea and vomiting, with severe health risks to both the mother and fetus. (6,7)

The endocannabinoid system connects body processes such as memory, appetite, sleep, pain, pleasure, movement, coordination, and the immune system. Tetrahydro cannabinoid (THC) can also affect the release of neurotransmitters like dopamine, serotonin, and GABA, further modulating these processes. (5)

In utero, cannabinoids are lipophilic and readily cross the placenta, attaching to CB1 and CB2 cannabinoid receptors in the placenta, brain, kidneys, lungs, and liver. The CB1 receptor in the placenta is involved with serotonin transporters that are critical for developing neural circuits in the fetal brain. THC binding to these receptors can also influence the embryological differentiation of neural cells, disrupting embryogenesis and fetal development. The CB2 receptors have also been identified in the immune system, hematopoietic stem cells, and fetal astrocytes. They are important for pain relief and immunologic activity. Additionally, chronic THC use also disrupts folic acid uptake, with deficiencies known to cause neural tube defects. (5)

"In the newborn period, the hippocampus contains CB1 receptors that are neuroprotective and important for the newborn sucking reflex. Infants exposed to marijuana in utero are born with a lower birthweight and experience a wide array of clinical symptoms, including tremors, tachycardia, seizures, thermodynamic instability, uncoordinated suck-swallow reflex, tremors, irritability, and high-pitched crying."

In the newborn period, the hippocampus contains CB1 receptors that are neuroprotective and important for the newborn sucking reflex. Infants exposed to marijuana in utero are born with a lower birthweight and experience a wide array of clinical symptoms, including tremors, tachycardia, seizures, thermodynamic instability, uncoordinated suck-swallow reflex, tremors, irritability, and high-pitched crying. Treatment is mainly directed at environmental and non-pharmacological interventions such as a dimly lit room with minimal sensory stimulation and maintained temperature stability. Interventions incorporate positional support with swaddling, gentle handling, skin-skin, and vertical rocking. Frequent small-volume feedings with higher calories are given, and the focus is placed on family-integrated neonatal care whenever possible. (5)

These same interventions are considered the standard of care, where we admitted and treated a premature baby boy born to a mother who tested positive for THC at the time of delivery. APGAR scores were 5,6 and 7 at the time of delivery, and the infant required intubation. The infant was THC-negative and delivered at 30.2 weeks via C-section secondary to preeclampsia. Steroids were administered alongside gentamycin and vancomycin as the mother had a history of urinary tract infection. He initially suffered from respiratory distress syndrome, hypoglycemia, hypermagnesemia, and hyperbilirubinemia, all of which resolved as time progressed. Despite these improvements, the infant became septic on day 19 of life, showing clinical signs of infection as he was bradycardic and fussy. Blood and urine cultures all came back negative. However, labs showed elevated white blood cells (WBC) and C-reactive protein (CRP), prompting the initiation of antibiotics. Although existing research states that there is no significant association between maternal cannabis and the development of hypoglycemia or sepsis, we know that CB2 receptors are important for

immunologic activity, promoting the question of whether or not prenatal exposure to marijuana contributed to this septic episode. The lack of association is likely due to a shortage of research studies, as there are many different physiologic explanations for this relationship. (8)

"THC is also stored in lipid predominate tissues like the brain, causing harm to the developing neural networks of the newborn brain. (5) A cross-sectional study performed at an urban academic hospital from 2018-2019 found that the majority of mothers were aware that marijuana use while breastfeeding may be harmful to infants, but a minority received counseling about the risks. (11)"

Although there is insufficient data surrounding whether maternal marijuana use during breastfeeding is safe, the American Academy of Pediatrics and the American College of Obstetrics and Gynecologists state that pregnant and breastfeeding people should not use marijuana. (9,10) It is estimated that the infant receives 2.5% of maternal THC dose through breastmilk, and THC is detectable for up to six days after reported use. (5) THC is also stored in lipid predominate tissues like the brain, causing harm to the developing neural networks of the newborn brain. (5) A cross-sectional study performed at an urban academic hospital from 2018-2019 found that the majority of mothers were aware that marijuana use while breastfeeding may be harmful to infants, but a minority received counseling about the risks. (11) This study emphasizes the critical need for patient education during the postnatal period, as it is a unique opportunity to intervene and provide meaningful impacts.

"In childhood and adolescence, prenatal exposure predicts challenges in executive function, such as memory and reasoning, and behavioral issues, such as hyperactivity and inattention, can persist into adulthood. In adolescents exposed to a suboptimal environment, they may even experience an increased risk for global cognitive impairment or delinquency. (12)"

In childhood and adolescence, prenatal exposure predicts challenges in executive function, such as memory and reasoning, and behavioral issues, such as hyperactivity and inattention, can persist into adulthood. In adolescents exposed to a suboptimal environment, they may even experience an increased risk for global cognitive impairment or delinquency. (12)

As outlined above, marijuana exposure in utero is associated with lasting deleterious effects. Early targeted interventions with both mother and infant have the potential for profound lifelong impacts, as the pregnancy and postnatal period is a window of opportunity to provide the required help. (13) A multi-disciplinary team involving primary care physicians, obstetricians, social workers, pharmacists, and psychologists should work directly with the patient to provide needed care. (8) It is essential to begin the conversation prior to conception, as substance use behaviors typically develop before pregnancy, and preventive approaches to address cannabis use would provide significant benefit. (14) The postnatal period is also a stressful time, and families of infants exposed to drugs are disproportionately at risk for socioeconomic and social challenges. It is vital to connect parents to their social network and any mental health treatment they might need. (13) Providers within the NICU are faced with a unique opportunity for counseling and intervention, and patient education should become a routine standard of care for all cases of substance use. Exposure to marijuana during pregnancy places both the mother and infant at risk of adverse outcomes and providers have the power to end a cycle of harmful effects. (8)

"Beyond the bedside, it is up to our next generation of providers to research marijuana exposure further, as there is a significant gap in our knowledge. Much of the current evidence is derived from cohort or case-control studies, which face the potential for bias, and we must continue to expand our body of knowledge for the well-being of mothers and infants across the country."

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Universal Home Visits: A Vital Step Towards Reducing Maternal and Infant Mortality Disparities

Alison Jacobson

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.

"The data tell us that the U.S. continues to have higher rates of infant and maternal mortality than most of the developed world, and disconcertingly high racial disparities. The latest is a November report from the National Center for Health Statistics announcing that provisional infant mortality data reveal a 3% rise in infant mortality from 2021 - 2022."

The data tell us that the U.S. continues to have higher rates of infant and maternal mortality than most of the developed world, and disconcertingly high racial disparities. The latest is a November report from the National Center for Health Statistics announcing that provisional infant mortality data reveal a 3% rise in infant mortality from 2021 - 2022. This is the first year-over-year increase since 2001 – 2002, and follows what had been a 22% decline from 2002 to 2021.

And according to the CDC, while the overall rate of preterm birth in the U.S. declined slightly in 2022, to 10.4%, the rate of preterm birth among African-American women was 14.6%, making it about 50% higher than the rate for White (9.4%) or Hispanic women (10.1%). With regard to low birthweight, the rate in 2021 was 8.52% in 2021, or roughly one in 12. We know these are conditions that lead to higher risks for infant mortality.

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Among the populations with the highest infant mortality disparities compared to whites are Blacks. In 2021 the rate of Non-Hispanic Blacks was 10.6 deaths per 1,000 live births and for Non-Hispanic Whites, it was 4.4. This rate can be even higher in some states, especially in the southern region.

Racial disparities, especially between Blacks and other racial and ethnic groups, are persistent and alarming and, while some progress has been made in addressing this, much remains to be done. One approach with the potential to make a significant impact is Universal Home Visits (UHV). This could prove to be a crucial step towards leveling the playing field in maternal and infant health and ensuring better outcomes for Black mothers and their newborns.

Maternal and infant mortality disparities in the Black community have long been a cause for concern, reflecting deeply rooted systemic issues such as inadequate access to quality healthcare, racial bias, and socioeconomic challenges. In addition to infant health risk, studies show that Black women are more likely to experience pregnancy-related complications and are at a greater risk of dying during childbirth compared to their white counterparts.

UHV involves sending trained healthcare professionals, such as nurses or doulas, directly to the homes of pregnant individuals and new mothers and offer a range of benefits.

Personalized Care and Education: UHVs enable healthcare professionals to provide personalized care and education tailored to the specific needs of each individual. This addresses the unique challenges faced by Black mothers, including the effects of systemic racism and the stress it can induce, known contributors to maternal and infant health outcomes.

Timely Intervention: By identifying potential health risks or complications early on, healthcare professionals can provide timely interventions that can prevent or mitigate serious health issues. This proactive approach can significantly reduce the chances of adverse outcomes and improve overall health outcomes for both mothers and infants.

Culturally Competent Support: UHVs allow healthcare professionals to deliver care that is culturally competent and sensitive to the needs of the Black community. This fosters a sense of trust and rapport between healthcare providers and patients, which can lead to improved patient engagement and adherence to medical recommendations.

Addressing Social Determinants of Health: The home environment plays a significant role in health outcomes. UHVs provide an opportunity to assess living conditions, identify potential social determinants of health, and connect families with essential resources such as nutrition assistance, housing support, and mental health services.

Empowerment and Advocacy: Through regular home visits, healthcare professionals can empower mothers by equipping them with knowledge about their own health and the health of their infants. This empowerment can lead to informed decision-making and a greater ability to advocate for their own well-being within the healthcare system.

As we strive for equality and justice in all aspects of society, addressing the maternal and infant mortality disparities in the Black community must be a priority. UHVs offer a path forward that can chip away at the deeply ingrained health inequities. By providing tailored care, timely interventions, and holistic support, we can ensure that Black mothers and infants receive the attention and resources they need to thrive.

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However, implementing UHVs requires investment and collaboration between healthcare systems, policymakers, and community organizations. It's a commitment to a brighter future where maternal and infant mortality disparities are a thing of the past. By embracing this innovative strategy, we take a powerful step towards achieving health equity for all, regardless of race or background.

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

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About First Candle

First Candle, based in New Canaan, CT, is a 501c (3) committed to eliminating Sudden Unexpected Infant Death while providing bereavement support for families who have suffered a loss. Sudden Unexpected Infant Death (SUID), which includes SIDS and Accidental Suffocation and Strangulation in Bed (ASSB), remains the leading cause of death for babies one month to one year of age, resulting in 3,500 infant deaths nationwide per year.

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High-Reliability Organizing, Time, and Motion

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

"Prothesis in phonetics refers to adding a syllable or sound to the beginning of a word. In psychophysics and experimental psychology, a prothetic process is the linear addition of a quantity to a continuum at the physiological level. Time considered as linear measurements will become confounded by nonlinearity (1)."

Introduction

How we perceive time influences our study of time. We may perceive time as continuity or a series of instances. Most likely, we perceive time as a quantitative continuum that we add to – how much time? We discriminate quantitative measures by additive or "prothetic" processes. Time as a quantitative continuum is a "prothetic process." Prothesis in phonetics refers to adding a syllable or sound to the beginning of a word. In psychophysics and experimental psychology, a prothetic process is the linear addition of a quantity to a continuum at the physiological level. Time considered as linear measurements will become confounded by nonlinearity (1).

Continua for type and position are "metathetic" processes, physiological ones that substitute additions rather than adding to existing measurements. These are qualitative measures as we are changing the quality of the process (1). Consideration of time as a prothetic, or additive, process means we discriminate categories based on our sensitivity to differences. Psychophysics describes this as "just noticeable differences" or JND (1).

"Time, a linear, prothetic process, is readily considered a line without a beginning or end. However, we can use other time models, such as a branching tree model where the past is fixed and linear, but the future is open."

Time, a linear, prothetic process, is readily considered a line without a beginning or end. However, we can use other time models, such as a branching tree model where the past is fixed and linear, but the future is open. Time branches into multiple possible futures (2). These approaches find different uses, such as planning compared to engagement in a novel or uncertain situation.

The fundamental distinction in the realm of instant-based time models reflects contrasting perspectives on the nature of temporal progression. One pivotal categorization within this domain revolves around the dichotomy between linear and backward-linear models, each offering unique insights into time structure.

"Linear models present time as a straightforward progression, akin to a continuous line extending from the past through the present and to the future. This representation implies a singular, unidirectional flow, suggesting a coherence in the temporal narrative. Here, time unfolds in a seamless, unbroken sequence, with each instant following the one before it in an orderly fashion."

Linear models present time as a straightforward progression, akin to a continuous line extending from the past through the present and to the future. This representation implies a singular, unidirectional flow, suggesting a coherence in the temporal narrative. Here, time unfolds in a seamless, unbroken sequence, with each instant following the one before it in an orderly fashion. The linear model encapsulates that the future is undetermined and open to unfolding events, making it a canvas for countless potentialities.

"Regardless of the chosen model, the concept of minimal and maximal elements in temporal ordering adds another layer of intricacy. In the temporal framework, minimal elements correspond to the idea of first instants in time, signifying the starting points or origins, while maximal elements represent the last instants, indicating conclusions or ultimate endpoints."

In contrast, backward-linear models introduce a more nuanced and complex portrayal of time. These models propose a tree-like structure, acknowledging that the past is fixed and follows a linear trajectory while the future branches into multiple possibilities.

In this view, the past is immutable and serves as the foundation for the present moment, which acts as a crossroads leading to various potential futures. The branching nature of backward-linear models allows for considering the future's divergent paths, capturing the notion of an open future with multiple unfolding scenarios.

Regardless of the chosen model, the concept of minimal and maximal elements in temporal ordering adds another layer of intricacy. In the temporal framework, minimal elements correspond to the idea of first instants in time, signifying the starting points or origins, while maximal elements represent the last instants, indicating conclusions or ultimate endpoints. Whether a temporal model embraces or eschews these minimal and maximal elements contributes to the overall narrative of the nature of time.

Ultimately, these distinctions in instant-based time models prompt contemplation about the nature of temporal reality. Linear models simplify the temporal narrative into a continuous stream, highlighting the openness of the future, while backward-linear models acknowledge the fixed nature of the past and the branching possibilities that lie ahead. Considering minimal and maximal elements further enriches the discourse, prompting exploration into the origins and endpoints of time within each conceptual framework. As we delve into these distinctions, we deepen our understanding of time's intricate tapestry and the philosophical implications embedded in our conceptualizations of its structure.

"Considering minimal and maximal elements further enriches the discourse, prompting exploration into the origins and endpoints of time within each conceptual framework. As we delve into these distinctions, we deepen our understanding of time's intricate tapestry and the philosophical implications embedded in our conceptualizations of its structure."

This disregards the effect of time on thinking and actions. We use the lateral prefrontal cortex when we take purposive, unrehearsed, or unplanned actions. The longer we continue to act, the more we use the lateral prefrontal cortex. Other factors include complexity, novelty, uncertainty, or ambiguity of the information. Nevertheless, time is the stimulus that places thought and action into the lateral prefrontal cortex, the only part of the cortex that can coordinate actions. The lateral prefrontal cortex executes elaborate behavior, speech fluency, and creative activity (3).

Temporal logics and temporal-based actions support the sense of agency for the individual while also following a formal logic structure. This is reasoning and logic about agents, agency, and their actions of "*stit* logics," such as "The agent sees to it that …" This describes how an agent's choices bear on the world (2).

Time can affect truth propositions. We can more accurately describe the world using truth values that may change over time. These are "tensed propositions," which we distinguish from "tenseless propositions," those that never change. Tenseless propositions are always true or always false (4).

Our comprehension of the temporal progression, often construed as a sequence of distinct spatial positions occupied by an object, intricately ties our perception of time to the concept of motion, as elucidated by the philosopher Le Poidevin (2). This connection between time and motion becomes even more pronounced when examined through the lens of physics, where the use of reference frames plays a pivotal role in understanding the dynamic nature of events.

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In the realm of physics, a reference frame serves as a coordinate system that allows us to pinpoint the location of an object in space at various points in time. It acts as a conceptual scaffold that facilitates the measurement of motion and the establishment of a temporal order. To illustrate, consider an individual inside a moving vehicle; their reference frame differs from those outside the vehicle. Despite the undeniable motion of the vehicle, each person, whether inside or outside, perceives themselves as stationary within their respective reference frames. This highlights the subjective nature of motion perception and underscores the importance of reference frames in shaping our understanding of temporal dynamics.

The dichotomy between stationary Eulerian specifications and moving Lagrangian specifications further contributes to our comprehension of different reference frames in physics. Eulerian specifications involve observations from fixed points in space, providing a static perspective on events. On the other hand, Lagrangian specifications involve observations within the flow of events, capturing the dynamic essence of motion. These specifications essentially represent distinct vantage points from which we can interpret and analyze the temporal unfolding of phenomena.

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To delve deeper into these specifications is to unravel the intrica-

cies of different reference frames. The stationary Eulerian observer witnesses events from a fixed standpoint, akin to an objective observer outside the flow of change. Conversely, the moving Lagrangian observer is immersed in the dynamic currents of events, experiencing phenomena unfolding from a perspective inextricably linked to the motion itself.

"Understanding these specifications as different reference frames illuminates the relativity inherent in our perception of time and motion. It underscores that our understanding of temporal order is contingent on the vantage point from which we observe events."

Understanding these specifications as different reference frames illuminates the relativity inherent in our perception of time and motion. It underscores that our understanding of temporal order is contingent on the vantage point from which we observe events. The dynamic interplay between different reference frames invites us to consider the subjective nature of our temporal experiences. It challenges us to reconcile these diverse perspectives in our quest to comprehend the intricate dance between time and motion in the tapestry of the universe.

A reference frame is a standard to measure motion and rest, allowing the description of motion without regard to forces and masses. An "inertial frame" describes the relative motions of bodies in the system. This is a spatial reference frame with some means of measuring time to distinguish uniform and accelerated motions.

Perhaps protocols for emergency use would have more utility if we studied them in the context of time, motion, and acceleration. This occurs whether our reference frame is one of Eulerian or Lagrangian specifications.

Fear-Circuit Behaviors

While the time for actions brings in the lateral prefrontal cortex, motion itself brings in the ventromedial prefrontal cortex (vmPFC) and the phylogenetically older midbrain periaqueductal gray (PAG) nucleus.

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A distant threat within the "flight distance," whether temporal or spatial, increases activity in the ventromedial prefrontal cortex (vmPFC), a region important for decision-making in uncertain, risky, ambiguous, or context-dependent conditions. The vmPFC uses conceptual information about specific outcomes to shape affective responses, such as determining the most adaptive response given the particular situation (5). The vmPFC connects to the amygdala to determine the motivational importance or degree of the threat (6). The amygdala connects onward to the bed nucleus of the stria terminalis (BNST) to control a repertoire of behavioral defensive states (7, 8).

Additional proximal threats will switch activity from the vmPFC to the phylogenetically older midbrain periaqueductal gray (PAG) nucleus. The PAG identifies an approaching or receding threat to functionally switch the repertoire of behaviors to fast reflexive behaviors (e.g., fight, flight, or freeze) (7, 9, 10). This continuous switching within the PAG is a blend of the bottom-up responses to threats before they come to our awareness and top-down cortical neuromodulation from the vmPFC and the anterior cingulate cortex.

The subjective representation of threat and the degree to which it is felt is processed in the midbrain periaqueductal gray (PAG) nucleus. The PAG coordinates behaviors essential to survival, including threat reflexes, rapid changes to subcortical behaviors, and startle/posture corrections. The PAG also processes the proximity of threats (8).

The PAG also identifies an approaching or receding threat (9) specific to one of the *greatest* fears, an approaching predator. Detection of changes in distance from threat functionally switches the repertoire of behaviors the animal uses (9). Berkun et al. (11) found this from the descriptions of army recruits in dangerous situations. Distance as perceived physical proximity or time dominated the thinking of "evacuators," becoming the determinant for running away.

"This movement from contextual decision-making under uncertainty in the vmPFC to reflexive decision-making from the PAG makes the fight or flight of the fear reactions appear to be the same as the fight or flight from threat reflexes. What it describes, though, is actually the functional flow of response to a developing danger as apprehension leads to avoidance (flight), then becomes engagement (self-defensive fight)."

This movement from contextual decision-making under uncertainty in the vmPFC to reflexive decision-making from the PAG makes the fight or flight of the *fear reactions* appear to be the same as the fight or flight from *threat reflexes*. What it describes, though, is actually the functional flow of response to a developing danger as apprehension leads to avoidance (flight), then becomes engagement (self-defensive fight). As a functional approach, *fear reactions* (PAG) develop from distance-based assessments, while *threat reflexes* (amygdala) come from active danger.

The PAG has different functions in its several dorsoventral and rostrocaudal divisions. Dorsal stimulation promotes passive freezing, while ventral stimulation promotes escape and other active

coping behaviors (8). From nose to tail, active coping strategies shift from moderate threat display to active defense, aggressive defense, strong threat display, and *non-opioid*-mediated analgesia, followed by vigorous escape when the enemy is near. When escape from an enemy is impossible, passive coping strategies disengage from the environment, and behaviors shift to freezing, then moderate to strong immobility with increasing proximity. Lastly, strong freezing with *opioid*-mediated analgesia occurs (12, 13).

Social distance, a concept with multifaceted implications, operates as a dynamic force that can manifest as a threat or as a source of support within the intricate fabric of human interactions. The impact of social distance becomes particularly pronounced when considering its dual role in evoking a sense of threat or fostering a supportive environment.

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In instances where social distance takes on the guise of a threat, its effects mirror those elicited by more palpable dangers. The close physical proximity of an individual perceived as threatening triggers a cascade of responses akin to those evoked by a conventional threat. This includes heightened vigilance, accelerated heart rates, and the release of stress hormones. The emotional and physiological reactions to perceived threats underscore the intricate link between our social dynamics and our innate survival instincts, emphasizing that social encounters can activate the same primal responses as encounters with physical danger.

Moreover, transmitting fear responses through social interactions adds another layer of complexity to the interplay between social distance and threat perception. The contagious nature of emotions within social settings underscores the powerful influence that interpersonal dynamics can exert on individual well-being. Fear, as an emotional contagion, can spread through social networks, amplifying the impact of perceived threats and contributing to a shared sense of unease within a community.

Conversely, social distance can manifest as a potent source of support in the face of stress. Human beings, social creatures by nature, have evolved mechanisms to create protective factors against the strains of life. Social support, characterized by meaningful connections and interpersonal bonds, is a buffer against stressors. This protective function is observable at the neurobiological level, as evidenced by the modulation of the hypothalamus–pituitary–adrenal (HPA) axis responsiveness to social stress.

In moments of social support, individuals experience a reduction in the activation of the HPA axis, leading to a dampening of stress-related physiological responses. This physiological modulation reflects the intricate interplay between social connections and the body's stress response system. The presence of a supportive social network serves as a form of psychological and physiological resilience, mitigating the impact of external stressors and fostering a more adaptive response to challenges.

"In essence, the dual nature of social distance, acting both as a threat and a source of support, underscores the profound influence of social dynamics on human well-being. The delicate balance between the perception of proximity and the quality of social interactions significantly shapes our emotional and physiological responses."

In essence, the dual nature of social distance, acting both as a threat and a source of support, underscores the profound influence of social dynamics on human well-being. The delicate balance between the perception of proximity and the quality of social interactions significantly shapes our emotional and physiological responses. Understanding this interplay is essential for navigating the complex landscape of social relationships and harnessing the potential of social support as a powerful ally in the face of life's challenges (14).

Fear reactions are conscious sensations experienced when exposed to an imminent threat (15, 16). The amygdala sends signals to the brain's unconscious (subcortical) and conscious (prefrontal cortex) regions, accounting for the uncontrolled fear responses and the feeling of fear. The emotional response of fear, preceded by a threat to self-preservation, is to diminish danger (17). This creates the drive to avoid or escape, generally focusing on self-interest, self-protection, or the protection of others. We can regulate the feelings of fear by reappraising the situation or suppressing the behaviors ((18-21) personal experience of the authors).

Anatomic Location

The initial fear reaction is cortical. With increasing proximity to the threat, fear migrates to the midbrain.

A distant threat within the "flight distance," whether temporal or spatial, increases activity in the ventromedial prefrontal cortex (vmPFC) - a region important for decision-making in uncertain, risky, ambiguous, or context-dependent conditions. The vmPFC uses conceptual information about specific outcomes to shape affective responses, such as determining the most adaptive response given the particular situation (5). The vmPFC connects to the amygdala to determine the motivational importance or degree of the threat (6). The amygdala connects onward to the bed nucleus of the stria terminalis (BNST) to control a repertoire of behavioral defensive states (7, 8).

Additional proximal threats will switch activity from the vmPFC to the phylogenetically older midbrain periaqueductal gray (PAG) nucleus. The PAG identifies an approaching or receding threat to functionally switch the repertoire of behaviors to fast reflexive behaviors (e.g., fight, flight, or freeze) (7, 9, 10). This continuous switching within the PAG is a blend of the bottom-up responses to threats before they come to our awareness and top-down cortical neuromodulation from the vmPFC and the anterior cingulate

cortex.

When the threat becomes proximal, we observe increased PAG activity. This forebrain-to-midbrain switch is anatomically credible in light of descending connections between the vmPFC/amygdala and PAG.

"he implications of social interactions, particularly the close physical proximity of an individual perceived as threatening, evoke responses analogous to those elicited by more overt forms of danger. The VIP connects to the amygdala and then to the PAG for defensive and aggressive behaviors."

Intimidation through proximity.

Intimidation through proximity unveils a psychological and physiological interplay that underscores the profound impact of social distance on human behavior. Social distance, a crucial determinant of personal boundaries, serves the dual purpose of maintaining a secure "flight distance" and engendering a sense of control over one's immediate environment. The implications of social interactions, particularly the close physical proximity of an individual perceived as threatening, evoke responses analogous to those elicited by more overt forms of danger. The VIP connects to the amygdala and then to the PAG for defensive and aggressive behaviors.

The concept of a safe "flight distance" is deeply ingrained in our evolutionary heritage, reflecting an instinctual need for personal space and a buffer zone to assess and respond to potential threats. In this context, social distance acts as a crucial mechanism to establish and maintain a sense of safety. The violation of this perceived safe distance can trigger a cascade of reactions similar to overt threats, including heightened alertness, increased heart rate, and the release of stress hormones. The intimate link between social proximity and threat perception highlights how our social environment influences our fundamental survival instincts.

Moreover, the subjective nature of favorable or unfavorable social distance is acknowledged, emphasizing the unique lens through which individuals perceive and navigate their interpersonal space. However, the peripersonal space, proximal to the body, introduces an objective dimension to this subjective experience. This measurable space constitutes an intimate zone where intrusion by others induces discomfort and triggers specific neural responses.

The ventral intraparietal area (VIP) and a polysensory zone in the precentral gyrus are key neural substrates that encode and process information related to peripersonal space. These areas form part of the intricate neural network responsible for integrating sensory inputs and motor responses in the context of spatial awareness. Within these neural structures, visual receptive fields play a pivotal role in delineating and mapping the boundaries of peripersonal space. The responses exhibited by these areas are finely tuned to the presence of nearby or approaching objects, reflecting a heightened sensitivity to potential threats within this intimate zone surrounding the body.

In essence, intimidation through proximity underscores the significance of social distance as a regulator of perceived threat and personal comfort. The intricate neural mechanisms associated with peripersonal space highlight the physiological underpinnings of these experiences, shedding light on how our brains navigate the complex interplay between social interactions, physical proximity, and the fundamental need for personal safety. As we delve into the nuances of intimidation through proximity, we gain a deeper understanding of the intricate dance between our evolutionary instincts and the intricacies of the social landscape. (10, 22).

"Changes due to time can surpass our capabilities to process new or changing information. This is as true for large organizations operating within a financial market as it is for an individual contemplating the changing appearance of a neonate."

Conclusion

Our perception of time as quantitative and linear, a series of "time instants," confounds our ability to plan for and work with the qualitative changes in time during evolving nonlinear time series. Perception implies neurologic processing; we must process the salience and relevance of time to give it meaning *during* events. The truth value of some propositions can change with time, while others do not. Classical logic and deductive reasoning are static thought processes not capable of guiding reasoning for abrupt changes or the engagement of forcing functions. We have temporal and multiple other logics (23).

Perception also occurs within our brain – diverse places for our diverse senses. Time, itself, has a putative location in the hippocampus but is itself not a sense. However, it alters our other senses as we interpret events regarding our safety. Changes due to time can surpass our capabilities to process new or changing information. This is as true for large organizations operating within a financial market as it is for an individual contemplating the changing appearance of a neonate.

Time may shift our perceptions of the ventromedial prefrontal cortex (vmPFC) for decision-making in uncertain, risky, ambiguous, or context-dependent conditions. Alternatively, time may drive our perceptions deeper into the brain, the phylogenetically older midbrain periaqueductal gray (PAG) nucleus. Our perceptions drive a repertoire of escape and fast reflexive behaviors (e.g., fight, flight, or freeze).

Finally, time is a measure of movement in the hippocampus. Seemingly irrelevant items abruptly become relevant, even dangerous. For this, the PAG nucleus supports escape and protective behaviors.

What is not accounted for in this discussion is acceleration. Acceleration is more deadly as it confounds our ability to predict trajectories, hence the future, and our capability to withstand the momentum of the threat.

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SYSTEMS THINKING IN COMPLEX ADAPTIVE SYSTEMS

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

POSITIONING & TOUCH FOR THE NEWBORN

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

SLEEP AND AROUSAL INTERVENTIONS FOR THE NEWBORN

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

SKIN-TO-SKIN CONTACT WITH INTIMATE FAMILY MEMBERS

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

REDUCING AND MANAGING PAIN AND STRESS IN NEWBORNS AND FAMILIES

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

MANAGEMENT OF FEEDING, EATING AND NUTRITION DELIVERY

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

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Keeping Your Baby Safe

during the COVID-19 pandemic

How to protect your little one from germs and viruses

Even though there are some things we don't know about COVID-19 yet, there are many more things that we do know. We know that there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

- This is the single, most important thing you can do to stop the spread of viruses.
- Use soap.
- Wash for more than 20 seconds.
- Use alcohol-based sanitizers.

Limit Contact with Others

- Stay home when you can.
- Stay 6 feet apart when out.
- Wear a face mask when out.
- Change your clothes when you get home.
- Tell others what you're doing to stay safe.

Provide Protective Immunity

- Hold baby skin-to-skin.
- Give them your breast milk.
- Stay current with your family's immunizations.

Take Care of Yourself

- Stay connected with your family and friends.
- Sleep when you can.
- Drink more water and eat healthy foods.
- Seek mental health support.

Immunizations Vaccinations save lives. Protecting your baby from flu and pertussis lowers their risks for complications from coronavirus.

WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask makes it hard for them to breathe.
- Masks pose a risk of strangulation and suffocation.
- A baby can't remove their mask if they're suffocating.

If you are positive for COVID-19

- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.

We can help protect each other.

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When an Alarm is not an Alarm, the Monitor that Cried Wolf

Rob Graham, R.R.T./N.R.C.P.

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

"On the cockpit voice recorder, the sound of the takeoff warning system (TOWS) alarm could be heard sounding throughout the takeoff roll. The TOWS alerts pilots that the aircraft is not configured correctly for takeoff. "

On Aug 1, 1999, a Boeing 737-204C passenger jet operated by Líneas Aéreas Privadas Argentinas (LAPA) as flight LAPA 3142 pushed back from the gate at Aeroparque Jorge Newbery in central Buenos Aires. The plane taxied to its assigned runway, and then, after failing to get airborne, the plane crossed a road at the end of the runway. Before coming to rest at a small embankment, the plane crashed through the airport perimeter fence and crossed a road at the end of the runway. In its path was a Dodge Neon with two occupants; both were killed when the plane collided with it. The plane continued to strike a gas regulation plant before stopping at a small embankment. In addition to the two ground fatalities, of the 100 passengers and crew in the plane, 65 were killed, and 17 suffered severe injuries. At the time, it was the second deadliest aviation crash in Argentinian history.

On the cockpit voice recorder, the sound of the takeoff warning system (TOWS) alarm could be heard sounding throughout the takeoff roll. The TOWS alerts pilots that the aircraft is not configured correctly for takeoff. In the case of LAPA flight 3142, the plane could not generate enough lift to lift off because the flaps were fully retracted. Why did the pilots proceed through V1 (the point after which an aircraft cannot abort takeoff) to rotation speed (when the pilot pulls back on the yoke to lift the nose gear off the ground)?

As is the case in most incidents, many factors (of which there were many) culminated in the crash. A "sterile cockpit" (no discussion that is not relevant to the task at hand) was not maintained during pre-flight procedures, causing the pilots to miss setting flaps on the checklist. The airline was known for shoddy maintenance, and lax procedural adherence and nuisance alarms were so commonplace that pilots were accustomed to ignoring them. The pilots of LAPA 3142 ignored the TOWS alarm, thinking it was just another glitch. This situation is a direct consequence of what is known as alarm fatigue.

Alarms in the NICU are plentiful and frequent to the point that, just as in LAPA 3142, they are frequently ignored by those at the bedside. This is ubiquitous and undermines patient safety. For instance, arterial line alarms sound during blood withdrawal; too often, they are silenced before the procedure and not turned back on again. This missing step is a dangerous practice that could easily be avoided were there an option for silencing the alarm long enough to complete the task. As it is, alarm silence is not long enough, and the alarm sounds during a blood draw.

Of all the alarms in the NICU, oxygen saturation (SpO_2) alarms are by far the most frequent and spurious. Motion artifact and/or poor perfusion are often the trigger, but other factors increase the frequency of the alarms and contribute to alarm fatigue, chiefly the high and low limit settings. How do we protect our babies from hypo/hyperoxia without the frequency of alarms sabotaging our efforts?

"Of all the alarms in the NICU, oxygen saturation (SpO2) alarms are by far the most frequent and spurious. Motion artifact and/or poor perfusion are often the trigger, but other factors increase the frequency of the alarms and contribute to alarm fatigue, chiefly the high and low limit settings."

2018 saw the publication of a large multi-centre study on high versus low SpO_2 target ranges found that lower targets are associated with increased mortality compared to higher ones. The trade-off is increased incidents of retinopathy of prematurity (ROP) requiring treatment in the high SpO_2 cohort (1). In clinical

practice this has led to raising low SpO_2 limits, narrowing the target range. Not only is there little evidence to support this change, it may increase the conditions it is meant to reduce (2). (This is an excellent and thought-provoking reference. I highly recommend reading it.)

Tightening the alarm limit range should reduce hyper/hypoxia, but this may not be true in clinical practice. False low SpO_2 alarms may lead to higher FiO_2 and, thus, higher SpO_2 as those at the bedside attempt to reduce the number of alarms (2). While high alarms may be increased simultaneously, these are usually less irritating because they are generally softer and lower in volume. The choice of monitor may also influence the number of false alarms (3) and the incidence of severe ROP (4).

"Tightening the alarm limit range should reduce hyper/hypoxia, but this may not be true in clinical practice. False low SpO2 alarms may lead to higher FiO2 and, thus, higher SpO2 as those at the bedside attempt to reduce the number of alarms (2). While high alarms may be increased simultaneously, these are usually less irritating because they are generally softer and lower in volume. The choice of monitor may also influence the number of false alarms (3) and the incidence of severe ROP (4)."

What, then, are appropriate high and low SpO_2 limits? The determination must consider both the risk to the baby and the risks associated with alarm fatigue. Surprisingly, the risk of hyperoxia in the <33 weeks PMA to ≤36 weeks PMA infant does not occur until a SpO_2 of 97-98%. Even more surprising is that in the ≥36 weeks PMA infant, this occurs at 96%, a level lower than the high alarm settings commonly used in the near term. On the other hand, the risk of hypoxia does not occur until a SpO_2 of 85-86% **independent of PMA** (2).

Low and high SpO_2 for near-term babies is often set at 90-92% and 98-99%, respectively, often for fear of the baby "flipping" into persistent pulmonary hypertension of the newborn (PPHN). This is likely to result in more hyperoxia and likely has little effect on the risk of PPHN. It is worth noting that maintaining higher than necessary SpO_2 in the near term may blunt the effect of inhaled nitric oxide (iNO) should the baby be in or develop PPHN. This is due to increased free radical production, which deactivates vasodilator production and thus promotes vasoconstriction (5).

Animal models (lamb) have shown a similar decrease in pulmonary vascular resistance (PVR) with a FiO_2 of 0.21, 0.50, or 1.0. However, prior exposure to a FiO_2 of 1.0 decreased the effectiveness of iNO. Additionally, resuscitation with FiO_2 increased pulmonary vasoconstriction with norepinephrine (6). This is a significant finding since vasopressors are often used to manage PPHN.

Reducing nuisance alarms can be achieved in a myriad of ways, the simplest of which is to reduce low alarm limits and/or increase averaging time. Reducing alarm limits reduces the safety buffer before hypoxia occurs, and increasing average time increases the likelihood of missing events. One could argue that a desaturation lasting less than 10 seconds is of little or no physiological consequence, but decreasing alarm limits in conjunction with increased averaging time may miss consequential events.

For example, decreasing alarm limits in an adult ICU from 90% to 88% or 85% reduces alarms by 45% and 75%, respectively; increasing averaging time to 15 seconds at a limit of 90% reduces alarms by 70% (7). In the same setting, combining a limit decrease to 88% and a delay of 15 seconds decreased alarm frequency by a whopping 85% (7).

Combining a slight decrease in lower limit and a delay time of 15 seconds is the most effective action because it reduces alarms drastically while preserving a safety margin. Massimo® does not recommend delays of more than 16 seconds. Adaptive alarm technology currently in development holds great promise. Because it factors in individual patient baseline SpO_2, responding to changes in that baseline may be significant, but that would not be recognised by a regular saturation monitor (7).

"Combining a slight decrease in lower limit and a delay time of 15 seconds is the most effective action because it reduces alarms drastically while preserving a safety margin. Massimo® does not recommend delays of more than 16 seconds. Adaptive alarm technology currently in development holds great promise."

Reducing nuisance alarms and alarm fatigue should be a top priority for clinicians and device manufacturers. Do not let your patients be on flight LAPA 3142.

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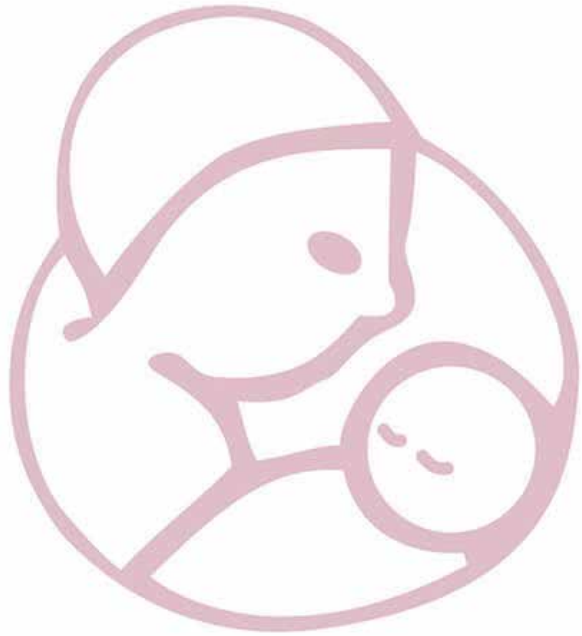

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Providing guidance to healthcare professionals, hospitals and healthcare systems, stimulating higher levels of excellence and improving outcomes for mothers and babies.

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.

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!
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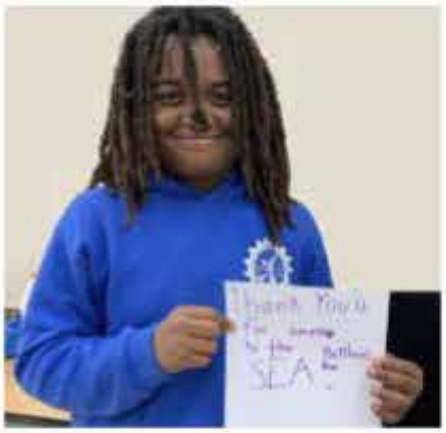
Sponsor a Child in the SEA Program

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



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

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

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

COPING WITH COVID-19

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

Provide culturally-informed and respectful care.

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

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

myNICUnetwork.org

and

National Perinatal Association
NICU Parent Network

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

TOP 10

RECOMMENDATIONS FOR THE PSYCHOSOCIAL SUPPORT OF NICU PARENTS

SUPPORT 4 NICU PARENTS

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

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

1 PROMOTE PARTICIPATION

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

Welcome!

2 LEAD IN DEVELOPMENTAL CARE

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

3 FACILITATE PEER SUPPORT

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

4 ADDRESS MENTAL HEALTH

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

5 SCREEN EARLY AND OFTEN

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

6 OFFER PALLIATIVE & BEREAVEMENT CARE

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

7 PLAN FOR THE TRANSITION HOME

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

8 FOLLOW UP

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

9 SUPPORT NICU CARE GIVERS

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

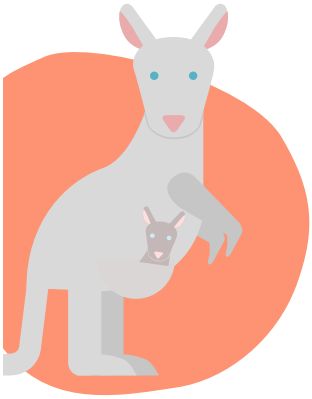
10 HELP US HEAL

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

SUPPORT4NICUPARENTS.ORG

SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

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

PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

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

National Perinatal Association

nicuparentnetwork.org

NPN NICU PARENT NETWORK

nationalperinatal.org/skin-to-skin

Position available for Neonatal Nurse Pretensioner (NNP)

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

Protecting your baby from

Respiratory Viruses:

What parents need to know this RSV and flu season

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

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

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

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

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

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

National Perinatal Association

www.nationalperinatal.org/rsv

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Once Upon A Preemie Academy

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+ Shanté Nixon
Connect2NICU

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

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

+ Terri Major- Kincade, MD, MPH
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Raising Global Awareness of RSV

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

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

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

RSV GOLD

A Global Mortality Database for Children with RSV Infection

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

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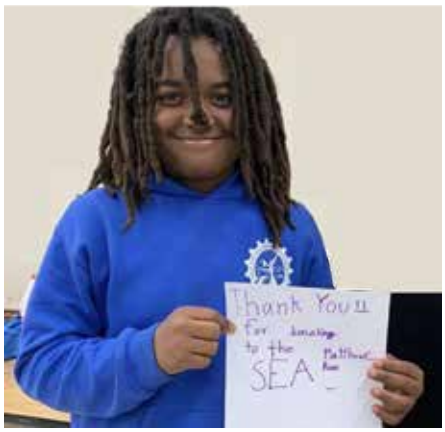

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Peer Reviewed

Gravens by Design: Close Collaboration with Parents Intervention Improves Family-Centered Care and Increases Parent-Infant Closeness in Neonatal Intensive Care Units

Sari Ahlqvist-Björkroth, PhD, Liisa Lehtonen, MD, PhD.

"After the intervention, we have shown that family-centered care improves, and parents spend longer time with their infants in the NICU."

Abstract:

We introduce an intervention, Close Collaboration with Parents, targeted to the multi-professional staff of a neonatal intensive care unit to develop their skills to provide infant care collaboratively with the parents, support parenting, and develop the unit's family-centered care culture. The goals of this intervention align with the factors that parents have identified as supportive and essential for them. The intervention includes theoretical education and bedside practices with parents and infants. These practices stimulate the staff to reflect on their care culture and improvement needs. After the intervention, we have shown that family-centered care improves, and parents spend longer time with their infants in the NICU. The intervention might also improve the growth of preterm infants, shorten their length of stay, and support parents' long-term psychological well-being. The Close Collaboration with Parents intervention has been implemented in 30 units in eight countries.

How did it get started?

Three convergent visions of three professionals inspired the development of the Close Collaboration with Parents intervention. Professor Liisa Lehtonen, as the leader of the Division of Neonatology at Turku University Hospital, had a vision that the staff would benefit if they were prepared to work closely with the families before moving to the new single-family room unit under planning in 2008. Professor Zack Boukydis had experience working as a clinical psychologist within neonatology in the US for about twenty years. He had developed the approach of using joint staff-parent observations on infant behavior. This tool is used to improve individual understanding of infants and involve parents in their infant's observations and care planning (1). Associate Professor Sari Ahlqvist-Björkroth had knowledge and experience in parent-infant interaction and transition into parenthood as a developmental psychologist (2). She innovated the neonatal staff's process-like teaching, combining bedside practices, mentoring, and reflections. These methods are effective in adult learning and implementation (3, 4).

The content and structure of the original intervention were mainly designed by Dr Ahlqvist-Björkroth and Dr Boukydis (5). During the first implementation period between 2009 and 2012, it was modified by the feedback from the NICU staff at Turku University Hospital, especially by Dr Lehtonen and the first unit mentors, Sanna Pick, RN, and Eija Laine, RN. Later, Associate Professor Anna Axelin, RN, PhD, participated in the development of the content related to shared decision-making, especially during medical rounds (6, 7)

How did it expand?

The Close Collaboration with Parents intervention has been implemented in 24 NICUs in 8 countries. In addition, the staff in the delivery room, prenatal and/or postnatal wards is trained in six hospitals. Even if the core content and structures of the intervention have remained the same over the years, we have developed the implementation based on the feedback from different NICUs. The intervention started with intense face-to-face teaching and then evolved to blended teaching, including e-learning and remote teaching, in addition to face-to-face teaching.

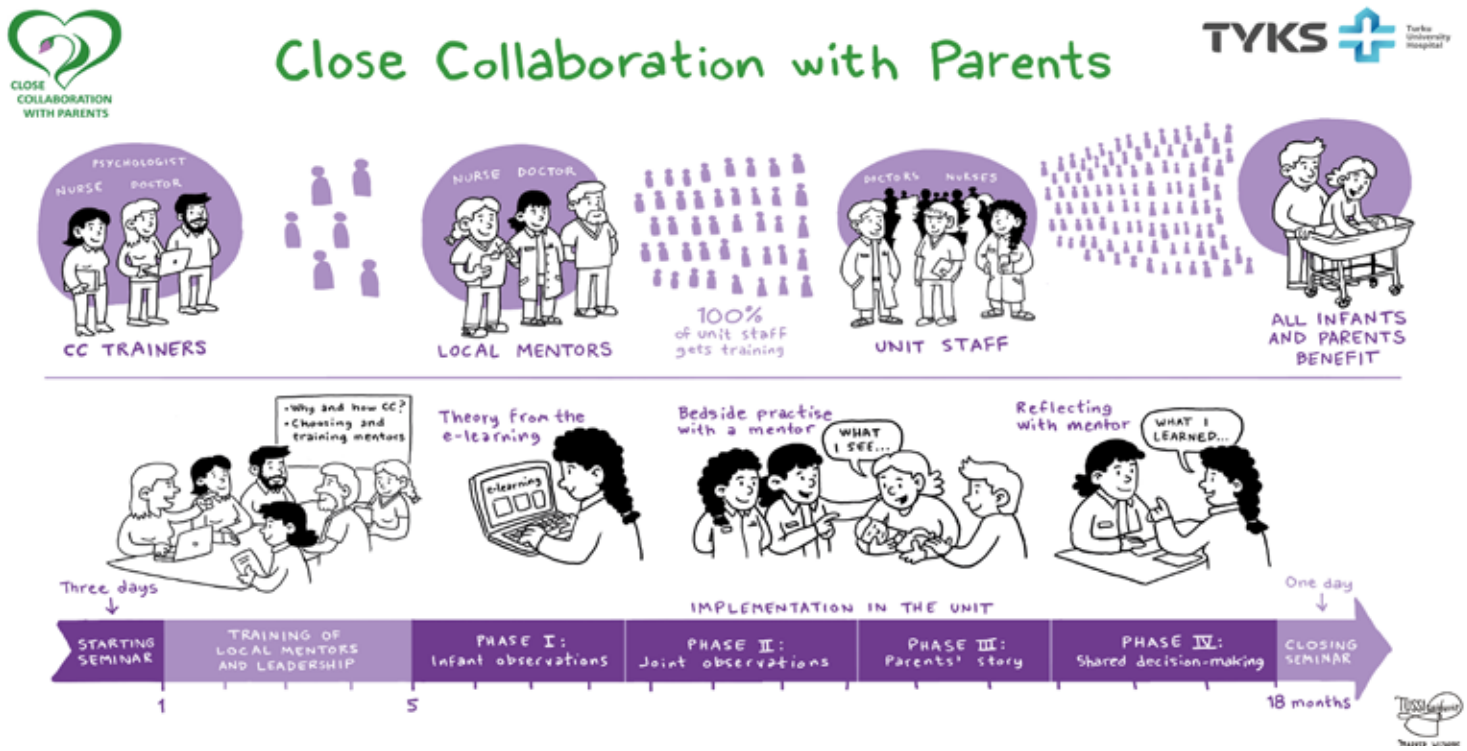
How do we do it today?

We use a systematic approach so that all the staff members of different disciplines in one unit get the same education. This systematic training of the NICU staff aims to change attitudes and values. The care practices in the unit are not evaluated or judged by the Close Collaboration with Parents training team (CC trainers, Figure). The training's theoretical teaching and bedside practices stimulate the staff to innovate ideas about improving their family-centered care. It is entirely in the power of the unit staff to decide how they deliver their family-centered care. We have seen, however, that the NICUs improve their family-centered care as they learn to see the value of collaborating with parents and supporting parenting (8).

"We use a systematic approach so that all the staff members of different disciplines in one unit get the same education. This systematic training of the NICU staff aims to change attitudes and values. The care practices in the unit are not evaluated or judged by the Close Collaboration with Parents training team."

We can mention many examples of processes the units have decided to develop after learning to look at their practices from the parent's perspective. One example has been to create new ways to involve parents in transfers within and between the units. Some units make infant care recommendations with parents for the next unit and invite the parents to be present during the transfers. Another example has been a practice change during medical rounds so that the parents get the first turn to tell about their observations on the baby.

The education in the Close Collaboration with Parents advances stepwise so that the following learning goals are built on the previ-



ous goals throughout the four phases. Learning happens at the bedside, integrated with the everyday work of the staff member and a mentor. Reflections with the mentor are essential for learning. The role of reflection is to integrate the new experience and its knowledge into the existing knowledge and professional role (9).

"Learning happens at the bedside, integrated with the everyday work of the staff member and a mentor. Reflections with the mentor are essential for learning. The role of reflection is to integrate the new experience and its knowledge into the existing knowledge and professional role (9). "

The learning goals of the first phase include learning to observe infant's needs and learning to communicate them among the staff systematically. The practices are infant behavioral observations with a mentor. In the second phase, the infant observations are done with a parent. The learning goal is to learn active listening skills, including open and "wondering" questions, without being didactic. The third phase focuses on understanding the individual story of the family, building empathy, and avoiding being judgmental. Understanding the unique parenting features in this family also helps to find the best ways to support parents' relationship with their infant. The fourth phase is about shared decision-making, which is practiced during medical rounds, care-taking situations, and preparing for the transition to home.

How to implement it in a NICU?

The implementation is initiated during the negotiation phase when a unit is considering whether to start the program. The decision and commitment to implement the intervention require a motivation to critically explore one's family-centered care practices and a desire to improve them.

"The decision and commitment to implement the intervention require a motivation to critically explore one's family-centered care practices and a desire to improve them."

The main methods of implementation are education and facilitation. First, CC trainers provide the initial training for the unit that participates in the training. This initial training consists of training for the local mentors and leadership, including a visit to the NICU at Turku University Hospital and a starting seminar for the staff of the participating unit. After the local mentors have completed their training (usually in English), they start mentoring their colleagues using their native language(s). The mentoring phase for the whole staff is typically one and a half years but varies depending on the number of staff in the unit. The CC trainers provide support and help in problem-solving through remote meetings and unit visits during the implementation in the unit. When the training is completed in a unit, a closing seminar will be held to summarize the training process and the impact of the intervention. The process is visualized in the Figure.

Each staff member must go through all four intervention phases, which take about six eight-hour work shifts. Each phase includes theory, bedside practices, and reflection. The staff member can

independently learn the theoretical content by completing the e-learning modules of each phase before the bedside practices. The bedside practices are done with a local mentor during the work shift of the staff member. The practice happens with the patients of the staff member. Their parents provide immediate feedback to the staff members during the practices. After each bedside practice session, the staff member will reflect on the practice experience with his/her mentor. The mentor delivers the clinical care, an extra resource to compensate for the time for practice and reflection.

The three learning modalities are chosen based on the knowledge of adult learning. They enable the integration of the theory into everyday work and unit practices. The bedside practices provide experiential learning (3). Reflective discussions facilitate individual internalization of knowledge and reflective thinking (4).

The key elements supporting the implementation of the training were studied in eight units that had completed the Close Collaboration with Parents intervention. The researchers interviewed 51 persons consisting of medical and nursing leadership and staff members. In their opinion, the motivation of the staff and good support from the leadership formed the basis for the implementation. Choosing the right time to start the intervention was critical to avoid other simultaneous, time-consuming projects in the unit. Sufficient time allocation was also critical for the implementation. In addition, it was considered essential to have both medical and nursing staff involved and motivated mentors who are flexible, responsive, and willing to give space for the mentees in their reflections (10).

What does it change?

The primary goal of the Close Collaboration with Parents training is to develop the skills of the multidisciplinary neonatal staff to provide infant care collaboratively with the parents. The downstream effects of the training are seen as improved family-centered care practices leading to better infants' recovery and parents' well-being and more efficient use of hospital resources. As the whole staff of the unit is trained, all of the infants cared for in the unit will be exposed to the new care culture. Therefore, the effects of the training will extend to a large number of patients and their families during the following years.

"Choosing the right time to start the intervention was critical to avoid other simultaneous, time-consuming projects in the unit. Sufficient time allocation was also critical for the implementation."

The evaluation research carried out so far has mainly focused on parents, infants, and nursing staff. The improved skills of the nursing staff have been shown in qualitative and quantitative studies after the Close Collaboration with Parents intervention. The researchers interviewed nurses at the NICU at the Turku University Hospital, which developed and implemented this training first. The nurses were asked about the effects of the training on their work. They reported that the training helped them individualize infant care, trust parents more, and give the parents agency in infant care. They reported that parents were more satisfied with the care, and infants were more stable with the parents (11).

The family-centered care skills of the nursing staff, family-centered care practices of the unit, and parent-infant closeness were studied in 9 NICUs in Finland, comparing the baseline measurements three months before the training to the post-intervention measurements after the training. It is crucial to notice that the parents were not the same in the groups before and after the intervention. The nursing staff was the same and were aware of the intervention.

"They reported that the training helped them individualize infant care, trust parents more, and give the parents agency in infant care. They reported that parents were more satisfied with the care, and infants were more stable with the parents (11)."

The skills of the nursing staff were studied quantitatively using the Digi-FCC tool (12, 13). The questions included, e.g., "To what extent did you listen to parents today?", "To what extent did you make it possible for parents to participate in caring for their infant today?". The nurses responded anonymously to one web question about their performance after each work shift using a Likert scale. Even if they already rated their performance high during the baseline, the total score improved statistically significantly with the training, especially to the questions about their active listening skills and emotional support and how they rated their parents' trust. The parents responded to corresponding questions by text messages (Digi-FCC tool) every evening during the hospital stay. The mother gave very high ratings already at baseline, so there was no room for improvement. The fathers' scores improved significantly in the question about shared decision-making (14). Altogether, parents and nurses gave consistent answers, showing that the training provided the nursing staff with skills to involve parents and support parenting.

Family-centered care was evaluated widely in eight hospitals using the Bliss Baby Charter audit tool before and after the training (8). The leadership, experienced staff members, and a sample of parents were interviewed about the unit's family-centered care practices. The Close Collaboration with Parents intervention significantly improved family-centered care in all ten categories of family-centered care practices as classified in the Bliss Baby Charter audit tool: 1) Active care by parent and staff, 2) Parent and family support, 3) Communication, 4) Developmental care, 5) Empowered decision making, 6) Facilities, 7) Guidelines and policies, 8) Staff skills and training, 9) Information provision, and 10) Service improvement and parent involvement. In addition to these eight hospitals, the Bliss Audit Tool has been used before and after the intervention at Trondheim University Hospital and Riga Children's Clinical University Hospital. The results showed an improvement in their family-centered care practices as well. In Riga, similarly to the eight Finnish hospitals, the training aligned the views of parents and staff about family-centered care in the unit. Before the training, the staff did not see as much need for improvement in their family-centered care practices as parents did.

After the training, the level of family-centered care improved and was rated similarly by staff and parents (Zarina R et al.: Improving family-centered care with Close Collaboration with Parents program in the NICU at the Children's Clinical University Hospital in Riga. Abstract at jENS Congress 2023).

In the nine NICUs in Finland, the parents filled in the Closeness Diary about their presence and parent-infant skin-to-skin contact during the 3-month baseline and 3-month post-intervention study periods. The results showed that the training increased both mothers' and fathers' presence and the duration of skin-to-skin contact (15). Parents' presence increased regardless of the baseline level, suggesting that this intervention improves care in units with low and high levels of family-centered care.

The downstream effects of Close Collaboration with Parents extend to infant recovery and parents' long-term psychological well-being. A register-based study showed improved infant outcomes and shorter length of stay in NICUs with the Close Collaboration with Parents intervention compared to NICUs without the intervention (Itoshima R et al.: Close Collaboration with Parents Affects the Length of Stay and Growth in preterm infants: A register-based study in Finland. Manuscript submitted). After the training, the mothers of preterm infants had lower depressive symptom scores at 4-6 months and two years after the preterm delivery, as compared to a historical cohort before the training (16,17). This finding is consistent with the finding from a multicenter study showing an association between a higher level of family-centered care and a lower level of mothers' and fathers' depressive symptoms at discharge and four months later (18).

Many units have reported that the phone calls from parents after discharge have decreased or completely disappeared after the training. Many mothers have noticed the difference in the care culture if they have had a child in the same unit before and after the training. Several mothers have spontaneously commented, "Now I feel that I can be a mother here." In addition, many units have reported that the training supported their transition to single-family room NICU.

"The downstream effects of Close Collaboration with Parents extend to infant recovery and parents' long-term psychological well-being. A register-based study showed improved infant outcomes and shorter length of stay in NICUs with the Close Collaboration with Parents intervention compared to NICUs without the intervention."

The studies reported here have been carried out in Finland. In addition, several ongoing studies exist in other countries, including Estonia and Japan. These studies explore the mechanisms for the positive effects of the training and a large variety of parent and infant outcomes.

Wrapping up:

Professionals have widely understood the need for interventions to improve family-centered neonatal care. This need is reflected in the widespread interest in the Close Collaboration with Parents intervention. The goals of the Close Collaboration with Parents training align with the factors parents have identified and reported as supportive and essential for them (19). The key features of the Close Collaboration with Parents intervention include its holistic approach so that it is delivered to the whole staff in a NICU. This approach is more sustainable compared with training only individual staff members. It also brings the benefits of family-centered care to all patients cared for in the unit. This approach to training the whole staff has been proven to be feasible by our experience in different contexts. We have also carried out research studies to gain evidence on the effectiveness of this intervention. The evidence base is strong about its effectiveness in improving family-centered care practices in NICUs and increasing parent-infant closeness. Our studies suggest this intervention might improve infant growth and recovery and parents' long-term psychological well-being.

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Gravens Diversity Travel Award

As part of an initiative to increase diversity at the Gravens Conference, the Gravens Diversity, Equity, Inclusion, and Justice (DEIJ) Committee will provide travel awards to individuals from historically underrepresented groups (i.e., people from racially and ethnically diverse backgrounds, members of the LGBTQ+ population, individuals with cognitive disabilities, individuals with physical disabilities). Applications will open for the 2024 Gravens Diversity Travel Awards on **August 21, 2023**. Applications should be submitted no later than **Monday, October 30, 2023, at 5:00pm EST**.

Several competitive travel awards are expected to be given. The amount awarded will be based on the award availability for that year. Notice of awards are expected to be made no later than December 15, 2023. Please contact Kelly McGlothen-Bell (mcglothen@uthscsa.edu) or Christie Lawrence (Christie_Lawrence@rush.edu) for questions regarding your application.

Eligibility:

- Identify as a member of a historically underrepresented group.
- Must serve the neonatal and/or pediatric intensive care population in a professional capacity.

Application:

- Completion of Gravens Diversity Travel Award Survey, which provides contact information for the applicant and specifies the applicant's eligibility for the award.
- CV or Resume
- Submission of written or video response to the following statements:
    - Describe your personal and professional background.
    - Describe how you believe you will benefit from attending the Gravens Conference.
    - Describe how you'd like to advance DEIJ initiatives for the care of infants and their families.
- Letter of Support detailing the following attributes:
    - Administrative support from applicant's leadership team to participate at the Gravens Conference.
    - Evidence of the applicant's skills, knowledge, experiences in research, practice, service/volunteering, and/or leadership.
    - Commitment to support commitment to DEIJ in practice.

Awardee Responsibilities:

- Plan to attend the full 2024 Gravens Conference.
- Engage with an assigned Gravens Conference buddy.
- Provide post-conference statement (written or video) about the conference experience and how they plan to adopt or incorporate what they've learned at the conference into practice.
- Awardees are highly encouraged to submit an abstract to the subsequent Gravens Conference.

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

Our message to the supporters, attendees, and participants in the Gravens conferences.

We want to acknowledge concerns regarding holding the 2024 meeting in Florida. For all those who have communicated your thoughts about attending the meeting, we want you to know that we appreciate your forthrightness and wish to offer a statement of our collective thinking on this crucial matter. As our society grows more diverse and connected, we must acknowledge how the social and political climates continue to affect how we live, move, and interact.

Our Gravens community seeks to affirm our commitment to addressing issues of racism and bias and audit our systems to ensure that we are proactive in implementing strategies that promote health equity and social justice. We strive to provide a supportive, inclusive, and welcoming space to all individuals involved in the physical and developmental environment of the neonatal intensive care unit (NICU), including family members, healthcare providers, designers, and industry supporters.

The Gravens community approach is to remain non-political. However, some of the current policies and practices in the state where the Gravens conference is historically held are not consistent with the ideals and values of the Gravens community. The Co-Chairs and Planning Committee are reviewing all opportunities to ensure that the individual identities and lived experiences of those most impacted by the current political landscape are valued and respected.

Should you choose to attend the conference in Clearwater in person, we hope you recognize that there are those whose livelihood depends on tourism and who do not hold the same views as Florida's current prevailing social and political environment. That way, you can support small businesses, specifically those owned by people of color.

As we plan for upcoming Gravens meetings, our priority is to ensure that all attendees can participate in a safe and welcoming environment. The Planning Committee for the 2024 Gravens Conference has discussed the pros and cons of going forward with holding our meeting in Florida, given the recent political decisions that threaten an open and inclusive society. We have explored the possibility of moving the conference to another state; however, we will not be able to do so for the 2024 conference due to fiscal and contractual obligations. We are actively exploring alternative sites for future meetings.

We understand that diversity, equity, inclusion, and justice are principles that must work together to result in fair treatment, access, opportunity, and advancement for all. Therefore, we respect each participant's decision to attend the conference in person or virtually, and we hope you will join us in whatever format suits you best. Through our perseverance and dedication to advancing the care of infants and families, we aim to continue to promote our message of inclusivity and health equity.

Regardless of your position on attending the Gravens conference, you might like to use these strategies right now to make a difference:

- Commit to learning and reflecting on how racism and bias impact us today and how our history led us here.
- Vote for political candidates that are in line with your values.
- Use your voice, lived experience, and privilege to bring awareness and action to address health outcomes and healthcare quality disparities.

We are continuing to work to ensure that the co-chairs, planning committee, and conference attendees reflect both the workforce and the people they serve so that we can best meet the needs of our field. You can support the Gravens Conference Diversity Fund to help ensure the participation and growth of our ever-changing society.

Together, we can create environments where every individual or group will be fully and authentically welcomed, respected, supported, and valued to shape the world for future generations equitably.

For questions or comments, please contact lomalindapublishingcompany@gmail.com.

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- HORIZONTAL INFECTION
- SEPARATION AND TRAUMA

EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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

TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

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

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY

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

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Peer Reviewed

Fragile Infant Forums for Implementation of IFCDC Standards: Integrating Diversity, Equity, Inclusion, and Justice into the Care of Families in the NICU: A Call to Action

Kelly McGlothen-Bell, PhD, RN, IBCLC; Christie Lawrence, DNP, RNC-NIC, APN/CNS

Background:

Having a baby in the neonatal intensive care unit (NICU) is a stressful situation for most parents. While there is substantial evidence of the common stressors that families in the NICU face, of note, some families may face additional stressors if they belong to historically marginalized groups (2, 3). but significant racial/ethnic disparities persist. Neonatal disparities have their origin in a complex set of factors that include systemic racism and structural disadvantages endured by minority families, but differential quality of care in the neonatal intensive care unit (NICU The NICU experience is a complex and often chaotic period for families as they try to navigate unfamiliar medical diagnoses, separation from their infant, and the transition to parenthood in a unique environment, as well as external concerns like managing the day-to-day needs of life outside of the NICU (1). While this is in no way an exhaustive list, evidence indicates that families that are racially or ethnically minoritized, identify as LGBTQ+, have a disability, or are affected by substance use disorder or teen pregnancy often face the unjust burden of having additional stressors imposed on them due to unconscious bias, racism, and stigma from staff and/or the result of discriminatory policies. Such bias and discrimination can lead to higher rates of health disparities, including both maternal and neonatal morbidity and mortality (3,4).

"...evidence indicates that families that are racially or ethnically minoritized, identify as LGBTQ+, have a disability, or are affected by substance use disorder or teen pregnancy often face the unjust burden of having additional stressors imposed on them due to unconscious bias, racism, and stigma from staff and/or the result of discriminatory policies."

Over the last few years, more attention has been given to the needs of diverse families and the importance of implementing strategies to dismantle health inequities to improve the health outcomes of infants and their families. Moreover, enacting interventions and policies rooted in diversity, equity, inclusion, and justice have been touted as the solution to addressing one of the most complex issues in the United States (5). Diversity, Equity, Inclusion, and Justice (DEIJ) is a conceptual framework of values that promote a culture of fair treatment and full participation of all people, including babies, parents, partners, family members, providers, caregivers, staff, leaders, and executives. (See Box 1 for definitions of DEIJ concepts)

"Diversity, Equity, Inclusion, and Justice (DEIJ) is a conceptual framework of values that promote a culture of fair treatment and full participation of all people, including babies, parents, partners, family members, providers, caregivers, staff, leaders, and executives."

Preparing healthcare professionals to provide care rooted in DEIJ principles begins with understanding how health disparities often present for infants and families in the NICU. Recognizing that health disparities cannot be dismantled if we do not address the roots of health inequity and making recommendations for integrating DEIJ principles into the NICU care environment is essential. We offer examples by applying the Infant and Family-Centered Developmental Care (IFCDC) Standard on Systems Thinking (6).

Health Disparities in the NICU:

Health disparities exist at the intersection of social determinants of health and oppressive expressions such as bias, stigma, racism,

and discrimination, creating multiple barriers to receiving high-quality healthcare (7,8). According to the Centers for Disease Control and Prevention (CDC), "health disparities are inequitable and are directly related to the historical and current unequal distribution of social, political, economic, and environmental resources" (9). This issue extends beyond our social context into clinical care settings; emerging evidence suggests stark variation in the quality of NICU care delivery (4, 10).

Historically marginalized communities are largely affected by these variations and more often receive suboptimal care experiences and outcomes (4, 10, 11). For example, when we consider disparities in nutrition and infant feeding in the NICU, Black infants born with very low birth weight are less likely to receive human milk feedings during their NICU stay, including mother's own milk and pasteurized donor human milk, regardless of the mother's intent to breastfeed (12). Furthermore, disparities in human milk feeding in the NICU extend to other minoritized groups, including those with lower socioeconomic status (13). Despite established knowledge that breastfeeding should be encouraged of mothers receiving medication for opioid use disorder and have known health benefits for infants with prenatal opioid exposure (14), mothers in this population consistently report receiving little to no support regarding breastfeeding management in the NICU, often due to substance use stigma (15,16). Given what is known of the root of structural health inequities, these findings suggest that individual, provider level, and systemic, organizational unit, and hospital level factors play a key role in reducing such disparities in quality of care.

"Given what is known of the root of structural health inequities, these findings suggest that individual, provider level, and systemic, organizational unit, and hospital level factors play a key role in reducing such disparities in quality of care."

Application of DEIJ in the NICU Context and Recommendations:

Key principles of the *Standards, Competencies, and Best Practices for Infant and Family-Centered Developmental Care in the Intensive Care Unit* underscore the importance of multi-level approaches to address social determinants of health and quality of NICU care, maintaining a commitment to DEIJ for all infants and families (See Box 1). The Infant and Family Centered Developmental Care (IFCDC) Consensus Committee has been using systems thinking to guide the implementation of IFCDC within the Intensive Care Unit (6) to move toward a more holistic, equity-focused standard of care. Integrating the DEIJ principles into a unit and beyond discharge requires time commitment and the challenge of confronting potential bias and stigma within us and our unit policies and practices (See Box 1).

Through systems thinking, specific attention should be given to the NICU environment's overall culture and integrating DEIJ-related concepts into the unit culture. When considering the diversity of families we encounter daily, hospital and unit-based policies should support an inclusive NICU environment. For example, hospital policies that do not consider the needs of working parents, parents with young children, or parents with mandated classes can further impede parental involvement in the care of infants. Regarding auditing measures of patient outcomes, hospitals and units can implement the practice of disaggregating data to identify racial, ethnic, and social inequities specific to their community, leading to targeted quality improvement efforts and clinical practice changes. Including other information regarding social determinants of health, screening may further assist us in targeting specific interventions.

Moreover, the staff and environment should welcome families into the care space, treating them as essential members of the infant care team. Fostering an open environment involves creating safety for all families by using inclusive language and asking families their preferred use of language and pronouns to describe who they are and the support of those who are important to them. Staff and providers can work with families to identify infant and familial unit strengths and develop care coordination that promotes secure attachment between parents and infants.

"Including parents on family support teams can help staff and providers create respectful partnerships, creating mutual respect and value for providers' clinical expertise and expertise found within the lived experiences of families (14)."

Including parents on family support teams can help staff and providers create respectful partnerships, creating mutual respect and value for providers' clinical expertise and expertise found within the lived experiences of families (14). Doing so can improve equitable care practices and foster a sense of belonging for families. Modeling these practices and teaching new clinicians the value of prioritizing health disparities and health equity can empower them to implement these practices much earlier in their careers as a normalized approach to dismantling antiracism, anti-discrimination, and anti-stigma in healthcare.

"It is critical that the historical and current experiences that historically marginalized families have within the healthcare system not be minimized or ignored. "

Social justice advocacy must extend beyond the walls of individual NICUs to ensure that structural and institutional racism and discrimination are dismantled. At the local level, this begins with ensuring that our discharge and follow-up programs are evaluated for policies and other factors that might serve as barriers to access to care. Advocacy for policies that support and address social determinants of health are also crucial to the well-being of

Box 1. Application of DEIJ to the IFCDC Systems Thinking Standards

DEIJ Conceptual Definition	IFCDC Systems Thinking Standard	Systems Thinking-Based Questions to Consider
Diversity is characterized as the representation or composition of various social identity groups, such as race, ethnicity, ability, gender, sexual orientation, neurodiversity, and beyond in a unit, organization, or community.	*Standard 1, Systems Thinking*: The intensive care unit shall exhibit an infrastructure of leadership, mission, and a governance framework to guide the performance of the collaborative practice of IFCDC.	· Are the baby and the family central to the mission, values, environment, practice, and care delivery? · Who are the members of the team? · Does the culture encourage open communication, relationship-building, respect and value for all individuals, and creative thinking? What are the strategies and evaluative metrics that you use to accomplish this?
Promoting **equity** involves providing resources according to the need to help diverse populations achieve their highest state of health and function.	*Standard 3, Systems Thinking*: The practice of IFCDC in the intensive care unit shall be based on evidence that is ethical, safe, timely, quality-driven, efficient, equitable, and cost-effective. *Standard 6, Systems Thinking*: The interprofessional collaborative team should provide IFCDC through the transition to home and continuing care for the baby and family to support the optimal physiologic and psychosocial health needs of the baby and family.	· How is the team's competence related to the integration of DEIJ into IFCDC regularly evaluated, as well as the competence of the individual professional? Is performance competence evaluated at least annually? · Can you articulate a cost-to-benefit ratio to justify or identify opportunities for equitable developmental care practices and initiatives? How is this accomplished? · What strategies are used to provide a continuum of care that includes integration of the family and is based on the family's specific needs from admission to transition to home and follow-up care in the community?
Creating a culture of **inclusion** involves building an environment that fosters affirmation, celebration, appreciation, and respect of different approaches, styles, perspectives, and experiences.	*Standard 2, Systems Thinking*: 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.	· Does your team welcome the integration and interaction of all families regardless of background and beliefs? · Does your team, including parents and family, educate and train together? · How do you support families to feel confident as a nurturing caregiver of their baby, and competent decision-maker in managing current and anticipatory health requirements? Are their child-rearing practices and beliefs respected and affirmed?
Justice constitutes a form of activism that advances operational success by integrating diversity, equity, and inclusion within an organizational system, inclusive of the vision, mission, values, culture, leadership, infrastructure, education, performance, measurement/analysis, improvement, and sustainment.	*Standard 4, Systems Thinking:* The intensive care unit practice and outcomes will provide evidence demonstrating the continuous monitoring of information relative to IFCDC practice. *Standard 5, Systems Thinking:* The interprofessional collaborative practice team shall be transparent regarding the access and use of medical equipment, devices, products, medications and vaccines, and technologies related to the IFCDC care in the inpatient setting, home, and the community.	· Is there consistency in information and care delivery from inpatient to home and follow-up? Is this care individualized according to the parents' education, language, and capacity for understanding complex medical terminology and equipment? How is this demonstrated and evaluated? · What do the information and data tell you about the operation, infrastructure, outcome, education and training, practice performance, and improvement implementation of your institution's unit(s)? Is improvement continuous? · What articulated metrics are collected, monitored, evaluated, and compared with standardized outcomes? · Is there transparency in the dissemination of information and data?

the neighborhoods we serve. To improve the care and lives of infants and families at the state and national levels, providers must contribute to statewide quality improvement initiatives and advocate for legislation that holistically addresses issues of maternal and infant morbidity and mortality, such as the *Momnibus Act*, and more wide-spread targets like paid family leave.

Call to Action:

It is critical that the historical and current experiences that historically marginalized families have within the healthcare system not be minimized or ignored. As many families continue to experience the impact of toxic stress and gaslighting because of traumatic experiences impacting the morbidity and mortality of women and infants (11), we must move forward with the integration of DEIJ principles into the practices and policies of NICUs. We must acknowledge where we, as "experts," fall short and take steps to educate our staff and get families to the table to help with decision-making regarding what works best for them. Honoring their lived experiences and partnering with our families is imperative to our forward movement.

"Our actions, policies, and practices have to move beyond simply the language and terminology of DEIJ and encompass the integrity and spirit of the DEIJ so that we can dismantle racist, discriminatory, and paternalistic systems of care."

No "one size fits all approach" will cover the gamut of what is needed to improve health equity for diverse families in the NICUs; however, we hope that the application of DEIJ within the IFCDC Standards can help guide individual unit assessments to address barriers and encourage unit strengths specifically. Our actions, policies, and practices have to move beyond simply the language and terminology of DEIJ and encompass the integrity and spirit of the DEIJ so that we can dismantle racist, discriminatory, and paternalistic systems of care. This will require consistent and ongoing assessment of all our practices and include measurable outcomes of quality and improvement initiatives. The health of our babies, families, and communities depends on creating equitable and just healthcare for all. It is a basic human right.

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Peer Reviewed

Abstracts from the National Perinatal Association's 2023 Conference May 19-21 at Chapel Hill, NC

Jerasimos (Jerry) Ballard, 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.

National Perinatal Association

Educate. Advocate. Integrate.

Selected abstracts from the the National Perinatal Association's 2023 Conference:

NPA 2023–1	Maternal Postpartum Care in Pregnancies Complicated by Fetal Congenital Anomalies
NPA 2023–2	Preliminary Validation of a New Family Psychosocial Risk Measure in the Neonatal Intensive Care Unit (NICU): The PAT-NICU/CICU
NPA 2023–3	Trauma-Informed and Resilience-Promoting Care in Perinatal Settings
NPA 2023–4	Maternal-Fetal Surgery in The Dobbs Era: Ethical Principles Inform Clinical Practice to Protect Pregnant Patients
NPA 2023–5	Development and Evaluation of a Virtual Postpartum Psychosocial Support Program Based Upon Acceptance and Commitment Therapy (ACT)
NPA 2023–6	Maternal Attitudes, Adjustment, Health Behaviors, and Social Support Among Mothers of Infants in the Neonatal Intensive Care Unit
NPA 2023–7	Utilizing Virtual Reality Technology as a Stress Inoculation Tool for NICU Caregivers
NPA 2023–8	Initial Validity and Feasibility of a Dyadic Intervention to Facilitate Parent Engagement in NICUs
NPA 2023–9	Providing Respectful Care in Reproductive and Maternity Settings: Innovative Models of Care
NPA 2023–10	A Single Institution Neuroprotection and Developmental Care Quality Improvement Initiative
NPA 2023–11	Engaging a Lived Experience Advisory Group in the Evaluation of a Maternal Telehealth Access Project During the COVID-19 Pandemic

NPA 2023–12 Effects of Timing of Birth and Pandemic-Related Experiences on Mother-Infant Bonding During the COVID-19 Pandemic

NPA 2023–13 Progress Update from Mother Baby Connections, an Intensive Outpatient Program for Perinatal Women in Philadelphia

NPA 2023–14 DREAM Big: Addressing Early Childhood Mental Health and Social Determinants of Health in a Neurologic Neonatal Follow Up Clinic

NPA 2023–15 Smooth Way Home

NPA 2023–16 Maternal Mental Health after Infant Discharge: A Quasi-Experimental Clinical Trial of Family Integrated Care versus Family-Centered Care for Preterm Infants in U.S. NICUs

NPA 2023–17 NICU Staff Acceptability of Mobile-Enhanced Family Integrated Care for Preterm Infants in U.S. NICUs

NPA 2023–18 Family Integrated Care Interventions May Improve Preterm Outcomes Compared with Family-Centered Care in U.S. NICUs

NPA 2023–19 Leveraging a User-Centered Approach to Develop *Mommaconnect*, a Mobile Health Therapy Application for Mothers with Postpartum Depression and Their Infants

NPA 2023–20 The Effects of Pharmacological Interventions in Caring for Neonates with NAS Post Discontinuation of In Utero Opioid Exposure and Its Impact on the Length of Hospital Stay

NPA 2023–21 Genetic and Environmental Considerations of Perinatal Substance Use

NPA 2023–22 A Multi-Tiered Systemic Approach to Helping Families Thrive in the NICU and Beyond

NPA 2023–23 Psychological Distress in NICU Providers: A Scoping Review in Progress

NPA 2023–24 Therapeutic Approaches to Working with Perinatal Loss Clients: A Grounded Theory Study

NPA 2023–25 Recognizing and Working with Medical Trauma in the Perinatal Period: A Multidisciplinary Approach

NPA 2023–26 The Need for Parental Support Following Prenatal Genetic Testing

NPA 2023–27 Pregnancy Loss and Post-Traumatic Stress Disorder: The Influence of Provider Care Among a Sample of Black Women

NPA 2023–28 When Cancer and Pregnancy Collide: The Experiences of Women with Cancer During Pregnancy

NPA 2023–29 Raising Awareness About Perinatal Mental Health Through Film: Reflections from Drexel University NPASS's Documentary Screening Event

NPA 2023–30 Postpartum Menstrual Equity: Video Analysis of Vaginal Bleeding Information, Care Planning, and Pads Offered to New Parents During the Childbirth Hospitalization

NPA 2023–31 Cultural Competemility and Professionalism: An Innovative Approach to Enhancing Culturally Sensitive Equitable Perinatal Care

NPA 2023–1

Abstract Title: Maternal Postpartum Care in Pregnancies Complicated by Fetal Congenital Anomalies

Authors: Rachel L Bank; Madeline Mckenna; Jane Corteville, MD; Emily Hamburg-Shields, MD, PhD

Introduction: The importance of postpartum follow-up care is widely recognized. Patients whose pregnancies are complicated by fetal anomalies may encounter unique challenges and barriers to obtaining routine postpartum care. We sought to evaluate the characteristics of patients whose pregnancies are complicated by fetal anomalies with respect to postpartum office visit attendance.

Methods: Patients whose pregnancies had a prenatally diagnosed congenital anomaly who received comprehensive prenatal care in a multidisciplinary fetal care clinic at University Hospitals Cleveland Medical Center and Rainbow Babies and Children's Hospital from 6/1/2018 to 5/31/22 were identified for retrospective chart review. Patients who attended zero postpartum visits were compared to patients who attended at least one postpartum visit. Data were analyzed using two sample t-tests assuming equal variances or the Fisher exact probability test. P values <0.05 were considered statistically significant.

Results: Fifty-seven patients met the inclusion criteria (demographic data summarized in Table 1). Of these patients, 65% attended at least one postpartum follow-up visit. The most common fetal sonographic diagnoses in this cohort were: multiple congenital anomalies (15), abdominal wall defects (8), congenital pulmonary airway malformation (CPAM) (7), congenital heart disease (6), and urinary tract malformations (6). Patients who had at least one postpartum visit differed significantly from those with no postpartum visit by age, number of prenatal visits and antenatal surveillance visits (non-stress tests and ultrasounds), fetal outcomes, and mode of delivery (Table 2).

Discussion and Conclusions: Following the prenatal diagnosis of a fetal congenital anomaly, obstetric patients who have more prenatal visits, ultrasound visits, and NST visits may have increased rates of postpartum follow-up due to their established relationships with their obstetric providers. Patients in this cohort whose child was not born alive due to pregnancy termination, intrauterine fetal demise (IUFD), or spontaneous abortion experience, as well as patients who had vaginal deliveries compared to cesarean deliveries, demonstrated significantly lower rates of follow-up and may benefit from targeted interventions to ensure

sufficient postnatal care.

Table 1. Study group characteristics.

	N	Percentage
Race		
White	33	58%
Black/African American	20	35%
Other	4	7%
Ethnicity		
Hispanic or Latino or Spanish Origin	5	9%
Not Hispanic or Latino or Spanish Origin	52	91%
Insurance Status		
Public	37	65%
Private	17	30%
Uninsured	2	4%

Table 2. Comparison of characteristics between patients with and without postpartum follow-up.

	Total	Attended Zero Postpartum Follow-Up Visits	Attended at Least One Postpartum Follow-Up Visit	P Value
N	57	20	37	
Median Age at Delivery	28	26.2	29.9	0.04
Average Number of Ultrasound Visits	7.7	6.1	8.5	0.04
Average Number of NST Visits	0.6	0.2	0.9	0.03
Average Number of Prenatal Visits	6.9	5.1	7.9	0.002
Average Number of Prenatal Specialty Consults*	1	0.9	1.3	0.06
Fetal Outcome				
Live Birth	46	13	33	0.04
Termination, Miscarriage or IUFD <20w	11	7	4	
Type of Delivery				
Spontaneous Vaginal	28	12	16	0.006
Cesarean Section	22	3	19	
Termination, Miscarriage or IUFD <20w	7	5	2	

*Neonatology, Palliative/Hospice, Pediatric Surgery, Pediatric Cardiology, Genetics

NPA 2023-2

Abstract Title: Preliminary Validation of a New Family Psychosocial Risk Measure in the Neonatal Intensive Care Unit (NICU): The PAT-NICU/CICU

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Introduction: Research suggests families whose infants are admitted to the Neonatal Intensive Care Unit (NICU) experience elevated distress and may have pre-existing risk factors for maladjustment. This study sought to validate the newly developed Psychosocial Assessment Tool (PAT-NICU/Cardiac Intensive Care Unit CICU), a comprehensive screening measure for family psychosocial risk in the NICU.

Methods: The sample included 171 mothers, who completed the PAT-NICU/CICU and other related measures within two weeks of their infant's NICU admission to a level 4 unit within a large pediatric hospital. PAT-NICU/CICU scores were compared to repeated measures and a companion risk survey completed by NICU social workers. Test-retest reliability was assessed through repeated measures at 2-month follow-up.

Results: Analyses suggest the PAT-NICU/CICU is effective in classifying psychosocial risk. This is supported by statistically significant correlations between the PAT-NICU/CICU and validated measures, in addition to elevated scores on concurrent measures by risk classification. Internal consistency, test-retest reliability, and acceptability for the PAT-NICU/CICU were satisfactory. Additional analyses are anticipated regarding parental discrepancies and risk trajectories over time.

Discussion: This study demonstrates the validity, reliability, and acceptability of the PAT-NICU/CICU as a psychosocial screening tool to aid identification of families who may benefit from supportive services in a stepped up care fashion during NICU admission. This new measure is a more comprehensive tool that assesses a wide variety of risk factors and stress responses. Prompt screening of NICU parents may facilitate earlier linkage with appropriate levels of appropriate resources and/or intervention. This research is crucial in improving risk assessment and psychosocial care for families of infants in the NICU. We plan to cover implications for practice including how NICUs can access this new measure and incorporate this into their screening processes.

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NPA 2023-3

Abstract Title: Trauma-Informed and Resilience-Promoting Care in Perinatal Settings

Authors: Agustina Bertone, PhD, Sierra Kuzava, PhD, Karolina Grotkowski, PhD, Catherine Mogil, PsyD

Background: Perinatal medical teams serve a unique role, as caring for a pregnant person entails caring for a newborn and equipping the family to provide a nurturing environment for their infant. Although family-centered care is considered the gold standard, many medical providers face challenges upholding this standard of care. Additionally, medical teams working in high-stress environments face a tremendous number of challenges, including burnout, anxiety, post-traumatic stress, and low job satisfaction (Mealer et al., 2007; Myhren et al, 2013; Poncet et al., 2007). These stressors may hinder care providers' ability to prioritize family involvement, especially when something might be seemingly simpler or more efficient for the providers to do themselves. Further, many medical professionals report not receiving adequate training in psychosocial issues and do not feel properly equipped to recognize and manage these concerns. Nonetheless, families in medical settings often look to their medical staff for guidance and education on how to best support the birth of their child and medical needs they may have.

Content/Action: Integrating therapeutic interventions into the medical environment ensures that all families get at least some level of psychosocial support and reduces barriers to care. It is crucial that medical staff members are provided with the support and education they need to provide family-centered care that is sensitive to the medical trauma that these families face, and ultimately allows both the medical teams and families to provide their infants with optimal care.

In the Spring of 2022, our team implemented family-centered, trauma-informed, and resilience-promoting care trainings for perinatal hospital units, including Labor and Delivery and Neonatal Intensive Care, at UCLA Health. A core theme of our training is shifting from "What's wrong with that family?" to "What might they be going through?" The training is intended to support medical staff in adopting a trauma-sensitive lens and building family strengths with resilience-promoting strategies. This approach strengthens teams' ability to provide effective support for all patients, and ultimately allows both staff and birthing persons and their partners to help their infants thrive in the hospital and beyond.

Lessons Learned: Evaluation of the training demonstrated that medical staff who participated felt positively about the content, with 100% of respondents endorsing that the information was helpful and that they would recommend the training to others. Medical staff saw important knowledge gains in the areas of trauma- and resilience-informed care and 90% of participants indicated that they would make significant change in their response to work-related stress and trauma. In addition, we saw important knowledge gains in the areas of trauma- and resilience-informed care.

Implications for Practice: Increasing trainings focused on family-centered, trauma-informed, and resilience-promoting care can support the wellbeing of medical staff, the experience of families experiencing a hospitalization, and the ability of teams to appropriately respond to challenging and precarious situations in the hospital setting. Given the importance of this topic and the need to train medical staff, the course we delivered has also been translated to an online course format, titled *The Resilient NICU,* which can be found on UCLA's Prevention Center of Excellence (Wellbeing4LA.org). As part of this poster presentation, our team will disseminate information on this accessible course, as well as related tip sheets and handouts we have created that address a range of practices in perinatal settings.

NPA 2023-4

Abstract Title: Maternal-Fetal Surgery in The Dobbs Era: Ethical Principles Inform Clinical Practice to Protect Pregnant Patients

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INTRODUCTION: Prenatal intervention and maternal-fetal surgery (MFS) encompass a specialized set of novel procedures and surgeries aimed to correct or mitigate the progression of specific congenital anomalies. Since the Supreme Court decision in June 2022 in the case of *Dobbs v. Jackson Women's Health Organization*, an increase in restrictions around access to abortion care for many patients has raised pressing ethical questions around the clinical offering and practice of MFS. As some of the premier fetal care centers in the country are within states now restricting or banning abortions, it is important for providers and pregnant patients to understand what is clinically, legally, and ethically permissible and the discrepancies between them. Furthermore, if the field of MFS is to expand in a climate of increasing polarization around reproductive care, providers must understand the factors influencing patient enrollment and research funding for the specialty. Here, we detail the ethical considerations present for MFS patients and providers and offer actionable recommendations for clinical practice.

CONTENT: As with all surgical procedures, MFS carries risks for both the pregnant person and fetus. Potential risks include uterine rupture, placental abruption, miscarriage, preterm birth, and issues with future fertility and subsequent pregnancies from conception to delivery. Because spontaneous abortion is an inherent risk for any pregnant patient undergoing MFS, ethical concerns must be addressed around the state-specific consequences for MFS providers involved in cases where intrauterine fetal demise (IUFD) could occur. What role does intent have in procedures with the potential to result in fetal death? In the *Dobbs* era, it could be argued that MFS providers with adverse fetal patient outcomes should be held to the same legal standard as therapeutic abortion care providers since the clinical result may be identical in both situations. The role of intent seems a relevant distinction between procedures with the purpose of pregnancy termination from those intended to ameliorate a certain fetal pathology, even though both procedures may be therapeutic for pregnant patients.

The fact that MFS encompasses multiple procedures and surgeries existing on a continuum of risk with respect to postoperative miscarriage begs the question, what is the threshold for acceptable risk of IUFD in a given surgery, and to what extent does the legal context change that threshold? For example, more established minimally invasive fetoscopic procedures carry a lower risk of IUFD compared to more novel and experimental fetal cardiac procedures. At what point is the risk of IUFD too great for either the patient or provider to pursue MFS in the *Dobbs* era? Does the location of fetal death matter, and what are the implications of that determination? Where procedure-induced miscarriage is inevitable, are there reasons for a physician to wait for fetal death before uterine evacuation?

MFS-candidate patients must consider risks and benefits of any procedure for themselves and their fetuses. Prior to the *Dobbs* decision, MFS patients were informed of at least three potential courses of action: pursue MFS, terminate the pregnancy, or monitor the pregnancy until the postnatal period (expectant manage-

ment). These options have diminished in states with restricted access to abortion where termination of pregnancy is conditioned on the fetus' gestational age. Candidacy requirements for the pregnant person considering MFS are stringent and include physical health requirements (e.g., body-mass index), adequate social support, and psychological evaluation. For patients who are not MFS candidates and live in states with hostile legislation towards abortion care the practical number of options decreases from three to one— expectant management. This contingency may potentially coerce patients to undergo MFS when they should not have to. Absent the option for safe termination, pregnant patients may accept additional risk from a sense of obligation to their fetuses and/or a desire to avoid the consequences of compromised fetal health. This challenges whether the newly established incentive to pursue MFS in the absence of abortion care is the best course of action for these patients. Long-term clinical outcomes data related to MFS procedures are still being characterized, which further complicates the risk-benefit analysis for providers and patients. To mitigate this theoretical risk, we offer ethically informed recommendations for clinical practice to better support patients considering MFS.

PRACTICE APPLICATION: Given new restrictions to abortion access in many states, ethical and legal considerations should inform the clinical care of all pregnant patients, including those who are MFS candidates. A thorough risk-benefit analysis for both patients and providers should be conducted in the proper clinical context. As invasive prenatal procedures are performed, it is important to delineate the risks and potential complications of the procedure for patients and their social support systems as an intentional component of the informed consent process. Given the uncertainties inherent in many complex MFS cases, ethics consults should be encouraged at MFS centers, and because fetal care centers invest significant time and resources on their patients, it seems inadequate for them to claim comprehensive maternal-fetal care if they do not also invest resources in helping patients who elect for termination. To increase the clinical options for pregnant patients, out of state referrals for both fetal care centers and abortion care providers should be offered. As always, MFS as a specialty should continue its multidisciplinary approach to patient care, involving healthcare providers from maternal-fetal medicine, pediatric surgery, obstetric anesthesia, neonatology, social work, and ethics consult services, among others. As reproductive healthcare professionals navigate this new era of abortion constraints they should maintain a specialized pregnant patient-centered approach in the clinical diagnosis, management, and treatment of MFS candidates.

NPA 2023-5

Abstract Title: Development and Evaluation of a Virtual Postpartum Psychosocial Support Program Based Upon Acceptance and Commitment Therapy (ACT)

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Background: Improving psychological adjustment and support among women in the postpartum period has great personal and public health significance, with the potential to improve quality of life and functioning for women, children, and families. Despite growing recognition of this need, availability and accessibility of specialized postpartum treatments remain limited, particularly in the current context of the COVID-19 pandemic and the subsequent lack of in-person treatment options. This project sought to address this need through the development and evaluation of a postpartum psychosocial support program that is delivered in a virtual format. The purpose of the project was two-fold: (1) to develop a structured treatment manual for an innovative program, based upon principles of Acceptance and Commitment Therapy (ACT), and (2) to assess feasibility, acceptability, and preliminary effectiveness of the program and the virtual delivery format through a pilot study of postpartum women.

Content/Action: The program contained six virtual individual sessions and two surveys before and after participation to evaluate outcomes. The material contained in the six sessions was drawn from evidence-based ACT principles, such as values identification, acceptance, and emotion regulation. Four postpartum women participated in the pilot intervention.

Lessons Learned: The program was acceptable and feasible, with favorable feedback given by participants about the virtual format and content. Preliminary review of the program is underway, so additional lessons learned will be shared in the poster as we continue evaluating feedback and outcomes.

Implications for Practice: This innovative model of care presents a novel intervention (ACT) in a unique format (virtual group), which has significant implications for practice in terms of the delivery of psychological services and the way in which telehealth can be used for group therapy in this population. Additional implications for practice will be discussed as the program review continues.

NPA 2023-6

Abstract Title: Maternal Attitudes, Adjustment, Health Behaviors, and Social Support Among Mothers of Infants in the Neonatal Intensive Care Unit

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Introduction: A growing body of research suggests that an infants' admission to a neonatal intensive care unit (NICU) is associated with adverse maternal mental health outcomes. Maternal attitudes, adjustment to motherhood, social support, and health behaviors may be important modifiable factors that could improve quality of life and well-being among NICU mothers. The current study examined the relationships among maternal attitudes, adjustment to motherhood, health behaviors, social support, and psychological functioning in NICU mothers.

Methods: One hundred twenty-seven women were recruited from NICUs at three hospitals in the Philadelphia area and completed self-report measures while in the NICU. Descriptive analyses were conducted on the main variables, and a series of bivariate correlations and linear regression analyses were used to evaluate the primary study aims.

Results: Descriptive statistics indicated that NICU mothers had diverse attitudes towards motherhood, specifically regarding body image, somatic symptoms, romantic relationships, sex, and their baby. In general, they perceived high levels of social support, which varied based upon psychological and reproductive characteristics. Statistically significant findings revealed that maternal attitudes, adjustment, and perceived social support variables were negatively correlated with anxiety, stress, and depressive symptoms.

Discussion: This study demonstrates that certain maternal variables are related to psychological functioning among NICU mothers, such as maternal attitudes, adjustment, and social support. Determining how to bolster these variables as a protective mechanism for mothers during the stressful NICU experience is an important future direction. This study suggests that developing and implementing unique programs and interventions that target these variables in the NICU setting may benefit mothers, families, and infants.

[*Author Note:* Some of these findings have been previously presented at the Marce Society of North America Conference in 2019]

NPA 2023-7

Abstract Title: Utilizing Virtual Reality Technology as a Stress Inoculation Tool for NICU Caregivers

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Annually, 1-7% of birthing parents delivering at full-term experience postpartum post-traumatic stress disorder (PTSD), while those giving birth to a pre-term or high-risk infant have a higher prevalence of PTSD, ranging from 24 to 44% (Kim, et.al., 2015). The prevalence of postpartum anxiety for full-term parents ranges from 13 to 40% (Field, 2017) but is higher for NICU caregivers, ranging from 24-35%, respectively (Lefkowitz, et.al., 2010). With the number of infants in the NICU increasing from 3.2 to 4.5 patients per 1000 live births between 2006 and 2010 (Kim, et.al., 2015), and the associated prevalence of postpartum PTSD and anxiety in NICU caregivers, there is clearly a critical need to address parent mental health in the NICU setting. Decreasing the experience of stress for caregivers will allow for better mental health outcomes and thereby promote adaptive caregiver-infant interactions to support healthy child development (Hattangadi, et al., 2020; Jones, et.al., 2021).

To address PTSD, virtual reality (VR) has become increasingly more recognized in psychotherapy and psychological research with its ability to control the environment and create more stimulus and responsive protocols (Wilson & Soranzo, 2015). VR integrates real-time computer graphics, body tracking devices, visual displays, and sensory outputs, putting a participant in computer-generated environments that can move in time with a person's head and body motion, giving more possibility for exposure therapy and mindfulness coaching (Rothbaum, 1999). VR with supportive coaching has been shown to work effectively with veterans to decrease PTSD and PTSD symptoms (Rothbaum, 1999).

Using VR scenarios and trained coaches with a four-session Stress Inoculation Training (SIT) protocol, we aim to decrease the prevalence of adverse stress responses in NICU caregivers. The goal of SIT is to teach skills to enhance resistance to stress and prepare individuals to respond to negative stress events (Meichenbaum, D., 1985). There are three phases to the SIT process: conceptualization, inoculation, and application. A meta-analysis of 37 studies showed that SIT was deemed an effective means for reducing state anxiety and enhancing performance under stress (Saunders, T., et.al., 1996).

The purpose of the current study is to provide SIT specifically designed for NICU parents using VR technology. Our study uses a web-secure VR-enabled telemedicine platform (called COURAGE ™) to administer VR-supported stress inoculation to NICU caregivers and assess their anxiety and PTSD symptoms using validated self-report measures. We are evaluating whether the delivery of VR-enhanced SIT can result in a demonstrable decrease in stress response and mental health symptoms for NICU parents. An existing library of VR video scenarios (i.e., assets) will be expanded (with input from previous NICU caregivers) and used by coaches to help current NICU caregivers (1) become proficient in relaxation skills and (2) apply these skills in experiential practice in order to reduce the stress response.

We hypothesize that the use of VR-supported coaching and stress inoculation will help decrease postpartum stress symptoms in NICU caregivers. For this study, we are testing the feasibility and efficacy of the COURAGE platform and SIT protocol for NICU caregivers. Overall, we believe that teaching NICU caregivers how to properly assess and manage their stress will help lessen the experience of postpartum PTSD and anxiety symptoms. In future studies, we will examine whether SIT sessions with VR that are personalized to each caregiver will be more effective at decreasing PTSD and anxiety symptoms than non-VR-supported SIT sessions.

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NPA 2023–8

Abstract Title: Initial Validity and Feasibility of a Dyadic Intervention to Facilitate Parent Engagement in NICUs

Authors: Danielle Cooke, Jessalyn Kelleher, Jack Dempsey, & Allison G. Dempsey

Background: Parents of preterm or medically complex infants admitted to the Neonatal Intensive Care Unit (NICU) experience intense disruption in their parenting role, which can adversely impact the parent-infant relationship and engagement (1). Parents report struggling with the loss of control and trauma associated with a NICU stay and can be hesitant to visit their infant (2). Interventions in the NICU that promote parental presence at bedside and care of infants have been shown to improve medical variables such as weight gain and successful breastfeeding (3-5), length of stay (4,6), and decreased mortality (5).

Methods and Approach: This poster will present program evaluation data from a program to improve family engagement, empower and support parents, and promote the health and wellbeing of infants admitted to the 50-bed NICU at one major birthing hospital. The NICU psychology team developed and refined a parent engagement protocol from June 2020 to May 2021 to support clinical care and subsequently implemented and the protocol. This protocol was developed and refined by three psychologists with backgrounds in pediatric psychology, infant mental health, and perinatal mental health. Feedback was solicited and integrated from colleagues working in NICUs across the United States of America, then refined with unit medical and nursing leadership in the NICU.

Next, individual sessions were implemented with families in the NICU to gather initial feedback regarding ease and logistics of implementation as a part of standard care. This initial feasibility was tested from June 2021 to December 2021.

In the final stage, individual sessions were implemented with families in the NICU, and parent feedback was systematically elicited over the first half of 2022. Families completed pre- and post-surveys that provided information regarding whether session goals were met and general feedback on session. We collected data about each parent-reported outcome prior to the activity and approximately one week later and completed paired-sample t-tests to assess for change in parents' responses on the outcome. Due to small sample sizes resulting in insufficient power, trends in data were noted, though results of t-tests are reported.

Activities were administered to all families, regardless of native language using an interpreter and translated materials where appropriate. Each activity was designed to 1) provide parents with a positive parenting activity that was unrelated to medical cares; 2) encourage engagement with the infant at bedside; 3) provide parents with an activity that was appropriate to the infant's developmental stage and sensory needs; and 4) empower parents with recognition of their unique contribution to their infant's health.

Preliminary Results: Data about each parent-reported outcome prior to the activity and approximately one week later and completed paired-sample t-tests to assess for change in parents' responses on the outcome. Due to small sample sizes resulting in insufficient power, trends in data were noted, though results of t-tests are reported.

Discussion: Data collected were part of program evaluation and cannot be considered generalizable to other settings. Initial evaluation of activities found that parents report good benefit from the activities, specifically noting that they are calming, helpful, and encourage them to interact with and think about their infants in different ways. While early trends do not necessarily suggest that benefits the parent derived benefits are what was originally envisioned and measured by initial program evaluation questions, some trends are promising, including the benefits of the sensory exploration in feeling calm and increasing parental engagement, mindfulness for encouraging calm and shifting attention, setting routines for engaging in parenting activities, and footprint art in encouraging recognition and reading of cues. Generally, parents described these non-medical activities to be helpful in encouraging them to interact with their infant.

Activity	N	Parent-Reported Outcome 1	Parent-Reported Outcome 2
Sensory Exploration	25	Increased feeling that there are things for parent to do while at bedside $t(24) = 2.416$, $p < 0.05$	Decreased level of distress at bedside $t(24) = 2.416$, $p < 0.01$
Mindful Parenting	12	Improved ability to intentionally shift attention and focus $t(11) = 1.9325$, $p = 0.0795$	Improved ability to calm when feeling anxious or worried about baby $t(11) = 1.6357$, $p = 0.130$
Setting Routines	11	Increased engagement in parenting activities that the parent envisioned $t(16) = 1.5765$, $p = 0.1345$	Increased perception that the parent can influence aspects of the baby's day $t(17) = 0.4165$, $p = 0.6823$
Footprint Art	10	Increased ability to read cues $t(9) = 2.0226$, $p = 0.0738$	Increased comfort with touching baby $t(9) = 0.000$, $p = 1.00$

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NPA 2023–9

Abstract Title: Providing Respectful Care in Reproductive and Maternity Settings: Innovative Models of Care

Authors: Sarah Copple MSN, RNC-MNN, C-ONQS and Catherine Hill APRN, FNP-BC

Background: Respectful Maternity Care (RMC) is an approach to care that emphasizes the fundamental rights of women, newborns, and families, promoting equitable access to evidence-based care while recognizing unique needs and preferences (Shakibazadeh et al., 2018). Attitudes and behaviors of health care providers are entrenched in cultural norms, and implicit and explicit bias may cause unintended harm during patient interactions (Howell et al., 2018). These factors may lead to harmful consequences and place patients at greater risk for not receiving appropriate attention to address individual concerns or quality of care, specifically in the intrapartum and postpartum periods (Levine & Lowe, 2015; Miller et al., 2016; Saluja & Bryant, 2021).

Content/ Action: People who differ from established normative groups (i.e., identities that are believed to align with the historically shared expectations of acceptable behavior or ideals of western society) face the most significant challenges as they engage with health care systems. (Gordon et al., 2016; Malatzky et al., 2020). Mistreatment, disrespect, and abuse have been highlighted extensively in the maternity care literature and have been linked to poorer childbirth outcomes and experiences (Bohren et al., 2019, 2020). Health care interactions can be both positive and negative; however, within this sphere, several factors can influence the provision of and access to Respectful Maternity Care (RMC), including the level of provider awareness and acceptance of the patient's identities, life experiences and lifestyle, values, and beliefs (de Peralta et al., 2019; Heaman et al., 2015).

The Respectful Maternity Care Framework is a conceptual model to improve maternal health equity. It was created to address diversity, equity, and inclusion for all people across the reproductive care spectrum. The elements of the guideline (awareness, mutual respect, shared decision-making, informed consent, autonomy, dignity, and accountability) and components of the toolkit were created around the framework and include resources and recommendations that support maternal health equity.

Lessons Learned: Respectful maternity care is a basic human right. However, many healthcare professionals have not had appropriate training and resources to promote respect in maternity settings. An understanding of an individual's attitudes and beliefs are needed to identify the barriers that prevent respectful care particularly during labor and birth (Levine & Lowe, 2015), when pregnant and postpartum people are most vulnerable.

Implications for Practice: Utilizing the resources that AWHONN has created for healthcare professionals will help provide education on how to provide respectful care and how to identify disrespectful care and abuse in maternity care settings (AWHONN, 2022). The RMC framework and evidence-based clinical practice guideline consisting of recommendations and rationale statements that focus on the elements of awareness, mutual respect, shared-decision making, informed consent, autonomy, dignity, and accountability are essential components to RMC. The "C.A.R.E.P.A.A.T.T.H" includes the steps of confirm commitment, assemble team, relate readiness, educate all, propose policy, adapt culture, assume accountability, tailor data management, test measurements and have a celebration (AWHONN, 2022). Using the stepwise approach allows organizations to assume readiness to create a culture of respect. Each step builds upon the previous one to help guide change in health care professionals and organizations thereby improving patient, staff, and organizational outcomes and will help ensure respect for every patient, every interaction, every time.

References available upon request

This has been presented at the National Maternal Health Innovation Symposium and will be presented at the Kentucky Perinatal Quality Collaborative, Iowa AWHONN Conference, and Arkansas High Risk Conference.

NPA 2023–10

Abstract Title: A Single Institution Neuroprotection and Developmental Care Quality Improvement Initiative

Authors: R. Elgren PT, DPT; L. Conradt PhD; L. Liszka OTD, OTR/L; K. Athavale MD; M. Cotten MD, MHS

Background: With the evolution of standardized NICU care over the past 10 years, there has been a significant improvement in survival rates among preterm infants born at early gestational ages. However, very preterm infants, infants born <32 weeks gestational age, remain at very high risk for neurodevelopmental challenges, including cerebral palsy, sensory processing difficulties, feeding difficulties, and attention-deficit/hyperactivity disorder. Research has demonstrated that early experiences in the neonatal period impacts synaptogenesis and neuronal myelination, furthermore speaking to the impact of the neonatal intensive unit on early brain development. The Neonatal Integrative Developmental Care model emphasizes close attention to optimization and positivity surrounding experiences in the neonatal intensive care unit (NICU) and has been found to improve both neonatal and neurodevelopmental outcomes. This theoretical model defines seven core neuroprotective measures that provide structure and organization to how a unit may carry-out neuroprotection practically in daily, clinical practice.

In response to the need for developmental care, Altimier and colleagues have identified 7 core measures of neuroprotective developmental care through a rigorous literature review and consultation with relevant stake holders. The 7 core measures include safeguarding sleep, optimizing nutrition, managing stress & pain, protecting skin, positioning & handling, healing environment, and partnering with families. However, presently there are no feasible measures that could be easily integrated into the Duke NICU to assess for these 7 core measures.

Content/Action: The goal was to advance clinical practice in the area of neuroprotection for preterm infants in the form of a quality improvement initiative. First, a review of the current literature related to developmental care practices was completed. Then, a needs assessment was conducted to determine baseline bedside practices through electronic provider and nursing surveys in Redcap, bedside observations, and collection of environmental measures such as noise and light levels consistent with American Academy of Pediatrics recommendations.

Lessons Learned: Through reflection of a single patient case study, we recount various lessons learned regarding the importance of neuroprotection and developmental care from some key stakeholders, including the patient's parents, primary bedside nurse, providers, and neonatal therapists.

Implications for Practice: This QI initiative is designed to protect the preterm brain through a variety of methods developed by stakeholders in the NICU: neonatology, nursing, parents, oc-

cupational therapy, physical therapy, psychiatry, and parents. This approach allowed us to collect the data needed to collaborate with the Vermont Oxford Network's educational and improvement arc, "All Care is Brain Care" 2023 initiative, which supports neuroprotection for preterm infants. A major advantage of QI initiative is that it is preventive and may alter neurobiological systems that support infant regulation and promote neurobehavioral regulation in early childhood. The evidence gathered from this initiative will be published to form as a guide for other NICUs across the country that aim to protect and support the developing brain in the premature infant.

NPA 2023–11

Abstract Title: Engaging a Lived Experience Advisory Group in the Evaluation of a Maternal Telehealth Access Project During the COVID-19 Pandemic

Presenters: Deitre Epps, Lead Evaluator; Maya Jackson, Lived Experience Advisory Group member; Courtnie Carter, Lived Experience Advisory Group

Introduction: The Maternal Telehealth Access Project (MTAP) aimed to increase access to virtual perinatal services during the COVID-19 pandemic by supporting women at greatest risk of maternal mortality and morbidity, including people who were pregnant and giving birth who are people of color, and people who live in rural and frontier communities. The lead evaluator, RACE for Equity, developed an equitable, results-based evaluation approach incorporating the Results Based Accountability framework and principles of Culturally Responsive Evaluation. These frameworks were applied to understand and to measure how well the MTAP met the needs of intended communities. A critical part of the approach included engaging community members in the Lived Experience Advisory Group (LEAG). The LEAG provided key information and recommendations to the evaluation and program teams to support program improvement and quality, useful, and credible evaluation findings.

Content: The Lived Experience Advisory Group (LEAG) consisted of thirteen mothers, doulas, health aides and advocates from the community who have unique experiences, knowledge and skills. The group provided recommendations and key information to the MTAP evaluation team throughout the evaluation. Engagement of the LEAG was based on the principle that any solution to expand maternal telehealth services must be informed by and responsive to the lived experience of people giving birth. In the context of MTAP, lived experience refers to people with recent experience of pregnancy or perinatal services, their families, and their network of support (doulas, lactation consultants, etc.), **who are most likely to be impacted** by maternal and infant morbidity, mortality, and racial injustice.

Practice Application: The evaluation team prioritized the voices of Black, Indigenous, and people of color, including geographically marginalized or rural community members that **are not normally heard or at the table.** People with lived experience had varied backgrounds and experience with telehealth services.

LEAG members were nominated by MTAP collaborative partners who understood the cultural and historical contexts of the communities which MTAP was trying to reach and provided input and feedback on the LEAG engagement process. An e-nomination flyer that included information about expectations of LEAG members and LEAG compensation was shared with maternal health partners. Seven monthly LEAG meetings were conducted. Due to the COVID-19 pandemic, meetings were held via the virtual Zoom platform from November 2020 until May 2021. The meetings were held for up to 1.5-2 hours and included time for connections and trust-building. LEAG members got to know each other by sharing their birthing experiences and stories, reviewed and provided feedback on the MTAP Monthly Summary Reports, the evaluation questions, data collection, and implementation updates. Their input was valuable in understanding and providing culturally relevant feedback to the evaluation team and program partners. Engaging people with lived experience improves practice and policies.

NPA 2023–12

Abstract Title: Effects of Timing of Birth and Pandemic-Related Experiences on Mother-Infant Bonding During the COVID-19 Pandemic

Authors: Sharon Ettinger[1], Margaret Kyle[2], Morgan Firestein[3], Maha Hussain[2], Jennifer Barbosa[3], Vanessa Babineau[1], Dani Dumitriu[2,3], Catherine Monk[1,3]

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Introduction: Maternal stress and postpartum bonding difficulties were elevated during the first year of the COVID-19 pandemic (Fernandes et al., 2021; Iyengar et al., 2021; Kornfield et al., 2021). The current study aims to examine whether (1) timing of birth (TOB) during the COVID-19 pandemic predicted maternal-reported postpartum bonding difficulties at 4 months postpartum, (2) maternal postpartum stress mediated this effect, and (3) prenatal pandemic-related experiences mediated the effect between TOB and postpartum bonding difficulties.

Methods: *N* = 153 mother-infant dyads who gave birth between May 2020-October 2021 completed prenatal and 4-month postnatal surveys as part of the COVID-19 Mother Baby Outcomes (COMBO) Initiative at Columbia University. The prenatal survey included an adapted version of the COVID-19 Perinatal Experiences (COPE) Survey to assess prenatal pandemic-related experiences. The 4-month survey consisted of the Perceived Stress Scale (PSS) and the Postpartum Bonding Questionnaire (PBQ) to measure maternal stress and maternal-reported bonding difficulties, respectively. Timing of birth (TOB) was coded by birth month and year on a scale from 1-18, with 1 corresponding to the earliest month, May 2020. Maternal age, ethnicity, race, and medical coverage, and baby biological sex were included as covariates.

Results: All statistical analyses were conducted in SPSSv28. In an adjusted ANOVA, TOB significantly positively predicted PBQ at 4 months (β = .20, p = .04) such that later birth predicted slightly higher bonding difficulty scores. The effect of TOB on postpartum bonding difficulty was significantly mediated by perceived stress at 4 months postpartum, b =.08, 95% BCa CI [0.01, 0.16]. No pandemic-related experiences captured by the COPE subscales mediated the relationship between timing of birth and postpartum bonding at 4 months.

Discussion: Women who gave birth later in the pandemic may have been at higher risk for postpartum bonding difficulties and subsequent adverse developmental outcomes for the mother-infant dyad. Although maternal stress emerged as a mediating factor, this effect could not be explained by prenatal pandemic-related experiences. Further research is needed to discern whether birth during the pandemic conferred risk for bonding difficulties

through specific pandemic-related stressors or perhaps a more general effect of pandemic burnout on maternal mental health. These findings support the need for increased mental health support for perinatal women during the residual waves of the COVID-19 pandemic.

NPA 2023–13

Abstract Title: Progress Update from Mother Baby Connections, an Intensive Outpatient Program for Perinatal Women in Philadelphia

Authors: Sharon Ettinger[1], Pamela A. Geller[1], Leah Sodowick[1], Barbara Posmontier[2], June Horowitz[3]

[1]Department of Psychological and Brain Sciences, Drexel University, Philadelphia, PA; [2]Jefferson College of Nursing, Thomas Jefferson University, Philadelphia, PA; [3]College of Nursing and Health Sciences, University of Massachusetts Dartmouth, Dartmouth, MA

Introduction: Mother Baby Connections (MBC) is an interdisciplinary, intensive outpatient perinatal mental health program that was initiated in December 2015 at Drexel University in Philadelphia, Pennsylvania to treat postpartum women with perinatal mood and anxiety disorders and their infants. Employing a theoretical framework based on the Social Energy Exchange theory for postpartum depression (SEED) (Posmontier & Waite, 2011), MBC integrates a range of therapeutic approaches to optimize maternal functioning and promote biopsychosocial and cultural wellbeing (Geller, Posmontier, Horowitz, Bonacquisti, & Chiarello, 2018). Previously published pilot outcome data has shown improvements in depressive symptoms, maternal functioning, parental stress, perceived stress, emotional regulation, and dyadic adjustment over the course of treatment in the program between December 2016 and August 2018 (Geller et al., 2018). With the onset of the COVID-19 pandemic, MBC has continued to provide treatment for perinatal women via telehealth services. Preliminary findings have shown that the transition from in-person to telehealth sessions increased accessibility and patient attendance, particularly for underserved women (Ma, Posmontier, Horowitz, & Geller, 2022). The purpose of this presentation is to present updated outcome data, inclusive of pandemic years, to further assess the efficacy of MBC in improving the health and wellbeing of mothers with perinatal mood and anxiety disorders and their infants.

Method: Self-report survey data were collected at various timepoints throughout patients' treatment in the program. The current sample represents all patients who received treatment and completed an exit survey at MBC through 2022. Surveys include the Edinburgh Postnatal Depression Scale (EPDS), Barkin Index of Maternal Functioning (BIMF), Parental Stress Scale, Perceived Stress Scale (PSS), Difficulties in Emotion Regulation Scale (DERS), Dyadic Adjustment Scale-Revised (RDAS), and City Birth Trauma Scale (CBITS). Significant changes in reported symptoms compared to baseline surveys will be discussed.

Discussion: Pilot data have provided evidence for improvements in symptoms related to perinatal mood and anxiety disorders in perinatal woman receiving treatment through MBC. This poster will present updated outcome data to include MBC patients from 2018 through 2022. MBC continues to provide comprehensive and effective mental healthcare for perinatal women and their infants.

NPA 2023–14

Abstract Title: DREAM Big: Addressing Early Childhood Mental Health and Social Determinants of Health in a Neurologic Neonatal Follow Up Clinic

Authors: Elizabeth Fischer, Amy Heffelfinger, Jennifer Koop, Katherine Carlton, Lauren Miller, Samuel Adams, Stacy Stibb, Andrew Foy, and Susan Cohen

Background: Neonatal intensive care unit (NICU) hospitalization and discharge of medically complex infants is associated with increased risk for parental depression, anxiety, and trauma. Complex infants and their families are subsequently referred to NICU follow-up clinics for developmental screening and medical referrals. Over the last five years, follow-up clinics have started to incorporate screens for social determinants of health (SDoH) and mental health. Social and psychological risk factors create barriers to consistent follow-up attendance and limit access to optimal medical and psychological care. Clinic attrition may exacerbate known parental stress, distress, and mental health concerns associated with caring for a child with complex medical needs.

Content/Action: We created an interdisciplinary clinic that includes a psychologist to focus on early childhood mental health needs. To address "what matters most" to families we also implemented screening and discussion of SDoH. The Developmentally Ready: Engagement and Achievement of Milestones (DREAM) Clinic provides follow up care for infants with significant neurologic concerns and includes physicians specializing in neonatology, neurology, neurosurgery, neuropsychology, and physical medicine and rehabilitation. Psychology's role in the DREAM clinic focuses on the evaluation and treatment of infant and early childhood behavioral concerns such as sleep, feeding, toileting, and coping with chronic illness. Psychology also provides maternal mental health screenings to mirror the care provided in the NICU. Psychology visits are regularly scheduled at specific timepoints within the first 2 years of life. Descriptive data on number of visits completed and diagnoses will be presented.

Lessons Learned: Program development included 1) management of maternal mental health data while respecting maternal confidentiality, 2) procedures for emergency mental health needs, and 3) billing processes. We encountered process challenges during program implementation such as maintaining balance between the roles of psychology and neuropsychology and optimizing patient referrals and duration of appointments. We identified patient sleep concerns and the role of the father in childcare for the medically complex infant as areas that will require additional program development. SDoH screening revealed a significant gap in resources for high-risk families, necessitating social work involvement in the NICU follow-up clinic.

Implications for Practice: Psychology is a heavily utilized resource in the DREAM clinic with frequent ad hoc patient requests outside of routine visits. This speaks to the importance of providing family support after NICU discharge. Given the frequency of positive SDoH screens, future studies will focus on the relationship between parent mental health, SDoH, and DREAM clinic participation.

NPA 2023–15

Abstract Title: Smooth Way Home

Author: Ashley Flowers, MS, MHW

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The overall purpose of the Smooth Way Home is to improve the social, developmental, and medical outcomes of very fragile infants by enhancing the coordination of care and the quality of services provided to them as they transition from the newborn intensive care unit back to their home and community state-wide. Our Smooth Way Home program provides in-person and virtual home visitation focused on the social-emotion health of the caregivers and infants, developmental guidance, and community resources. Additionally, the Smooth Way Home program offers virtual mental health services to caregivers of fragile infants provided by licensed clinicians focusing on the impact of their time in the NICU. Smooth Way Home works in partnership with community programs that support caregiver with their infant's feeding and VINES; **virtual access to specialized neonatal providers, neonatologists, and nurse practitioners. During the pandemic, the Smooth Way Home services were offered to all areas of the state, including rural and underserved areas of Arizona, as these services were provided 100 percent through telehealth.**

In 2021, the Smooth Way Home team contracted with the Arizona State University department of College of Health Solutions to do short-term research project to determine if the outcome data would be affected by in-person home visitation and mental health services versus the same services provided via telehealth. The intent was to show that the Smooth Way Home services could continue to provide services to rural and underserved families throughout Arizona via telehealth without compromising the quality of services provided. Pre/post measure were used on clients who received only in-person visits and clients who received only telehealth services. Telephonic survey of staff and clients were also gathered during the research period. No statistical difference was detected.

NPA 2023–16

Abstract Title: Maternal Mental Health after Infant Discharge: A Quasi-Experimental Clinical Trial of Family Integrated Care versus Family-Centered Care for Preterm Infants in U.S. NICUs

Authors: Linda S. Franck, RN, PhD[1]; Caryl L. Gay, PhD[1]; Thomas J. Hoffmann, PhD[2]; Rebecca M. Kriz, MS[1]; Robin Bisgaard, MS[3]; Diana M. Cormier, DNP[4]; Priscilla Joe, MD[5]; Brittany Lothe, MA[6]; Yao Sun, MD[7]

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Clinical Trial Registration: NCT03418870

Background: Involvement in caregiving and tailored support services may reduce the risk of mental health symptoms for mothers after their preterm infant's Neonatal Intensive Care Unit (NICU) discharge. We aimed to compare Family-Centered Care (FCC) with mobile-enhanced Family-Integrated Care (mFICare) on maternal mental health symptoms.

Method: This quasi-experimental study enrolled preterm infant (≤33 weeks)/parent dyads from three NICUs into sequential cohorts: FCC or mFICare. The mFICare intervention and the We3Health™ app to support parent participation were co-developed with parent co-investigators and advisors. We analyzed post-discharge symptoms of perinatal post-traumatic stress disorder (PTSD) and depression using intention-to-treat and per protocol approaches.

Results: 178 mothers (89 FCC; 89 mFICare) completed measures. We found no main effect of group assignment. We found an interaction between group and stress, indicating reduced PTSD and depression symptoms among mothers with high NICU-related stress who received mFICare compared with mothers who had high stress and received FCC (PTSD: b=-1.18, 95% CI: -2.10, -0.26; depression: b= -0.76, 95% CI: -1.53, 0.006). Per protocol analyses of mFICare components suggested that participation in clinical team rounds and/or group classes reduced PTSD and depression symptoms in mothers with higher NICU stress scores compared with those who did not participate in these specific mFICare components.

Conclusion: For mothers with high levels of stress during the NICU stay, the mFICare model of care may be more effective in reducing post-discharge PTSD and depression symptoms than the FCC model.

NPA 2023–17

Abstract Title: NICU Staff Acceptability of Mobile-Enhanced Family Integrated Care for Preterm Infants in U.S. NICUs

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Clinical Trial Registration: NCT03418870

Background: Family-centered care for preterm infants in the Neonatal Intensive Care Unit (NICU) is widely acknowledged as the standard of care yet remains inconsistently implemented in NICUs in the United States. The objective of this study was to evaluate the experiences and degree of acceptance by registered nurses, nurse practitioners, and physicians who used the mobile-enhanced Family Integrated Care (mFICare) program for preterm infants in their NICU.

Methods: The mFICare study was implemented in three diverse California NICUs over four months. The mFICare intervention and the We3Health™ app to support parent participation were co-developed with parent co-investigators and advisors. Upon completion of the study, the NICU staff were invited to complete the mFICare Staff Acceptability Survey with closed- and open-ended questions regarding their experience working with parents who utilized the components of the mFICare program.

Results: Eighty-three percent of 208 respondents were registered nurses, along with attending physicians (12%), fellow physicians (3%), and nurse practitioners (2%). 182 of the respondents cared for an infant/family enrolled in the mFICare program and their data was analyzed. *Staff role change due to mFICare program*: most staff indicated that their role did not change during the intervention (60%) or changed a little (38%). *Parent-led rounds*: most staff

agreed (46%) or strongly agreed (21%) that parent-led rounds improved care planning by the medical team and 74% would recommend implementing parent-led rounds throughout the NICU. *Parent classes*: 68% of staff reported a reduction in the time needed for bedside teaching due to the parent classes. *Parent mentors*: 44% of staff were only somewhat familiar with the parent mentor program, and only 5% were very familiar. *Parent skills checklist:* Most nurses (73%) described the checklist as a helpful tool. *We3health™ App:* Only 29% of staff were somewhat familiar with the app and only 5% were very familiar. *Nurse-family relationship:* 70% of the respondents indicated that mFICare was better at preparing parents for discharge than usual care. *Nurse training on mFICare*: 63% of respondents agreed or strongly agreed that additional support would be necessary to optimize the mFICare model of care. The most frequent qualitative codes that emerged were empowered parents, improved teamwork between staff and parents, program is better for some NICU patients and families than others, takes too much time, technical/logistical issues, and better understanding of parents' concerns. An infrequent but important code was inequitable access to mFICare components (for example a language barrier).

Discussion: Results of this study indicate that implementation of the mFICare program was acceptable to nurses, nurse practitioners and physicians in three NICUs. Areas of growth for the program include organization and technical support for phone calls during parent-led rounds and addressing barriers to access. Strengths of the study include systematic qualitative analysis of open-ended question responses to expand interpretation of the quantitative data. This study provides a deeper understanding of the needs and concerns of staff involved with the mFICare program. With replication, mFICare can be a standard intervention to enhance family-centered care in the NICU.

NPA 2023-18

Abstract Title: Family Integrated Care Interventions May Improve Preterm Outcomes Compared with Family-Centered Care in U.S. NICUs

Authors: Linda S. Franck, RN, PhD[1]; Caryl L. Gay, PhD[1]; Thomas J. Hoffmann, PhD[2]; Rebecca M. Kriz, MS[1]; Robin Bisgaard, MS[3]; Diana M. Cormier, DNP[4]; Priscilla Joe, MD[5]; Brittany Lothe, MA[6]; Yao Sun, MD[7]

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Clinical Trial Registration: NCT03418870

Background: Family Integrated Care (FICare) benefits preterm infants compared with Family-Centered Care (FCC), but research is lacking in United States (US) Neonatal Intensive Care Units (NICUs). We compared preterm weight and discharge outcomes between FCC and mobile-enhanced FICare (mFICare).

Methods: This quasi-experimental study enrolled preterm infant (≤33 weeks)/parent dyads from 3 NICUs into sequential cohorts: FCC or mFICare. The mFICare intervention and the We3Health™ app to support parent participation were co-developed with parent co-investigators and advisors. Primary outcome: 21-day change in weight z-scores; Secondary outcomes: nosocomial infection, bronchopulmonary dysplasia (BPD), retinopathy of prematurity (ROP), and human milk feeding (HMF) at discharge.

Findings: 253 infant/parent dyads participated (141 FCC; 112 mFICare). We found no group differences in weight, ROP, BPD or HMF. The FCC cohort had 3.0-times (95% CI: 1.1, 8.3) higher odds of nosocomial infection than the mFICare cohort. Infants whose parents did not receive parent mentoring or participate in rounds lost more weight relative to age-based norms (group-difference=-0.128, CI: -0.227, -0.030; group-difference=-0.084, CI: -0.154, -0.015, respectively). Infants whose parents did not participate in rounds or group education had 3.1-times (CI: 1.0, 10.4) and 4.5-times (CI: 1.4, 18.5) higher odds of nosocomial infection, respectively.

Conclusions: mFICare may reduce nosocomial infections in US NICUs. Specific program components may increase weight gain and reduce infection risk, warranting further research.

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NPA 2023–19

Abstract Title: Leveraging a User-Centered Approach to Develop *Mommaconnect*, a Mobile Health Therapy Application for Mothers with Postpartum Depression and Their Infants

Authors: Pamela A. Geller, PhD[1]; June Andrews Horowitz, PhD, RN, PMHCNS-BC, FAAN[2]; Bobbie Posmontier, PhD, CNM, PMH-NP-BC, FAAN[3]; Mona Elgohail, PhD[4]; Tony Ma, MS[4]; Katie Chang, MS[4]; Kayla Alvares, MS, PhD Candidate[2]

[1]Drexel University; [2]University of Massachusetts Dartmouth; [3]Thomas Jefferson University; [4]Benten Technologies

Background: *MommaConnect*, a mobile health application, aims to reduce postpartum depression symptoms and improve mother-infant interaction. Without treatment, postpartum depression increases the risk for poor mother-infant interaction, reduced infant safety measures, decreased breastfeeding, chronic depression, maternal functional impairment, and suicide. Postpartum depression presents long-term risks to infant neurobehavioral development. Women with postpartum depression often face significant barriers to treatment access, such as stigma, childcare, and transportation. *MommaConnect* aims to provide accessible and effective delivery of tailored treatment. *MommaConnect* integrates two evidenced-based therapies (Interpersonal Psychotherapy and Mother Baby Interaction Therapy) to address postpartum depression and impaired mother-infant interaction. *MommaConnect* is being co-created with mothers and mental health providers to ensure that the design reflects their shared experiences and challenges.

Purpose: This poster presentation will share our formative research, including focus group results and key features of *MommaConnect*.

Methods: We employed a user-centered design approach leveraging focus groups to inform the development and content of

MommaConnect. We collected formative qualitative data through online focus groups from a community advisory board of diverse individuals (10 mothers and 7 clinicians). Participants were shown mock-ups of the app to elicit impressions and try out proposed features. We employed content analysis following verbatim transcription.

Results: Results revealed specific needs, barriers, motivators, and impressions about *MommaConnect*. Overall, participants endorsed the initial design and functionality. Participant recommendations were integrated into the revised design.

Discussion: To be used in collaboration with mental health providers, *MommaConnect* holds promise as an efficient and relevant therapy approach to expand treatment access, increase engagement, improve health outcomes, and ultimately decrease healthcare disparities for women experiencing postpartum depression and their infants. The next steps include feasibility and usability testing.

NPA 2023–20

Abstract Title: The Effects of Pharmacological Interventions in Caring for Neonates with NAS Post Discontinuation of In Utero Opioid Exposure and Its Impact on the Length of Hospital Stay

Authors: Imogen F. Gillgrass and Jasmine Graham, PhD

Neonatal abstinence syndrome (NAS), a general clinical term used to describe the impact of discontinued exposure to substances in utero, is among the key public health issues impacting perinatal well-being (Jilani, Davis, Jordan, & Jansson, 2021). This study explores the best practices related to neonatal health by examining the treatment of NAS after birth and how it affects the length of stay in hospitals. Recognizing the broad scope of NAS, this study specifically examines in-utero opioid exposure.

Methods: Despite a national increase in NAS, a limited body of research on the best practices related to neonatal health and length of hospital stay exists. Nevertheless, a growing body of research on the effectiveness of diverse treatment modalities to decrease the severity of NAS are currently under review. Among this treatment, modalities include pharmacological and non-pharmacological interventions. This study was conducted using a systematic review of existing literature to explore best practices related to neonatal health by examining the treatment of Neonatal Abstinence Syndrome after birth and how it affects the length of stay in the hospital.

Results: Findings from the literature suggest pharmacological treatments are an important component of management when supportive and nonpharmacological care, is insufficient. According to Kocherlakota et al. (2019), approximately 60 to 80% of infants with the syndrome do not have a response to nonpharmacologic treatment and require medication. Results indicate that pharmacologic treatment has demonstrated success in relieving moderate-to-severe signs of NAS such as seizures, fever, and weight loss or dehydration, which are crucial to minimize in the early stages of development so that the effects do not last throughout their lifetime.

Oral morphine and methadone are among the most successfully used pharmacological interventions. For example, in a study of 547 newborns with NAS, Hall et al. (2014) found that both oral morphine and methadone resulted in significantly shorter durations of hospitalization and overall length of treatment (417) in comparison to newborns who did not receive pharmacological intervention (130). According to Wiles, Isemann, Ward, Vinks, & Akinbi (2014), the main objective of pharmacologic treatment is to relieve moderate-to-severe signs of NAS such as seizures, fever, and weight loss or dehydration. Early alleviation of these symptoms is crucial to minimizing the lifetime effect of NAS. Currently, in the United States, oral morphine is the most common treatment, however, it is associated with increased risks of sedation and respiratory depression. Methadone is less commonly used, and due to its longer half-life (25 to 32 hours), it may provide a more consistent blood concentration over time and result in variable dosing in correspondence to newborn patients' needs. Methadone has the ability to delay signs of withdrawal. Neonatal heroin withdrawal symptoms typically begin within 24 hours of birth. Methadone can delay withdrawal symptoms to 72 to 96 hours, with a possibility of delayed manifestation for more than a week.

Discussion: Neonatal Abstinence Syndrome is a significant perinatal public health issue. The findings suggest oral morphine and methadone are effective harm-reduction measures that reduce NAS symptoms in comparison to non-pharmacological methods. Despite the rise in NAS, detection and early pharmacological intervention may lessen the effects of neonatal withdrawal. Further research on this topic will continue to advance perinatal health regarding NAS.

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NPA 2023–21

Abstract Title: Genetic and Environmental Considerations of Perinatal Substance Use

Author: Jasmine Graham, PhD

Introduction: Mental health issues are among the most common morbidities of pregnancy and childbirth and include perinatal substance use disorders and mood disorders such as perinatal anxiety and depression. Perinatal mental health concerns also contribute to maternal mortality. Overdose and suicide are the leading causes of death in the first year postpartum. Biospychosocial demands of pregnancy, childbirth, and mothering may ex-

acerbate maternal mental health issues. Biological factors include genetic predisposition toward addiction or mental illness, physiological changes, and hormonal shifts that occur during the perinatal period. Psychological challenges include prolonged stress and trauma. Social considerations include community, the quality and frequency of prenatal care, perinatal or pre-existing medical issues, and intimate partner violence. In consideration of biology specifically, while genetic heredity can be an important predictor of mental health or substance use, genetics are not the sole determinant to maternal mental health outcomes. Rather, environmental contributions *along with* genetics provide a better indicator of maternal mental health outcomes. This study examined environmental factors believed to contribute to genetic expression of addiction among women within the perinatal period.

Methods: This study utilized qualitative research design and a constant comparative method to collect, code, and categorize data. Through in-depth qualitative semi-structured interviews, five mothers within the perinatal period, who had given birth to a child under one year old at the time of data collection, and had used substances while pregnant, responded to interview questions regarding issues pertinent to mental health history, stress-related coping, pregnancy, and substance use. Among study participants, alcohol, cannabis, and opioids were noted as substance(s) of choice. All study participants identified a genetic predisposition toward and/or personal history of mental illness.

Results: Three major themes emerged from the analysis. The first, *Substance Use to Alleviate Distress*, highlights participants' use of substances to manage a myriad of stressors, such as those related to marital distress; economic stress; and psychological stressors such as feeling overwhelmed, hopelessness, and anxiety. Each study participant noted the use of substances, such as alcohol, cannabis, and opioids as a means to manage relational stress. Interestingly, the influence of economic stressors was acknowledged as substance use trigger only by study participants who acknowledged use of opioids during pregnancy and post-partum. The second theme, *Social Engagement*, highlights the negative impact of social isolation and the positive impact of social engagement on study participants. Specifically, several participants noted positive social engagement with healthy loved ones as a protective factor. Finally, the third theme, *Minimization of Neonatal Health Risk*, highlights the tendency of participants to minimize the negative impact of their substance use on their children. Notably, minimization was noted among participants who engaged in polysubstance use and not participants who acknowledged single substance use.

Discussion: The perinatal period is a time in which women tend to become more motivated to reduce substance use and improve mental health. The findings from this study are consistent with existing research which suggests that the prevalence of continued substance use among women within the perinatal period remains a maternal, neonatal, and public health concern. Findings from this study suggest women with a genetic predisposition, history of use, and/or history of mental illness may be particularly vulnerable to perinatal substance use in comparison to the general population.

NPA 2023–22

Abstract Title: A Multi-Tiered Systemic Approach to Helping Families Thrive in the NICU and Beyond

Authors: Sierra Kuzava, PhD; Agustina Bertone, PhD; Karolina Grotkowski, PhD; Catherine Mogil, PsyD

Background: Neonatal Intensive Care Unit (NICU) providers are tasked with both caring for the infant and preparing their caregivers to support and nurture their child. To complicate matters, more than 20% of parents with a medically ill child experience depression, anxiety, and/or post-traumatic stress disorder within the infant's first year life (Hynan, Mounts, & Vanderbilt, 2013), which can have negative downstream effects on the child's socioemotional development. To help infants and families thrive and set them up for long-term developmental success, NICUs must offer multi-tiered approaches to equip staff with education about parental mental health and support families using an accessible and flexible approach during this critical period.

Content/Action: We will describe the Family Development Program (FDP), a relationship-based preventive intervention that supports NICU caregivers to approach parenting so it can be joyful, intimate, and child-centered. FDP also provides workforce training to NICU teams to improve outcomes for infants and their families. FDP uses a multi-tiered approach that aligns with the Institute of Medicine's (1994) prevention framework, and includes 1) system-wide education in trauma-informed, resilience-promoting care to equip NICU staff and leadership with tools to promote positive parenting practices right from the start and enhance professional wellbeing of staff members, 2) family and staff consultations to address current challenges, and 3) targeted outpatient therapeutic services to families who are struggling emotionally and are most at-risk for mental health challenges.

Lessons learned: Clinically, our team serves approximately 90 families each year. Most clients experience a decrease in symptom severity from the moderate to severe range into the mild or minimal range across domains. Clients describe that FDP's flexible and tailored services provide essential support and coping education, and identify the continuity in services through discharge as particularly crucial. Over 150 staff members have participated in trainings over the last 4 years. We have also provided numerous consultations to NICU staff regarding patient interactions, posttraumatic stress symptoms, and managing burnout. Training participants described increased confidence, perspective, and communication skills. Many asked for information to be disseminated more widely via handouts or other media.

Implications for practice: NICU families and staff are eager for psychological services and will make full use of them. Families have unique needs and present with differing trauma histories and pre-existing symptoms, which necessitates that providers titrate support. The transition home is a time of vulnerability and change, and many families benefit from family-wide support that extends beyond the NICU stay. Finally, providing training and support to staff ensures that all families will receive some level of service and helps cultivate a family-oriented and trauma-informed NICU environment.

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NPA 2023–23

Abstract Title: Psychological Distress in NICU Providers: A Scoping Review in Progress

Author: Hisham Nsier

Principal Investigator: Pamela Geller, PhD

Introduction: The Neonatal Intensive Care Unit (NICU) is known to be a physically and psychologically stressful work environment. NICU staff are tasked with monitoring acutely ill infants while also providing support to each other and to parents, who are often traumatized by the reality of their infant requiring intensive care. The burden of providing such a range of support contributes to the experience of vicarious trauma and toxic stress by NICU staff. The aim of this scoping review is to explore the state of the current research literature regarding stress responses in NICU medical providers associated with job-related exposures.

Methods: A scoping review was performed by members of the National Network of NICU Psychologists (NNNP) Research Committee using the PRISMA-ScR checklist (Page et. al., 2021) to examine the state of the literature regarding job-related stress responses in NICU medical providers. Five databases were searched: PsychInfo, Ovid, MEDLINE, Embase, and CINAHL. Co-authors were split into pairs and assigned a subset of publications; each dyad assessed eligibility and extracted the data. Publications were deemed relevant if they were written in English, published after 1960, were original research (i.e., not an editorial, review, or short report), and assessed job-related exposures in NICU medical providers (e.g., nurses).

Results: The initial database search returned 1,205 articles after removal of duplicates. All abstracts were screened for relevance and 118 articles were selected for full-text review. Remaining full-text articles were reviewed by co-author dyads and any disagreements about their relevance were consensus coded. If agreement could not be made by the paired co-authors, the manuscript was flagged for full group review. A total of 61 publications were deemed relevant and were categorized based on their methodology (quantitative vs. qualitative) and the psychological constructs measured (i.e., burnout, secondary traumatic stress, moral distress, or stress response/distress). Data on prevalence, associations, and major themes were extracted. If applicable, these data were further categorized based on the specific psychometric(s) used in the publications. Most publications found that NICU medical staff experience significantly distressing job-related exposures. Some publications highlighted personal and systemic risk factors contributing to the experience of psychological distress, while others suggested significant protective factors and opportunities for intervention.

Discussion: Despite the very real relationship between working in the NICU and experiencing negative job-related exposures to stress, the strength and nature of this relationship differs to a considerable degree depending on the samples, the settings being researched, the psychometric(s) being used, and how the psychometrics are scored/interpreted. A wide spectrum of research designs and analytic approaches exist in the extant literature, posing a significant challenge when attempting to compare results across studies, even among those using the same psychometric(s). Nevertheless, it is clear that the lived experience of NICU medical staff is characterized by not only high levels of toxic stress, but by resilience and growth as well. Future research should focus on standardizing the methodological approach used to measure provider psychological distress in the NICU, replicating previous studies in larger and more diverse samples, and assessing the efficacy of existing psychological interventions for this unique population. Additionally, elucidating the systemic factors contributing to job-related psychological distress may provide the opportunity for advocacy and policy recommendations as well as future intervention.

NPA 2023–24

Abstract Title: Therapeutic Approaches to Working with Perinatal Loss Clients: A Grounded Theory Study

Presented by: Heather Olivier, LPC, PMH-C, CCTP, NCC

**Heather is a Ph.D. candidate at the University of New Orleans. The abstract outlines the study currently being conducted. The dissertation study will be defended prior to March 1, 2023.*

Introduction: Perinatal loss (i.e., miscarriage, stillbirth, termination, and infant death) is commonly referred to in the literature as an invisible loss, non-loss, and even medical event. It is an ambiguous loss exhibiting the dialectical contradiction between the physical absence and psychological presence of the baby accompanied by disenfranchised grief, a reaction to a loss that is unacknowledged by society. Despite the likelihood of mental health clinicians working with clients who have experienced perinatal loss, there has yet to be a therapeutic model designed specifically for the unique grief and trauma reactions presented in this population. Existing grief models do not address the traumatic nature of the loss, and oppositely, trauma models do not address the life-long grief symptoms experienced subsequent to perinatal loss. Lack of clinical trainings and cultural norming processes that do not acknowledge the significance of the loss leave clinicians without resources, tools, and interventions to effectively work with this population. Thus, the purpose of the study is to co-construct a therapeutic model to utilize when working with perinatal loss clients.

Methods: Exploring therapeutic approaches employed by mental health clinicians, the proposed grounded theory study will collect three forms of data: (a) intensive interviews, (b) elicited documents (i.e., case studies), and (c) extant documents (i.e., perinatal loss specialty training agendas). The qualitative study will include 8-12 participants certified in perinatal mental health (PMH-C) to ensure participants' clinical experience in working with the perinatal loss population for at least two years. Additionally, the proposed study will investigate the following three elements informing therapeutic approaches applied to this population: (a) cultural perceptions of perinatal loss; (b) how the cultural perceptions impact the therapeutic relationship regarding establishing goals, measuring client change, and determining effectiveness; and (c) identification of barriers within the therapeutic process. The findings of the study will be significant to not only mental health clinicians working with perinatal loss clients and the existing perinatal loss research, but they will also illuminate the nature of the therapeutic process for this population to decrease ambiguity surrounding the loss and enfranchise the griever.

Results and Discussion: The results and discussion will be outlined upon completion of the study.

NPA 2023–25

Abstract Title: Recognizing and Working with Medical Trauma in the Perinatal Period: A Multidisciplinary Approach

Authors: Heather Olivier, LPC, PMH-C, CCTP, NCC and Victoria Rodriguez, LPC, CCTP, NCC

Background: Defined as the period of time from pre-conception through one year after birth, the perinatal period is shown to have a high correlation between physical health issues and Post-Trau-

matic Stress Disorder. Medical trauma can occur after a medical crisis or event such as pregnancy, birth, termination, and loss with people socialized as women. Individuals within marginalized groups are more likely to report symptoms of PTSD related to traumatic medical experiences. Other risk factors, such as poor social supports, pre-existing physical and mental health issues, chronic pain, and low socioeconomic status can also be related to medical trauma. Those who experience a medical crisis are 12% more likely to develop PTSD while those who have stayed in the ICU could be 15% more likely to develop PTSD. Medical trauma experienced in the perinatal period extends beyond the traumatic event(s), appearing in the research as impacting the overall reproductive health of the family system. As such, it is vital to view reproductive health within the frameworks of the family system, cultural system, and societal system.

Content/Action: While the fields of medical trauma and perinatal mental health might be addressed by practitioners in the same setting, there is little research that focuses on the connection of these fields in terms of evidence-based application. This research seeks to connect theories and research from these fields, with an emphasis on addressing barriers to treatment for marginalized groups specific to community needs. As current committee members of the Pregnancy Associated Mortality Review (PAMR) Board for the Louisiana Department of Health, both presenters provide professional insight and recommendations on how to improve access to care and bridge multidisciplinary gaps in reproductive health. Discussed in this presentation will be the collective recommendations of state PAMR boards produced by the CDC in the most current publication of the *State Strategies for Preventing Pregnancy-Related Deaths: A Guide for Moving Maternal Mortality Review Committee Data to Action* released in May 2022.

Lessons Learned: To promote the repetition of positive outcomes and potentially prevent the recurrence of negative outcomes, a review of lessons learned in this research was conducted. First, this meta study explored previous research on risk factors and presentation of medical trauma. Second, this research focused on previous introductory research on perinatal mental health. The research then aimed to address the gaps between this research when reviewing implications for treatment and addressing barriers to treatment for marginalized groups.

Implications for Practice: This research has the following implications for both mental health and medical practitioners working with perinatal populations: (a) aid practitioners in applying evidence-based practices for medical trauma in perinatal populations; (b) aid practitioners in accurately assessing medical trauma for marginalized groups experiencing perinatal mental health issues; and (c) aid policy makers and healthcare advocates in addressing barriers to treatment for medical trauma during the perinatal period in community mental health and medical settings.

NPA 2023–26

Abstract Title: The Need for Parental Support Following Prenatal Genetic Testing

Authors: Denise Marion B. Paed[1]; Katelyn Phan[1]; Leah B. Sodowick, B.A.[1]; Pamela A. Geller, PhD[1,2]

[1]Department of Psychological and Brain Sciences, Drexel University, Philadelphia, PA; [2]Department of Obstetrics and Gynecology, Drexel University, Philadelphia, PA

Introduction: As more parents elect to have genetic testing, there is an increasing need to provide parents with resources and support to help them make informed decisions. Prenatal genetic testing has been described as "preference-based health care" (Parens and Applebaum, 2019). Trends have shown that about half of expecting parents chose to undergo testing whether it be noninvasive or invasive (Clark et al., 2022). Parents cite that they would like to be "prepared" as one of the main reasons they choose to have prenatal genetic testing (Michie, 2020). Studies have shown that parents would rather be informed about possible genetic abnormalities than not be informed (van Der Steen et al., 2016).

Content: If parents decide to undergo prenatal genetic testing and the results reveal a possible genetic anomaly, they are now faced with an unanticipated situation. A recent study found that parents who received positive test results indicating the infant may have a genetic anomaly, were more likely to experience greater psychological distress compared to their counterparts who did not receive such results (Talati et al., 2021). Specifically, parents who received a positive test result tended to display higher amounts of distress and anxiety and expressed confusion about their next steps regarding their pregnancies (Talati et al., 2021). One common area of confusion and distress was the parent's limited knowledge and understanding regarding the genetic condition and its implications (Haider et al., 2022). Furthermore, when parents receive results of prenatal genetic testing that may be false positives (e.g., the results of the test may not be accurate) they may be negatively impacted by increased stress (Clark et al., 2022).

The need for supportive resources for parents following prenatal genetic testing is even more crucial in the time of the overturning of Roe v. Wade. For some individuals, the results of prenatal genetic tests are important in their decision-making as to whether they will continue their pregnancy (Chandler et al., 2018). However, the choice to terminate a pregnancy is complicated due to stricter abortion laws in many states. The amount of time that it takes to receive results from testing could exceed the amount of time in which it is still permissible to terminate a pregnancy (Clark et al., 2022). With abortion law changes since the overturning of Roe v. Wade decreasing the amount of time a woman can terminate a pregnancy, there is more pressure and psychological distress placed on the parents to make decisions regarding their pregnancies (Clark et al., 2022).

Practical application: Current resources to assist parents following prenatal genetic testing are lacking and the development of such resources could be beneficial for parental mental health and familial quality of life. Preliminary studies have revealed that offering resources, such as counseling from trained medical and mental health professionals to help explain the possible condition of the infant and assist in informed decision-making, alleviated some stress (Bernherdt et al., 2021). However, there is a lack of providers trained to assist parents with informed decision-making. Therefore, training providers who can assist parents could help alleviate stress. This poster will report on the existing literature and practices and discuss recommendations for supporting parents following prenatal genetic testing.

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NPA 2023–27

Abstract Title: Pregnancy Loss and Post-Traumatic Stress Disorder: The Influence of Provider Care Among a Sample of Black Women

Authors: Nicholas Powers[1], Sharon Ettinger[2], Pamela A. Geller[2]

[1]La Salle University, Department of Clinical Psychology; [2]Drexel University, Department of Psychological and Brain Sciences

Introduction: Pregnancy loss can be a devastating experience that places individuals at risk for developing post-traumatic stress disorder (PTSD; Kersting & Wagner, 2012). Researchers have noted the risk of miscarriage to be up to 15%, with approximately 23 million miscarriages occurring annually on a global scale (Quenby et al., 2021). Further, the prevalence of pregnancy loss varies by demographic factors, with Black women assigned female at birth (AFAB) being the most susceptible to pregnancy loss in comparison to any other racial group (Taylor et al., 2020). Given that Black women AFAB are twice as likely to endorse perinatal psychological conditions in comparison to White women (Taylor & Gamble, 2017), further research that explores variables that may buffer the development of PTSD after pregnancy loss for these women is warranted.

Quantitative research thus far has also revealed that the quality of care provided by healthcare providers is associated with the likelihood of having a traumatic birth (Reed et al., 2017), while no study to our knowledge has examined how interpersonal aspects of care received from medical providers are associated with PTSD symptom severity after pregnancy loss for Black women AFAB specifically. Black cisgender women historically have also endorsed severe mistrust towards the medical system due to structural racism, implicating that providers who do not actively promote quality interpersonal care during perinatal loss may be exacerbating PTSD symptoms (Thomas et al., 2021).

Methods: The current study addresses this gap by examining the association between self-reported interpersonal aspects of care (IAC; Hayes et al., 1998) and PTSD symptom severity (PCL-5; Weathers et al., 2013) among a sample of Black women AFAB (n = 99) following loss. The authors hypothesize that lower IAC scores will significantly predict higher symptom endorsement on the PCL-5. This study will utilize retrospective data collected by the Geller Women's Health Psychology Laboratory at Drexel University. Participants were recruited via social media platforms (e.g., Facebook, Craigslist, Youtube) to prioritize the perinatal experiences of women from diverse backgrounds.

Results: Results will be calculated through conducting a linear regression in SPSS, with IAC scores entered as the predictor variable and PCL-5 scores as the dependent variable.

Discussion: The clinical implications of this study's findings will emphasize the importance of developing interventions that can adequately support an under-researched group who are already at higher risk of experiencing pregnancy loss. Additionally, outside of clinical intervention, the findings will provide further information on the impact of race for medical providers to consider when working with trauma-exposed Black women.

NPA 2023–28

Abstract Title: When Cancer and Pregnancy Collide: The Experiences of Women with Cancer During Pregnancy

Author: Ashley Schmuke, MSN, RNC-OB

Introduction: Pregnancy-associated cancer occurs in approximately one per 1,000 pregnancies. Approximately 25% of those pregnancy-associated cancers are diagnosed during pregnancy. Although rare, the occurrence of cancer during pregnancy (CDP) represents a scientific and philosophical paradox; new life and the threat of death exist simultaneously. While researchers tend to focus on physiological maternal and fetal/neonatal outcomes, the medical gaze does not address individual's experience of CDP. The purpose of this study was to understand the experiences of those diagnosed with CDP, including how individuals take up becoming a mother/parent; how their concerns, priorities, coping skills, relationships, and sense of future are altered by the cancer diagnosis and treatment; and how health care professionals impact their experiences.

Methods: To gain a better understanding of these experiences, a prospective, longitudinal hermeneutic study was conducted using interpretive phenomenology. Interpretive phenomenology is a philosophy and a qualitative method that challenges the Cartesian dichotomies of mind versus body, subject versus object, and person versus world. Grounded in the philosophy of Martin Heidegger, interpretive phenomenology or hermeneutics, focuses on our everyday ways of being-in-the-world to reveal embodied meanings and situated understandings of the person in times of health and illness. After Institutional Review Board approval, ten self-identified women with CDP were recruited from social media support groups and a national registry. Participants were interviewed using semi-structured interview guides twice during pregnancy and once within two months following birth. Thirty interviews were

coded and analyzed using an interpretive/hermeneutic approach. This included the development of interpretive summaries and three interrelated narrative strategies (identification of paradigm cases, exemplars, and thematic analysis).

Results: Women with CDP experienced a unique journey in which pregnancy, mothering, and illness collided. Their embodied understandings of pregnancy and illness took on three distinct patterns: I still can, I no longer can, and I must. They entered the healthcare system as an atypical patient, confronted with competing priorities and disrupted expectations for their pregnancies and early motherhood. Lastly, their personal relationships and relationship with their illness and future were transformed as the women contended with new and foreclosed possibilities.

Discussion: Cancer and pregnancy are not often contemplated in the same sentence. Although rare, the incidence of CDP is only expected to increase given the tendency to delay childbearing and the increasing incidence of cancer with age. Whereas previously, health care professionals may go their entire career without caring for an individual with CDP, now the likelihood of caring for an individual with CDP is increased. The results of this study can be used to aid health care professionals in attending to the inherent difficulty in the emotional paradox of CDP and assist them in recognizing and acknowledging the baby as a person and the woman/individual as a mother/parent. Additionally, health care professionals can bear witness to the highly contextualized suffering and decision-conflict individuals with CDP and their families may face. Understanding the meaning of the experience of CDP beyond the medical gaze allows health care professionals the unique opportunity to meaningfully support women/individuals through their journey with CDP--a crucial step in providing expert caregiving to those confronting cancer and pregnancy.

NPA 2023–29

Abstract Title: Raising Awareness About Perinatal Mental Health Through Film: Reflections from Drexel University NPASS's Documentary Screening Event

Authors: Leah B. Sodowick, B.A.[1]; Alison R. Hartman, M.S.[1]; Chavis Patterson, PhD[2]; & Pamela A. Geller, PhD [1]

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Introduction and Background: In 2021, Drexel University's chapter of the National Perinatal Association Student Society (NPASS) was established as the first and only chapter of the national society that is based in a psychology department rather than a medical school. Drexel's NPASS chapter functions as part of the Maternal and Child Health Student Organization at Drexel's Dornsife School of Public Health, which has presented valuable opportunities for interdisciplinary student collaboration. In May 2022, Drexel's NPASS chapter collaborated with the Maternal and Child Health Student Organization to host a film screening and discussion event for the documentary film *Year One,* by Erin Bagwell. *Year One* provides a firsthand look at postpartum depression and the motherhood journey. This poster will present details about this film screening event and highlight how film can be a useful tool for raising awareness about perinatal mental health and sparking the rich dialogue that is necessary for generating practice, policy, and research ideas and fostering interdisciplinary collaboration.

Content: Drexel NPASS seeks to further the goals and mission of NPA by providing undergraduate and graduate students interested in perinatal and neonatal care with opportunities for education, advocacy, and interdisciplinary collaboration. In line with this aim, Drexel NPASS members planned and successfully executed a film screening and discussion event for the documentary film *Year One,* by Erin Bagwell. Advertising for the event occurred via flyers, email listservs, and word of mouth. The event took place in May 2022 and attendees participated both in person and virtually. The event was free of cost for attendees. Planning and hosting the event was low-cost: funds from the Maternal and Child Health Student Organization were only used to provide pizza and drinks for in-person attendees. After the screening of *Year One*, Dr. Chavis Patterson, the Director of Psychosocial Services at the Children's Hospital of Philadelphia and Associate Professor of Clinical Psychology at the Perelman School of Medicine at the University of Pennsylvania, moderated a lively and important discussion about the documentary, its implications, and important takeaways. Further education on the risk factors for and warning signs of postpartum depression and ways to help those who are struggling was also shared with attendees. The moderated discussion included rich dialogue not only about postpartum experiences and postpartum depression but also about representation, racial and socioeconomic disparities, public health implications, and ideas for efforts and programming to support parents and families who are impacted by perinatal mood and anxiety disorders. This poster will present additional details from the event and describe lessons learned and reflections related to student awareness and education, and interdisciplinary dialogue and collaboration.

Practice Application: We hope to encourage and inspire other students and professionals to consider using film to 1) spread awareness about perinatal mental health, perinatal and neonatal care, and health equity, 2) foster interdisciplinary dialogue that can generate ideas for policy, practice, and research, and 3) empower students to pursue careers dedicated to making a difference in the lives of perinatal individuals and their families. This poster will present suggestions for documentaries and films relevant to perinatal mental health and care and neonatal care that could be used to achieve these aims.

NPA 2023–30

Abstract Title: Postpartum Menstrual Equity: Video Analysis of Vaginal Bleeding Information, Care Planning, and Pads Offered to New Parents During the Childbirth Hospitalization

Authors: Kristin P. Tully, PhD[1-2]; Shilpa M. Darivemula, MD[3]; Alison M. Stuebe, MD, MSc[1-2]; Kelley E.C. Massengale, PhD, MPH[4]

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This is original research that has not been presented elsewhere. This research was supported by Agency for Healthcare Research and Quality (AHRQ) through grant R18HS027260. We thank Marina Pearsall for project management. We are grateful to participants for their time and willingness to share their experiences. Drs. Tully and Stuebe are inventors on a patented medical device, which is not addressed in this research study or abstract. The other authors report no conflicts of interest.

Introduction: Vaginal bleeding is a universal component of maternal recovery after childbirth. Although discharge of blood and mucus (lochia) is normal, bleeding too much is a warning sign for postpartum hemorrhage, which is a leading cause of mater-

nal mortality. Despite the prevalence and importance of managing bleeding in the postpartum period, little is known about the information or supplies that birthing individuals are offered through clinical care. Additionally, pads can be a financial burden for individuals and families, and they are not covered through U.S. public programs such as WIC or SNAP.

Methods: The study was reviewed by the UNC Biomedical Institutional Review Board (#19-1900). Between August and December 2020, 15 birthing parents and their companions consented to video and audio recording of themselves, their infants, and health care team members during their postnatal unit stay. Two cameras with microphones were set up in their room, with 'night-shot' capacity. Equipment use was explained through verbal and written instructions in English or Spanish as well through demonstrations for turning off and on the equipment, which was achieved through a single button on an accessible device in the room. Recordings were securely stored and coded by an IRB-approved multidisciplinary team. Coders achieved inter-rater reliability accounting for chance, kappa >0.70, for each code.

Results: Participants were Hispanic white (n=6), non-Hispanic Black (n=5), non-Hispanic white (n=3), and non-Hispanic multirace (n=1). Six were Spanish-speaking and 8 had cesarean section births. In the last 12 hours of the inpatient stay, two individuals had no communication with their health care team regarding bleeding or menstrual supplies, most had a few exchanges throughout the hours, and ten had information on vaginal care, bleeding amounts, or pads in the hour preceding discharge. Among the Spanish-speaking birthing parents, one had no interpreter for any interaction, one had Spanish spoken to them with and without an interpreter, and the other four had an interpreter each of these interactions (See Figure 1).

Figure 1 *The timing, content, and language concordance of vaginal bleeding information, care planning, and supplies offered to new parents during their childbirth hospitalization, as filmed.*

(v) = vaginal birth, (c) = cesarean birth, * = Spanish-speaking birthing parent

Discussion: There was variation in the timing, content, and language concordance of menstrual health information and support during postpartum hospitalization. There is opportunity to strengthen clinical practices for maternal safety and to advance respectful, equitable care. Managing postpartum vaginal bleeding is important, yet services are not yet structured to adequately support all postpartum families during inpatient care or to connect them with community-based resources for menstrual care.

NPA 2023–31

Abstract Title: Cultural Competemility and Professionalism: An Innovative Approach to Enhancing Culturally Sensitive Equitable Perinatal Care

Author: Sister Paula Ude, DSW, LMSW

Background: Help-seeking reduces perinatal mothers' risk of health and mental health complications (PSI, 2022; WHO, 2019). Although many mothers seek perinatal help during and after pregnancy, many are reluctant to return to help-seeking after they deliver their baby, especially to seek postpartum mental health help (Gardner et al., 2013; Park et al., 2017). This unwillingness to seek and return to help is prevalent among immigrant mothers (Blizsta et al., 2010; Gardner et al., 2013; Park et al., 2017). Among other contributing factors to the lack of help-seeking among perinatal mothers, the professional-client interpersonal relationship is highlighted as an overarching emerging theme (Blizsta et al., 2010; Mickelson et al., 2017).

This presenter believes that integrating a model that would dismantle any factors that bridge the effective communication between healthcare professionals and perinatal mothers during the interaction will be valuable. With this, this presenter recommends Cultural Competemility and professionalism. This model was presented at Postpartum Support International 35th Conference on July 16, 2022 and was invited by one of the National Perinatal Association (NPA) staff executives to submit a poster presentation abstract for this upcoming NPA 2023 conference.

Content/Action: Cultural Competemility and professionalism as a concept was an emerging construct from this presenter's qualitative dissertation work, which explored the lived experience of women in the African diaspora in the United States on the knowledge and help-seeking behaviors during perinatal periods. Most study participants shared the need for healthcare providers to integrate culture into practice to encourage help-seeking during and after pregnancy. Promoting equitable care that improves the physical, emotional, and spiritual well-being of mothers and babies requires a "cultural competemility and professionalism" approach that is mother-child-centered. This approach allows health professionals/providers to pervade cultural humility into cultural knowledge and practice. The "cultural competemility and professionalism" model comprises four fundamental concepts: interpersonal relationships, service interpretation, strength, and intervention. Its application prescribes three-step guidelines for providing culturally sensitive perinatal equitable care to mothers and families while engaging them in help-seeking and improving their well-being. These three practical steps or techniques include contextual information, experiential knowledge, and Convergence.

Lessons Learned: Participants listening to this poster presentation will learn the following:

Cultural competemility and professionalism model and how it will help healthcare providers improve and promote culturally sensitive equitable perinatal care.

Step-by-step methods on how to apply cultural competemility and professionalism model to engaging perinatal mothers in help-seeking during and after childbirth.

Implications for Practice: There is a need for healthcare providers or professionals to learn a practical way to provide culturally sensitive equitable care to mothers and their families to improve mother-child well-being holistically.

Disclosures: *Disclosures are as indicated in the individual abstracts*

NT

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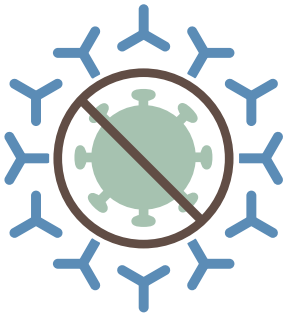
Protecting your baby and family from

Respiratory Viruses:



What parents need to know this RSV and flu season

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

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

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

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

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

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

WE CAN HELP PROTECT EACH OTHER.

National Perinatal Association

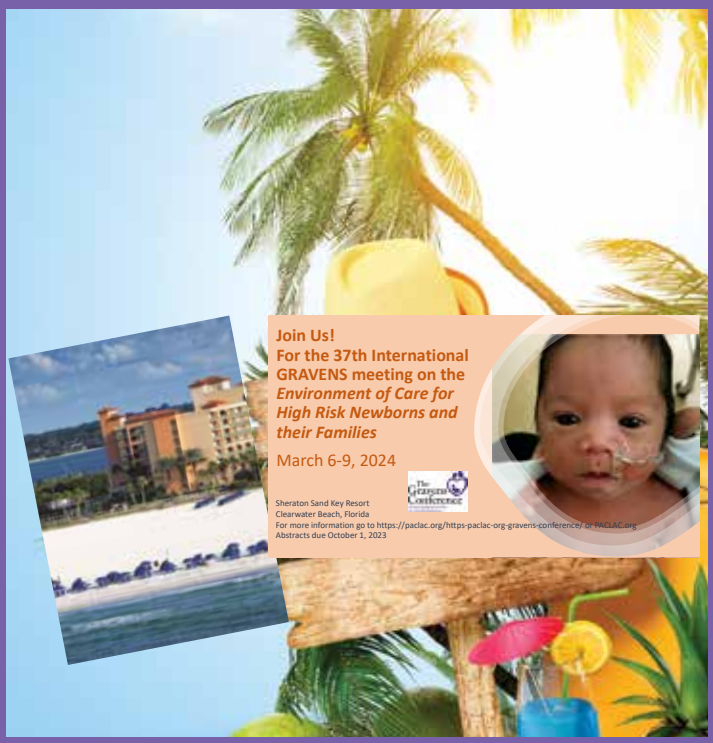
www.nationalperinatal.org/rsv

37th Annual Gravens Conference On The Environment Of Care For High Risk Newborns:

The Power of Voice: Using Your Voice for Babies, Families, Staff and Beyond

Attend Live, In Person Or Virtual

Wednesday - Saturday
March 6-9, 2024
Sheraton Sand Key Resort
1160 Gulf Boulevard
Clearwater Beach, FL 33767



WHY YOU SHOULD ATTEND

- Get updated on the most recent evidence for your work in supporting babies and families in intensive care.
- Have conversations with leaders in the field of developmentally supportive, family centered care and NICU design.
- Share your passion for optimizing the environment of care for babies, families and staff.
- Network with colleagues, family members and experts in the field who share similar ideas about supporting babies and families in intensive care.
- Take back ideas for change to your NICU policies and care practices.

GENERAL INFORMATION

Location

Sheraton Sand Key Resort
1160 Gulf Boulevard
Clearwater Beach, FL 33767
Hotel Phone: (727) 595-1611
www.sheratonsandkey.com

In the event in-person attendance is canceled or capacity limits modified per CDC or public health guidelines, the conference will be modified accordingly or presented entirely as a live virtual activity.

Refund Policy

Refund & Cancellation Policy: Cancellations must be requested in writing via email to gpakhanyan@paclac.org , and received by February 06, 2024 in order to receive a refund. A $100 cancellation fee will be assessed to cover administrative costs. There are no refunds for no-shows or for cancellations received after Feb. 06, 2024; however, substitutions are welcome without penalty. Eventbrite's fee is nonrefundable.

Conference Registration

We suggest you register early.

To register online, please go to:

Conference Registration, please register:
https://www.eventbrite.com/e/the-37th-annual-gravens-conference-tickets-668446410207?aff=oddtdtcreator

Or scan QR code

Conference Agenda

https://paclac.org/wp-content/uploads/2023/08/Gravens-Agenda-2024-1.pdf

Submit an abstract at:

https://event.fourwaves.com/gravensconference2024/pages

SHERATON SAND KEY RESORT

Accommodations

LOCATION: Sheraton Sand Key Resort
1160 Gulf Boulevard
Clearwater Beach, FL 33767
Hotel Phone: (727) 595-1611
www.sheratonsandkey.com

It is strongly advised that you make room reservations early.

Sheraton Sand Key Resort

A limited number of rooms have been reserved for this meeting at a special rate of $224 (plus tax). For reservations, call the hotel directly* at (727) 595-1611 (not the national sales office) and identify yourself as a participant of the Gravens Conference to receive the special group rate.

*If no one picks up at the local number, the call is automatically transferred to the national reservation line. The phone reps at the national reservations line will not know of the group and special rate. Continue to call the local number.

If you prefer to make online reservations,

Online Reservations

https://www.marriott.com/event-reservations/reservation-link.mi?id=1688650684784&key=GRP&app=resvlink

Book your group rate for Annual Gravens Conference (This will avoid the problems with reaching the national reservations line.)

The deadline to receive the group rate is February 4, 2024. This assumes the block has not sold out. If so, you will be quoted the standard rate, which is considerably higher than the group rate. The hotel sells out every year. Do not wait until the last minute. (The status of the pandemic will impact how quickly the room inventory sells out. Still, better to reserve the room in advance. You can always cancel, so long as it is within the allowable window.)

The hotel sells out every year.

Dress is casual throughout the conference. Please bring a jacket to the meeting rooms, as they are often cold. Physical distancing will be observed. Masks are optional.

The hotel has complimentary parking.

Airport & Ground Transportation

The two airports nearest the hotel are Tampa International Airport (TPA) and St. Petersburg/Clearwater airport (PIE). Both airports offer car rental.

Taxi fare from Tampa airport can exceed $60. Uber and Lyft average around $35 ish, before tips.

For more information on Tampa airport, visit https://www.tampaairport.com/guest-services and the St. Petersburg/Clearwater airport, visit http://www.fly2pie.com/

Diversity Scholarship Infomation

The Gravens Diversity, Equity, Inclusion, and Justice (DEIJ) Committee will provide travel awards to individuals from historically underrepresented groups (i.e., people from racially and ethnically diverse backgrounds, members of the LGBTQ+ population, individuals with cognitive disabilities, individuals with physical disabilities). Please contact Kelly McGlothen-Bell (mcglothen@uthscsa.edu) or Christie Lawrence (Christie_Lawrence@rush.edu) for questions regarding an application.

37TH ANNUAL GRAVENS CONFERENCE ON THE ENVIRONMENT OF CARE FOR HIGH RISK NEWBORNS

Conference Background

In a perfect world, there would be no need for a NICU. Yet our reality is that babies continue to be born too sick, too soon, and with medical conditions requiring hospitalization. Activities in the NICU have a profound impact on the babies, their families and the staff. What you do matters. Your work has the potential to impact a neonate's health outcome, as well as that of the family and staff in the NICU.

Since the 1980s, neonatal care providers have worked to mitigate the stress experienced by babies, parents and providers. Doing so has involved change and its inherent struggles, but eventually we have adapted our NICU culture, policies and approach. We strive to nurture the developmental needs of babies and the emotional and informational needs of their parents through evidence-based knowledge in neurodevelopmental science, developmental care, healthcare design, and family support. This work continues at The 37th Annual Gravens Conference.

Registration Fees

You will have access to recorded presentations after the conference is over.

Early Bird Full Conference In-Person Registration Early Bird Ends 1/22/2024	$725.00
Remote, in real time	$725.00
Full Time Students/Trainee Registration In-Person	$300.00
Group In-person Registration 3 and more	$650.00
Nurses/Allied Health Professionals In-person	$595.00
Nurses/Allied Health Professionals Remote in Time	$525.00
Single Day In-person Registration	$250.00
NICU Parent Registration In-person	$300.00
NICU Parent Registration Remote in Time	$300.00
Full Conference In-person 3/6-3/9	$800.00
Institutional Group Zoom Registration (10 Attendees)	$2,500.00
Institutional Group Zoom Registration (50 Attendees)	$10,000.00
International Low Income Country Zoom Registration	$85.00
International Zoom Registration	$250.00
Diversity Scholarship Participants	$300.00
Donation	

Course Objectives

- At the conclusion of the program, participants should be able to:
- Relate rationale for implementing optimal family centered, developmentally supportive care standards and environmental design approaches in newborn intensive care units.
- Describe rationale and evidence to keep parents and babies consistently together from delivery to discharge
- Identify current environmental design for newborn intensive care units that benefit babies, families and staff.
- Compare and contrast evidence based developmental and family centered care programs.
- Implement evidence based infant and family centered developmental care changes in your unit.

Target Audience

This program has been developed to meet the educational needs of healthcare practitioners such as Neonatal Nurses (RNs, NNPs, ARNPs), NICU Therapists, Neonatologists, Pediatricians, Psychologists, Occupational Therapists, Physical Therapist, Speech-Language Pathologist, Family Support Staff, Architects, Hospital Administration, Infant & Child Development Specialists, Social Workers & Counselors, Parents and Family members and other professionals working with high-risk infants, their families or their physical environment.

Competencies to be addressed

PATIENT CARE AND PROCEDURAL SKILLS;
Medical knowledge; Systems-based practice; Professionalism; Interpersonal and communication skills.

DISCLAIMERS:
Final number of continuing education credits maybe changed based on speakers objectives. PAC/LAC reserves the right to amend speakers, topics and scheduling at any time.

GRIEVANCES:
Any grievances may be made to info@paclac.org

Continuing Education

PAC/LAC is accredited by CMA to provide continuing medical education for physicians.

PAC/LAC is an approved provider by the California Board of Registered Nursing, Provider number CEP 5862.

Pending accreditation approval (application in process)
- Occupational Therapy
- Respiratory Care Therapist

Documentation will be provided for self-reporting:
- Physical Therapy
- Architect
- Speech/Language and Audiology Therapists

Certificate Policy:

After completion of the course evaluation, you will be provided with a continuing education certificate. Make sure to save your certificate.

PAC/LAC will assist you with finding your certificate for up to 1 year from the event without cost. For assistance with any certificates older than 1 year from the time of the event, PAC/LAC charges $20 for the first certificate, and $15 for each additional certificate requested each calendar year. A $10 processing fee will be added to requests needing fulfillment within 24 hours.

Equal Opportunity & Accommodations for Disabilities:

PAC/LAC is an Equal Opportunity /Affirmative Action / Equal Access Institution.

For disability accommodations contact PAC/LAC at 818-708-2850, or email Gayane Pakhanyan at gpakhanyan@paclac.org a minimum of fifteen (15) working days in advance of the event

Faculty

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Britt Pados

Carol Jaeger, DNP, RN, NNP-BC

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Christine Lawrence, DNP, RNC-NIC, APN/CNS

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Cynthia Sparer

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Erin Ross, PhD, CCC-SLP

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Mitchell Goldstein, MD, MBA, CML
Joy Browne, Ph.D, PCNS, IMH-E
Vincent C. Smith, MD MPH

Please click on the QR Code then click on the Faculty Tab to view Biography and view our Planning Committee Members

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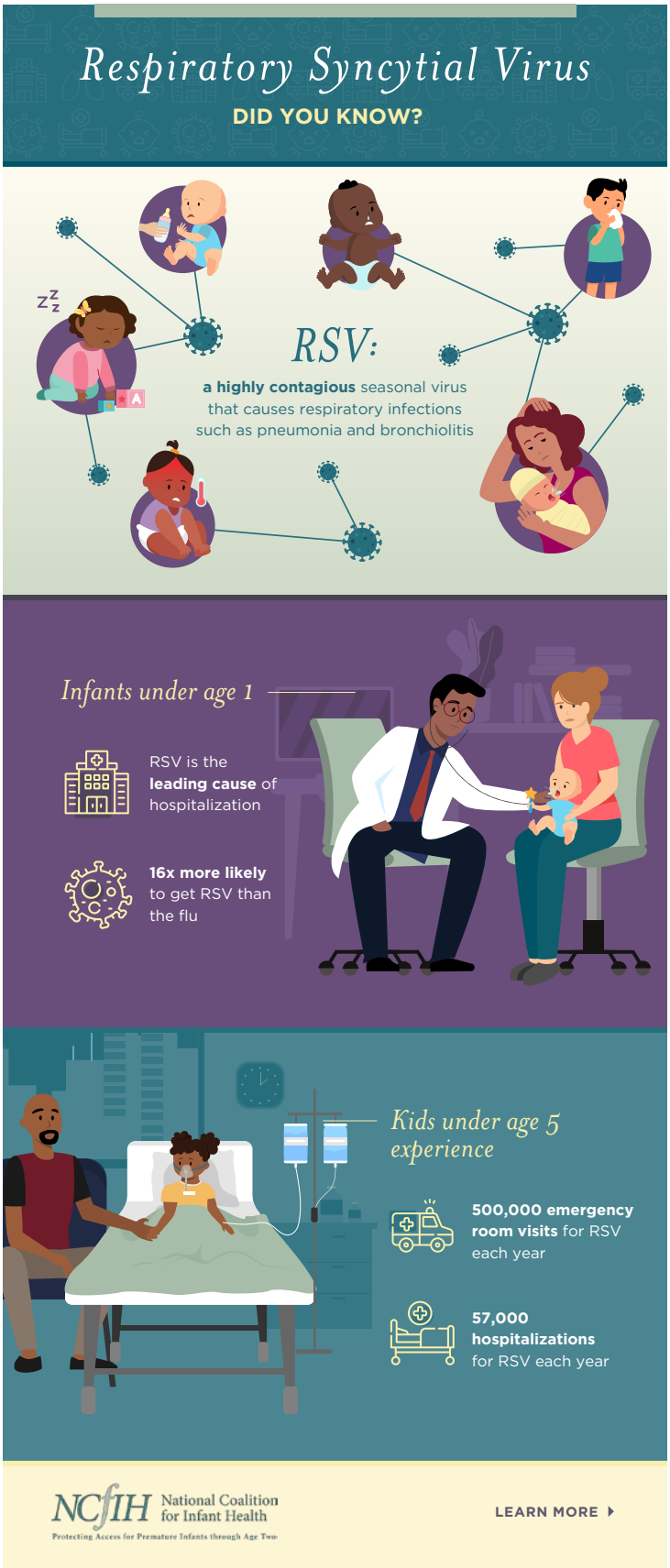
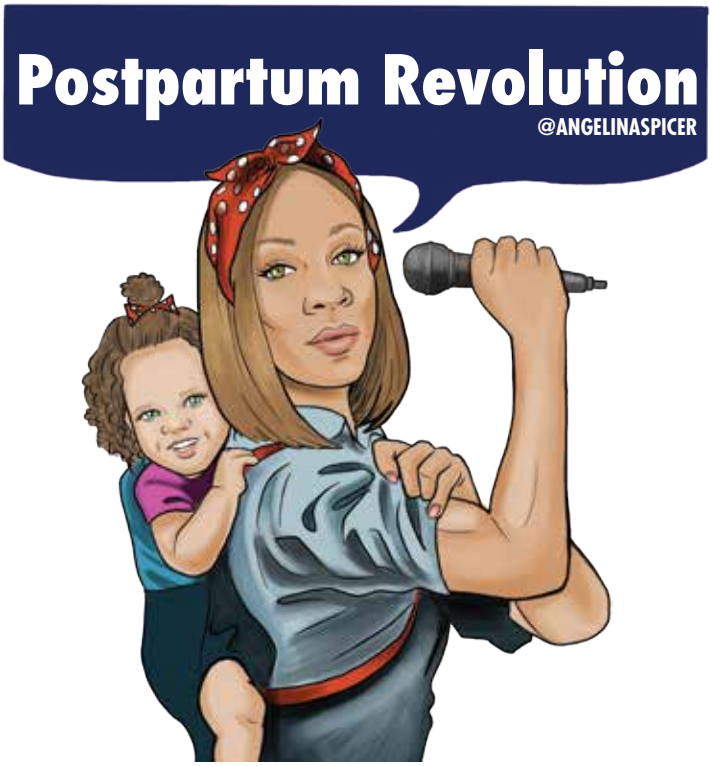


The Gap Baby: An RSV Story



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Jonathan R. Swanson, MD, MSc
Associate Professor of Pediatrics
University of Virginia
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Keeping Your Baby Safe

during the COVID-19 pandemic

How to protect your little one from germs and viruses

Even though there are some things we don't know about COVID-19 yet, there are many more things that we do know. We know that there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

- This is the single, most important thing you can do to stop the spread of viruses.
- Use soap.
- Wash for more than 20 seconds.
- Use alcohol-based sanitizers.

Limit Contact with Others

- Stay home when you can.
- Stay 6 feet apart when out.
- Wear a face mask when out.
- Change your clothes when you get home.
- Tell others what you're doing to stay safe.

Provide Protective Immunity

- Hold baby skin-to-skin.
- Give them your breast milk.
- Stay current with your family's immunizations.

Take Care of Yourself

- Stay connected with your family and friends.
- Sleep when you can.
- Drink more water and eat healthy foods.
- Seek mental health support.

Immunizations Vaccinations save lives. Protecting your baby from flu and pertussis lowers their risks for complications from coronavirus.

WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask makes it hard for them to breathe.
- Masks pose a risk of strangulation and suffocation.
- A baby can't remove their mask if they're suffocating.

If you are positive for COVID-19

- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.

We can help protect each other.
Learn more
www.nationalperinatal.org/COVID-19

National Perinatal Association

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 CrossRef 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

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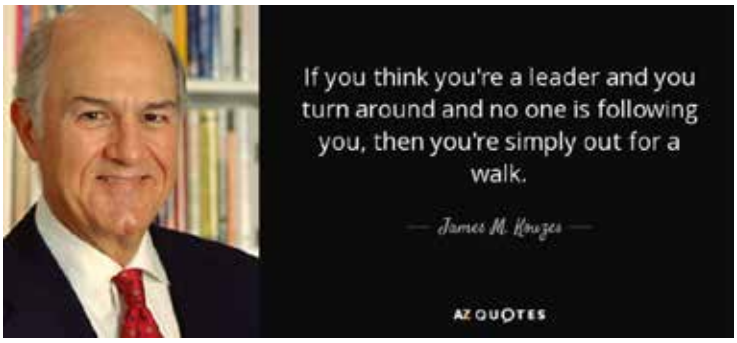
Respiratory Therapy Leadership

Kelly Lewis, BA, RRT-NPS



At a recent California Society for Respiratory Care meeting, it was brought up that both the Respiratory Care Board and the CSRC would like to see more training for Respiratory Therapists on leadership.

This month, the RCB in California changed the continuing education requirements to include courses in leadership and communication, as well as granting credit for attending certain upper-level meetings.

"According to some experts in the field of RT education (who have been around for a while), there is a shortage of RTs prepared for leadership. Leadership is an umbrella term that covers many different jobs within a hospital organization. "

According to some experts in the field of RT education (who have been around for a while), there is a shortage of RTs prepared for leadership. Leadership is an umbrella term that covers many different jobs within a hospital organization.

Leadership can consist of the CEO, COO, CFO, and anyone else in hospital administration. Leadership principles apply to managers, supervisors, classroom and clinical educators, and shift leads.

"Some hospitals have their own 'Management University'. There you will learn the subtle differences between a manager and a leader. A manager's job is to make sure. Ensure everyone's timecard is complete, the schedule is done, and annual competencies are attended to and documented. "

Some hospitals now require RT department heads to have a master's degree.

However, having a Bachelor's or Master's does not automatically make one a leader. Some people seem to be made of leadership material, and others studied hard and grew into a position that commanded respect.

Some hospitals have their own 'Management University'. There you will learn the subtle differences between a manager and a leader. A manager's job is to make sure. Ensure everyone's timecard is complete, the schedule is done, and annual competencies are attended to and documented.

A leader's job is to drive a group of people, such as an RT department, to do better and greater things. To inspire others to think bigger. A leader's job is to encourage solutions and ideas that will benefit all parties involved, and a truly great leader will have other hospitals noticing the impact he or she has made on the staff and the bottom line. A leader's job is to get people to think of how things can be done more cost-efficiently, in a more streamlined manner, more productively, and more satisfying to the staff and the patients. A shift lead or supervisor is there to ensure the shift runs smoothly, that the workload is balanced, and that the next shift can handle the workload with the scheduled number of RTs on.

"A leader's job is to encourage solutions and ideas that will benefit all parties involved, and a truly great leader will have other hospitals noticing the impact he or she has made on the staff and the bottom line. A leader's job is to get people to think of how things can be done more cost-efficiently, in a more streamlined manner, more productively, and more satisfying to the staff and the patients."

All three titles (manager, supervisor, and leader) must work together well. With so much management and making sure, a ther-

apist or even an entire department must *want* to do better and greater things, and a leader is the person who will help expand roles and create opportunities for RTs to practice to the fullest extent of our licenses.

However, so many managers are nearly invisible to staff. Meetings upon meetings, doors closed, work to do, Administration and C-Suite to answer to, who has time to schmooze with staff and think of things to expand The RT's capabilities?

Many hospitals have turned to Unit-based teams and similar ideas, such as Shared Decision-making councils, to get staff involved in problem-solving and building a better department.

"Many well-intentioned managers and leaders have tried to make this a fun and creative day at work for the staff, but without anyone from leadership – or anyone with a Leadership mindset taking part in the discussions, solutions brought to administration are often shot down for reasons staff cannot understand. "

Many well-intentioned managers and leaders have tried to make this a fun and creative day at work for the staff, but without anyone from leadership – or anyone with a Leadership mindset taking part in the discussions, solutions brought to administration are often shot down for reasons staff cannot understand. Moreover, staff who cannot speak freely on a topic stay quiet. That means back to square one.

Here is one example of how Shared Decision Making (SDM) can backfire:

Consider this lesson #1 in leadership.

Hospital A has a department of 48 staff RTs and 3 Pulmonary Rehab/PFT staff. They have been unable to get one meeting, mainly due to their staffing mix. There are 25-day shift RTs and 20 night shifters. Twenty of the day shifts are full-time, five are per diem. 13 night shifters are full-time, and seven are per diem.

At first glance, 25 people on a day seems like plenty to pull from for a rousing good meeting. Nevertheless, the average day requires 7 RTs, the shift lead, a PFT person, the Pulmonary Rehab people, the ABG coordinator, and the Educator.

13 RTs are there to take care of patients. That leaves 12 people to meet and get stuff done, right? What no one took into account is:

- Not all 25 want to be on SDM
- Many of them had a second job taking up two days a week
- If a meeting was to take place on their day off, they had families and kids and sports and laundry, which was technically their day off.

The night shift did not want to be left out but did not want to come in early or stay late for a daytime meeting.

Management tried to schedule an SDM meeting with the RTs on duty on a particular day. Pagers beeping, overheads calling codes, and sick calls coming in - herding cats seemed to be a good descriptor for that meeting. Hospital A called in a regional SDM coordinator to help schedule this SDM meeting, as Nursing was forever boasting in manager meetings how they have replaced their staff meetings with SDM workdays, with no problem simultaneously staffing their units.

"The coordinator, a lovely new grad MBA, looked at the staff schedule and determined she could pull an uninterruptable meeting together. It never occurred to her that people might be unavailable on their day off. Taking a hard line, she mandated that certain people would attend and contribute to these meetings."

The coordinator, a lovely new grad MBA, looked at the staff schedule and determined she could pull an uninterruptable meeting together. It never occurred to her that people might be unavailable on their day off. Taking a hard line, she mandated that certain people would attend and contribute to these meetings. When Miss MBA was told that staff would NOT be quitting their other per diem job to accommodate Hospital A and that per diem jobs had a minimum availability requirement, she was stunned. She met with almost the entire RT staff and was dumbfounded to learn how hard and how much RTs work. How was it that this was so easy with nursing? It was pointed out to her that nursing salaries are generally higher than RT salaries, often allowing RNs to work just one job and add overtime as needed.

Moreover, she was just as shocked to learn how much RTs were in demand. Each meeting with an RT was interrupted by several pages and overheads. Furthermore, she was even more shocked to learn that RT's covered the entire hospital.

Discussion:

How could leadership have remedied this? Hospital A's smaller sister hospital, with a much smaller staff and much lower acuity, managed to get their SDM happening, complete with project ideas and cost savings.

When it came time to present to upper management what the project and results were for Hospital A, the manager had no choice but to send the ABG coordinator and the shift lead to man a table for 2 hours to showcase the department's big plan to save money by doing something they had already been doing.

How would you have handled this situation?

Next month: Leadership case study for Hospital B.

About the author:

Having spent most of my career as an RT Clinical Educator, my positions were technically management, with one foot in leadership and one foot in the clinical setting. I learned a LOT about leadership and management over the years.

Why didn't I ever get my BSRT? Short answer, I made it a point to learn something new daily.

I thought about PA school, but that would make me leave my job

– which I loved. Next thing, 40 years had gone by. I believe there is a lot to be said for experience. Nevertheless, I will tell any newcomer to the RT field to get a BSRT. Furthermore, learn something new every day.

Disclosure: The author has no disclosures.

NT

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Phone: 877-884-4587
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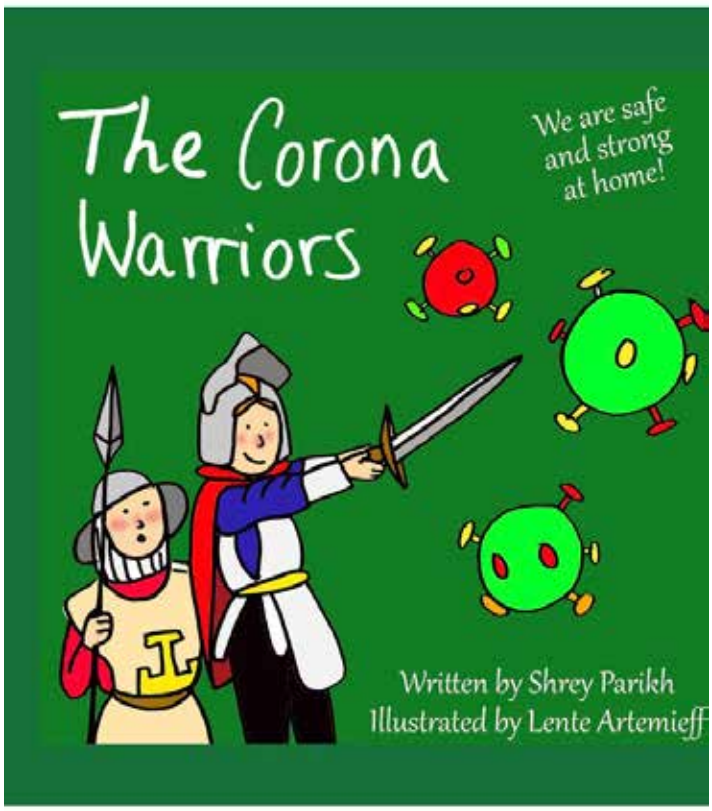

40th Advances in Neonatal and Pediatric Cardiorespiratory Care

Attend in person

Jan 31 - Feb 2, 2024

Location:
Hilton Los Angeles North/Glendale
Glendale, CA

This conference is unique because it focuses on physiology based patient care

Confirmed Guest Speakers

- Frank Ing
- Donald Null
- Colleen Kraft
- Shahab Noori
- Amy B. Hair
- Rangasamy Ram
- Mitch Goldstein
- Kevin Kohutek
- Valarie Y-L Chock
- Cynthia L. Blanco
- Shinjiro Hirose
- Arthur Partikian
- Kimberly Firestone
- Arun Pramanik
- Yogen Singh

Hands-on Practice Sessions for FECHO/LUS/aEEG

WHY YOU SHOULD ATTEND?

- Hands on experience with the latest ultrasound techniques for cardiopulmonary hemodynamic assessment using state of the art simulation equipment.
- Hands on experience with the use of various ventilators including the use of nasal high frequency ventilation.
- Learn how technology can help address health disparities in children.
- Trauma and Critical Care in an austere or out of hospital environment.
- Management of Post Discharge Bronchopulmonary Dysplasia associated Pulmonary Hypertension and pediatric patients with pulmonary hypertension.

GENERAL INFORMATION

Agenda

Agenda 2024
https://paclac.org/wp-content/uploads/2023/08/Agenda-2024-2.pdf

Location

Hilton Los Angeles North/Glendale
100 W. Glenoaks Blvd.
Glendale, CA 91202

In the event in-person attendance is canceled or capacity limits modified per CDC or public health guidelines, the conference will be modified accordingly or presented entirely as a live virtual activity.

Registration

We suggest you register early.

Online – To register online, please go to:

https://www.eventbrite.com/e/40th-advances-in-neonatal-and-pediatric-cardiorespiratory-care-tickets-653266115537?aff=oddtdtcreator

Conference Parking

Self Parking: $10.00

Valet Parking: $29.00

Transportation

Metro: 400 W. Cerritos Ave., Glendale, CA. 91204

UBER/LYFT: Estimate $10-$12.00

The nearest airports are:

Hollywood Burbank Airport (BUR) - 12.8km/8mi

Los Angeles International (LAX) - 43.5km/27mi

Ontario International Airport (ONT) - 72.42km/45mi

Long Beach Airport (LGB) - 56.32km/35mi

Refunds

Cancellations must be received in writing by January 2, 2024 and will be subject to a $75 processing fee. No refunds will be given after that date.

Hilton Los Angeles North/Glendale

Accommodations

We have a room block reserved at the Hilton Los Angeles North/Glendale in Glendale for January 31 2024 through February 2, 2024. Booking your room is simple, just select “Book a Room” to receive your group’s preferred rate. Use link to book your room: Booking Link: https://www.hilton.com/en/book/reservation/deeplink/?ctyhocn=BURHGHF&groupCode=PAC&arrivaldate=2024-01-30&departuredate=2024-01-31&flexibleDates=true&cid=OM,WW,HILTONLINK,EN,DirectLink&fromId=HILTONLINKDIRECT

Rate: $189 +Tax
Group Code: PAC
Arrival Date: January 30, 2024
Departure Date: February 2, 2024
There is a 72hr cancellation policy for reservations.

It is strongly advised that you make room reservations early.

With a stay at Hilton Los Angeles North/Glendale in Glendale (Downtown Glendale), you’ll be within a 15-minute drive of Universal Studios, Hollywood and Crypto.com Arena. This hotel is 11. 9 mi (19. 1 km) from University of Southern California and 8. 4 mi (13. 5 km) from Universal CityWalk.

Popular sites/entertainment in the Glendale and Southern CA locations:

- **Disneyland**
- **Beaches**
- **Americana at Brand**
- **Gene Autry Museum**
- **Los Angeles Zoo**
- **Magic Castle**
- **Descanso Gardens**

Faculty

COURSE DIRECTOR

Donald M. Null, Jr. MD
Emeritus Professor of Pediatrics,
University of Utah

FACULTY

Arun Pramanik, MD, DCH, FAAP, FIAP
Professor of Pediatrics,
LSU Health, Shreveport, LA

Mitchell Goldstein, MD, MBA, CML
Professor of Pediatrics,
Loma Linda University School of Medicine Director,
Neonatal ECMO Program Division of Neonatology,
Department of Pediatrics Loma Linda University Children's Hospital
Loma Linda, California

Rangasamy Ramanathan, MD
Professor of Pediatrics Division Chief, Neonatal Medicine,
LAC+USC Medical Center Director, NPM Fellowship,
Program and NICU Keck School of Medicine of University of Southern California Los Angeles, California

Colleen A. Kraft, MD, MBA, FAAP
Professor of Pediatrics Keck School of Medicine at the University of Southern California Division of General Pediatrics Children's Hospital Los Angeles,
2018 President, American Academy of Pediatrics

Amy B. Hair, MD
Associate Professor
Program Director of Neonatal Nutrition,
Co-Director of NICU Intestinal Rehab Team, Director of MCH Neonatal Nutrition Training Program Division of Neonatology Department of Pediatrics Baylor College of Medicine Texas Children's Hospital

Keith Kohutek, BSRC, RRT-NPS
Bunnell
Senior Clinical Specialist
Pacific Region

Valerie Chock, M.D., M.S. Epi
Arline and Pete Harman Endowed Faculty Scholar,
Stanford Maternal & Child Health Research Institute
Associate Professor of Neonatology
Stanford University School of Medicine

Arthur Partikian, MD
Clinical Associate Professor of Pediatrics & Neurology
Keck School of Medicine of USC
Director, Division of Child Neurology at LAC+USC Medical Center

Shahab Noori, MD, MS CBTI, RDCS
Professor of Pediatrics
Keck School of Medicine, USC
Administrative Director & Section Head, Clinical Research
Fetal and Neonatal Institute
Division of Neonatology
Children's Hospital Los Angeles

Cynthia L. Blanco, MD Professor of
Pediatrics Chief, Division of Neonatology
Dept. of Pediatrics UTHealth San Antonio

Shinjiro Hirose, MD, FACS
Surgeon-in-Chief, UC Davis Children's Hospital
Vice Chair, Department of Surgery,
UC Davis School of Medicine
Professor and Chief - Division of Pediatric General, Thoracic, and Fetal Surgery
UC Davis Health, School of Medicine,
Department of Surgery
Director of Pediatric Surgery – Shriners Hospitals for Children – Northern California

Kimberly S. Firestone MSc, RRT
Director of Respiratory Care and Clinical Outreach Services
Akron Children's Hospital

Yogen Singh, MBBS, MD
Professor, Pediatrics, Neonatology Division, Loma Linda University School of Medicine

Workshops

A. Functional Echocardiography

B. Lung US

C. aEEG /NIRS

D. Noninvasive Ventilation

Dr. Yogen Singh, Dr. Shahab Noori, Dr. Rangasamy Ramanathan, Dr. Mahmood Ebrahimi, Dr. Manoj Biniwale, Dr. Amy Yeh, Dr. Jennifer Shepherd, Dr. Valerie Chock, Kathi S. Randall, MSN, NNP-BC

40th Annual Conference, January 31-February 2, 2024

DESCRIPTION

40th Advances in Neonatal and Pediatric Cardiorespiratory Care Conference (formerly: High-Frequency Ventilation of Infants, Children & Adults) will present high quality education and networking opportunities to healthcare professionals who provide care for critically ill neonatal and pediatric with a focus on advances in therapeutics and technologies. Along with featured speakers, the conference includes abstract presentations on research on advances in these areas.

TARGET AUDIENCE

Geared towards multidisciplinary teams of caregivers from neonatal units that include: neonatologists, pediatricians, neonatal nurse practitioners, advanced pediatric providers, registered nurses and respiratory care practitioners.

Attendees who choose to attend the live virtual activities will receive a virtual meeting link and password to access the live virtual conference.

All registrants (live or virtual) will be provided the opportunity to review recorded sessions up to 3 weeks following the conference.

Attendees will be awarded CME credit commensurate with the extent of their participation in the live activity (either in-person or virtual). The recorded sessions are not certified for CME credit.

DISCLAIMERS:

Final number of continuing education credits maybe changed based on speakers objectives. PAC/LAC reserves the right to amend speakers, topics and scheduling at any time.

GRIEVANCES:

Any grievances may be made to info@paclac.org

FEES

MD and PhD Registration	$500.00
RN, RT & Residents	$300.00
MD & PhD Group Rate 4+ Attendees	$400.00
RN, RT & Residents Group Rate 4+ Attendees	$250.00
Students	$100.00
MD & PhD 1 Day Registration	$200.00
MD & PhD 2 Days Registration	$350.00
RN, RT and Residents 1 Day Registration	$200.00
RN, RT and Residents 2 Day Registration	$250.00

CONTINUING EDUCATION

PAC/LAC is accredited by the California Medical Association (CMA) to provide continuing medical education for physicians.

The Perinatal Advisory Council-Leadership, Advocacy and Consultation (PAC/LAC) is an approved provider by the California Board of Registered Nursing, Provider Number CEP-5862

Application has been made to the American Association for Respiratory Care (AARC) for continuing education contact hours for respiratory therapists.

CERTIFICATE POLICY:

After completion of the course evaluation, you will be provided with a continuing education certificate. Make sure to save your certificate. PAC/LAC will assist you with finding your certificate for up to 1 year from the event without cost. For assistance with any certificates older than 1 year from the time of the event, PAC/LAC charges $20 for the first certificate, and $15 for each additional certificate requested each calendar year. A $10 processing fee will be added to requests needing fulfillment within 24 hours.

COURSE OBJECTIVES

At the conclusion of the program, participants should be able to:

1) Discuss new options for RSV prophylaxis, how does everything fit together.
2) How to improve antibiotic stewardship in the NICU.
3) Describe new concepts in Nasal Ventilation in newborns, including setup strategies and risks.
4) Understand the latest thinking in Neuro monitoring and Neonatal seizures.
5) Identify new strategies in the feeding of the “Nano” preemie.
6) Understand how to use the different ventilator modalities, including Jet, NAVA, HFOV, and their indications.
7) Incorporation of Point of Care Ultrasound in NICU practice.
8) Describe the new technology competencies for pediatric Trainees.
9) Understand new advances in fetal surgery.
10) Understand the benefits of a breastmilk in the management of infants with complex congenital heart disease.
11) Hypoxemic Respiratory Failure in very Preterm, Late Preterm & Term Newborns: Diagnosis and Management Consideration.
12) Understand Management of Pulmonary Hypertension in the preterm, the role of iNO.
13) Relate the complications of PICC lines.
14) Discuss the management of hypotension in the preterm infant.
15) Describe the latest innovation in PDA occlusion.
16) Hands-on workshops with the latest equipment in Neonatal, Pediatric, and Adult Critical Care Medicine including functional cardiac, lung ultrasound, AEEG, and noninvasive ventilation.

Practical Data Analytics for Innovation in Medicine:

Building Real Predictive and Prescriptive Models in Personalized Healthcare and Medical Research Using AI, ML, and Related Technologies

Second Edition

Gary D. Miner, Linda A. Miner, Scott Burk, Mitchell Goldstein, Robert Nisbet, Nephi Walton, Thomas Hill

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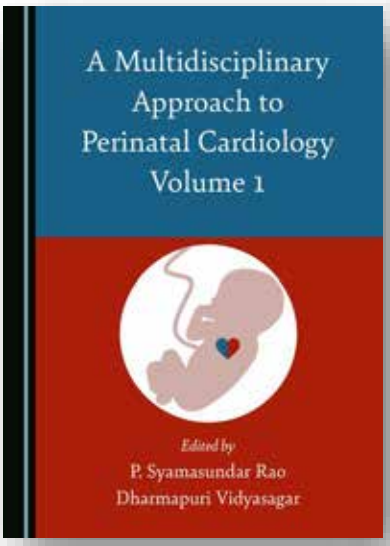
A Multidisciplinary Approach to Perinatal Cardiology *Volume 1*

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



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24/04/2021

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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.

My NICU Network
My Perinatal Network

National Perinatal Association + NICU Parent Network

Online L&D Staff Education Program

Caring for Pregnant Patients & Their Families:

Providing Psychosocial Support During Pregnancy, Labor and Delivery

WWW.MYPERINATALNETWORK.ORG

Continuing education credits provided by

pac-lac

About the Program

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

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

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

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

Program Objectives

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

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

PROGRAM CONTENT

COMMUNICATION SKILLS CEUs offered: 1

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

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

PERINATAL MOOD AND ANXIETY DISORDERS CEUs offered: 1

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

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

PROVIDING ANTEPARTUM SUPPORT CEUs offered: 1

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

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

PROVIDING INTRAPARTUM SUPPORT CEUs offered: 1

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

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

PROVIDING POSTPARTUM SUPPORT CEUs offered: 1

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

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

SUPPORTING STAFF AS THEY SUPPORT FAMILIES CEUs offered: 1

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

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

Cost

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

Contact help@myperinatalnetwork.org to learn more.

Faculty

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

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

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

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

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

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

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

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

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

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

Parent/Patient Contributers:

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

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

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

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

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

CANCELLATIONS AND REFUNDS

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

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

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

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

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

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

EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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

TRAUMA-INFORMED

Both parents and providers are confronting significant...

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

LONGITUDINAL DATA

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

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

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

Partnering for patient-centered care when it matters most.

nann.org nationalperinatal.org

National Association of Neonatal Nurses

National Perinatal Association

FREE ONLINE EDUCATION

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

and

National Perinatal Association
NICU Parent Network

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

Pediatric Chemotherapy Drugs Are in Short Supply

Josie Cooper

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

AfPA | Alliance for Patient Access

IfPA | Institute for Patient Access

"93% of cancer centers have an inadequate supply of at least one drug, according to a National Comprehensive Cancer Network survey. (2) The inability to get prescribed treatments can have life-and-death consequences for young patients and their families. "

Doctors who specialize in children's cancers face a dire shortage (1) of crucial chemotherapy drugs.

In fact, 93% of cancer centers have an inadequate supply of at least one drug, according to a National Comprehensive Cancer Network survey. (2) The inability to get prescribed treatments can have life-and-death consequences for young patients and their families.

Drug Shortages Force Difficult Decisions:

Supplies of chemotherapy drugs like vinblastine, cisplatin, and dacarbazine have been chronically low for months. (3) These drugs are effective at treating childhood cancers, and few alternative treatments exist. Healthcare providers who cannot get what they need must substitute (4) less effective drugs or delay treatment, allowing the disease to progress.

"Supplies of chemotherapy drugs like vinblastine, cisplatin, and dacarbazine have been chronically low for months. These drugs are effective at treating childhood cancers, and few alternative treatments exist."

The most effective treatments are often multi-drug regimens (5), and shortages of any one component may result in substandard care. (6) Replacements are generally less effective and may have more serious side effects, (7) or not be suitable for use in children, leaving doctors out of options. (8)

"The most effective treatments are often multi-drug regimens, and shortages of any one component may result in substandard care. Replacements are generally less effective and may have more serious side effects, (7) or not be suitable for use in children, leaving doctors out of options."

Healthcare providers and patients who rely on these treatments have had to make difficult choices while supplies remain low. (9) Some hospitals and clinics have reduced doses (10) to make at least moderately effective treatments available to more patients. Rationing (11) is also occurring among the most advanced cases, shortening the lives of patients beyond cure so the medications can go to someone (12) with a better prognosis.

Children's chances of survival, already the source of so much pain and worry for their families, are pushed further into question by the scarcity of the most effective medications. (13)

Policy Prescriptions for Improving Supply:

Enormous progress has been made in pioneering these life-saving treatments, but their power is blunted if they are unavailable (8) to every child who would benefit. The challenges (14) that constrain supply include the complexity of the drugs, quality control (15) at

manufacturing facilities, concentration of production (16) among a few companies, and low reimbursement rates (17) for cancer drugs.

"Some hospitals and clinics have reduced doses to make at least moderately effective treatments available to more patients. Rationing is also occurring among the most advanced cases, shortening the lives of patients beyond cure so the medications can go to someone with a better prognosis."

Policy change is necessary to help children who could be cancer-free if adequate drug supplies were available. (18)

"The Biden Administration's attempts to address the shortages have had some success, but shortages that last months have serious consequences for those needing treatment. A more proactive approach to stabilizing the supply chain is essential to prevent future shortages."

The Biden Administration's attempts to address the shortages (19) have had some success, (20) but shortages that last months have serious consequences for those needing treatment. A more proactive approach (9) to stabilizing the supply chain is essential to prevent future shortages. (21) Every child battling cancer deserves the best possible chance at survival, and that starts with ensuring a consistent and reliable supply of essential medications.

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

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Immunizing Yourself Against **COVID-19**

COVID-19 vaccines have been shown to:

- Lessen the severity of symptoms[1]
- Reduce disease transmission[3]
- Reduce risk of mortality[2]
- Make communities healthier and safer[4]

Understanding the Options

COVID-19 vaccines are available for children, adolescents and adults. There are 3 types to choose from.

mRNA VACCINES

New to market, but research has been ongoing since the 1990s.

HOW THEY WORK: **Instruct cells to make COVID-like proteins that trigger the immune system to fight the virus.**

PROTEIN SUBUNIT VACCINES

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

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

VECTOR VACCINES

Used for decades against chickenpox, malaria and tuberculosis.

Use a modified virus, such as a common cold, to teach the body to fight off COVID.

COVID vaccines are recommended for everyone ages 6 months and older, and boosters for everyone ages 5 years and older, if eligible.[5]

Safe and Sound

COVID vaccines have been:

- **Thoroughly tested** through multi-phase trials with tens of thousands of participants[6]
- **Proven safe and effective** for adults as well as children[7]
- **Vetted and approved** by the US FDA and EMA and endorsed by the WHO[8-10]

Get Your Jab

Vaccines are available at your:

- **Doctor's office**
- **Neighborhood pharmacy**
- **Community health center**

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

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GAfPA Global Alliance for Patient Access

NCPA NATIONAL COMMUNITY PHARMACISTS ASSOCIATION

Keeping Your Baby Safe

during the COVID-19 pandemic

How to protect your little one from germs and viruses

Even though there are some things we don't know about COVID-19 yet, there are many more things that we do know. We know that there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

- This is the single, most important thing you can do to stop the spread of viruses.
- Use soap.
- Wash for more than 20 seconds.
- Use alcohol-based sanitizers.

Limit Contact with Others

- Stay home when you can.
- Stay 6 feet apart when out.
- Wear a face mask when out.
- Change your clothes when you get home.
- Tell others what you're doing to stay safe.

Provide Protective Immunity

- Hold baby skin-to-skin.
- Give them your breast milk.
- Stay current with your family's immunizations.

Take Care of Yourself

- Stay connected with your family and friends.
- Sleep when you can.
- Drink more water and eat healthy foods.
- Seek mental health support.

Immunizations Vaccinations save lives. Protecting your baby from flu and pertussis lowers their risks for complications from coronavirus.

WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask makes it hard for them to breathe.
- Masks pose a risk of strangulation and suffocation.
- A baby can't remove their mask if they're suffocating.

If you are positive for COVID-19

- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.

We can help protect each other.

Learn more

www.nationalperinatal.org/COVID-19

National Perinatal Association

The Gap Baby: An RSV Story

A collaborative of professional, clinical, community health, and family support organizations improving the lives of premature infants and their families through education and advocacy.

The National Coalition for Infant Health advocates for:

- **Access to an exclusive human milk diet** for premature infants
- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
- **Clear, science-based nutrition guidelines** for pregnant and breastfeeding mothers
- **Safe, accurate medical devices** and products designed for the special needs of NICU patients

www.infanthealth.org

Stay Informed with iCAN's Newest Developments: Renowned CEO Joe Kiani to Headline 'Ask the Experts' Next Month

Sabina Schmidt Goldstein-Becerra

iCAN
International Children's Advisory Network

Get involved today and Join the iCAN Parent Council!

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

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

Empower Young Voices: Fundraising Campaign Launched on World Children's Day

We are excited to announce a special collaboration for World Children's Day. We have partnered with ICON, joining forces to empower children and amplify their voices on a global stage. As part of this collaboration, we invite you to hear directly from our Uganda Chapter as they share their aspirations to engage in clinical trials and discuss their healthcare knowledge.

https://www.youtube.com/watch?v=dsp_-g2h8sY

"We are also thrilled to kick off a special fundraiser with a powerful mission. Our goal is to send as many children as possible to the 2024 summit in Bari, Italy, where their voices will take center stage in shaping the future of the medical landscape."

We are also thrilled to kick off a special fundraiser with a powerful mission. Our goal is to send as many children as possible to the 2024 summit in Bari, Italy, where their voices will take center stage in shaping the future of the medical landscape.

Children have unique perspectives and experience invaluable in healthcare, and this summit provides an extraordinary platform for them to be heard. Amplifying their voices fosters a more inclusive and responsive medical environment.

Now is the time to make a difference! Your donation will directly contribute to enabling these young voices to participate in the 2024 summit, ensuring that their insights and stories influence decisions that impact the health and well-being of children worldwide. Every contribution counts!https://www.zeffy.com/en-US/donation-form/1df3c5c1-fe86-42d1-b45d-919888c96c14

Ask the Experts

November Topic: Revolutionizing Healthcare: A Journey with Joe Kiani, CEO of Masimo, and His Trailblazing Innovations

In our recent ATE on November 18th, we engaged with Young Adult Rare Representatives. We give a Special thanks to Meg Barker and Sophie Melancon for sharing insights into teen advocacy. It reminds us that advocacy knows no age, and everyone can contribute. The session is recorded for your convenience and available on our website.

Looking ahead, mark your calendars for our upcoming Ask the Experts session on December 9th at 8 AM PST, 11 AM EST. We are excited to announce Joe Kiani as our special guest.

"Joe Kiani is an entrepreneur and inventor responsible for some of the most innovative medical technology in the world. As a dedicated patient safety advocate, Kiani has worked to create medical devices that improve accuracy and efficiency so that clinicians can provide the best care possible."

Joe Kiani is an entrepreneur and inventor responsible for some of the most innovative medical technology in the world. As a dedicated patient safety advocate, Kiani has worked to create medical devices that improve accuracy and efficiency so that clinicians can provide the best care possible.

In 1989, Kiani founded Masimo, which he has built from a "garage start-up" into a globally recognized medical technology company. Mr. Kiani began the company with one goal: to create a pulse oximeter that solved what the medical community had deemed unsolvable—reliable pulse oximetry. He did so by co-inventing Masimo Signal Extraction Technology ® (SET ® **)**, which reliably and accurately reports on a patient's blood oxygen levels. Today, Kiani's invention is considered modern pulse oximetry and is used by hospitals worldwide.

"Ever since Masimo has led the way in inventing monitoring devices that bring the same accuracy to many of the monitoring devices that clinicians and patients alike rely on. With hundreds of patents between Kiani and his team, he is responsible for significant contributions to the medical device industry."

Ever since Masimo has led the way in inventing monitoring devices that bring the same accuracy to many of the monitoring devices that clinicians and patients alike rely on. With hundreds of patents between Kiani and his team, he is responsible for significant contributions to the medical device industry. Kiani has also taken his inventiveness to the consumer side of healthcare. He and his team are tackling problems that bring advanced medical technology into the home with devices like the Masimo Stork baby monitor and Opioid Halo.

Kiani's desire for innovative solutions does not end with his medical device lineup additions. He has also made it part of his mission to advocate for patient safety. In 2013, Kiani founded the PSMF, the Patient Safety Movement Foundation, an organization committed to ending avoidable patient harm and deaths in U.S. hospitals. Kiani also serves on PCAST, the President's Council of Advisors on Science and Technology, where he works with other experts and legislators to find solutions to the country's most pressing patient safety issues.

A graduate of SDSU's College of Engineering, Kiani was invited to speak at the university for the President's Lecture Series and serves on the Dean's Advisory Board. He is committed to inspiring young people to find and follow their passions—no matter their career path. Kiani encourages students to chase what inspires them, to learn at every turn, and to work hard to make the world a better place.

Do not miss this opportunity! Register for the event on December 9th with Joe Kiani, Chairman and CEO of Masimo.

https://www.icanresearch.org/events-1/ask-the-experts-december-2023-with-special-guest-joe-kiani-chairman-and-ceo-of-masimo/form

KIDS Rady chapter's Impactful Volunteerism at the Diabetes Technology Fair

In a heartfelt demonstration of solidarity during Diabetes Awareness Month, our dedicated Rady chapter seized the opportunity to make a positive impact at the Rady Children's Hospital-San Diego Diabetes Technology Fair. This event provided a platform to raise awareness and allowed our volunteers to actively participate and contribute to the well-being of the diabetes community.

"In a heartfelt demonstration of solidarity during Diabetes Awareness Month, our dedicated Rady chapter seized the opportunity to make a positive impact at the Rady Children's Hospital-San Diego Diabetes Technology Fair. This event provided a platform to raise awareness and allowed our volunteers to actively participate and contribute to the well-being of the diabetes community."

During their involvement, our Rady chapter members immersed themselves in diverse activities, gaining profound insights into the multifaceted aspects of diabetes care. The event featured enlightening sessions on music therapy, fostering a deeper understanding of how this creative avenue can positively impact individuals managing diabetes.

"To foster connection and camaraderie, our volunteers engaged in interactive games with participants, creating an inclusive atmosphere that transcended the typical boundaries of healthcare events. The joy and laughter shared during these activities became a testament to the power of the community in navigating the challenges posed by diabetes."

To foster connection and camaraderie, our volunteers engaged in interactive games with participants, creating an inclusive atmosphere that transcended the typical boundaries of healthcare events. The joy and laughter shared during these activities became a testament to the power of the community in navigating the challenges posed by diabetes.

Adding an artistic touch to the proceedings, our volunteers took the lead in face-painting activities, offering attendees moments of joy and self-expression. Beyond the visual appeal, these activities allowed individuals to connect personally, creating lasting memories and reinforcing the supportive community spirit.

The event's highlight was a guest speaker who shared invaluable insights into the intricacies of living with diabetes. This informative session not only expanded the knowledge base of our volunteers but also underscored the significance of continuous education and understanding in supporting those affected by diabetes.

Our Rady chapter's participation in the Diabetes Technology Fair exemplifies our commitment to community engagement, awareness, and advocacy. By actively contributing to events like these, we aim to foster an environment of support, understanding, and empowerment for individuals navigating the challenges of diabetes.

Spotlight on Rhiannon Perry: Elevating Pediatric Patient Voices

We are excited to showcase the impactful work of Rhiannon Perry, formerly iCAN's Young Adult Professional Chair and current member, who recently participated in a session at the 2023 Pediatric Academic Societies Annual Meeting. The session, "Controversies in Pediatric Clinical Trials," was co-led by PTN and iCAN, exploring crucial topics through debate with PTN Investigators and valuable input from Rhiannon and the audience.

"Beyond her advocacy, Rhiannon, a sophomore at Mount St. Mary's University dual majoring in Sociology and Human Services, continues to navigate life with a chronic condition. As the iCAN Young Adult Professional Chair, she fosters a supportive community, addressing important topics like "how to advocate for yourself" in monthly meetings."

Beyond her advocacy, Rhiannon, a sophomore at Mount St. Mary's University dual majoring in Sociology and Human Services, continues to navigate life with a chronic condition. As the iCAN Young Adult Professional Chair, she fosters a supportive community, addressing important topics like "how to advocate for yourself" in monthly meetings.

Her involvement extends to a broader impact, including attending the FDA workshop "Advancing the Development of Pediatric Therapeutics" to share her story and insights on living with a rare disease. Rhiannon's dedication ensures pediatric patient voices, especially those with rare conditions, are heard in regulatory and industry spaces.

The collaboration between Rhiannon Perry and PTN raises awareness of rare diseases and sets the stage for future pediatric patient advocates. iCAN applauds PTN for championing pediatric patient voices and values the ongoing partnership in these crucial endeavors.

Exciting News: 2024 Summit Set to Inspire in Bari, Italy!

We are brimming with enthusiasm as we prepare for our annual summit, and this time, we are heading to the captivating city of Bari, Italy, from July 15th-July 19th! The excitement among our young members is electric as they eagerly look forward to this exceptional event. Nonetheless, we understand that we depend on your support and active participation to ensure this occasion becomes genuinely memorable.

"Our annual summit has a rich history of providing invaluable opportunities for our youth akin to those previously offered by Empath Labs and Pfizer. It is a transformative platform nurturing innovation, compassion, and collaboration within pediatric healthcare."

Our annual summit has a rich history of providing invaluable opportunities for our youth akin to those previously offered by Empath Labs and Pfizer. It is a transformative platform nurturing innovation, compassion, and collaboration within pediatric healthcare.

If you share our belief in the transformative power of education and inspiration, we invite you to be an integral part of this life-changing event. There are two distinct ways you can contribute to the success of the 2024 Summit:

1. Sponsorship Opportunities:

By becoming a sponsor, you assume a pivotal role in supporting the logistical and organizational aspects of the summit. Your generous contribution will enable us to craft an impactful and

seamless experience for all participants. To explore sponsorship opportunities and get involved, please contact Sabina Schmidt Goldstein at sabinaschmidtgoldstein@icanresearch.org.

2. Sponsor a Child's Attendance:

Your sponsorship can directly impact a child's life, affording them a once-in-a-lifetime chance to participate in the Bari Summit. Your support will cover their travel, accommodation, and participation fees, allowing them to immerse themselves in a world of learning, inspiration, and empowerment. To sponsor a child's attendance, please visit our donation page at https://www.icanresearch.org/donate.

"We extend our heartfelt gratitude for considering this opportunity to support the next generation of healthcare leaders. Let us come together in Bari, Italy, and create an unforgettable summit experience that will continue to inspire and empower young minds for years to come! Join us on this incredible journey toward a brighter future in pediatric healthcare."

Together, we can shape a brighter future for pediatric healthcare by nurturing the boundless potential of our young members. Regardless of its size, your contribution will play a significant role in paving the way for innovative advancements in the field.

We extend our heartfelt gratitude for considering this opportunity to support the next generation of healthcare leaders. Let us come together in Bari, Italy, and create an unforgettable summit experience that will continue to inspire and empower young minds for years to come! Join us on this incredible journey toward a brighter future in pediatric healthcare.

Disclosures: *There are no reported disclosures*

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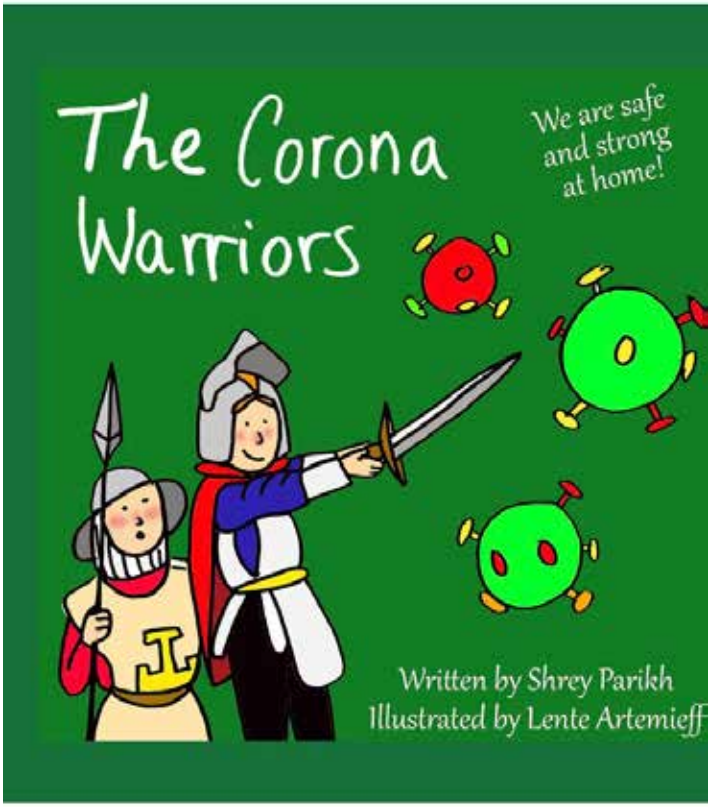
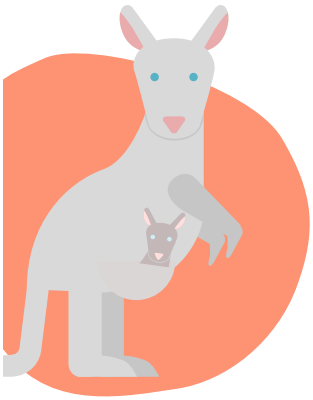


SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

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

PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

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

National Perinatal Association

nicuparentnetwork.org

nationalperinatal.org/skin-to-skin

Your Pregnancy and Substance Use

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

Get Prenatal Care

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

Reduce Your Use

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

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

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

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

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

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

Take Good Care of Yourself

You deserve a healthy pregnancy & childbirth.

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

Your Health Matters

Academy of Perinatal Harm Reduction

www.perinatalharmreduction.org | www.nationalperinatal.org

Education.
Anytime, Anywhere.

Academy of Neonatal Care

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

www.AcademyofNeonatalCare.org.

Keeping Your Baby Safe
from respiratory infections

RSV
COVID-19
colds
flu

How to protect your little ones from germs and viruses

This year is an especially dangerous cold and flu season - especially for vulnerable infants and children. Fortunately, there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

- This is the single, most important thing you can do to stop the spread of viruses.
- Use soap.
- Wash for more than 20 seconds.
- Use alcohol-based sanitizers.

Limit Contact with Others

- Stay home when you can.
- Stay 6 feet apart when out.
- Wear a face mask when out.
- Change your clothes when you get home.
- Tell others what you're doing to stay safe.

Provide Protective Immunity

- Hold your baby skin-to-skin.
- Give them your breast milk.
- Stay current with your family's immunizations.

Take Care of Yourself

- Stay connected with your family and friends.
- Drink more water and eat healthy foods.
- Seek mental health support.
- Sleep when you can.

Get Immunized

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

WARNING

Never Put a Mask on Your Baby

- Because babies have smaller airways, a mask makes it hard for them to breathe.
- Masks pose a risk of strangulation and suffocation.
- A baby can't remove their mask if they're suffocating.

If you feel sick or are positive for COVID-19

- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.

We can help protect each other.
www.nationalperinatal.org/rsv

National Perinatal Association


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


FREE RESOURCES FOR YOUR NICU
Coping During COVID-19
Targeted interventions to improve the mental health of parents, infants, families, and providers
BONDING WITH YOUR BABY
HELPING CHILDREN AND FAMILIES COPE
CAREGIVERS NEED CARE TOO
National Network of NICU Psychologists
nationalperinatal.org/psychologists

Respiratory Syncytial Virus:

How you can advocate for babies this RSV season

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

Identify babies at greatest risk

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

Teach families how to protect

their babies from respiratory infections

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

Use your best clinical judgement

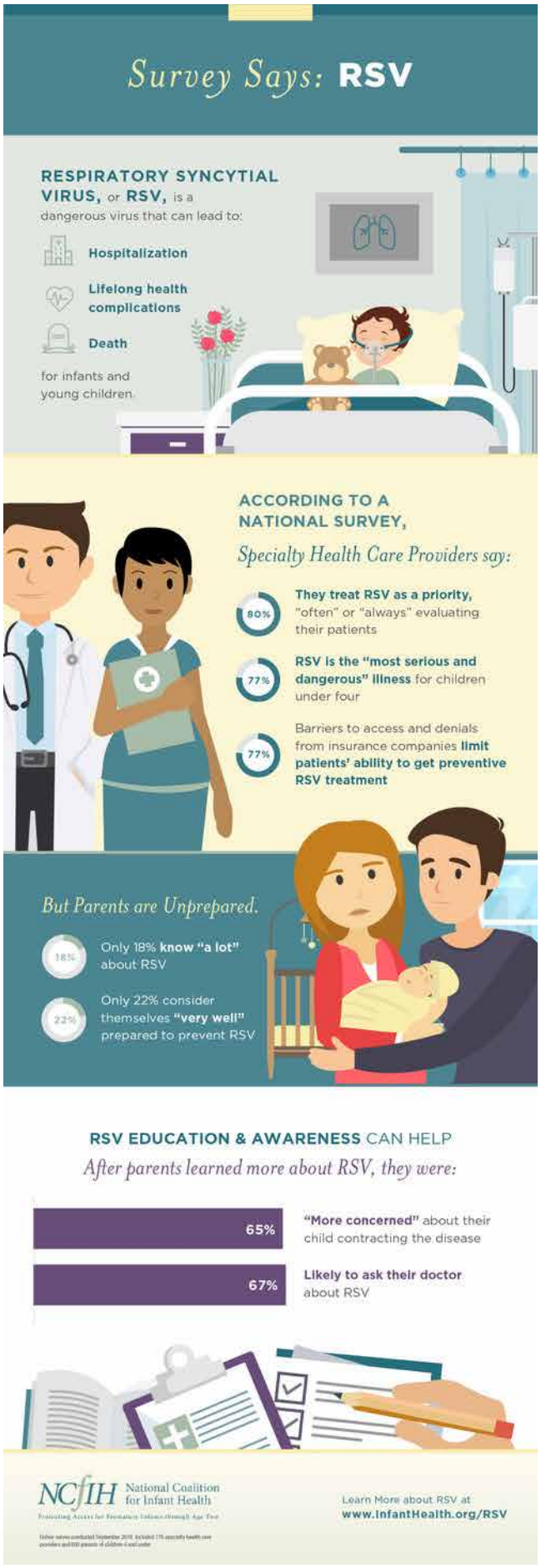
when prescribing RSV prophylaxis

Tell insurers what families need

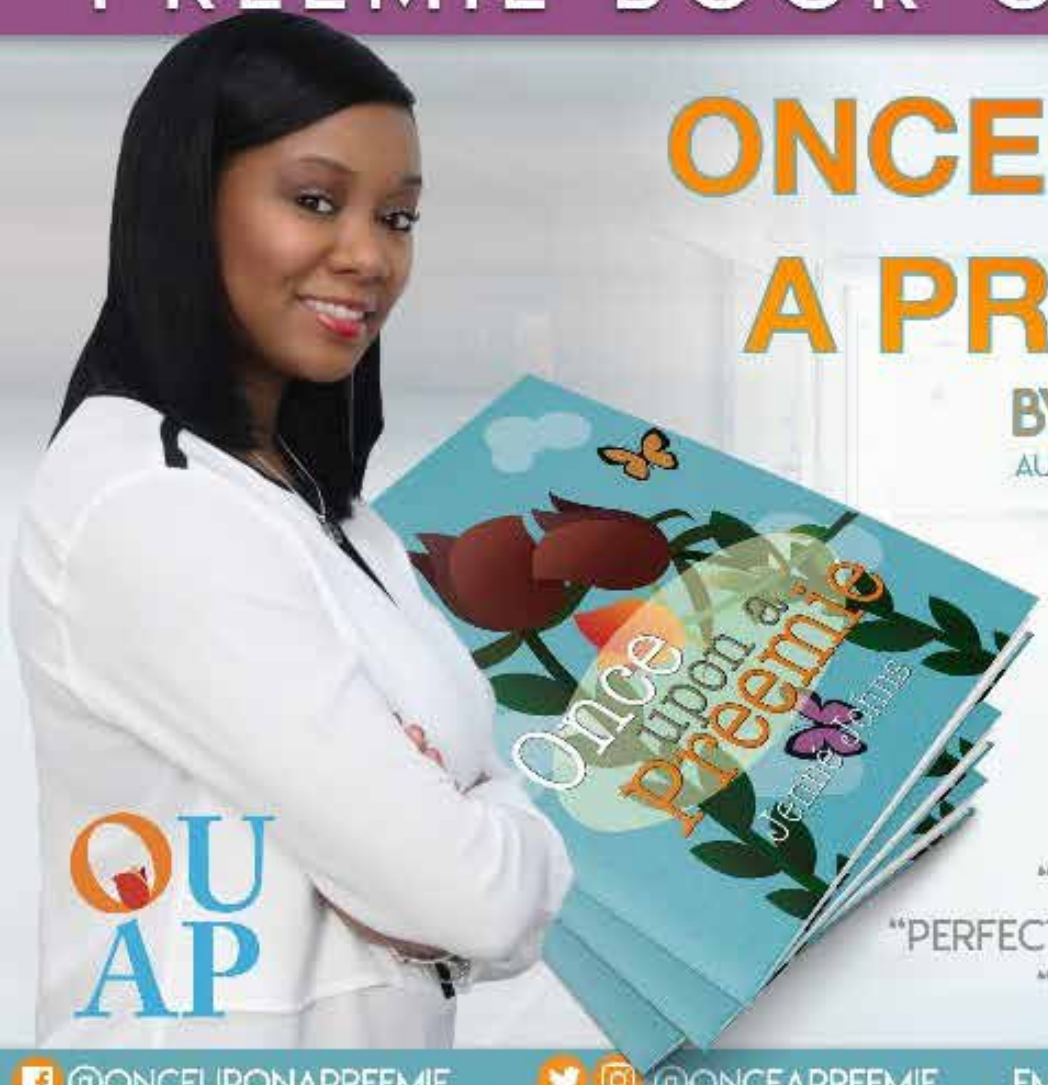
and provide the supporting evidence

National Perinatal Association

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



PREEMIE BOOK ON SALE



ONCE UPON A PREEMIE

BY JENNÉ JOHNS

AUTHOR | SPEAKER | ADVOCATE

QUAP

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

@ONCEUPONAPREEMIE @ONCEAPREEMIE EMAIL: HI@ONCEUPONAPREEMIE

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

SPEAKING ENGAGEMENTS

PREEMIE PARENT ALLIANCE SUMMIT
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Still a **Preemie?**

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

But that's not every preemie's story.

Born between 34 and 36 weeks' gestation?

STILL A PREEMIE

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

Jaundice · Feeding issues · Respiratory problems

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

Born preterm at a "normal" weight?

STILL A PREEMIE

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

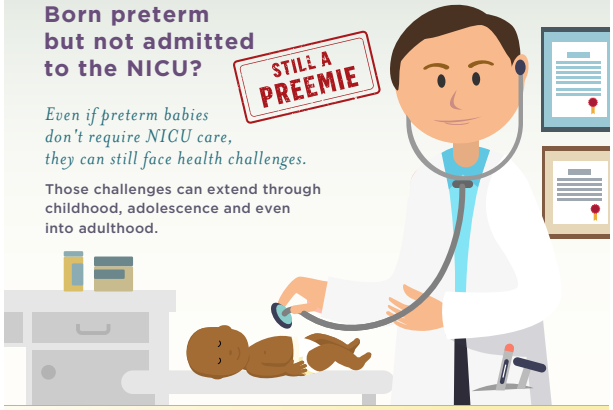
But because some health plans determine coverage based on a preemie's weight, **families of babies that weigh more may face access barriers and unmanageable medical bills.**

Born preterm but not admitted to the NICU?

STILL A PREEMIE

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

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



Some Preemies

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

All Preemies

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

NCfIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

OPIOIDS and NAS

When reporting on mothers, babies, and substance use

LANGUAGE MATTERS

I am not an addict.

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

I was exposed to opioids.

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

NAS is a temporary and treatable condition.

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

My mother may have a SUD.

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

My potential is limitless.

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

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

National Perinatal Association

FREE Online CE Activity

Nurses: parents trust you.

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

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

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

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

SAFE TO SLEEP®

Compiled and Reviewed by Sandeep Lankireddy, BA, OMS IV

Regional Anesthesia for Neonates

NEWS PROVIDED BY

American Academy of Pediatrics

by Theodora E. A. Wingert, MD, Diana Hekmat, MD, and Ihab Ayad, MD

Pain management in neonates and infants has many unique and important facets, particularly in former preterm infants. Untreated pain and surgical stress in neonates are associated with myriad negative sequelae, including deleterious inflammatory, autonomic, hormonal, metabolic, and neurologic effects. Meanwhile, opioid side effects are also very impactful and affect multiple systems and pathways, particularly in the neonatal and infant population. Regional anesthesia presents a unique opportunity to provide highly effective analgesia; prevent deleterious signaling cascade pathways within the endocrine, immune, and nervous systems from occurring; and create conditions to facilitate reduced reliance on opioids and other analgesics. In some cases, clinicians can completely avoid general anesthesia and systemic anesthetics. This review will discuss some of the unique aspects of pain management in neonates and infants and provide an overview of the different regional anesthetic options available, namely, spinal anesthesia, epidural anesthesia, and peripheral nerve blocks.

NT

How Noise Affects Children

NEWS PROVIDED BY

American Academy of Pediatrics

by Sophie J. Balk, MD, FAAP

Many parents know that loud noise can hurt a child's hearing. Very loud sounds—from fireworks or firearms, for example—can cause immediate damage. Using personal listening devices for music, videos and classes, can also cause damage if they're too loud.

But we are also learning that too-noisy environments can have harmful effects that go beyond hearing. Read on to learn more.

What is noise pollution (environmental noise)?

Environmental noise—also known as "noise pollution"—comes from sources around us. These include road traffic, airplanes and airports, railroad trains and wind farms. Indoor sources of noise such as TVs and appliances also can be too loud.

What are the effects of environmental noise on kids?

Environmental noise is less likely to cause hearing problems than loud noise from personal devices and activities such as concerts, sports games, dances and celebrations. Still, environmental noise can have harmful effects on children's learning, behavior and sleep.

Compared to adults, children may be more vulnerable to noise effects because they are growing and developing. They may also have less control over where they spend time. Children living in less wealthy environments are more likely to be exposed to higher environmental noise levels.

Some of the ways environmental noise can affect children include:

- **Learning**

  Too-noisy classrooms and child care settings can affect how children learn. Reading, remembering, and doing well on tests can be difficult when there is too much background noise or noisy conversations. Planes flying overhead can make it hard to understand what the teacher is saying. Teachers may need to interrupt lessons to wait for planes to pass. Feeling annoyed by noise can cause kids to lose focus on lessons.

  Also, for infants and children learning how to talk, a noisy environment can make it harder for them to understand speech.

- **Play**

  Environmental noise can influence how children play, which is important for their development. Many children are exposed to background noise from TVs left on even if the child isn't actively watching. When TVs are left on, babies and toddlers don't focus as much or as long on playing with toys.

- **Sleep**

  Noise often interferes with sleep. According to the World Health Organization, millions of people suffer worse sleep caused by nighttime noise from road traffic and other sources. Research done mainly in adults shows that even low levels of nighttime environmental noise cause more body movements, awakenings and other sleep disturbances. These happen even though the sleeping person is not aware of them. Poor sleep can cause daytime sleepiness and affect children's learning.

- **Stress**

  Too much noise can cause a person's body to have a stress response. We can see this in premature babies in neonatal intensive care units (NICUs), for example. When these babies are exposed to alarms, telephones, ventilators, pumps, monitors and incubators, there can be changes in their breathing, heart rates and oxygen levels. Noise can increase children's blood pressure, and in adults, long-term noise exposure even raises the risk of having a heart attack.

How does noise affect children with special sensitivities?

Some children with special sensitivities—such as autism spectrum disorder (ASD), attention-deficit hyperactivity disorder (ADHD), sensory processing disorders or learning differences—may be disturbed by sounds or noises that usually don't bother children without these conditions.

How to reduce environmental noise: 7 tips

More research is needed to learn more about how the effects of noise build up over a lifetime. In the meantime, we know enough to take steps to decrease children's exposures.

Many NICUs, hospitals, schools and child care settings have worked to lower noise levels. As a parent, you can also take steps to lessen the family's exposure to environmental noise. Some tips:

1. Reduce the volume on TVs, computers, radios. Turn off devices when they're not in use.
2. Remember that headphones, earbuds and other personal devices can be sources of harmful loud noise. If your kids are nearby, they should be able to hear what you're saying even when using their devices. If not, have then turn down the volume.
3. Create a quiet room at home for play and other family activities. Quiet is important for health and learning.
4. If your family is moving to a new home, consider the neighborhood's noise level. Look into nearby airport flight paths or wind turbines, for example, when deciding where to live.
5. If your family goes out to eat, choose a quieter restaurant to make it easier to talk to each other.
6. If your child has a condition such as ASD or ADHD, consider using noise-cancelling headphones or hearing-protection earmuffs, which reduce harmful outside noises.
7. Infant sleep machines ("white noise" machines) sometimes are used to drown out environmental noise. Some machines can produce hazardous noise levels. If you use a sleep machine, place it as far away from the baby's head as possible and use it for a short time only.

NT

State Statutory and Regulatory Language Regarding Prenatal Syphilis Screenings in the United States

NEWS PROVIDED BY

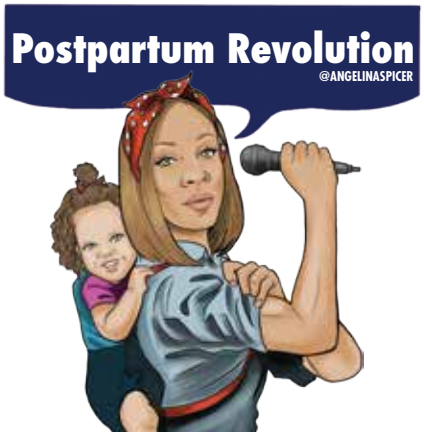
Center for Disease Control and Prevention

Executive Summary

The number of reported cases of congenital syphilis (CS) has increased every year since 2012 in the United States. From 2017 to 2021, the CS rate increased 219% from 24.4 to 77.9 cases per 100,000 live births.1 CS prevention relies on screening and treatment of pregnant women found to have syphilis. Many states' laws require syphilis testing of pregnant women. State policies regarding prenatal syphilis screening may be one way to address rising CS rates through increased screening.

This webpage includes the text of state laws requiring screening of pregnant women for syphilis in the United States. The method for performing the legal analysis underlying the information on this page is based on a 2018 peer reviewed article published in the Maternal and Child Health Journal.2 This webpage expands on that article through regularly updated legal assessments. The most recent legal assessment was in November 2023. To better understand these policies, you can also review the text of the laws underlying the analysis, which are included on https://www.cdc.gov/std/treatment/syphilis-screenings.htm.

NT



Umbilical cord milking appears to be safe in preterm infants born after 28 weeks

NEWS PROVIDED BY

National Institute of Health

November 9, 2023

Findings from NIH-funded study suggest that technique may enable faster response than standard procedure.

What

A treatment to move blood from the umbilical cord into an infant's body may provide a safe option for preterm infants born after 28 weeks who need rapid support, suggests a study supported by the National Institutes of Health. The procedure, called umbilical cord milking, involves gently squeezing the cord between the thumb and forefinger and pushing the blood into the newborn's abdomen. The new findings suggest that concerns raised by a 2019 study of infants born before 28 weeks—which concluded that umbilical cord milking might increase the risk of bleeding inside the brain—do not apply to preterm infants born after 28 weeks. The current study appears in *Pediatrics*.

The standard procedure, delaying cord clamping while blood naturally flows into the infant's body, takes 30 to 180 seconds. However, cord milking, takes about 20 seconds, reducing delay for infants who need immediate assistance, such as respiratory support. Both procedures allow for umbilical cord blood to reach the infant's body before clamping, reducing the risk of anemia and other complications seen among infants receiving immediate cord clamping and cutting.

The study was conducted by Anup Katheria, M.D., of the Sharp Mary Birch Hospital for Women & Newborns in San Diego, and colleagues in the United States, Canada and Europe. It was supported by NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

More than 1,000 infants were randomly assigned either to umbilical cord milking or delayed cord clamping. Rates of severe intraventricular hemorrhage (bleeding inside the brain) and/or death did not differ significantly between the two groups (just over 1%). Moreover, the rates of overall intraventricular hemorrhage were also similar between the groups (approximately 12%). The researchers will follow all the infants in the study for two years to observe longer term outcomes.

Who

Nahida Chakhtoura, M.D., chief of the NICHD Pregnancy and Perinatology Branch, is available for comment.

Article

Katheria, A. Umbilical Cord Milking versus Delayed Cord Clamping in Infants 28-32 weeks: A Randomized Trial. Pediatrics.2023.

About the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD):

NICHD leads research and training to understand human development, improve reproductive health, enhance the lives of children and adolescents, and optimize abilities for all. For more information, visit https://www.nichd.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.

Keywords: Case report; Cerebrospinal fluid; Infants; Salmonella derby.

NT

Effects of COVID-19 on Maternal and Neonatal Outcomes and Access to Antenatal and Postnatal Care, Malawi

NEWS PROVIDED BY

Center for Disease Control and Prevention

by Leonard Mndala et al.

September 14. 2023

Abstract

We used national facility-level data from all government hospitals in Malawi to examine the effects of the second and third COVID-19 waves on maternal and neonatal outcomes and access to care during September 6, 2020–October 31, 2021. The COVID-19 pandemic affected maternal and neonatal health not only through direct infections but also through disruption of the health system, which could have wider indirect effects on critical maternal and neonatal outcomes. In an interrupted time series analysis, we noted a cumulative 15.4% relative increase (63 more deaths) in maternal deaths than anticipated across the 2 COVID-19 waves. We observed a 41% decrease in postnatal care visits at the onset of the second COVID-19 wave and 0.2% by the third wave, cumulative to 36,809 fewer visits than anticipated. Our findings demonstrate the need for strengthening health systems, particularly in resource-constrained settings, to prepare for future pandemic threats.

NT

Overdose deaths increased in pregnant and postpartum women from early 2018 to late 2021

NEWS PROVIDED BY

National Institute of Health

November 22, 2023

Among those aged 35 to 44, overdose mortality more than tripled during this period, NIH study reports.

Drug overdose deaths rose markedly between January to June 2018 and July to December 2021 among 10- to 44-year-old girls and women who were pregnant or pregnant within the previous 12 months, according to a new study by researchers at National Institute on Drug Abuse (NIDA) at the National Institutes of Health. Overdose mortality more than tripled among those aged 35 to 44 during the study period, from 4.9 deaths per 100,000 mothers aged 35 to 44 with a live birth in the 2018 period to 15.8 in the 2021 period. Over 60% of these pregnancy-associated overdose deaths occurred outside healthcare settings, though often in counties with available healthcare resources, such as emergency and obstetric care. Published today in JAMA Psychiatry, the findings suggest that, while treatment is available to pregnant women with substance use disorders, significant barriers – such as penalization, stigma, discrimination, and limited socioeconomic resources – may obstruct the path to care, the authors note.

"The stigma and punitive policies that burden pregnant women with substance use disorder increase overdose risk by making it harder to access life-saving treatment and resources," said Nora Volkow, M.D., NIDA Director and senior author on the study. "Reducing barriers and the stigma that surrounds addiction can open the door for pregnant individuals to seek and receive evidence-based treatment and social support to sustain their health as well as their child's health."

While it's well documented that overdose mortality rose sharply in association with the COVID-19 pandemic, little is known about the specifics of pregnancy-associated overdose mortality during this time. Moreover, the differences in the characteristics of pregnant and postpartum women who died from a drug overdose and those who died of childbirth-related, or obstetric, causes are unknown.

To fill these knowledge gaps, NIDA scientists analyzed U.S. data on multiple cause of death, county-level area health resources, county health rankings, and U.S. births before and during the COVID-19 pandemic – January to June 2018 and July to December 2021. This study focused on individuals aged 10 to 44 belonging to three groups: 1,457 at the pregnant and postpartum stage who died from a drug overdose involving the most common drugs of misuse, excluding alcohol and antidepressants; 4,796 who died of obstetric causes; and 11,205 who died from a drug overdose and were not pregnant in the past 12 months. The study assessed trends in "pregnancy-associated mortality ratios," which were defined as the number of deaths during or within one year of the end of pregnancy per 100,000 mothers with a live birth.

The researchers found that overdose mortality ratios increased substantially for women who were pregnant or postpartum during the study period, across almost all examined age, racial/ethnic, educational, and marital status groups. The largest increase was observed in pregnant and postpartum women aged 35 to 44, for whom overdose mortality ratios tripled—from 4.9 in the 2018 period to 15.8 in 2021 period. Among those aged 10 to 44 who died between 43 days and one year after pregnancy, overdose mortality ratios almost doubled from 3.1 in the 2018 period to 6.1 in the 2021 period.

Girls and women who died from a drug overdose during pregnancy, compared to those who died from obstetric causes, were more likely to be aged 10 to 34 (75.4% compared with 59.5%), be non-college graduates (72.1% versus 59.4%), be unmarried (88.0% vs. 62.1%), and die in "non-home, non-healthcare settings" (25.9% vs. 4.5%). Unlike most individuals who died from obstetric causes and in a hospital inpatient setting, 60% to 73% of pregnant and postpartum women who died from an overdose were either at home or other non-healthcare places.

Overdose deaths among pregnant and postpartum women also often occurred in areas where there were medical services available, but potentially not accessed. Pregnant and postpartum women who died from an overdose, compared to those who died from obstetric causes, were more likely to reside in counties with doctors practicing obstetrics and gynecology ranking within the 48 to 75th percentile among U.S. counties (32.9% vs. 25.5%). Roughly 51% to 53% of pregnant and postpartum women who died from overdoses resided in counties with at least two general hospitals ranked at the 95th percentile for obstetric care among U.S. counties, and 58% to 67% resided in counties with numbers of practicing psychiatrists per 100,000 county residents ranking over the 75th percentile among U.S. counties.

"These results reflect the persistent national overdose crisis and demonstrate that pregnancy is an urgent time for interventions that can reduce the risk of overdose," said Emily Einstein, Ph.D., NIDA Science Policy Branch Chief and study co-author. "Stigmatizing and penalizing women with substance use disorders makes it very hard for them to seek help for drug use and receive routine prenatal care. Effec-

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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.

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

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and

National Perinatal Association
and NICU Parent Network
mynicunetwork.org

tive treatments and medical services exist – unfettered access is needed to help mothers and children survive."Previous research has shown that pregnant women are less likely to receive an appointment to an addiction treatment center; have difficulties obtaining child care at treatment facilities; and in many states, face punitive policies for their substance use, including fines, loss of custody of their children, involuntary commitment, and incarceration. In states with punitive policies, pregnant women who use drugs have a lower likelihood of receiving timely or quality care. These policies can result in adverse outcomes for their families as well, as children in states with these punitive policies are less likely to be reunited with their parents than those in other states – a system that disproportionately affects Black and American Indian/Alaska Native children.

Future studies are needed to better understand and address these disparities, and to build upon accumulating evidence on the association of overdose mortality in pregnant and postpartum women with poverty and lack of adequate healthcare. More research is also needed on the risk and protective factors of pregnancy-associated mortality among people with and without drug use.

For more information on substance and mental health treatment programs in your area, call the free and confidential National Helpline 1-800-662-HELP (4357) or visit www.FindTreatment.gov.

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.

NT

Parents of Young Children: Why Your Screen Time Matters, Too

NEWS PROVIDED BY

American Academy of Pediatrics

by Joanna Parga-Belinkie, MD, IBCLC, FAAP

Parents today are more pressed for time than any other generation. Smartphones can be a way to connect with others and make our lives easier. But using them too much can get in the way of parent-child interactions. And research suggests that too much tech and too little talk could delay communication skills development.

After all, the most important thing for your child's development and communications skills is you. Still, it can be hard sometimes to separate from hand-held devices and focus intently on the baby, toddler or preschooler in front of you.

Read on for reasons to keep your phone checking in check, along with tips to build in tech-free time to engage with your little ones.

Why YOU can't be replaced by technology

Did you know that 80% of a child's brain development occurs by the time they are 3 years old? The development of speech and language skills is strongly linked to thinking ability, social relationships, reading, writing and school success. This development happens when parents and children regularly talk and communicate both with words and without words (verbal and nonverbal interactions).

Nothing can take the place of these interactions when it comes to our children's learning and speech and language development. That's why it is important to focus on quality real-life face time.

Below are some ideas to help you do this. You can also create a family media plan at HealthyChildren.org/MediaUsePlan to help create consistent expectations and habits around media use for you and your children.

3 screen-free ways to engage with your young children and enhance their communication skills.

1. **Play together.** There is a lot of developmental power in playing low tech games with your children. Seemingly simple games such as peekaboo, pat-a-cake, and Itsy-Bitsy Spider serve an important purpose: they promote face-to-face interaction. They teach turn-taking and reinforce essential parts of bonding and conversation. Activities like blowing kisses, waving bye-bye and clapping all help a child build social interaction and conversation skills.
2. **Share a common focus:** Read a book together, share a toy, look at the same dog in a park. When two people focus on the same thing at the same time, they engage in what is called "joint attention." This is a vital part of communication and a form of play. (See a theme here? We want you to have fun with this!). Joint attention helps build important social skills. It allows a child to share an experience with another person and see someone else's point of view. Sharing focus lets a child know you

are interested in what they say or do. When parents are on their cell phones, they are not fully focused on the same points of attention as their child, and miss key opportunities to build this skill.

3. **Serve and return:** Speaking and understanding words are just part of the communication puzzle. Nonverbal signals such as eye contact, facial expressions, gestures and body language give additional information. Even in infancy, a child can recognize emotions and understand the intent of a message. When you use a smartphone, these nonverbal cues to your child are often reduced or stopped completely. As a result, they can miss out on important nonverbal signals that are part of learning to communicate.

Parents focused on their phones may also miss information their kids are trying to send them.This may be through pointing, gesturing or staring, for example. These are subtle, but vital signals that young children send, especially when they don't speak many words yet. So, when your young child throws you a ball, toss that ball back. Show them you are listening to them and watching them. Teach them that their actions matter to you.

Tips for managing tech overload

It may be hard to keep your phone out of sight completely, especially since most parents also use their phones to take photos and videos of their kids. But carving out some boundaries to promote technology use in a healthy way can help. Here are some suggestions:

- **Create regular tech-free times:** As part of the daily routine, make devices such as TVs, phones, computers, games or other electronic devices off limits at specific times. Before bedtime is an important one, for example. In addition, more extended breaks from technology each day are beneficial, especially for families with very young children.

You can also limit digital distractions by creating tech-free rooms or zones in the house, such as the kitchen table. If you're sitting around the table texting while eating, you are not connecting. Setting aside the phone signals to kids that we are available and present. This lays the groundwork for your child entering the 'tween and teen years, when it is crucial to keep the lines of communication open.

- **Designate tech-free outings:** A trip to the farm or the zoo, a playdate in the park, a day at the pool. Most parents love taking pictures of their kids to share, but try to let some activities go undocumented. Putting the phone away allows everyone to enjoy fun, uninterrupted moments and focus on talking and communicating with each other.
- **Use technology in an interactive way:** If you are using a phone or other device, use it with your kids—together. Talk about what you see, ask them questions, and otherwise engage them face-to-face.
- **Set your own timers:** Parents often say they use their phone to "escape" a bit from parenting stress, but the endless feed can lead to more time scrolling than they intended! If you need a quick break from your kids, set a timer so that you remind yourself to reengage with them.

See Beyond Screen Time: Help Your Kids Build Healthy Media Use Habits for more ideas.

Remember: your young child looks to you

Communication skills are critical to your child's development. Young children gain communication and social skills through listening, talking, reading, singing and playing (here it is again—a reminder to have fun!) with their parents. These valuable interactions can be lost while you are on a smartphone.

While your smartphone plays an important role in your life, find time to interact with your child without it. Your child may not thank you, but you'll be thankful you took the time to help them grow and learn.

NT

OPIOIDS and NAS
When reporting on mothers, babies, and substance use
LANGUAGE MATTERS

I am not an addict.

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

I was exposed to opioids.

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

NAS is a temporary and treatable condition.

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

My mother may have a SUD.

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

My potential is limitless.

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

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

National Perinatal Association

Screening newborns for deadly immune disease saves lives

NEWS PROVIDED BY

National Institute of Health

June 20, 2023

Research funded and jointly led by NIH may prompt more countries to screen for SCID.

Introducing widespread screening of newborns for a deadly disease called severe combined immunodeficiency, or SCID, followed by early treatment boosted the five-year survival rate of children with the disorder from 73% before the advent of screening to 87% since, researchers report. Among children whose disease was suspected because of newborn screening rather than illness or family history, 92.5% survived five years or more after treatment. These findings demonstrate for the first time that newborn screening facilitated the early identification of infants with SCID, leading to prompt treatment before life-threatening infections occurred and thereby increasing the proportion of children who survived to age 5 or beyond. Researchers at the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, and colleagues led the retrospective study, which The Lancet published today.

"This study definitively shows that population-wide newborn screening for SCID has made it possible to save the lives of many more children with the disorder than ever before," said NIAID Acting Director Hugh Auchincloss, M.D. "We hope these findings will encourage more countries to screen newborns for this devastating disease."

SCID is a rare disorder caused by mutations in genes involved in the development and function of infection-fighting immune cells. Infants with SCID appear healthy at birth but are highly susceptible to severe infections. The condition is fatal, usually within the first year or two of life, unless the infant receives an immune-restoring treatment such as a stem-cell transplant, gene therapy or enzyme therapy. Forty to 80 babies in the United States and Canada are diagnosed with SCID annually. The number of babies born with the disorder globally is unknown because most countries do not yet screen for SCID. Incidence ranges from 1 infant per 2,000 live births in regions where inbreeding is common to 1 per 60,000 live births where it is not.

NIH scientists developed a newborn screening test for SCID in 2005. The test's gradual adoption has made it possible to detect the disease in infants before symptoms appear, take steps to prevent infection, and provide life-saving treatment early. Individual U.S. states and Canadian provinces began screening newborns for SCID in 2008, starting with a pilot program in Wisconsin. By the end of 2018, all U.S. states, Washington, D.C., and two U.S. territories were performing newborn screening for the disorder. Seven Canadian provinces and territories currently do so.

Several studies previously suggested that population-wide newborn screening for SCID improved survival, but none proved it. For this reason, the NIH-funded Primary Immune Deficiency Treatment Consortium (PIDTC) set out to definitively measure whether the advent of population-wide newborn screening for SCID had improved the overall survival of infants with the disease. The PIDTC is part of NCATS' Rare Diseases Clinical Research Network and consists of 47 centers in North America with the shared goal of improving health outcomes of people with rare, life threatening, inherited disorders of the immune system.

PIDTC investigators analyzed data on more than 900 children with confirmed SCID who received treatment for the condition with a transplant of blood-forming stem cells from a non-genetically matched donor at one of 34 sites in the United States or Canada between 1982 and 2018. The researchers examined the five-year overall survival rate of these children from 2010–2018, when state- and province-wide newborn screening was in effect at participating sites, compared to earlier time periods. The researchers excluded infants who received stem-cell transplants from genetically matched sibling donors from the analysis, because these children had high overall survival rates throughout the study period.

The five-year overall survival rate for children with SCID who received a stem-cell transplant from a non-genetically matched donor remained steady at 72% to 73% from 1982 to 2009 despite advances in clinical care, then increased to 87% during the years 2010 to 2018. Among children whose disease was first suspected based on the result of newborn screening rather than on illness or family history of SCID, and who received a transplant between 2010 and 2018, 92.5% survived to age 5 or beyond.

Previous research had shown that being younger than 3.5 months at the time of transplant and not having an active infection at that time improved five-year survival rates for children with SCID. An analysis of the PIDTC data demonstrated that both these factors were much more common in the era of newborn screening and drove the increase in the proportion of children who survived to age 5. In addition, in 2010–2018 compared to previous decades, the percentage of babies with SCID who had never had an infection by the time of transplant was dramatically higher, further fueling the survival increase. Moreover, regardless of the transplant technique used, the percentage of children who survived to age 5 was highest in 2010–2018 compared to earlier

decades.

NIAID and NIH's National Center for Advancing Translational Sciences funded the study with additional support from NIH's National Institute of Neurological Disorders and Stroke; National Heart, Lung, and Blood Institute; and National Cancer Institute.

Luigi Notarangelo, M.D., Christopher Dvorak, M.D., Elie Haddad, M.D., Ph.D., and Monica Thakar, M.D., led the study. Dr. Notarangelo is chief of the NIAID Laboratory of Clinical Immunology and Microbiology. Dr. Dvorak is chief of the Pediatric Allergy, Immunology and Bone Marrow Transplantation Division and director of the Pediatric Cellular Therapy Laboratory at University of California San Francisco (UCSF). Dr. Haddad is the associate chair of research and a professor in the Department of Pediatrics at the University of Montreal, as well as the head of the Immunology, Rheumatology and Allergy Division at CHU Sainte-Justine in Montreal. He also holds the Bank of Montreal chair of pediatric immunology at CHU Sainte-Justine. Dr. Thakar is the medical director of Bone Marrow Transplantation Inpatient Services at Seattle Children's Hospital, as well as an associate professor at both Fred Hutchinson Cancer Center and University of Washington in Seattle.

NIAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the NIAID website.

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.

NT

Study reveals how young children's immune systems tame SARS-CoV-2

NEWS PROVIDED BY

National Institute of Health

NIH-supported research finds key differences between children & adults with COVID-19.

What

New research helps explain why young children have lower rates of severe COVID-19 than adults. A study of infants and young children found those who acquired SARS-CoV-2 had a strong, sustained antibody response to the virus and high levels of inflammatory proteins in the nose but not in the blood. This immune response contrasts with that typically seen in adults with SARS-CoV-2 infection. Co-funded by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, the research appears in the journal Cell.

The investigation involved 81 full-term infants and young children whose mothers enrolled in a NIAID-supported cohort study at Cincinnati Children's during their third trimester of pregnancy. The study team trained mothers to collect weekly nasal swabs from their infants starting when the babies were 2 weeks old. The team also drew blood from the babies regularly, starting at age 6 weeks, as well as when the children became infected with SARS-CoV-2 and during subsequent weeks and months.

These samples enabled the scientists to study the children's immune responses before, during and after they were exposed to the virus for the first time. Fifty-four of the children became infected and had mild COVID-19, while 27 who tested negative through the study period served as matched controls. At the time of infection, the children were 1 month to nearly 4 years old, and half were 9 months or younger. The study also included weekly nasal swabs from 19 mothers with COVID-19 and 19 healthy mothers as controls, as well as blood samples from 89 adults with COVID-19 and 13 healthy controls.

The researchers examined many aspects of the babies' and adults' immune responses to the virus through an approach called systems immunology(link is external). The study revealed that young children's antibody response to SARS-CoV-2 differs from that of adults. Typically, adults produce antibodies to the virus at levels that spike for a few weeks, then decline. In contrast, the infants and young children in the study produced protective antibodies at levels that spiked and remained high for up to the full 300-day observation period.

The scientists also found that the blood of adults with SARS-CoV-2 infection typically had high levels of proteins called inflammatory cytokines, which are associated with severe COVID-19 and death, while the blood of babies and children did not. However, the children's noses had high levels of inflammatory cytokines and a potent antiviral cytokine.

According to the researchers, these findings suggest that cytokines snuffed out SARS-CoV-2 infection right at the site where the virus entered the children's bodies, potentially explaining the mildness of their COVID-19 disease. The findings also suggest it may be possible to devise vaccine adjuvants that mimic the immune responses observed in young children by stimulating persistently high antibody levels without causing dangerous excess inflammation in the blood.

Children aged 6 months to 4 years who got COVID-19 vaccines before September 12, 2023, should get one or two doses of updated COVID-19 vaccine, depending on which vaccine and how many doses they previously received. Children aged 6 months to 4 years who have not been vaccinated should get two or three doses of updated COVID-19 vaccine, depending on which vaccine they receive.

Pali Pulendran, Ph.D., and Mary Allen Staat, M.D., M.P.H., led the study. Dr. Pulendran is the Violetta L. Horton Professor and co-director of the Institute for Immunology, Transplantation and Infection at Stanford University in California. Dr. Staat is the Kulkarni Endowed Chair in Infectious Diseases and a professor of pediatric infectious diseases at Cincinnati Children's.

Article

F Wimmers et al. Multi-omics analysis of mucosal and systemic immunity to SARS-CoV-2 after birth. Cell DOI: 10.1016/j.

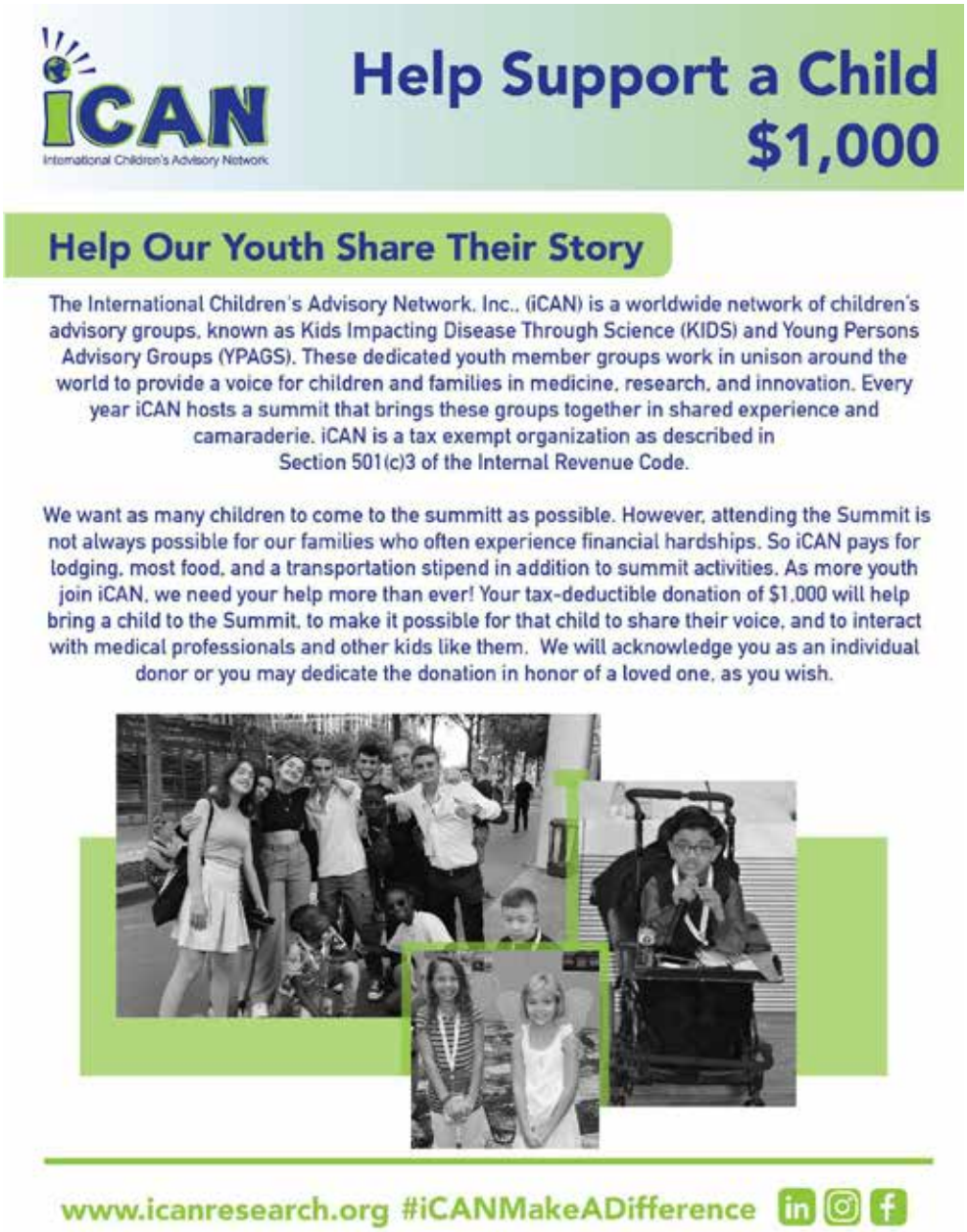
cell.2023.08.044(link is external) (2023).

Who

Mercy R. Prabhudas, Ph.D., M.B.A., a program officer in the NIAID Division of Allergy, Immunology, and Transplantation, is available to discuss this study.

NIAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the NIAID website.

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.



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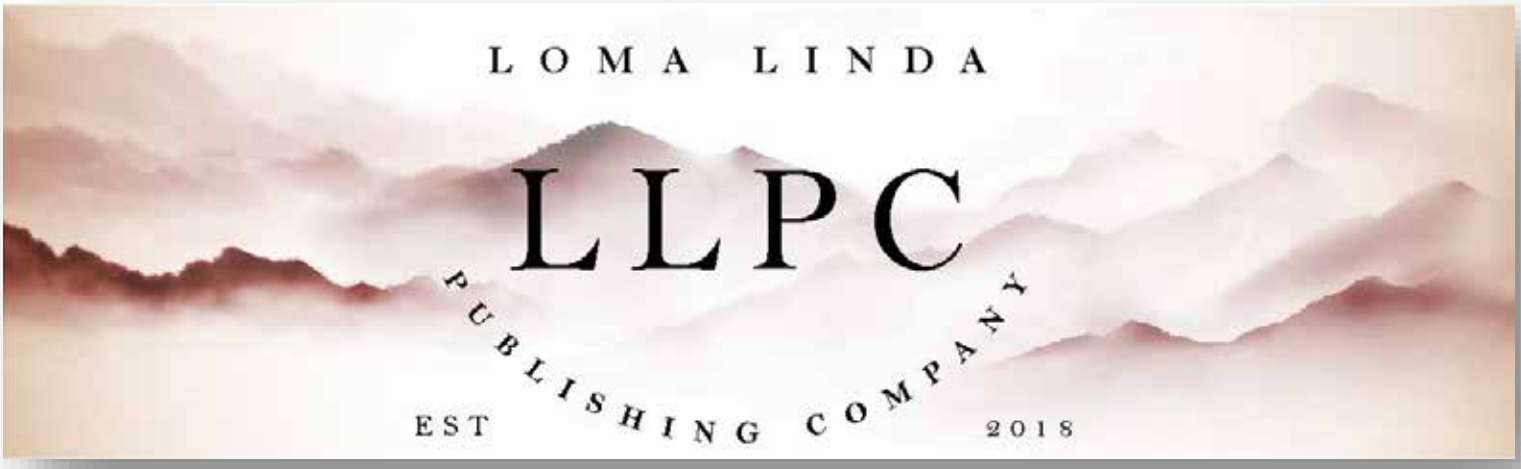

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Genetics Corner: An infant with a CHARGE-like syndrome and dual diagnoses: Xq28 duplication and Exon 38/39 KMT2D Missense Variant syndrome

Enas Hanna Louzy, MS, LGC, Robin Dawn Clark, MD

Case Summary

An eight-day-old term South Asian male with a postnatally diagnosed pathogenic duplication on chromosome Xq28 and bilateral hypoplastic ears was transferred from a community hospital intensive care nursery after two failed attempts at extubation. A genetics consultation was requested for multiple congenital anomalies.

He was born by scheduled C-section at 38 weeks gestation to a 30-year-old primigravida mother, whose pregnancy was complicated by IUGR and transverse lie. Apgar scores were 1^{1}, 1^{5}, 5^{10}, and 7^{15}. BW was 2510 grams (3rd %ile), BL 47 cm (6th %ile), HC 34.5 cm (51st %ile). Newborn screening was abnormal for severe combined immunodeficiency. A chromosome microarray confirmed a maternally derived pathogenic 439 Kb interstitial duplication on Xq28: [GRCHh37] Xq28(154,124,362_154,563,724) x2 mat.

"He was born by scheduled C-section at 38 weeks gestation to a 30-year-old primigravida mother, whose pregnancy was complicated by IUGR and transverse lie ... Newborn screening was abnormal for severe combined immunodeficiency. A chromosome microarray confirmed a maternally derived pathogenic 439 Kb interstitial duplication on Xq28: [GRCHh37] Xq28(154,124,362_154,563,724)x2 mat."

He had many congenital anomalies (Figure 1) in addition to small dysplastic ears: micrognathia, cleft palate, bilateral choanal atresia, dysplastic bilateral semicircular canals, vestibule and cochlea, absent nipples, postaxial polydactyly of both hands, micropenis, and left central calyceal dilation that progressed to bilateral hydronephrosis and proximal hydrometers. There were no colobomas on the ophthalmology exam. A brain MRI scan demonstrated the absence of the adenohypophysis. Panhypopituitarism, including hypothyroidism, was treated with replacement hormone therapy. He had an absent or hypoplastic thymus and diminished T cell subsets: CD4 (T helper) 10% low (normal 50-57%), count 522 low (normal 2,800-3,900), CD8 (T suppressor) 7% low (normal 8-31%), CD3 18% low (normal 55-82%), total count 940 low (3,500-5,000). The echocardiogram showed a PFO and a large PDA.

Figure 1. The left ear is small, dysplastic, posteriorly rotated, and low set. The lobule and superior elements of the helix and antihelix are absent. Note micrognathia and postaxial polydactyly of the right hand.

Following the repair of bilateral choanal atresia, he tolerated oxygen supplementation via nasal cannula but required high flow for desaturation events and increased work of breathing. Chest X-ray showed increased aeration. He had significant swallowing dysfunction with reflux and nasal regurgitation. He had persistent emesis with feeds and required prolonged total parenteral nutrition. A gastrostomy tube was placed, but he could not tolerate gastric feeds. NJ tube was placed and was tolerating full feeds. He required Calcium gluconate therapy for intermittently low Ca++.

Follow-up chest radiographs revealed bilateral interstitial prominence with worsening perihilar predominant airspace disease. He developed chronic respiratory failure and MSSA bacteremia. After almost four months in the NICU, he was transferred to the PICU. He developed severe pulmonary edema and was escalated to high-frequency oscillatory ventilation on the 10th day of transfer and died after a cardiopulmonary arrest.

Discussion:

As his clinical course worsened, it became more likely that our patient had another diagnosis in addition to his pathogenic Xq28 duplication, which primarily causes intellectual disability with occasional congenital anomalies (1). At first, we thought this child's anomalies were within the spectrum of Xq28 duplication syndrome, but in fact, congenital anomalies are infrequent in this condition. The Xq28 duplication (OMIM 300815) causes X-linked intellectual disability, developmental delay, mild dysmorphic features such as s high forehead, upper eyelid fullness, deep-set eyes, large ears,

and occasional congenital anomalies. Neonatal seizures have been reported. It is a recurrent copy number variant mediated by a mismatch during chromosome crossover between neighboring low copy repeat regions on the X chromosome called intron 22 homologous regions 1 and 2, in or near the F8 gene. Hence, this condition is also called int22h1/int22h2-mediated Xq28 duplication syndrome. It is diagnosed in hemizygous males and heterozygous females by detecting a 0.5-Mb duplication extending from 154.1 Mb to 154.6 Mb within the q28 region of the X chromosome using the reference build GRCh37/hg19. The mother is a carrier, but the family history did not suggest an X-linked pattern of intellectual disability.

Results of a trio whole exome sequencing study, which were available only after his demise, detected a likely pathogenic de novo heterozygous missense variant in exon 39 of KMT2D: c.10763A>G, p.His3588Arg. Pathogenic variants in this gene can cause Kabuki syndrome (OMIM 147920), but this child did not have the characteristic features of Kabuki syndrome, such as long palpebral fissures or large prominent ears. Instead, missense variants are also responsible for another phenotype in a gene region spanning parts of exons 38 and 39, in which missense variants have been associated with features of both Kabuki and CHARGE syndromes (2, 3). This syndrome has been referred to (awkwardly) as either Exon 38/39 KMT2D Missense Variant Syndrome (Ex38/39 KMT2D MV) or as Branchial Arch Anomalies, Choanal Atresia, Athelia, Hearing Loss and Hypothyroidism Syndrome (BCAHH, OMIM 620186). Although our patient's variant has not been previously described in this disorder, it is a missense variant located within the targeted protein domain. His phenotype is a strong match with this condition, down to absent nipples and hypothyroidism, which were, in retrospect, overlooked as important clues to his diagnosis. Searching the OMIM database using the search terms "athelia" and "hypothyroidism" reveals only one gene match and one syndrome match: KMT2D and BCAHH. Many of our patient's features are consistent with CHARGE syndrome (OMIM 214800). See Table 1 for a comparison of clinical features between our patient and others with these conditions.

This infant had two distinct genetic disorders, both of which were important: a familial Xq28 duplication and a de novo missense variant in KMT2D. His microarray, which was performed first, identified a pathogenic familial X chromosome duplication that might have gone unrecognized had the exome sequence test been performed first. The Xq28 duplication poses a significant recurrence risk to future children in this family as the mother is a carrier. However, the features eventually attributed to his KMT2D missense variant dominated our patient's phenotype. This condition was most relevant to his multiple anomalies, chronic problems, and eventual demise.

"This infant had two distinct genetic disorders, both of which were important: a familial Xq28 duplication and a de novo missense variant in KMT2D. "

The early diagnosis of a pathogenic Xq28 duplication, which would generally be advantageous in this case, probably slowed the diagnosis of this infant's second and more consequential genetic disorder because once a genetic diagnosis was established, clinical attention naturally turned to treatment and management. It took some time to realize that another diagnosis was likely.

It may not be as rare as it may seem at first glance to have two genetic disorders. More than one genetic diagnosis has been documented in 4-6% of individuals with a genetic condition. In their study of 1000 exomes, Trujilliano et al.(4) reported that 3/307, or about 1% of their patients with a genetic disorder, had a second "dual" genetic diagnosis. Posey et al.(5) identified two or more disease loci in 101/2076 patients with genetic diagnoses for a yield of 4.9%. Even after establishing a genetic diagnosis, the astute clinician should consider further genetic studies in some patients.

Feature	Our patient	Ex38/39KMT2D MVs cohort (Cuvertino *et al*.(2))	Kabuki syndrome Type 1	CHARGE syndrome
Branchial sinus/neck pits	No	7/9	No	No
Hearing Loss		8/9	Common	Common
External ear anomalies	Yes	6/9	Common prominent and simple	Common simple and dysplastic
Eye anomalies	No	2/9	Rare	Common
Choanal atresia	Yes	7/9	Rare	Common
Cleft lip/palate	Yes, Cleft palate	0	Common	Common
Athelia	Yes	6/9	Not reported	Rare
Congenital heart defect	No	3/9	Common	Common
Renal anomalies	Yes	0	Common	Common
Feeding problems	Yes	5/9	Common	Common
Thyroid abnormality	Yes	6/9	Rare	Rare
Abnormal immune system	Yes	4/9	Common	Common

Table 1. A comparison of the phenotypes of our patient, Ex38/39 KMT2D MV syndrome cohort from Cuvertino et al.(2), Kabuki and CHARGE syndromes (Adapted from Cuvertino et al.(2) Table 2)

Beers et al.(6) found that chromosome microarray supplemented the yield of exome testing in their recent report on diagnostic yield in patients with errors of immunity. In their cohort: "three (2.2%) participants had diagnostic molecular findings from both ES [exome sequencing] and CMA [chromosome microarray], including …. one participant with two distinct diagnoses." They found that "overall, CMA contributed to 18/134 diagnoses (13.4%), increasing the overall diagnostic yield by 15.5% beyond ES alone." This may justify ordering whole genome sequencing (WGS) as a single test instead of exome and microarray, because WGS detects copy number variants and sequence variants. As costs come down, WGS may become the preferred first test for infants with severe multiple anomalies or complex clinical courses in the neonatal intensive care unit.

3. Utilize trio whole-exome gene sequencing testing earlier than later in the clinic for infants with complex problems and severe congenital anomalies.

"As costs come down, WGS may become the preferred first test for infants with severe multiple anomalies or complex clinical courses in the neonatal intensive care unit."

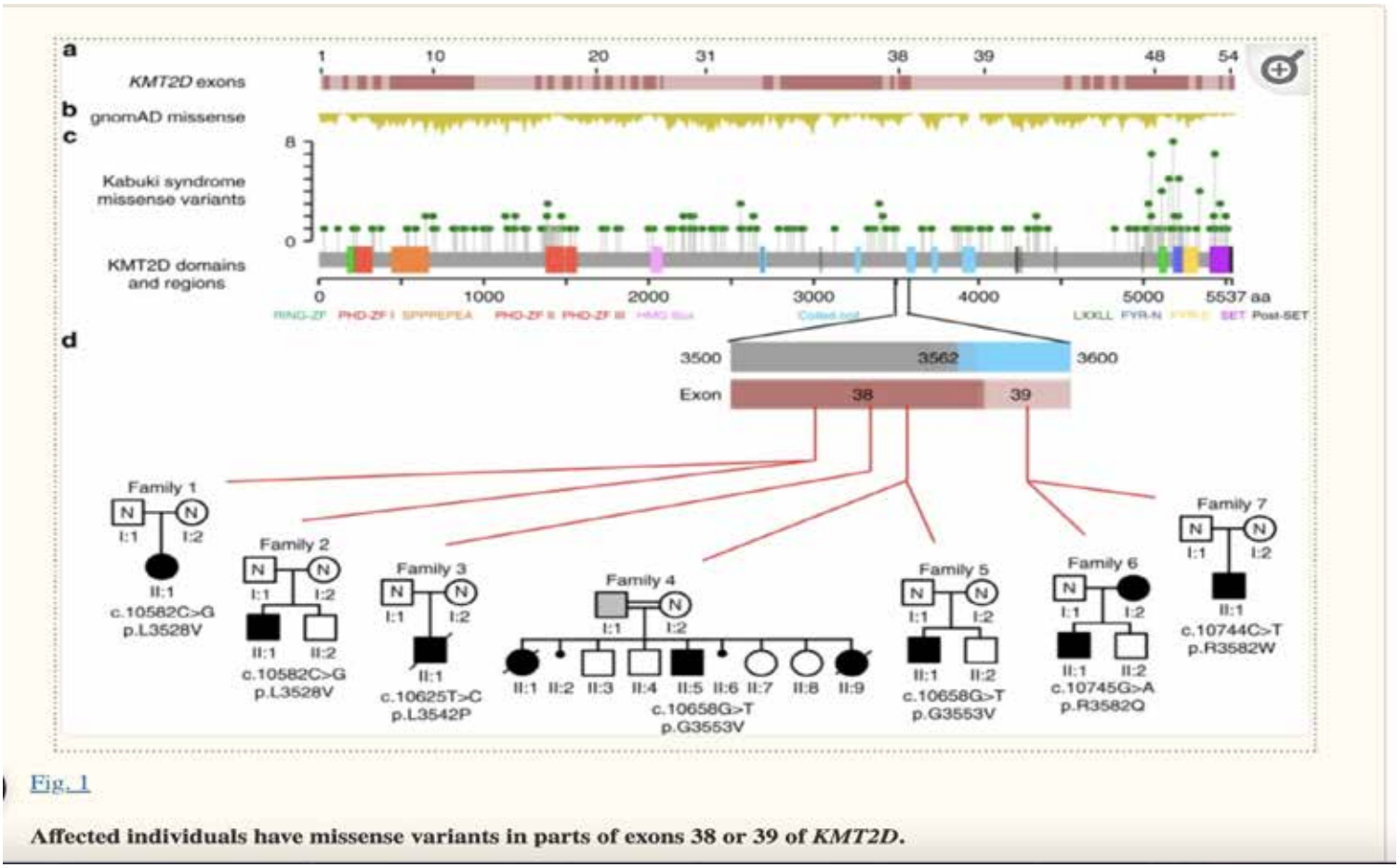

Fig. 1

Affected individuals have missense variants in parts of exons 38 or 39 of *KMT2D*.

Figure 2. Adapted from Cuvertino et al.(2). The region of interest of the KMT2D gene is shown in more detail in the middle of this figure: the red horizontal bar shows parts of exons 38 (amino acid 3503-3580) and 39 (amino acid 3581-4510). The blue vertical bars denote the coiled-coil regions disrupted by missense variants in this area. The pedigrees are mapped to the locations of previously reported missense variants within exons 38 and 39. Our case would be mapped to the right of these families but still within the target region of exon 39.

Practical applications:

1. Consider a second genetic diagnosis if the first diagnosis does not explain the phenotype or clinical course. Recall that 4-6% of individuals with one genetic disorder have a second genetic diagnosis.
2. Pay attention to rare minor anomalies or rare combinations of anomalies, in this case, absent nipples and hypothyroidism, a rare combination that could have helped establish the diagnosis.

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Nucleated Red Blood Cells and the Timing of Hypoxic Ischemic Encephalopathy

Jay P. Goldsmith, MD, Jonathan K. Muraskas, MD

"Nucleated red blood cells (nRBCs) are frequently seen in the blood of neonates. Often, medical-legal experts, in discussing the timing of a hypoxic-ischemic injury/encephalopathy, will point to the nucleated red blood cells seen in the placenta or identified in the first neonatal CBC to support their theory of timing of the injury."

Nucleated red blood cells (nRBCs) are frequently seen in the blood of neonates. Often, medical-legal experts, in discussing the timing of a hypoxic-ischemic injury/encephalopathy, will point to the nucleated red blood cells seen in the placenta or identified in the first neonatal CBC to support their theory of timing of the injury. Consider this case:

A 25-year-old primigravida mother is admitted at 40 5/7 weeks gestation for signs of early labor. Pregnancy had been unremarkable except for a decrease in amniotic fluid volume noted at the last ultrasound the day before induction. The mother presented with decreased variability on electronic fetal monitoring (category II), and after observation for several hours and failed attempts at intrauterine resuscitation, a non-emergent cesarean section was performed. The newborn was depressed at birth with low Apgar scores and a cord pH of 7.05 with a base deficit of -15. He showed early signs of encephalopathy and was treated with therapeutic hypothermia for 72 hours. An MRI at four days of age showed restricted diffusion noted diffusely in the subcortical white matter consistent with hypoxic-ischemic encephalopathy (HIE). A follow-up evaluation of the child revealed global developmental delay and mild quadriparetic cerebral palsy. A malpractice suit is filed against the obstetrician and hospital for delay in performing the cesarean section after the mother's admission to the hospital. The defense argues that the injury occurred prior to the mother's hospital admission and points to the persistent non-reactive fetal monitoring strip after admission and the nucleated red blood cells seen in the placenta and noted on the first neonatal CBC to support their argument.

Nucleated red blood cells (nRBCs), often called erythroblasts or normoblasts, are red blood cells that contain a cell nucleus. NRBCs are normally found in the bone marrow of humans of all ages but can also be seen in the blood of fetuses and newborn infants. After infancy, the nucleus is normally ejected from the cell as a normal part of cellular differentiation *before* the cell is released into the bloodstream. Fetal NRBCs are produced in the bone marrow and liver and can be released into the circulation in response to many acute and chronic intrauterine stimuli. Such stimuli may cause an increase in erythropoietin (EPO), increasing RBC production over time. However, an acute stimulus may also cause a release of nRBCs into the circulation from the storage pools in the bone marrow and liver. Stimuli include acute, subacute, and chronic hypoxia, fetal anemia, prematurity, intrauterine infection, maternal diabetes mellitus, and intrauterine growth restriction, among others. Teleologically, one can think of a hypoxic stimulus as causing a need for more oxygen-carrying capacity, and the body responds by putting more young red cells (i.e., nRBCs) into circulation to help in this condition.

"NRBCs can be reported in the neonate as the number of nRBCs per 100 white blood cells (WBCs) or as the absolute number of nRBCs per unit volume (expressed as the number of nRBCs per mm (3)). Many automated white blood cell counters report all nucleated cells as WBCs, and then the nRBCs must be subtracted to get the actual (corrected) WBC count."

NRBCs can be reported in the neonate as the number of nRBCs per 100 white blood cells (WBCs) or as the absolute number of nRBCs per unit volume (expressed as the number of nRBCs per mm (3)). Many automated white blood cell counters report all nucleated cells as WBCs, and then the nRBCs must be subtracted to get the actual (corrected) WBC count. Since the neonate in the first 12 hours of life has a wide range of WBC counts considered normal (5-30,000), the reported absolute nRBCs can range widely. Most studies use 500-1000 total nRBCs as the high limit of normal in the first 12 hours of life. The number of nRBCs per 100 WBCs considered normal is usually 0-5 (1). This author prefers this latter method of reporting, as will be discussed later.

Under normal conditions, nRBCs are not found in the placenta or fetal circulation after the first trimester. However, in practice, the stresses of labor may cause a few preformed nRBCs to be released into circulation. However, the finding of an increased number of nRBCs in the circulation (i.e.,> 5/100 WBCs or >1000 total) usually indicates an acute or chronic condition. With prolonged stress, the increase in erythropoietin will stimulate an even greater number of nRBCs into the placental and neonatal circulations, and in the neonate, these cells will take longer to return to normal val-

ues. The timing of nRBC release into the circulation has been very controversial, possibly because older studies did not separate acute and chronic stimuli and lumped all increased nRBC findings into one group. More recent literature indicates that nRBCs already in the storage pool can be seen in circulation within 1 to several hours after an acute hypoxic stimulus. (2) With continued or prolonged hypoxic stress, the number of nRBCs will continue to increase, stimulated by erythropoietin (EPO) production. Thus, in most circumstances the number of nRBCs and their perpetuation in the neonatal circulation will reflect the chronicity and severity of the condition which triggered their production. In the most extreme circumstances (e.g., chronic fetal-maternal transfusion or severe intrauterine growth restriction), which may last weeks or months, the number of nRBCs will be in the 100s/100WBCs and erythropoiesis may be found in atypical visceral organs. The concept of the emergence time of nRBCs was studied by Christensen et al. (3). He divided the emergence time into 2 phases: the generation time for erythropoietin and the subsequent emergence of nRBCs. Thirty-one neonates without other stressors and no nRBCs in their CBCs were given darbepoetin. nRBCs first appeared in the blood 24-36 hours after the darbepoetin dose. The researchers concluded from previous fetal studies that following fetal hypoxia, it takes 4-5 hours to see an elevation of plasma EPO, and once there is an elevation of EPO, it takes another 24 to 36 hours to see nRBCs in the circulation. Thus for a EPO mediated rise in nRBCs from hypoxia, it takes at least 28-29 hours, suggesting that an elevated nRBC count at birth resulted from a hypoxic event 28-29 hours before birth. However, in this model, the release of nRBCs from the storage pool is not addressed. In another study of 152 infants with moderate to severe HIE, a *normal* nRBC count after birth was associated with a brief acute, profound event requiring emergent delivery and was modestly predictive of a better prognosis. (4)

"The disappearance of nRBCs from the neonatal circulation may also give clues to the timing of the hypoxic stimulus. Several studies have concluded that the nRBC count's fall rate will mirror the rate of rise. Thus, a modest rise of nRBCs from the storage pool in an acute, profound hypoxic event will fall back to normal in hours or less than one day."

The disappearance of nRBCs from the neonatal circulation may also give clues to the timing of the hypoxic stimulus. Several studies have concluded that the nRBC count's fall rate will mirror the rate of rise. Thus, a modest rise of nRBCs from the storage pool in an acute, profound hypoxic event will fall back to normal in hours or less than one day. On the other hand, a chronic hypoxic event over many days will stimulate EPO production of new nRBCs and will take several days to return to normal. Persistent elevation of nRBCs over many days may also suggest a cause other than hypoxia for the elevated count, such as maternal diabetes mellitus or congenital infection. (2)

In summary, there appears to be a biphasic response of nRBCs to multiple stimuli, including hypoxia-ischemia. Thus, to a medical-legal probability, more likely than not (not to a scientific certainty), an acute, profound hypoxic event of 30 minutes or less will result in a modest increase of nRBCs in the fetal/neonatal circulation from the preformed cells already in the storage pool in less than one to several hours after the event or no response at all (not enough time to mobilize cells in the storage pool). The rise in nRBCs will usually be <20 cells/100 WBCs or less than 2000 absolute count and will usually resolve in less than a day. A more prolonged hypoxic-ischemic event will stimulate EPO, resulting in a much higher normoblastemia (usually greater than 50 cells and often into the hundreds), lasting longer in the neonatal circulation (days). Although the research on this topic is ongoing, this biphasic response may help time the hypoxic-ischemic injury. No one biomarker or combination of biomarkers can identify the exact time and duration of a hypoxic-ischemic insult. Similar to nRBCs, other laboratory values, such as liver function tests and creatinines, follow similar patterns to support or refute allegations of acute intrapartum asphyxia.

"Although the research on this topic is ongoing, this biphasic response may help time the hypoxic-ischemic injury. No one biomarker or combination of biomarkers can identify the exact time and duration of a hypoxic-ischemic insult. Similar to nRBCs, other laboratory values, such as liver function tests and creatinines, follow similar patterns to support or refute allegations of acute intrapartum asphyxia."

In the case cited above, the defense argued that the MRI at four days of age in a baby that was cooled allowed a window of opportunity for the injury to occur within the last ten days or up to 6 days prior to birth. This was supported by the decrease in amniotic fluid, the non-reactive fetal monitoring strip on hospital admission and the high number of nRBCs (80) seen in the first neonatal CBC. The plaintiff claimed that an earlier cesarean section would have ameliorated any injury and that the *Neonatal Encephalopathy and Neurologic Outcome* monograph, published by the American College of Obstetrics and Gynecology and the American Academy of Pediatrics (2014), stated that "there are no proven biomarkers that are diagnostic for neonatal HIE or the timing of a potential brain injurious event…" (5). The case was settled on the weekend prior to the start of the trial.

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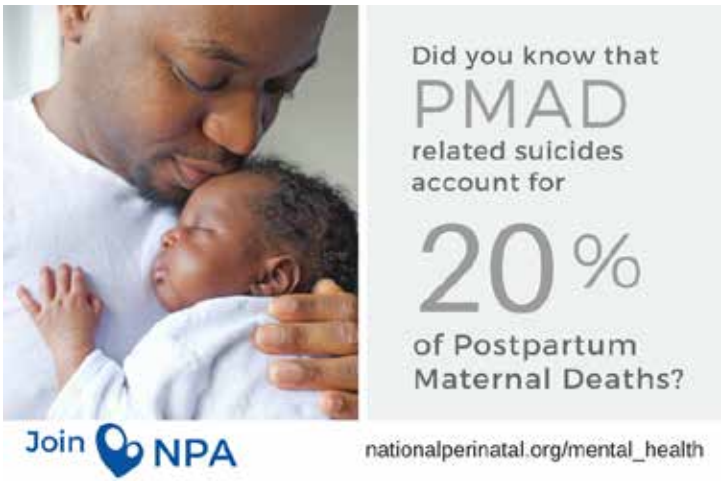
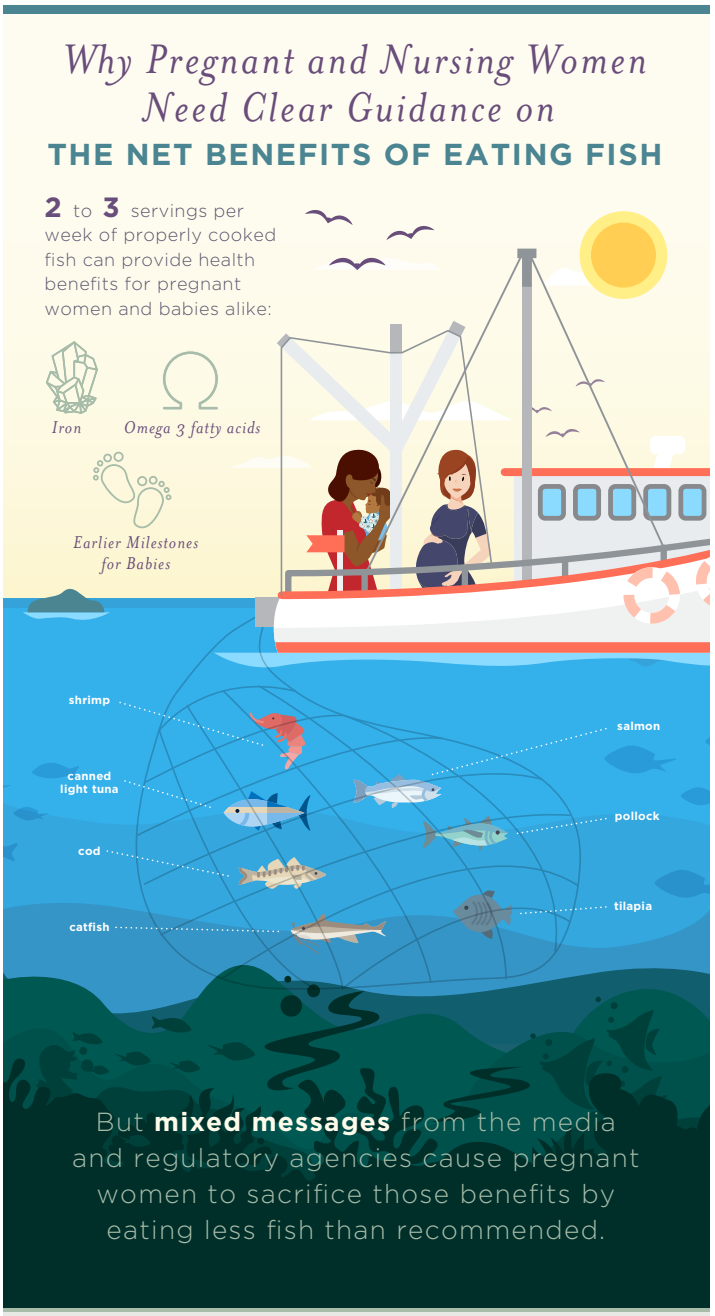

Did you know that
PMAD
related suicides
account for
20%
of Postpartum
Maternal Deaths?
Join NPA
nationalperinatal.org/mental_health


Support the
Open Letter
Breastfeeding
Innovations
Team


Why Pregnant and Nursing Women
Need Clear Guidance on
THE NET BENEFITS OF EATING FISH
2 to 3 servings per
week of properly cooked
fish can provide health
benefits for pregnant
women and babies alike:
Iron
Omega 3 fatty acids
Earlier Milestones
for Babies
shrimp
canned
light tuna
cod
catfish
salmon
pollock
tilapia
But mixed messages from the media
and regulatory agencies cause pregnant
women to sacrifice those benefits by
eating less fish than recommended.


GET THE FACTS
ON FISH CONSUMPTION
FOR PREGNANT
WOMEN, INFANTS,
AND NURSING MOMS.
NCfIH National Coalition
for Infant Health
LEARN MORE

40th Advances in Neonatal and Pediatric Cardiorespiratory Care

This conference is unique because it focuses on physiology based patient care

Attend in person or virtually

January 31-February 2, 2024

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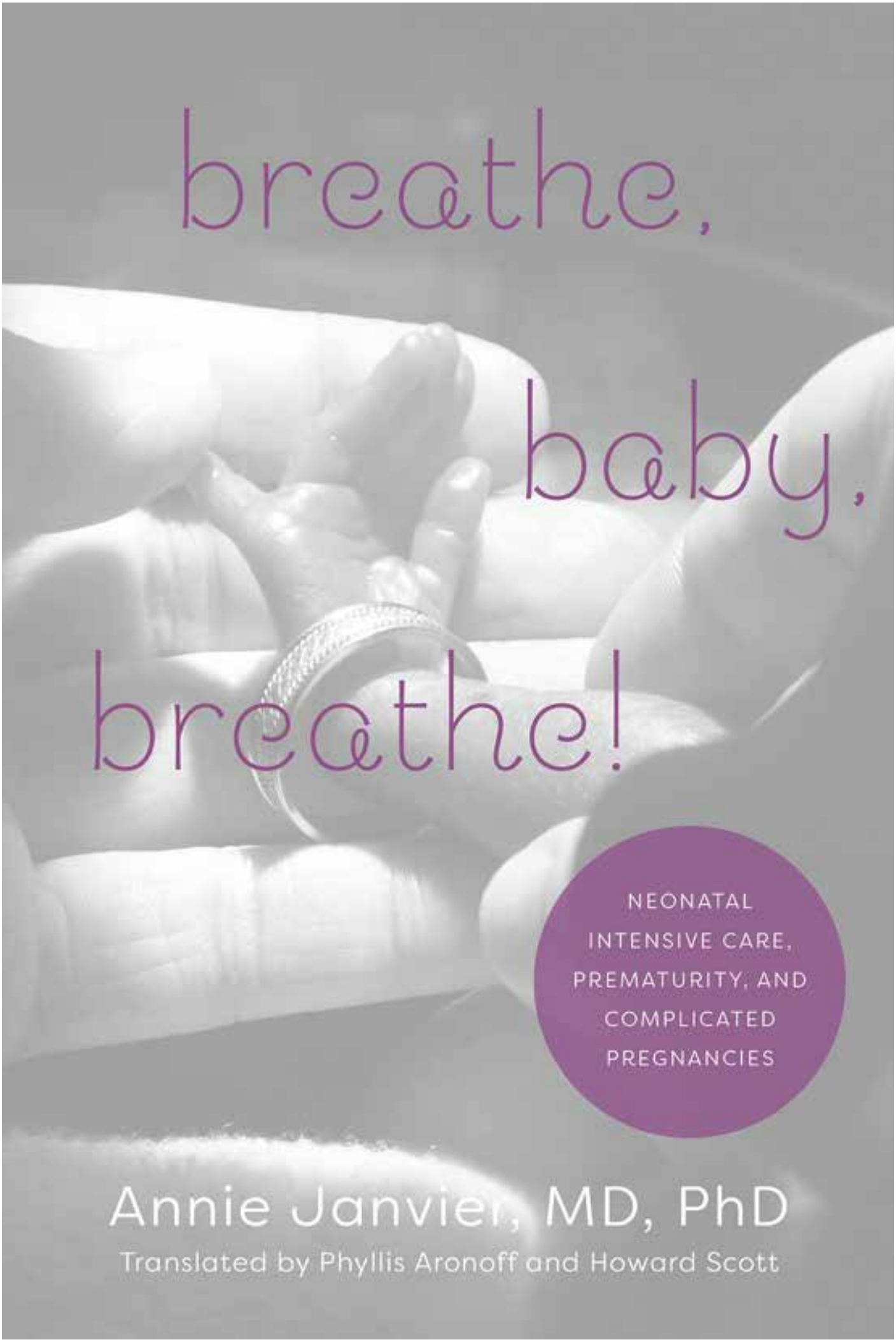
- Amy Yeh
- Jennifer Shepard
- Yogen Singh

Hands-on Practice Sessions for FECHO/LUS/aEEG

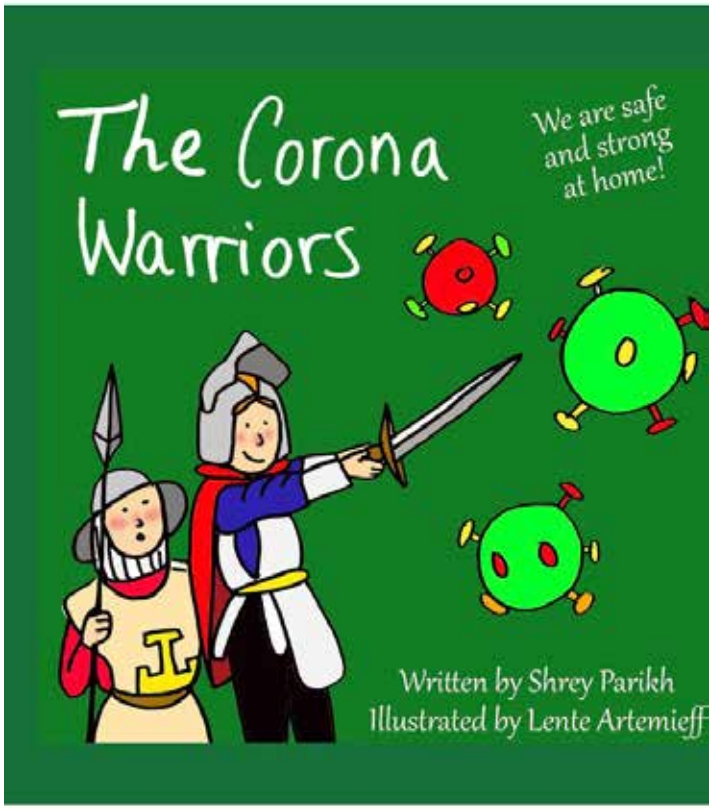


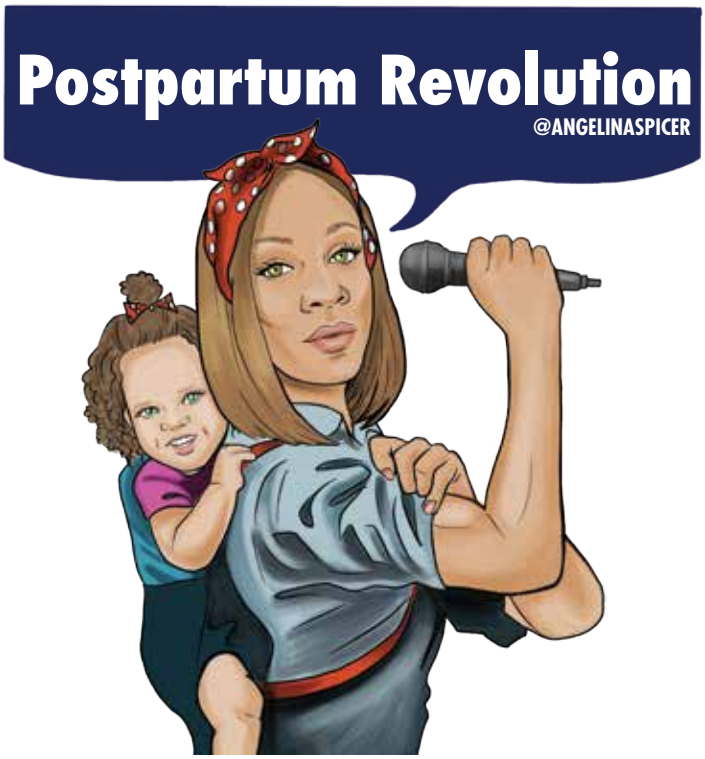
breathe, baby, breathe!

NEONATAL INTENSIVE CARE, PREMATURITY, AND COMPLICATED PREGNANCIES

Annie Janvier, MD, PhD

Translated by Phyllis Aronoff and Howard Scott





Vaccines and Preventive Monoclonal Antibodies

WHAT'S THE DIFFERENCE?

The Importance of Immunization

Vaccines and preventive monoclonal antibodies are two different types of immunization. While they function differently, they both serve the same purpose: protecting people from serious illnesses and diseases.

Different Technology, Same Protective Value

AfPA

https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work#:~:text=Vaccines%20contain%20weakened%20or%20inactive,rather%20than%20the%20antigen%20itself.

https://static1.squarespace.com/static/5523fcf7e4b0fef011e668e6/t/62445afd0134140ff954f3f6/1648646910485/NCIIH_Monoclonal+Antibodies+Inclusion+in+the+VFC+Program_Position+Paper_Mar+2022.pdf

VACCINES	PREVENTIVE MONOCLONAL ANTIBODIES
Teach the body to create antibodies that fight off a specific disease.	Introduce antibodies that are ready to ward off disease in the body.
How does it work?	
By introducing an inactive piece of a disease or proteins that look like the disease, they trigger an immune response, training the body to create antibodies that defeat the disease.	Instead of teaching the body to create antibodies and defenses, they provide antibodies that are readily available.
Both support the immune system's defenses.	
What are the benefits?	
Many vaccines are readily and easily available. The technology behind vaccines has been around for decades.	Preventive monoclonal antibodies can provide protection for diseases where there isn't an existing vaccine or there isn't an existing vaccine for certain patient groups.
Both protect against disease and provide a public health benefit by decreasing the burden of disease.	
What can this immunization protect against?	
Polio Measles COVID-19 And more	RSV COVID-19
Both can provide tailored protection from a variety of diseases.	
Is it safe?	
Yes	Yes
Both vaccines and preventive monoclonal antibodies undergo extensive testing for safety and efficacy.	

READ NPA's statement: BLACK LIVES MATTER

The Indirect Impact of **RSV**

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

OVERVIEW

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

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

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

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

RSV PARENT SURVEY

340 parents who had at least 1 child sick with RSV

67% of parents said their child was hospitalized for RSV

RSV HEALTH CARE PROVIDER SURVEY

175 health care providers across various pediatric and neonatal subspecialties

67% worked in an outpatient facility

33% worked in a hospital

RESULTS

FINANCIAL BURDEN

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

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

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

EMOTIONAL BURDEN

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

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

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

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

SOCIAL BURDEN

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

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

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

RESULTS

PARENT EDUCATION & AWARENESS

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

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

TREATMENT CHALLENGES

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

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

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

MISCONCEPTIONS

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

CONCLUSION

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

The virus may lead to:

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

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

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

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

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

Infant Health Safety
Call to Action

NCfIH
National Coalition for Infant Health

We urge hospital administrators, health care providers and policymakers to take steps to ensure the optimal health and safety of infants and young children by heeding three important calls to action.

Susan Hepworth, Suzanne Staebler, DNP, APRN, NNP-BC, FAANP, FAAN, Mitchell Goldstein, MD, MBA, CML

When hospital procurement decisions are focused on cost, patients pay the price.

CALL TO ACTION

Hospitals must include NICU and PICU clinicians in the procurement process for medications, devices, supplies and services to ensure vulnerable infants and young children receive the safest care possible.

Hospital procurement is the process of purchasing medications, devices, and other supplies and services for use at the hospital. Procurement is a long process, usually completed by teams of doctors, nurses and other hospital staff. The process can be a determining factor in health outcomes for patients.

Some hospital procurement teams face pressure to keep costs low, so clinical staff have less input in the process than administrators. This can lead to the hospital purchasing products and services that present safety issues for certain patient populations.

INFANTS AND CHILDREN ARE **NOT** LITTLE ADULTS.

The problem is especially pressing in neonatal and pediatric intensive care units.

For example, the hospital may procure a large inventory of tubing and syringe systems to be used across all hospital units. But these tubing and syringe systems can present serious safety issues for NICU patients.

Inefficient procurement processes can force clinicians to find workarounds, causing them to lose time with their patients. Inventory imbalances in the NICU and PICU can also force hospitals to delay or cancel procedures or treatments.

NICU and PICU clinical staff members know the unique needs of their patients. Ensuring they are part of hospital procurement processes will promote the safest and best care possible for infants and young children.

Infants need medications and devices that are specifically designed and tested for them.

CALL TO ACTION

Policies must prioritize and incentivize companies to develop medications and devices specifically for the neonatal and pediatric populations to ensure safe and optimal care.

Infants and young children need care that is tailored to their needs and size. Infants are not tiny adults, yet they are often given smaller doses of adult medications or smaller sized adult medical devices.

ADULT MEDICATIONS AND DEVICES THAT ARE ALTERED FOR BABIES CAN PRESENT **SAFETY CONCERNS.**

This practice can result in medication dosing errors or device safety issues, which can lead to poor patient outcomes.

For example, the pulse oximeter was made for adults but was often used on infants. Although the device saved many adult lives, it was not reliable when used on infants and children because they have reduced blood flow to their fingers and toes, which makes it harder to accurately measure oxygen saturation with the oximeter.

Clinicians recognized infants needed technology specifically for their size, and since then, innovators have developed new oxygen monitoring technologies specifically for infants.

But innovation for new medications and devices faces barriers. Innovation for this small group of patients can be costly and time consuming, and enrolling infants and children in clinical trials can be challenging. Providers also need to be willing to become early adopters of new technology.

It is important to ensure each patient in the NICU and PICU receives the highest quality of care during their hospital stay, which includes devices and medications that are specifically designed for their size and unique needs.

Policies that incentivize and prioritize innovation, like patent extensions, priority review vouchers or tax credits, will ensure more innovation to meet the needs of infants and young children.

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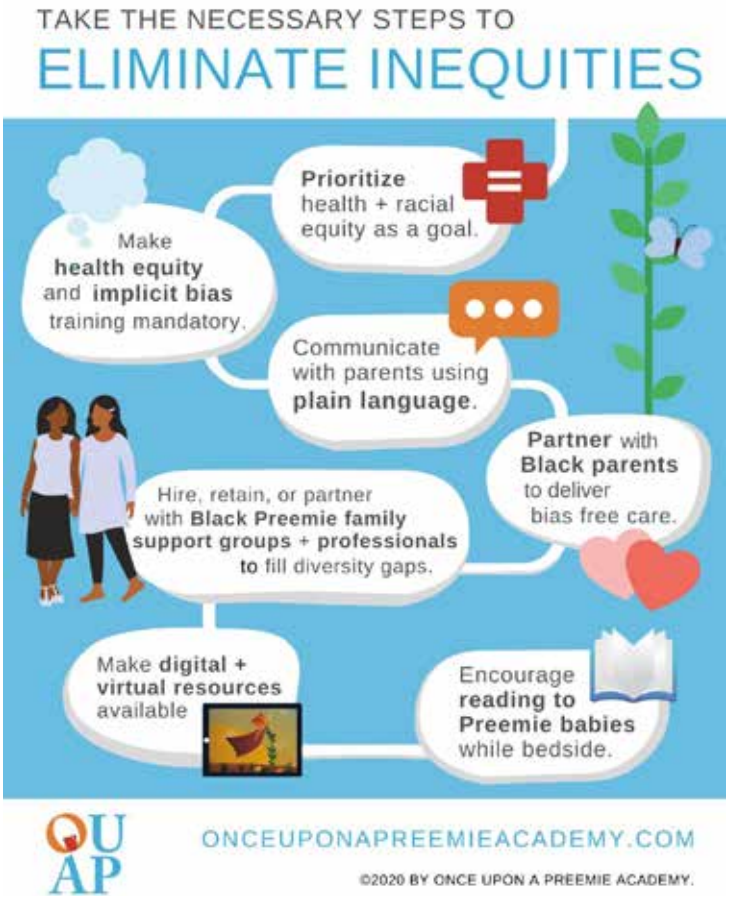


National Coalition for Infant Health Values (SANE)

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

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

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

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

The Signs & Symptoms of RSV

RESPIRATORY SYNCYTIAL VIRUS

Know the Signs & Symptoms of RSV

- Cough
- Runny Nose
- Struggling to Breathe *(breastbone sinks inward when breathing)*
- Difficulty Eating
- Lethargy
- Wheezing

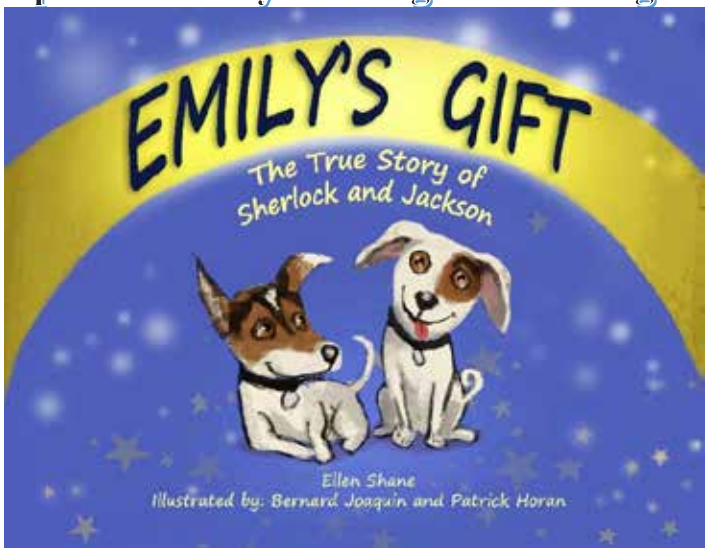
RESPIRATORY SYNCYTIAL VIRUS
is a highly contagious seasonal virus that can lead to hospitalization for some babies and young children.

Know the Signs.

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

LEARN MORE

"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

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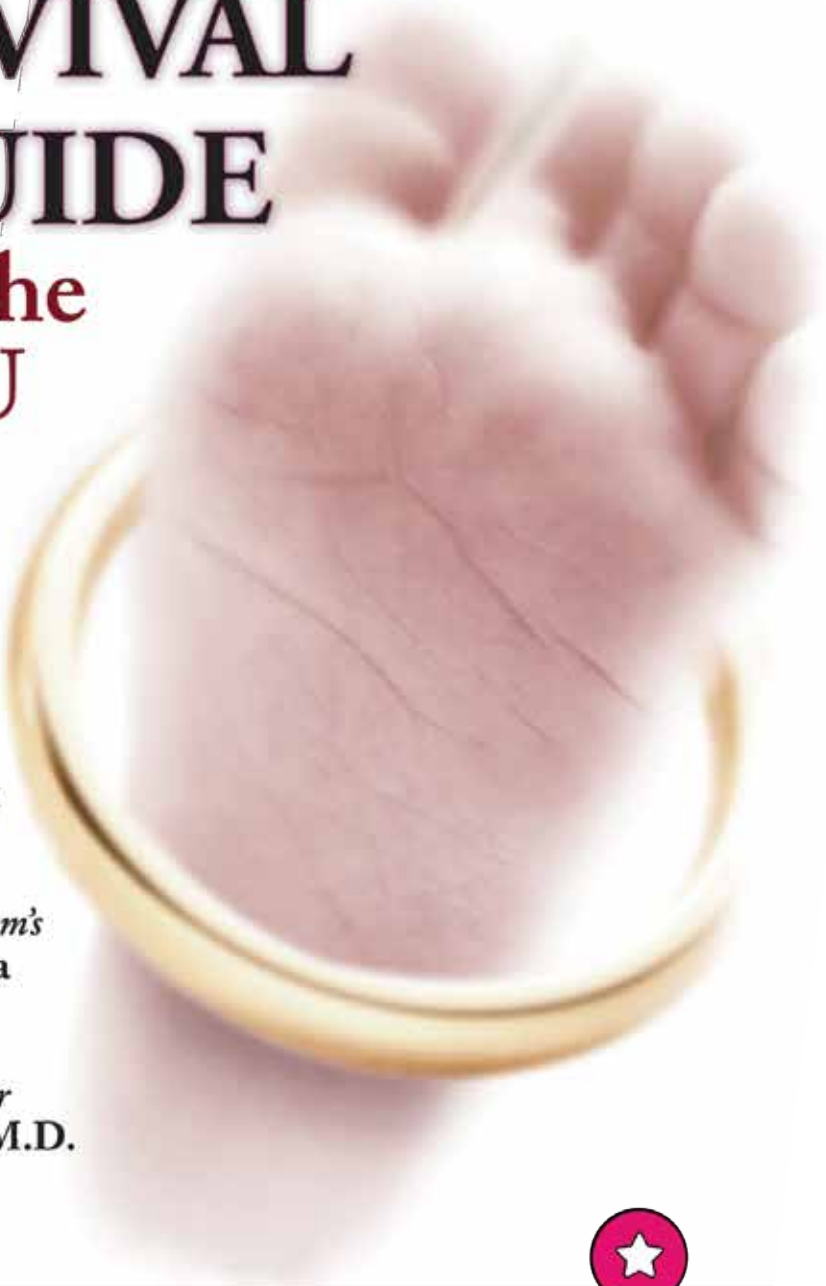
The Emily Shane Foundation is a 501(c)3 nonprofit charity. Our flagship SEA (Successful Educational Achievement) Program is a unique educational initiative that provides essential mentoring/tutoring to disadvantaged middle school children across Los Angeles and Ventura counties. All proceeds fund the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

For more information, please visit emilyshane.org.

The Preemie Parent's SURVIVAL GUIDE to the NICU



By

little man's
Nicole Conn

&

PreemieWorld.com's
Deb Discenza

with

Medical Editor
Alan R. Spitzer, M.D.

HOW TO MAINTAIN YOUR SANITY & CREATE A NEW NORMAL

second edition

Vol. 05

11/2023

FCC TASKFORCE NEWSLETTER

Want to strengthen FCC in your NICU? Click this link or scan the QR code to join the FCC Taskforce for **access to free webinars & resources**.

Mission Statement

The Family-Centered Care (FCC) Taskforce aims to educate, create guidelines, and facilitate unit-based interventions related to FCC in the NICU.

Check Out Our Website!

Be sure to visit our website, fcctaskforce.org to view all past and upcoming webinars as well as shared resources.

Follow Us on Twitter: @FCCTaskforce
Contact Us: familycenteredcaretaskforce@gmail.com

In This Issue

- Webinar Review
- FCC Taskforce End of Year Update
- Family Partner Column
- Small Group Spotlight
- How to Provide Intentional Care
- Quarterly Recommendations

Generously supported by Dräger

FAMILY-CENTERED CARE TASKFORCE

WEBINAR REVIEW

“Family Integrated Care: Where are we now?” with Karel O’Brien, MD (she/her), neonatologist at Mount Sinai Hospital and Professor of Pediatrics at the University of Toronto

Karel discussed the family integrated care (FICare) model, which can provide a structure that supports the implementation of FCC. She highlighted the principles of FICare: 1) parent education & support, 2) staff education & support, 3) environmental support, and 4) psychosocial support. For infants, FICare improves growth, breastfeeding success, discharge readiness, self-regulation at 18 months’ corrected age, and motor development. For parents, FICare improves hands-on skills, emotional bonding, and stress management.

The guiding concept of FICare is that parents are true partners in their baby’s care – they are the primary caregivers and NICU staff act as mentors. Unit leadership can start the journey towards FICare by creating a FICare steering committee (ideally with participation from parents, administrators, physicians, bedside nurses, healthcare providers, nurses, and hospital administrators). They can assess the current state of FICare in their NICU and obtain organizational buy-in through incremental change. Page 6 has some tips!

“NICU Dad Perspective: Disparities in Family Centered Care” with Alex Zavala (he/him), founder of The NICU Dad and The NICU Dad Podcast, VON Family Advisor, Dell Children’s Ascension NICU Network PFAC Chair, and a former NICU parent of Emerson (30-weeker) and Mia (27-weeker)

Alex, with bravery and courage, shared his experience as a NICU dad and the lack of support he received in his role as a non-birthing parent. He spoke about the challenges of caring for his wife who had just given birth and youngest daughter in the NICU while also being the primary parent for his older daughter at home. He aptly coined this the “NICU Dad Shuffle.” Alex shared his mental load during this medical crisis was significant. He was responsible for keeping his business afloat, taking care of his home, caring for pets, sharing information between providers and his family, making NICU visits a positive experience for his older daughter, and acting as a nurse, therapist, driver, and delivery guy, among other tasks!

“No one checked on me,” Alex said after describing his 100-pound weight gain, diagnosis of hypertension, type II diabetes, and declining mental health during his youngest daughter’s NICU stay. Alex fights to change NICU culture and stereotypes around dads being uninvolved. “Dads are no longer smoking cigars in the lobby,” Alex said. “They are in the delivery room. They are involved!” By creating awareness of the struggles of non-birthing parents, Alex invites dads to share their stories and promotes the inclusion of all parents. Alex left us with these impactful words: **“Family-Centered Care should include the whole family.”**

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FCC TASKFORCE
END OF YEAR UPDATE

The FCC Taskforce stands as a pioneering force, being the FIRST international, multi-center, collaborative initiative solely dedicated to family-centered care. Our work is guided by a core principle: equal partnership between healthcare professionals and family partners. One of the key strengths of the FCC Taskforce lies in its ability to break down the silos that often hinder progress in healthcare. Through our global network of institutions, the Taskforce fosters collaboration between NICU stakeholders, encourages knowledge sharing, and leads QI/research on best FCC practices. We want to take a moment to thank you for your interest in our work and share a snapshot of how we've grown over the course of the year.

2023 Accomplishments

- Deepened our inclusion of family partners in planning, implementing, and **leading** FCC efforts with healthcare professionals
- Ensured our Executive Council of healthcare partners and family partners features **diverse** perspectives
- Provided **six free educational webinars** featuring FCC work by healthcare partners, researchers, and family partners. These have received robust attendance live and recordings are widely shared and viewed.
- Successfully mentored five small groups that meet bi-monthly to discuss barriers to FCC and successes in overcoming them

2023 Impact

- **Increase** in the percentage of centers that have FCC Committees **from 20% to 32%** in six months
- **Increase** in the percentage of centers that have Family Partnership Councils **from 16% to 20%** in six months

2023 Outreach

- More than doubled listserv membership, now at **700+**!
- Partnered with several esteemed national organizations including American Academy of Pediatrics: Section on Neonatal Perinatal Medicine and Trainees and Early Career Neonatologists, California Perinatal Quality Care Collaborative (CPQCC), Perinatal Advisory Council: Leadership, Advocacy, and Consultation (PAC-LAC), Neonatology Today, Loma Linda Publishing Company, National Association of Neonatal Nurses (NANN), National Association of Neonatal Therapists (NANT), NICU Parent Network, and Hope for HIE
- Website, YouTube Channel, and Twitter account continually show improved engagement and are updated many times each month
- Six free educational webinars scheduled for 2024

2023 Support

FCC Taskforce Phase 3 QI work is supported by a grant from Genentech, a member of the Roche Group & partially funded by Prolacta Bioscience Foundation. The 2023 Gravens Conference luncheon was supported by an independent educational grant by Chiesi USA, Inc. We have received webinar sponsorship from Draeger. Thank you to all for supporting this critical work.

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FAMILY PARTNER COLUMN

NICU Family Partners play an important role in facilitating and supporting the principles and practices of FCC: ***to ensure every family is an essential and integral member of their baby's care team, and that no family has to navigate the NICU alone.*** *Their range of expertise is broad: some serve as in-hospital program leaders or QI and research partners, while others are authors, advocates, and organization leaders. As a way to get to know them better, our newsletters profile one of our NICU Family Partners. We hope their stories inspire you to foster collaboration with families in your unit!*

ELIZABETH SIMONTON
CEO, ICU Baby
Parent of Benedict

How were you personally activated to advocate for and support NICU families?
My son was in the NICU after I experienced, a high risk pregnancy with polyhydramnios. His time in the NICU felt like the longest seconds of our lives, but in hindsight, it was a short stay compared to what so many others experience. While I was there, I saw many parents struggle. Their babies were very premature or had more complicated conditions than my son. Many of those parents struggled to be at their babies' bedside and had to deal with the roller coaster of the NICU. Seeing this, I knew I wanted to help NICU families.

How does your organization/company/hospital support NICU families?
ICU Baby unites NICU families and offers emotional, financial, and informational support so babies and their families can thrive in the NICU. We offer mentorship programs, peer-to-peer support, meals, packs with NICU supplies, informational programming, and financial support to cover transportation costs.

What insight or advice do you have for healthcare partners who want to implement/strengthen FCC practices in their hospital?
I think it is critical to engage former NICU parents in driving FCC practices. Those parents have the lived experience in that specific hospital and can guide, advise, and even serve as mentors to future NICU parents. Their insights are critical!

What are the greatest needs of families in maternal-infant health you observe through your work?
NICU parents have significant mental health issues, yet there is little support for them. If screenings are done, they are typically done early in the NICU stay and not again. As the baby's time in the NICU progresses, parents struggle more and have nowhere to turn.

What does being part of the FCC Taskforce mean to you personally?
The FCC Taskforce is really laying the groundwork for future care in the NICU across the nation. As the movement to build FCC grows, I am proud that I can share what ICU Baby has learned and the resources we have found helpful with other teams. I'm also excited to hear about others' best practices.

What is your greatest wish in terms of the positive impact the FCC Taskforce members can make together in maternal-infant health?
My wish would be that parents would never have to leave their baby's NICU bedside and they would feel fully informed, empowered, and confident while there.

Anything else you want our community to know?
This work is critical to ensure the wellbeing of NICU parents. We have seen FCC practices in motion and they change the entire ecosystem of the NICU for the better. ICU baby is so grateful to be meaningfully supporting NICU families here in South Florida.

NICU & bereaved parents are... *BRAVE.*

Healthcare partners are... *HEROS.*

Vol. 05 **11/2023**

SMALL GROUP SPOTLIGHT

MARIA FRANCO-FUENMAYOR, MD

NICUs participating in the Taskforce's small groups are working hard to improve their FCC practices. Here's a recent success story submitted by Small Group 1 Leader Jessica Fry,MD.

Maria Franco-Fuenmayor, MD
Assistant Professor of Pediatrics,
University of Texas Medical Branch, Galveston TX

When she was a NICU fellow at University of Texas Medical Branch in Galveston, Maria Franco-Fuenmayor, MD developed and led a local "HOME SAFE" team that tackled both discharge practices and family-centered care. After immense growth, the group decided to create separate committees, one to improve discharge readiness and another to strengthen FCC. Maria leads the latter, now as a faculty member, and has directed the development of multiple initiatives. These include the use of first names in the EMR, revamped holiday celebrations with collage pictures that families can take home (a favorite of families!), creation of an FCC dashboard for easy viewing by all teams, and improved documentation of communication with families (at 24 and 72 hours post birth, and during hospitalization). The committee has also initiated "goals of care" meetings at specific timepoints (usually at 4 weeks in the NICU and 36 weeks post menstrual age) to discuss each infant's course and discharge requirements.

In addition to her work on the unit, Maria has taken on a special role within the FCC Taskforce's small group. With the support of small group leaders and other team members, she is currently leading a scoping review of the literature on FCC within the NICU. We hope to have more updates on this project soon. We are grateful to partner with Maria. Her enthusiasm and commitment to the work have already brought amazing results, and we know she will continue to advance the work and the field!

HOW TO PROVIDE INTENTIONAL CARE

SUE LUDWIG, *TINY HUMANS, BIG LESSONS*

5 Second Rule of Intention

Second One: Pause and breathe. As you step into the baby's bed space, use that transition as a cue to hit pause on your busyness and take a deep breath.

Second Two: Check your baggage. Consciously check any personal or professional baggage you may have in tow.

Second Three: Address the baby by name. This is to respect the baby as an individual. It also serves to grade the sensory input - first a verbal cue, then touch.

Second Four: Provide human touch. Before doing any 'procedural touch,' take a moment and provide the baby with a gentle but firm hand hug.

Second Five: Set your intention. While providing that human touch, set the intention for the session. For example, "I intend to decrease Nia's stress while she has a new IV placed."

Vol. 05 11/2023

QUARTERLY RECOMMENDATIONS

Recently, we asked our small groups about barriers in implementing FCC practices, and many indicated that time is a significant hurdle. In our September poll, we asked you for recommendations about how to improve engagement in FCC practices when timing is tight. Check out some of our favorites below! We also share suggestions for how to support and engage non-birthing parents, to build on the themes from our most recent webinar.

Tips for implementing FCC:

- Educate your team on how having engaged family at bedside can be a time saver. (Share Taskforce webinar recordings!)
- Let FCC/education be a part of your workflow, not an additional task. Engage families in the care processes, teaching as you go.
- Share parent feedback and stories with the team and your administration.
- Create small subcommittees for different projects, instead of one large group taking on all projects.
- Recruit a family leader, discharge coordinator, nurse educator, social worker, or child life specialist to assist in FCC duties.
- Celebrate small wins.

Suggestions for supporting non-birthing parents:

- Help prevent what's been coined the "NICU dad shuffle," when the non-birthing parent has TWO (or more!) patients to care for. This is especially critical in the first 24 hours after birth. Recognize and acknowledge that this time might be overwhelming for non-birthing parents.
- Non-birthing parents should be considered equal care partners to birthing parents. Often, they are left out of care processes and don't receive updates or resources. We can work to change this.
- All parents suffer from stress, anxiety, and trauma in the NICU, and all deserve mental health resources whether they gave birth or not.
- There are existing resources and support groups for dads! Consider including these in your unit resources:
  - The NICU Dad website and podcast
  - Hand to Hold weekly dad support groups
  - The DadPad guide for new Dads
- Remember to not refer to parents as "Mom" or "Dad." Always ask parents by what name or title they want to be addressed.

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Keira Sorrells
Founder and Executive Director, NICU Parent Network
Co-Chair, Family Centered Care Taskforce

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Morgan Kowalski
Program Manager
Family Partner
Golisano Children's Hospital NICU
University of Rochester Medical Center

"The definitive work in genetic evaluation of newborns"
- Judith G. Hall

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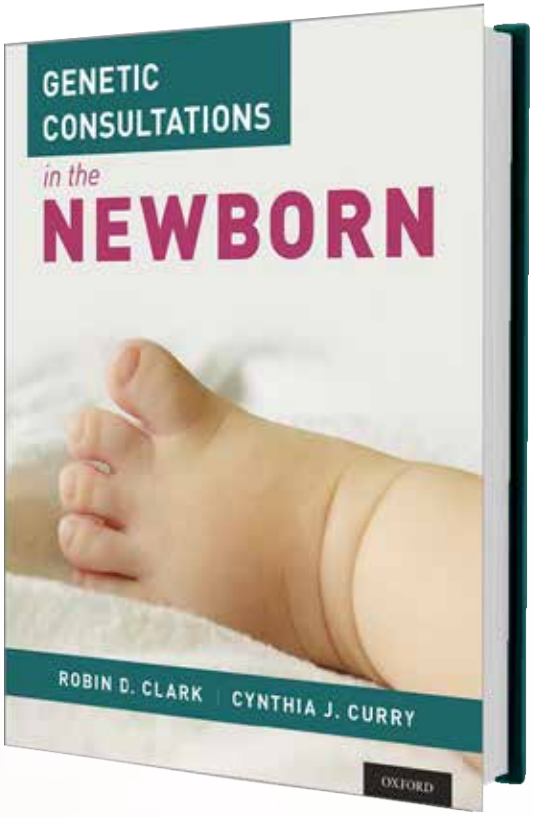

Robin D. Clark | Cynthia J. Curry

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Peer Reviewed

Non-invasive Ventilation and Bronchopulmonary Dysplasia: Has There Been A Decrease in BPD?

Joseph R. Hageman, MD, Walid Hussain, MD, Mitchell Goldstein, MD

"I sense that although providers have worked hard to decrease BPD and chronic lung disease (CLD) rates in extremely low birth weight infants (ELBW) and very low birth weight infants, BPD and CLD rates remain as steady as they were in the 1980s (1)."

I wanted to review recent non-invasive ventilation and bronchopulmonary dysplasia (BPD) literature. I sense that although providers have worked hard to decrease BPD and chronic lung disease (CLD) rates in extremely low birth weight infants (ELBW) and very low birth weight infants, BPD and CLD rates remain as steady as they were in the 1980s (1). Some of the efforts that have been used to decrease the rates of BPD include increased use of non-invasive ventilation and antenatal corticosteroids and surfactants, but they have not been as successful as one would hope.

The risk factors for BPD or CLD include a complex interaction between immaturity, genetic predisposition, and prenatal and postnatal insults (2). BPD is also associated with ventilator-induced lung injury with prolonged ventilation beginning on postnatal day 1 (2,3). Other pre- and postnatal risk factors include male sex, iatrogenic preterm birth, maternal hypertensive disorders of pregnancy, low gestational age, small for gestational age, birth weight, and the need for patent ductus arteriosus (PDA) management (3).

"The risk factors for BPD or CLD include a complex interaction between immaturity, genetic predisposition, and prenatal and postnatal insults (2)."

An excellent retrospective cohort study from the NICUs in Spain of 17,952 infants from 23^0-31^6 weeks' gestation and birthweight of less than 1500 grams from 2010-2019 demonstrated that there were no significant differences in BPD-free survival or survival without moderate-to-severe BPD despite significant changes in respiratory care practices in this period (1).

From the United Kingdom, Laura Sand and colleagues report National Neonatal Research Database information on 56,000 infants born at less than 32 weeks gestation in England and Wales from 2010 to 17 (4). There were substantial increases in continuous positive airway pressure (CPAP) and High-Flow Nasal Cannula (HFNC) therapy over time, including as primary therapy. Increasing use of these therapies was associated with an increased risk of BPD (4).

An accompanying editorial by Brett Manley and Kate Hodgson discusses the difficulties with defining BPD (5). There may be confounding by indication whereby infants who survive to get HFNC may be those who already have BPD. The gestation ages and birthweights included in these studies grouped infants with dramatically different risks and care needs.

As a result, despite the clinical improvements with the use of antenatal corticosteroids and surfactant therapy, as well as some data supporting forms of non-invasive ventilation in premature infants with lung disease, we have not yet seen a significant decrease in BPD or CLD up to this point in time.

"As a result, despite the clinical improvements with the use of antenatal corticosteroids and surfactant therapy, as well as some data supporting forms of non-invasive ventilation in premature infants with lung disease, we have not yet seen a significant decrease in BPD or CLD up to this point in time. "

References:

1. Hutchson AA, Bignall S. Non-invasive positive pressure ventilation in the preterm neonate: reducing endotrauma and the incidence of bronchopulmonary dysplasia. Arch Dis Child Fetal Neonatal Ed. 2008 Jan;93(1):F64-8. doi: 10.1136/adc.2006.103770. Epub 2007 Sep 3. PMID: 17768159.

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Clinical Pearls are published monthly.

Submission guidelines for “Clinical Pearls”:

1250 word limit not including references or title page.

May begin with a brief case summary or example.

Summarize the pearl for emphasis.

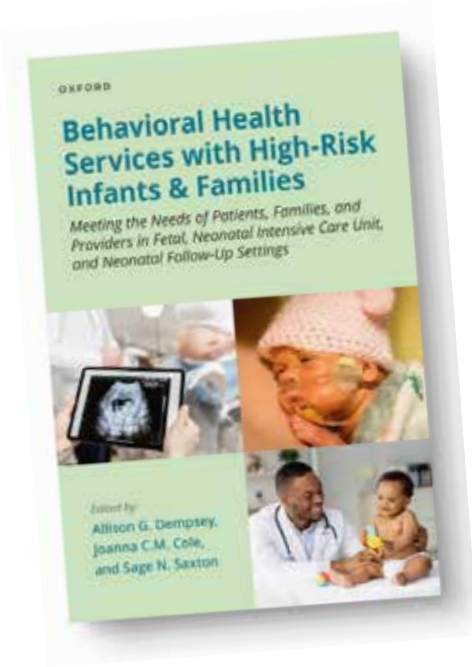
No more than 7 references.

Please send your submissions to:

jhageman@peds.bsd.uchicago.edu

National Network of NICU Psychologists

Education, Resources, and Support for Perinatal Mental Health Professionals



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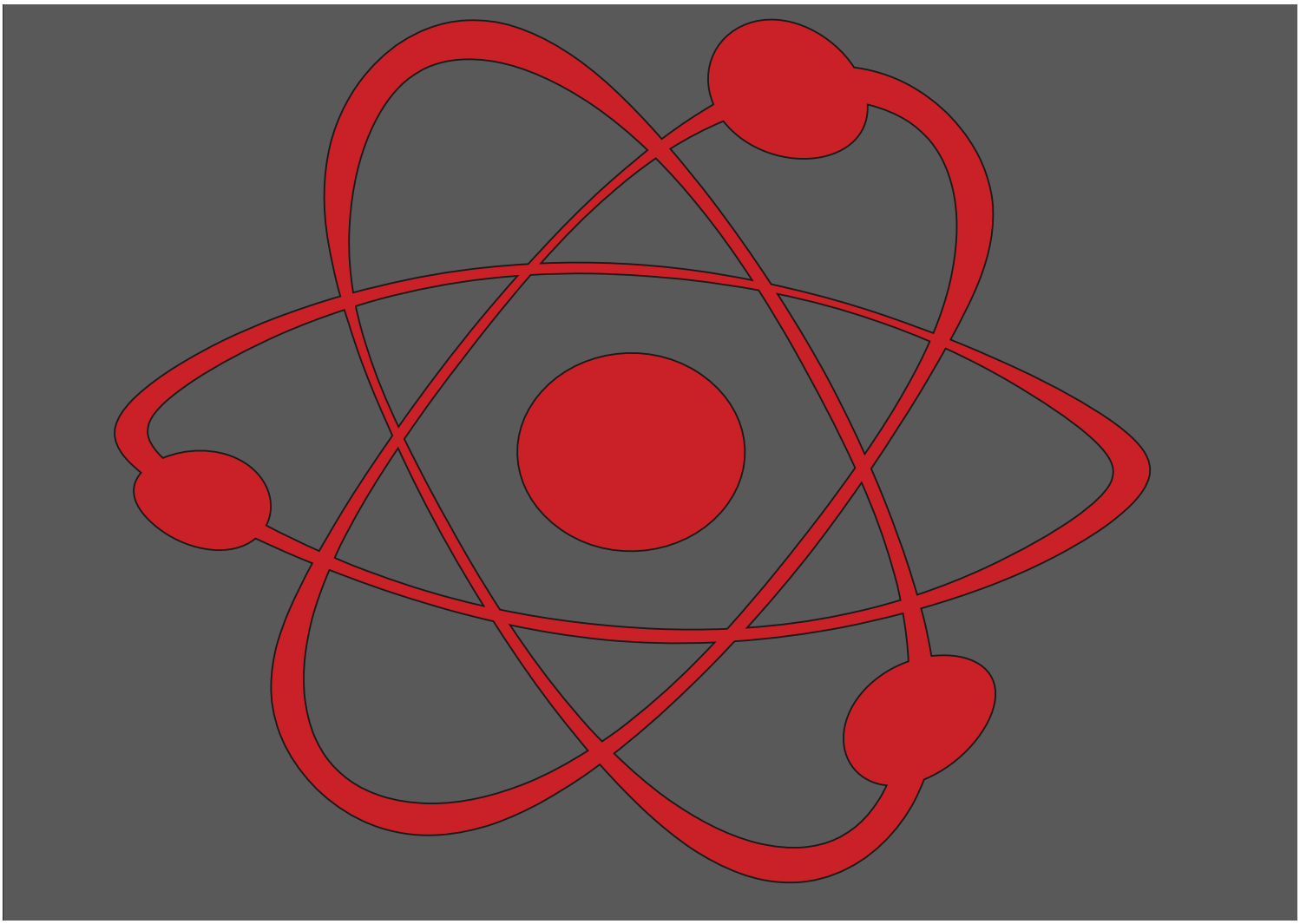

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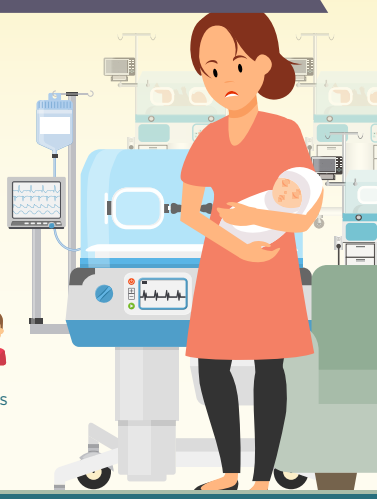
Will your PRETERM INFANT *need* EARLY INTERVENTION *services?*

Preterm infants are:

2x more likely to have developmental delays

5x more likely to have learning challenges

1 in **3** preterm infants will require support services at school



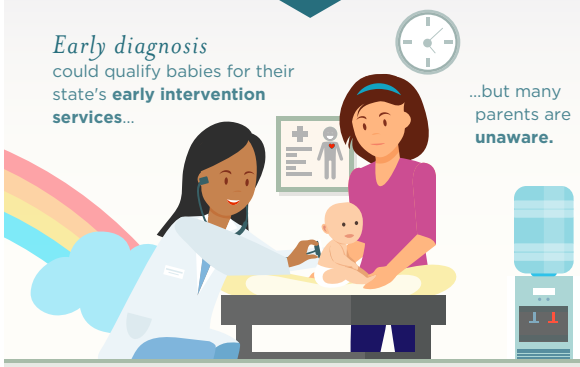
Early intervention can help preterm infants:

- Enhance language and communication skills
- Build more effective learning techniques
- Process social and emotional situations
- Address physical challenges
- Prevent mild difficulties from developing into major problems

Early diagnosis

could qualify babies for their state's **early intervention services**...

...but many parents are **unaware.**



NICU staff, nurses, pediatricians and social workers **should talk** with NICU families about the challenges their baby may face.

Awareness, referral & timely enrollment in early intervention programs can help **infants thrive** and grow.

NCFIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

Visit **CDC.gov** to find contact information for your state's early intervention program.

Las nuevas mamás necesitan acceso a la detección y tratamiento para LA DEPRESIÓN POSPARTO

1 DE CADA **7** MADRES AFRONTA LA DEPRESIÓN POSPARTO, *experimentando*

- Llanto incontrolable
- Sueño interrumpido
- Ansiedad
- Desplazamientos en los patrones de alimentación
- Ideas de hacerse daño a sí mismas o al bebé
- Distanciamiento de amigos y familiares

Sin embargo, sólo el 15% recibe tratamiento[1]

LA DEPRESIÓN POSTPARTO **NO TRATADA** PUEDE AFECTAR:

- *La salud de la madre*
- *El sueño, la alimentación y el comportamiento del bebé a medida que crece*[2]
- *La capacidad para cuidar de un bebé y sus hermanos*

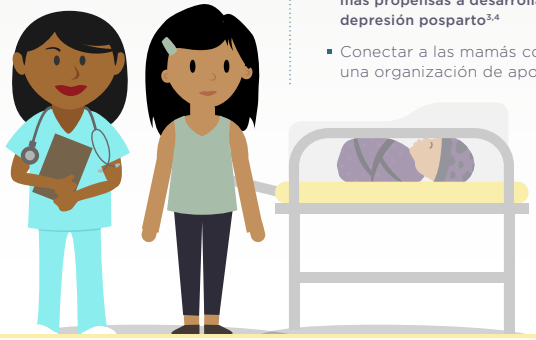
PARA AYUDAR **A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSPARTO**

LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnostico
- Proteger el acceso al tratamiento

LOS HOSPITALES PUEDEN:

- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión posparto**[3,4]
- Conectar a las mamás con una organización de apoyo



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www.infanthealth.org

[1] American Psychological Association. Accesible en: http://www.apa.org/pi/women/resources/reports/postpartum-depression.aspx

[2] National Institute of Mental Health. Accesible en: https://www.nimh.nih.gov/health/publications/postpartum-depression-facts/index.shtml

[3] Journal of Perinatology (2015) 35, 529–536; doi:10.1038/jp.2015.147.

[4] Prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants: a systematic review. Vigod SN, Villegas L, Dennis CL, Ross LE BJOG. 2010 Apr; 117(5):540-50.

Upcoming Medical Meetings

40th Advances in Neonatal and Pediatric Cardiorespiratory Care
January 31-February 2, 2024
Hilton Los Angeles North/Glendale
100 West Glenoaks Blvd.
Glendate, CA 91202
https://paclac.org/advances-in-care-conference/

NEO: The Conference for Neonatology
Feb 21 – Feb 23, 2024
Las Vegas, NV
https://www.pediatrix.com/for-clinicians/neo-conference

Mednax: Specialty Review in Neonatology
Feb 19 – Feb 24, 2024
Las Vegas, NV
https://www.pediatrix.com/for-clinicians/specialty-review-conference

2024 Gravens Conference: The Power of Voice: Using Your Voice for Babies, Family, Staff and Beyond
March 6-9, 2024
Sheraton Sand Key Resort
Clearwater Beach, FL
https://paclac.org/https-paclac-org-gravens-conference/

14th annual National Association of Neonatal Therapists (NANT) Conference in
Miramar Beach, Florida,
April 11th - 13th, 2024
https://nantconference.com/early-notification/

PAS 2024
Toronto, Canada
May 2-6, 2024
https://www.pas-meeting.org/

For up to date Meeting Information, visit NeonatologyToday.net and click on the events tab.

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Descanso Gardens - 9.9 km / 6.2 mi
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https://www.nc3rs.org.uk/arrive-guidelines

http://www.icmje.org

https://olaw.nih.gov/policies-laws/phs-policy.htm

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Neonatology and the Arts

This section focuses on artistic work which is by those with an interest in Neonatology and Perinatology. The topics may be varied, but preference will be given to those works that focus on topics that are related to the fields of Neonatology, Pediatrics, and Perinatology. Contributions may include drawings, paintings, sketches, and other digital renderings. Photographs and video shorts may also be submitted. In order for the work to be considered, you must have the consent of any person whose photograph appears in the submission.

Works that have been published in another format are eligible for consideration as long as the contributor either owns the copyright or has secured copyright release prior to submission.

Logos and trademarks will usually not qualify for publication.

This month we continue to feature artistic works created by our readers on the next to last page as well as photographs of birds on rear cover.. For this edition, our art was graciously provided by Colleen Kraft, MD. It is a work called "Light a Candle" done by her son Tim. Our Bird is a Woodpecker from my collection.

Mita Shah, MD,
Neonatal Intensive Care Medical Director
Queen of the Valley Campus
Emanate Health, West Covina, CA

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Manuscript Submission: Instructions to Authors

1. Manuscripts are solicited by members of the Editorial Board or may be submitted by readers or other interested parties. Neonatology Today welcomes the submission of all academic manuscripts including randomized control trials, case reports, guidelines, best practice analysis, QI/QA, conference abstracts, and other important works. All content is subject to peer review.

2. All material should be emailed to: LomaLindaPublishingCompany@gmail.com in a Microsoft Word, Open Office, or XML format for the textual material and separate files (tif, eps, jpg, gif, ai, psd, SVG, or pdf) for each figure. Preferred formats are ai, SVG, psd, or pdf. tif and jpg images with sufficient resolution so as not to have visible pixilation for the intended dimension. In general, if acceptable for publication, submissions will be published within 3 months.

3. There is no charge for submission, publication (regardless of number of graphics and charts), use of color, or length. Published content will be freely available after publication. There is no charge for your manuscript to be published. NT does maintain a copyright of your published manuscript.

4. The title page should contain a brief title and full names of all authors, their professional degrees, their institutional affiliations, and any conflict of interest relevant to the manuscript. The principal author should be identified as the first author. Contact information for the principal author including phone number, fax number, e-mail address, and mailing address should be included.

5. A brief biographical sketch (very short paragraph) of the principal author including current position and academic titles as well as fellowship status in professional societies should be included. A picture of the principal (corresponding) author and supporting authors should be submitted if available.

6. An abstract may be submitted.

7. The main text of the article should be written in formal style using correct English. The length may be up to 10,000 words. Abbreviations which are commonplace in neonatology or in the lay literature may be used.

8. References should be included in standard "NLM" format (APA 7th is no longer acceptable). Bibliography Software should be used to facilitate formatting and to ensure that the correct formatting and abbreviations are used for references.

9. Figures should be submitted separately as individual separate electronic files. Numbered figure captions should be included in the main file after the references. Captions should be brief.

10. Only manuscripts that have not been published previously will be considered for publication except under special circumstances. Prior publication must be disclosed on submission. Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

11. NT recommends reading Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals from ICMJE prior to submission if there is any question regarding the appropriateness of a manuscript. NT follows Principles of Transparency and Best Practice in Scholarly Publishing(a joint statement by COPE, DOAJ, WAME, and OASPA). Published articles become the property of the Neonatology Today and may not be published, copied or reproduced elsewhere without permission from Neonatology Today.

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

Please submit your manuscript to: LomaLindaPublishingCompany@gmail.com

NICU Baby's Bill of Rights

1- The Right to Advocacy
My parents know me well. They are my voice and my best advocates. They need to be knowledgeable about my progress, medical records, and prognosis, so they celebrate my achievements and support me when things get challenging.

2- The Right to My Parents' Care
In order to meet my unique needs, my parents need to learn about my developmental needs. Be patient with them and teach them well. Make sure hospital policies and protocols, including visiting hours and rounding, are as inclusive as possible.

3- The Right to Bond with My Family
Bonding is crucial for my sleep and neuroprotection. Encourage my parents to practice skin-to-skin contact as soon as and as often as possible and to read, sing, and talk to me each time they visit.

4- The Right to Neuroprotective Care
Protect me from things that startle, stress, or overwhelm me and my brain. Support things that calm me. Ensure I get as much sleep as possible. My brain is developing for the first time and faster than it ever will again. The way I am cared for today will help my brain when I grow up. Connect me with my parents for the best opportunities to help my brain develop.

5- The Right to be Nourished
Encourage my parents to feed me at the breast or by bottle, whichever way works for us both. Also, let my parents know that donor milk may be an option for me.

6- The Right to Personhood
Address me by my name when possible, communicate with me before touching me, and if I or one of my siblings pass away while in the NICU, continue referring to us as multiples (twin/triplets/quads, and more). It is important to acknowledge our lives.

7- The Right to Confident and Competent Care Giving
The NICU may be a traumatic place for my parents. Ensure that they receive tender loving care, information, education, and as many resources as possible to help educate them about my unique needs, development, diagnoses, and more.

8- The Right to Family-Centered Care
Help me feel that I am a part of my own family. Teach my parents, grandparents, and siblings how to read my cues, how to care for me, and how to meet my needs. Encourage them to participate in or perform my daily care activities, such as bathing and diaper changes.

9- The Right to Healthy and Supported Parents
My parents may be experiencing a range of new and challenging emotions. Be patient, listen to them, and lend your support. Share information with my parents about resources such as peer-to-peer support programs, support groups, and counseling, which can help reduce PMAD, PPD, PTSD, anxiety and depression, and more.

10- The Right to Inclusion and Belonging
Celebrate my family's diversity and mine; including our religion, race, and culture. Ensure that my parents, grandparents, and siblings feel accepted and welcomed in the NICU, and respected and valued in all forms of engagement and communication.

Presented by:

NPN
NICU PARENT NETWORK

NICU Parent Network

Visit nicuparentnetwork.org to identify national, state, and local NICU family support programs.

*** The information provided on the NICU Baby's Bill of Rights does not, and is not intended to, constitute legal or medical advice. Always consult with your NICU care team for all matters concerning the care of your baby.**