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Health and Wellness: Sleep, Part 2: Effects on Metabolism

Hun-Seng Chao, MD

We healthcare workers work hard to care for our patients, but we sometimes forget to care for ourselves. In this series, I will discuss health and wellness, two things most of us never really learned much about in medical school, including nutrition, ways to prevent disease, and how vitally important our lifestyle is to our health. It will occasionally be relevant to our patients but is mainly directed toward healthcare workers. I am not an expert in this topic, but I will share with you what I have learned over the past few decades since med school from multiple research-backed sources, including functional medicine, functional nutrition, integrative medicine, and others, as well as allopathic medicine. Of course, this is not intended to be medical advice or to diagnose or treat any illness or condition.

Central and Peripheral Clocks:

In Part 1 of our series on sleep, we discussed the effect of aging and deterioration of sleep on the brain and that our circadian rhythm is controlled by the suprachiasmatic nucleus (SCN). The SCN responds to light-dark exposure, the primary and strongest *zeitgeber*, German for "time-giver," which is an external or environmental time cue that entrain circadian rhythms. Other zeitgebers include exercise, food, temperature, and social cycles (work or school).

The SCN controls many processes and functions in our bodies and communicates through direct neural innervation (to the hypothalamus, pineal gland, autonomic nervous system, and others), hormones (released by the pituitary in response to hypothalamic activation, for example), and environmental/behavioral signals (like feeding). (See Figure 1)

"The SCN controls many processes and functions in our bodies and communicates through direct neural innervation (to the hypothalamus, pineal gland, autonomic nervous system, and others), hormones (released by the pituitary in response to hypothalamic activation, for example), and environmental/behavioral signals (like feeding)."

Scientists have also discovered that many, if not all, of our tissues (and even cells) have their own circadian rhythms called "peripheral clocks" (see Figure 2), mostly synchronized with the master clock, the SCN, but sometimes independent of it. The master clock is like an orchestra conductor, keeping our many peripheral clocks aligned and in sync with the 24-hour day. When all the clocks are coordinated and receiving consistent external cues, "our bodies work like a symphony playing in tune and in time." (3) "Light is the SCN's most powerful influencer, but your master clock also responds to more subtle cues such as when we exercise, eat, and socialize with others. When these zeitgebers are ill-timed, it can put the conductor and musicians out of step." (3)

Desynchronization between the central and peripheral clocks, which may be caused by sleep deprivation or shift work or jet lag, can lead to diabetes/insulin resistance/metabolic syndrome (5), cancer (6), cardiovascular disorders (7), and neuropsychiatric disorders (8). As seen in Figure 1, many components of the immune system also are under circadian influence. Inadequate sleep has also been studied for its effect on the immune system

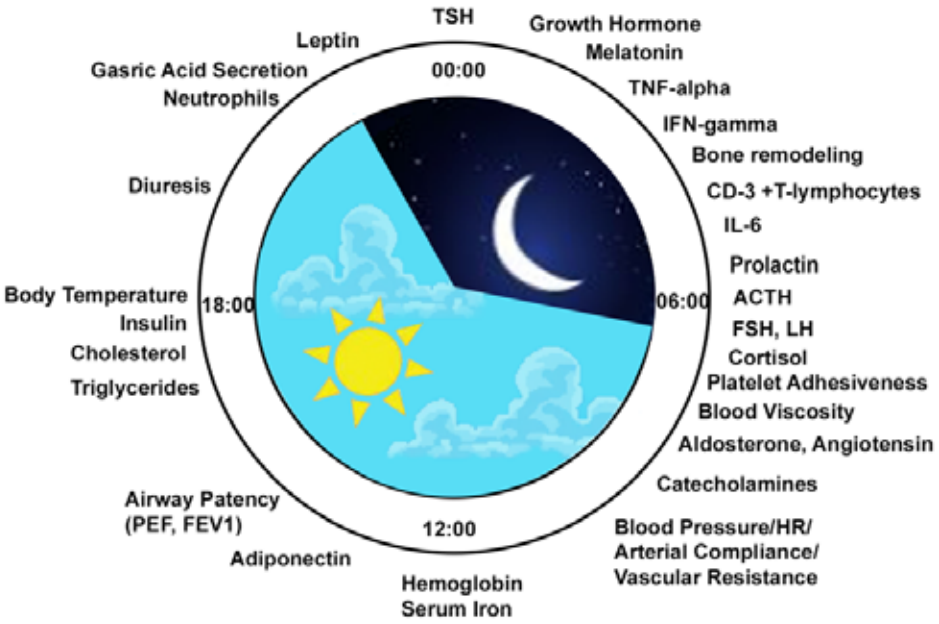


Figure 1. Human Circadian Peak Time of Function (adapted from Ayyar [1] and Smolensky [2])

The approximate peak time of human circadian rhythms of selected biological molecules/processes in people with usual routine of daytime activity (about 6–7 AM to 10–11 PM), alternating with nighttime sleep.

with findings of nonspecific activation of leukocyte populations and altered systemic immune and inflammatory markers, leading to low-level systemic inflammation (9, 10) on one hand and decreased response to some vaccinations (influenza [11] and Hepatitis A [12]) on the other. Chronic systemic inflammation can also lead to cardiovascular disease, cancer, insulin resistance, type 2 diabetes mellitus (T2DM), and Alzheimers, among many others.

"Desynchronization between the central and peripheral clocks, which may be caused by sleep deprivation or shift work or jet lag, can lead to diabetes/ insulin resistance/metabolic syndrome, cancer, cardiovascular disorders, and neuropsychiatric disorders."

This article will focus on the role of sleep deprivation in causing insulin resistance and metabolic syndrome, eventually leading to T2DM if sleep (and usually other factors) is not improved.

Metabolic Health—or Lack Thereof

Alarmingly, a 2022 study from Tufts University found that **only 6.8% of Americans have optimal cardiometabolic health**, defined as Body Mass Index <25 kg/m^3 (and waist circumference ≤88 cm in women and ≤102 cm in men), fasting plasma glucose <100 mg/dl and HbA_{1c} <5.7% (without medication), Total Cholesterol:HDL <3.5:1 (without medication), systolic BP <120 and diastolic BP <80 (without medication), and no history of cardiovascular disease. (13) We're not alone; cardiovascular disease is also increasing around the world. (14) Why is our cardiometabolic health deteriorating? Part of it is the ubiquity of sleep disruption in our society and partly because of poor nutrition and lack of exercise, both of which will be covered in future articles.

Let us start with basic physiology of glucose metabolism. In medical school (a long time ago for many of us), we were taught that after eating a meal with carbohydrates, blood glucose level rises, which then causes the pancreas to release insulin, and then the glucose level goes back down. If the glucose level gets too low, the pancreas secretes glucagon, and the liver produces glucose by gluconeogenesis and glycogenolysis. Simple, right? Well... it's so much more complicated than that. What we didn't know back then is that insulin, glucagon, and glucose response all have circadian rhythms, which can be disrupted in individuals with T2DM; that blood glucose homeostasis and insulin response are strongly affected by many factors, including local (pancreas) as well as distal (liver, intestine, brain) circadian rhythms (see Figure 3); and that there are several other hormones involved, which all work together to control blood glucose levels as well as appetite and weight gain.

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Pancreatic Effects on Glucose Metabolism:

Let us review pancreatic physiology and glucose homeostasis since some of the components involved were discovered after many of us went to med school, and we were mostly unaware of the complex interplay between the different factors and hormones involved at that time. (Most of this part is taken from Chan et al. [15]) As you will remember, the pancreas has exocrine functions and secretes inactive forms of pancreatic enzymes, which enter

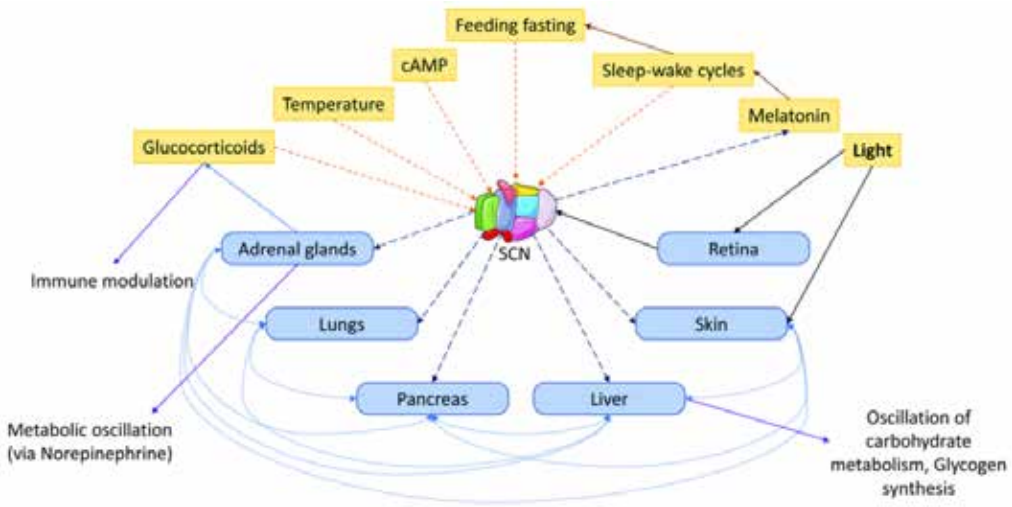


Figure 2. Zeitgebers and connections between central and peripheral circadian clocks. (Salazar [4], CC Attribution 4.0 Int'l)

"Light, the primary zeitgeber, gives tact to the central circadian clock in the hypothalamic suprachiasmatic nucleus (SCN) via the optical nerve. This, in turn, entrains the molecular clocks in peripheral tissues. The peripheral clocks can achieve entrainment independent of the SCN and can communicate with each other. Links between peripheral clocks examined in the literature are demarked with blue dashes. Sleep-wake cycle, feed and fasting, temperature, as well as melatonin, cAMP, and glucocorticoids can act as zeitgebers."

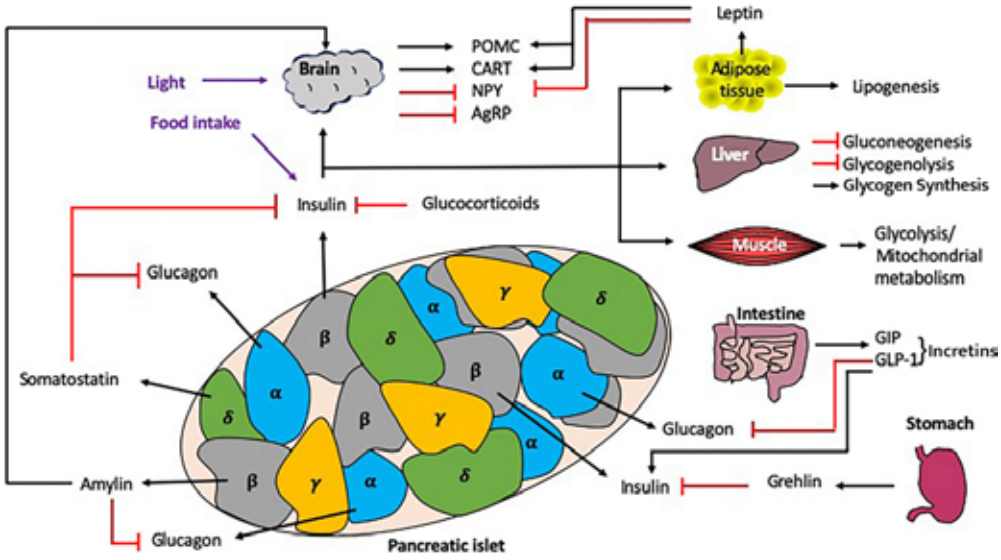


Figure 3. Blood glucose homeostasis. (modified from Chan [15], CCBY)

Blood glucose homeostasis is controlled by many signals, both locally within the pancreas and more distally, from the brain, liver, muscle, intestine, stomach, and adipose tissue. Within the pancreatic islets, the α cells secrete glucagon, the β cells secrete insulin (and amylin), g cells secrete pancreatic polypeptide and the δ cells secrete somatostatin. In response to high glucose, the islet β cells secrete insulin, which is detected by multiple tissues in the periphery, leading to the synthesis or induction of many hormones/processes (lipogenesis, glycolysis, and glycogen synthesis) as well as the inhibition of others (glycogenolysis and gluconeogenesis). There are many mechanisms involved in the regulation of insulin secretion, both locally (glucagon and somatostatin) and distally (intestine/stomach via hormones [grehlin and glucocorticoids] and incretins [GIP/GLP-1]). Exogenous factors, such as light and food intake (shown in purple), can also regulate blood glucose homeostasis, as can endogenous factors such as glucocorticoids, which also show rhythmicity. Black arrows indicate induction, red lines indicate inhibition.

the gut and are activated to become lipase, proteases, and amylase. More relevant to this article, the pancreas also has important endocrine functions with cell clusters, the Islets of Langerhans, containing a, b, d, g (now known as "F cells" or "PP cells" [pancreatic polypeptide]), and e cells (discovered in 2002). These cells secrete hormones integral to glucose homeostasis, food intake, and insulin responses.

"Insulin receptors are also located throughout the brain. In the arcuate nucleus (ARC)...Insulin stimulates anorexigenic pro-opiomelanocortin (POMC) and cocaine-amphetamine-regulated transcript (CART) neurons but inhibits orexigenic neurons neuropeptide Y (NPY) and agouti-related peptide [AgRP]). These signals lead to decreased food intake and increased energy expenditure."

The b-cells in the islets detect changes in glucose levels and secrete **insulin** when needed. Insulin acts on several tissues, including the liver, adipose tissue, and skeletal muscle to enable the entry of glucose into these cells to undergo glycolysis, mitochondrial metabolism, glycogenesis (glycogen synthesis), or lipogenesis (fat synthesis). Insulin inhibits hepatic gluconeogenesis (glucose synthesis) and glucose secretion. When the blood glucose levels are low, the liver stimulates glycogenolysis (breakdown of glycogen) and gluconeogenesis and releases glucose into the blood. Insulin receptors are also located throughout the brain. In the arcuate nucleus (ARC), located in the mediobasal hypothalamus (MBH), insulin regulates the orexigenic (appetite-stimulating) and anorexigenic (loss of appetite) neurons. Insulin stimulates anorexigenic pro-opiomelanocortin (POMC) and cocaine-amphetamine-regulated transcript (CART) neurons but inhibits orexigenic neurons neuropeptide Y (NPY) and agouti-related peptide [AgRP]). These signals lead to decreased food intake and increased energy expenditure.

"In response to low blood sugar, the islet of Langerhans α-cells secrete glucagon, which has opposing actions to insulin. It stimulates glucose synthesis and release as well as ketogenesis and lipolysis in the liver and increases energy expenditure by an unknown mechanism"

In response to low blood sugar, the islet of Langerhans a-cells secrete **glucagon**, which has opposing actions to insulin. It stimulates glucose synthesis and release as well as ketogenesis and lipolysis in the liver (16) and increases energy expenditure by an unknown mechanism (except that it is not mostly through brown adipose tissue). (17) The liver detects glucagon levels, and this signal is transmitted via the vagus nerve to the Dorsal Vagal Complex (DVC) in the brainstem to decrease hepatic glucose production, unlike the effect of circulating glucagon (which increases glucose production). (18) In the brain, glucagon also affects the AgRP neurons in the MBH to decrease appetite and decrease hepatic glucose production. (18) In humans, glucagon usually leads to weight loss and decreased appetite (19), hence the present raging popularity of Glucagon-like peptide-1 (GLP-1) agonists (discussed below) for treatment of obesity and diabetes.

Interestingly, glucagon levels are abnormally elevated in both Type I and T2DM (20, 21), and its excess is believed to be involved in the pathophysiology of diabetes.

Amylin, or islet amyloid polypeptide (IAPP), formerly known as insulinoma amyloid peptide (IAP) or diabetes-associated peptide (DAP), is made in the pancreatic islet b-cells and in other tissues in

much lower amounts. Amylin and insulin are released in response to food intake. Amylin activates the area postrema in the brain to inhibit glucagon secretion, slow gastric emptying, and reduce food intake, hence its beneficial weight-lowering and anti-diabetic effects. It also inhibits orexigenic neurons in the ARC (22) and is being studied as a possible therapy for weight loss.

"In the brain, glucagon also affects the AgRP neurons in the MBH to decrease appetite and decrease hepatic glucose production. In humans, glucagon usually leads to weight loss and decreased appetite..."

Somatostatin, or growth hormone inhibiting hormone, is secreted by pancreatic d-cells, which comprise about 5% of the islet cells. About 65% of the total somatostatin is produced in the intestinal D-cells and is also found in neurons in the anterior periventricular nucleus and the ARC, where it was first discovered. Two isoforms, one a 14-amino acid peptide and the other a 28-amino acid peptide, exist and have similar activity with the shorter form primarily in the brain and the longer form in the gastrointestinal (GI) tract. It has neuroendocrine inhibitory effects across multiple systems, inhibiting GI, endocrine, exocrine, pancreatic, and pituitary secretions, and also modifies neurotransmission and memory formation in the central nervous system. Somatostatin has a very short half-life (a few minutes), so the stabilized, pharmacologic form is used in treatment of neuroendocrine tumors, where it inhibits cell cycle progression and inhibits cell growth by suppressing insulin-like growth factor 1 (IGF-1) and growth hormone. (23) As a side note, recently, somatostatin-secreting neurons are among the first to be damaged in Alzheimer's Disease, (24) which concurs with Davies' findings of decreased somatostatin immunoreactivity in Alzheimer's back in 1980. (25)

Extra-Pancreatic Hormonal Effects on Glucose Homeostasis:

Hormones released by other organs also affect glucose metabolism and/or hunger. **Adrenal corticosteroids** modulate many physiological processes involving stress responses, immune responses, inflammation, blood glucose homeostasis, and electrolyte balance. These also have a circadian rhythm. Glucocorticoids have anti-inflammatory effects and regulate carbohydrate, protein, and lipid metabolism. **Cortisol** is the primary glucocorticoid and is involved in the stress response. It also increases blood glucose by stimulating gluconeogenesis.

Incretins are hormones secreted by the intestinal cells after eating to regulate blood glucose levels and nutrient absorption. The two primary incretins are **GLP-1** and **gastric inhibitory peptide** (**GIP**). They aid the secretion of insulin to decrease blood glucose and slow the rate of gastric emptying to regulate nutrient absorption.

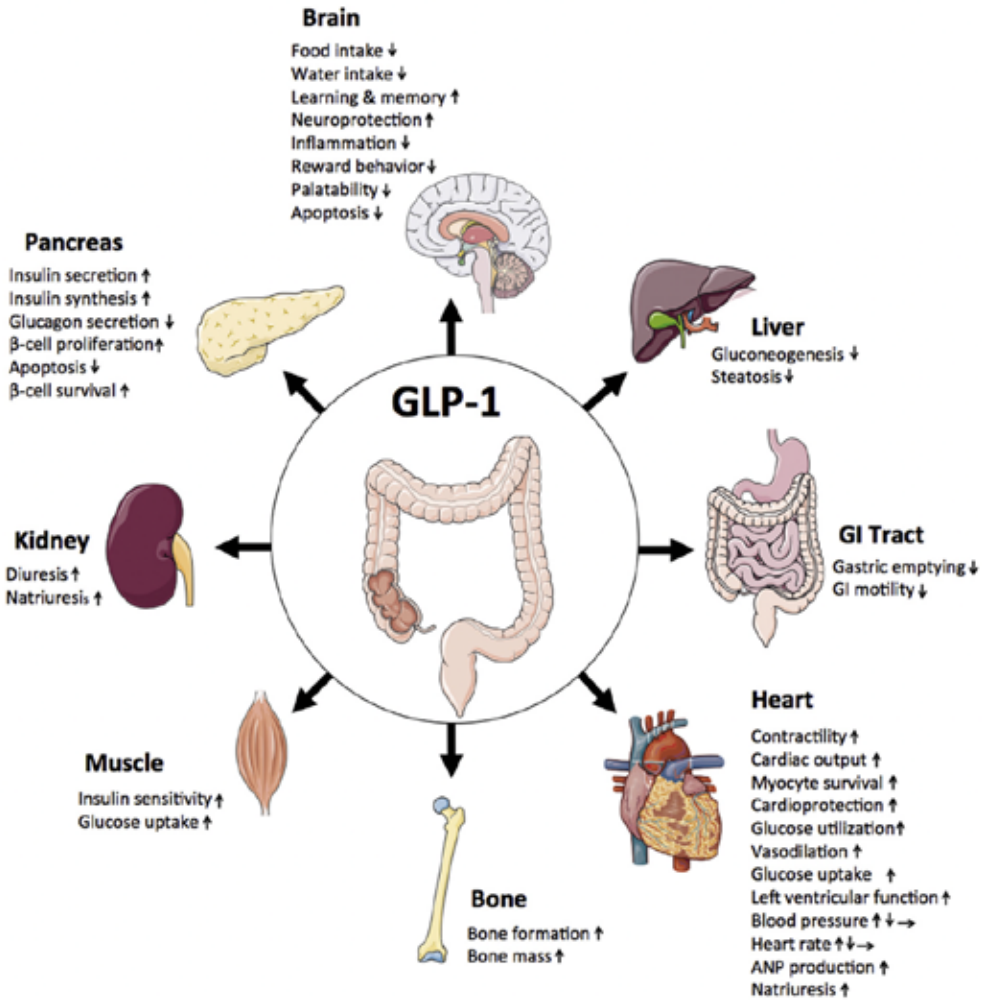


Figure 4. Myriad of Metabolic Effects of GLP-1, direct and indirect (Müller [26], Creative Commons BY-NC-ND)

Discovered in 1985, GLP-1 also inhibits glucagon secretion by pancreatic a-cells and has a multitude of other effects. (See Figure 4.) As mentioned earlier, GLP-1 agonists are widely used for weight loss and diabetes. GLP-1 and GIP are inactivated by dipeptidyl peptidase-4 (DPP-4), and DPP-4 inhibitors (gliptins) are being used to treat T2DM.

"Incretins are hormones secreted by the intestinal cells after eating to regulate blood glucose levels and nutrient absorption. The two primary incretins are GLP-1 and gastric inhibitory peptide (GIP). They aid the secretion of insulin to decrease blood glucose and slow the rate of gastric emptying to regulate nutrient absorption...GLP-1 also inhibits glucagon secretion by pancreatic a-cells and has a multitude of other effects. As mentioned earlier, GLP-1 agonists are widely used for weight loss and diabetes."

Discovered in 1999, **ghrelin,** "the hunger hormone," is secreted in small amounts by the pancreatic e-cells but is mostly produced by the PD/D1 cells of the stomach. It is also found in the small intestine, hypothalamus, pituitary, and adrenal gland. It stimulates GH release (hence its name). (See Figure 5.) By stimulating the orexigenic NPY neurons and inhibiting POMC neurons in the ARC, ghrelin stimulates appetite with subsequent increased food intake, lipogenesis, and fat storage. It raises blood glucose levels by inhibiting glucose-stimulated insulin secretion and impairs glucose tolerance. (27)

"...leptin is an adipokine, a peptide hormone released by white adipose tissue, and is commonly called the "satiety hormone." It signals cells in the hypothalamus, stimulating the anorexigenic POMC and inhibiting orexigenic AgRP/NPY neurons in the ARC, decreasing appetite. Its concentration in the blood is proportional to the amount of fat in the body...While obese individuals have higher leptin levels, they are resistant to its satiety effects."

Only discovered in 1994, **leptin** is an adipokine, a peptide hormone released by white adipose tissue, and is commonly called the "satiety hormone." It signals cells in the hypothalamus, stimulating the anorexigenic POMC and inhibiting orexigenic AgRP/NPY neurons in the ARC, decreasing appetite. (29) Its concentration in the blood is proportional to the amount of fat in the body. However,

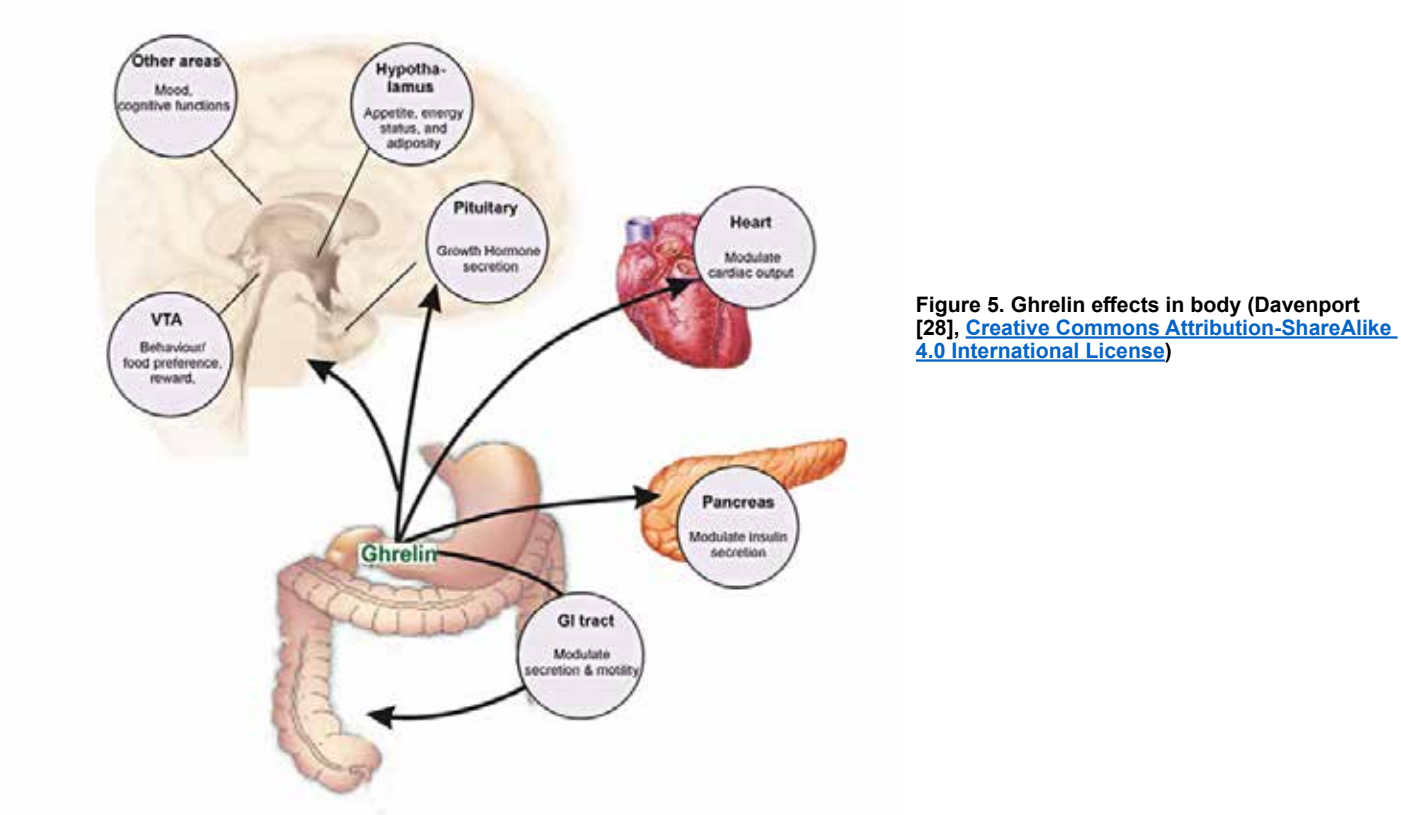


Figure 5. Ghrelin effects in body (Davenport [28], Creative Commons Attribution-ShareAlike 4.0 International License)

as its release is responsive to sex hormones, women have higher levels of leptin than men, even when adjusting for BMI. (30) While obese individuals have higher leptin levels, they are resistant to its satiety effects. (31)

"(Leptin) also has some immune function, and its structure is similar to proinflammatory cytokines, interleukin-6, IL-12, and granulocyte colony-stimulating factor, which contribute to low-level systemic inflammation and may lead to increased risk of developing cardiovascular diseases, T2DM, or degenerative diseases, including autoimmunity and cancer."

Leptin also has a strong circadian rhythm with maximal levels at night. It affects the thyroid, gonadal, and adrenocorticotropic hormone-cortisol growth hormone axes and influences whole-brain cognition, emotions, memory, and structure as well. (29) When the amount of adipose tissue decreases, the hypothalamus senses the decrease in leptin levels and goes into starvation mode with subsequent increased appetite and decreased energy expenditure. It also has some immune function, and its structure is similar to proinflammatory cytokines, interleukin-6, IL-12, and granulocyte colony-stimulating factor, which contribute to low-level systemic inflammation and may lead to increased risk of developing cardiovascular diseases, T2DM, or degenerative diseases, including autoimmunity and cancer. On the other hand, low levels of leptin, as found during food deprivation, are associated with impaired immune function. (30, 32)

Thyroid Stimulating Hormone (TSH) is released by the hypothalamus to regulate release of thyroid hormone (TH) by the pituitary. Figure 6 shows the effect of thyroid hormone on glucose metabolism. TH stimulates b-cell development in the newborn and increases glucose-stimulated insulin secretion in vivo. Beyond the newborn period, TH directly stimulates insulin secretion and glucagon release in the pancreas and increases glycogenolysis and gluconeogenesis, leading to increased hepatic glucose output. TH also stimulates lipolysis in adipose tissue, resulting in increased free fatty acid, leading to hepatic gluconeogenesis. In addition, TH also increases hepatic gluconeogenesis via a sympathetic pathway from the hypothalamic paraventricular nucleus to the liver, independent of glucoregulatory hormones. These effects lead to higher glucose levels and peripheral insulin resistance with hyperinsulinemia and glucose intolerance.

"Beyond the newborn period, TH directly stimulates insulin secretion and glucagon release in the pancreas and increases glycogenolysis and gluconeogenesis, leading to increased hepatic glucose output. TH also stimulates lipolysis in adipose tissue, resulting in increased free fatty acid, leading to hepatic gluconeogenesis... These effects lead to higher glucose levels and peripheral insulin resistance with hyperinsulinemia and glucose intolerance."

The anterior pituitary gland releases **Growth Hormone (GH)**, integral to controlling tissue and body growth and tissue repair. (See Figure 7.) It is released mainly during sleep, especially Slow

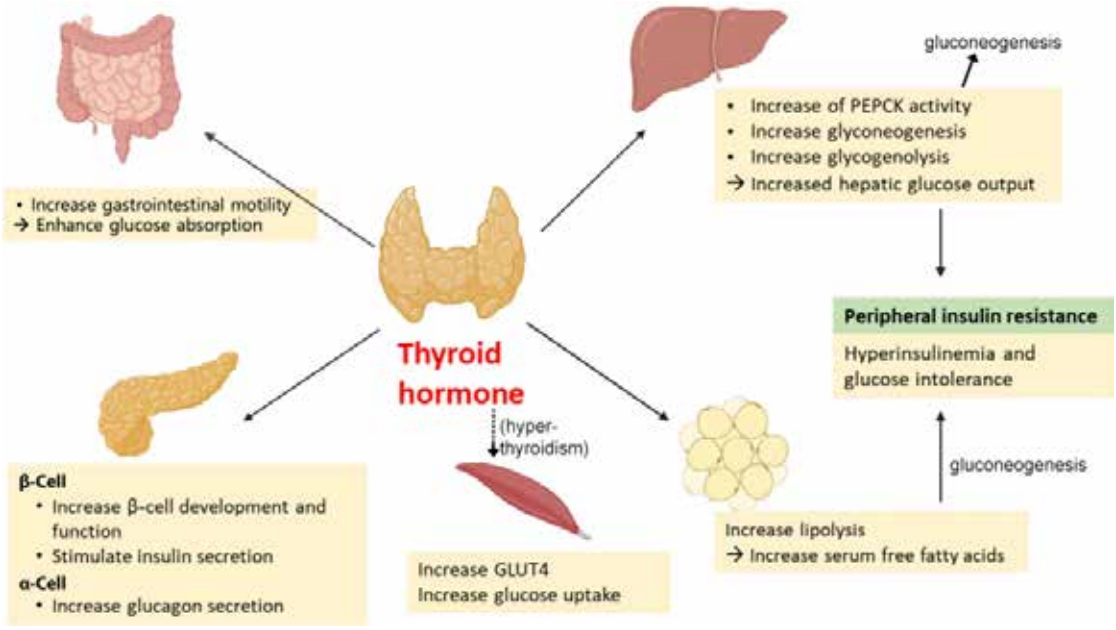


Figure 6. Effects of thyroid hormone on glucose metabolism (modified from Eom [33], CC by NC)

GLUT4, glucose transporter type 4; PEPCK, phosphoenolpyruvate carboxykinase.

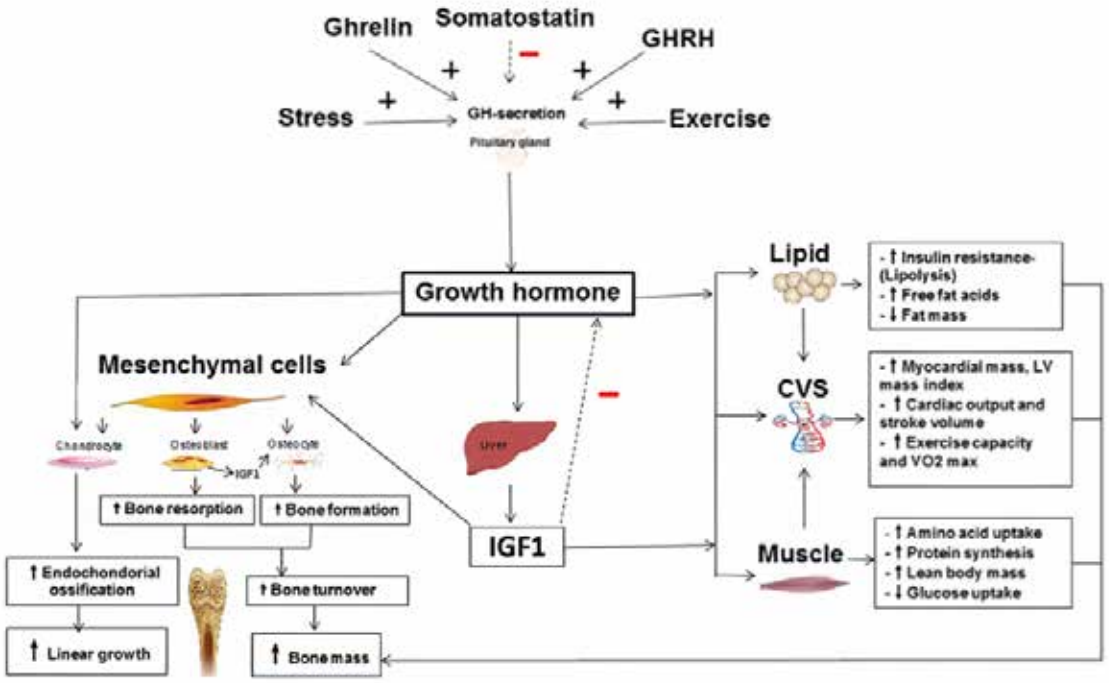


Figure 7. GH actions in bone, muscle, and metabolism (Ahmid et al. [35], Creative Commons Attribution-NonCommercial 4.0 International License.)

"GH-IGF1 axis and actions in bone, muscle, and body metabolism. GH secretion is regulated by GH-releasing hormone (GHRH), ghrelin-stimulating GH release, and somatostatin (SS)-inhibiting GH release. In circulation, GH stimulates the liver and other peripheral tissues to produce insulin-like growth factor-1 (IGF1). GH/IGF1 stimulates longitudinal growth, enhances bone mass, and regulates bone metabolism. GH promotes the positive protein balance in skeletal muscle and has lipolytic effects which may play a role in maintaining glucose homeostasis with decreased insulin sensitivity which promote cardiovascular system (CVS) functional capacity and maximal oxygen consumption (VO_2 max)."

"(Growth Hormone) is released mainly during sleep, especially Slow Wave Sleep...Ghrelin also stimulates GH secretion. GH produces anabolic effects by stimulating protein synthesis and cell proliferation, partly due to IGF-1, the release of which is also stimulated by GH from the liver. GH's main effect is raising blood glucose by increasing gluconeogenesis and IGF-1 in the liver, decreasing glucose uptake in muscles (contributing to insulin resistance), and increasing lipolysis in adipose tissue (increasing insulin resistance)."

Wave Sleep, in response to Growth Hormone Releasing Hormone, secreted by the hypothalamus, and inhibited by somatostatin. Ghrelin also stimulates GH secretion. GH produces anabolic effects by stimulating protein synthesis and cell proliferation, partly due to IGF-1, the release of which is also stimulated by GH from the liver. GH's main effect is raising blood glucose by increasing gluconeogenesis and IGF-1 in the liver, decreasing glucose uptake in muscles (contributing to insulin resistance), and increasing lipolysis in adipose tissue (increasing insulin resistance). GH also enhances b-cell function in the pancreas and regulates glucose-stimulated insulin secretion. During childhood development and growth, GH acts synergistically with insulin and IGF-1, but during adulthood, in times of metabolic stress (exercise, starvation, pregnancy), antagonizes the effects of insulin. It plays a significant role in preventing hypoglycemia by counteracting the effects of insulin and by directly stimulating orexigenic neurons (AgRP and POMC) in the hypothalamus. GH also seems to be required in the orexigenic effect of ghrelin. (34) It stimulates energy expenditure by increasing lean body mass (and, therefore, amount of metabolically active tissues), increasing the conversion of thyroxine (T4) to active triiodothyronine (T3), and food consumption.

One other system, the **endocannabinoid system (eCB)**, while not directly affecting glucose metabolism, does have a significant effect on both homeostatic and hedonic elements of appetite and food intake. (36) Hedonic overeating is a major cause of obesity. It also has a circadian rhythm with a sizeable 24-hr variation in circulating levels, with low levels overnight during sleep and a rapid rise during morning hours, peaking in the early–midafternoon. (37)

"...the endocannabinoid system (eCB), while not directly affecting glucose metabolism, does have a significant effect on both homeostatic and hedonic elements of appetite and food intake. Hedonic overeating is a major cause of obesity."

Effects of Inadequate Sleep on Metabolism:

As expected, sleep disruption or restriction causes circadian desynchronization—using the previous analogy, the orchestra is not playing together. Since almost every bodily system is controlled by the central circadian clock, we would expect inadequate sleep to cause many problems, not only in cognition and memory, as discussed in the previous article, but also in metabolic function.

Sleep deprivation has been consistently shown to increase hunger, appetite, and food intake. Sleep restriction leads to insulin resistance, reducing glucose tolerance and increasing diabetes risk. (38) Limited evidence also suggests that fragmented sleep (like we get as we age), even without a reduction in sleep duration, also leads to insulin insensitivity. (38)

There are many mechanisms by which inadequate sleep may lead to glucose intolerance and/or increased appetite with subsequent increased food intake.

Sleep deprivation has been consistently shown to increase hunger, appetite, and food intake. Sleep restriction leads to insulin resistance, reducing glucose tolerance and increasing diabetes risk. Limited evidence also suggests that fragmented sleep (like we get as we age), even without a reduction in sleep duration, also leads to insulin insensitivity."

Some studies show sleep deprivation or restriction leads to lower leptin levels (39, 40) (see Figure 8) and higher ghrelin levels (41, 42), thereby increasing appetite. Spiegel found reduced leptin levels (-18%, P<0.04) and increased ghrelin levels (+28%, P<0.04) with increased hunger (+24%, P<0.01) and appetite (+23%, P<0.01), especially for high-carbohydrate foods (33 to 45%, P<0.02). (41) Van Cauter also found lower leptin levels with sleep deprivation (Figure 9). (40)

"Some studies show sleep deprivation or restriction leads to lower leptin levels and higher ghrelin levels, thereby increasing appetite. Spiegel found reduced leptin levels (-18%, P<0.04) and increased ghrelin levels (+28%, P<0.04) with increased hunger (+24%, P<0.01) and appetite (+23%, P<0.01), especially for high-carbohydrate foods (33 to 45%, P<0.02). Van Cauter also found lower leptin levels with sleep deprivation."

However, other studies, including a meta-analysis, show no significant difference in leptin or ghrelin levels in control and sleep-deprived individuals. (43) But there was wide variability in

the methodology of the different studies, including inadequate sampling throughout the day, given the circadian effect on hormone levels, which may account for the negative findings in the meta-analysis.

Figure 8. Leptin and ghrelin levels with sleep deprivation (Used with permission from Spiegel [41])

"Sleep restriction was associated with average reductions in the anorexigenic hormone leptin (decrease, 18%; P < 0.04), elevations in the orexigenic factor ghrelin (increase, 28%; P <0.04), and increased hunger (increase, 24%; P < 0.01) and appetite (increase, 23%; P < 0.01), especially for calorie-dense foods with high carbohydrate content (increase, 33% to 45%; P < 0.02)."

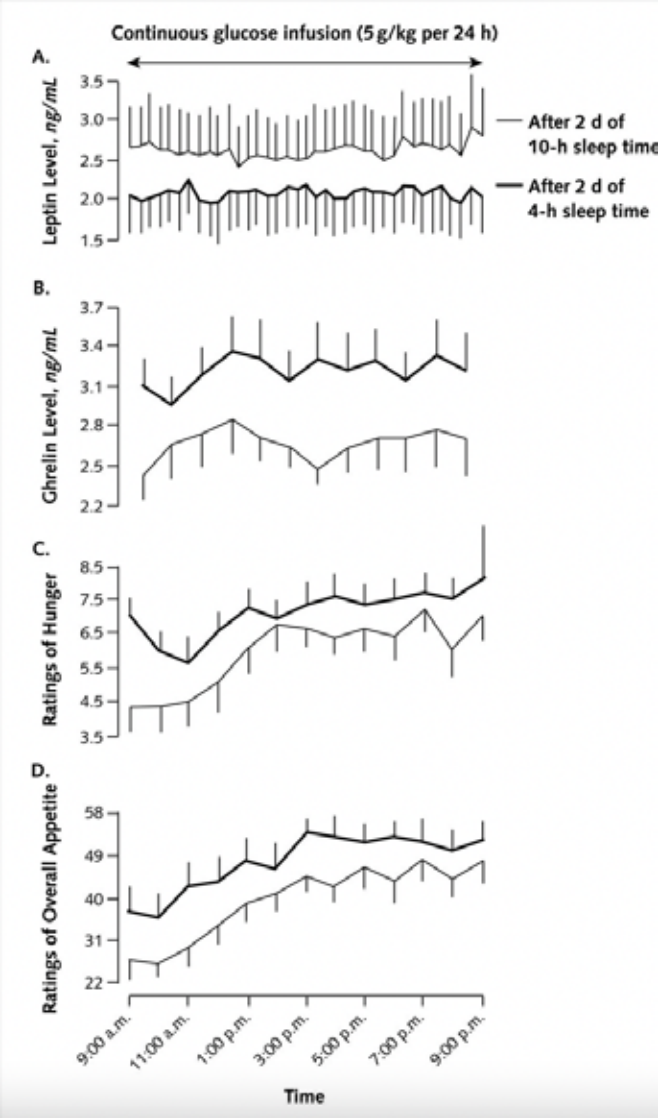
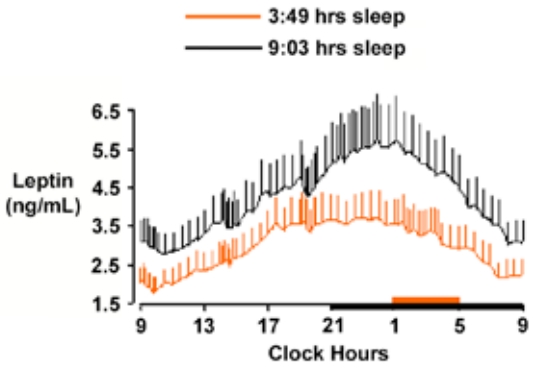


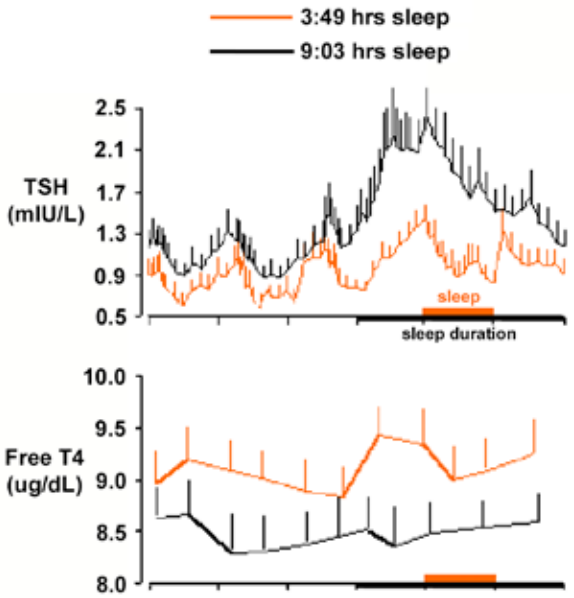
Figure 9. Leptin levels with sleep deprivation (3:49 hrs sleep) and normal sleep (9:03 hrs) (modified from Van Cauter [40])



TSH is also affected by inadequate sleep. Although the expected rise in TSH concentrations at night was significantly decreased, the free T4 levels were higher in sleep-restricted subjects ($p<0.01$), which would contribute to increased peripheral glucose levels. (See Figure 10.) (In sleep deprivation, TSH leads to a "striking increase in thyrotropin secretion that lessens during the next 2–3 nights, presumably because of negative feedback effects from slowly rising concentrations of thyroid hormones." [39])

This study also looked at cortisol levels throughout the day and found delayed and higher concentrations in the afternoon and early evening ($p<0.0001$) with sleep restriction, also seen in normal aging (44), and may contribute to glucose intolerance in the sleep-restricted group.

Figure 10. Levels of TSH and T4 with Sleep Deprivation (modified from Van Cauter [40])



"Sleep restriction, with its accompanying deficit in SWS, leads to decreased amplitude of but prolonged GH secretion. This lengthening of GH secretion leads to increased non-esterified fatty acid levels (from increased lipolysis), which leads to decreased insulin sensitivity. Loss of SWS with aging also leads to decreased GH secretion, with subsequent problems in building and repairing muscles."

The circadian release of GH is also affected by inadequate sleep. In men (but not women), about 70% of GH release occurs after the onset of sleep during SWS. Sleep restriction, with its accompanying deficit in SWS, leads to decreased amplitude of but prolonged GH secretion. (45) This lengthening of GH secretion leads to increased non-esterified fatty acid levels (from increased lipolysis), which leads to decreased insulin sensitivity. (46) Loss of SWS with aging also leads to decreased GH secretion, with subsequent problems in building and repairing muscles. (47)

"The endocannabinoid system (eCB) is also affected by sleep restriction. Hanlon et al. found that after four nights of 4.5-hr sleep restriction (v. 8.5-hr sleep), peak midday levels of the most abundant eCB, 2-arachidonoylglycerol (2-AG), were elevated, with increased hunger and appetite and decreased ability to restrict snack intake."

The endocannabinoid system (eCB) is also affected by sleep restriction. Hanlon et al. found that after four nights of 4.5-hr sleep restriction (v. 8.5-hr sleep), peak midday levels of the most abundant eCB, 2-arachidonoylglycerol (2-AG), were elevated, with increased hunger and appetite and decreased ability to restrict snack intake. (48) Most studies have found 14–30% increased hunger or appetite and/or 20–30% higher caloric intake (328–677 kcal/day), especially from unhealthy food, following sleep restriction. During sleep restriction, food consumption habits deteriorated, with late evening or nighttime consumption, more snacking, and higher fat intake (37, 49, 50) resulting in higher weight gain, (49, 51) especially when food is readily available.

"The glucose clearance rate was almost 40% slower in sleep-restricted subjects (1.45 v. 2.4 %/minute, $p<0.02$). The acute insulin response to glucose was 30% lower in sleep-restricted individuals (304 v. 432 pmol/minute, $p<0.04$) The magnitude of these impairments of glucose and insulin responses are similar to those seen in older individuals with impaired glucose tolerance, as with aging or T2DM or gestational diabetes."

Sleep deprivation has been found to directly impact glucose metabolism. A classic study by Spiegel in 1999 showed impaired glucose tolerance in addition to the previously mentioned lower TSH concentrations and higher evening cortisol levels in sleep-restricted individuals (4 h/night x 6 nights) compared with the sleep recovery period (12 h bedtime/night x 6 nights). (52) The glucose clearance rate was almost 40% slower in sleep-restricted subjects (1.45 v. 2.4 %/minute, $p<0.02$). The acute insulin response to glucose was 30% lower in sleep-restricted individuals (304 v. 432 pmol/minute, $p<0.04$) The magnitude of these impairments of glucose and insulin responses are similar to those seen in older individuals with impaired glucose tolerance, as with aging or T2DM or gestational diabetes.

Many other studies have found a similar impact of sleep restriction and/or sleep fragmentation on glucose metabolism with a marked reduction in insulin sensitivity from -16 to -32%. (37) Many of these changes were reversible in the short-term, however, if continued long-term, insufficient sleep may significantly increase the risk of T2DM, as has been found in some studies. (38)

"Studies done on the effect of Slow-Wave Sleep on insulin sensitivity show that loss of SWS (but not Rapid Eye Movement [REM] sleep) causes a 20–25% reduction in insulin sensitivity."

Studies done on the effect of Slow-Wave Sleep on insulin sensitivity show that loss of SWS (but not Rapid Eye Movement [REM] sleep) causes a 20–25% reduction in insulin sensitivity. (53–55) As you might recall from our previous article, men naturally lose SWS as they age, and older adults have increased fragmented sleep. Thus, sleep fragmentation with loss of SWS may also contribute to developing insulin resistance with aging.

"In addition to the above mechanisms for increasing blood glucose levels, brain glucose utilization significantly decreases after one night of total sleep deprivation. While brain glucose utilization decreases globally, more importantly (and more alarming for those taking long calls—or maybe our patients), the decrease is most significant in the thalamus and the prefrontal and posterior parietal cortices. The thalamus controls cerebral activation and alertness. The prefrontal cortex and posterior parietal cortex are involved in higher order analysis and integration of sensory-motor information, and cognitive integration."

In addition to the above mechanisms for increasing blood glucose levels, brain glucose utilization significantly decreases after one night of total sleep deprivation. (56) While brain glucose utilization decreases globally, more importantly (and more alarming for those taking long calls—or maybe our patients), the decrease is most significant in the thalamus and the prefrontal and posterior parietal cortices. The thalamus controls cerebral activation and alertness. The prefrontal cortex and posterior parietal cortex are involved in higher order analysis and integration of sensory-motor information, and cognitive integration. As the brain uses 50% of the glucose during fasting and 20–25% after a meal, a significant decrease in cerebral glucose consumption can lead to higher serum glucose levels (57) as well as decreased alertness, increased sleepiness, and impaired cognitive function.

As you can see, inadequate sleep not only causes cognitive impairment as discussed in the first article, but this desynchronization of the circadian rhythm results in abnormal levels and/or timing of the many hormones that regulate metabolism, leading to higher glucose levels, insulin resistance, and glucose intolerance, which may become permanent if sleep deprivation or fragmentation becomes a chronic problem. Thus, adequate amount and quality of sleep are vital in maintaining our body's optimal metabolic function, especially as we age since many of our body's processes already naturally deteriorate. We can help prevent a lot of the chronic diseases like T2DM, cancer, cardiovascular disease, and autoimmunity by getting an adequate amount of sleep—in addition to exercise and good nutrition.

In the next article, we will be discussing ways to improve our sleep and sleep environment, or "sleep hygiene," as sleep experts call it.

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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

	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.	

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/5523fcf7e4b0fef011e688e6/t/62445afd0134140ff954f3f6/1648646910485/NCIIH_Monoclonal+Antibodies+Inclusion+in+the+VFC+Program_Position+Paper_Mar+2022.pdf

The Ethics of Ambiguity: Life and Death in the NICU

Evan Richards

My NICU clinical mentor, Dr. Tom Harris, passed away in May 2022. In my second-to-last conversation with Tom, he told me he "wasn't going to be around forever," and he had textbooks he didn't know what to do with. He wanted to know if he could ship the books to me. He stressed that they all addressed a topic in which we had a shared interest. Without asking about the topic, I told him absolutely! He could send me the books. And he did—twelve books total.

In my last conversation with Tom, he said he would like to send me a few more books and some files he had saved. I accepted. And after Tom died, his daughters shipped me two more boxes of files that they said their dad had marked for me. I ended up with 21 textbooks and over 80 folders filled with articles, abstracts, news clippings, and photographs. **(Fig. 1)** Every item was dedicated to the morals and ethics of life and death in the NICU. Tom spent two years in a seminary school before changing courses and becoming a physician. As such, he demonstrated an uncommon balance between spirituality and science. But this balance—based on all the books, files, and Tom's writings in the archives—was troubled by ambiguity.

As I pored through Tom's books and folders, I learned a great deal about two truths: the events that shaped life-and-death decisions in the United States have been controversial at best, and NICU ethics and morals are steeped in ambiguity.

Fig. 1. Tom's archives



From Tom's archives, I learned of two pivotal cases that led to government-mandated requirements in the United States for withholding or withdrawing medical care for clinically complex babies. The first was Baby Doe, born in Bloomington, IN, on April 9th, 1982; the second was Baby Jane Doe, born a year later in Stonybrook, NY.

Baby Doe:

Of Tom's archives' eighty or so files, "Baby Doe" appeared most in the folder titles. One file Tom had labeled "Baby Doe: The Case That Started It All."

"As I pored through Tom's books and folders, I learned a great deal about two truths: the events that shaped life-and-death decisions in the United States have been controversial at best, and NICU ethics and morals are steeped in ambiguity."

Baby Doe was born in Bloomington, IN, with Down Syndrome, tracheal atresia, and a tracheal esophageal fistula. The tracheal complications were operable; the Down Syndrome was not. The attending physician and the mother's OB-GYN were at odds over whether or not to repair the baby's tracheal malformations surgically. Dr. Walter Owens, the mother's OB-GYN, used his personal experience with a severely disabled Down Syndrome baby to argue for withholding care and feedings. The attending physician, Dr. James Schaffer, argued for "the best interests of the baby." Both arguments were steeped in ambiguity, Dr. Owens' because of prognostic uncertainty, and Dr. Schaffer's because "best interests of the baby" is a subjective and often personal opinion.

"Baby Doe was born in Bloomington, IN, with Down Syndrome, tracheal atresia, and a tracheal esophageal fistula. The tracheal complications were operable; the Down Syndrome was not. The attending physician and the mother's OB-GYN were at odds over whether or not to repair the baby's tracheal malformations surgically."

Dr. Schaffer insisted the baby be transferred to a children's hospital in Indianapolis for surgery, but Dr. Owens said he would need a court order to do so. Schaffer arranged for an ad hoc court

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hearing on the 6th floor of the hospital. Both physicians made their arguments to the judge, who then allowed the parents to choose the argument they favored. The parents sided with Dr. Owens, and "at exactly 10:01 P.M., six days after his birth, Baby Doe died with the two doctors looking on. Cause of death: chemical pneumonia due to the regurgitation of his stomach acid." (1)

The Baby Doe Rule:

The death of Baby Doe brought national attention to the ethics of living and dying in the NICU. At the time, Ronald Reagan was president of the United States, and Dr. C. Everett Koop was the Surgeon General. Both were ardent sanctity of life advocates; in fact, Koop abhorred reproductive choice so vehemently that he referred to amniocentesis as "a Search and Destroy mission." Together, and with the help of the Attorney General and the Secretary of the Department of Health and Human Services (DHHS), they crafted the Nondiscrimination based on Handicap federal law into Section 504 of the Rehabilitation Act of 1973. (2)

"Together, and with the help of the Attorney General and the Secretary of the Department of Health and Human Services (DHHS), they crafted the Nondiscrimination based on Handicap federal law into Section 504 of the Rehabilitation Act of 1973. The act mandated that all babies receive full and aggressive medical intervention, regardless of defects and congenital anomalies."

The act mandated that all babies receive full and aggressive medical intervention, regardless of defects and congenital anomalies. Neonatologists were almost universally opposed to the Baby Doe Rule. One physician wrote, "It is ironic and even hypocritical that the Reagan Administration supports Baby Doe's right to live, (yet)...has drastically cut funding for essential services for disabled people in health care, education, housing, transportation, civil rights, etc." (5) The Reagan administration was working to cut $1.5 billion from services that would benefit the disabled.

The Baby Doe Rule also required NICUs to post—conspicuously—a bulletin from the government stating the rules requiring that all babies be fully treated regardless of handicaps. The bulletin included a toll-free phone number anyone could call to report a case they felt was a denial of care for a baby, no matter the baby's condition, severity of particular defects, or degree of congenital anomalies. In the NICU where Tom and I worked, he posted the bulletin above the scrub sinks where all employees and families could view the alert.

As I sifted through Tom's archives, I found a copy of the bulletin (**Fig. 2**). Out of curiosity, I called the toll-free number, which is still active and has been expanded to include a reporting option for sexual and racial discrimination.

Tom Harris jumped into action. He wrote an open letter to C. Everett Koop. **(Fig. 3)** Koop responded by sending Tom a memo crafted by the attorney general and DHHS secretary that essentially said, regardless of your letter, you will follow the mandate, your hospital will not receive federal funding, and criminal liability may result from withholding or withdrawing care. In their correspondence, the DHHS asked Tom to participate in one of the Baby Doe Squads, groups of 2–3 physicians assigned to investigate reports of treatment denial. Tom declined the offer passionately and firmly: "To be perfectly candid with you. I find the investigative procedure you are proposing…to be personally repulsive and in violation of existing laws that define parental rights and the practice of medicine."

Fig. 2. Notice required by Fed. Gov to be posted in NICUs



NOTICE

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Office for Civil Rights

DISCRIMINATORY FAILURE TO FEED AND CARE FOR HANDICAPPED INFANTS IN THIS FACILITY IS PROHIBITED BY FEDERAL LAW. SECTION 504 OF THE REHABILITATION ACT OF 1973 STATES THAT

"NO OTHERWISE QUALIFIED HANDICAPPED INDIVIDUAL SHALL, SOLELY BY REASON OF HANDICAP, BE EXCLUDED FROM PARTICIPATION IN, BE DENIED THE BENEFITS OF, OR BE SUBJECTED TO DISCRIMINATION UNDER ANY PROGRAM OR ACTIVITY RECEIVING FEDERAL FINANCIAL ASSISTANCE."

Any person having knowledge that a handicapped infant is being discriminatorily denied food or customary medical care should immediately contact:

Handicapped Infant Hotline
U.S. Department of Health and Human Services
Washington, D.C. 20201
Phone 800-368-1019 (Available 24 hours a day) - TTY Capability

In Washington, D.C. call 863-0100

OR

Your State Child Protective Agency

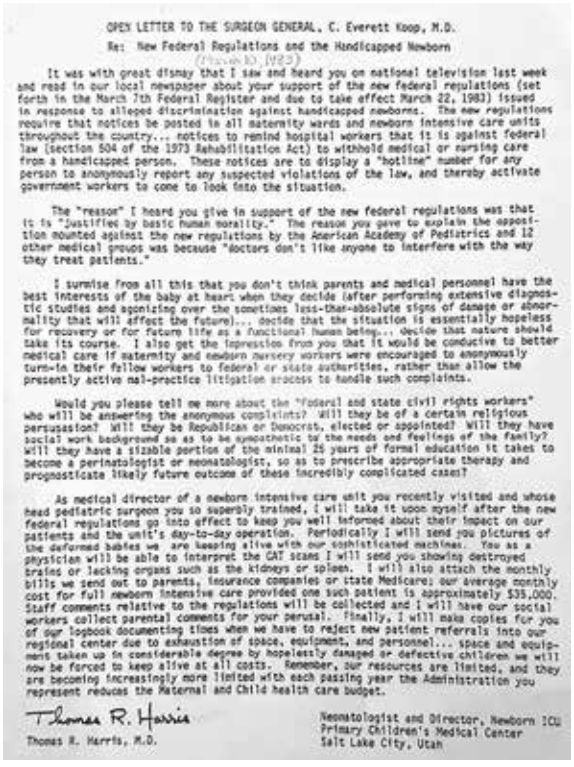
Federal Law prohibits retaliation or intimidation against any person who provides information about possible violations of the Rehabilitation Act of 1973.

Identity of callers will be held confidential.

Failure to feed and care for infants may also violate the criminal and civil laws of your state.

Tom also sent his open letter to the American Medical Association, several medical journals, and several newspapers. His argument was that physicians are in the best position to work with parents and families to help them make the best—albeit most excruciatingly difficult—decision regarding their severely medically complex baby.

Fig. 3. Dr. Harris's open letter to C. Everett Koop



OPEN LETTER TO THE SURGEON GENERAL, C. Everett Koop, M.D.

Re: New Federal Regulations and the Handicapped Newborn

It was with great dismay that I saw and heard you on national television last week and read in our local newspaper about your support of the new federal regulations (set forth in the March 7th Federal Register and due to take effect March 22, 1983) issued in response to alleged discrimination against handicapped newborns. The new regulations require that notices be posted in all maternity wards and newborn intensive care units throughout the country... notices to remind hospital workers that it is against federal law (section 504 of the 1973 Rehabilitation Act) to withhold medical or nursing care from a handicapped person. These notices are to display a "hotline" number for any person to anonymously report any suspected violations of the law, and thereby activate government workers to come to look into the situation.

The "reason" I heard you give in support of the new federal regulations was that it is "justified by basic human morality." The reason you gave to explain the opposition mounted against the new regulations by the American Academy of Pediatrics and 12 other medical groups was because "doctors don't like anyone to interfere with the way they treat patients."

I surmise from all this that you don't think parents and medical personnel have the best interests of the baby at heart when they decide (after performing extensive diagnostic studies and agonizing over the sometimes less-than-absolute signs of damage or abnormality that will affect the future)... decide that the situation is essentially hopeless for recovery or for future life as a functional human being... decide that nature should take its course. I also get the impression from you that it would be conducive to better medical care if maternity and newborn nursery workers were encouraged to anonymously turn-in their fellow workers to federal or state authorities, rather than allow the presently active mal-practice litigation process to handle such complaints.

Would you please tell me more about the "federal and state civil rights workers" who will be answering the anonymous complaints? Will they be of a certain religious persuasion? Will they be Republican or Democrat, elected or appointed? Will they have social work background so as to be sympathetic to the needs and feelings of the family? Will they have a sizable portion of the minimal 25 years of formal education it takes to become a perinatologist or neonatologist, so as to prescribe appropriate therapy and prognosticate likely future outcome of these incredibly complicated cases?

As medical director of a newborn intensive care unit you recently visited and whose head pediatric surgeon you so superbly trained, I will take it upon myself after the new federal regulations go into effect to keep you well informed about their impact on our patients and the unit's day-to-day operation. Periodically I will send you pictures of the deformed babies we are keeping alive with our sophisticated machines. You as a physician will be able to interpret the CAT scans I will send you showing destroyed brains or lacking organs such as kidneys or spleen. I will also attach the monthly bills we send out to parents, insurance companies or state Medicare; our average montly cost for full newborn intensive care provided one such patient is approximately $35,000. Staff comments relative to the regulations will be collected and I will have our social workers collect parental comments for your perusal. Finally, I will make copies for you of our logbook documenting times when we have to reject new patient referrals into our regional center due to exhaustion of space, equipment, and personnel... space and equipment taken up in considerable degree by hopelessly damaged or defective children we will now be forced to keep alive at all costs. Remember, our resources are limited, and they are becoming increasingly more limited with each passing year the Administration you represent reduces the Maternal and Child health care budget.

Thomas R. Harris

Thomas R. Harris, M.D.

Neonatologist and Director, Newborn ICU
Primary Children's Medical Center
Salt Lake City, Utah

Tom was not the only physician to argue against the Baby Doe Rule, but with many others, the rule was eventually struck down in a Supreme Court decision. However, on the heels of Baby Doe, a baby was born in Stonybrook, NY. She became known as Baby Jane Doe.

"Koop responded by sending Tom a memo crafted by the attorney general and DHHS secretary that essentially said, regardless of your letter, you will follow the mandate, your hospital will not receive federal funding, and criminal liability may result from withholding or withdrawing care."

Baby Jane Doe:

Baby Jane Doe was born on October 11, 1983, with devastating congenital anomalies. Among the most concerning were a meningomyelocele, microcephaly, and a lack of most of her cerebral cortex. The parents consulted with everyone they felt could guide them in making the hardest decision of their lives, including neurosurgeons, neonatologists, nurses, priests, developmental pediatricians, and nuns. They elected to forgo surgery and offer only care that would provide comfort.

"Tom also sent his open letter to the American Medical Association, several medical journals, and several newspapers. His argument was that physicians are in the best position to work with parents and families to help them make the best—albeit most excruciatingly difficult—decision regarding their severely medically complex baby. Tom was not the only physician to argue against the Baby Doe Rule, but with many others, the rule was eventually struck down in a Supreme Court decision."

The New York Times, after interviews with Stonybrook physicians and Baby Jane Doe's parents, reported, "Complex moral and ethical issues are involved: On what basis should decisions be made for or against prolonging the lives of severely deformed infants? Attending physicians say that with surgery, the Long Island baby might live to be 20 but would be retarded, bedridden and in constant pain. It is a life, her parents say in refusing surgery, they do not want her to suffer." (4)

"Baby Jane Doe was born on October 11, 1983, with devastating congenital anomalies. Among the most concerning were a meningomyelocele, microcephaly, and a lack of most of her cerebral cortex. The parents consulted with everyone they felt could guide them in making the hardest decision of their lives, including neurosurgeons, neonatologists, nurses, priests, developmental pediatricians, and nuns. They elected to forgo surgery and offer only care that would provide comfort."

Enter Lawrence Washburn, a Vermont-based right-to-life attorney. Washburn received an anonymous tip about Baby Jane Doe from a member of Birthright, a pro-life activist group. Washburn drove to Stonybrook and met with a State Supreme Court justice and the two physicians attending to Baby Jane Doe. The doctors reported afterward that they were trying to "medically educate people who didn't know anything about the situation." One physician continued: "It was frankly inconceivable to me that someone would challenge the parent's decision." (5)

But Washburn was undeterred, and thus began the parents' legal nightmare. He filed a petition ordering a shunt and spinal closure for the meningomyelocele. The petition was denied. The case made it to the United States Supreme Court, where a justice asked, "How come a complete stranger can interfere in the family decisions in a tragic situation such as this?" The parents won the case but accrued over $50,000 (~ $155,000 today) in legal fees.

The Revised Baby Doe Role:

The Baby Jane Doe case led to a revision of the original Baby Doe Rule, which passed in 1984, labeled the Baby Doe Amendment. The revised rule became law on June 1, 1985, and was nearly identical to the original Baby Doe Rule but included three exceptions that allowed withholding or withdrawing aggressive medical intervention:

The infant is chronically and irreversibly comatose.

Treatment would prolong dying, not correct the condition, or be futile to survival.

Treatment would be futile and inhumane.

In his personal writings, Tom struggled with the fact that ambiguity persists, even in the three exceptions allowing withholding or withdrawing care for a baby. He argued that terms such as *futile, best interests of the baby*, and *quality of life* are all plagued with ambiguity and are subject to the personal perceptions of the individual clinician.

Where Are We Today?

I contacted several physicians for insights into current guidelines in the United States for withholding and withdrawing medical

treatment for clinically complex babies. For this paper, the observations of Dr. Robert White, a neonatologist in South Bend, IN, were particularly compelling.

"...Baby Doe Amendment. The revised rule became law on June 1, 1985, and was nearly identical to the original Baby Doe Rule but included three exceptions that allowed withholding or withdrawing aggressive medical intervention: the infant is chronically and irreversibly comatose; treatment would prolong dying, not correct the condition, or be futile to survival; treatment would be futile and inhumane."

Dr. White affirmed that the Baby Doe Amendment is still in place: "The Baby Doe rules prohibit us from withholding treatment from disabled newborns." Dr. White acknowledged the three exceptions established in the Revised Baby Doe ruling, but "in actual practice, the situation is more nuanced, particularly in the case of an extremely preterm infant, say, 22 or 23 weeks gestation."

As Dr. White pointed out, many micro-preemies are now surviving, which complicates at least one of the three exceptions outlined in the Revised Baby Doe ruling: "Treatment would prolong dying, not correct the condition, or be futile to survival." In years past, it was routine to apply this exception to 22- and 23-week gestation preemies since a physician could say with fairly confident prognostic certainty that survival was highly unlikely. In Dr. Harris' archives was an article (6) that reported a 1–5% survival rate in 22-week gestation preemies in the early 1990s.

"In his personal writings, Tom struggled with the fact that ambiguity persists, even in the three exceptions allowing withholding or withdrawing care for a baby. He argued that terms such as futile, best interests of the baby, and quality of life are all plagued with ambiguity and are subject to the personal perceptions of the individual clinician."

However, thanks to the dedicated work of clinicians, the edge of viability has been lowered, and a recent study from the University of Iowa reported a cohort of 22-week preemies that demonstrated a 70% survival with surprisingly low rates of Grade III and IV IVH. (7)

"Dr. White affirmed that the Baby Doe Amendment is still in place: 'The Baby Doe rules prohibit us from withholding treatment from disabled newborns.' Dr. White acknowledged the three exceptions established in the Revised Baby Doe ruling, but 'in actual practice, the situation is more nuanced, particularly in the case of an extremely preterm infant, say, 22 or 23 weeks gestation.'"

In my last conversation with Tom, we reflected on the fact that he and Dr. Bert Bunnell placed the first babies on high-frequency jet ventilation in the early 1980s, and he was pleased that the Jet ventilator had played an enormous role in improving micropreemie outcomes. **(Fig. 4)**

I asked Dr. White for general thoughts on the Revised Baby Doe ruling. He answered, "It is hard to imagine how routine government intervention in this process could be beneficial, and it is easy to imagine how it could make a difficult middle-of-the-night situation hard for everyone."

"However, thanks to the dedicated work of clinicians, the edge of viability has been lowered, and a recent study from the University of Iowa reported a cohort of 22-week preemies that demonstrated a 70% survival with surprisingly low rates of Grade III and IV IVH. "

The Tom Harris Credo:

Ambiguity will always be present in the NICU. Dr. Harris recognized this fact and wrote passionately about his struggles to make the right decisions for babies and their families. Tom dug deep for clarity. I found articles in his archives highlighting Aristotle's Nichomachean Ethics; Dr. Harris highlighted sections on virtue and making decisions that find the golden mean between cowardice and foolhardiness. Included in Dr. Harris's abundance of personal writings, for example, was a page with two sections: "Ethical Questions: What is right? What is good?" and "Underlying questions that first need answers." **(Fig. 5).**

As I sifted through his files, I came across what appeared to be Dr. Harris' Credo for talking to parents about their medically complex baby, especially when the news is bad. I discovered his original note on Snowbird Conference stationery **(Fig. 6)** and found several edits he had made leading to his final version. Here is the Tom Harris Credo for presenting difficult news to parents:

Fig. 4. Tom Harris, MD, and Bert Bunnell, ScD; early application of HFJV



"I asked Dr. White for general thoughts on the Revised Baby Doe ruling. He answered, 'It is hard to imagine how routine government intervention in this process could be beneficial, and it is easy to imagine how it could make a difficult middle-of-the-night situation hard for everyone.'"

WHO: Both parents, key family members, primary care clinicians in attendance

WHAT: Offer the truth, simple, clear, and direct

WHY: To convey information, engender discussion, and encourage questions before a final decision. (Dr. Harris wrote, "Facts not explained lead to ignorance; facts not understood lead to confusion.")

WHERE: A quiet, pleasant, comfortable spot…with tissues

WHEN: As soon as possible once the prognosis is clear

HOW: Respectful, caring, humane; good news first, bad news next, hopeful news last

Dr. Harris continued: "When referring to the child, hold the baby separate from the disease process or malformation." Examples:

The baby is not ill but rather a beautiful baby fighting an illness

The baby is not malformed; the baby has a malformation

The baby is not disabled; the baby has a disability

The baby is not dying; the baby is living a short life that we wish to make as beautiful and loving as possible

Fig. 5. Dr. Harris's notes, wrestling with ethical issues

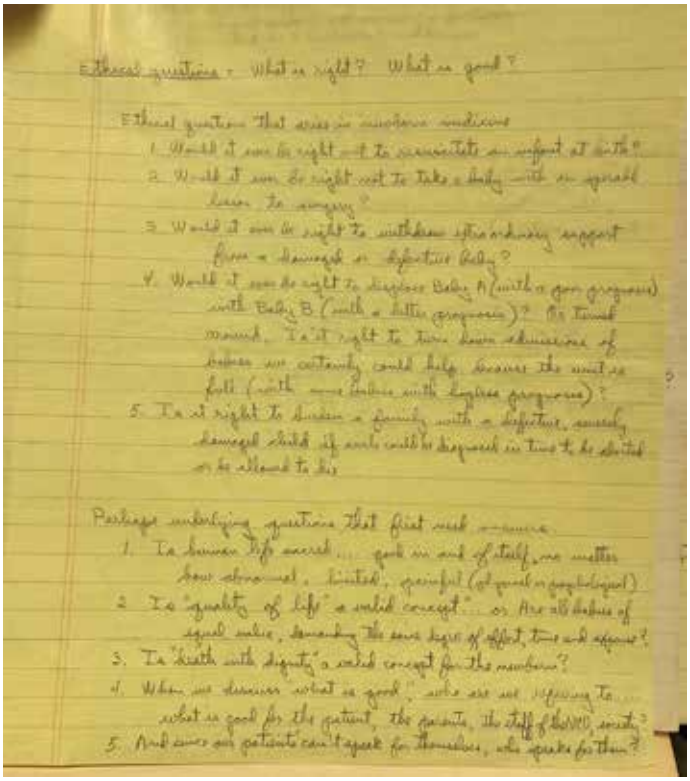
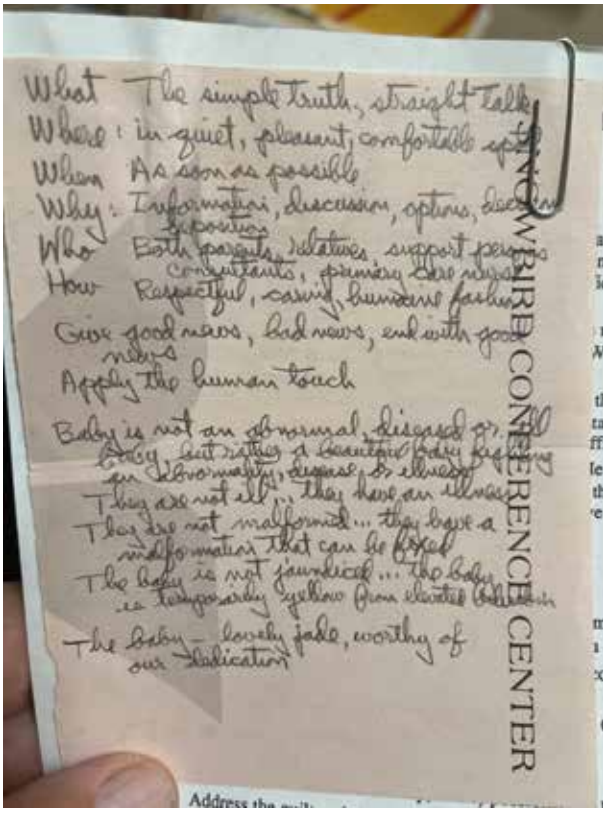


Fig. 6. Dr. Harris' first draft of guidelines for talking to parents when the news is bad



For the mother, her baby is the most beautiful child in the world.

"He ended his credo with an important reminder for doctors: 'The crucial question the parents are waiting for you to answer is, are we prolonging life or just delaying death?'"

He ended his credo with an important reminder for doctors: "The crucial question the parents are waiting for you to answer is, are we prolonging life or just delaying death?"

In my last phone call with Tom, we discussed how his archives demonstrated that, historically, when an incredibly clinically complex baby is admitted to the NICU, many different entities have weighed in on whether or not a baby should receive heroic medical intervention. Then I asked him, after dedicating a lifetime of contemplation and study to the ambiguity of ethics in the NICU, who he believed should make the unbelievably difficult life-and-death decisions regarding these challenging babies.

"Tom said, without hesitation, "The people who are best suited to make a life-and-death decision for their severely disabled baby are those who have to live with the consequences.""

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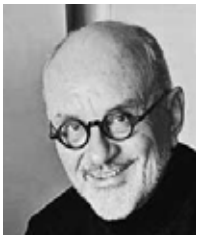
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***Disclosures**: There are no reported disclosures*

NT

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Evan Richards served as Director of Education and Clinical Services at Bunnell Incorporated for 31 years and remains an Advanced Practice Clinical Consultant. Before that, he was a NICU and PICU respiratory therapist at Primary Children's Medical Center in Salt Lake City, Utah. He has lectured at conferences and hospitals worldwide and trained NICU and PICU clinicians at over 150 hospitals on high-frequency jet ventilation. His passion is understanding the impact of mechanical ventilation on the lungs and other organs and how to avoid compromising organ development and function when using mechanical ventilators.

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2. Identify programs for funding of research grants and funding supplements to support a career as a woman scientist and caregiver
3. Identify programs to help financially support the reentry of a physician scientist following a leave



Dr Winer is the acting chief of the Pediatric Growth & Nutrition Branch Program in the National Institute of Child Health and Human Development (NICHD). For many years, Dr Winer has served as the program director for the national physician-scientist K12 mentoring programs: Pediatric Scientist Development, and the Child Health Research Center Development Award. Dr Winter completed her subspecialty training in pediatric endocrinology at NIH.



Dr Catherine Gordon has been appointed clinical director at the Eunice Kennedy Shriver NICHD, part of the NIH. In her new role, she will lead the institute's intramural clinical research program to improve the understanding of the biological, medical, reproductive, and behavioral aspects of typical and atypical human development. She is also the secretary/treasurer at the Academic Pediatric Society. She is subspecialized in both adolescent medicine and pediatric endocrinology with research experience in adolescent bone health.



Dr Erica Rosemond is the acting deputy director of National Center for Advancing Translational Sciences (NCATS) Division of Clinical Innovation (DCI) and chief of the Clinical and Translational Science Awards (CTSA) Program Branch directing the CTSA Program institutions. She holds a Ph.D. in pharmaceutical sciences, with specialization in neurosciences. Prior to joining NCATS, Rosemond managed grant portfolios at the National Cancer Institute and the National Institute of Mental Health, supporting research education, career development and training.



Dr Vivian Ota Wang currently serves as the deputy director of the Office of Research on Women's Health (ORWH). As a genetic counselor, genomicist, and psychologist, she has experience in research, education, science policy, and ethics. The ORWH has a diverse range of programs, initiatives, and policies to improve the health of all women at all stages of the life course and to support women in biomedical fields at all stages of their careers.

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Pioneer Profile: John A. Clements, MD

Joseph B. Philips, III, MD



"John Clements, MD, who died September 3, 2024, at the age of 101, was not a neonatologist, but, in my opinion, he contributed more to our field than any other single human being ever."

John Clements, MD, who died September 3, 2024, at the age of 101, was not a neonatologist, but, in my opinion, he contributed more to our field than any other single human being ever. Dr. Clements attended Cornell University undergraduate and medical school on an Army accelerated scholarship program and graduated with his MD degree in five and a half years. To repay his debt to the government, the Army assigned him to the Army Chemical Center in Maryland, where he was tasked with studying the effects of Soviet Union nerve gas agents on the lung. This, plus a tenfold discrepancy in histologic versus pressure-volume estimates of lung surface area, led him to ponder why the lungs didn't collapse during exhalation. Building on prior studies by van Neergard and Pattle, he studied the surface tension properties of various lung extracts using modified Langmuir-Adam and Wilhelmy devices (1). The attached figure (Figure 1) shows the classic hysteresis exhibited by pulmonary surfactant compared to serum. The pulmonary physiology community initially met this seminal publication with a resounding shrug. Nevertheless, Clements continued studying surfactants after joining the UCSF Cardiovascular Research Institute, founded in 1958 by Dr. Julius Comroe. Dr. Clements developed methods to extract and characterize surfactant components (2–6). He published numerous works that detailed the changes in surfactant composition surrounding birth, the rates of its secretion and clearance, and its uptake and recycling by lamellar bodies and identified dipalmitoylphosphatidylcholine (DPPC) as the primary lipid in surfactant (6–10). Further studies showed that specific proteins were associated with surfactant and were essential to its function (11, 12). He also pioneered using a captive bubble

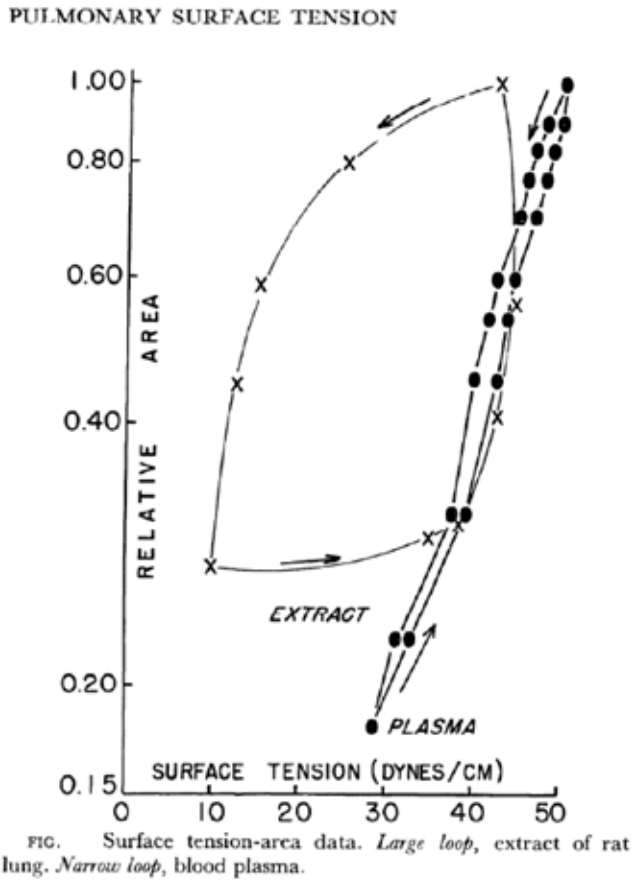


Figure 1. Classic hysteresis exhibited by pulmonary surfactant compared to serum. (1)

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surfactometer that was more accurate than previous devices (13). Thus, Dr. Clements contributed more than anyone to the early fund of knowledge about surfactant biology, but that doesn't even begin to describe the magnitude of his contributions.

"Dr. Clements, along with Jere Mead, MD, taught Mary Ellen Avery, MD, how to extract surfactant from the lungs of deceased babies and how to build and use the Langmuir-Wilhelmy balance, which led to the breakthrough discovery that surfactant deficiency was the cause of what was then called Hyaline Membrane Disease (HMD) in premature infants."

Dr. Clements, along with Jere Mead, MD, taught Mary Ellen Avery, MD, how to extract surfactant from the lungs of deceased babies and how to build and use the Langmuir-Wilhelmy balance, which led to the breakthrough discovery that surfactant deficiency was the cause of what was then called Hyaline Membrane Disease (HMD) in premature infants (14). He was also a co-author of a manuscript describing one of the first attempts at surfactant replacement using aerosolized DPPC in babies with HMD (15). This attempt failed as DPPC is a gel at body temperature. Further discoveries found that, despite DPPC being the main ingredient, other lipids and proteins were essential for normal surfactant function. Undaunted, Dr. Clements developed a synthetic surfactant, Exosurf, which contained DPPC and two alcohols that rendered it functional at body temperature. Working with physicians at UCSF, Clements showed its efficacy in preterm lambs and rabbits (16, 17). Exosurf was then shown to improve lung function and reduce mortality in premature infants with Respiratory Distress Syndrome (18) (Figure 2). We participated here at UAB in an early dose-ranging trial before and in the months after FDA approval (19). It was an incredibly exciting time. We had a dedicated team that pulled a screen around the baby on the resuscitation warmer and gave sham treatment (before FDA approval) or one of the three doses of Exosurf. Exosurf was the first surfactant preparation approved by the FDA, but animal-derived surfactants displaced it within a few years because of their more rapid onset of action. Dr. Clements also developed the "Bubble Test," widely used to determine the presence of surfactant in amniotic fluid in the days before antenatal steroids (20). Finally, Dr. Clements was acknowledged by Dr. George Gregory for his "advice and criticism" in his landmark publication using continuous positive airway pressure (CPAP) for the treatment of infants with RDS (21).

Dr. Clements received numerous awards for his work, the most notable of which was the 1994 Albert Lasker Clinical Medical Research Award, which stated, "His discovery of lung surfactant and subsequent work that created an artificial version of this vital substance have saved thousands of lives of premature infants and is widely regarded as the most important discovery in pulmonary physiology in the last 50 years." (22).



Photo by Susan Merrell (23)

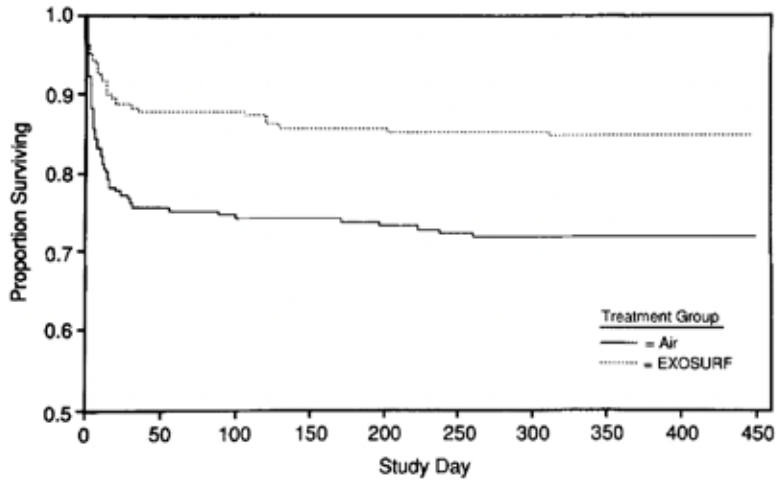


Fig. Kaplan-Meir survival curves through 1 year of adjusted age in infants randomly allocated to receive air placebo *(solid line)* or Exosurf *(broken line)*. Note that early gains in survival in Exosurf group were maintained. Survival through 1 year of adjusted age was significantly better in group receiving Exosurf (p <0.001).

Figure 2. Survival of Infants Treated With Exosurf v. Placebo Through 1 Year of Adjusted Age. (27)

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When we die, most of us will have an obituary in the local newspaper (or e-newspaper) and the local funeral home. Dr. Clements had obituaries in prominent newspapers, including The New York Times and The Washington Post (23–25). The final reference is a link to his YouTube talk that details the discovery of surfactant and the development of Exosurf (26). Doctor John Clements's contributions to pulmonary physiology and premature babies' survival were genuinely profound.

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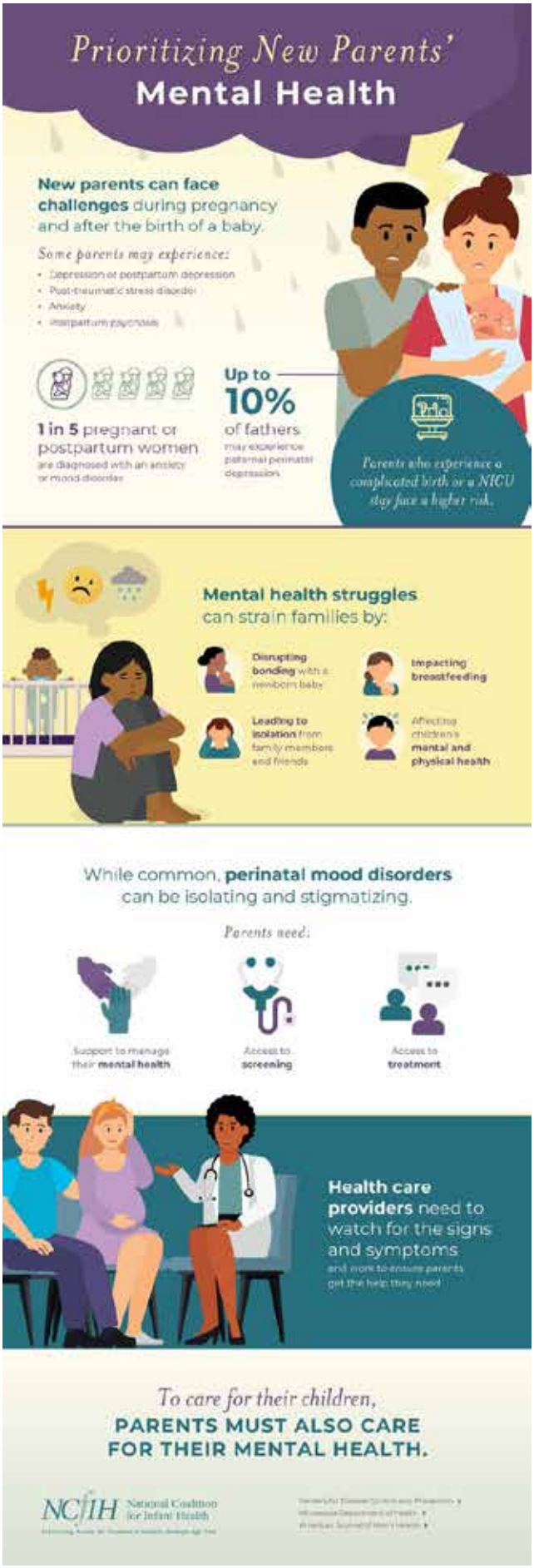
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FCC Taskforce Webinar

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"Optimizing Organization Mindset to Support Skin-to-Skin and Evidence-Based Neuroprotective Care"



ELIZABETH ROGERS, MD
(SHE/HER)

Professor of Pediatrics, Chief Experience Officer, &
Associate Vice Chair of Faculty Development
UCSF Department of Pediatrics & Division of Neonatology

"The ABC's of Empathy, Hope, and Clear Communication for NICU Parents"



TERRI L. MAJOR-KINCADE, MD, MPH, FAAP
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FAMILY-CENTERED CARE TASKFORCE

Q-rounds Makes Multidisciplinary Family-Centered Rounds an Attainable Standard of Care

Michael Pitt, MD, FAAP

In an ever-evolving healthcare landscape, many US hospitals are operating on the brink of financial vulnerability with historically low operating margins.

"This white paper serves as a guide for hospital administrators, healthcare executives, and stakeholders who are seeking innovative solutions to enhance their bottom line while ensuring exceptional patient experience and outcomes."

This white paper serves as a guide for hospital administrators, healthcare executives, and stakeholders who are seeking innovative solutions to enhance their bottom line while ensuring exceptional patient experience and outcomes. The content provided within is from secondary research performed using peer-reviewed journals to assess the transformative potential of Q-rounds within hospital systems.

- Introduction to Q-rounds
- Cost Savings
- Reduce Medical Errors
- Revenue Generation
- Increase Patient Satisfaction Scores
- Increase Billable Consults
- Conclusion

Introduction to Q-rounds:

Q-rounds solves one of the biggest challenges in the hospital by taking the waiting around out of rounds.

Q-rounds is a virtual queue that sends real-time notifications to patients, families, nurses, and other stakeholders of when to arrive for rounds. This lets the care team plan their day more efficiently with personalized notifications and schedule visibility via the EHR while empowering patients and their families with the Time Transparency™ they have come to expect as a consumer in almost every other industry.

Step 1: Build the Queue

Q-rounds pulls patient lists from the EHR, and with a combination of AI and the provider's decision-making, patients are marked as high priority or ready for discharge. This creates a rounding schedule that prioritizes efficiency and patient care.



1. Build the Queue

Optimize patient care and efficiency by prioritizing rounding order for high priority and ready to discharge patients.



2. Share the Queue

Automatically send real-time updates to all stakeholders on when to be present for rounds. And if the schedule changes, everyone downstream is notified.



3. Arrive at Rounds Together

Families can RSVP to attend in person or virtually; nurses are notified when their patient is up next; consultants join rounds seamlessly in person or virtually with one click; and interpreters are queued up and waiting for rounds.



Step 2: Share the Queue

Q-rounds shares the rounding schedule with everyone who needs to be present for rounds, with real-time updates if their place in the queue changes. Families receive a text message; nurses are notified in the EHR and on their communication devices.

Step 3: Arrive at Rounds Together

Having everyone present for rounds, including nurses, interpreters, and families, improves patient advocacy, effective communication, higher confidence in the care team, and satisfaction with the care provided.

"Q-rounds shares the rounding schedule with everyone who needs to be present for rounds, with real-time updates if their place in the queue changes. Families receive a text message; nurses are notified in the EHR and on their communication devices."

Cost Savings:

Nurse presence plays a crucial role in reducing costs associated with medical errors.

Reduce Medical Errors:

As the third leading cause of death in the United States, medical errors pose serious risks to both patient well-being and hospital finances. (1) While Q-rounds cannot eliminate all errors, it can contribute to a reduction in their frequency, severity, and associated costs. Available data suggest that each harmful error costs an estimated $16,104. Furthermore, harmful errors are highly prevalent, occurring in 1/18 patients. (2)

"Q-rounds has increased nurse presence for all rounds by a remarkable 215%. (3) By automating the inclusion of the nurse for rounds on every patient, Q-rounds can reduce harmful errors and save hospitals money by having the nurse at the bedside with the medical team for rounds."

Q-rounds has increased nurse presence for all rounds by a remarkable 215%. (3) By automating the inclusion of the nurse for rounds on every patient, Q-rounds can reduce harmful errors and save hospitals money by having the nurse at the bedside with the medical team for rounds. Q-rounds makes this possible by directly sharing the daily rounding scheduling with nurse communication devices. Real-time changes, pushed into the electronic health record (EHR), and personalized updates ensure that the nurse remains informed even if the rounding schedule or their patient's place in the queue has changed.

Prior to implementing Q-rounds, one system found that even when their nurses were present for rounds, they arrived after the discussion had started, missing an average of 13% of the time spent discussing their patient. With Q-rounds, this same system saw nurses arrive on average 6 seconds before the doctors began rounding. (3)

This Time Transparency™ allows nurses to plan accordingly, provide more efficient patient care and fosters a sense of respect

Table 1: Cost savings from nurse presence for the entirety of rounds a variety of bed counts

Bed Count	Admissions/ Year	Serious Errors/ Year	Cost of Harmful Errors	Baseline Nurse Presence	Post Q-rounds Nurse Presence	Error Reduction/Year	Total Savings
100	8,343	463	$7,464,076	45%	90%	88	**$1,418,174**
250	20,857	1,159	$18,660,190	45%	90%	220	**$3,545,436**
400	33,371	1,854	$29,856,305	50%	90%	352	**$5,672,698**

Assumptions: Admission/year approximated using average length of stay of 3.5 days and 80% occupancy. Number of serious errors based on published average of 1/18 patients experiencing an error causing serious medical harm[2] and mean published cost for this type of error of $16,104 per error. Reduction estimate based on Q-rounds demonstrated increase of nurse presence at the bedside and published error reduction of 38% in serious medical errors when nurse is present for rounds.

for the nurse's time and their invaluable role within the care team. Q-rounds helps to ensure that the multidisciplinary team can be present for rounds together.

"Implementing Q-rounds, leading to increased nurse presence during rounds, could translate to annual cost savings of approximately $3.1 million for a 250-bed hospital system. By getting the nurse to the bedside on time every time, Q-rounds can reduce costly harmful errors and their financial burden on hospitals."

Implementing Q-rounds, leading to increased nurse presence during rounds, could translate to annual cost savings of approximately $3.1 million for a 250-bed hospital system. By getting the nurse to the bedside on time every time, Q-rounds can reduce costly harmful errors and their financial burden on hospitals.

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Revenue Generation:

The higher that patients rate their experiences, the greater the incentives hospitals receive.

Table 2. Revenue from additional consultations

Bed Count	Admissions/Year	Average RVU for a Hospital Consult	Additional Consults Per Patient Per Stay	Total Additional Revnue Per Year
100	8,343	$118.89	1	$991,882
250	20,857	$118.89	1	$2,479,706
400	33,371	$118.89	1	$3,967,529

"The Centers for Medicare & Medicaid Services (CMS) now incentivize hospitals to improve patient experiences through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. The higher patients rate their experiences, the more financial incentives hospitals receive—having a direct impact on a hospital's earnings."

Patient Satisfaction Scores:

The Centers for Medicare & Medicaid Services (CMS) now incentivize hospitals to improve patient experiences through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. The higher patients rate their experiences, the more financial incentives hospitals receive—having a direct impact on a hospital's earnings.

Beyond this direct reimbursement, research demonstrates a strong link between patient satisfaction and financial performance. Hospitals with improved satisfaction scores enhance their reputation and see higher profitability, a relationship that holds even when considering other performance factors. Compared to similar hospitals, a 10% increase in top-box ratings is linked to a 1.4% net margin increase and a 1.3% boost in Return on Assets (ROA). (4)

"Q-rounds has a profound impact on enhancing patient satisfaction. By streamlining the rounding process and providing Time Transparency™ with real-time updates on rounding schedules, patients and families are empowered to anticipate and actively participate in discussions with their care teams and if families cannot be present for rounds due to employment or transportation barriers, Q-rounds virtually brings them to the bedside via one-click telehealth."

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*In comparison to hospitals in the same market, a ten percentage point increase in the proportion of respondents providing a hospital with a top- box rating (9 or 10 out of 10) is linked to a 1.4% rise in net margin and a 1.3% increase in ROA, relative to hospitals receiving a bottom-box rating (0 to 6 out of 10). (4) The average hospital with 250+ beds had an average net patient revenue of $817.1M in 2021 with net margins of 6.5%. (5,6) An improvement of 1.4% in net margin would result in increased profits of approximately $11.4M for a hospital system of that size.

"The average hospital with 250+ beds had an average net patient revenue of $817.1M in 2021 with net margins of 6.5%. (5,6) An improvement of 1.4% in net margin would result in increased profits of approximately $11.4M for a hospital system of that size."

Furthermore, the increased presence of nurses during rounds, facilitated by Q-rounds, fosters stronger communication and deeper trust between patients and healthcare providers. 91% of families had increased confidence in the care team, (7) and 64% of families viewed the provider as more compassionate when they are routinely present for rounds. (8) These improvements in transparency, communication, and patient engagement make patients and their families feel more valued and contribute to a more positive overall hospital experience, ultimately leading to higher patient satisfaction.

"91% of families had Increased confidence in the care team when they were routinely present for rounds. (7) 64% of families viewed the provider as more compassionate when they were routinely present for rounds. (8)"

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Revenue Generation:

Eliminate lost revenue from curbside consults.

"Incorporating sub-specialty consultants into rounds presents advantages in patient outcomes and hospital finances. This inclusive approach improves decision-making by providing immediate access to specialized expertise, leading to more precise diagnoses and personalized treatment plans. "

Incorporating Sub-specialty Consultants at Rounds:

Incorporating sub-specialty consultants into rounds presents advantages in patient outcomes and hospital finances. This inclusive approach improves decision-making by providing immediate access to specialized expertise, leading to more precise diagnoses and personalized treatment plans. Timely intervention reduces potential complications, enhancing patient outcomes. It also promotes interdisciplinary collaboration among healthcare professionals, ensuring comprehensive patient assessment and a holistic approach to care. Importantly, involving sub-specialty consultants fosters a better understanding of patients' and families' conditions and elevates satisfaction.

"Curbside consults - where a primary team informally seeks input from a specialist without generating a formal billable consult - are common despite hospitals discouraging the practice."

Curbside consults - where a primary team informally seeks input from a specialist without generating a formal billable consult - are common despite hospitals discouraging the practice.

Curbside consults place hospital systems at risk, as they occur without documentation and ultimately lead to lost opportunities for revenue. Q-rounds provides an opportunity to seamlessly pull in consultants to inpatient rounding discussions with families – with the opportunity to join the primary team virtually to address specific questions – and generates revenue, as specialists can bill for these encounters.

Billing codes (CPT codes) determine revenue from sub-specialty consultations, varying by expertise and time spent.

When Q-rounds™ is implemented in a hospital, the positive impact on revenue becomes evident through an increase in patient satisfaction and consultant fees, leading to a substantial improvement in Net Present Value (NPV).

Conclusion:

In conclusion, the evidence presented in this white paper underscores the case that by adopting Q-rounds, hospitals have a unique opportunity to simultaneously bolster their financial health and enhance patient safety.

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As you navigate the complexities of healthcare management, we encourage you to take advantage of the chance to see Q-rounds in action. In your personalized demo, we will also use our proprietary calculator to run the numbers presented in this document with your hospital's unique metrics, helping you make informed decisions that align with your hospital's goals and aspirations.

Choose to elevate your hospital's financial trajectory while delivering high-quality care by embracing the potential of Q-rounds. Schedule a demo to see your cost savings and revenue generation possibilities.

Visit q-rounds.com to learn more.

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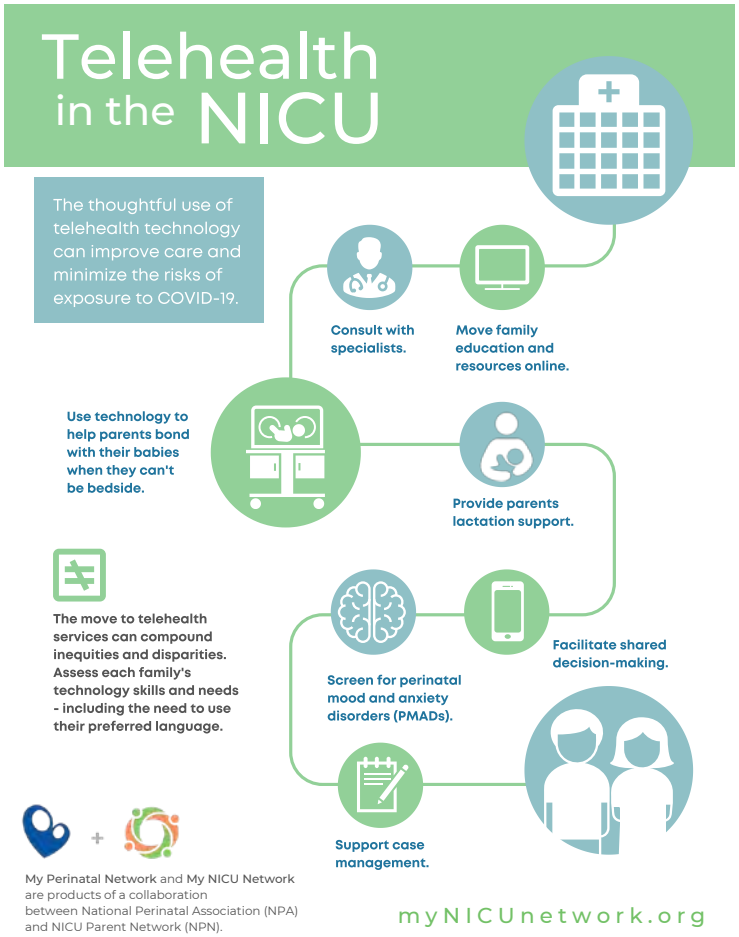


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"Attending Gravens Conference as an early career faculty **gave me a new perspective on caring for babies and families**. It fostered collaboration with mentors, passionate FCC champions, and NICU parents, and inspired me to form the international FCC Taskforce where we support NICUs as they begin or strengthen FCC in their units. **The Taskforce wouldn't exist without this conference and its inspiring parent speakers**."
-Malathi Balasundaram, MD



FAMILY-CENTERED CARE TASKFORCE

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The Palmar Grasp Reflex

Joseph B. Philips, III, MD, FAAP

"Often, they are massively edematous with weights double, triple, or even more than their dry weight. Virtually all share one characteristic that separates them from adult patients. They are not brain-dead. By virtue of open sutures between the skull bones, even babies with severe cerebral edema do not herniate their brainstems. The head swells, and the brainstem survives even though the higher brain may be devastated. Thus, the infant cannot be declared brain dead and removed from life support without the family's permission."

We gather in the family counseling room — myself, the mother, and any family she wants present, the baby's intern and bedside nurse, fellow, nurse manager, social worker, chaplain, and perhaps respiratory therapist and hospice nurse or attending. I review the baby's hospital course and the infant's dire situation. These babies are typically on maximal ventilator support with multiple pressors and other drips. They are a mixed bag, ranging from micro preemies with devastating intracranial hemorrhages, infants of any gestation and age with overwhelming sepsis, babies with congenital anomalies incompatible with life, term infants with profound hypoxic-ischemic encephalopathy, and a large variety of other terminal conditions. Often, they are massively edematous with weights double, triple, or even more than their dry weight. Virtually all share one characteristic that separates them from adult patients. They are not brain-dead. By virtue of open sutures between the skull bones, even babies with severe cerebral edema do not herniate their brainstems. The head swells, and the brainstem survives even though the higher brain may be devastated. Thus, the infant cannot be declared brain dead and removed from life support without the family's permission.

Once the severity of the situation has been presented, I outline the three possible pathways forward. The first, our default pathway, is to continue providing maximal support, escalate care if there is anything to add, and perform full CPR in the event of a code episode. Option two is to continue our current support and not escalate care, with or without CPR. The third direction is to declare that we are prolonging the child's death rather than saving its life and withdraw support. We offer the option of holding the baby while it dies to the mother or anyone that she designates. Most mothers do not choose this option, even though it is the one we encourage.

For those who do choose to withdraw, we let the family plan how this will occur. Often, this involves a final session to say goodbye while the infant is still on the ventilator. This is usually when the dreaded moment arrives. The mother or other family member strokes the baby's palm with a finger. The baby's hand then grips the finger with surprising strength. The person to whom the finger belongs then exclaims, "She grabbed my finger. She wants to live, and we can't do this." All the talking, counseling, and planning are short-circuited instantly by an unconscious reflex.

"For those who do choose to withdraw, we let the family plan how this will occur. Often, this involves a final session to say goodbye while the infant is still on the ventilator. This is usually when the dreaded moment arrives. The mother or other family member strokes the baby's palm with a finger. The baby's hand then grips the finger with surprising strength. The person to whom the finger belongs then exclaims, "She grabbed my finger. She wants to live, and we can't do this." All the talking, counseling, and planning are short-circuited instantly by an unconscious reflex."

The palmar grasp reflex is primitive and is present in preterm infants as early as 25 weeks gestation (1). It likely developed in our arboreal ancestors as a basic survival mechanism. Baby primates must reflexively cling to their mothers so as not to fall to the forest floor, where they would become an easy meal for the hungry predators waiting below. Because the palmar grasp reflex is present even in anencephalic infants, the cerebral cortex is not required to elicit it (2). Rather, the reflex is mediated at the segmental level in the spinal cord. The ultimate extinction of the

palmar grasp reflex is determined by the development of cortical inhibitory control over the spinal reflex centers (3). It fails to extinguish in some severely injured children and may reappear in adults after severe brain injury. Thus, the perception that the infant grasped the caring adult with purpose is false. I now counsel families in advance about the palmar grasp reflex to try to avert their calling off the withdrawal.

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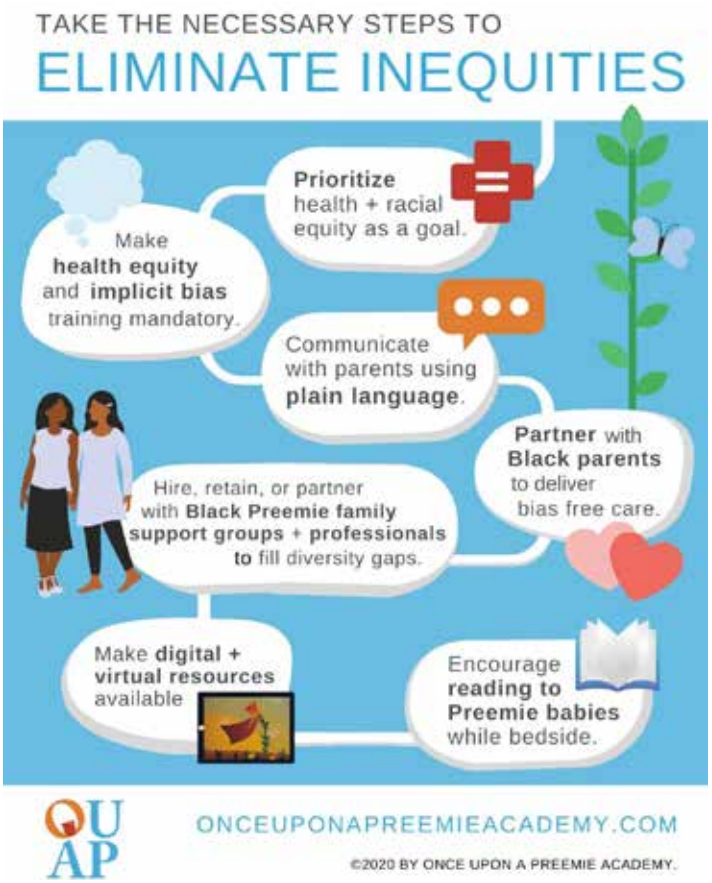
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The Indirect Impact of **RSV**

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

OVERVIEW



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

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

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

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

RSV PARENT SURVEY

340 parents who had at least 1 child sick with RSV



67% of parents said their child was hospitalized for RSV

RSV HEALTH CARE PROVIDER SURVEY

175 health care providers across various pediatric and neonatal subspecialties



67% worked in an outpatient facility

33% worked in a hospital

RESULTS

FINANCIAL BURDEN

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

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

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

EMOTIONAL BURDEN

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

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

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

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

SOCIAL BURDEN

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

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

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

RESULTS

PARENT EDUCATION & AWARENESS

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

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

TREATMENT CHALLENGES

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

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

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

MISCONCEPTIONS

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

CONCLUSION

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

The virus may lead to:

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

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

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

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

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

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Building Trusting Teams - A Pathway to Organizational Excellence

Rody Azar, MHA, RRT-NPS

"Organizations strive for high performance, collaboration, and adaptability in today's dynamic work environment. The foundation of achieving these goals lies in building trusting teams. Trust is critical to effective teamwork, influencing communication, performance, and overall employee satisfaction."

Abstract:

Organizations strive for high performance, collaboration, and adaptability in today's dynamic work environment. The foundation of achieving these goals lies in building trusting teams. Trust is critical to effective teamwork, influencing communication, performance, and overall employee satisfaction. This paper explores the significance of trust within teams, finds the characteristics of trusting teams, and offers strategies for developing trust in organizational settings. The findings underscore that trust is not merely a soft skill but a vital pillar that enhances organizational culture and drives success.

"Trust is an essential element of effective teamwork. It fosters an environment where team members feel safe communicating openly, sharing ideas, and collaborating towards common goals. Without trust, relationships become strained, communication breaks down, and organizational performance suffers."

Introduction:

Trust is an essential element of effective teamwork. It fosters an environment where team members feel safe communicating openly, sharing ideas, and collaborating towards common goals. Without trust, relationships become strained, communication breaks down, and organizational performance suffers. According to a study by Gallup, organizations with high employee engagement, which is closely related to trust, report 21% higher profitability (Gallup, 2020). This paper explores trust in teams, examining how it can be fostered and its profound impact on organizational success.

The Importance of Trust in Teams:

1. **Enhanced Communication**: Trust creates a safe space where team members can share their thoughts and feelings without fear of judgment. This openness leads to improved communication, enabling teams to function more effectively. When team members trust each other, they are more likely to engage in candid discussions, ask for feedback, and share constructive criticism. This process encourages continuous improvement and innovation.

2. **Improved Collaboration**: Teams characterized by trust collaborate more seamlessly. Trust encourages team members to share resources, support one another, and seek each other's abilities. This collaborative spirit leads to better problem-solving and decision-making, as individuals are more willing to listen to diverse perspectives.

3. **Increased Engagement**: Trust enhances commitment and engagement within teams. Employees who feel trusted and valued are more likely to invest their time, energy, and creativity into their work. This higher level of engagement results in better performance and productivity, as engaged employees are motivated to achieve team goals.

4. **Effective Conflict Resolution**: Conflict is a natural occurrence in any team dynamic. However, team members are more likely to address conflicts directly and constructively in a trusting environment, allowing them to express their disagreements without fear of damaging relationships. This approach leads to more effective and quicker resolutions, which helps support a positive team atmosphere.

5. **Greater Accountability**: When trust exists within teams, members are more likely to hold themselves and each other accountable for their roles and responsibilities. Trusting teams create a culture of accountability where individuals take ownership of their work, leading to higher standards and better performance.

Characteristics of Trusting Teams:

1. **Open Communication**: Team members communicate transparently and honestly, fostering a culture of openness and inclusivity.

2. **Mutual Respect**: Trusting teams recognize and appreciate each other's strengths, value diversity, and promote an inclusive environment.

3. **Shared Goals**: All team members are aligned with common goals, reinforcing collaboration and commitment.

4. **Empathy and Support**: Team members show care and understanding for one another, creating a supportive atmosphere that encourages sharing and vulnerability.

5. **Reliability**: Trusting teams foster a sense of reliability, where members can depend on each other to fulfill commitments and responsibilities.

"Building trust is an ongoing process requiring intentional effort from leaders and team members. Below are strategies to cultivate trust in teams:"

Strategies for Building Trusting Teams:

Building trust is an ongoing process requiring intentional effort from leaders and team members. Below are strategies to cultivate trust in teams:

1. **Lead by Example**: Leaders play a crucial role in shaping team dynamics. By showing trustworthy behaviors, such as honesty, integrity, and accountability, leaders set the standard for others to follow. Vulnerability in leadership (e.g., admitting mistakes and seeking feedback) can also strengthen trust within the team.

2. **Foster Open Communication**: Encourage team members to openly share their thoughts, ideas, and feedback. Create an environment where communication is valued, and actively listen to team members. Regular check-ins, team meetings, and one-on-one discussions can help open dialogue and build trust.

3. **Encourage Collaboration**: Design opportunities for team collaboration across various projects. Creating diverse project teams allows members to collaborate, share knowledge, and build relationships. Activities such as brainstorming sessions or team-building exercises can strengthen interpersonal connections.

4. **Recognition and Appreciation**: Regularly acknowledge and celebrate the contributions of team members. Recognition fosters an environment of appreciation, reinforcing the value of individual efforts. Simple gestures such as expressing gratitude during meetings or highlighting achievements can significantly boost trust within the team.

5. **Create a Safe Environment for Risk-Taking**: Encourage team members to take thoughtful risks and innovate without fear of negative consequences. Providing autonomy and support for innovative ideas helps build trust, as team members feel empowered and valued for their contributions.

6. **Establish Clear Roles and Expectations**: Clarify the roles and responsibilities of each team member. When individuals understand their specific roles and expectations, it fosters accountability and reduces uncertainty. Clear roles create a sense of security, allowing team members to trust that everyone is working towards the same goals and can depend on one another to fulfill their responsibilities.

7. **Promote Team-building Activities**: Engaging in in-person or virtual team-building activities can significantly strengthen team members' interpersonal relationships. These activities should encourage collaboration, promote understanding, and foster positive interactions outside of day-to-day work. Such experiences can help individuals develop personal connections, creating a more profound sense of trust.

8. **Provide Opportunities for Professional Development**: Encouraging continuous learning and professional growth shows team members that the organization values their development. Offering training, workshops, and mentorship opportunities improves individual skills and reinforces trust, as team members see that their organization is invested in their success.

9. **Practice Transparency**: Transparency is a key part of trust. Leaders should share relevant information about the organization's goals, decision-making processes, and performance metrics with their teams. When team members are informed about what is happening within the organization, they feel more involved and valued, strengthening trust.

10. **Encourage Feedback**: Creating a culture where feedback is valued encourages trust among team members. Implementing regular feedback mechanisms—such as one-on-one check-ins and anonymous surveys—allows team members to express their thoughts and concerns. Moreover, showing that feedback is taken seriously and leads to action, reinforcing the notion that everyone's input is valuable.

"The presence of trusting teams can lead to transformative outcomes in an organization:"

The Impact of Trusting Teams on Organizational Success:

The presence of trusting teams can lead to transformative outcomes in an organization:

1. Higher Performance and Productivity: Organizations with trusting teams have been shown to achieve higher performance levels. Trust enhances collaboration and reduces time spent on conflicts, resulting in teams completing projects more efficiently and effectively.

2. Improved Employee Well-being: A trusting environment improves employee morale and job satisfaction. Employees who feel trusted are less likely to experience stress and burnout, resulting in a healthier workforce with higher retention rates.

3. Greater Innovation: Trust allows teams to embrace creative solutions and explore innovative ideas without fear of failure. This environment fosters innovation as team members confidently share their insights and experiment with novel approaches to work.

4. Stronger Organizational Culture: A trust-based culture promotes a sense of belonging and shared purpose. Employees are more likely to feel aligned with the organization's mission and values, which enhances overall engagement and loyalty.

5. Resilience to Change: Organizations characterized by trust navigate change effectively. Trusting teams adapt more readily to new initiatives and challenges as members communicate openly and support one another during transitions.

"Building trusting teams is not just a desirable outcome but essential for organizational success. Trust enhances communication, collaboration, and accountability while fostering a positive work environment. "

Conclusion:

Building trusting teams is not just a desirable outcome but essential for organizational success. Trust enhances communication, collaboration, and accountability while fostering a positive work environment. Organizations can cultivate a culture where teams thrive by implementing strategies that promote trust-building, such as leading by example, fostering open communication, and providing opportunities for development.

"By building trust within teams, organizations can strengthen their foundation and position themselves for future success. As shown throughout this paper, trusting teams are the cornerstone of an effective and resilient organizational culture."

Leaders must recognize that trust is a pivotal part of team dynamics and should actively work to nurture it. The benefits of trusting teams extend beyond individual relationships; they affect organizational performance, employee satisfaction, and innovation. As organizations navigate complexities in the modern workplace, prioritizing trust will be paramount for achieving sustainable success.

By building trust within teams, organizations can strengthen their foundation and position themselves for future success. As shown throughout this paper, trusting teams are the cornerstone of an effective and resilient organizational culture.

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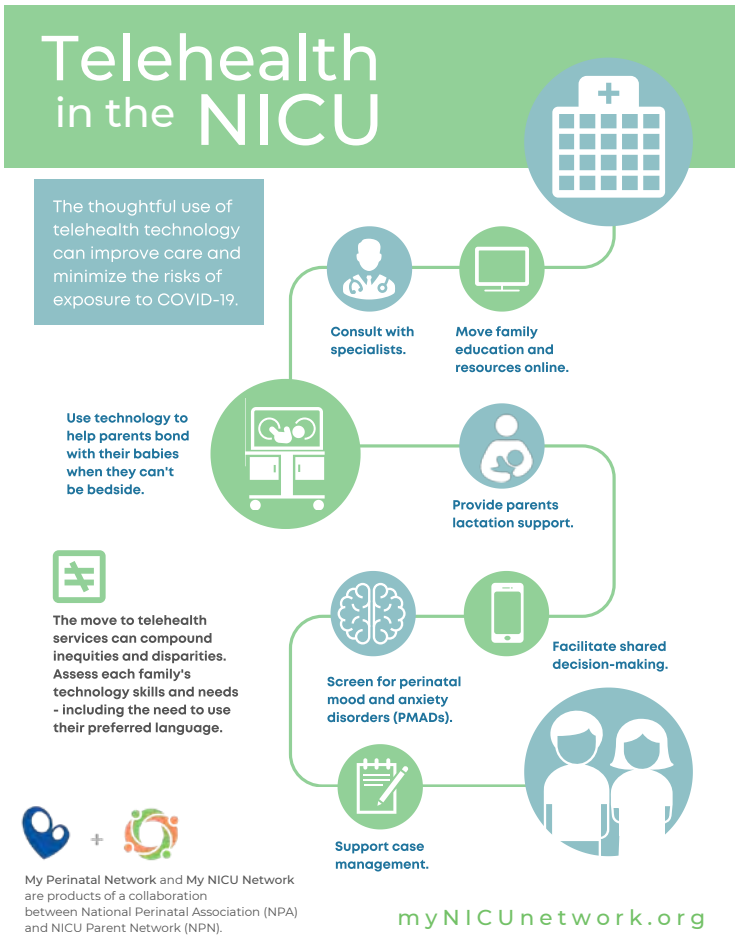
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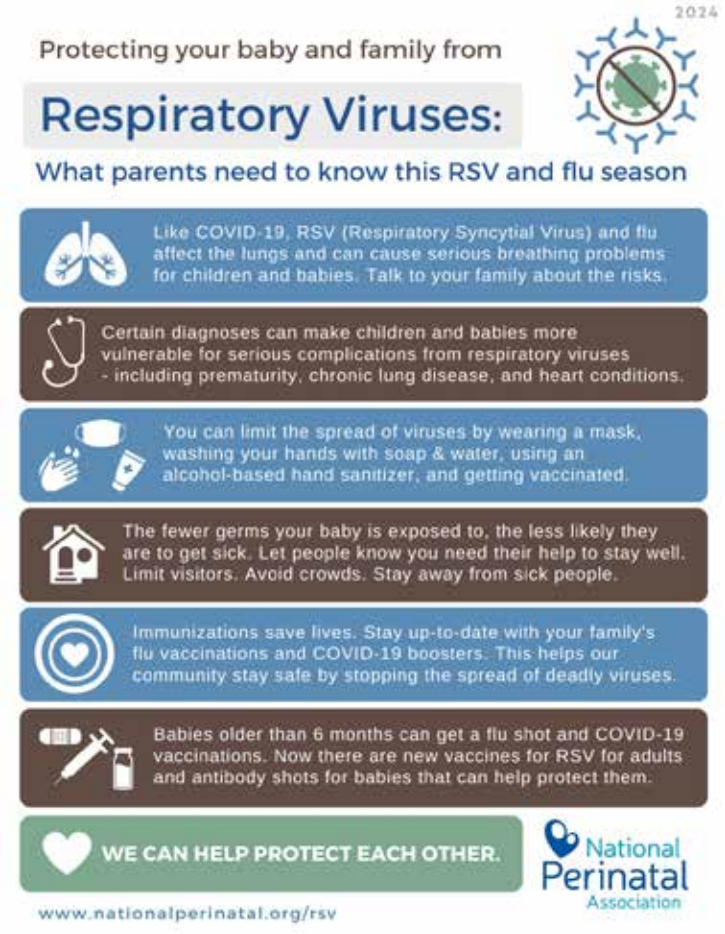
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Ethics and Wellness: The Power of Friendship in Professional Settings: Lessons from the NICU

Mitchell Goldstein, MD, MBA, CML, Lily Martorell-Bendezu, MD, Elba Fayard, MD, T. Allen Merritt, MD, MHA

"Friendship, at its core, is a cornerstone of human interaction. It is a relationship built on trust, empathy, and mutual support, enabling individuals to navigate the complexities of their lives with the assurance that they are not alone."

Friendship, at its core, is a cornerstone of human interaction. It is a relationship built on trust, empathy, and mutual support, enabling individuals to navigate the complexities of their lives with the assurance that they are not alone. In high-pressure environments like the Neonatal Intensive Care Unit (NICU), where life-and-death decisions are made daily, the value of friendship cannot be overstated. (1-3)

Friendships in the professional setting provide more than camaraderie; they are lifelines. They offer a trusted space to confide, decompress, and process the emotional toll of critical care. In the NICU, where the stakes are high and emotions often run higher, having colleagues who are also friends can mean the difference between burnout and resilience. (2)

"They offer a trusted space to confide, decompress, and process the emotional toll of critical care. In the NICU, where the stakes are high and emotions often run higher, having colleagues who are also friends can mean the difference between burnout and resilience. (2)"

However, true friendship, particularly in a professional setting, is not just about shared laughter or mutual support in tough times. It is about embodying principles that foster inclusivity and mutual respect. Friends do not compete to the detriment of others, nor do they undermine differing opinions during heated discussions. Instead, they create environments where every voice is valued, and disagreements are opportunities for growth, not division. (4)

A friend in the workplace defends and advocates for their colleagues, ensuring no one is excluded from crucial conversations. They stand up for their peers, offering unwavering support when professional challenges arise. This solidarity fosters a culture of safety and belonging, which is critical in environments like the NICU, where teamwork and trust are essential to delivering optimal care.

"In the NICU, where the stakes are as high for the caregivers as for the patients and their families, this culture of friendship sustains individual vitality and elevates the standard of care. (5) This deep friendship develops "family times" among faculty members and increases loyalty and longevity within the workplace."

Importantly, friendship does not mean compromising professionalism; it is professionalism at its highest level. It embodies the shared commitment to a safe, supportive, collaborative workplace where everyone feels valued and empowered. In the NICU, where the stakes are as high for the caregivers as for the patients and their families, this culture of friendship sustains individual vitality and elevates the standard of care. (5) This deep friendship develops "family times" among faculty members and increases loyalty and longevity within the workplace.

However, there is a potential risk that loyalty within friendships or professional relationships can morph into unintentional complicity. Covering up for one another's errors, even out of goodwill, can create ethical dilemmas, particularly in high-stakes environments like the NICU. (6) This might stem from a desire to protect the relationship, avoid conflict, or maintain an illusion of infallibility.

"In professional settings, the balance lies in fostering a culture of psychological safety. If people feel safe admitting mistakes or raising concerns without fear of retaliation or humiliation, friendship and teamwork can become powerful tools for growth."

In professional settings, the balance lies in fostering a culture of psychological safety. If people feel safe admitting mistakes or raising concerns without fear of retaliation or humiliation, friendship and teamwork can become powerful tools for growth. Rather than "covering up," relationships rooted in mutual respect encourage openness about errors and a commitment to address them collaboratively. (7)

Moreover, when practiced with intention, friendship transcends the

boundaries of professionalism while embodying its highest ideals. It is the ultimate expression of professionalism—a commitment to mutual respect, shared purpose, and collective success. In this way, friendship is not just a personal virtue but a professional asset that advances care and enhances collaboration.

"Friends defend and support their colleagues, creating a protective environment against professional hostility or exclusion. It reminds us that while professionalism is vital, our shared humanity truly drives excellence in care"

Cultivating friendships among colleagues in the NICU and other high-acuity settings creates a safe and supportive environment for everyone to thrive. Friends defend and support their colleagues, creating a protective environment against professional hostility or exclusion. It reminds us that while professionalism is vital, our shared humanity truly drives excellence in care.

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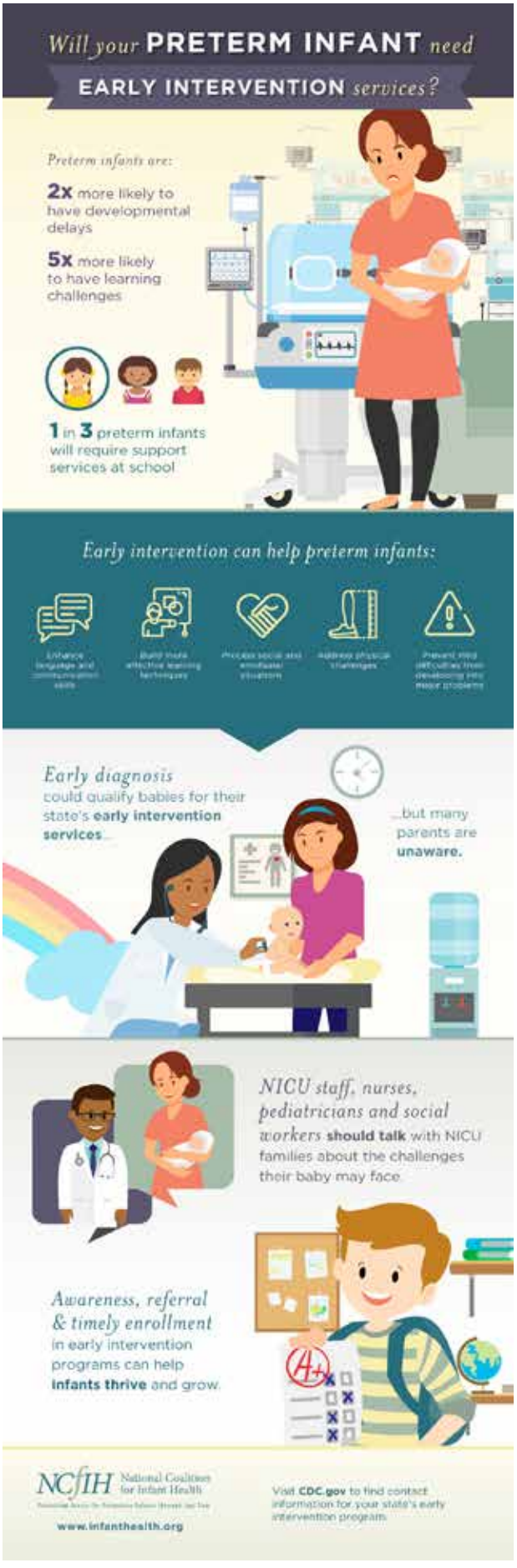
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Agenda Overview

Light Breakfast 8am to 9am
Conference Begins 9am

CPQCC Review of Morbidity/Mortality
Henry Lee, MD | UCSD

Periviability Survey
Anamika Banerji, MD, MS | LLUCH

MFM Approach to Chorioamnionitis in Premature Babies
Ruofan Yao, MD, FACOG, MPH | LLUCH

Panel Discussion Topics

- Fluid management - Yona Nicolau, MD | UCI
- Use of IVH bundles, NIRS, POCUS - K. Coughlin, MD | SMB
- Approach to ventilation - Nicole Kraus, DO | LLUCH
- Feeding and fortification - Katherine Weiss, MD | UCSD
- Pulse oximetry ranges - Munaf Kadri, MD | LLUCH
- Management of hypotension - Rucha Joshi, MD | CHOC

Lunch Provided

Engaging Nurses and Parents *in the* Small Baby Unit
Jessica Holtorf, MSN, RNC-NIC | LLUCH

Neuroprotection Strategies
Valerie Chock, MD | Stanford

Breakout Sessions

- Neuroprotection Strategies
  Valerie Chock, MD | Stanford
- Leveraging CPQCC
  Henry Lee, MD | UCSD
- SENSE Program
  Stacey Belliard, DPT | LLUCH

Conference ends 3pm



For Physicians: The Loma Linda University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. This course is approved for 5.25 AMA PRA Category 1 Credits
For Nurses: The Perinatal Advisory Council-Leadership, Advocacy, and Consultation (PAC/LAC) is an approved provider by the California Board of Registered Nursing. This course is approved for 5.0 contact hours. PAC/LAC's provider number is CEP 5862. Licensee must retain this certificate for a period of four years.
pac/lac 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 $30 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

Peer Reviewed

Jenné Johns, MPH

Once Upon a Preemie: Policy Note 2.0

Maternal Health Equity. Neonatal Equity.

Once Upon a Preemie, Inc. (OUAP) is a non-profit organization that advocates on behalf of Black mothers and Black premature babies across the nation with an emphasis on advancing equity in NICUs through the transformation of care delivery and lifting up lived experiences.

INTRODUCTION

The United States is experiencing an ongoing maternal and infant health care crisis that disproportionately impacts Black communities. Black women are three times more likely than white women to die from pregnancy-related complications. The mortality rate of Black infants is double the rate of white infants, with the leading cause of death being preterm birth.[i]

In the United States, one in five Black babies are born preterm at 37 weeks or sooner. Babies who are born preterm, or premature, are at greater risk of adverse health outcomes later in life and have higher rates of mortality than infants born at full term.[ii]

Unsurprisingly, the same historical patterns of inequities that are associated with the Black maternal health crisis, are also associated with the disproportionately high rates of Black infant prematurity across the country. These historical patterns of inequities include systemic racism, economic disenfranchisement, and discrimination in the healthcare system.

WHEN YOUR BABY IS BORN TOO SOON

As a healthcare executive and advocate for healthy lifestyles and health equity, OUAP's founder Jenné Johns found herself advocating for the needs of her prematurely born son. Although Jenné had over a decade of experience working in the health field, an advanced degree, and access to the best health insurance and timely prenatal care, that was not enough to prepare her for the life changing, traumatic, and inequitable journey her family experienced in the Neonatal Intensive Care Unit (NICU).

TOO MANY BLACK MOTHERS ARE DYING TOO SOON AND TOO MANY BLACK BABIES ARE BORN TOO SOON

The maternal health and wellbeing of Black women is associated with Black infant health outcomes.[iii] Black women are more likely to experience pregnancy related complications than white women and the preterm birth rate for Black women is 50 percent higher than that of all other racial groups.[iv] In comparison to white women, Black women, despite education or income levels, are more likely to experience preterm labor, and as such, Black infants are more likely to require admission to the NICU than babies of any other racial group.[v]

Shamefully, nearly 17 percent of Black babies are born premature each year.[vi] There are many factors that impact preterm birth, including socioeconomic status. However, socioeconomic status alone cannot explain the stark disparities in preterm birth. A growing body of research points to racism, a chronic stressor, as a key variable in understanding preterm birth disparities. ata shows that college-educated Black women are more likely to experience maternal and infant mortality than white women with high school diplomas.[vii]

Black babies are 50 percent more likely to be born premature than white babies and have higher rates of NICU admissions.[viii] Similarly, to the wider healthcare system, the NICU is a place where racism undermines the wellbeing of Black infants. When admitted to the NICU, Black infants are subject to discrimination and are more likely than white preemie babies to lack concordant care, which is associated with better health outcomes for Black infants.[ix]

There are also stark differences in the quality of care received by Black infants in the NICU in comparison to white infants. Data shows that when Black preemie babies are admitted to NICUs in Black serving hospitals, these healthcare systems have fewer resources, thus creating greater disparities in breastfeeding rates and quality indicators.[x] However, while majority serving hospitals are better resourced, they lack culturally relevant care, racially concordant care, and have high rates of implicit bias and discrimination. Black families regularly report being dissatisfied with patient care provider communication, family centered care, and respectful care in NICUs.[xi] Although healthcare institutions are encouraged to complete annual cultural competency training, as recommended by the Office of Minority Health in the National Culturally and Linguistically Appropriate Services (CLAS) Standards, this is not enough to address the persistent differences in health outcomes and bias that permeates Black NICU families' experiences.

BLACK MATERNAL AND NEONATAL HEALTH EQUITY CAN BE IMPROVED THROUGH STRONG LEGISLATION.

To meaningfully address disparities in Black maternal and infant health, the healthcare system must be transformed to deliver patient-centered care that is equitable in nature and culturally relevant to the needs of Black mothers and infants. Innovations in Black maternal and neonatal health care requires centering Black Mothers lived experiences, acknowledging prematurity in the black population, and developing comprehensive policy solutions that are grounded in reproductive justice frameworks.

Innovative and equitable policy solutions are paramount to improving the quality of care and safety of Black mothers and their infants. To improve Black Maternal and Neonatal health care, these solutions must be firmly rooted in the lived experiences of Black families with preemie babies and culturally appropriate healthcare workers, such as Doulas, that successfully deliver care pre, during, and post delivery.

Support from Doulas have demonstrated improved health outcomes should be mandated by government sponsored and commercial insurers as a free-service for the first year of life. Also most critical, efforts to improve Black Maternal and Neonatal health care should address systemic racism as the root cause of disparities in health outcomes, including the preterm labor rate for Black women, and the quality of care delivered to Black infants in the NICU.

To assist policymakers in promoting maternal and neonatal health equity across the country, Once Upon a Preemie has developed the following recommendations:

Priority #1: Federal funding should support policies that mandate implicit bias training to address discrimination in maternal and neonatal health care. Black women and infants are more likely than their white counterparts to experience discrimination in the healthcare system, which is shown to impact health outcomes. Despite the disproportionately high rate of Black patients in NICUs, providers are unprepared to deliver care that is culturally relevant. Research indicates that too many Black NICU families have reported experiencing discrimination in the NICU.[xii] Therefore, implicit bias training is essential to combating discrimination and improving Black Maternal and Neonatal health care. Providers should be equipped with the relevant training to address implicit bias in practice through an expanded curriculum that unpacks root causes of inequities in care delivery and solutions to close quality and disparity gaps at the bedside, and within the larger healthcare system.

Nearly 90% of healthcare professionals who completed the Once Upon A Preemie Academy eLearning training program reported seeing challenges around health and racial equity in their workplace. Over 80% of these same healthcare professionals also reported increased competency in implicit bias post Once Upon A Preemie trainings.

We must mandate implicit bias training policies will to combat discrimination in the healthcare system, by equiping healthcare professionals with the skills to deliver culturally relevant, respectful, and equitable maternal and neonatal care.

Policy Recommendations:

- Fund and mandate continuous implicit bias training for perinatal, neonatal, and community health care professionals who serve Black birthing and NICU admitted women;
- Include an anti-bias curriculum in all provider credentialing requirements and continued education;
- Fund programs and establish mechanisms for pregnant, NICU admitted, and postpartum women to report instances of discrimination and bias.
- Establish and fund Respectful Maternity Care Compliance and NICU Equity programs to address bias and promote accountability;
- Fund technology-enabled learning modules that provide training on implicit bias.

Priority #2: To improve maternal and neonatal health outcomes, healthcare systems must collect accurate data. Healthcare systems must consistently collect, analyze and report health outcomes by race, ethnicity, and language. A critical step in promoting health equity is the standardization of data collection across the healthcare space for better analysis and reporting of quality metrics, including key demographics and patient experience. Further, robust data collection is needed to understand the full scope of the maternal and neonatal crises so that interventions may be better tailored.

"Healthcare organizations should collect information on patients' race and ethnicity in order to measure disparities in care."
- American Hospital Association

Policy Recommendations:

- Mandate the standardized collection of expanded race, ethnicity, and language categories;
- Institutionalize the tracking, trending, and reporting of patient level race, ethnicity, and language data;
- Fund the standardized collection and disaggregation of self-reported race, ethnicity, and language data;
- Require race, ethnicity, and language data analysis by quality improvement metrics, patient satisfaction, and patient trust measures.

Priority # 3: To improve the health of Black preemie babies, we must increase and expand pathways to diversify the maternal and neonatal workforce. Research indicates that Black infants with complex health conditions fare better when they are treated by Black providers.[xiii] Provisions to expand the perinatal workforce should also apply to the neonatal workforce. Diversification of the maternal and infant workforce will increase concordant care and improve health outcomes, improve Black patient experiences, increase trust between Black patients and providers, and increase the number of care providers who can offer culturally relevant care.

Policy Recommendations:

- Provide guidance on the development and expansion of racially and professionally diverse care teams;
- Provide funding to establish and scale programs that will grow and diversify the maternal and neonatal health workforce;
- Study the barriers that prevent Black professionals from entering the maternity and infant care workforce and receiving fair compensation;
- Create funding for undergraduate training programs to expose Black students to careers in perinatal and neonatal health.

Priority #4: Black mothers and infants need access to high quality, culturally relevant and appropriate care, regardless of insurance status. Access to high quality health care is associated with better health outcomes. Clinical guidelines recommend that mothers have access to high quality health care that is ongoing and routine for at least one year postpartum, but without a federal mandate, too many Black mothers fall into coverage gaps.[xiv]

Policy Recommendations:

- Expand Medicaid postpartum coverage extension to at least one year after birth;[xv]
- Expand access to and support on-the-ground evidence-based interventions that increase access to mental health care for pregnant, NICU admitted and postpartum women;
- Ensure providers are held accountable for delivering equitable and culturally appropriate care to postpartum and NICU admitted women during the expanded coverage periods.
- Encourage all maternity and neonatal care settings to participate in governing bodies tasked with quality improvement and equity measures.

Priority #5: To reduce disparities in maternal and infant health, the wellbeing of Black Mothers and preemie babies must be centered in maternal health legislation. The social risk factors that are associated with maternal mortality and morbidity are also associated with poor infant health outcomes including prematurity. Black women are more likely than white women to experience "weathering" from racism throughout the course of their life.[xvi] To reduce disparities and improve maternal and infant health outcomes, legislation should develop a social safety net that will enable all families to thrive.

Policy Recommendations:

- Establish a mechanism to coordinate federal efforts to address social determinants of health for pregnant, NICU admitted, and postpartum women;
- Provide and scale programs that improve access to nutritious food, breastfeeding services, diapers, and transportation services to pregnant, NICU admitted, and postpartum women;
- Provide funding to community-based organizations to expand access to holistic and culturally tailored care for pregnant, NICU admitted, and postpartum women;
- Expand access to early childhood development experts in pediatric offices for low-income individuals;
- Invest in digital tools, including telehealth, to increase access to healthcare for families living in underserved areas.

Priority # 6: Expand access to Postpartum Doulas and Community Health Workers to support Black preemie families admitted to the NICU. Historically, Doulas have supported black families by delivering culturally appropriate birthing, emotional, and practical support pre, during, and post delivery. Research has shown that access to Doulas improves outcomes for successful births and healthy babies and has lowered the odds of Postpartum Depression and Postpartum Anxiety by about 58 percent.[xvii] Furthermore, research indicates that support from Doulas can save Medicaid and private insurers $1,000 per birth.[xviii] Therefore, given proven research, lived experiences, and recent federal priorities placed on increasing access to Doulas, no black birthing woman in the US should be left behind. Expanding access to doula care and community health workers for black preemie families is essential to ensuring the delivery of high quality, culturally appropriate and family centered care that Black birthing families require.

Policy Recommendations:

- Expand Doula services for one year post-partum for NICU admitted families and include these services as a covered benefit by government sponsored and commercial insurers.
- Mandate accredited implicit bias training for healthcare providers to understand the important role and value of Postpartum Doulas for patient safety, quality, and delivering culturally competent care.
- Ensure that Postpartum Doulas are provided substantial funding as a partner in the delivery of high quality, culturally appropriate and respectful care.
- Educate and empower birthing women and NICU admitted families about the benefits of Doulas to support their postpartum and NICU journey.

Priority # 7: Provide mental health and social service support for Black Preemie Families.
Having a premature infant is a life changing and traumatic experience that for some women lasts a lifetime. Each minute a preemie spends in the NICU can seem like an eternity for parents. Many times, mental health disorders and depressive symptoms do not present themselves immediately upon a baby's admission to the NICU. Additionally, many women's need for mental, emotional, and social support goes underrecognized, or misdiagnosed. This difficult time is unfortunately exacerbated for Black families because of systemic, systematic and societal racism coupled with unconscious bias, and a lack of culturally appropriate mental health screening tools. As America Builds Back Better, we need to address this disparity to improve outcomes for families with premature infants.

Policy Recommendations:

- Provide free mental health and social service support to families with a premature infant or who experienced infant loss for one year leveraging the medicaid expansion of postpartum care benefits.
- Mandate that mental health and social service providers receive training in delivering culturally appropriate screening tools and implicit bias training.
- Mandate the implementation of fully funded, culturally appropriate hospital and community-based support groups, led by peers and community-based organizations with lived experience. Support groups should be a safe space where families feel comfortable openly discussing any mental, emotional or bias-based issues they are experiencing from their healthcare providers.

CONCLUSION

A society's well being is measured by the ability of its population to thrive. However, far too many Black Mothers and Black babies experience higher rates of morbidity and mortality. Black Mothers and Black newborns die at three times the rate of their white counterparts. This is the unfortunate reality of a society that devalues the lives of Black women.[xix] These health disparities can be addressed through policy levers. Without urgent action, Black mothers and infants will continue to experience poor health outcomes, high premature birth rates, and discrimination in the healthcare system.

Once Upon a Preemie urges Congress to act now by enacting comprehensive policy solutions that are centered on the needs of Black Mothers and Black Preemie Babies. Let's work together to combat these health disparities by creating equitable Maternal and Infant health care solutions for all preemie families.

Once Upon A Preemie is committed to improving the health outcomes of Black mothers and babies, unpacking disparities in NICU admissions, advancing equity in NICUs across the country, and educating NICU providers through anti-bias training.
Once Upon a Preemie advocates for the acknowledgement and integration of the needs of Black preemie parents in Congressional bills that support eliminating disparities for maternal and infant health. Once Upon a Preemie calls on policymakers to prioritize Black maternal and neonatal health through strong legislative action.

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– Christine Theard, M.D.

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The Art, Science, & Stories of Resilience



Randall Bell, Ph.D.

AngelEye Health Education Day

Jennifer Degl



I recently joined many NICU leaders on a quick but valuable visit to Nashville to tour the AngelEye Health office space and participate in their Education Day.

AngelEye is a company that creates technological devices to improve neonatal healthcare outcomes and patient experiences for babies and families. You can read more about them by clicking HERE. They are mostly known for their cameras that connect to incubators and cribs and allow parents to see their babies when they cannot be at the bedside in person. These cameras were already very popular before the pandemic hit our world, but their popularity skyrocketed in March 2020, and demand has been growing ever since. It's easy to see how NICU cameras are a tool that decreases anxiety in parents who cannot be present at their baby's bedside.

"AngelEye is a company that creates technological devices to improve neonatal healthcare outcomes and patient experiences for babies and families."

AngelEye also offers a comprehensive family engagement platform with additional products besides bedside cameras, such as MilkTracker feeding management and NICU2Home, the first evidence-based NICU navigation and discharge coordination solution to support families and care teams. Their bedside cameras are much more than just cameras; they have a system that offers flexible viewing options at any time, video message



replay options, and can alert parents when new messages are delivered- ensuring parents don't miss memorable moments or essential care updates.

"Hospitals using AngelEye report increased patient/patient satisfaction, a reduction in the time required for nursing staff to answer parent phone calls, which allows them to focus more on delivering care, and increased avenues for communicating with families regarding care."

Hospitals using AngelEye report increased patient/patient satisfaction, a reduction in the time required for nursing staff to answer parent phone calls, which allows them to focus more on delivering care, and increased avenues for communicating with families regarding care.

I met representatives from AngelEye for the first time just last year at our annual NICU Parent Network Summit. I was immediately impressed with their mission and drive to serve babies and families. As I mentioned, this visit to Nashville to participate in AngelEys's Education Day was concise. Still, their one-day event was packed with valuable information, personal stories that drive their work, and time for collaboration. Our group learned about AngelEye's mission, vision, core values, and how their company puts the patient first. They seek out communication problems in the neonatal space that need to be solved and work with their innovative technology and engineering teams to solve them.







"We enjoyed time together to continue forging new relationships and connections with others who support NICU babies and families in various ways."

I don't want to forget to mention that AngelEye knew that many of us attendees had never been to Nashville before, and therefore planned a dinner downtown on Broadway for our group once our sessions were over. We enjoyed time together to continue forging new relationships and connections with others who support NICU babies and families in various ways. Many of us also kept the momentum going after dinner. We explored Broadway further by popping in and out of famous establishments that never disappoint with live music.

"I cannot emphasize enough how much AngelEye's facility, mission, and team impressed me. As I write this for my website and followers, I'm brainstorming how I can further support their mission because it is so closely aligned with mine. I look forward to a continued collaborative relationship with this company, and I cannot wait to see how their products further increase the engagement of parents and families as essential members of their baby's care team."

I cannot emphasize enough how much AngelEye's facility, mission, and team impressed me. As I write this for my website and followers, I'm brainstorming how I can further support their mission because it is so closely aligned with mine. I look forward to a continued collaborative relationship with this company, and I cannot wait to see how their products further increase the engagement of parents and families as essential members of their baby's care team.

Thank you, AngelEye Health, for the work you do and for sharing it with our group.



Let's not forget that November is National Prematurity Awareness Month, and November 17th is World Prematurity Day. Please visit

jenniferdegl.com for more information as we progress into the month.

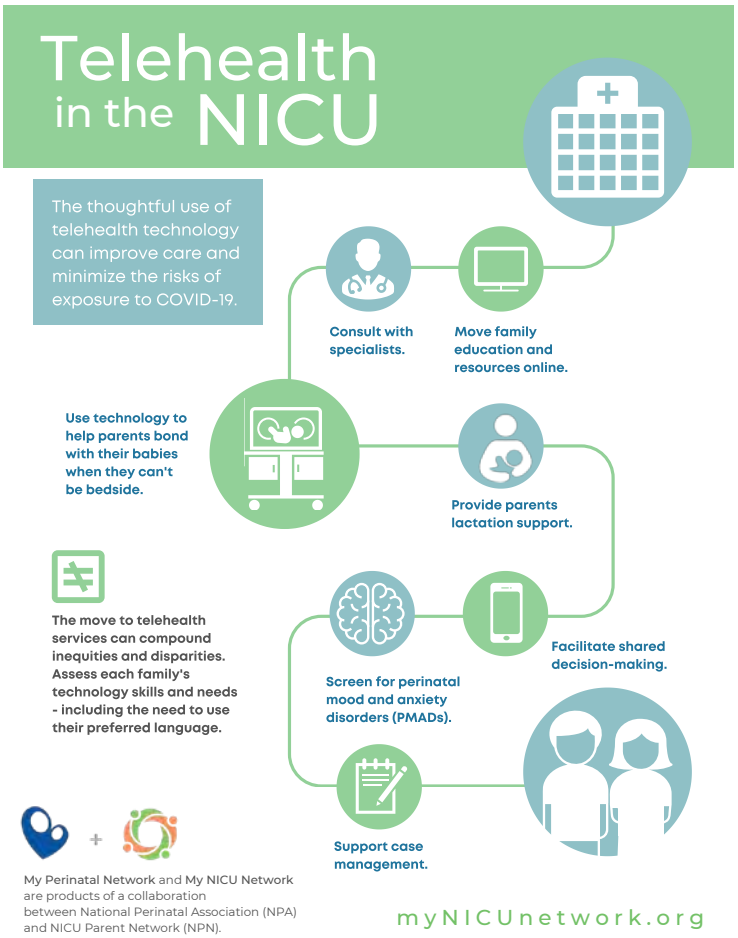
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Advancing Neonatal-Perinatal Care: Your Section on Neonatal-Perinatal Medicine More-Than-Monthly Update for November: Keeping Us All Connected!

Clara H. Song, MD, FAAP

Hello, SONPM Family!

As autumn leaves turn, we are reminded of the vibrancy and growth within our neonatal-perinatal community. Here's a comprehensive update on opportunities, deadlines, and events designed to keep you informed and engaged in our important work.

"As autumn leaves turn, we are reminded of the vibrancy and growth within our neonatal-perinatal community. Here's a comprehensive update on opportunities, deadlines, and events designed to keep you informed and engaged in our important work."

Stay in the know and enjoy some SONPM highlights:

- **Calendar of Events:** Bookmark the #AAPneonatal Calendar for easy access to upcoming deadlines and events.
- **Photo Gallery:** Explore the #AAPneo Photo Gallery (Password: *AAPneonatal*) for snapshots of our vibrant community in action.
- **Celebrating 50 Years of SONPM:** Relive key moments with this commemorative video.

Opportunities and Deadlines to Note

1. Public Comments on NIH/CDC/FDA Probiotics Workshop

Deadline: November 25, 2025
The recent NIH/NIAID/CDC/FDA workshop, *"Live Biotherapeutic Products to Prevent NEC in VLBW Infants,"* tackled a critical issue in neonatology: probiotic use in extremely vulnerable populations.

Resources:

- AAP News article
- Workshop replay: Watch Here
  - Notable segments:
    - Dr. Ravi Patel (43:00)
    - Dr. Munish Gupta, advocating on behalf of SONPM (2:26:39)

Make your voice heard: Submit public comments on this critical topic via the FDA's regulations page.

2. SONPM Scholarships for 2025 AAP Advocacy Conference

Application Deadline: December 1, 2024
Attend the AAP Advocacy Conference (March 2-4, 2025, Arlington, VA) and become an advocate for neonatal care. SONPM is sponsoring five scholarships to support attendees.

"Attend the AAP Advocacy Conference (March 2-4, 2025, Arlington, VA) and become an advocate for neonatal care. SONPM is sponsoring five scholarships to support attendees."

How to Apply:

- Access detailed instructions in the attached information packet.
- Register for the conference at www.aap.org/adcon.

Questions? Contact Lily Lou (**lilylou@mindspring.com**).

3. Nominations for the WNPPS Planning Committee

Deadline: December 2, 2024
This committee organizes the **Workshop on Neonatal-Perinatal Practice Strategies (WNPPS)**, a cornerstone event for our section.

To Apply:

- Complete the application form.
- Submit your CV to Past Chair Munish Gupta (**mgupta@bidmc.harvard.edu**).

4. Executive Committee Member Nominations for Districts 3, 6, and 9

Deadline: December 6, 2024
SONPM seeks dynamic leaders to join the Executive Committee. If you're passionate about advancing neonatal care, consider applying!

How to Nominate: Contact Munish Gupta (**mgupta@bidmc.harvard.edu**).

5. 2025 St. Geme Award Nominations

Deadline: December 12, 2024
The St. Geme Award recognizes exceptional contributions to pediatrics. The last neonatology awardee was Dr. David Stevenson in 2016. Let's aim for another neonatologist this year!

Submission Details:

- Nomination materials are due by close of business to Sean Diederich (**SDiederich@aap.org**).

"The International Community Access to Child Health (ICATCH) program supports pediatric health initiatives in under-resourced settings."

6. ICATCH 2025 Grant Cycle

Proposal Deadline: December 13, 2024
The International Community Access to Child Health (ICATCH) program supports pediatric health initiatives in under-resourced settings.

Resources:

- ICATCH website
- Contact:
  - Nicolas Reese (**icatch@aap.org**)
  - Dr. Rachel Umoren (**rumoren@uw.edu**)
  - Dr. Ann Behrmann (**atbehrma@wisc.edu**)

Grant Writing Webinar: Register Here.

"Nominations are open for the following prestigious awards: Virginia Apgar Award, Avroy Fanaroff Neonatal Education Award, Maria Delivoria-Papadopoulos Landmark Award"

7. SONPM Awards Nominations

Deadline: January 31, 2025
Nominations are open for the following prestigious awards:

- **Virginia Apgar Award**
- **Avroy Fanaroff Neonatal Education Award**
- **Maria Delivoria-Papadopoulos Landmark Award**

Details and Submission:

- Visit the AAP Neonatal Calendar.
- Questions? Contact Jim Couto (**jcouto@aap.org**) or Clara Song (**clarasong@me.com**).

8. SONPM Strategic Grant – Cycle #4

Deadline: January 31, 2025
This funding opportunity supports innovative initiatives that align with SONPM's strategic goals.

Details: Check the attached documentation. **Questions?** Contact Jim Couto (**jcouto@aap.org**) or Clara Song (**clarasong@me.com**).

9. District Grants

Deadline: January 31, 2025
Keep an eye out for more information from your District Representative.

10. AAP Committee Openings

Nomination Deadline: February 14, 2025
Join a national AAP committee and contribute to advancing pediatric care.

How to Nominate:

- Visit the AAP Collaboration Site for requirements and application materials.
- Submit applications to your Chapter President and the AAP Nominations Team (**nominations@aap.org**).

Note: If appointed, share your news with Clara Song (**clarasong@me.com**).

11. Workshop on Neonatal-Perinatal Practice Strategies (WNPPS)

Dates: February 21-23, 2025
Location: DoubleTree Hilton, Scottsdale, AZ
Join colleagues for this annual spring meeting filled with cutting-edge insights and networking opportunities.

Registration: Register Here.
Hotel Reservations: Book Here.

12. Research Grants from the American SIDS Institute

Letter of Intent Deadline: March 1, 2025

Until Next Time ♡

Your SONPM Executive Committee is here to serve:

On behalf of your #SONPMexec comm:

Past Chair Munish Gupta @munishguptamd

District 1 Rep Wendy Timpson @TimpsonWendy

D2 Shetal Shah @NICUBatman

D3 Michael Posencheg @MikePosencheg

D4 Misty Good @mistygoodlab

D5 Craig Nankervis

D6 Josh Petrikin @jepetrikin

D7 John Loyd

D8 Jessica Davidson @JessDavMD

D9 & Chair Elect Alexis Davis @AlexisDNeoMD

D10 Ravi Patel @ravimpatelmd

Of Counsel Marilyn Escobedo @Mokcita

AAP Director Jim Couto @jcouto2

Chair Clara Song @songMD

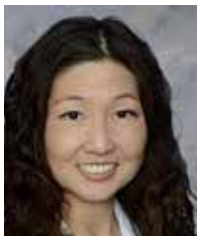
Clara H. Song, MD, FAAP
Chair | AAP Section on Neonatal-Perinatal Medicine
Email: **clara.h.song@kp.org**

Phone: **310.806.0907** | **949.512.0737**
Twitter: **@songMD**

Disclosures: No conflicts noted

NT

Corresponding Author



Clara H. Song, MD, FAAP
Neonatal Intensivist, Southern California Permanente Medical Group
Chair Elect, Communication & Digital Media Chair; Women In Neonatology Steering Committee, All Pathways group Co-Chair: District IX California Chapter 4 Council Representative,
Chair, American Academy of Pediatrics, Section on Neonatal-Perinatal Medicine
Lean Six Sigma Black Belt
Email: E clara.h.song@kp.org



Call for Nominations!

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

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

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

Within executive committee and SONPM broadly:

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

Within district:

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

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

2024 AVROY FANAROFF NEONATAL EDUCATION AWARD
CALL FOR NOMINATIONS

Deadline: January 31, 2025

We are now accepting nominations for the AAP Section on Neonatal-Perinatal Medicine (SONPM) *Avroy Fanaroff Neonatology Education Award*. This award is given annually to an individual who has made outstanding contributions to education in neonatal-perinatal medicine. It is named after a true pioneer in our field, Dr. Avory Fanaroff, in honor of his decades of commitment to our understanding of newborns, their physiology, and their families.

The candidate's contribution may be one of innovative education technique; original concept; seminal event; an exemplary, effective, high impact program; or a substantial long-term contribution to the highest ideals of education. Preference will be given to educational efforts that have had a demonstrable effect on clinical care. Only individuals can be nominated.

The recipient is chosen by the SONPM Executive Committee in the spring. Final approval from the AAP Board of Directors will be granted in June, and the recipient will be notified at that time. The Award will be presented in the fall at the SONPM Meeting during the AAP National Conference and Exhibition in Denver, CO, September 26-28, 2025.

All AAP fellows that are members of SONPM are invited to submit nominations. The nominee need not be a member of the AAP. If you wish to nominate an individual, or yourself, please submit:

- A letter of support justifying why this individual should receive the award.
- The candidate's curriculum vitae.
- Two supporting letters from two members of the Section on Neonatal-Perinatal Medicine.

If you are interested in re-nominating an individual, please contact Jim Couto before submitting any materials. (Candidates who have been previously nominated in the previous two years but not selected may be re-nominated by a letter indicating renewal of their prior nomination.)

ALL INFORMATION MUST BE COMPLETE BEFORE MAILING IN YOUR NOMINATION.
Please send all materials **no later than January 31, 2025** to:

Jim Couto, MA
Director, Perinatal & Neonatal Initiatives
American Academy of Pediatrics
345 Park Blvd
Itasca, IL 60143
jcouto@aap.org
630/626-6656

The Avroy Fanaroff Neonatal Education Award is sponsored by a grant from Mead Johnson Nutrition.

2025 MARIA DELIVORIA-PAPADOPOULOS LANDMARK AWARD
Call for Nominations
Deadline: January 31st, 2025

We are now accepting nominations for the AAP Section on Neonatal-Perinatal Medicine (SONPM) ***Maria Delivoria-Papadopoulos Landmark Award***. We are extremely pleased to share the naming of this award for Dr. Delivoria-Papadopoulos, in response to widespread requests from SONPM members.

The Maria Delivoria-Papadopoulos Landmark Award is given to an individual in recognition of a seminal contribution which has had a major impact on Neonatal-Perinatal practice. The recipient does not necessarily have to be the author of the original description or publication of the contribution, but could be the individual responsible for dissemination and acceptance of the innovation within/by the profession and/or lay community. To be eligible, the "event" must have occurred at least 15 years ago, and the nominee must not have received the Virginia Apgar Award. The award can be awarded posthumously. Although the award is typically given to an individual, nominations of a small group that contributed together to a landmark achievement can be considered.

The recipient is chosen by the SONPM Executive Committee in the spring. Final approval from the AAP Board of Directors will be granted in June, and the recipient will be notified at that time. The Award will be presented in the fall at the SONPM Meeting during the AAP National Conference and Exhibition in Denver, CO, September 26-28, 2025.

All AAP fellows that are members of SONPM are invited to submit nominations. The nominee need not be a member of the AAP. If you wish to nominate an individual, or yourself, please submit:

- A letter of support justifying why this individual should receive the award;
- The candidate's curriculum vitae; and
- Two supporting letters from two members of the Section on Neonatal-Perinatal Medicine.

If you are interested in re-nominating an individual, please contact Jim Couto before submitting any materials. Candidates who have been previously nominated in the previous two years but not selected may be re-nominated by a letter indicating renewal of their prior nomination.

ALL INFORMATION MUST BE COMPLETE BEFORE MAILING IN YOUR NOMINATION.
Please send all materials **no later than January 31st, 2025** to:

Jim Couto, MA
Director, Perinatal & Neonatal Initiatives
American Academy of Pediatrics
345 Park Blvd
Itasca, IL 60143
Phone: 630/626-6656
FAX 847/434-8000
jcouto@aap.org

The Landmark Award is supported by Mead Johnson Nutrition.

2024 VIRGINIA APGAR AWARD IN NEONATAL - PERINATAL MEDICINE

CALL FOR NOMINATIONS

***Deadline*: January 31st, 2025**

The American Academy of Pediatrics Section on Neonatal-Perinatal Medicine (SONPM) is now accepting nominations for the *2024 Virginia Apgar Award*. This award, widely recognized as the highest honor in our field, is given annually to an individual whose career has had a profound continuing influence on the well-being of newborn infants. It is named after Dr. Virginia Apgar, whose eponymous score was but one of her many pioneering achievements in obstetric anesthesiology, academic medicine, neonatal care, and public health.

All AAP fellows that are members of SONPM are invited to submit nominations. The nominee need not be a member of the AAP. The nomination should include a cover letter and a curriculum vitae of the nominee. A second letter in support of the nomination is required and up to four support letters will be accepted. Only individuals can be nominated.

Candidates who have been previously nominated in the previous two years but not selected may be re-nominated by a letter indicating renewal of their prior nomination. It is not necessary to resubmit all the paperwork if the original nomination package was complete.

The recipient is chosen by the SONPM Executive Committee in the spring. Final approval from the AAP Board of Directors will be granted in June, and the recipient will be notified at that time. The Award will be presented in the fall at the SONPM Meeting during the AAP National Conference and Exhibition in Denver, CO, September 26-28, 2025.

Nominations must be received by January 31st, 2025. Please send all nominations to:

Jim Couto, MA
Director, Perinatal & Neonatal Initiatives
American Academy of Pediatrics
345 Park Blvd
Itasca, IL 60143
jcouto@aap.org
630/626-6656

The Virginia Apgar Award is sponsored by a grant from Abbott.

Dear Section Members,

The SONPM is committed to developing the advocacy skills of our members. To that end, we will be supporting **5 scholarships** to next year's AAP Advocacy Conference—to be held in person, **March 2-4, 2025**, in **Arlington, VA** (at the Crystal Gateway Marriott).

The Advocacy Conference is energizing, inspiring and filled with practical content about an area we rarely cover in our formal neonatology training. Attendees to the Advocacy Conference will have the opportunity to participate in skills-building workshops, hear from distinguished guest speakers and learn about policy issues impacting children. You will then meet with your Congressional Offices to advocate for a timely child health topic. There is no better way to develop a strong relationship with your federal representatives in Washington than under the guidance of the AAP. You will be prepped and practice before these meetings.

To be eligible for the section AdvoCon scholarship, you must attend the entire conference, including the in-person Capitol Hill visits on March 4th. If selected, we will register you for the conference. As part of the award, the SONPM will reimburse you for up to $1000 in expenses. However, the remainder of expenses such as registration and hotel are the responsibility of the awardee.

These scholarships are offered with the expectation that awardees will be able to use the skills and savvy gained at this meeting in neonatology-focused advocacy following their attendance. Follow-up contributions may include:

- Use the "Take Action" links through the AAP Advocacy Action Center
- Make a state or federal legislative visit/phone call/Zoom on a neonatal-perinatal issue
- Write up your experience at AdvoCon for your chapter or the SONPM newsletter
- Develop and deliver a lecture on advocacy to fellows/faculty/pediatricians
- Write/publish an op-ed on neonatal-perinatal policy issues
- Author an issue brief on a neonatal-perinatal issue in the Biden-Harris Transition Plan
- Participate in or lead an advocacy focus with the SONPM Advocacy Committee
- Serve as a neonatal-perinatal policy advisor to local health policy organizations
- Use the Donor Milk Toolkit for state advocacy
- *This list is just to get you thinking--there are many more ways to advocate!*

TO APPLY

Please submit the following information via email to Lily Lou at lilylou@mindspring.com (SONPM Advocacy Committee co-chair), using subject line "AdvoCon scholarship," by **Dec 1st, 2024**.

1. Name (First, Last, Designation)
2. Address (Street/City/State/Zip)
3. Phone
4. Email
5. AAP ID

American SIDS Institute
528 Raven Way, Naples, Florida 34110, 239-431-5425, prevent@sids.org

REQUEST FOR RESEARCH GRANT LETTER OF INTENT (LOI)

Submission Deadline March 1, 2025

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

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

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

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

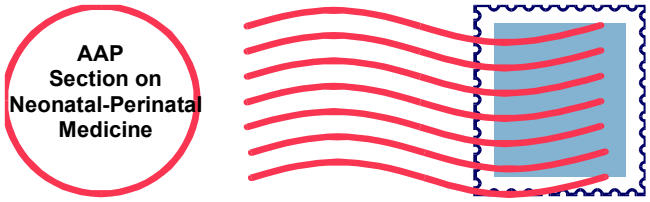
These grant awards are intended to be self-contained studies with a well-defined targeted hypothesis. Budgets may include technical salary support, but principal investigator salary support and indirect costs may not be requested. Awards will be for 2 years and limited to a total of $80,000.

REQUIREMENTS FOR LOI

PROPOSAL

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





The Section on Neonatal-Perinatal Medicine (SONPM) offers grants for educational or organization purposes within the individual perinatal districts of the Academy for up to $6,000 per district. Applicants must be members of the Section on Neonatal Perinatal Medicine (SONPM). The following are guidelines for submission:

1. The grants should promote neonatal-perinatal health and education within the district, including, but not limited to:
    a) continuing education programs for neonatal-perinatal medicine health care professionals within the district
    b) programs designed to improve quality of neonatal-perinatal care delivered within the district
    c) communication initiatives or other organizational support which promote improved regional neonatal-perinatal health
    d) programs for young investigators to foster further training and investigation in neonatal-perinatal medicine.

2. Programs with specific aims and measurable outcomes will have priority. Other factors for consideration include impact, sustainability, and geographic distribution of registrants.

3. ***There is no application form. Submit request on institution letterhead and*** **include:**

    a) <u>Title, purpose, specific objectives, target audience, proposal/program content and budget.</u>
    b) <u>Discuss proposals with your SONPM District Representative PRIOR to submission.</u>
    c) <u>Proposal authors MUST be SONPM Members.</u>

4. The planned activity should not conflict with the AAP ‘s National Conference (September 26-30, 2025) or the Workshop in Neonatal-Perinatal Strategies (February 21-23, 2025).

5. After the sponsored program, send:

    a) Copy of the brochure, number of people in attendance, and their professional affiliations and program evaluations results
    b) To Jim Couto, MA, Director, Perinatal and Neonatal Initiatives, 345 Park Blvd., Itasca, IL 60143.

The submission deadline is **January 31, 2025**. Send proposals to your District Representative. **<u>A letter of support from your SONPM District Representative is required for submission.</u>**

Federation of Pediatric Organizations

Executive Office: 6728 Old McLean Village Drive, McLean, VA 22101

President
Sherin Devaskar, MD

Secretary/Treasurer
Michael Steiner, MD, MPH

Executive Director
Laura Degnon, CAE

Academic Pediatric Association
Jean L. Raphael, MD, MPH
Michael Steiner, MD, MPH

American Academy of Pediatrics
Mark Del Monte, JD
Ben Hoffmann, MD

American Board of Pediatrics
John Barnard, MD
Michael Barone, MD, MPH

American Pediatric Society
Cliff Bouge, MD
Catherine Gordon, MD

Association of Medical School Pediatric Department Chairs
John Frohna, MD
Joseph W. St. Geme, III, MD

Association of Pediatric Program Directors
Megan Aylor, MD
Patricia Poitevien, MD, MSc

Society for Pediatric Research
Christina Maria Alvira, MD
Todd Florin, MD

Call for Nominations for the 2025 Joseph W. St. Geme, Jr. Leadership Award

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

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

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

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

Criteria for Selection

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

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

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

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

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

6. The individual must **not** be an active FOPO Board member. Full list of current FOPO Board members may be found at www.fopo.org/leadership.

shopAAP
aap.org/shopaap

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

2025 WORKSHOP ON NEONATAL-PERINATAL PRACTICE STRATEGIES

February 21-23, 2025
Scottsdale, AZ

REGISTER TODAY!



Sponsored by the American Academy of Pediatrics (AAP) and the AAP Section on Neonatal-Perinatal Medicine (SONPM)

Registration now open!
Join us in Scottsdale, AZ next February

The **Workshop on Neonatal-Perinatal Practice Strategies** is designed to inspire attendees to better demonstrate effective leadership skills, effectively resolve conflicts, and adeptly manage their practice setting to optimize the performance of multidisciplinary teams. Attendees will have ample networking opportunities to foster collaboration and support career development. Rooted in evidence-based medicine, participants will gain insights into strategies for interpreting and integrating published research to enhance clinical care. We encourage any pediatric professional caring for the fetus and newborn to join us at the workshop!

Earn up to 18.25 *AMA PRA Category 1 Credits*™ (includes the Neonatal Coding Seminar) and 10 MOC Part 2 points.

Neonatal Coding Seminar (Separate registration required)
Friday, February 21, 2025
7:30am-3:00pm

- 4.75 CME Credits are offered for the morning portion of the seminar
- AAPC credits are also offered
- Lunch is included

Other highlights include:

- Women in Neonatology Seminar
- Clinical Leaders Group
- All Pathways: "Tips for Career Transitions" Session

Special Events:

- Welcome Reception
- Section on Neonatal-Perinatal Medicine Reception
- Workshop Luncheon

Please Note: *Special events are not designated for CME credit.*

Hotel & Travel Information



DoubleTree Resort by Hilton Hotel Paradise Valley - Scottsdale

5401 North Scottsdale Road
Scottsdale, AZ 85250
Hotel Phone: 480/947-5400

Reservation Instructions
The room block is now open for reservations, please use the **direct hotel booking link** to book your room.

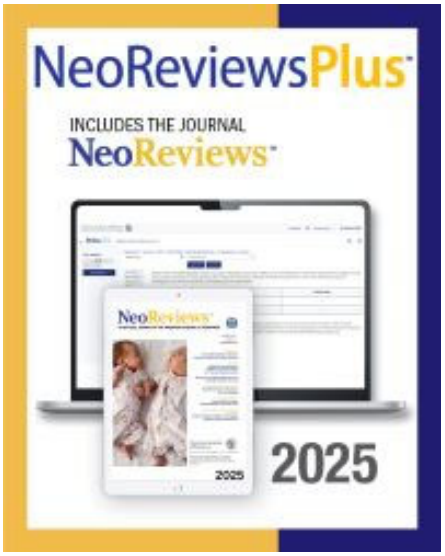
Visit Scottsdale

Get ready to experience pure vacation inspiration in Scottsdale! From the stirring beauty of the lush Sonoran Desert to our luxury resorts, chef-driven restaurants, and exciting activities and attractions, Scottsdale is bursting at the seams with the makings of a memorable getaway. For more information, **click here**.

Save $150!
Register by January 21, 2025 for Early Bird Rates

REGISTER TODAY

Special Offer for Course Registrants



Save up to $120 off retail rates!
Subscribe to 2025 NeoReviewsPlus for only $220 if you purchase during course registration.* NeoReviewsPlus is a comprehensive neonatology package bringing together case-based self-assessment questions, with full online access to the *NeoReviews*™ journal and valuable MOC & CME credit.

**Limited offer good only during course registration. Does not apply to renewals or previously purchased subscriptions and cannot be combined with any other offer. Discount savings is calculated off of non-member rates. All pricing and specifications subject to change without notice. Subscription access begins in January 2025.*

NeoReviews™ and NeoReviewsPlus™ are supported, in part, through an educational grant from **Abbott Nutrition,** a proud supporter of the American Academy of Pediatrics

Continuing Medical Education

The American Academy of Pediatrics (AAP) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The AAP designates this live activity for a maximum of 18.25 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This activity is acceptable for a maximum of 18.25 AAP credits. These credits can be applied toward the AAP CME/CPD Award available to Fellows and Candidate Members of the AAP.

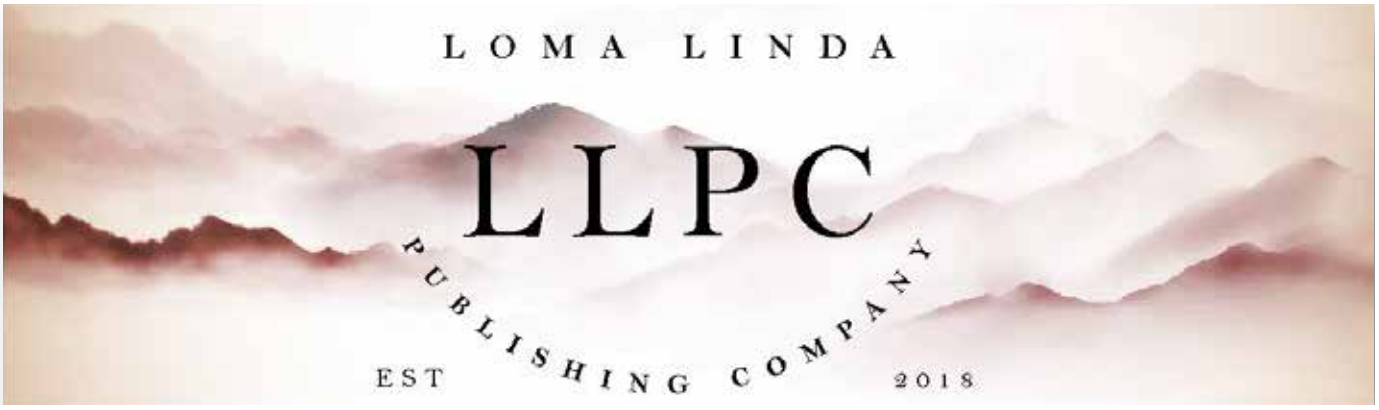
This activity is approved for 10.00 MOC Part 2 by the American Board of Pediatrics through the AAP MOC Portfolio Program. All points will be awarded (or must be claimed) based on the MOC activity completion date, which is the date MOC requirements were met. All deadlines and MOC point values should be confirmed by checking the ABP Activity Catalog within each physician's ABP Portfolio. Consult your ABP portfolio at www.abp.org for details about your specific certification requirements. For questions about how to access this activity, contact MOCPortfolio@aap.org.

This program is accredited for 18.25 NAPNAP CE contact hours of which 0.00 hrs contain pharmacology (Rx) content, (0.00 related to psychopharmacology) (0.00 related to controlled substances), per the National Association of Pediatric Nurse Practitioners (NAPNAP) Continuing Education Guidelines.

PAs may claim a maximum of 18.25 Category 1 credits for completing this activity. NCCPA accepts *AMA PRA Category 1 Credit(s)*™ from organizations accredited by ACCME or a recognized state medical society.

This program is approved as a learning event for American College of Medical Practice Executives (ACMPE) continuing education hours. A cumulative total of 50 ACMPE continuing education credit hours is among the requirements for attaining the Certified Medical Practice Executive (CMPE) credential. To maintain CMPE or Fellow status, you must earn 50 hours of qualifying credit hours every three years.

American Academy of Pediatrics
345 Park Boulevard · Itasca · Illinois 60143 · 866/843-2271
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Dear Section Members,

The SONPM is committed to developing the advocacy skills of our members. To that end, we will be supporting **5 scholarships** to next year's AAP Advocacy Conference—to be held in person, **March 2-4, 2025**, in **Arlington, VA** (at the Crystal Gateway Marriott).

The Advocacy Conference is energizing, inspiring and filled with practical content about an area we rarely cover in our formal neonatology training. Attendees to the Advocacy Conference will have the opportunity to participate in skills-building workshops, hear from distinguished guest speakers and learn about policy issues impacting children. You will then meet with your Congressional Offices to advocate for a timely child health topic. There is no better way to develop a strong relationship with your federal representatives in Washington than under the guidance of the AAP. You will be prepped and practice before these meetings.

To be eligible for the section AdvoCon scholarship, you must attend the entire conference, including the in-person Capitol Hill visits on March 4th. If selected, we will register you for the conference. As part of the award, the SONPM will reimburse you for up to $1000 in expenses. However, the remainder of expenses such as registration and hotel are the responsibility of the awardee.

These scholarships are offered with the expectation that awardees will be able to use the skills and savvy gained at this meeting in neonatology-focused advocacy following their attendance. Follow-up contributions may include:

- Use the "Take Action" links through the AAP Advocacy Action Center
- Make a state or federal legislative visit/phone call/Zoom on a neonatal-perinatal issue
- Write up your experience at AdvoCon for your chapter or the SONPM newsletter
- Develop and deliver a lecture on advocacy to fellows/faculty/pediatricians
- Write/publish an op-ed on neonatal-perinatal policy issues
- Author an issue brief on a neonatal-perinatal issue in the Biden-Harris Transition Plan
- Participate in or lead an advocacy focus with the SONPM Advocacy Committee
- Serve as a neonatal-perinatal policy advisor to local health policy organizations
- Use the Donor Milk Toolkit for state advocacy
- *This list is just to get you thinking--there are many more ways to advocate!*

TO APPLY

Please submit the following information via email to Lily Lou at lilylou@mindspring.com (SONPM Advocacy Committee co-chair), using subject line "AdvoCon scholarship," by **Dec 1st, 2024**.

1. Name (First, Last, Designation)
2. Address (Street/City/State/Zip)
3. Phone
4. Email
5. AAP ID

6. Career Phase (TECAN, MidCAN, WECAN; WiN)
7. Practice type (academic, private practice, locums, full/part-time)
8. Have you previously attended the AAP Legislative Conference?
9. Personal Statement (500-word-limit)
10. What draws you to advocacy? What relevant experience would you bring?
11. What unique advocacy challenges and advantages do you feel are embodied by neonatologists?
12. How do you expect to utilize the skills obtained at the conference in your future career?

We will notify selected scholarship awardees by Dec 20th, 2024. We will register you for the conference but you will make your travel arrangements and book your hotel. You may use AAP Travel to book your flights.

We have been pleased to have at least a dozen neonatologists at the last 6 AdvoCons. One year we had 40! Your advocacy journey can start with this meeting, which is one of the best educational offerings the AAP hosts, we hope to see you there!

Lily Lou & Shetal Shah
Advocacy Committee Co-chairs



Letters to the Editor

Letter to the Editor: American Journal of Lifestyle Medicine "Modifiable Risk Factors and Infertility"

Dear Editor,

The article "Modifiable Risk Factors and Infertility" does an outstanding job highlighting factors that could impact our fertility, including dietary habits, caffeine, exercise, alcohol, and tobacco use. The article defines infertility as the inability to conceive after 12 months and states that 7-8% of reproductive-aged American women are affected today, making the topic of infertility extremely prevalent. The article underscores the reality that the ability of individuals to modify these factors is hindered by their limited access to healthy lifestyles and resources.

For example, living in a food desert means limited access to fresh fruits, vegetables, and other whole foods. Thus, individuals will turn to options, including fast food chains, that will contradict the "fertility diet" in this piece. Furthermore, access can play a role in maintaining a healthy weight, another significant factor in fertility.

"Thus, individuals will turn to options, including fast food chains, that will contradict the "fertility diet" in this piece. Furthermore, access can play a role in maintaining a healthy weight, another significant factor in fertility."

Why Should We Care

Addressing infertility as a socioeconomic issue sheds light on the inequalities that hinder individuals from making choices that could improve their reproductive health. When people live in environments with limited access to fresh foods, gyms, or affordable health care, they face far more barriers to maintaining a healthy lifestyle that supports fertility.

For example, food deserts, which are urban areas with scarce access to affordable, nutritious foods, affect millions of low-income communities. Living in this environment with these conditions naturally leads to increased rates of obesity, in turn creating problems with fertility, as mentioned in this article. This issue is not just about individual choices but also about access to resources that disproportionately affect people based on socioeconomic status.

These socioeconomic challenges are even more daunting in the context of fertility treatment costs. IVF, for example, can cost upwards of $15,000 to $20,000 per cycle, which places this option beyond reach for many people in underserved communities. If we hope to make real strides in addressing infertility, we must also consider socioeconomic solutions to bridge these gaps.

Without addressing these structural barriers to fertility-enhancing lifestyles, infertility rates will continue to affect these more vulnerable populations disproportionately. However, by advocating for broader access to affordable, nutritious foods, community-based exercise programs, and mental health resources, we can provide essential support to individuals facing infertility. Increasing public awareness of these issues and promoting policies that address these food deserts, accessibility to healthcare, and affordability in infertility treatments could lead to a more inclusive approach to reproductive health.

"Increasing public awareness of these issues and promoting policies that address these food deserts, accessibility to healthcare, and affordability in infertility treatments could lead to a more inclusive approach to reproductive health."

Proposed Improvements to the Research

While the research addresses several lifestyle factors affecting fertility, there are areas where it could be strengthened further:

1. **Providing Socioeconomic Context** - More data on how socioeconomic status impacts access to fertility-enhancing resources could be integrated. For example, data and studies could show how access to fresh foods and healthcare bolsters reproductive outcomes.
2. **Geographic Analysis of Poor Healthcare Access (Food Deserts)** - By including a geographic breakdown of these food deserts and the demographic of residents affected, the research could make a more substantial and more apparent connection between fertility and access.
3. **Analysis of Cost-Effective Interventions** - The paper could explore affordable and accessible interventions, such as community-supported agriculture or public fitness programs. Exploring affordable and accessible interventions, such as public fitness programs, could highlight realistic steps to improve fertility outcomes in underserved areas.
4. **Cultural Sensitivity in Dietary Recommendations** - Addressing culturally specific dietary patterns could offer more inclusive and practical dietary recommendations for diverse populations.
5. **Subsidies and Assisted Reproductive Technology Access** - Investigating the potential impact of subsidies or sliding-scale payment structures on fertility treatment accessibility would offer insights into policy-level solutions for broader ART access.

While the research has focused on factors influencing fertility, it continues to dismiss how socioeconomics governs individuals' fertility, fecundity, and fecundability. The article thoroughly examined the various factors and lifestyle choices that can affect fertility, but the question now centers on socioeconomic status' impact on fertility.

Looking at the prevalence of food deserts, lack of access to healthcare, and the daunting costs of treatments like IVF is critical in understanding the inequities in reproductive health. Thus,

approaching fertility research focusing on socioeconomic context, there is far greater potential in developing solutions to the fertility issues that society faces today.

"While the research has focused on factors influencing fertility, it continues to dismiss how socioeconomics governs individuals' fertility, fecundity, and fecundability. The article thoroughly examined the various factors and lifestyle choices that can affect fertility, but the question now centers on socioeconomic status' impact on fertility."

Thank you for your attention to this important cause.

Sincerely,

Erika Dev, Liana Moskalensky, and Bianca Urness

References:

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3. Rebecca J. Kreitzer, Candis Watts Smith, Kellen A. Kane, Tracee M. Saunders; Affordable but Inaccessible? Contraception Deserts in the US States. *J Health Polit Policy Law* 1 April 2021; 46 (2): 277–304. doi: https://doi.org/10.1215/03616878-8802186
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Dear Eriika Dev, Liana Moskalensky, and Bianca Umess:

The submitted letter addressing "Modifiable Risk Factors and Infertility" is a thoughtful and well-constructed response that praises the article's strengths and offers valuable critique. The reviewers engage critically with the original work while maintaining a respectful tone.

By highlighting the practical framing of dietary habits, exercise, substance use, and other lifestyle factors as modifiable influences on fertility, they recognize the article's potential to empower readers. This opening sets the stage for a balanced discussion and acknowledges the importance of translating research findings into actionable insights for the public.

The main critique—that the article could delve deeper into the socioeconomic determinants of fertility—is particularly compelling. By emphasizing the structural barriers that limit access to fertility-enhancing lifestyles, the reviewers situate the issue of infertility within a broader framework of health equity. This perspective enriches the original article's focus and aligns with contemporary calls for public health to address systemic disparities.

"By emphasizing the structural barriers that limit access to fertility-enhancing lifestyles, the reviewers situate the issue of infertility within a broader framework of health equity. This perspective enriches the original article's focus and aligns with contemporary calls for public health to address systemic disparities."

The reviewers identify specific areas where the article could be strengthened. For example, the discussion on food deserts is particularly impactful. They move beyond a surface-level critique to explore how limited access to fresh produce and whole foods disproportionately affects low-income communities, contributing to higher rates of obesity and, consequently, fertility challenges. Their suggestion to include geographic and demographic analyses of food deserts provides a clear, actionable recommendation for future research or revisions.

"Similarly, the call to explore cost-effective interventions is insightful. By suggesting public fitness programs, community-supported agriculture, or other accessible solutions, the letter shifts the focus from identifying problems to proposing equitable, practical responses."

Similarly, the call to explore cost-effective interventions is insightful. By suggesting public fitness programs, community-supported agriculture, or other accessible solutions, the letter shifts the focus from identifying problems to proposing equitable, practical responses. This forward-thinking approach adds depth to the conversation and provides concrete steps that could benefit underserved populations.

The discussion on the prohibitive costs of assisted reproductive technologies (ART) is another strength of the letter. The writer's mention of sliding-scale payment models, subsidies, and insurance mandates adds a much-needed policy-oriented dimension to the conversation. Including these perspectives would make the original article more robust and position it as a catalyst for broader discussions on reproductive health policy.

The reviewers also advocate for cultural sensitivity in dietary recommendations, emphasizing the importance of tailoring guidance to diverse populations. This point reflects an understanding of the

varied cultural, socioeconomic, and geographic contexts in which individuals navigate infertility, further underscoring the need for inclusive and practical solutions.

"Additionally, while the letter offers valuable suggestions for expanding the manuscript's scope, the conclusion could be sharpened to tie these critiques and recommendations back to the core themes of modifiable risk factors. This mention would ensure that the call to action resonates."

A few adjustments could enhance the clarity and impact of the review. First, a more seamless integration of the recommendations with the critiques would create a cohesive narrative. For instance, the reviewers could explicitly link the challenges posed by food deserts to the proposed cost-effective interventions. Additionally, while the letter offers valuable suggestions for expanding the manuscript's scope, the conclusion could be sharpened to tie these critiques and recommendations back to the core themes of modifiable risk factors. This mention would ensure that the call to action resonates.

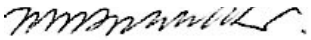
Overall, this letter is a commendable submission that achieves several goals. It praises the manuscript's achievements, identifies areas for improvement, and advances the conversation by proposing thoughtful and actionable solutions. The writer's emphasis on health equity and systemic barriers provides a fresh and necessary perspective that complements the original article's focus on individual behaviors, amplifying a critical and timely discussion on the intersection of fertility and health equity.

Mitchell Goldstein, MD, MBA, CML

Editor-in-Chief

Neonatology Today

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief

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Erratum (Neonatology Today October, 2024)

There were no reported erratum for October, 2024

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

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

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

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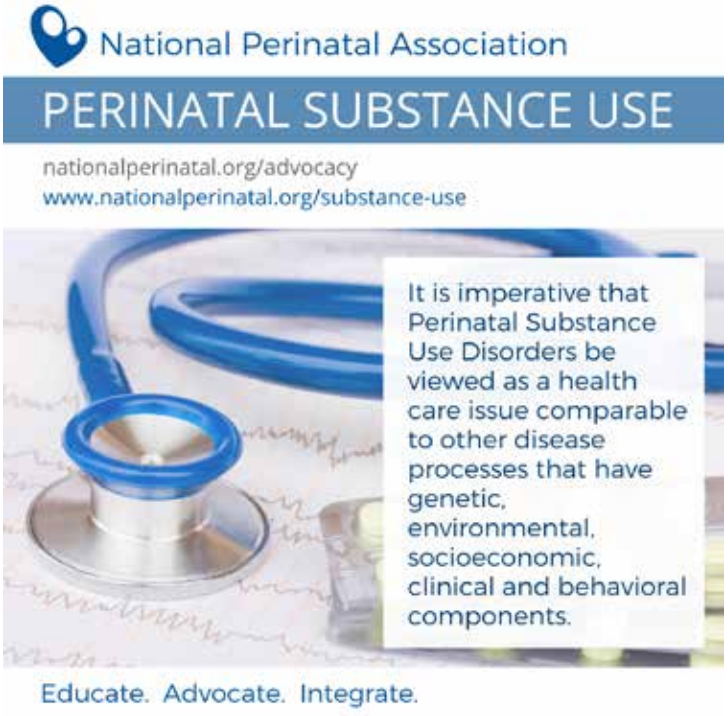


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Perinatal Advisory Council, Leadership, Advocacy, Consultation (PAC/LAC): In Memorial - Remembering Aida Simonian

Perinatal Advisory Council, Leadership, Advocacy, Consultation (PAC/LAC)

"In loving memory of Aida Simonian, MSN, RNC-NIC, SCM, SRN, Chief Executive Officer, PAC/LAC, a beloved advocate for the health and well-being of women and birthing people, families, and newborns throughout the state, passed away on October 12, 2024, in Los Angeles, CA."

In loving memory of Aida Simonian, MSN, RNC-NIC, SCM, SRN, Chief Executive Officer, PAC/LAC, a beloved advocate for the health and well-being of women and birthing people, families, and newborns throughout the state, passed away on October 12, 2024, in Los Angeles, CA. She was a steadfast partner of CPQCC and CMQCC for over 15 years, where her passion, leadership, and caring approach transformed perinatal care in ways that will be felt for years to come.

"Ms. Simonian dedicated over 40 years to maternal and child health. Her extensive expertise and leadership profoundly shaped the work of PAC/LAC, where she collaborated closely with the board and staff. Ms. Simonian joined PAC/LAC in 2012 after serving as a board member for 11 years and as a member since 1983."

Ms. Simonian dedicated over 40 years to maternal and child health. Her extensive expertise and leadership profoundly shaped the work of PAC/LAC, where she collaborated closely with the board and staff. Ms. Simonian joined PAC/LAC in 2012 after serving as a board member for 11 years and as a member since 1983.

Trained in nursing and midwifery in England, she devoted her career to serving as a Registered Nurse and Midwife, specializing in neonatal intensive care. She earned her Master of Science in Nursing degree from Chamberlain College of Nursing, leaving behind a legacy of compassion and commitment to maternal and child health. Aida dedicated her career of over 40 years to specializing in the care of micro-preemies, neonatal transport, education, family-centered care, and executive leadership.

"However, we must ask: Are we adequately addressing the diverse needs of babies, families, and caregivers to optimize outcomes? What challenges should we be identifying and exploring? How can we envision neonatal care in 20 years, and what research and educational strategies will lead us there?"

As an active member of CPQCC's Perinatal Quality Improvement Panel (PQIP) and PQIP's Education and Outreach Subcommittee, Ms. Simonian played a pivotal role in shaping countless initiatives, always with a commitment to improving maternal and neonatal outcomes.

Ms. Simonian was also a valued team leader of the Regional Perinatal Programs of California (RPPC), housed at the California Department of Public Health's Maternal, Child, and Adolescent Health Division (MCAH). Her years of service were devoted to shaping Maternal Child Adolescent Health-led initiatives, such as her integral work on The Model Hospital Policy Recommendations and quality improvement related to birth certificate data. Her efforts enhanced the lives of countless women, birthing people and infants, and inspired future generations of nurses and other healthcare professionals to continue advancing equitable perinatal care throughout the state.

Words cannot do justice to the legacy of her contributions to our families and professional community. Her contributions to the nursing profession and commitment to equitable care will have a lasting impact, and she will be deeply missed by all who had the privilege and honor of working alongside her.

Aida is survived by her husband, Robert, and son Nicholas. In honor of Aida, donations to the PAC/LAC Aida Simonian Nursing Scholarship will be greatly appreciated for carrying on Aida's vision to support its mission and programs.

With much gratitude,

The PAC/LAC Board and Staff, CPQCC/CMQCC Team, RPPC Leadership, and Maternal/Neonatal Hospital and Healthcare Community

In loving memory of



Aida Simonian

Beloved wife and mother



Aida was so generous and a wonderful person. She was a true advocate for the health and well-being of women and their families. I will always appreciate her giving me an opportunity to work at PAC/LAC. I was fresh out of college and had very little experience, but she took a chance on me. It was a pleasure to work with her and learn from her. I loved listening to her stories. I will miss her dearly.

Gabriela Santoyo – PACLAC Program Coordinator/Data Analyst

"I will always appreciate her giving me an opportunity to work at PAC/LAC. I was fresh out of college and had very little experience, but she took a chance on me. It was a pleasure to work with her and learn from her. I loved listening to her stories. I will miss her dearly."

I met Aida Simonian over 10 years ago at Providence Saint Joseph Medical Center. She was the most caring nurse I had ever seen in the NICU. She would chart at the computer and have a baby sleeping on her chest. She made sure babies were comfortable and safe. She was a champion for extremely sick babies by speaking up and never backing down. Not only did she advocate for mothers and children, but she also advocated for Robert, her husband, Nicholas, her son, and her PAC/LAC Team. Her dedication and passion will be extremely missed. I will miss her dearly. Going forward, PAC/LAC will continue her vision for those most vulnerable and for equitable and quality care.

PS. Aida, I hope you match your nail polish with Heaven's Holiday. Love you!

Gayane Pakhanyan – PACLAC COO/Senior Manager RPPC

"She made sure babies were comfortable and safe. She was a champion for extremely sick babies by speaking up and never backing down."

Chapter 31 of the Book of Proverbs is about "A Woman of Valor" which I think defines and describes Aida so well.

A woman of valor, which the Merriam-Webster dictionary defines as "strength of mind or spirit that enables a person to encounter danger with firmness: personal bravery." It describes a woman who takes care of herself while ensuring that her spouse and child likewise have their needs met. She rises in the night to provide for her family, and we all know that Aida was up all hours of the night as she would send us emails at 1:00 am or 3:00 am. She plants a vineyard and tends to her business. Aida loved her flowers and plants and continued to work and push through, though not feeling well dealing with multiple health issues. However, she never wavered in her commitment to PAC/LAC, the organization, the staff, the Board, the hospitals, nurses, physicians, and volunteer work such as with CPQCC and many others. A woman of valor gives to the poor. Aida supported a women's shelter in Glendale and was always thinking of others.

Such a woman, "opens her mouth with wisdom and who is "clothed in strength and splendor and laughs until her last day." Aida never gave up. Her determination to survive under challenging health circumstances continued. She used humor, music, and dance as her personal survival techniques. Aida was a true woman of valor and her commitment to her family, to the most vulnerable infants, birthing persons and families was truly her lifelong passion as a teacher, mentor, advocate, leader, and friend. She will always be in our hearts and minds and the lifelong inspiration and commitment to continue the important work of PAC/LAC. We will miss her dearly.

Carmen Rezak -PACLAC Interim CEO

"Aida was a true woman of valor and her commitment to her family, to the most vulnerable infants, birthing persons and families was truly her lifelong passion as a teacher, mentor, advocate, leader, and friend. She will always be in our hearts and minds and the lifelong inspiration and commitment to continue the important work of PAC/LAC. "

Aida is my friend.

I met Aida for the first time over 15 years ago at a lunch meeting. What I vividly recall about that meeting wasn't the agenda topics… it was the great Armenian meal we shared… it was the genuine warmth and congeniality that Aida extended to me… it was how after I complimented her on the lovely necklace, earrings, ring, and bracelet set she was wearing that we bonded quickly over the topics of jewelry and QVC! Those two topics were our first bonds of friendship.

We talked about our favorite show hosts, the different jewelry designers, and even some of the clothing that we both bought. It was a great first meeting! Several years passed between that meeting and the next one where I would get an invitation from Aida to join her for spearheading work on infant mortality disparity. It was after THIS meeting that Aida called me to dive deeper into conversations about Black women's experiences with racism in maternal health care.

It was during our weekend, sometimes on holiday when Aida asked questions to learn and hear about how Black moms aren't seen, heard, or respected in labor and delivery departments. It was in these chats that I learned and heard of her commitment to insert herself more in meaningful ways to ensure Black moms are seen, heard, and respected in labor and delivery departments. It was in these discussions that we shared our cultures with each other, and it was in these conversations that we shared our common faith with one another. It was in these conversations that we had girl talk about our vulnerabilities, but we always ended



with encouragement for one another. It was in these girl talks that we shared scriptures to cover our families.

Aida my friend, was rich with kindness, strength, and beauty inside and out. She fiercely fought for justice and fairness for all families, and for this, I will always fondly think of Aida when I reflect on Dr King's quote…

"Everybody can be great because anybody can serve. You only need a heart full of grace." Thank you, Aida, for sharing your grace-filled heart with me!

Yolanda Rogers-Jones PACLAC Board Member, Director of Black Infant Health

"It was in these chats that I learned and heard of her commitment to insert herself more in meaningful ways to ensure Black moms are seen, heard, and respected in labor and delivery departments."

Today, we remember Aida Simonian, not just a colleague, but a true friend. Her friendship, love, and generosity touched us all at PACLAC, creating an environment where compassion and exemplary nursing leadership shined. I am grateful for her guidance and friendship, which has left an indelible mark on my career and life. I will miss her dearly.

Varouj Shabazian – PACLAC Perinatal Consultant

"Her friendship, love, and generosity touched us all at PACLAC, creating an environment where compassion and exemplary nursing leadership shined. I am grateful for her guidance and friendship, which has left an indelible mark on my career and life."

It somehow still does not feel real; our beautiful Aida, always smiling, so happy and full of life, is not physically here. I feel her



presence and kindness, and I even hear her jovial laugh. I am honored to call Aida my friend and forever grateful for her being my mentor, colleague, and by far the greatest boss ever.

I first met AIDA years ago at our PACLAC conference; we chatted, and the next thing I knew, I was volunteering, subsequently, as a proud member of her staff. I watched and learned as she navigated the many challenges in perinatal nursing as she found ways to work with Community Partners and the State to ensure the safety of women, babies, and their families. Her connections with so many is her legacy, and I look out and see so many beautiful friends here Today.

What I will miss most is how we started every meeting SHARING. Aida always started our meetings by sharing, confiding, and loving each other. The intimate details, kinship, and friendship are what fueled her, knowing us intimately and loving us as only Aida could. Her love was powerful, and that LOVE was most evident when she spoke of Robert and Nicholas! So many beautiful stories of the 2 GREATEST LOVES of her life!

Thank you Aida, for making me a better human! Now it's your turn to just Dance

Donna Dechirico – PACLAC Perinatal Consultant

"I watched and learned as she navigated the many challenges in perinatal nursing as she found ways to work with Community Partners and the State to ensure the safety of women, babies, and their families. Her connections with so many is her legacy, and I look out and see so many beautiful friends here Today."

We look to the future with hope-yet with trembling after the loss of our beloved Aida

Knowing that uncertainties accompany the new year.

Help us O G-d, to look forward with faith,

And to learn from whatever the future shall bring.

Whatever the new year may bring,

May we confront it honorably and faithfully.

May we know the serenity that comes with those

Who find their strength and hope in the Lord.

These words epitomize the faith and strength that I witnessed in Aida. She was strong and honorable. Her work with NICU babies promoted health and best practices. Through illness, she persevered and held up the work of PAC/LAC for families in Southern California for many years. She will be missed!

Sherri Mendelson – PACLAC President, Board of Directors

"These words epitomize the faith and strength that I witnessed in Aida. She was strong and honorable. Her work with NICU babies promoted health and best practices."

I met Aida Simonian over 25 years ago as a physician new to the Neonatal Practice at St. Joseph's Hospital in Burbank. She was very kind to me, and I looked forward to seeing her when I was working. She always had a smile on and loved what she was doing. If there was a sick baby, Aida was as devoted to a NICU nurse as possible. She never left the baby's side. Aida joined the PACLAC board, first as a member and then as an ED. Aida was my go-to for everything. Any time we put on a conference, whether for the NPA, Snowbird High-Frequency Meeting, Gravens, and countless others, Aida would always be involved either for CME/CEU and/or organization. Many organizations involved in Neonatology Today also have a story about how Aida made their events possible. She gave until there was nothing more to give and then gave a little more. I will miss her terribly. I still wake up in the morning looking at my phone to see if I missed an early morning call from Aida about one of our many different projects. She will be in all of our hearts and thoughts forever..Aida, may your memory be a blessing to all who knew you.

Dr. Mitchell Goldstein – Professor of Pediatrics, Loma Linda University School of Medicine, PACLAC Board of Directors

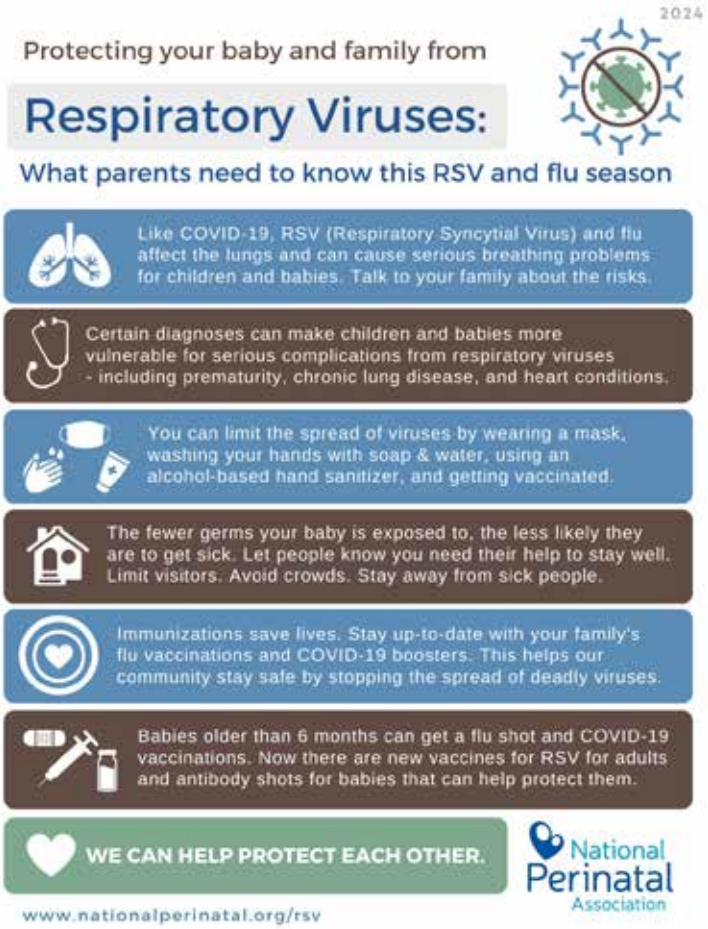
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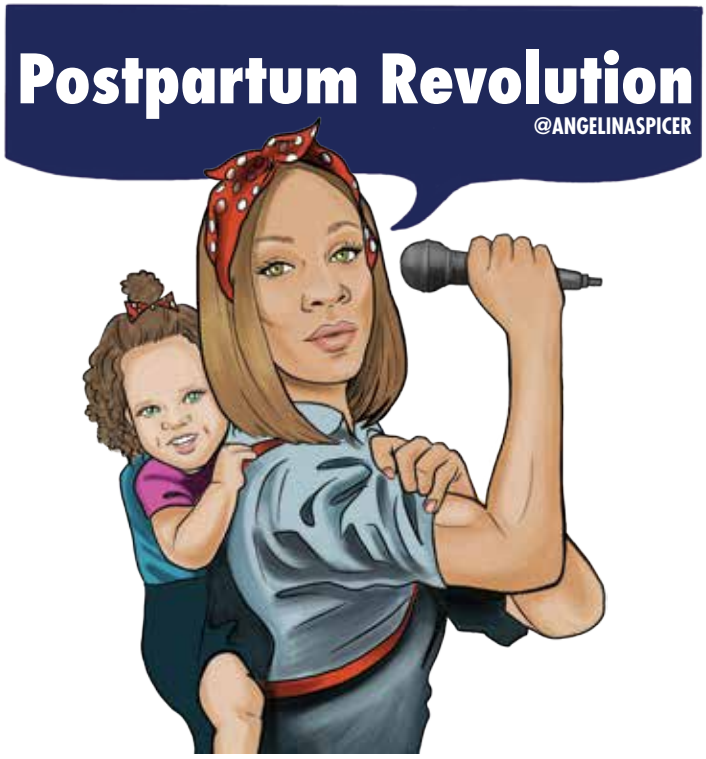
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HAVE QUESTIONS? PLEASE EMAIL

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

*Please use the Google Chrome browser; eligibility requirements do apply

Peer Reviewed

Gravens by Design: Agenda for the 38th International GRAVENS Conference on the Environment of Care for High Risk Newborns and their Families, "Providing Safe Spaces for Babies, Families, and Staff"

Vincent Smith, MD, Robert D. White, MD, Joy V. Browne, PhD, PCNS, IMH-E, Mitchell Goldstein, MD, MBA, CML

"While many conferences focus on specific neonatal conditions, the Gravens Conference, founded by Stan and Mavis Graven, has a broader mission: to ensure that all infants and their families receive the necessary support for optimal outcomes, particularly for those facing ongoing health challenges."

Conference Background

In an ideal world, every baby would be born healthy and at full term, eliminating the need for Neonatal Intensive Care Units (NICUs). But the reality we face is far from perfect. Each year, countless babies arrive too early, too small, or too sick, requiring specialized medical care to survive and thrive. The NICU becomes a lifeline—a place where science, compassion, and resilience intersect to create a foundation for these vulnerable lives.

The work done in the NICU resonates far beyond its walls. Every intervention, decision, and moment of care has the power to shape not only the health outcomes of neonates but also the emotional well-being of their families and the professional fulfillment of the healthcare teams. Your efforts matter deeply.

Since the 1980s, neonatal care providers have been at the forefront of transforming the NICU experience. By acknowledging and addressing the stress experienced by babies, families, and providers, the field has evolved, embracing change despite the inherent challenges. Today, NICUs around the globe are informed by advances in neurodevelopmental science, evidence-based developmental care, innovative healthcare design, and robust family support systems. The focus has shifted toward creating environments and practices that promote healing, growth, and connection.

"How can we effectively disseminate the latest research, clinical experiences, and evidence-based best practices to support the neurodevelopment of high-risk infants and their families optimally?"

The 38th International Gravens Conference continues this legacy of innovation and collaboration. It is a gathering place for professionals and advocates who are committed to advancing neonatal care. Here, we explore the latest research, share best practices, and nurture a collective vision for a future where every NICU experience is rooted in compassion, equity, and excellence.

Target Audience

This program is thoughtfully designed to meet the educational needs of a diverse range of professionals who touch the lives of high-risk infants and their families. Attendees include:

Healthcare Practitioners: Neonatologists, Pediatricians, Neonatal Nurses (RNs, NNPs, ARNPs), Respiratory Therapists, Psychologists

Therapists: Occupational, Physical, Speech-Language Pathologists, NICU Therapists

Support Specialists: Family Support Staff, Social Workers, Counselors

Development Experts: Infant and Child Development Specialists

Design Innovators: Architects focused on healthcare environments

Hospital Administrators: Decision-makers shaping NICU policies and infrastructure

Parents and Family Members: Partners in care and advocates for their children

Whether you are a frontline provider, a behind-the-scenes innovator, or a family member seeking deeper understanding, this conference offers an unparalleled opportunity to engage with a global community committed to excellence in neonatal care. Together, we shape the future of the NICU. Please see the agenda on the next page.

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

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

38TH ANNUAL GRAVENS CONFERENCE
On the Environment of Care for High Risk Babies and Their Families

Tuesday, March 4th 2025

Time	Session/Event	Location
4:00 pm-7:00 pm	Registration Desk Open	Lobby II
7:00 pm-9:00 pm	Welcome Reception	Exhibit Hall-Island

Wednesday, March 5th 2025

Time	Session/Event	Location
6:30 am-7:15 am	Run/Walk/Crawl on the Beach	Meet Poolside
7:00 am-8:00 am	Continental Breakfast	Exhibit Hall-Island
7:00 am-5:00 pm	Registration Desk Open	Lobby II
8:00 am-12:30 pm Plenary Sessions in Grand Ballroom Moderator: Joy Browne		
Time	**Session/Event**	**Presenter**
8:00 am-8:15 am	Welcome & Introductions	Joy Browne
8:15 am-9:00 am	What Makes A Safe Space?	LaToshia Rouse
9:00 am-9:45 am	Pain: Not so Simple	Brian Carter
9:45 am-10:15 am Break in Exhibit Hall		
10:15 am-11:00 am	Circadian Rhythms in the NICU - Babies, Parents, and Caregivers	Bob White
11:00 am-11:45 am	Palliative Care-During and After the NICU	Renee Boss
11:45 am-1:00 pm Lunch on Own		

1:00 pm to 5:00 pm Plenary Sessions in Grand Ballroom Moderator: Robert White		
1:00 pm-1:45 pm	Advocacy	Lily Lou
1:45 pm-2:10 pm	Gravens Beginnings: Reflections on How it Got Started *Not eligible for CME/CE**	John Hartline and Bob Cicco
2:10 pm-2:35 pm	Rotts and Wings and the Ties That Bind Us: Memories of My Uncle Stan *Not eligible for CME/CE**	Kari Graven
2:30 pm-2:45 pm Gravens Award Presentation		
2:45 pm-3:15 pm Break in Exhibit Hall		
3:15 pm-4:00 pm	Bringing Together Families, Technologists, and Clinicians to Understand AI in the NICU	Jim Gray and Bridget Davern
4:00 pm-4:45 pm	Integration Panel & Discussion with All Wednesday Speakers	All Wednesday Speakers
4:45 pm-5:00 pm	Final Thoughts & Take-Home Messages	Robert White
6:30 pm-8:30 pm Reception & Poster Walk in Exhibit Hall		
7:00 pm-7:45 pm Poster Authors Available		
8:10 pm-8:30 pm Door Prize Raffle with Vincent Smith		

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

Thursday, March 6th 2025

Time	Session/Event	Location
6:30 am-7:15 am	Run/Walk/Crawl on the Beach	Meet Poolside
7:00 am-8:00 am	Continental Breakfast	Exhibit Hall-Island
7:00 am-5:00 pm	Registration Desk Open	Lobby II

8:00 am-1:00 pm
Themed Tracks

Track A **Developmental & Family-Centered Care** **Location: Beach/Gulf** **Moderator: Joy Browne**		**Track B** **Newborn ICU Design** **Location: Palm/Bay** **Moderator: Robert White**	
Time	**Topic/Presenter**	**Time**	**Topic/Presenter**
8:00 am-8:10 am	Announcements and Introduction to the Session: "Evidence and Implementation Strategies for Three IFCDC Standards" Joy Browne	8:00 am-8:10 am	Introduction & Announcements: Robert White
8:10 am-8:45 am	Family-Centered Collaborative Care Models that Support Families and Optimize Preterm and Child Health Outcomes: Jessica diBari	8:10 am-8:55 am	Our Journey Towards More Parental Closeness; Work in Progress: Geert Lingier and Kris De Coen
8:45 am-9:30 am	Dreams and Waking: How Life Events Shape Sleep and Arousal development in Infants: Amy Salisbury	8:55 am-9:40 am	New Unit Presentation - Phoenix Children's Hospital: Gregg Martin

9:30 am- 10:15 am	Touch and Positioning: Nancy Brashear	9:40 am 10:25 am	Hope, pride, and other enjoyments: Design for nuanced positive emotions in family-centered patient care: Jay Yoon
10:15 am-10:45 am Break (Exhibitors Break Down)			
		10:25 am-10:55 am Break (Exhibitors Break Down)	
10:45 am- 11:30 am	Recognizing and understanding traumatic stress in NICU parents: Richard Shaw	10:55 am- 11:40 am	The Impact of Circadian Lighting on Retinal Development in Preterm Infants: Jim Greenberg
11:30 am- 12:15 pm	Implementation Panel: Rose Bigsby, Michael Hynan, and Debra Paul	11:40 am- 12:25 pm	The Healthcare Sustainability Movement, the NICU, and You: What Should We Know and What Can We Do?: Troy Savage
12:15 pm- 12:45 pm	Discussion with Audience	12:25 pm- 12:55 pm	Once Upon a Design: Sharing Stories from HSHS St. John NICU's Post Occupancy Evaluation to Promote Safe Spaces: Julia Jude
12:45 pm- 1:00 pm	Summary & Presentation of New Standards: Joy Browne and Carol Jaegar	12:55 pm- 1:05 pm	Crowdsourcing, Summary & Next Steps: Bob White
Rest, Play, & Network			

The Gravens Conference
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Friday, March 7th 2025

Time	Session/Event	Location
6:30 am-7:15 am	Run/Walk/Crawl on the Beach	Meet Poolside
7:00 am-8:00 am	Continental Breakfast	Lobby II
7:00 am-5:00 pm	Registration Desk Open	Lobby II

8:00 am-12:15 pm
Workshops
(Continuing Education Credits will only be awarded for in-person attendance)

8:00 am-9:15 am
J Workshops and Topics

Workshop	Topic/Presenter
J-1 Workshop:	The Impact of Social Determinants of Health on Infant and Maternal Health Using a Reproductive Justice Lens: Kathryn Malin
J-2 Workshop:	Parents As Participants, Not Recipients: Molly Fraust-Wylie and Mia Malcolm
J-3 Workshop:	Optimizing the Pathway Home by Reducing the Risk from Respiratory Syncytial Virus: Mitchell Goldstein
J-4 Workshop:	AI is Coming for You!!: Bob White, Jim Gray, and Bridget Davern
J-5 Workshop:	The Silent Barrier, Bridging Communication Gaps: Nancy Brashear

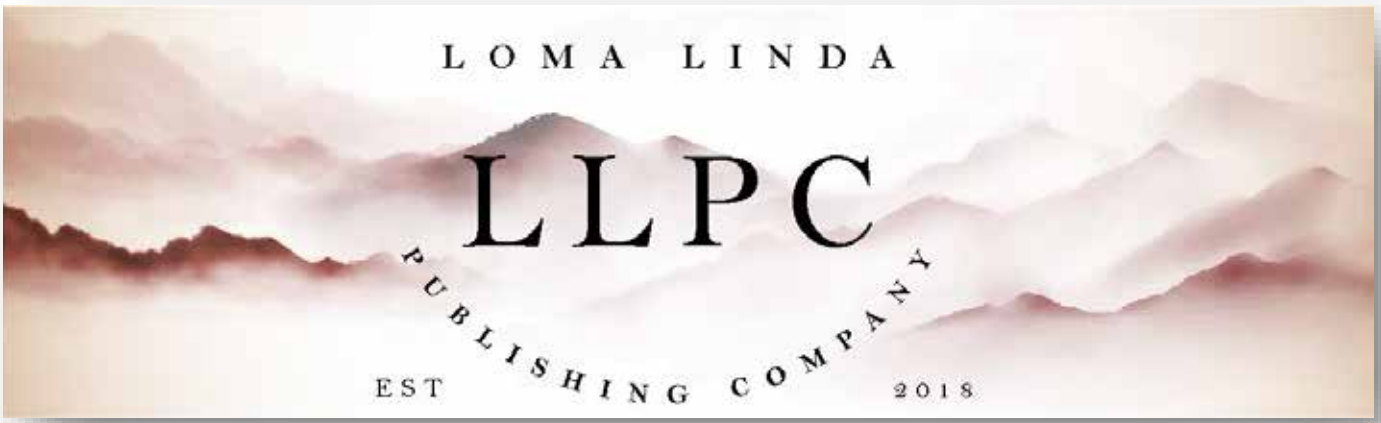
9:15 am-9:45 am
Break

9:45 am-11:00 am
H Workshops and Topics

Workshop	Topic/Presenter
H-1 Workshop:	How to Influence Culture Change in Your Entire Hospital: Geert Lingier and Kris De Coen
H-2 Workshop:	Finding Your Why/Passion: Eric Rideout

H-3 Workshop:	Mike Hynan Moderator: Nuts and Bolts of Addressing Stress Reactions in the NICU: Richard Shaw	
H-4 Workshop:	Mardelle Moderator: Happiness by Design Jay Youn	
H-5 Workshop:	Implementation of Infant & Family Centered Developmental Care Standards in a BPD Program: Gina Porto	
11:00 am-11:30 am Break		
11:30 am-12:45 pm I Workshops and Topics		
Workshop	**Topic/Presenter**	
I-1 Workshop	Planning for Supporting Social Determinates, Language Differences, and Mental Health Needs in The NICU and Beyond: Jessica diBari and LaToshia Rouse	
I-2 Workshop:	The Ethics of Ambiguity: Life and Death in the NICU: Evan Richards	
I-3 Workshop:	The Imperfect Baby-Helping Parents Cope with NICU Stress: Kerry Welton	
I-4 Workshop:	The Road to Excellence is Paved with Wrong Turns: Improving the Way We Honor our Bedside Mistakes: Louisa Ferrara-Gonzalez	
I-5 Workshop:	Transition to Home and Post-Discharge Follow-Up: Jonathan Litt	
12:45 pm-2:00 pm Lunch on Own		
2:00 pm-5:00 pm Abstracts (Continuing Education Credits will only be awarded for in-person attendance)		
Time	**Abstract Session**	**Location**
2:00 pm-3:15 pm	A: Developmental Care Moderator:	Beach

2:00 pm-3:15 pm	B: Family Support Moderator:	Gulf
2:00 pm-3:15 pm	C: Feeding/Lactation Moderator:	Palm
3:15 pm-3:45 pm Break		
Time	**Abstract Session**	**Location**
3:45 pm-5:00 pm	A: Developmental Care Moderator:	Beach
3:45 pm-5:00 pm	B: Design Moderator:	Gulf
3:45 pm-5:00 pm	C: Potpourri Moderator:	Palm
Rest, Play, & Network		



The Gravens Conference
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Saturday, March 8th 2025

Time	Session/Event	Location
6:30 am-7:15 am	Run/Walk/Crawl on the Beach	Meet Poolside
7:00 am-8:00 am	Continental Breakfast	Lobby II
7:00 am-5:00 pm	Registration Desk Open	Lobby II

8:00 am-12:00 pm
Plenary Sessions in Grand Ballroom
What is your Why? Finding Meaning and Doing Meaningful Work
Moderator: Vincent C. Smith and Molly Fraust-Wylie

Time	Session/Event
8:00 am-8:15 am	Welcome & Introductions: Vincent C. Smith and Molly Fraust-Wylie
8:15 am-8:45 am	Parent Perspective on how a NICU Stay Changed My Life: Molly Fraust-Wylie
8:45 am-9:30 am	What Drives Motivation: Autonomy Mastery Purpose: Erick Rideout
9:30 am-10:15 am **Break**	
10:15 am-11:00 am	NICU Readmissions, NICU Grads, and Safer Transitions Home from the NICU: Susan Hwang and Laurie Sherlock
11:00 am-11:30 am	Parent Panel: Laurie Sherlock, Jessica DiBari, and LaToshia Rouse Moderators: Molly Fraust-Wylie and Mia Malcom
11:30 am-12:00 pm	Wrap Up & Final Thoughts: Robert White and Joy Browne

Farewell Until Next Year!

39th Annual Gravens Conference March x 2026
(Welcome Reception 7:00 pm-9:00 pm March x 2026)

Note: Speaker and topic may change

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

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The Gravens Conference

Review Committee for Pediatrics (RC-Peds) Nominee Qualifications

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

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

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

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Respiratory Syncytial Virus

Really Serious Virus

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

Coughing that gets worse and worse

Breathing that causes their ribcage to "cave-in"

Rapid breathing and wheezing

Bluish skin, lips, or fingertips

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

Thick yellow, green, or grey mucus

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

Fever that is more than 101° Fahrenheit

which is especially dangerous for babies younger that 3 months

National Perinatal Association

www.nationalperinatal.org/rsv

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

Letting Go

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.

"'Teamwork makes the dream work.' 'There's no 'I' in 'Team' (there is a 'me', but I digress). We've all heard the cute phrases extolling the value of teamwork, and teamwork's tangible benefits to healthcare have been amply demonstrated (1,2,3)."

"Teamwork makes the dream work." "There's no "I" in "Team" (there is a "me", but I digress). We've all heard the cute phrases extolling the value of teamwork, and teamwork's tangible benefits to healthcare have been amply demonstrated (1,2,3).

In and of itself, "teamwork" is just a word. A group working together under leadership with an iron fist may fit the strict definition, but it is the letter of that definition rather than the spirit thereof. The pinnacle of teamwork is a trans-profession team, defined as "…a process of collaboration between two or more professionals across and beyond professional and discipline boundaries, such that boundaries blur and new synergies flourish. Arguably, 'going beyond' implies a much deeper form of collaboration where professional roles, identities, and ways of working are more fluid and differences are transcended" (4). Transprofessional is often conflated with multi-professional and/or interprofessional (professional and disciplinary may be used interchangeably). While there are similarities between the three, they are not equivalent.

Multiprofessional teams utilise knowledge and expertise within disciplines, but associated roles have clearly defined boundaries. Interprofessional team members exist within the boundaries of their respective disciplines but share responsibility and have mutual respect for other disciplines and what they bring to the table. Combined with the belief in the equality of all helps achieve synergy within the team and facilitates better use of team resources to achieve common goals. In this regard, interprofessional teams are more similar to trans-professional ones in philosophy and function (5).

Allowing members of a discipline to not only fully utilise their respective skillset, but also broaden their scope of practice and involvement in processes should increase job satisfaction. By extension, this should improve the quality of work and outcomes that work produces. Regrettably, there are barriers to implementing changes in workplace practices and philosophy.

"Allowing members of a discipline to not only fully utilise their respective skillset, but also broaden their scope of practice and involvement in processes should increase job satisfaction. By extension, this should improve the quality of work and outcomes that work produces. Regrettably, there are barriers to implementing changes in workplace practices and philosophy."

There is no "I" in "team," nor is there a "we," but both have the potential to kybosh a team's evolution. "I" can be the aforementioned iron-fisted "leader(s)," but sometimes the "we" that are members of a profession can be equally stymying. This may stem from a fear of erosion in their job responsibilities, losing their job entirely, or concern that nobody else can safely venture into their scope of practice, additional training notwithstanding. However, this is a two-way street in that the members of a trans-professional team should see an increase in their worth to the team within which they work. Relatively new professions like Respiratory Therapists may be particularly prone to this behaviour as they carve out their niche; it is misplaced since the overarching goal of a trans-professional team is to add value to each of its disciplines, not diminish it.

In medicine, several fundamentals can weaken a team's cohesiveness and performance. The traditionally hierarchical power structure still prevalent in many institutions and units within them is one, and the power wielded by those at the top of that structure is too often yielded with great reluctance, if at all.

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We have all had days when we wished we did not have to hand over the care of our patients after spending a day "fixing" them. Fundamentally, this reflects a lack of trust in the team, the ultimate "I," but a contributing factor may be obsessive-compulsive disorder (OCD). There is evidence that working conditions like those experienced by healthcare workers (who may already have a higher incidence of OCD than the general population) during the acute phase of the COVID-19 pandemic may lead to the development of OCD or exacerbate existing OCD. (6) Although a paucity of research exists on the subject, women are more likely to have OCD than men (7). While there are aspects of OCD that may be beneficial in a healthcare setting, being a control freak is not one of them.

That trust is earned is a given. However, staff must be allowed to earn that trust, which cannot happen in the face of micro-management, the antithesis of trust. Micromanaging trained, educated staff reflects a lack of faith in the very training provided by the person guilty of doing so; ultimately, they demonstrate a lack of trust in themselves. "Jack of all trades, master of none" is the whole point of having a team of people who are masters of their chosen fields in the first place. The members of a trans-professional team are versed enough in each other's fields of expertise to step into each other's role when mastery is not required, but action is expedient.

"That trust is earned is a given. However, staff must be allowed to earn that trust, which cannot happen in the face of micro-management, the antithesis of trust. Micromanaging trained, educated staff reflects a lack of faith in the very training provided by the person guilty of doing so; ultimately, they demonstrate a lack of trust in themselves. "Jack of all trades, master of none" is the whole point of having a team of people who are masters of their chosen fields in the first place."

Good leaders are ones who not only have faith and trust in the ability of those they lead but also allow them to perform their duties without, or at least with minimal interference. They also involve their team in the decision-making process. Indeed, a good leader carefully chooses a team that requires minimal management and oversees and coordinates their efforts to achieve a common goal. In turn, when team members are allowed to take ownership of their work in a collegial environment, all members recognise the synergy created in a trans-professional team while also taking pride in their contributions and role in the success of all.

My late mentor, Dr. Andy Shennan, used to say, "Why have a dog and bark too?". In too many teams, there is far too much barking and not enough petting!

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

Leadership

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

Advocacy

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

Consultation

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

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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

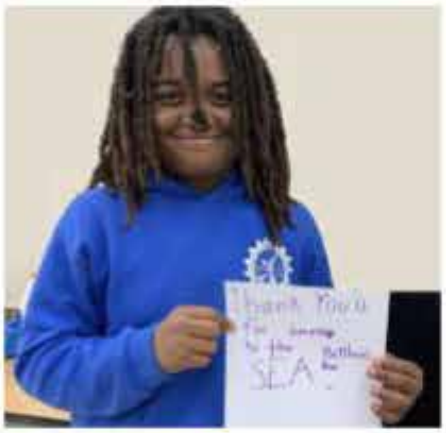


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Please visit emilyshane.org

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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

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



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

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National Network of NICU Psychologists
www.nationalperinatal.org/psychologists

COVID-19

FREE RESOURCES for your NICU

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

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.

2024

Respiratory Syncytial Virus:

How you can advocate for babies this RSV season

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



Identify the babies at greatest risk



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

Teach families how to protect



their babies from respiratory infections

Advocate for broader insurance coverage for both vaccination and 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

www.nationalperinatal.org/rsv

First Candle: Research, Parenting, Infant and Child Loss, and the Value of Shared Knowledge: ISPID 2025

Alison Jacobson, Barb Himes, CD

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.

"At First Candle, we know that following the American Academy of Pediatrics (AAP) infant safe sleep guidelines is still the strongest step parents and caregivers can take to reduce the risk of Sudden Infant Death Syndrome (SIDS), and we also know the importance of the ongoing research that works to shed light on the characteristics and causes of SIDS."

At First Candle, we know that following the American Academy of Pediatrics (AAP) infant safe sleep guidelines is still the strongest step parents and caregivers can take to reduce the risk of Sudden Infant Death Syndrome (SIDS), and we also know the importance of the ongoing research that works to shed light on the characteristics and causes of SIDS.

The results of some research may make their way into mainstream media, and as a result, we periodically provide brief non-technical information to our community on new research that may be in the news.

This includes a study (1) recently published in the Journal of the American Medical Association (JAMA) *Pediatrics*. Researchers examined data from infants who had died from SIDS and found the presence of certain metabolites, chemicals generated as a result of body function or metabolism. These are included in the newborn "heel stick" screening procedure done in all 50 states.

The study indicated that infants with certain metabolite levels could be at higher risk for SIDS. However, we realized parents could be concerned that certain screening results would mean their baby might succumb to SIDS, and there was nothing they could do. We therefore felt it important to note that the study reported a metabolite *association* with SIDS, which does not mean it is a cause, and the study's authors note that further research is needed.

"The study indicated that infants with certain metabolite levels could be at higher risk for SIDS. However, we realized parents could be concerned that certain screening results would mean their baby might succumb to SIDS, and there was nothing they could do."

On a larger scale, we will bring researchers and parents together on October 9 – 12, 2025, when we host the ISPID (International Society for the Study and Prevention of Perinatal and Infant Death) International Conference on Stillbirth, SIDS, SUID, and SUDC in San Diego.

"The theme for the conference is Fostering Unity for Infant and Child Survival: Collaborative Approaches Across Diverse Communities. In addition to scientific and parent program tracks, a health equity track will examine effects and solutions around social determinants of health, paternal roles, culturally responsive prenatal care, and safe sleep practices for infants."

The theme for the conference is *Fostering Unity for Infant and Child Survival: Collaborative Approaches Across Diverse Communities*. In addition to scientific and parent program tracks, a health equity track will examine effects and solutions around social determinants of health, paternal roles, culturally responsive prenatal care, and safe sleep practices for infants.

The conference will also include updates and scientific sessions on bereavement and scientific areas, including stillbirth, pathophysiology, physiology, epidemiology, and prevention.

This is an opportunity for scientists, researchers, medical professionals, care coordinators, community outreach workers, advocates, and parents from around the globe to share knowledge, connect with colleagues, and honor all the babies no longer with us.

Bereaved parents and their lost babies will be recognized at events of remembrance and through workshops dedicated to mutual help.

ISPID and its predecessors ESPID and SIDS International have been organizing international meetings on sudden infant death and related topics since 1985, and these biennial conferences continue to be a chance to learn from new research and personal experiences and to be part of an international network of outstanding researchers and activists.

The Call for Abstracts opens on December 1, and Early Bird registration begins on January 1, 2025. Those interested in sharing their work, attending the conference, or receiving updates should go to https://www.ispid2025sandiego.com

References:

1. Oltman SP, et al., Early Newborn Metabolic Patterning and Sudden Infant Death Syndrome. JAMA Pediatr. 2024 Sep 9:e243033. doi: 10.1001/jamapediatrics.2024.3033. Epub ahead of print. PMID: 39250160; PMCID: PMC11385317.

Disclosure: *The author is the Executive Director and Chief Executive Officer of First Candle, a Connecticut-based not-for-profit 501c (3) corporation.*

NT

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Chief Executive Officer
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Barb Himes, CD
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Telephone: 1-203-966-1300
For Grief Support: 1-800-221-7437

About First Candle

First Candle, based in New Canaan, CT, is a 501c (3) committed to eliminating Sudden Unexpected Infant Death while providing bereavement support for families who have suffered a loss. Sudden Unexpected Infant Death (SUID), which includes SIDS and Accidental Suffocation and Strangulation in Bed (ASSB), remains the leading cause of death for babies one month to one year of age, resulting in 3,700 infant deaths nationwide per year.



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ISPID INTERNATIONAL CONFERENCE
SAN DIEGO 2025

ISPID

INTERNATIONAL CONFERENCE ON STILLBIRTH, SIDS, SUID/ SUDI & SUDC

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CALL FOR ABSTRACTS BEGINS
DECEMBER 1ST, 2024

EARLY BIRD REGISTRATION OPENS
JANUARY 1ST, 2025

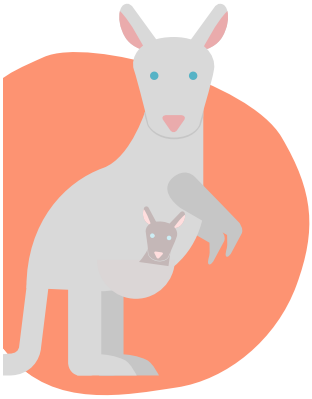


WWW.ISPID2025SANDIEGO.COM



SUPPORTING KANGAROO CARE

SKIN-TO-SKIN CARE DURING COVID-19



GET INFORMED ABOUT THE RISKS + BENEFITS

work with your medical team to create a plan

GET CLEAN

WASH YOUR HANDS, ARMS, and CHEST

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





PUT ON FRESH CLOTHES

change into a clean gown or shirt.

IF COVID-19 + WEAR A MASK

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



National Perinatal Association

nicuparentnetwork.org

NPN NICU PARENT NETWORK

nationalperinatal.org/skin-to-skin

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+ Dalia Feltman, MD, MA, FAAP
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pac-lac

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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.

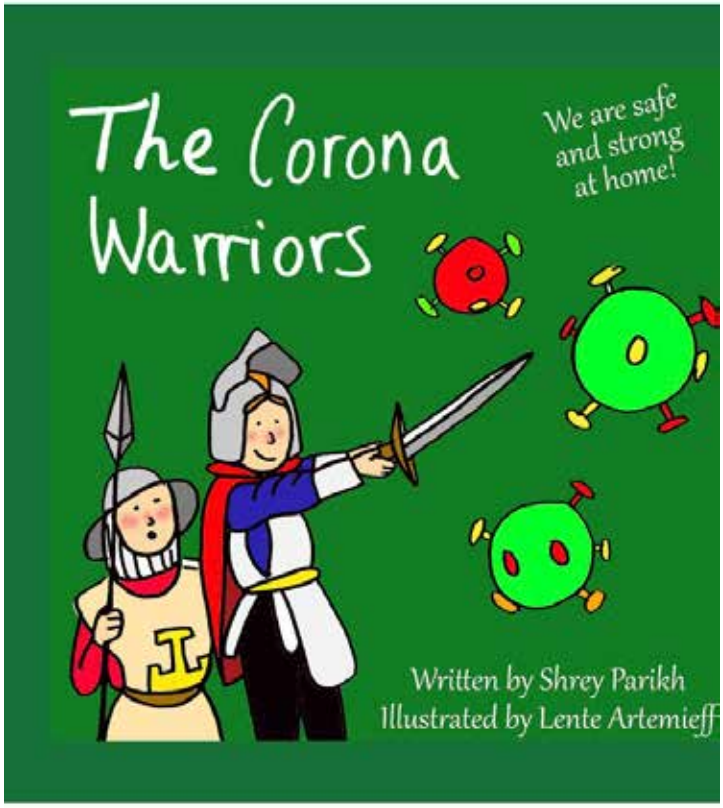
They have produced a personal video entitled "*Why we should all know about RSV*" about Simone van Wyck, a mother who lost her son due to RSV. The video is available at www.rsvgold.com/awareness and can also be watched using the QR code on this page. Please share the video with your colleagues, family,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

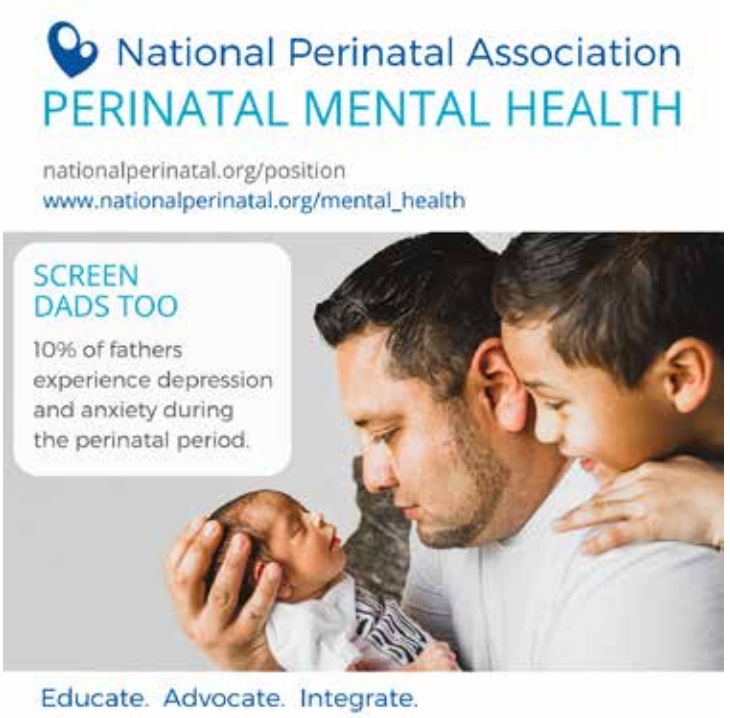


RSV GOLD

A Global Mortality Database for Children with RSV Infection

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



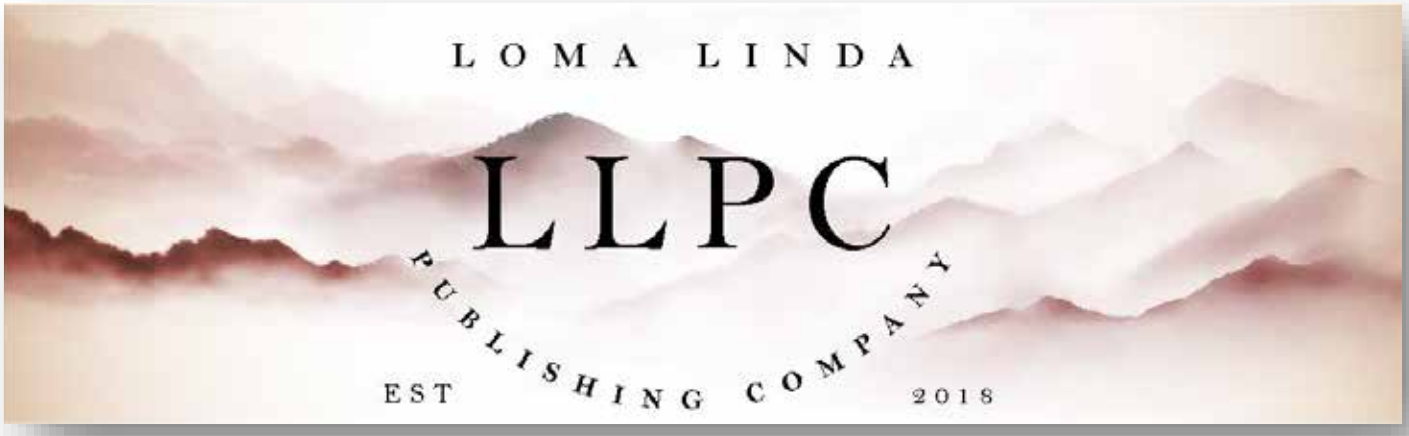


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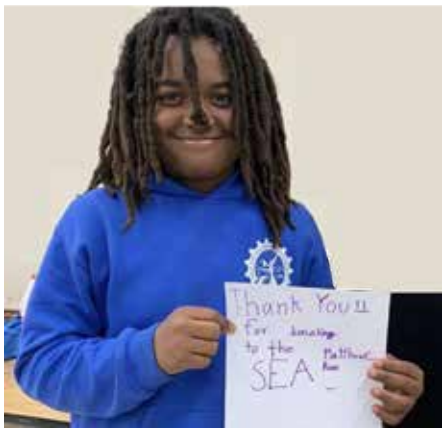


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Peer Reviewed

National Coalition for Infant Health: Meeting the Nutritional Needs of Neonates

Susan Hepworth, Lindsay Cox, MPM

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

Extremely low birth weight infants need the very best nutrition to help them grow. Luckily, parents have neonatal experts to help them understand the full range of options for their baby.

Human Milk and Fortifiers:

Research supports the exclusive use of human milk – either mother's or donor milk – as the safest and best choice for babies. (1) Its combination of calories and fortifying fats along with immunological antibodies, enzymes and other bioactive components provides babies optimal nutrition with a low risk of digestive complications.



> *"But for very low birth weight infants – those weighing less than 1250 grams, or about 2.75 pounds – mother's milk may need to be supplemented with a fortifier. The goal is to provide extra calories along with a boost of protein and other vital nutrients. The supercharged blend can help babies reach developmental milestones so they can go home with their families. (2)"*

But for very low birth weight infants – those weighing less than 1250 grams, or about 2.75 pounds – mother's milk may need to be supplemented with a fortifier. The goal is to provide extra calories along with a boost of protein and other vital nutrients. The supercharged blend can help babies reach developmental milestones so they can go home with their families. (2)

Furthering development of strong lungs, (3) heart, brain and immune system relies on consistently meeting nutritional needs, and human milk-based fortifiers can support that journey. In contrast, fortifiers derived from cow's milk can increase infants' risk of life-threatening illness. (4)

> *"Furthering development of strong lungs, (3) heart, brain and immune system relies on consistently meeting nutritional needs, and human milk-based fortifiers can support that journey. In contrast, fortifiers derived from cow's milk can increase infants' risk of life-threatening illness. (4)"*

Engaging Families in Nutrition Decisions

Every effort should be made to give babies access to human milk-based fortifiers; (5) however, these fortifiers are not consistently covered by health insurance, including Medicaid, while less optimal alternatives may be. Federal legislation was introduced in early 2024 that would require Medicaid to cover human milk-based fortifiers for these vulnerable infants. (6)

In the interim, providers and parents have the opportunity to en-



gage in shared decision making about the baby's nutrition plan based on available options. (7) Open communication and greater understanding can provide parents with peace of mind and foster confidence in their nutrition choices.

Together, parents and neonatal health care providers can provide premature babies the optimal nutrition they need to grow and thrive.

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2. https://www.childrenscolorado.org/conditions-and-advice/parenting/parenting-articles/nicu-developmental-milestones/
3. https://www.mayoclinic.org/diseases-conditions/premature-birth/symptoms-causes/syc-20376730
4. https://www.ncbi.nlm.nih.gov/books/NBK513357/#:~:text=Necrotizing%20enterocolitis%20(NEC)%20is%20a,of%20the%20colon%20and%20intestine.%22%20%EF%B7%9FHYPERLINK%20%22https://www.ncbi.nlm.nih.gov/books/NBK513357/#:~:text=Necrotizing%20enterocolitis%20(NEC)%20is%20a,of%20the%20colon%20and%20intestine.
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7. https://infanthealth.org/paper/statement-on-nutritional-practices-in-the-nicu-for-extremely-low-birth-weight-infants/

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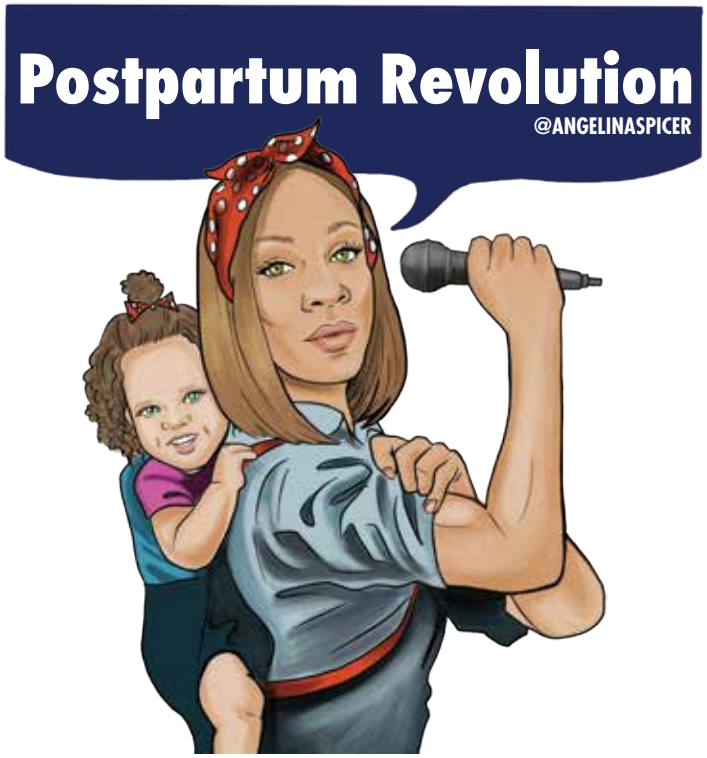
National Coalition for Infant Health Values (SANE)

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

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

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

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



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Your Pregnancy and Substance Use

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



Get Prenatal Care

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



Reduce Your Use

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

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

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



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

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

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



Take Good Care of Yourself

You deserve a healthy pregnancy & childbirth.

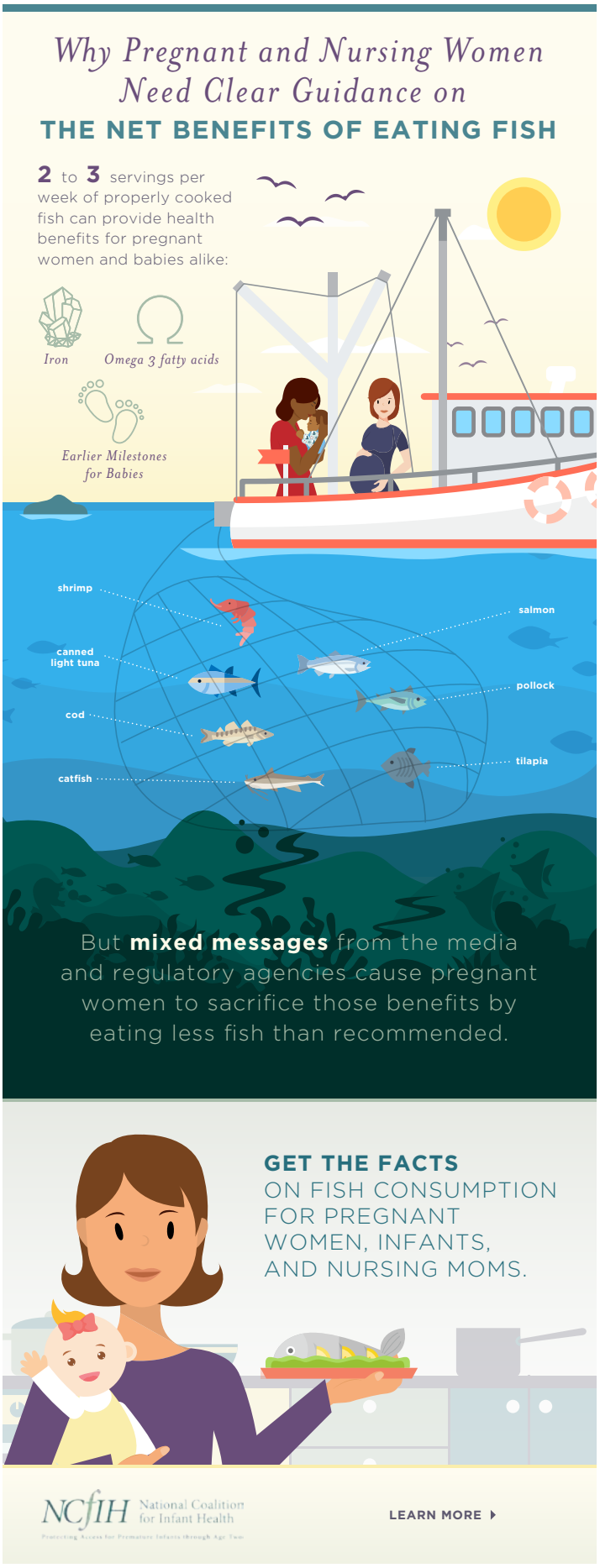
- Eat healthy and take your prenatal vitamins
- Find the right balance of rest and exercise
- Surround yourself with people who care

Your Health Matters

Academy of Perinatal Harm Reduction

National Perinatal Association

www.perinatalharmreduction.org | www.nationalperinatal.org



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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

- HORIZONTAL INFECTION
- SEPARATION AND TRAUMA





EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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





TRAUMA-INFORMED

Both parents and providers are confronting significant...

- FEAR
- GRIEF
- UNCERTAINTY

LONGITUDINAL DATA

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

- MENTAL HEALTH
- POSTPARTUM CARE DELIVERY



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

Partnering for patient-centered care when it matters most.

nann.org nationalperinatal.org

National Association of Neonatal Nurses

National Perinatal Association

Peer Reviewed

Fragile Infant Forums for Implementation: Feeding is Easy – Everyone Can Do It, Right? The Need for Competencies in the NICU

Erin Sundseth Ross, Ph.D., CCC-SLP, Joy V. Browne, Ph.D., PCNS, IMH-E



"Feeding high-risk infants within a Neonatal Intensive Care Setting (NICU) requires a high level of knowledge and skills, yet many NICUs do not have formal competencies for feeding high-risk infants. Specifically, behavior-based infant-led feedings are often not delineated, leading to inconsistent feeding practices."

Abstract:

Competencies in healthcare settings are used to verify that staff have appropriate knowledge and skills to do their job effectively and that they can demonstrate these on an ongoing basis through their bedside behaviors and clinical reasoning. Feeding high-risk infants within a Neonatal Intensive Care Setting (NICU) requires a high level of knowledge and skills, yet many NICUs do not have formal competencies for feeding high-risk infants. Specifically, behavior-based infant-led feedings are often not delineated, leading to inconsistent feeding practices. The Gravens Infant and Family-Centered Developmental Care (IFCDC) Consensus Panel has provided evidence-based recommended standards, competencies, and best IFCDC practices for infant and family-centered developmental care for feeding, eating, and nutrition delivery (FEND). Establishing competencies for standardizing feeding practices within the NICU may lead to safer, more consistent, and pleasurable feeding experiences for infants and their parents.

"Establishing competencies for standardizing feeding practices within the NICU may lead to safer, more consistent, and pleasurable feeding experiences for infants and their parents. "

What is competency?

According to the National Institute of Health (NIH) Office of Human Resources, "Competencies are the knowledge, skills, abilities, and behaviors that contribute to individual and organizational performance. Knowledge is information developed or learned through experience, study, or investigation. Skill is the result of repeatedly applying knowledge or ability."(1) Specific to healthcare, HealthStream, a resource that addresses how professionals can deliver the highest quality of care, defines competency as "the application and demonstration of appropriate knowledge, skills, behaviors, and judgment in a clinical setting." https://www.healthstream.com

With these definitions in mind, competencies are not merely the product of completing required courses, nor are they measured simply by passing a test or completing a checklist. Instead, competencies are confirmed when knowledge and skills are accurately applied at the bedside and appropriate behaviors and judgments are consistently displayed in practice. More than just a simple, one-time evaluation, competencies should be consistently demonstrated in a real-world work setting. (2)

" Instead, competencies are confirmed when knowledge and skills are accurately applied at the bedside and appropriate behaviors and judgments are consistently displayed in practice."

Why are feeding, eating, and nutrition delivery competencies

essential in the NICU?

Feeding the preterm infant requires skills that are often learned "on the job" in the neonatal intensive care unit (NICU), and practices often form because "this is how we do things here." As a result, myths around feeding, and especially around breastfeeding, are often perpetuated. (3) One example of these myths is that babies spend more energy and are more tired when breastfeeding than bottle feeding. (4) Another myth is that breastfed infants will have a longer length of stay. (5, 6) Research has discounted both of these myths.

"Feeding the preterm infant requires skills that are often learned "on the job" in the neonatal intensive care unit (NICU), and practices often form because "this is how we do things here." As a result, myths around feeding, and especially around breastfeeding, are often perpetuated."

Parents report they learn how to feed their infant from NICU nurses and therapists (if present) and that feeding requires learning a lot of technical information, but that they "learn as they go."(7–9) As a result, nurses and therapists can positively and/or negatively affect mothers' feeding choice (direct breastfeeding or bottle feeding; either human milk or formula) as well as the family's understanding of how to support their infant's ability to eat. (8–15) Professional bedside caregivers can help families focus on infant behavior and teach specific feeding strategies to improve their infant's experience. (10, 16–21).

"When NICU professionals receive competency-based feeding education, it follows that there will be better education and support for parents who learn from them and better feeding outcomes for babies. For example, when nurses receive education about the benefits of breastfeeding, breastfeeding rates improve."

Evidence-based standards and competencies can be included in educational programs on feeding high-risk babies. https://nicudesign.nd.edu/nicu-care-standards/ifcdc--recommendations-for-best-practices-for-feeding-eating-and-nutrition-delivery/ When NICU professionals receive competency-based feeding education, it follows that there will be better education and support for parents who learn from them and better feeding outcomes for babies. For example, when nurses receive education about the benefits of breastfeeding, breastfeeding rates improve. (11, 13, 22–29)

Feeding competencies should be based on infant behavior and be "infant-led."

According to Kish (2014), "the basis for cue-based feedings is the ability of the caregiver to interpret an infant's cues as a way of determining when feeding should be started, slowed, paused, or even stopped."(30) Interpreting and responding to the infant's behavior supports "infant led feeding," which is considered to be the essential difference between volume-driven and cue-based feedings. (31–34) When a feeder observes and reacts to the infant's behavioral communication, they can regulate and optimize the infant's feeding experience.

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Understanding and responding to infant behavior is a skill that is being integrated into other clinical practices. Using infant behavior as a guide to manage infant pain is now an accepted approach to clinical decision-making. However, behavior-based education for pain assessment is necessary to determine what the infant's behavior indicates. (35) Numerous studies of behavioral expression of pain have been applied to assess the effectiveness of the use of human milk and direct breastfeeding to minimize pain. (36–42)

When considering feeding competencies within the NICU, it is important to begin with evidence that supports the link between infant behavior and feeding outcomes. Infant-led feeding strategies can decrease the time needed to reach full oral feedings and may improve long-term feeding outcomes. (19, 43, 44)

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Infant behavioral communication related to feeding

Infants can communicate their needs—they do so through their behavior. Perhaps the most widely used categorization of

behaviors comes from the work of Dr T. Berry Brazelton and Dr. Heidelise Als. (45–50) The Synactive Organization of Behavioral Development, or Synactive Theory, provides a systematic way of identifying and interpreting infant behaviors within four subsystems: autonomic, motor, behavioral states, and attention/interaction. (50, 51) Understanding the behavioral organization and/or disorganization in each of the subsystems assists professionals in adapting strategies to support the communicated needs of the infant during feeding.

Each subsystem can show organization and/or disorganization, providing the basis for understanding the baby's experience. However, as the subsystems are interdependent, behavior in one subsystem may impact behavior in another subsystem. Recognition of behaviors in each subsystem and the influence on behavior in other subsystems can inform the feeder of the impact of eating on the baby's ability to maintain homeostasis. (52)

Babies' developmental goals include comfortable, safe oral feeding and appropriate growth. They must simultaneously develop organization across all subsystems to achieve their feeding goal. Research shows that when specific behaviors are ignored or not appropriately responded to, they can be associated with inefficient eating, slower transitions to full oral feedings, apnea and desaturations, poor intake, oral pharyngeal dysphagia (OPD), and longer lengths of stay. Below is a description of each subsystem and the known impact feeding has on their organization.

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Autonomic (Physiologic)

Autonomic stability for all babies develops over time. As with all caregiving and procedures, adverse autonomic responses have the potential to impact short and long-term outcomes. (53–58) Feeding skill also develops over time and has the potential to result in adverse physiologic outcomes (59–68)

Feeding readiness scales, feeding evaluations, and guiding feeding programs draw from research on feeding behavior. Changes in respiratory or heart rates, oxygen levels, and color are often included as measures of autonomic system disorganization during feeding. (18, 69–77) Some measures include color changes or changes in the work of breathing. (18, 69, 70, 73, 74, 77) Behaviors such as gurgling/rattling sounds of breathing, effortful swallows, stridor or grunting, hiccupping, eye-watering, spitting up/vomiting, nasal flaring, chin tugging, head bobbing, retractions, and use of accessory breathing muscles are deemed signs of stress during feeding on most of the feeding scales. (18, 20, 69–71, 76–79)

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Bradycardia during feedings has been associated with oral pharyngeal dysphagia (OPD) and aspiration. (66, 77, 80) Frequent bradycardic episodes during feeding are associated with a slower transition to full oral feedings and an increased length of stay (LOS). (63, 81, 82) Desaturations during oral feedings have been associated with OPD, aspiration, and increased length of stay. (66, 80, 81) Apnea, while the baby takes more than five sucks before a breath within a sucking burst, has been associated with poor volume, delayed initiation of swallowing, and increased LOS. (66, 70, 81) Head bobbing, choking, gagging, coughing, stridor, grunting, and nasal flaring are associated with slower transition to full oral feeding. (83)

Additionally, research shows that infants with more medical comorbidities have the longest transition period to full oral feeding and are more likely to remain hospitalized longer due to feeding challenges. (84–88) This is likely partly due to the correlation between feeding outcomes and autonomic stability.

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Motor

Motor subsystem behaviors include muscle energy/tone, movement, and posture. Often, behaviors associated with stress during feeding include whole-body movements such as arching, pushing, pulling, turning away, or extending the arms/hands. (18, 69, 70, 72, 77, 79, 83) More subtle facial movements are also commonly included in the lists of stress behaviors during feeding, such as furrowed or raised brows and eye-watering or fluttering.

(18, 20, 69, 70, 77–79)

Feeding readiness scales, feeding assessments, and guiding programs again draw from the literature on newborn behavioral systems organization and include measurement of tone, movement, posture, and several oral-motor-related behaviors.

Overall, loss of muscle tone/energy and postural control are perhaps the most common measures of stress during feedings. (18, 20, 69, 70, 76–79) The loss of energy and tone often occurs with a lack of sucking, along with apnea and associated desaturations, which demonstrates how subsystems are interdependent. (89) Behaviors such as coughing, choking, gagging, or poorly coordinated suck/swallow and breathe sequences are mentioned universally as interdependent with the motor subsystem. (18, 69, 70, 72, 73, 76, 77, 79). More subtle signs of stress include loss of suction, anterior fluid loss, and loss of tongue cupping/latch. (18, 69, 70, 73, 76, 77, 79) Even subtle behaviors such as eye fluttering have been associated with desaturation during oral feeding. (89) These behaviors are associated with a slower transition to full oral feedings. (83)

Several oral-motor behaviors have been associated with OPD and/or poorly coordinated feedings. Poor suction is associated with both OPD and poor volume intake. (77, 90, 91) Weak sucking and/or poor suction often lead to excessive anterior milk loss, which may lead to OPD, inefficient feedings, and poor volume intake. (77, 90, 91) Poorly coordinated suck/swallow/breathe sequences are also associated with OPD, penetration and/or aspiration, bradycardia, desaturations, and slower transitions to full oral feedings. (63, 64, 77, 83, 92)

Alertness/behavioral state/interaction

Infant behavioral states include a range from sleep to arousal. In high-risk infants, the availability for feeding may be brief and/or limited and difficult to maintain through an entire feeding cycle. At first, the baby may not show availability for interaction with their feeder. The interaction may be limited until their autonomic, motor, and state systems become more organized.

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An infant's alertness and activity often measure readiness to feed. (93) Infants who sleep during a feeding transfer poor volume and are inefficient eaters. (94–96) They may have a longer hospital stay. (82, 95–100) Feedings based on readiness behaviors that include alertness are associated with fewer apnea/bradycardia and desaturation episodes. (101) Often, the time to reach full oral feedings is shortened, and in some cases, the length of hospitalization is decreased. (43, 44, 82, 99–104)

Awareness of when the baby becomes alert, feeding when the baby is rooting and indicating hunger, and offering smells and tastes of colostrum and human milk before and during feeding may help with alerting. Feeding infants when alert is associated with decreased sepsis, improved growth and nutrition, and younger gestational ages at full oral feedings. (105–109)

Interaction is known to be taxing for babies when they are eating. A lack of alertness or eye contact during feeding may precede a desaturation episode. Feeding assessments/scales and programs frequently cite these behaviors as signs of stress. (18, 69, 70, 72, 73, 76, 77, 79, 110)

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Appropriate responses to behavioral organization and disorganization during feeding

Several programs have highlighted interventions to optimize eating experiences such as organizing the infant's alertness and behavior before and during a feeding. Taking time to calm an infant and help them alert (e.g., by offering non-nutritive sucking) is associated with better coordination of suck/swallow/breathe better volume, and shorter length of stay. (43, 99, 100, 102, 111–119) Changing the flow rate of the bottle nipple/teat, swaddling, changing feeding position, pacing a feeding, and providing rest breaks also aid in supporting the infant during feeding. (18, 69, 70, 73, 76, 79) In addition to recognizing and responding to behavioral communication, professional caregivers should consider environmental alterations that might improve the infant and family's ability to focus on feeding. (120)

Promotion of parents to be primary feeders of their baby

Parents are the best equipped to help their infants organize their behavior as they typically are familiar and safe environments for babies. Studies show that early separation of parents from their baby can have adverse outcomes, but involving parents in the care of their infant is associated with improved stability during the NICU stay. (121, 122) Skin-to-skin holding by parents improves the infant's stability, improves survival, and is associated with better enteral and oral feeding and better neurodevelopmental

outcomes. (123–129) Professionals should encourage the participation of parents in their baby's care, emphasizing parents as the primary feeders.

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Strategies to improve successful feeding among professional staff

Professionals can benefit from policies and procedures as well as educational programs related to breastfeeding and providing human milk. (29, 130, 131) As the bedside caregiver significantly influences the family, breastfeeding outcomes are improved when professionals receive this support. (23, 29, 131–133) Professionals should be expected to discuss the benefits of human milk with families and support those parents who choose to provide human milk, either expressed and bottle-fed or by directly breastfeeding. Human milk benefits the immune system and overall development and is associated with improved feeding milestones such as first and full enteral and oral feedings. (87) Staff should also be expected to effectively support families who cannot provide human milk or choose not to. For those families, staff need the skill and knowledge to help with bottle feeding.

In addition to learning the typical behavioral communication of babies during feeding and how to respond to them, caregivers should receive education on the physiological and mechanical aspects of feeding. In particular, they need to understand the relationship between suction, volume, and flow rate—especially for bottle-fed infants. They need to know that when babies are offered a bottle with a flow that is too fast for them to manage, suction typically decreases along with disorganization in the physiologic, motor, and state subsystems and a negative influence on the volume the infant eats. (60, 90, 91)

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Specific instruction on effective feeding should address several strategies, including how to change the positioning of the infant relative to the bottle or breast, which may improve coordination of suck/swallow and breathing, improve oxygenation during feeding, and decrease apnea and bradycardia. (134–138) Knowing how to pace a feeding by tilting, moving, or removing a bottle to allow and/or stimulate a breath is associated with decreased incidence of bradycardic episodes and more efficient sucking patterns at discharge. (92) Learning the importance of identifying when rest breaks are needed can help an infant reorganize and reoxygenate during feeding and should be used to improve safety and volume, especially for infants with respiratory compromise. (139)

Infants with respiratory compromise frequently decrease suction to facilitate breathing during eating. (60) One behavior associated

with a loss of suction is fluid loss. (91) To address this loss, caregivers need to know how to appropriately change equipment and/or implement strategies to address flow rate in order to improve the baby's suction and sucking coordination. Often, a decrease in flow rate results in an increase in suction and volume. (90, 91)

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Establishing feeding competencies for professionals in intensive care

Caregivers often feed infants in the NICU 6–10 times per day, which can be a significant amount of time for the baby to experience safe and nurturing feeding interactions. Expectations of the professionals providing the feeding experience should include competencies that verify their ability to observe and appropriately respond to the infant's behavior—especially to any distress during feedings. The Infant and Family Centered Developmental Care Consensus Committee (IFCDC) has provided evidence-based competencies to guide feeding practices in the ICU setting at https://nicudesign.nd.edu/nicu-care-standards/ifcdc--recommendations-for-best-practices-for-feeding-eating-and-nutrition-delivery/

In addition to the IFCDC standards and competencies, programs can design specific competencies to guide implementation. An example comes from the program "Supporting Oral Feeding in Fragile Infants program (SOFFI®)," which provides competencies related to the feeding algorithm at the heart of the program. Included are evidence-based approaches to optimize infant feeding experiences. (18, 19, 52) An example of a competency checklist from SOFFI® is appended.

Other global organizations have also developed competencies and practice recommendations addressing infant feeding. For example, the World Health Organization (WHO), in their document "Protecting, promoting and supporting breastfeeding: the baby-friendly hospital initiative for small, sick and preterm newborns," provides recommendations by feeding experts for feeding practices. (29) The European Foundation for the Care of Newborn Infants (EFCNI) has similarly developed standards and rationale for feeding practices for newborns. (https://newborn-health-standards.org/?s=feeding).

Expectations for professional practice, including evidence-based standards, competencies, and best practices, are becoming the norm rather than the exception for intensive care units both in the US and globally. These examples should provide rationale and a framework for every intensive care unit to incorporate competency guidelines and expectations for knowledge, skills, abilities, and behaviors for feeding high-risk newborns.

"The Infant and Family Centered Developmental Care Consensus Committee (IFCDC) has provided evidence-based competencies to guide feeding practices in the ICU setting at https://nicudesign.nd.edu/nicu-care-standards/ifcdc--recommendations-for-best-practices-for-feeding-eating-and-nutrition-delivery/ "

Conclusion

The IFCDC standards, competencies, and best practices can provide a starting point for implementing developmentally supportive practices for infants and their families who begin life in the ICU. The standards include competencies for the larger systems (community, hospital, NICU) and the individual (medical, nursing, and allied health professionals). Whether a system begins with the suggested competencies of the IFCDC Consensus committee, the WHO, EFCNI, or individual programs such as SOFFI®, or it creates its own, it is time to ensure that practices at the bedside are individualized, based on a respect for the behavioral communication of the infant, and that assures the family is central to the care of their infant. These competencies will lead to evidence-based, safe, and appropriate practices for every infant in intensive care.

Competencies link for access to competencies: https://nicudesign.nd.edu/nicu-care-standards/ifcdc--recommendations-for-best-practices-for-feeding-eating-and-nutrition-delivery/

SOFFI Competencies (Appended)

SOFFI®: Supporting Oral Feeding in Fragile Infants Competency. © Erin S Ross, 2024, All Rights Reserved

The oral feeding algorithm competency aims to ensure all staff can feel competent in understanding and reacting to the various engagement and disengagement behaviors to provide the most appropriate support for preterm infants. At the same time, they develop feeding skills, and to their family, the primary feeders of their baby.

Competency	Activities
PRE-FEEDING	
Adjusts environment to meet needs of family, infant	Ensure a calm, quiet environment so that both infant and feeder may focus on the feeding
	Gather all necessary equipment prior to feeding (e.g., bottle, nipples, breast shields, formula or breastmilk, pacifier)
	Use appropriate positioning supports and seating arrangements for the infant and caregiver.
Assesses and verifies medical stability for oral feeding	Ensure the infant is medically cleared for oral feeding. If on nasal CPAP or HFNC, ensure the infant is comfortable and neurobehaviorally appropriate.
Observes and assesses physiologic cues	Stable baseline color, respiratory rate under 60 bpm, heartrate within parameters, oxygen saturations above the lower limit
Observes and assesses motor cues	Rouses independently with little assistance
	Appropriately moves into flexion when unswaddled.
	Generally smooth movements, with arms and legs mostly coming towards the middle of the chest and body and not out away from the trunk
	Appropriate muscle tone/energy for infant's gestational age and medical comorbidities
Observes and assesses behavioral cues	Rouses independently with little assistance
	Actively awake or coming into wakefulness
	Arousal with NNS
	Showing interest and behaviors of readiness to eat
	In a light sleep (if breastfeeding), drowsy or awake state
Observe and assess attention/interaction cues.	Alert and appropriately attending to voices, noises, and faces
	Showing interest in feeding and surroundings and actively "pulling towards feeder."
	"Shuts down" to reorganize if overwhelmed
Assesses non-nutritive sucking and suction	Offer a pacifier or gloved finger. Assess compression and suction. If the pacifier is used, assess if the infant can maintain suction independently (strong, weak) or lacks suction.
Begin oral feed	Support parents to offer breast or bottle.
DURING BREASTFEED	
Pre-feeding	Hold infant skin-to-skin, ideally at least 5 minutes before oral feeding, to encourage alerting.
	Hold skin-to-skin with body and head turned toward feeder. Ears and shoulders and hips in alignment, and body supported, arms/hands around the breast

Latch	Hold one hand under the downside cheek and head – avoid putting hand/pressure on the back of the head.
	Align the infant's nose to the nipple of the feeder.
	Give time for the infant to gape (lean back) and support the latch when the infant comes forward. The bottom lip and tongue reach the breast first.
	Ensure the angle of the upper/lower lips is >140 degrees for the appropriate latch.
	Verify that the nose and chin are close to the breast and that the upper and lower lips are flanged and sealed.
Observe engagement and disengagement cues.	Monitor engagement and disengagement behaviors.
	Observe or ask the feeder about comfort level – the ideal is tugging on the breast with little or no discomfort.
	Observe for rhythmic sucking bursts of 2:1 or 1:1 suck/swallows.
	Listen for audible swallows.
	Look for milk in/around the lips.
Throughout oral feed	Continue to observe and respond appropriately to engagement and disengagement cues.
	If the infant disengages, stop feeding and allow the infant to rest. If the infant returns to baseline, allow the infant to relatch and continue feeding. If the infant does not return to baseline, discontinue oral feeding
Oral feed discontinued	Continue with NGT feed after infant is stable
	Parent or feeder to hold during NGT feed if available, offer soother/pacifier if alert
	Offer breast during NGT feed if alert, for nuzzling and smelling.
DURING BOTTLE FEED	
Offer bottle	Ensure optimized positioning (flexion, alignment of nose, shoulders, belly button, hips, feet, with postural support)
	Offer appropriate bottle nipple.
	Touch lips with the bottle, and wait until the mouth opens. Gently insert the bottle, allowing the infant to actively participate in sucking the nipple into the mouth.
Observe engagement and disengagement cues.	Monitor engagement and disengagement cues.
	Classify disengagement cues as subtle or overt. Overt behaviors include apnea, bradycardia, desaturation, loss of tone, cough/choke, and color change.
Two or more subtle disengagement cues were observed and noted	Offer a brief rest, and consider changing the bottle to slower flow or changing position to sidelying.
Compare infant to baseline homeostasis.	Resume feed if homeostasis is achieved after a brief rest.
	Remove the bottle and discontinue feeding if homeostasis is not achieved.
One overt disengagement cue was observed and noted	Remove the bottle and pause the feed. Stabilize as needed
Compare infant to baseline homeostasis.	Resume feed if achieved.
	Remove the bottle and discontinue feed if not achieved.
Throughout oral feed	Continue to observe and respond appropriately to engagement and disengagement cues.
Oral feed discontinued	The same activities as listed above
Identify feeding progress and next steps (e.g., Therapy consult, LC support)	Follow oral feeding communication tool.
	Update oral feeding communication tools as necessary.
	Report feeding updates and progress on rounds

	Describe feeding concerns with the medical team.
	Ask the medical team for a referral to other health professionals.
Support primary feeders	Actively involve parents/family in developing their feeding plan for home to guide plan for hospital course (breast, bottle, combination)
	For breastfed infants, achieve optimal human milk expression and delivery (enteral, breast, bottle)
	Encourage early and often skin-to-skin holding.
	If the family desires to breastfeed directly, begin oral feeding attempts at the breast. Begin as early as baseline homeostasis allows. Try to attempt oral feedings only at the breast for at least several feedings and ideally for at least 1–2 weeks or until breastfeeding is well-established
	Ensure parents/caregivers feel their infant is a safe feeder and feel comfortable when they feed them by asking them directly.
	Coach families as needed in strategies to improve comfort and safety during feedings and volume if needed
	Parents/caregivers should actively involve themselves as primary feeders in feeding.
	Advocate for primary RN care.

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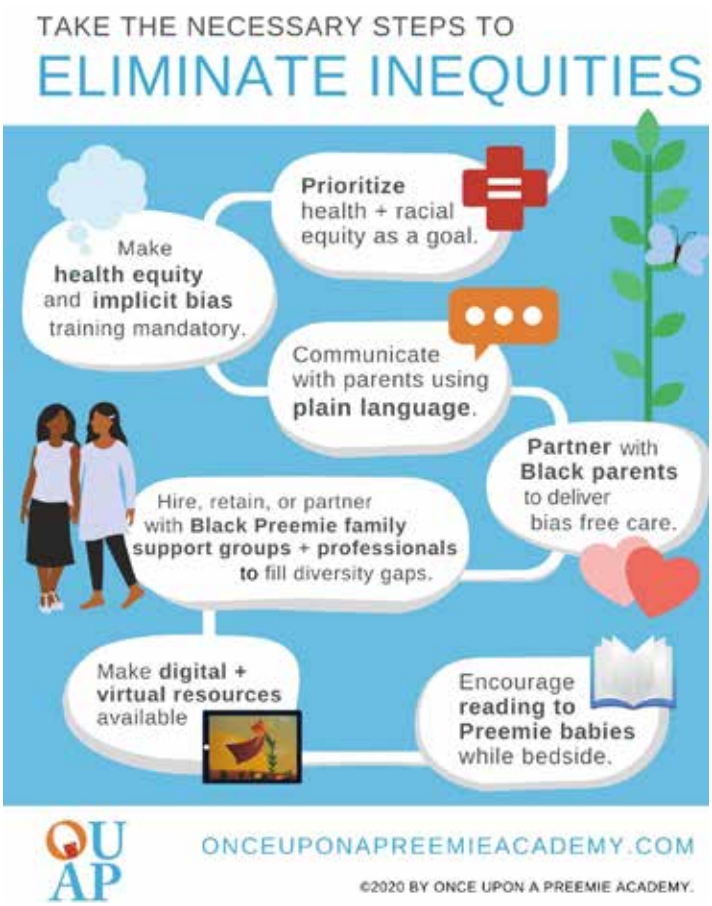


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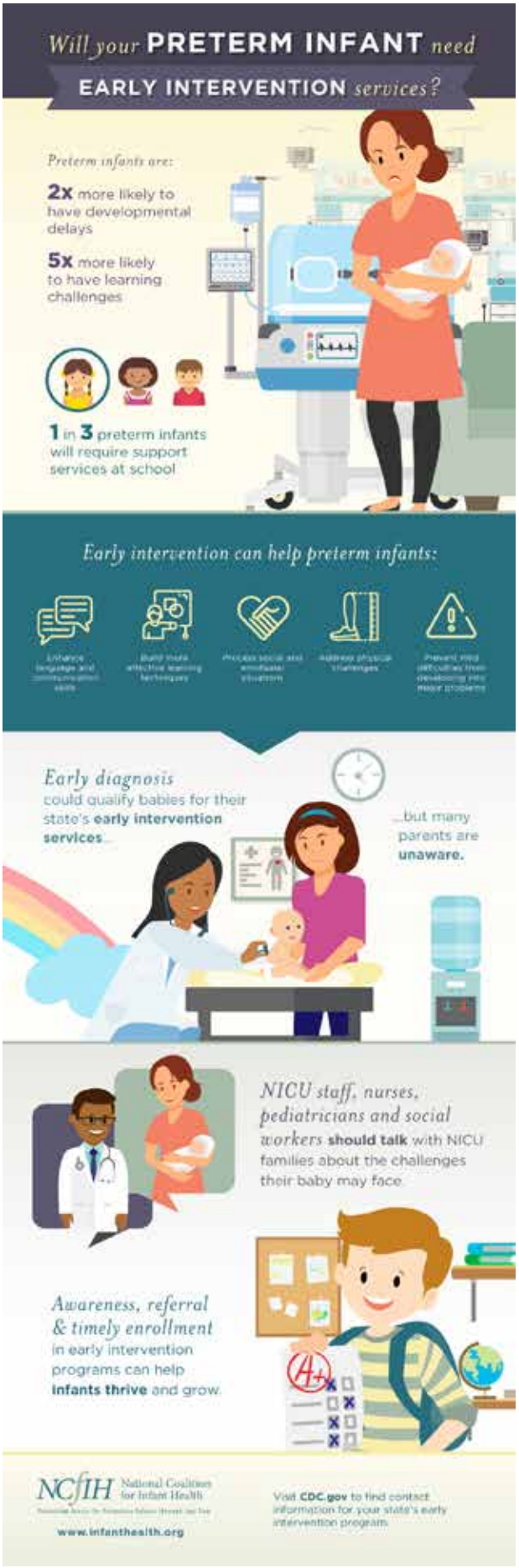


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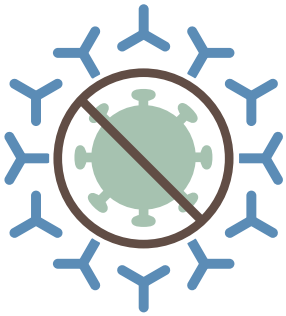
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Protecting your baby and family from

Respiratory Viruses:



What parents need to know this RSV and flu season

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

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

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

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

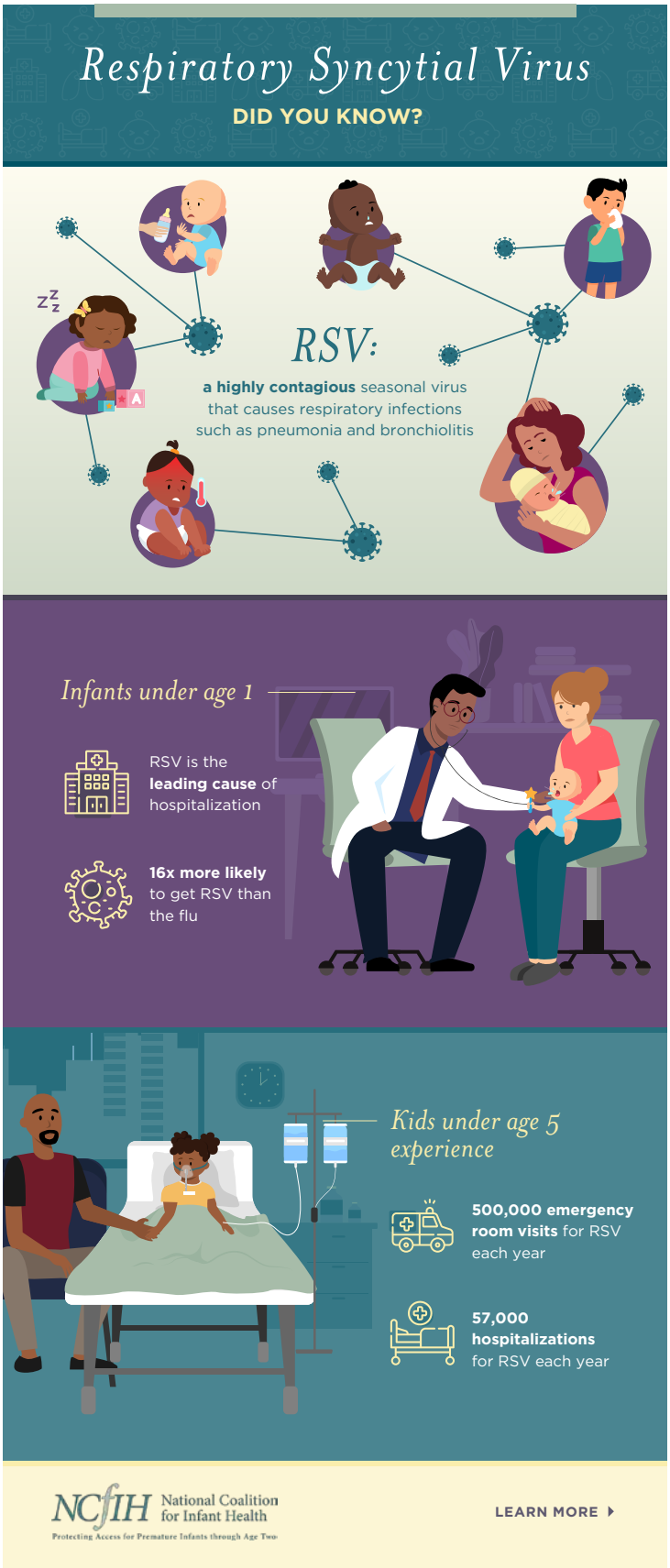
Immunizations save lives. Stay up-to-date with your family's flu vaccinations and COVID-19 boosters. This helps our community stay safe by stopping the spread of deadly viruses.

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

WE CAN HELP PROTECT EACH OTHER.

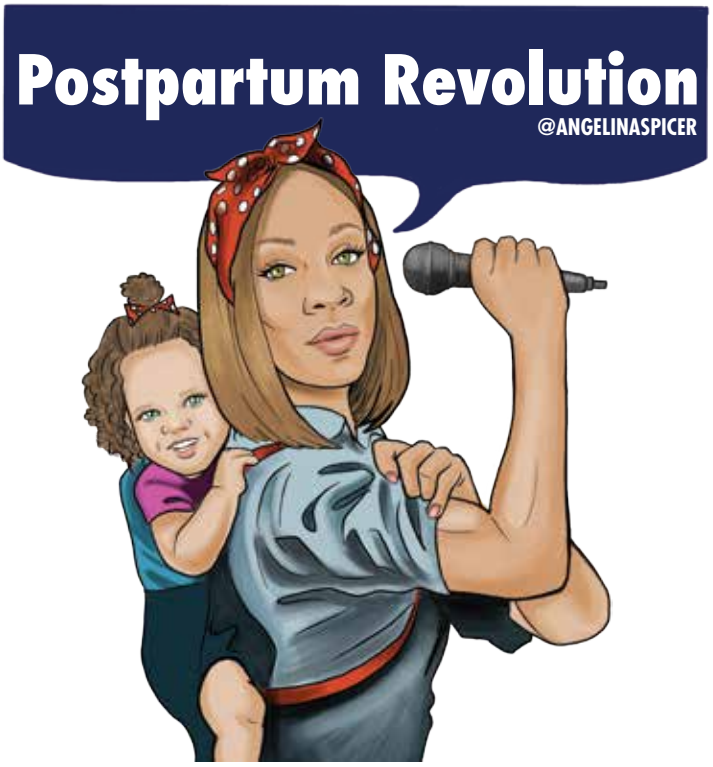
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The Gap Baby: An RSV Story





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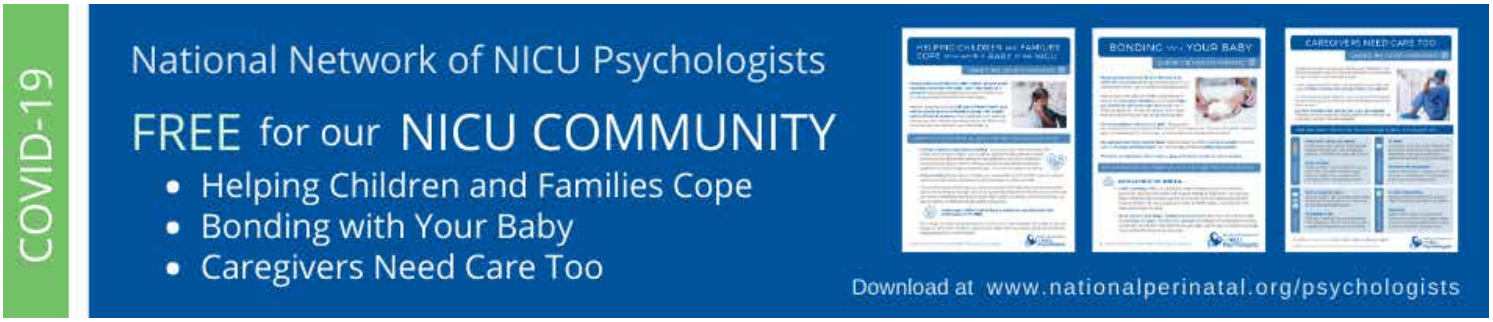
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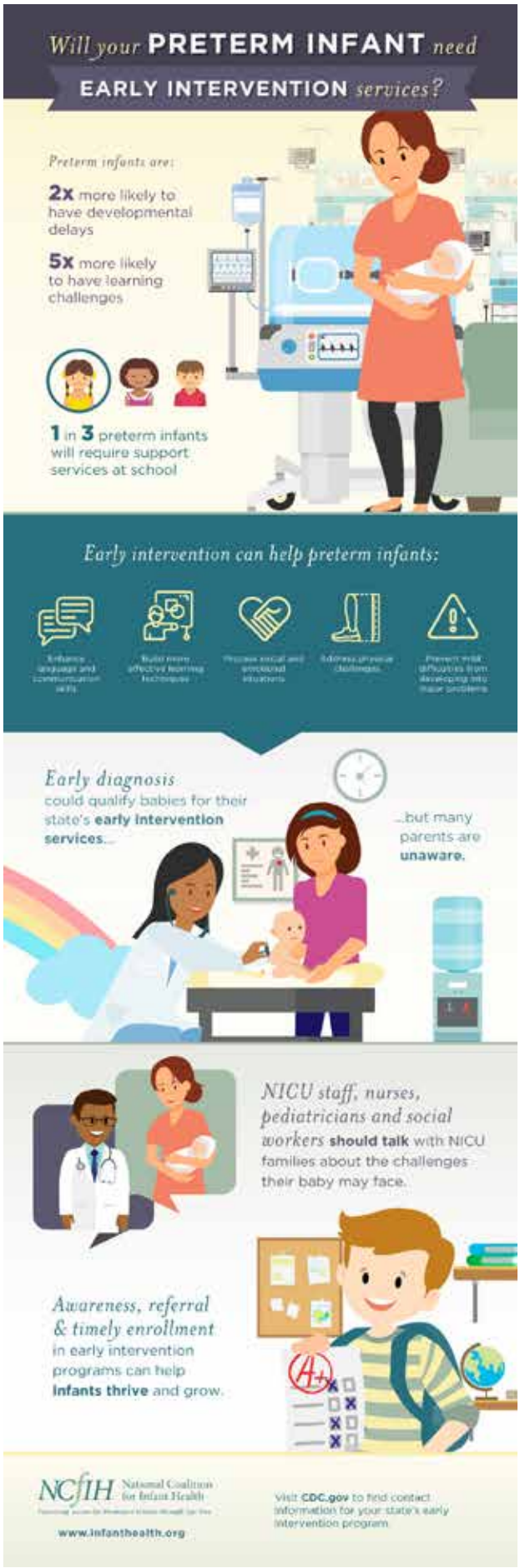
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As we indicated last month, we look forward to a number of new features as well.

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

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

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

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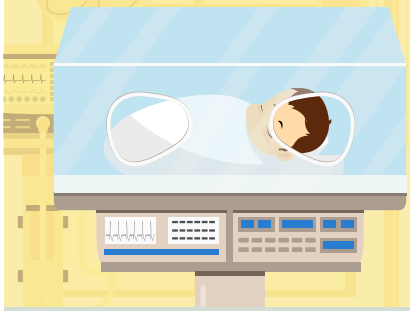
Hemolytic Disease of the Fetus & Newborn

DID YOU KNOW?

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

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





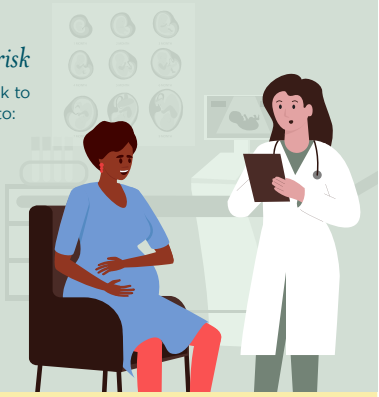
HDFN can lead to:

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

To reduce their baby's risk

pregnant mothers should talk to their health care provider to:

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



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

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

*Source: Respirator Syncytial Virus and African Americans

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

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

AfPA Alliance for Patient Access

COVID-19

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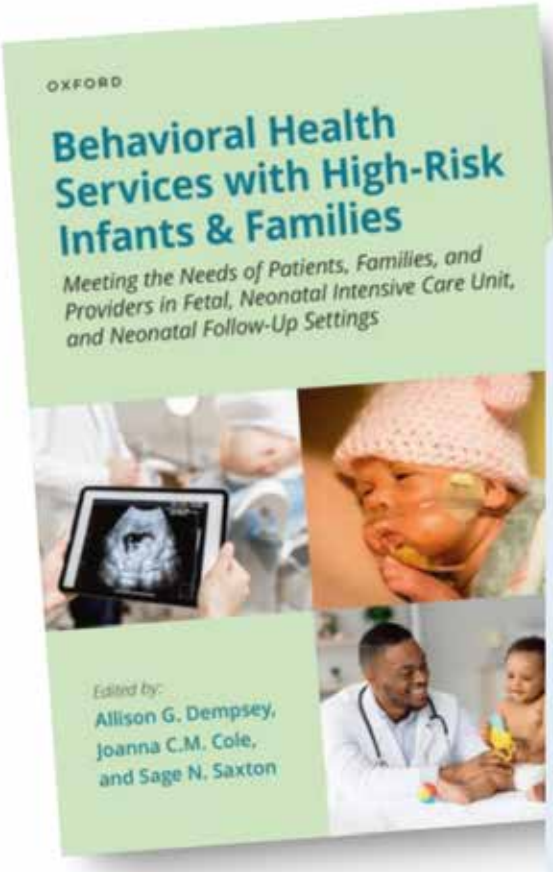
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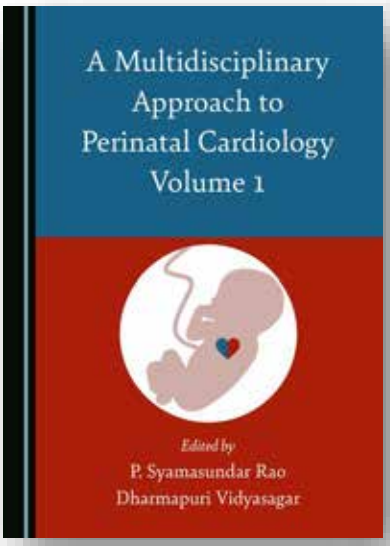
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A Multidisciplinary Approach to Perinatal Cardiology *Volume 1*

Edited by P. Syamasundar Rao and Dharmapuri Vidyasagar



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Book Description

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

About the Editors

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

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

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About the Program

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

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

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

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

Program Objectives

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

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

PROGRAM CONTENT



COMMUNICATION SKILLS CEUs offered: 1

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

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



PERINATAL MOOD AND ANXIETY DISORDERS CEUs offered: 1

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

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



PROVIDING ANTEPARTUM SUPPORT CEUs offered: 1

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

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



PROVIDING INTRAPARTUM SUPPORT CEUs offered: 1

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

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



PROVIDING POSTPARTUM SUPPORT CEUs offered: 1

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

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



SUPPORTING STAFF AS THEY SUPPORT FAMILIES CEUs offered: 1

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

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

Cost

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

Contact help@myperinatalnetwork.org to learn more.

Faculty

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

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

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

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

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

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

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

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

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

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

Parent/Patient Contributers:

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

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

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

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

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

CANCELLATIONS AND REFUNDS

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

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

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

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

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

KEEPING MOTHERS + INFANTS TOGETHER

Means balancing the risks of...

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





EVIDENCE

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

PARTNERSHIP

What is the best for this unique dyad?

SHARED DECISION-MAKING

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





TRAUMA-INFORMED

Both parents and providers are confronting significant...

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

LONGITUDINAL DATA

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

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



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

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Coping with COVID-19





A viral pandemic

A racial pandemic within a viral pandemic









Will mental illness be the next inevitable pandemic?

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and

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Policymakers can Reduce Infants' Hospitalization from Respiratory Syncytial Virus

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.





"Most serious outcomes for infants who contract respiratory syncytial virus could be eliminated by broader access to infant and maternal immunizations."

Most serious outcomes for infants who contract respiratory syncytial virus could be eliminated by broader access to infant and maternal immunizations.

Early Immunization Access Matters

Respiratory syncytial virus is common, with most children getting it before age 2. A recent report from the Centers for Disease Control concludes that early access to immunization can significantly lower the risk of complications, hospitalizations, and deaths among babies and young children.

Current data suggest that between 36,000 and 72,000 hospitalizations and 250 deaths could be prevented annually if infant and maternal immunizations for RSV were administered before babies' first exposure. Last year, the FDA approved, and CDC recommended immunization for infants and a maternal vaccine for mothers as new options to protect infants from RSV.

"Data from the winter of 2023-2024 show that nirsevimab, an injectable long-acting preventive monoclonal antibody given to newborns, reduced the likelihood of RSV-associated hospitalization by around 90%."

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The Yukon Delta system in central Alaska, which experiences the country's highest morbidity and mortality rates of infants from RSV, saw a notable decrease in infant hospitalizations after prioritizing broad access to immunization. In the first year nirsevimab was available, RSV-related hospitalizations of young children dropped from 60 to 19.

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Shared Decision-Making in RSV Prevention

Most parents are highly motivated to protect their newborn but may be unaware of the existence or benefit of RSV prevention options. Others may be curious yet confused or vaccine-hesitant.

As new options become available, healthcare providers should take the time to talk with families, especially first-time parents, about ways to minimize the risk of RSV. Healthcare providers and parents are encouraged to discuss all options and engage in shared decision-making when determining the most protective

approach for each baby.

> ***"Although preventive options have the potential to save lives, not all families can access them. Disparities, health plan barriers, and a lack of awareness can complicate access."***

Policymakers Play a Role:

Although preventive options have the potential to save lives, not all families can access them. Disparities, health plan barriers, and a lack of awareness can complicate access. However, policymakers can help by:

- Reducing health disparities that make it harder to access treatment
- Requiring health plans to cover preventive options
- Raising awareness of FDA-approved treatment options

The virus is the leading cause of hospitalization among infants, so there is no better time than now, during RSV season, to promote preventive measures.

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5. https://alaskapublic.org/2023/02/02/a-single-shot-treatment-to-protect-infants-from-rsv-may-be-coming-soon/

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

NT

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Immunizing Yourself Against **COVID-19**

COVID-19 vaccines have been shown to:

- Lessen the severity of symptoms[1]
- Reduce disease transmission[3]
- Reduce risk of mortality[2]
- Make communities healthier and safer[4]

Understanding the Options

COVID-19 vaccines are available for children, adolescents and adults. There are 3 types to choose from.

mRNA VACCINES

New to market, but research has been ongoing since the 1990s.

HOW THEY WORK: **Instruct cells to make COVID-like proteins that trigger the immune system to fight the virus.**

PROTEIN SUBUNIT VACCINES

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

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

VECTOR VACCINES

Used for decades against chickenpox, malaria and tuberculosis.

Use a modified virus, such as a common cold, to teach the body to fight off COVID.

COVID vaccines are recommended for everyone ages 6 months and older, and boosters for everyone ages 5 years and older, if eligible.[5]

Safe and Sound

COVID vaccines have been:

- **Thoroughly tested** through multi-phase trials with tens of thousands of participants[6]
- **Proven safe and effective** for adults as well as children[7]
- **Vetted and approved** by the US FDA and EMA and endorsed by the WHO[8-10]

Get Your Jab

Vaccines are available at your:

- **Doctor's office**
- **Neighborhood pharmacy**
- **Community health center**



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

1. https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963
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3. https://www.nejm.org/doi/full/10.1056/nejmc2107717
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10. http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/WHO-EUA-qualified-covid-vaccines.pdf

GAfPA Global Alliance for Patient Access

NCPA NATIONAL COMMUNITY PHARMACISTS ASSOCIATION

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- Trauma-Informed
- Evidence-Based

National Perinatal Association

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Still a **Preemie?**

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

But that's not every preemie's story.

Born between 34 and 36 weeks' gestation?

STILL A PREEMIE

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

Jaundice | Feeding issues | Respiratory problems

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



Born preterm at a "normal" weight?

STILL A PREEMIE

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

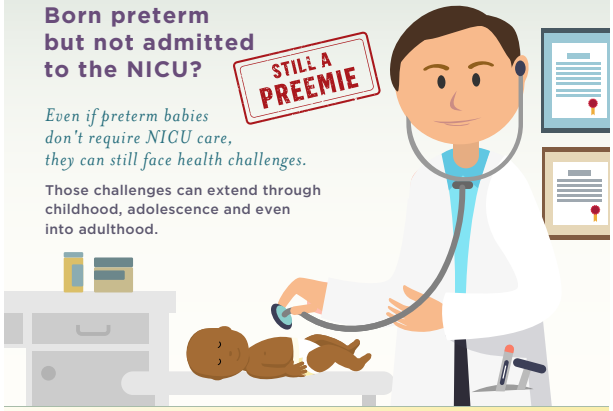
But because some health plans determine coverage based on a preemie's weight, **families of babies that weigh more may face access barriers and unmanageable medical bills.**

Born preterm but not admitted to the NICU?

STILL A PREEMIE

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

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



Some Preemies

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

All Preemies

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

NCfIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

www.infanthealth.org

The Gap Baby: An RSV Story



A collaborative of professional, clinical, community health, and family support organizations improving the lives of premature infants and their families through education and advocacy.



The National Coalition for Infant Health advocates for:

- **Access to an exclusive human milk diet** for premature infants
- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
- **Clear, science-based nutrition guidelines** for pregnant and breastfeeding mothers
- **Safe, accurate medical devices** and products designed for the special needs of NICU patients

www.infanthealth.org

iCAN in Action: From Innovation in Pediatric Healthcare to Empowering Change with Our Giving Tuesday Campaign: iCAN Highlights

Sabina Schmidt Goldstein-Becerra

iCAN International Children's Advisory Network

Get involved today and Join the iCAN Parent Council!

"As a worldwide consortium of 40 KIDS' (Kids Impacting Disease through Science) advisory groups spanning four continents, including one virtual chapter, iCAN's dedicated youth member groups work in unison around the world to provide a voice for children and families in medicine, research, science, and innovation, to foster greater global understanding about the importance of the pediatric patient and caregiver voice in healthcare, clinical trials, and research. On average, our youth are ages 8-18 years old, most of whom are living with chronic, rare, and complicated diagnoses, though a few of our youth have no medical diagnoses or medical conditions."

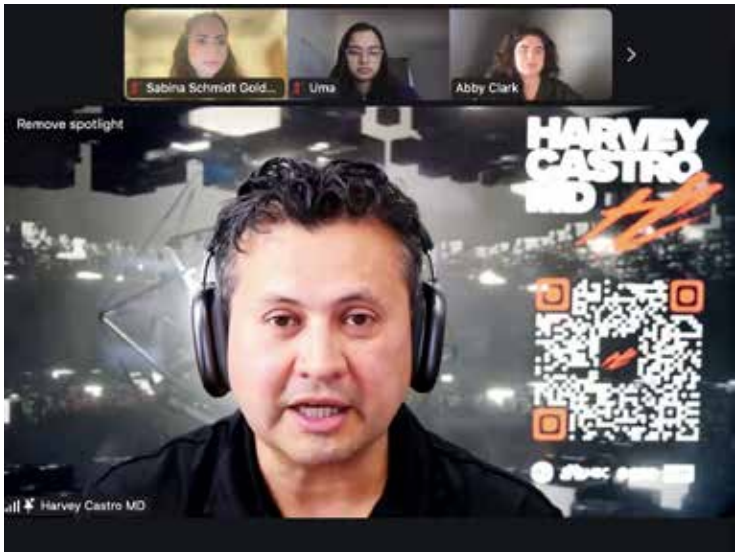
iCAN, the International Children's Advisory Network, is the premier global pediatric platform empowering the patient voice in healthcare, driven by youth for youth. As a worldwide consortium of 40 KIDS' (Kids Impacting Disease through Science) advisory groups spanning four continents, including one virtual chapter, iCAN's dedicated youth member groups work in unison around the world to provide a voice for children and families in medicine, research, science, and innovation, to foster greater global understanding about the importance of the pediatric patient and caregiver voice in healthcare, clinical trials, and research. On average, our youth are ages 8-18 years old, most of whom are living with chronic, rare, and complicated diagnoses, though a few of our youth have no medical diagnoses or medical conditions. iCAN values and understands that all patients, even the youngest, often have ideas that can help improve their healthcare experiences.

"To foster diversity, all children from anywhere may freely join iCAN. iCAN also supports young adults and the voice of parents, many of whom have young people who cannot share their voices. We continue to be a collaboration between the American Academy of Pediatrics (AAP) Section on Advances in Therapeutics and Technology (SOATT), Georgia Institute of Technology (the GT Pediatric Innovation Network), local AAP Chapters, children's hospitals, local academia, and other non-profits."

To foster diversity, all children from anywhere may freely join iCAN. iCAN also supports young adults and the voice of parents, many of whom have young people who cannot share their voices. We continue to be a collaboration between the American Academy of Pediatrics (AAP) Section on Advances in Therapeutics and Technology (SOATT), Georgia Institute of Technology (the GT Pediatric Innovation Network), local AAP Chapters, children's hospitals, local academia, and other non-profits. We aim to get our youth where they need to be to have their voices heard. Our fantastic youth make a difference in pediatric healthcare through interactions with industry, by presenting original research at conferences, by innovating new solutions, by empowering the pediatric patient voice in healthcare worldwide, and by telling their stories at conferences and to organizations like the FDA, iACT, NIH, NORD, CDC, and AAP. Whether you are a patient, family member, healthcare professional, or supporter of the cause, we welcome you to visit our website at icanresearch.org to

learn more about our mission, various programs, and initiatives. Join us to ensure that every child's voice is heard and that their unique experiences are taken into account to improve healthcare outcomes for all pediatric patients.

Revolutionizing Healthcare with Artificial Intelligence: Insights from Dr. Harvey Castro on iCAN's November Ask the Experts



The latest "Ask the Experts" episode in the iCAN series brought an exciting and thought-provoking discussion on Artificial Intelligence (AI) in healthcare. Dr. Harvey Castro, an expert in the field, joined the iCAN KIDS for a deep dive into how AI transforms the medical landscape, from medical education to real-world applications in surgery. Dr. Castro is a leading expert in AI in healthcare and has shared his knowledge and insights through various media platforms, including TED Talks, NBC, ABC, and Telemundo. As always, the iCAN KIDS had great questions, and their curiosity about the potential of AI was clear as they engaged in a profound conversation with Harvey.

"Dr. Castro is a leading expert in AI in healthcare and has shared his knowledge and insights through various media platforms, including TED Talks, NBC, ABC, and Telemundo. As always, the iCAN KIDS had great questions, and their curiosity about the potential of AI was clear as they engaged in a profound conversation with Harvey."

One of the first questions came from Uma, a first-year medical student, who asked, "Hi! I am a first-year medical student, and we talk a lot about AI in medicine in some of our classes. How do you see AI being integrated into medical school curriculum?" Harvey explained how medical schools are increasingly integrating AI into their curricula, offering students opportunities to learn how to use AI tools and collaborate with these technologies to improve patient care and medical outcomes.

"Harvey highlighted how AI can optimize daily routines, making AI-powered apps able to adjust planning tools based on an individual's unique sleep and energy patterns. These tools can help people maximize their productivity and health through more intelligent scheduling."

Mary Rose also raised an interesting point about AI in everyday life with her question: "Do you think AI is helpful with planning and calendars, and how can you use it with people who have different kinds of sleep schedules or energy fluctuations?" Harvey highlighted how AI can optimize daily routines, making AI-powered apps able to adjust planning tools based on an individual's unique sleep and energy patterns. These tools can help people maximize their productivity and health through more intelligent scheduling.

Another fascinating question came from Nishok, who asked, "I talked to a few surgical techs, and they talked about the move of AI in the actual surgery rooms such as Da Vinci Machines. What do you think about this push of AI in actual procedures?" Harvey elaborated on the growing role of AI in surgery, particularly with robotic systems like the Da Vinci Surgical Robot. These systems enable surgeons to perform minimally invasive procedures with greater precision, leading to quicker recovery times and better patient outcomes.

"Harvey highlighted how AI can optimize daily routines, making AI-powered apps able to adjust planning tools based on an individual's unique sleep and energy patterns. These tools can help people maximize their productivity and health through more intelligent scheduling."

Throughout the episode, it was evident that the iCAN KIDS are curious and thoughtful about how AI can impact healthcare on a global scale. Their questions ranged from practical applications to more visionary concepts, showing their eagerness to learn and contribute to the future of healthcare.

We would also like to extend a huge thank you to Harvey Castro, who has been a valuable contributor to this conversation. His ability to break down complex topics and make them accessible to all audiences is a testament to his passion for innovation and education. Having him join the iCAN KIDS for this session was an incredible opportunity, and we are grateful for his time and

contributions.

Mark your calendars- iCAN invites you to another installment of *Ask the Experts* on December 14th!

Ask the Experts Series: Featuring Jesse Jankewicz



We are so excited to announce that Jesse Jankewicz will join us for our next *Ask the Experts* session on December 14th at 8 AM PST, 11 AM EST, and 5 PM CET! Jesse is a seasoned creative professional and the Director of Video Services at Jumo Health. Jesse captures and shares impactful patient stories in this role, showcasing a deep commitment to creating meaningful and empathetic content. With a versatile artistic background, Jesse specializes in 3D art, animation, and motion graphics, blending technical expertise with creative vision to deliver compelling visual narratives.

"We are so excited to announce that Jesse Jankewicz will join us for our next Ask the Experts session on December 14th at 8 AM PST, 11 AM EST, and 5 PM CET! Jesse is a seasoned creative professional and the Director of Video Services at Jumo Health."

Passionate about staying ahead of industry trends, Jesse actively engages with the latest developments in advertising and animation, ensuring that each project resonates with modern audiences.

Specialties:

- 3D Modeling and Animation: Maya, 3DS Max, zBrush
- Motion Graphics: After Effects
- Digital Art and Design: Photoshop, Illustrator
- Video Production: Adobe Premiere, Final Cut Pro

Jesse's work seamlessly integrates storytelling and cutting-edge technology, making complex topics accessible and visually engaging for diverse audiences.

Join us for this exciting event as Jesse shares insights into his career, his experience using art to drive change in healthcare, and how our iCAN kids can make a meaningful impact through creative expression.

Secure your spot by registering here today!

iCAN Spotlight: KIDS Lurie

KIDS Lurie Hosts In-Person Focus Group with Biomoutum: Shaping the Future of Mobility for Kids with CP



On November 20th, the KIDS Lurie chapter had the unique opportunity to host an in-person focus group with Biomoutum, a company dedicated to optimizing human mobility through intelligent and intuitive wearable systems. Biomoutum's mission is to enhance the lives of individuals, particularly those with cerebral palsy (CP), by empowering them to lead healthy and productive lives using advanced wearable technologies.

The focus group allowed the KIDS Lurie team to provide valuable feedback on Biomoutum's innovative products, particularly Spark, a wearable system designed to support mobility and improve quality of life. The kids were excited to share their experiences and thoughts on how the Spark could be further tailored to meet the needs of children with CP. Their feedback covered everything from ease of use to functionality, ensuring that the product meets medical standards and feels intuitive and user-friendly for young patients.



The KIDS Lurie team's input was thoughtful and impactful, reflecting their deep understanding of what is needed in a product designed for children. Their suggestions highlighted the importance of comfort, adjustability, and long-term usability, ensuring that Spark can make a difference in the everyday lives of kids living with CP.

Biomoutum greatly appreciated the insight and enthusiasm shown by the KIDS Lurie participants. Their feedback is vital to the company's mission of creating products that are both functional and accessible, empowering kids with CP to live fuller, more independent lives.

This collaboration between KIDS Lurie and Biomoutum is a perfect example of how young voices drive meaningful change in healthcare innovation. By contributing their perspectives, the KIDS Lurie team is helping shape technologies that will directly improve the lives of children facing mobility challenges.

iCAN KIDS Summit Planning Committee Lead the Charge in the Giving Tuesday Campaign

Click Here to Support their Campaign!

This year's Giving Tuesday campaign is uniquely led by the inspiring KIDS of iCAN, who are taking the initiative to drive change in pediatric healthcare. For the first time, the entire campaign is in their hands as they work to raise awareness and funds for necessary healthcare research and innovation that directly impacts children.

"This collaboration between KIDS Lurie and Biomoutum is a perfect example of how young voices drive meaningful change in healthcare innovation. By contributing their perspectives, the KIDS Lurie team is helping shape technologies that will directly improve the lives of children facing mobility challenges."

The Giving Tuesday campaign allows iCAN's young leaders to showcase their passion and creativity. From organizing campaign content to connecting with supporters, they are stepping up to take on a central role in every aspect. Their leadership is making a powerful statement: KIDS have a voice in shaping healthcare today, not just in the future.

These young changemakers focus on spreading the word about

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ICAN
International Children's Advisory Network

ImpactFall 20 Fundraiser 24



the vital work iCAN does to improve healthcare and research for KIDS. By using their voices on social media, creating thoughtful content, and reaching out to the community, they make sure that others understand the importance of supporting the healthcare needs of children and the future of medical research. Watch all their videos on LinkedIn, Twitter, Facebook, Instagram, and TikTok.

"These young changemakers focus on spreading the word about the vital work iCAN does to improve healthcare and research for KIDS. By using their voices on social media, creating thoughtful content, and reaching out to the community, they make sure that others understand the importance of supporting the healthcare needs of children and the future of medical research. "

Through their efforts, they show the world that children's perspectives are essential in improving healthcare. Their involvement ensures that young patients are at the heart of these critical conversations. The funds raised from this Giving Tuesday campaign will directly support iCAN's mission to provide educational opportunities, enhance healthcare research, and ensure children's needs are prioritized in medical care.

A big thank you goes to everyone supporting this effort, especially the KIDS leading the campaign. Their dedication and creativity make a real difference, proving that when KIDS takes the lead, incredible things can happen!

iCAN's 2025 Annual Research and Advocacy Summit

Presented by Jumo Health

July 14-18, 2025

To sponsor our Summit, visit bit.ly/iCANsponsorships

We are so excited to announce that our next Summit will take place in Canada from July 14th to 18th, 2025, hosted by KIDS Canada Francais. Please save the date! Additional details will be shared later this year. Here is the video announcing the location, which was played at our annual Summit.

Our annual Summit is a transformative platform for nurturing innovation, compassion, and collaboration in pediatric healthcare among all stakeholders. We invite you to join us in this life-changing event and contribute in two meaningful ways:

1. Sponsor the 2025 Summit: Your sponsorship is pivotal in organizing the Summit, ensuring an impactful experience for all attendees.



2. Sponsor a Child to Attend: Your sponsorship directly impacts a child's life, allowing them to attend the Summit in Canada. Your support covers travel, accommodation, and participation, offering a world of learning and empowerment.

"Together, we are shaping a brighter future for pediatric healthcare. Regardless of size, your contribution makes a significant difference in prioritizing the patient's voice and fostering positive change. Your generosity and dedication are deeply valued. Let us unite in Canada to create a summit experience that empowers the pediatric community for years to come! "

Together, we are shaping a brighter future for pediatric healthcare. Regardless of size, your contribution makes a significant difference in prioritizing the patient's voice and fostering positive change. Your generosity and dedication are deeply valued. Let us unite in Canada to create a summit experience that empowers the pediatric community for years to come! Let us work together to make next year's Summit even bigger by bringing more kids to share their voices! To contribute to the funding for next year's Summit, please click here to donate.

Disclosures: *There are no reported disclosures*

NT

Corresponding Author



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Join iCAN's Virtual Focus Group!



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

- Learning disabilities (example: dyslexia)
- Speech or language disabilities (examples: stuttering, understanding others, hearing)
- Physical disabilities (examples: epilepsy, cystic fibrosis)
- Autism Spectrum Disorder (ASD) or Attention-Deficit/Hyperactivity Disorder (ADHD)

Every voice counts!

It's a one-minute survey to see if you qualify for a one-hour focus group to be scheduled at a later date.

Survey Link: bit.ly/icanxkismet

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

iCAN
International Children's Advisory Network

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.



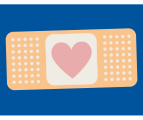
Take Care of Yourself

- 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

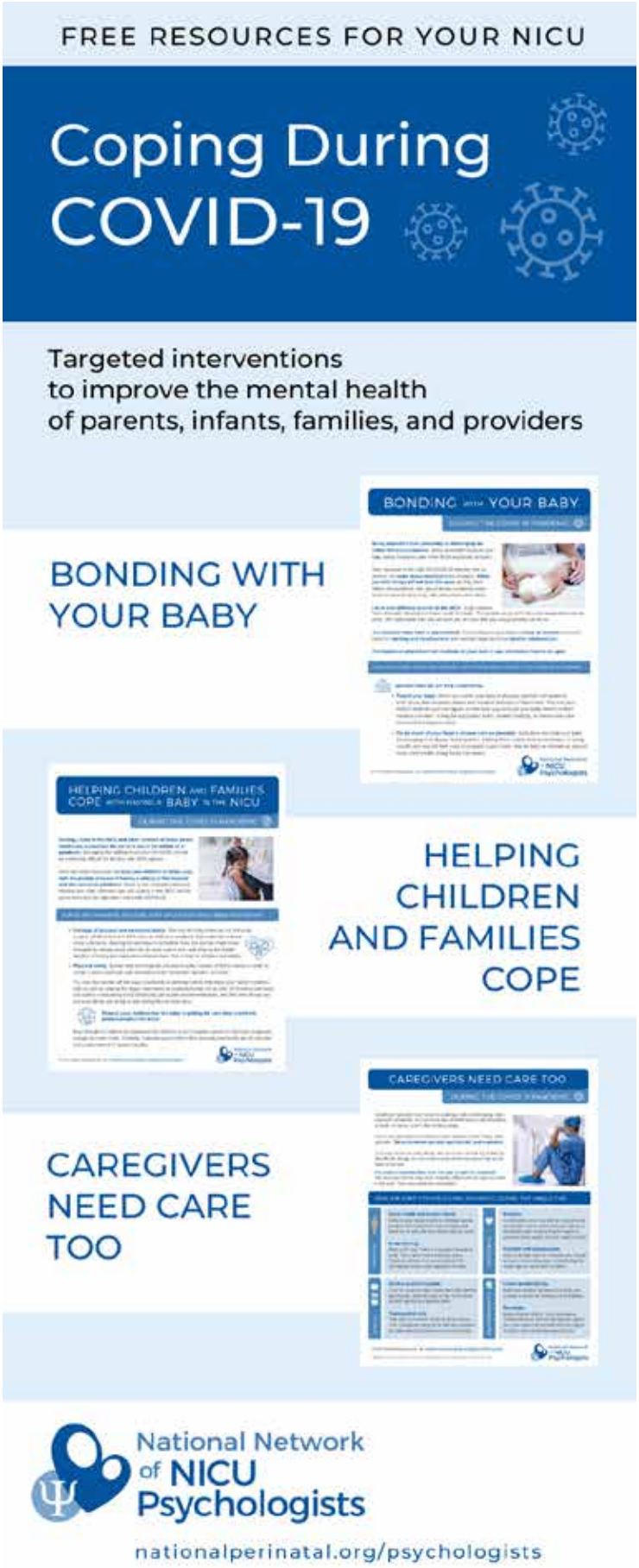
- Wash with soap and water and put on fresh clothes before holding or feeding your baby.
- Wear a mask to help stop the virus from spreading.
- Watch out for symptoms like fever, confusion, or trouble breathing.
- Ask for help caring for your baby and yourself while you recover.

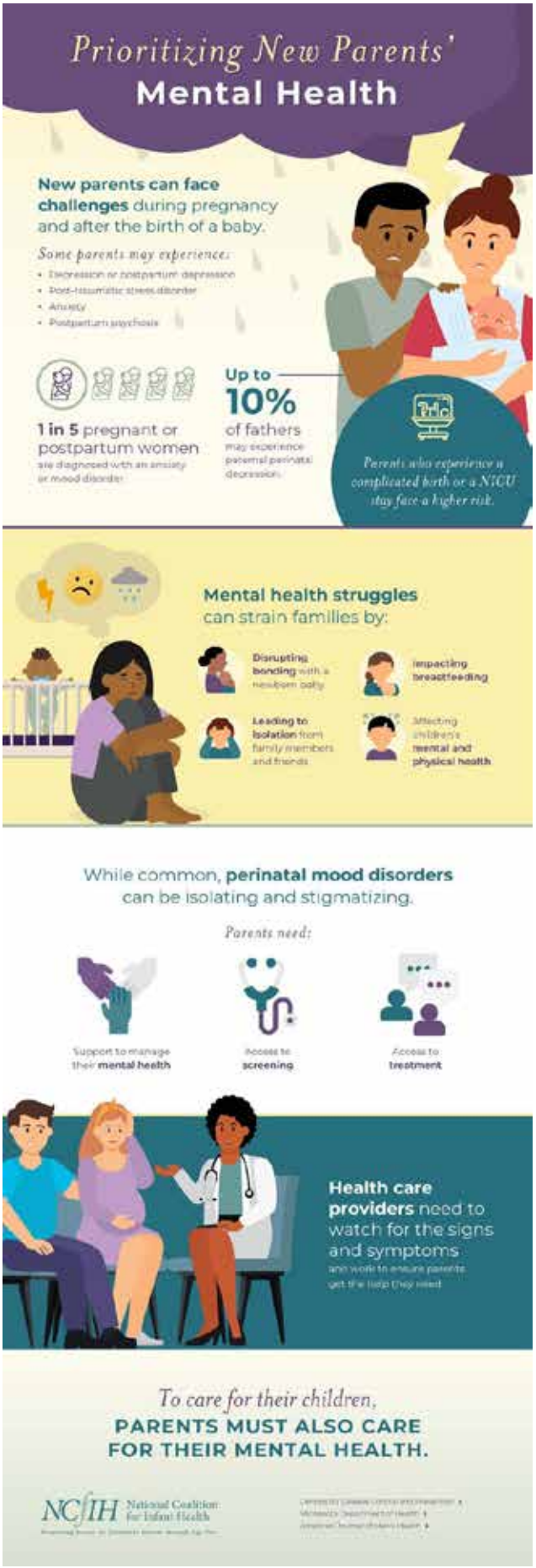


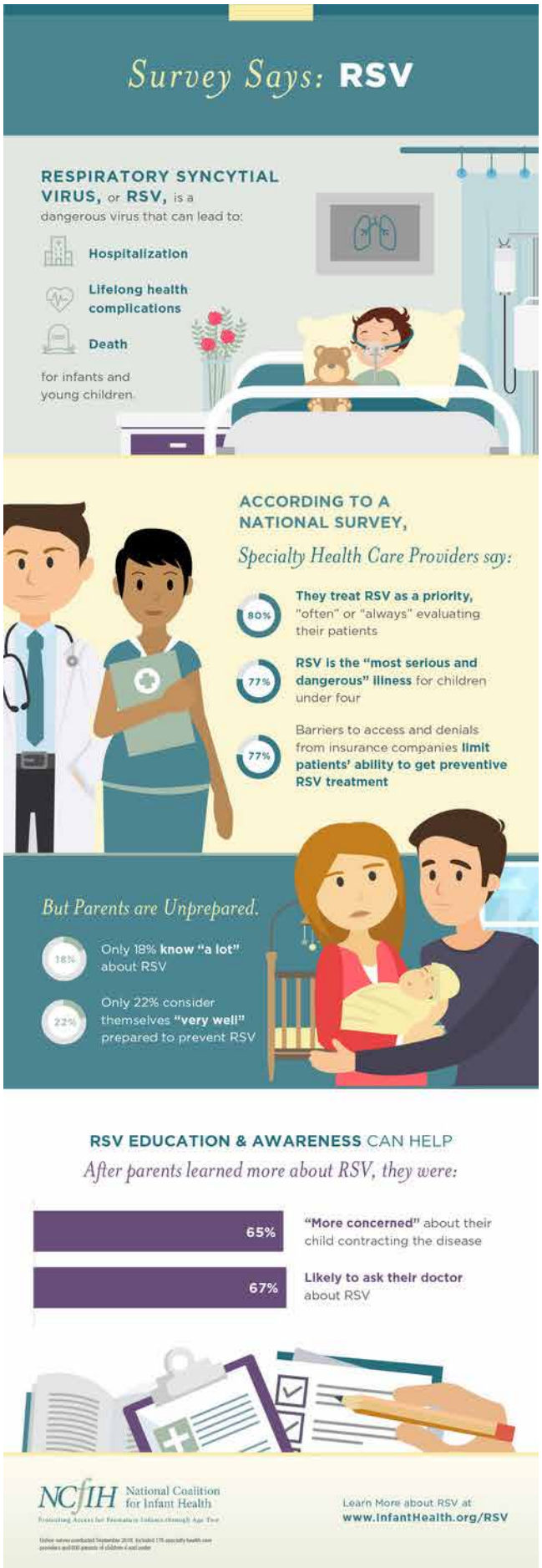
We can help protect each other.
www.nationalperinatal.org/rsv

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
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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


Prioritizing New Parents' Mental Health
New parents can face challenges during pregnancy and after the birth of a baby.
Some parents may experience:
Depression or postpartum depression
Post-traumatic stress disorder
Anxiety
Postpartum psychosis
1 in 5 pregnant or postpartum women are diagnosed with an anxiety or mood disorder
Up to 10% of fathers may experience paternal perinatal depression
Parents who experience a complicated birth or a NICU stay face a higher risk.
Mental health struggles can strain families by:
Disrupting bonding with a newborn baby
Impacting breastfeeding
Leading to isolation from family members and friends
Affecting children's mental and physical health
While common, perinatal mood disorders can be isolating and stigmatizing.
Parents need:
Support to manage their mental health
Access to screening
Access to treatment
Health care providers need to watch for the signs and symptoms and work to ensure parents get the help they need
To care for their children,
PARENTS MUST ALSO CARE FOR THEIR MENTAL HEALTH.
NCIH National Coalition for Infant Health


Survey Says: RSV
RESPIRATORY SYNCYTIAL VIRUS, or RSV, is a dangerous virus that can lead to:
Hospitalization
Lifelong health complications
Death
for infants and young children
ACCORDING TO A NATIONAL SURVEY,
Specialty Health Care Providers say:
80%
They treat RSV as a priority, "often" or "always" evaluating their patients
77%
RSV is the "most serious and dangerous" illness for children under four
77%
Barriers to access and denials from insurance companies limit patients' ability to get preventive RSV treatment
But Parents are Unprepared.
18%
Only 18% know "a lot" about RSV
22%
Only 22% consider themselves "very well" prepared to prevent RSV
RSV EDUCATION & AWARENESS CAN HELP
After parents learned more about RSV, they were:
65%
"More concerned" about their child contracting the disease
67%
Likely to ask their doctor about RSV
NCIH National Coalition for Infant Health
Learn More about RSV at www.InfantHealth.org/RSV

Peer Reviewed

Briefly Legal: The Elephant in the Room: The Role of Fetal Heart Rate Tracings and Intrapartum Events Should be Criteria Included for Therapeutic Hypothermia

Barry Schifrin, MD, Maureen Sims, MD

Clinical history

The patient is a 24-year-old, G_2 P_0 Ab_1, with a BMI of 24.8. Her prenatal course was complicated by an elevated 1-hour glucose challenge but a normal 3-hour glucose tolerance test (GTT). She tested positive for chlamydia and responded to antibiotic treatment; her other labs were normal, including a negative GBS screen at $40^2/_7$ weeks' gestation; she was admitted to the hospital in spontaneous labor. She had been seen earlier in the day in the physician's office, where her membranes were stripped. On admission, the fetal monitor tracing (EFM) was applied, revealing a normal pattern with a stable baseline rate of 130 bpm, moderate baseline variability, accelerations with fetal movement, and absent decelerations. The cervix was 1–2 cm dilated and 80% effaced, with the vertex at -1 station. Membranes were intact. Over the next 9 hours, she progressed to 7 cm, 90% effaced, and -1 station, during which time epidural anesthesia was provided. The fetal heart rate (FHR) tracing evolved, initially showing late decelerations with moderate variability, then a rising baseline with minimal variability, late decelerations, and absent accelerations. Oxygen and position changes were implemented without significant improvement in the pattern. There was, however, no progress in cervical dilatation over the next 2 hours, during which time membranes ruptured with the egress of thick meconium. With the further deterioration of the FHR pattern (tachycardia, decelerations, absent variability), the decision was made to perform an emergency cesarean section because of the "nonreassuring tracing."

"Over the next 9 hours, she progressed to 7 cm, 90% effaced, and -1 station, during which time epidural anesthesia was provided. The fetal heart rate (FHR) tracing evolved, initially showing late decelerations with moderate variability, then a rising baseline with minimal variability, late decelerations, and absent accelerations. Oxygen and position changes were implemented without significant improvement in the pattern."

At birth, the 3245-gram baby was dried and stimulated with bulb suctioning of the mouth and nares. The heart rate (HR) was 80 beats per minute (bpm), and positive pressure ventilation (PPV) was achieved by applying a mask. The Apgar scores were 3, 5, and 6 at 1, 5, and 10 minutes, respectively. Two points were given for respiration, although he received PPV, points were given for tone and reflex irritability while the HR was <100; the arterial cord gas showed a pH of 7.31, a pCO_2 of 43.7 mmHg, a pO_2 of 31 mmHg and a base excess of -4.2, and the cord venous gas had a pH of 7.32, a pCO_2 of 44.9 a pO_2 of 31 mmHg and a base excess of -3.1. The placenta weighed 630 grams and was meconium-stained.

"The Apgar scores were 3, 5, and 6 at 1, 5, and 10 minutes, respectively. Two points were given for respiration, although he received PPV, points were given for tone and reflex irritability while the HR was <100..."

The physical examination revealed no dysmorphology, but the head was severely molded, and the scalp was very edematous with large cephalohematomas. He was mottled, pale, and

"...the head was severely molded, and the scalp was very edematous with large cephalohematomas. He was mottled, pale, and hypotonic, and his respiratory effort was poor. This improved with PPV and then continuous positive airway pressure (CPAP). At 2 hours, an arterial blood gas on low ventilatory settings showed a pH of 7.23, a pCO_2 of 23 mmHg, a pO_2 of 233 mmHg, and a base excess of -16.9."

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hypotonic, and his respiratory effort was poor. This improved with PPV and then continuous positive airway pressure (CPAP). At 2 hours, an arterial blood gas on low ventilatory settings showed a pH of 7.23, a pCO_2 of 23 mmHg, a pO_2 of 233 mmHg, and a base excess of -16.9.

It was deemed that the baby was not a candidate for therapeutic hypothermia (TH) since he did not meet the hospital's criteria.

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1) The baby must meet <u>all</u> the following criteria:

- ≥36 weeks
- birthweight >1800 g
- No major congenital anomalies or obvious genetic syndrome
- Not moribund
- Not if 1st hour blood gas has a pH >7.15 and base deficit <10, and/or

  pH on the first blood gas was >7.15

2) The baby must meet <u>either</u> of the following criteria:

- To have a cord or blood gas in the first hour to have pH ≤7 or base deficit ≥16;

  OR

- No gas available or 1st hour gas pH 7.01–7.15 or base deficit of 10–16

  PLUS 10-minute Apgar <5 or assisted ventilation at birth continued for >10 minutes

  PLUS an acute perinatal event (e.g., cord prolapse, cord rupture, uterine rupture, maternal trauma/hemorrhage/ cardiorespiratory arrest) OR baby cardiorespiratory arrest occurring postnatally

Since these criteria were not met, therapeutic hypothermia was not provided.

However, more probably than not, this fetus probably would have benefited from hypothermic intervention.

- The FHR pattern showed a deteriorating pattern moving into a sentinel event but was rescued before bradycardia ensued.
- Apgar scores, known to have a subjective quality, had achieved only a six at 10 minutes and were augmented by the PPV and CPAP. Also, it is known that physiologic responses proceed in a regular sequence: respirations/lung inflation (whether spontaneous or provided plus aeration plus gas exchange), then heart rate, then color, tone, and reflex irritability.
- The cord gases were inaccurate, probably both venous since there was not a difference of 0.02–0.04 in pH between arterial and venous cord gases. The average difference is typically 0.07. When umbilical venous and arterial samples have pH values closer than 0.04, suspect that the samples came from the same vessel. This patient's cord venous and arterial pH were 7.32 and 7.31, respectively.
- Lastly, the first blood gas after birth was not drawn within the requisite hour but was drawn 2 hours after birth, but clearly showed a significant base excess of -16.

A complete blood count (CBC) revealed a low Hct 32%, a normal white blood count (WBC), and a normal platelet count. Blood cultures drawn were read as negative days later. Hours after birth, a coagulation panel was drawn that was abnormal, and creatinine and liver function tests became abnormal over the days but subsequently returned to normal. On day 1, a cranial ultrasound showed slit-like ventricles and an echogenic area, suggesting a parenchymal hemorrhage. Seizures began on day 1 and continued until day 2 despite phenobarbital.

On day 5, an MRI revealed restricted diffusion involving the right caudate head, right dorsolateral thalamus, and posterior limb of both internal capsules, as well as the splenium of the corpus callosum, suggestive of central hypoxic-ischemic injury. There was also restricted diffusion in cortical, subcortical, and deep white matter areas and bilateral perirolandic frontal, right parietal, and right occipital lobes suggestive of acute ischemic cerebral vascular accident throughout the bilateral middle cerebral arterial (MCA) and right posterior cerebral arterial (PCA) vascular distributions. Also seen was a 10 x 5 mm right parietal periventricular white matter acute parenchymal hematoma with fluid level likely acute to subacute. There was also diffuse subarachnoid hemorrhage throughout the right posterior frontal, parietal, and occipital lobe. Small acute supra and infratentorial subdural hematomas lay along the middle and posterior cranial fossae without mass effect.

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The impression:

Hypoxic ischemic injury involving basal ganglia and corpus callosum.

Acute ischemic cerebral vascular accident involving

bilateral MCA and right PCA vascular distribution without evidence of large intracranial arterial occlusion.

A small right parietal intraparenchymal hematoma could represent a sequela of hypoxic-ischemic injury.

Mild intraventricular hemorrhage involving the right lateral ventricle. No ventriculomegaly or evidence of post-hemorrhagic hydrocephalus.

Diffuse subarachnoid hemorrhage throughout the right posterior frontal, parietal, and occipital lobes.

Small layering supra and infratentorial subdural hematomas. There is no mass effect.

Large right parietal subgaleal hematoma.

The low hematocrit was considered secondary to the subdural and subgaleal hemorrhage. The baby was discharged on day 14 on phenobarbital. Follow-up revealed mild cerebral palsy, hemiplegia of the right side, and cognitive delays.

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Within one year of this delivery, a lawsuit was filed alleging obstetrical negligence in the causation of the baby's obvious handicaps. The matter was settled without any formal discovery (depositions) or trial. Although there was no allegation about the decision of the neonatologists to forego therapeutic hypothermia (TH), we thought to discuss here the evolving criteria for using HIE in the neonatal period and the potential role of FHR patterns in informing the decision to use TH.

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COMMENTS

Neonatal hypoxic-ischemic encephalopathy (HIE) is a subtype of neonatal encephalopathy (NE) and is brain injury caused by insufficient cerebral perfusion (ischemia) and oxygen supply (hypoxemia) in the perinatal period. HIE may result in different types of long-term neurodevelopmental sequelae, including cerebral palsy, epilepsy, behavioral and learning disabilities, autism, and mental retardation. It is one of the leading causes of neonatal death and disability, and it has caused a significant burden on families and society.

"HIE may result in different types of long-term neurodevelopmental sequelae, including cerebral palsy, epilepsy, behavioral and learning disabilities, autism, and mental retardation. It is one of the leading causes of neonatal death and disability, and it has caused a significant burden on families and society."

Clinically, the pathogenesis of HIE ultimately reflects cerebral ischemia, which is often, but not necessarily, preceded or accompanied by hypoxemia. Frequently, cerebral ischemia develops secondary to hypoxemia, which leads to myocardial dysfunction, a reduction in cardiac output, a decrease in cerebral perfusion, and loss of cerebrovascular autoregulation. The primary cause of intrapartum fetal hypoxemia is the disturbance of gas exchange across the placenta (i.e., asphyxia). Brain ischemia (with or without systemic hypoxia) may also result from mechanical forces acting on the fetal head alone, especially in concert with maternal pushing, frequent contractions, fetal malposition, and prolonged labor.

While the majority of neonatal encephalopathy (NE) results from intrapartum hypoxic-ischemic disease, antepartum (genetic) and

non-asphyxial perinatal disorders (infectious, metabolic) may also mimic HIE. While recent studies have reported reductions of NE, including those related to HI injury at 0.5 to 1.5/1000 live births, intrapartum HI events remain the principal cause of more than half of all cases of NE.

"The primary cause of intrapartum fetal hypoxemia is the disturbance of gas exchange across the placenta (i.e., asphyxia). Brain ischemia (with or without systemic hypoxia) may also result from mechanical forces acting on the fetal head alone, especially in concert with maternal pushing, frequent contractions, fetal malposition, and prolonged labor."

Of those babies with HIE, about 8% to 36% presented with a clinically recognized sentinel event, e.g., placental abruption, uterine rupture, amniotic fluid embolism, or cord prolapse. To this list of sentinel events, we would add sudden and prolonged fetal bradycardia or the "conversion pattern" on the fetal heart rate (FHR) tracing. It seems important to emphasize that these estimates apply only to those infants who are symptomatic at birth and do not include those infants injured during labor and delivery who manifest adverse neurological outcomes weeks to months after delivery or those in whom the problems of behavior and executive function become manifest well after the delivery.

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In the absence of a sentinel event and using limited information at the time of birth, it is often "challenging" to confirm an HI etiology for the infant with HIE. However, a detailed review of history (including the FHR patterns) will often support HIE as the most likely etiology for their neurological syndrome Signs of inflammation/infection in the mothers of HIE babies are not uncommon—27% show elevated temperature in labor, and 11% have clinical chorioamnionitis. While there is a consensus that maternal infection during labor exaggerates the risk of HIE, support for its role in the pathogenesis of HIE is varied. Increasingly, the correlation with intrapartum events is being sought, not in the FHR patterns, but in the placenta, where acute and chronic placental abnormalities are found more commonly in infants with HIE. This practice overlooks the immediate availability of reliable fetal information in FHR patterns.

It is commonly alleged (especially in the defense of lawsuits) that antepartum factors are significant contributors to HIE. Maternal diabetes, preeclampsia, placental vasculopathy, intrauterine growth restriction, and twin gestation make the fetus more vulnerable and less well-equipped to tolerate the rigors of labor. Close vigilance of the reactions of the fetus during labor is crucial to minimize the risks of these potentially compromised fetuses. MRI data find that the vast majority of HI injuries occur intrapartum. MRI studies of infants with clinical HIE (NE and evidence of intrauterine asphyxia) found that about 80% had evidence of acute lesions consistent with HIE, but 16% had normal MRI scans. Only 4% had inferential evidence of antenatal injury. More common than the sentinel events described above, intrapartum problems relating to primiparity, prolonged labor (esp. 2nd stage), fetal malposition/malpresentation, and operative vaginal deliveries are commonly cited risk factors.

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It is important to emphasize that the majority of fetuses subjected to intrapartum hypoxic-ischemic as manifested in severe metabolic acidosis (pH<7, BD>15) do not exhibit overt neonatal compromise or subsequent evidence of brain injury. The severity and duration of the hypoxic-ischemic insult are critical; the severely acidemic fetus may escape the ischemia considered necessary for injury. The studies of Low et al. demonstrate a striking relationship between the severity and duration of intrapartum hypoxia, assessed by the use of fetal acid-base studies, and subsequent neurological problems in the neonate and on long-term follow-up.

The role of umbilical pH for even severe pH derangements in the prediction of hypoxic-ischemic injury needs to be revisited. Irrespective of umbilical acidemia, current data suggest that approximately 10% of all term deliveries require some resuscitation, with 1% requiring extensive resuscitation. Of the latter, only 1 to 3 per 1000 will develop signs of evolving encephalopathy consistent with HIE, not all of whom are acidotic at birth.

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The association between umbilical cord pH (UC-pH) levels and the risk of adverse neonatal outcomes in all Danish births was investigated between January 1, 2023, and March 1, 2024, when universal UC-pH measurements were obtained. The primary outcome was a composite of severe adverse neonatal outcomes: neonatal death, therapeutic hypothermia, mechanical ventilation, treatment with inhaled nitric oxide, or seizures. Secondary outcomes included the primary outcome, Apgar score, respiratory outcomes, and hypoglycemia. UC-pH<7.20 was observed more often among infants with a gestational age of 40 or 41 weeks among male infants. The risk of adverse outcome was less than 10% for even severe derangements of pH and was increased for all pH groups below 7.20 (<7.00 [9.8%], 7.00–7.09 [0.8%], 7.10–7.19 [0.4%]). Comparable patterns were observed for the individual outcomes, except for neonatal death, which was only increased in the group with UC-pH levels of less than 7.10. A very low umbilical cord pH better predicted death than injury.

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In another study of FHR patterns in newborns with metabolic acidosis (MA), almost 70% of those with MA were asymptomatic and required no therapy. The most frequent FHR alterations in the group receiving treatment with HT were late decelerations, reduced variability, bradycardia, and tachysystole. Indeed, 49% of all cases with MA never showed a pathological FHR pattern and did not require TH.

The problem arises with the recognition of the opposite problem of the fetus, who suffers neurological injury during labor and does not show severe acidemia in the umbilical vessels. Studies of fetuses with later CP who entered labor with normal FHR patterns that evolved to patterns suggesting neurological injury found umbilical MA in only about 30% of cases. MA was even less familiar with perinatal ischemic stroke (PAIS) occurring during labor. It is essential to understand that no current classification of FHR patterns acknowledges a pattern of injury. ACOG guidelines aver that going from a Category I to a Category III pattern permits the presumption that the neurological injury occurred during labor but makes no mention of the mechanism. A study of FHR patterns in those newborns with HIE found indeterminate baseline heart rate OR = 47.297, 95% CI (8.17–273.76) p <0.001; bradycardia OR = 15.997, 95% CI (4.18–61.18) p < 0.001; diminished / absent variability OR = 10.224, 95% CI (2.71–38.45) p < 0.001; or tachycardia (risk proportional to the severity of the tachycardia) in those destined to receive TH.

Such data underscore the notion that, based on the FHR patterns, one can estimate the duration of asphyxia, even the duration of injury before delivery. EFM, adequately interpreted, can determine the onset, duration, and severity of any hypoxic, ischemic, mechanical/traumatic, and infectious cause of neurological injury to the fetus. While abnormal FHR tracings play a disproportionate role in the assessment of risk factors preceding subsequent neurological handicap, whether referred to as HIE or stroke, we are unaware of any study in which the detailed analysis of the FHR pattern has been used to inform the decision to implement or forego TH.

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Therapeutic hypothermia

Extensive experiments conducted on animals and now randomized controlled trials (RCTs) and meta-analyses have substantiated the risks of the intrapartum period in the genesis of HIE and the benefits of immediate therapeutic hypothermia (TH) for newborns with moderate to severe HIE. TH is now recognized to be of significant value for neuroprotection for up to 6 hours and continued for 72 hours after hypoxic-ischemic (HI) brain injury. While the mechanisms of its benefits are not fully understood, TH produces a graded reduction in cerebral oxidative metabolism. However, its significant neuroprotective effect acts by suppressing the mechanisms of intracellular cell death. It also appears to partially attenuate the inflammatory response after HI, which likely contributes to brain injury. The various pathways contributing to

injury invite the notion that additional potential neuroprotective interventions may synergize the effect of TH. To date, however, no such therapy has been approved. Instituting TH requires a recognition of the infant that may have suffered HI cerebral injury either shortly before labor or during labor; but some may have suffered HI cerebral injury many hours before delivery.

Initially, TH was offered to infants ≥36 weeks of gestation with evolving moderate-to-severe encephalopathy likely secondary to hypoxia–ischemia. Infants were identified based on the following enrollment criteria: ≥36 weeks gestation and ≥1 of the following: Apgar score ≤5 at 10 min or continued need for resuscitation including bag-mask ventilation; acidosis defined as umbilical arterial pH or an arterial pH <7 in the first hour of life, or base deficit >16 mmol/L. Additionally, infants may be enrolled with an EEG evidence of moderate-to-severe encephalopathy as defined by al Naqeeb et al. or with moderate-to-severe encephalopathy on clinical examination based on Sarnat staging.

"TH is now recognized to be of significant value for neuroprotection for up to 6 hours and continued for 72 hours after hypoxic-ischemic (HI) brain injury."

Despite its obvious benefits, variability exists between regional and national therapeutic hypothermia eligibility guidelines for neonates with probable hypoxic-ischemic encephalopathy. There is even debate over its benefits in low-income countries. Differences are common in criteria indicating perinatal hypoxia-ischemia and criteria defining moderate or severe encephalopathy. The role of early electrophysiological assessment is also weighted unequally. This is reflected in different individual care and impacts research data. A universally endorsed single-severity encephalopathy staging is crucial if management is to be standardized.

"Despite its obvious benefits, variability exists between regional and national therapeutic hypothermia eligibility guidelines for neonates with probable hypoxic-ischemic encephalopathy... Differences are common in criteria indicating perinatal hypoxia-ischemia and criteria defining moderate or severe encephalopathy. The role of early electrophysiological assessment is also weighted unequally...A universally endorsed single-severity encephalopathy staging is crucial if management is to be standardized."

Notwithstanding the differences in the implementation of TH, today, TH represents the standard of care for treating infants with moderate to severe encephalopathy, although there is considerable debate over the breadth of clinical information and various "biomarkers" to justify TH. The upshot is an increasing interest in the use of TH for less severe neonatal encephalopathy, affected preterm infants, and those with stroke.

In some venues, borderline premature babies (34–36 weeks) are being offered TH. Premature infants are more vulnerable to complications such as intracranial hemorrhage, coagulopathies, and hemodynamic instability, which would seem to make TH riskier. There is insufficient evidence from large, randomized controlled trials to recommend TH as a standard treatment for premature infants with HIE or brain injury. There seems to be less reluctance for milder HIE.

Despite the drift to using TH in those before term and with milder degrees of HIE, some term infants with moderate-severe HIE remain untreated, suggesting a need for ongoing education and more refined criteria, especially involving critical analysis during the intrapartum period. The benefits of TH in late preterm and term newborns with HIE are sufficient to make it the default diagnosis until other causes of NE have been discounted and HIE is confirmed. Therapeutic hypothermia (TH) is the only evidence-based and clinically approved treatment modality for HI.

"While the indications for TH are evolving, the prerequisite is that TH be implemented within the first 6 hours of life or earlier, as the benefit of cooling is not demonstrable after that. As a practical matter, this has come to mean the implementation of TH within 6 hours of delivery rather than 6 hours after asphyxiation or injury, which, from a neonatal perspective, is often difficult to determine from the comportment of the newborn. Indeed, it has been widely appreciated that the results of TH in babies delivered immediately after a sentinel event have better outcomes than those with less catastrophic histories and less rapid deliveries. Similarly, a shorter time to TH enhances survival compared to longer intervals."

While the indications for TH are evolving, the prerequisite is that TH be implemented within the first 6 hours of life or earlier, as the benefit of cooling is not demonstrable after that. As a practical matter, this has come to mean the implementation of TH within 6 hours of delivery rather than 6 hours after asphyxiation or injury, which, from a neonatal perspective, is often difficult to determine from the comportment of the newborn. Indeed, it has been widely appreciated that the results of TH in babies delivered immediately

after a sentinel event have better outcomes than those with less catastrophic histories and less rapid deliveries. Similarly, a shorter time to TH enhances survival compared to longer intervals.

Irrespective of the benefits of TH on mortality and intact development, recent meta-analyses reported that the number of HIE newborns needed to be treated with TH to prevent one death or eventual neurodevelopmental disability at 18 months was between 7 and 9. While the consequences of unnecessary TH are considered benign, they represent a significant commitment in time and resources.

This case presents details of the intrapartum cardiotocographic features of a neonate who was specifically judged to be an unsuitable candidate for TH. Our objective is neither to undermine the benefits of TH nor to criticize the clinical decision to forego TH in this case. Instead, we are to consider the pitfalls in determining the proper candidate and the potential role of EFM in the decision to implement or forego TH.

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Will your **PRETERM INFANT** *need* **EARLY INTERVENTION** *services?*

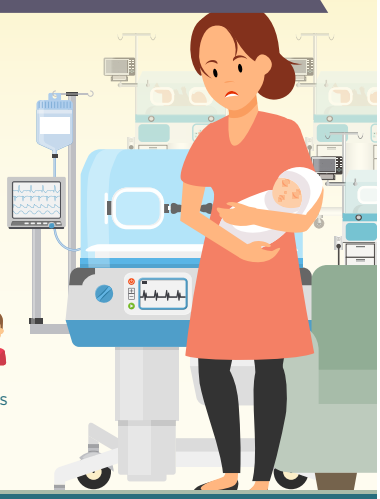
Preterm infants are:

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

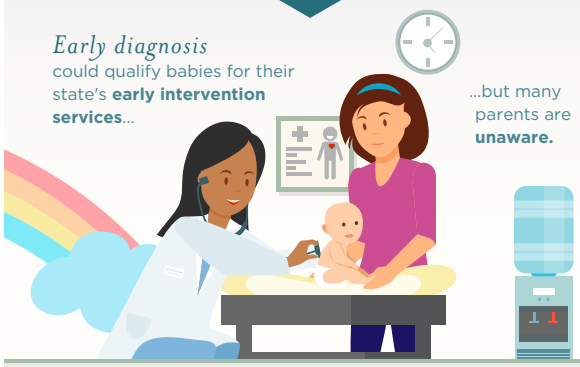


Early intervention can help preterm infants:

- 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

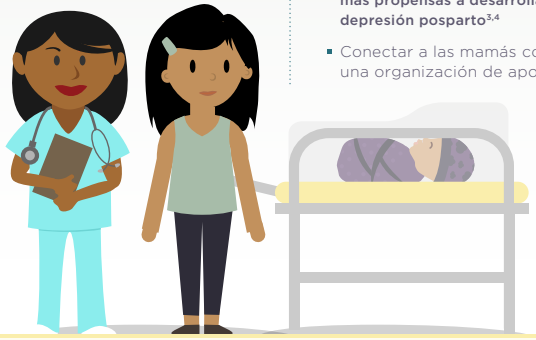
PARA AYUDAR **A LAS MADRES A ENFRENTAR LA DEPRESIÓN POSPARTO**

LOS ENCARGADOS DE FORMULAR POLÍTICAS PUEDEN:

- Financiar los esfuerzos de despistaje y diagnostico
- Proteger el acceso al tratamiento

LOS HOSPITALES PUEDEN:

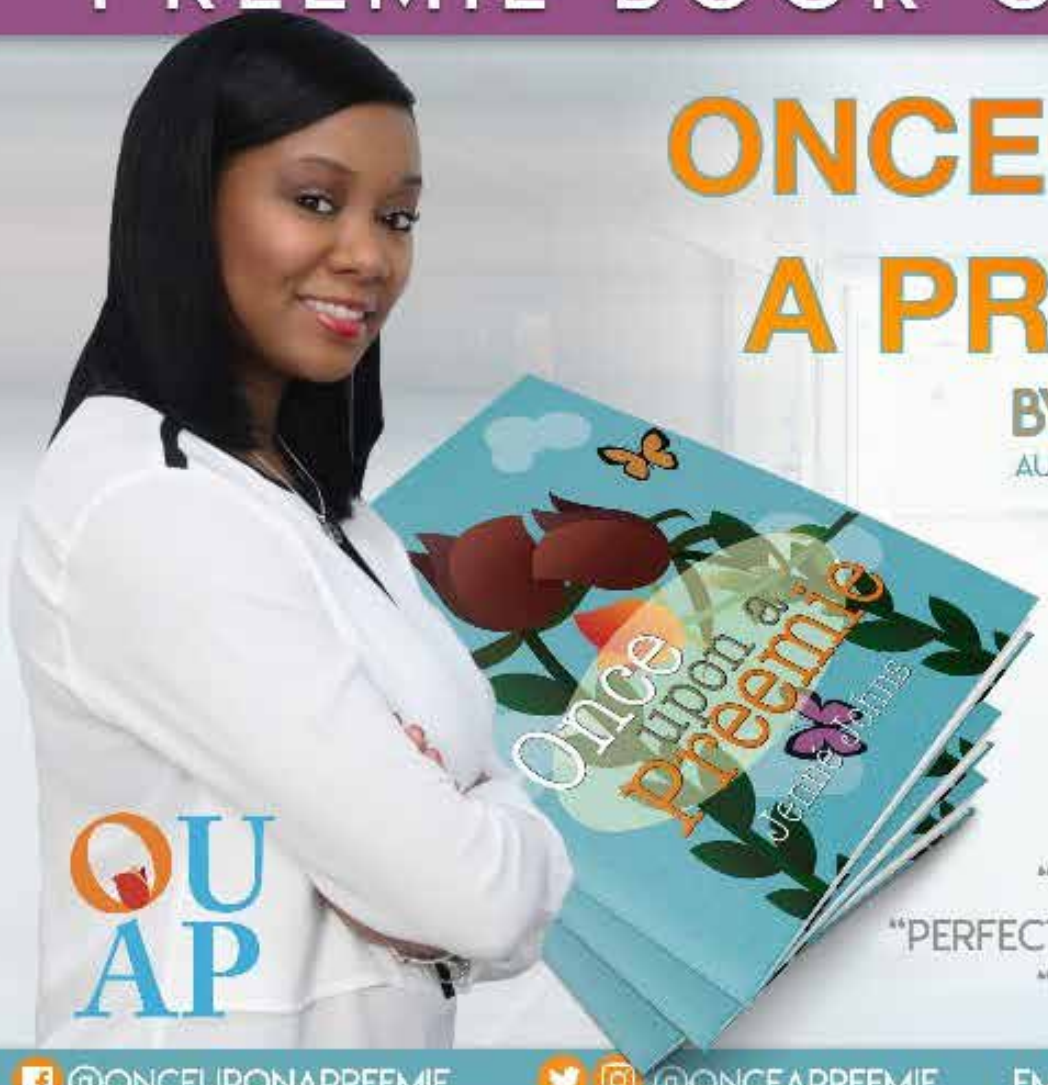
- Capacitar a los profesionales de la salud para proporcionar apoyo psicosocial a las familias... **Especialmente aquellas con bebés prematuros, que son 40% más propensas a desarrollar depresión posparto**[3,4]
- Conectar a las mamás con una organización de apoyo



NCfIH National Coalition for Infant Health
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
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CDC: Congenital syphilis cases rose 740% over a decade

NEWS PROVIDED BY

American Academy of Pediatrics

By Melissa Jenco

Study: CDC: Congenital syphilis cases rose 740% over a decade

Current as of November 13, 2024

The annual increase in congenital syphilis cases slowed in 2023, but cases still are more than eight times higher than a decade ago, according to a new report from the Centers for Disease Control and Prevention (CDC).

There were 3,882 cases reported by states and Washington, D.C., last year, up 3% from 2022. This follows a 32% jump from 2021 to 2022.

Syphilis during pregnancy can result in miscarriage, stillbirth, infant death or lifelong medical issues for the baby. There were 252 stillbirths and 27 infant deaths related to congenital syphilis in 2023, according to the report.

Congenital syphilis was diagnosed at a rate of nearly 106 per 100,000 live births with stark racial differences. Infants born to American Indian/Alaska Native parents had a rate of about 681 cases per 100,000 live births, while rates were lowest for Asian families at nine cases per 100,000 births. Data also showed Black infants represented 30% of all cases while making up just 14% of live births.

About 43% of birth parents had no documented timely test, and about 23% had no documented treatment.

"Barriers at each step are multifactorial and are frequently related to structural and systematic issues such as housing status and healthcare access, along with syndemics such as substance use disorder," according to report.

Neonatologist W. Christopher Golden, M.D., FAAP, urged pediatricians at the AAP National Conference & Exhibition in September to watch for cases and know how to manage them.

Because testing mandates for people who are pregnant vary by state, Dr. Golden cited guidance from the AAP *Red Book* that says, "No newborn infant should be discharged from the hospital without confirmation of the birthing parent's serologic status for syphilis."

The AAP *Red Book* has detailed information on signs and symptoms of congenital syphilis and a diagnosis algorithm.

Across all ages, syphilis cases rose just 1% in 2023 despite a shortage of treatment benzathine penicillin G. The Food and Drug Administration (FDA) has allowed importation of antibiotics from other countries to help fill the gap.

The CDC touted several recent developments, including guidelines for using doxycycline to prevent bacterial sexually transmitted infections (STIs) and FDA authorization of at-home tests. In addition, the National Syphilis and Congenital Syphilis Syndemic Task Force has been working to expand testing and treatment, increase awareness and engage communities and health departments.

The CDC called for continued efforts, including prioritizing the STI epidemic at all levels of government; developing new prevention, testing and treatment solutions; investing in public health systems; and expanding testing and treatment locations.

Jonathan Mermin, M.D., M.P.H., director of CDC's National Center for HIV, Viral Hepatitis, STD, and TB Prevention, said in a press release that he sees "a glimmer of hope."

"After nearly two decades of STI increases, the tide is turning," he said. "We must make the most of this moment — let's further this momentum with creative innovation and further investment in STI prevention."

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Vaccines for Children program offers free vaccines for eligible children

NEWS PROVIDED BY

American Academy of Pediatrics

By Steve Schering

Study: Vaccines for Children program offers free vaccines for eligible children

Current as of November 1, 2024

Vaccines are a safe and effective way to prevent common diseases that can seriously harm or kill infants, children and teens.

Families who cannot afford vaccines should ask their pediatrician about the Vaccines for Children (VFC) program. The federally funded program works to ensure all children ages 18 years and younger get the vaccinations they need on time without cost being a barrier.

Families do not have to show proof that their child is eligible for free vaccines. But their doctor must ask the following questions and document the answers.

- Is your child on Medicaid?
- Does your child have any health insurance coverage? Does that insurer cover vaccines?

- Is your child of American Indian or Alaska Native heritage?

Without vaccines, a child is at risk of becoming seriously ill or even dying from diseases such as measles and whooping cough. These diseases can spread easily at home, school, work or in public spaces.

Preventable diseases that VFC program vaccines protect children from include COVID-19, dengue, diphtheria, *Haemophilus influenzae* type b, hepatitis A and hepatitis B, human papillomavirus, influenza (flu), measles, meningococcal disease, mumps, pertussis (whopping cough), polio, respiratory syncytial virus (RSV), rubella (German measles) and tetanus (lockjaw).

More than 37,000 health care providers nationwide are enrolled in the VFC program. These include pediatricians, health clinics, hospitals, schools, health departments, pharmacies, federally qualified health centers and rural health clinics.

To find a VFC Program near you, contact your local or state health department. Talk to your pediatrician to find out more about the VFC program.

CDC releases 2025 immunization schedules

NEWS PROVIDED BY

American Academy of Pediatrics

By Melissa Jenco

Study: CDC releases 2025 immunization schedules

Current as of November 21, 2024

The Centers for Disease Control and Prevention (CDC) has released the 2025 immunization schedules. The most significant updates are related to COVID-19, meningococcal B and *Haemophilus influenzae* type b vaccines.

The schedules incorporate policies approved over the past year and tweaks to improve clarity and readability. They have been endorsed by the AAP, which has published a policy statement detailing the updates.

"Both immunization schedules … are designed to be a guide for health care providers to ensure individuals get all the vaccines they need when they need them," Sybil Cineas, M.D., FACP, FAAP, chair of CDC's Advisory Committee on Immunization Practices (ACIP) immunization schedule work group, said during a recent ACIP meeting.

The 2025 child and adolescent immunization schedules include the following updates.

- **COVID-19:** The vaccine formula has been updated for 2024-'25. All individuals ages 6 month and older should receive at least one dose of the 2024-'25 vaccine and additional COVID vaccine doses are recommended for children and adolescents who are immunocompromised. Updated notes state all doses should be from the same manufacturer for healthy children ages 6 months through 4 years and immunocompromised children and adolescents receiving their initial vaccine series.
- **Dengue:** The schedule clarifies the vaccine is recommended only for certain populations in the age group.
- **Diphtheria, tetanus and acellular pertussis (DTaP):** A note addresses the use of Td vaccine in children under 7 years with a contraindication to the pertussis component of DTaP.
- ***Haemophilus influenzae* type b (Hib):** Vaxelis is one of two preferred vaccines to protect American Indian/Alaska Native infants from Hib. The other preferred vaccine is Pedvax-HIB.
- **Inactivated poliovirus:** Clarifies an earlier recommendation that catch-up vaccination is recommended for 18-year-olds who are known or suspected to be unvaccinated or incompletely unvaccinated.
- **Influenza:** Vaccines for 2024-'25 are trivalent. High-dose inactivated and adjuvanted inactivated influenza vaccines are acceptable options for 18-year-old solid organ transplant recipients who are receiving immunosuppressive medications with no preference over other age-appropriate inactivated or recombinant influenza vaccines.
- **Measles, mumps, rubella:** A new note indicates children 12 months and older vaccinated with one dose should get a second dose at least four weeks after the first if they are going to travel internationally.
- **Measles, mumps, rubella, varicella**: The vaccine is contraindicated in HIV-infected people.
- **Meningococcal B:** Bexsero dosing has been changed to a two-dose series for healthy adolescents and a three-dose series for those at increased risk of disease. Patients who need rapid protection (such as during an outbreak) can choose a three-dose series.
- **Respiratory syncytial virus (RSV):** Updated notes clarify that for infants born in October through March, the ideal timing of nirsevimab administration is during the birth hospitalization. In addition, infants born to people who received an RSV vaccine during a previous pregnancy should receive nirsevimab.

As the CDC updates policies throughout the year, addenda will be added to the online schedules.

The updated schedules come as reports show troubling trends in childhood vaccination. A recent CDC report showed kindergarten vaccination rates decreased last school year, as exemptions from school vaccine requirements reached another record high. Another CDC study showed vaccine coverage for children by 2 years of age was lower for those born during the COVID-19 pandemic than in previous years.

CDC experts have said the declining rates leave more children at risk for preventable illnesses. There have been 23,544 pertussis cases this year, which is five times more than this time last year, according to CDC data. The count is the highest since 2014.

There also have been 277 cases of measles reported this year, the highest since 2019, according to CDC data. About 41% of the cases this year have been in children under 5 years, and 89% of all patients were unvaccinated or had an unknown vaccination status.

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CDC confirms H5N1 Bird Flu Infection in a Child in California

NEWS PROVIDED BY

Center for Disease Control

By CDC Media Relations

Study: CDC confirms H5N1 Bird Flu Infection in a Child in California

Current as of November 22, 2024

The Centers for Disease Control and Prevention (CDC) has confirmed a human ~~infection with avian influenza A(H5N1)~~ (H5N1 bird flu) in a child in California. This is the first reported avian influenza H5 virus infection in a child in the United States. Consistent with previously identified human cases in the United States, the child reportedly experienced mild symptoms and received flu antivirals. There were low levels of viral material detected in the initial specimen collected, and follow-up testing of the child several days later was negative for H5 bird flu but was positive for other common respiratory viruses. The child is recovering from their illness. An investigation by the California Department of Public Health (CDPH) into the child's possible H5N1 exposure source is ongoing.

During CDPH's investigation, all household members reported having symptoms and specimens were collected from those people. All test results from members of the household were negative for H5 bird flu, and some family members were positive for the same common respiratory viruses as the child. Contact tracing continues, but there is currently no evidence of person-to-person spread of H5N1 bird flu from this child to others. To date, there has been no person-to-person spread identified associated with any of the H5N1 bird flu cases reported in the United States.

This case was detected through influenza testing and reported to CDPH through influenza surveillance. This is the second U.S. case identified through national surveillance. CDC continues to closely monitor available data from influenza surveillance systems, particularly in states affected by outbreaks in animals, including California, where widespread outbreaks of H5N1 bird flu have been detected in wild birds and domestic poultry since 2022 and dairy herds since August 2024 in that state.

Limited and sporadic human infections with avian influenza H5N1 virus, where animal exposure was not identified, are very uncommon but have occurred, primarily in countries other than the United States. These instances underscore the importance of ongoing surveillance and investigations at the local, state, and Federal levels. Including this most recent case, 55 human cases of H5 bird flu have now been reported in the United States during 2024, with 29 in California.

CDC's risk assessment for the general public is low. However, people with exposure to infected or potentially infected animals, such as birds, dairy cattle, or other animals (including livestock), or to environments contaminated by infected birds or other animals, are at higher risk of infection. CDC recommends avoiding unprotected exposures to sick or dead animals, including wild birds, poultry, other domesticated birds, and other wild or domesticated animals (including cows).

Countries pledge to act on childhood violence affecting some 1 billion children

NEWS PROVIDED BY

World Health Organization

By WHO Media Team

Study: Countries pledge to act on childhood violence affecting some 1 billion children

Current as of November 7, 2024

More than 100 governments today made historic commitments to end childhood violence, including nine pledging to ban corporal punishment – an issue that affects ~~3 out of every 5 children regularly in their~~ homes. These commitments were made at a landmark event in Bogotá, Colombia, where government delegations are set to agree on a new global declaration aimed at protecting children from all kinds of violence, exploitation and abuse.

Also at the event, which is hosted by the Governments of Colombia and Sweden together with the World Health Organization (WHO), UNICEF and the United Nations Special Representative of the Secretary-General on Violence against Children, several countries committed to improve services for childhood violence survivors or tackle bullying, while others said they would invest in critical parenting support – one of the most effective interventions for reducing violence risks in the home.

"Despite being highly preventable, violence remains a horrific day to day reality for millions of children around the world – leaving scars that span generations," said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. "Today countries made critical pledges that, once enacted, could finally turn the tide on childhood violence. From establishing lifechanging support for families to making schools safer places or tackling online abuse, these actions will be fundamental to protecting children from lasting harm and ill health."

Over half of all children globally – some 1 billion – are estimated to suffer some form of violence, such as child maltreatment (including corporal punishment, the most prevalent form of childhood violence), bullying, physical or emotional abuse, as well as sexual violence. Violence against children is often hidden, mostly occurs behind closed doors, and is vastly underreported. WHO estimates that fewer than half of affected children tell anyone they experienced violence and under 10% receive any help.

Such violence not only constitutes a grave violation of children's rights but also increases the risk of immediate and long-term health issues. For some children, violence results in death or serious injury. Every 13 minutes, a child or adolescent dies as a result of homicide – equating to around 40 000 preventable deaths each year. For others, experiencing violence

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has devastating and life-long consequences. These include anxiety and depression, risky behaviours like unsafe sex, smoking and substance abuse, and reduced academic achievement.

Evidence shows that violence against children is preventable, with the health sector having a critical role to play. Proven solutions include parenting support to help caregivers avoid violent discipline and build positive relationships with their children; school-based interventions to strengthen life and social skills for children and adolescents, and prevent bullying; child-friendly social and health services for children that experience violence; laws that prohibit violence against children and reduce underlying risk factors such as access to alcohol and guns, and efforts to ensure safer internet use for children. Research has shown that when countries effectively implement such strategies, they can reduce violence against children by as much as 20-50%.

In line with the UN Convention on the Rights of the Child, the first global targets for ending violence against children were established in the United Nations' Sustainable Development Goals. Progress in reducing overall prevalence of childhood violence has however been slow, despite gains in some individual countries. Around 9 in 10 children still live in countries where prevalent forms of childhood violence such as corporal punishment, or even sexual abuse and exploitation, are not yet prohibited by law.

Over 1000 people are attending this first-ever Ministerial Conference on Violence against Children, including high-level government delegations, children, young people, survivor and civil society allies.

Specific pledges at the event include among others, commitments to end physical punishment, to introduce new digital safety initiatives, increase the legally permitted age of marriage and to invest in parenting education and child protection. WHO provides significant support for efforts to end childhood violence, through technical guidance, guiding effective strategies for prevention and response, and conducting new research and data, including its global status reports.

Key statistics

- Over half of all children aged 2-17 – more than 1 billion – experience some form of violence each year.
- Around 3 in 5 children are regularly punished by physical means in their homes.
- 1 in 5 girls and 1 in 7 boys experience sexual violence.
- Between 25% and 50% children are estimated to have experienced bullying.
- For adolescent males, violence – often involving firearms or other weapons - is now the leading cause of death.

Notable pledges

- Eight countries pledged to pursue legislation against corporal punishment in all settings – Burundi, Czechia, Gambia, Kyrgyzstan, Panama, Sri Lanka, Uganda and Tajikistan – and Nigeria in schools.
- Dozens of countries committed to invest in parenting support.
- The Government of the United Kingdom along with other partners committed to launch a Global Taskforce on ending violence in and through schools.
- Tanzania committed to introduce Child Protection Desks in all 25 000 schools.
- Spain committed to pursue a new digital law to promote digital safety.
- Solomon Islands pledged to raise the age of marriage from 15 to 18 – noting that early marriage is a significant risk factor for violence against adolescent girls.
- Many countries made commitments to strengthen national policies and/or develop specific plans to tackle violence against children.

Measles cases surge worldwide, infecting 10.3 million people in 2023

NEWS PROVIDED BY

World Health Organization

By WHO Media Team

Study: Measles cases surge worldwide, infecting 10.3 million people in 2023

Current as of November 14, 2024

Worldwide, there were an estimated 10.3 million cases of measles in 2023, a 20% increase from 2022, according to new estimates from the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC). Inadequate immunization coverage globally is driving the surge in cases.

Measles is preventable with two doses of measles vaccine; yet more than 22 million children missed their first dose of measles vaccine in 2023. Globally, an estimated 83% of children received their first dose of measles vaccine last year, while only 74% received the recommended second dose.

Coverage of 95% or greater of two doses of measles vaccine is needed in each country and community to prevent outbreaks and protect populations from one of the world's most contagious human viruses.

"Measles vaccine has saved more lives than any other vaccine in the past 50 years," said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. "To save even more lives and stop this deadly virus from harming the most vulnerable, we must invest in immunization for every person, no matter where they live."

"The number of measles infections are rising around the globe, endangering lives and health," CDC Director Mandy Cohen said. "The measles vaccine is our best protection against the virus, and we must continue to invest in efforts to increase access."

As a result of global gaps in vaccination coverage, 57 countries experienced large or disruptive measles outbreaks in 2023, affecting all regions except the Americas, and representing a nearly 60% increase from 36 countries in the previous year. The WHO African, Eastern Mediterranean, European, South-East Asia and Western Pacific regions experienced a substantial upsurge in cases. Nearly half of all large or disruptive outbreaks occurred in the African region.

An unacceptable death toll due to rising measles cases

The new data show that an estimated 107 500 people, mostly children younger than 5 years of age, died due to measles in 2023. Although this is an 8% decrease from the previous year, far too many children are still dying from this preventable disease. This slight reduction in deaths was mainly because the surge in cases occurred in countries and regions where children with measles are less likely to die, due to better nutritional status and access to health services.

Even when people survive measles, serious health effects can occur, some of which are lifelong. Infants and young children are at greatest risk of serious complications from the disease, which include blindness, pneumonia, and encephalitis (an infection causing brain swelling and potentially brain damage).

As measles cases surge and outbreaks increase, the world's elimination goal, as laid out in Immunization Agenda 2030, is under threat. Worldwide, 82 countries had achieved or maintained measles elimination at the end of 2023. Just this week, Brazil was reverified as having eliminated measles, making the WHO Americas Region once again free of endemic measles. With the exception of the African Region, at least 1 country in all WHO regions has eliminated the disease.

Urgent and targeted efforts by countries and partners, particularly in the African and Eastern Mediterranean regions, and in fragile, conflict-affected and vulnerable settings, are needed to vaccinate all children fully with two doses of measles vaccine. This requires achieving and maintaining high-performing routine immunization programmes and delivering high-quality, high-coverage campaigns when those programmes are not yet sufficient to protect every child.

Countries and global immunization partners must also strengthen disease surveillance, including the Global Measles Rubella Laboratory Network (GMRLN). Strong disease surveillance is critical to optimizing immunization programmes and detecting and responding rapidly to measles outbreaks in order to mitigate their size and impact.

Adopting pediatric readiness standards in emergency departments could save more than 2,000 lives each year

NEWS PROVIDED BY

National Institute of Health

By Robert Bock and Linda Huynh

Study: Adopting pediatric readiness standards in emergency departments could save more than 2,000 lives each year

Current as of November 1, 2024

Widespread adoption of standards(link is external) designed to improve care for children in U.S. hospital emergency departments could save an estimated 2,143 lives each year, suggests a study funded by the National Institutes of Health (NIH). The standards are published by The National Pediatric Readiness Project, an initiative to empower all emergency departments to provide effective emergency care to children, and encompass training for staff, coordination of health care, and the procedures and medical equipment needed to care for ill and injured children.

According to the study, adopting the standards would range from no cost to $11.84 per child, depending on the state.

The researchers analyzed data on the readiness standards of 4,840 hospital emergency departments in all 50 U.S. states and the District of Columbia. Their analysis included data on children ranging from birth to 17 years old who needed emergency services, hospitalization, transfer to another hospital or who had died in the emergency department.

A total of 842 emergency departments (17%) had high pediatric readiness. Based on the cost of emergency department services(link is external), the researchers estimated that the annual cost for all U.S. emergency departments to reach high readiness was more than $207 million. The authors concluded that implementing the standards in all U.S. emergency departments may have prevented an estimated 2,143 (28.1%) of the 7,619 U.S. pediatric deaths that occur in emergency departments or following admission from emergency departments each year.

NT



Keeping Your Baby Safe
from respiratory infections

RSV
COVID-19
colds
flu

How to protect your little ones from germs and viruses

Cold and flu season can be dangerous - especially for vulnerable infants and children. Fortunately, there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

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



Limit Contact with Others



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

Provide Protective Immunity

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



Take Care of Yourself

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



Get Immunized

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



WARNING

Never Put a Mask on Your Baby

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



If you feel sick or are positive for COVID-19

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



We can help protect each other.
www.nationalperinatal.org/rsv

National Perinatal Association

Peer Reviewed

Disaster Series: The High-Reliability Organization (HRO): the Liminal Space as a Learning Environment Creates an Approach to Motivation

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

"High-reliability organizing (HRO) is an elegant, naturally occurring, and effective response to environmental forcing functions and abrupt environmental change. What is too easily overlooked in the early HRO studies was the blending of initiative, improvisation, and flexibility from aerial combat; professionalism, rigor, detail, and conformity to procedures from nuclear propulsion engineering; and management of complex organizations in demanding circumstances from command experience of aircraft squadrons and large ships."

Abstract:

High-reliability organizing (HRO) is an elegant, naturally occurring, and effective response to environmental forcing functions and abrupt environmental change. What is too easily overlooked in the early HRO studies was the blending of initiative, improvisation, and flexibility from aerial combat; professionalism, rigor, detail, and conformity to procedures from nuclear propulsion engineering; and management of complex organizations in demanding circumstances from command experience of aircraft squadrons and large ships. Contributing to the mistranslation of HRO is the lack of recognition of the liminal zone from which HRO formed, the central importance of contextuality and subjectivity, and the motivation of individuals as the drivers of HRO. The HRO uses the event to expand understanding, creating a learning environment that drives operators and the organization to act toward understanding.

Introduction:

HRO emerged within organizations that operate in environments with extreme hazards (1). However, since the first academic studies that codified HRO (2-4), the structural features of HRO have become lost or mistranslated (5). Three central reasons for this, introduced in the first *Neonatology Today* HRO article, are 1) the incomplete translation of HRO theory into practice, 2) the characterization of HRO practice: the embedded problem, and 3) the internalization of HRO practice.

"This paper uses the Neonatology Today HRO series to extend the three central reasons: 1) the liminal zone from which HRO emerged hinders the use of discrete concepts we generally find necessary for communication and to structure standard business practices, 2) HRO is a practice of contextuality and subjectivity, 3) HRO is driven by the motivation of individuals, an internalized drive that cannot be imposed."

This paper uses the *Neonatology Today* HRO series to extend the three central reasons: 1) *the liminal zone* from which HRO emerged hinders the use of discrete concepts we generally find necessary for communication and to structure standard business practices, 2) HRO is a practice of *contextuality and subjectivity*, 3) HRO is driven by the *motivation of individuals*, an internalized drive that cannot be imposed.

HRO characteristics exist to varying degrees in many organizations and domains. The initial codification of HRO came after academicians from the University of California, Berkeley, studied the crew of the US Navy nuclear-powered aircraft carrier, CVN 70, Carl Vinson (6). The flight deck of an aircraft carrier is an example of a liminal zone.

The USS Carl Vinson:

During the roughly 30-year period from WWII through the Vietnam War, the US Navy's Pacific Fleet conducted most of the Navy's combat operations, making death a part of operations and creating 'rules written in blood.' When the US Navy's involvement in the Vietnam War ended, the US Navy established additional risk management and safety programs for greater attention to operational readiness. As nuclear aircraft carriers began joining the fleet, the development of what is now called HRO was also included.

Captains of a US Navy aircraft carrier are nuclear trained and, by act of the US Congress, must be aviators. Thus, the first *nuclear* aircraft carriers brought together three independent, otherwise disparate domains within a single individual: 1) aerial warfare experience with initiative, improvisation, and flexibility; 2) nuclear propulsion engineering experience with rigor, detail,

and conformity to procedures; and 3) previous aircraft squadron and large ship command of complex organizations in demanding circumstances. This remains the standard except for more limited aerial combat experience (7).

The nuclear propulsion engineers' training and professionalism helped form the basis for increased safety awareness and reliability of operations throughout the carrier and embarked air wing. HRO emerged on the nuclear aircraft carrier by merging the emergency-type responses of aerial combat with the control-operator functions for a nuclear reactor (7).

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Safety:

The exigencies of combat made it imperative for everyone to identify effective actions and retain what they learned. Safety is vital even during wartime, and accidents are investigated. Safety in combat has an additional function: avoidable operational loss causes shortages of men and planes you cannot afford and increases vulnerability to enemy activity. The pragmatic leader gives meaning to the adage "Safety through operations and operations through safety" (7).

The Berkeley HRO Study Group:

The intense activity on the flight deck and Air Operations during high-tempo operations captured the attention of the Berkeley academicians. Navigation Bridge and Combat Information Center coordination in defending the ship and avoiding collisions and groundings were studied to a lesser extent. The academicians, therefore, had a somewhat restricted view of the hands-on leadership necessary for effective HRO operations. Missed was the captain's presence throughout the ship, which made the complex organization function as a single team. The result was a single level of analysis, proximal mechanistic causation, rather than identifying the ultimate adaptive function of HRO leadership (7).

"Navigation Bridge and Combat Information Center coordination in defending the ship and avoiding collisions and groundings were studied to a lesser extent."

High-Reliability Operations:

The leadership methods that change an organization are lost in the various programs for HRO implementation and the integration of various elements that led to HRO on the Vinson. HRO blends initiative, improvisation, and flexibility from aerial combat; professionalism, rigor, detail, and conformity to procedures from nuclear propulsion engineering; and management of complex organizations in demanding circumstances from command experience of aircraft squadrons and large ships.

"HRO blends initiative, improvisation, and flexibility from aerial combat; professionalism, rigor, detail, and conformity to procedures from nuclear propulsion engineering; and management of complex organizations in demanding circumstances from command experience of aircraft squadrons and large ships."

We cannot become lost, which is how the complexity of HRO emerges when simple elements combine to match the complexity and flux of environmental events. HRO is more than safety; it prevents errors, standard rules, central decision-making, conformity, or obedience to authority. HRO is an elegant, naturally occurring, and effective response to environmental forcing functions and abrupt environmental change.

Liminality:

Liminality develops in the flux of self-organization when uncontrolled energy enters a system. Energy enters the system as sustained change that forces the system to respond or as abrupt catastrophic change. Novel properties emerge that confound linear procedures, deductive reasoning, and classical logic. Our world has changed and is now *discontinuous* with the world we knew. We call these relations a discontinuity because they cannot be made continuous through more data or calculations. More perfidious is using our cognitive abilities to translate operations across the discontinuity (8).

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A liminal zone of hazards and intense activity is created as novel properties emerge from local, nonlinear interactions. Each liminal zone is an event that has 'relative uniqueness.' The event is unique to those who have never encountered *that* specific circumstance with *that* set of novel properties (9). It does not take much to make an event relatively unique. Human behaviors autocorrelate within an individual who has engaged in understanding the situation. Then, small groupings of individuals autocorrelate amongst themselves. The behaviors of humans will redden the noise of any event to make any incident involving people relatively unique. Liminality is assured when people become involved.

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We have liminality from self-organization that is influenced by self-organizing human behaviors. In the HRO, self-organizing human behavior is an organic, convergent team with a shared objective. Each member works independently and interdependently by contributing to the success of others. Within the event, leadership becomes ephemeral during close interactions.

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These liminal environments can easily distract spectators from observing how effective HRO practices for liminality readily incorporate into effective routine operations. "You do in an emergency what you do in everyday life," James P. Denney, EMS Captain, LAFD, a veteran of two Vietnam combat tours and EMS management of multiple disasters and multiple casualty incidents. The lack of visibility of HRO traits in routine operations contributes to the discontinuity between high-reliability and business management operations.

Threat

Energy fluxes cause *motion*, impair *controllability,* and create *imminent danger* or *existential threat*. Systems begin to self-organize through local, nonlinear interactions. Self-organization brings order to this chaos. Another development from self-organization is the generation of *novel* properties (not principles). Amidst the flux, what was certain becomes *uncertain* and confounds the efforts of operators to comply with rigid rules while following well-thought-out plans. *Time* becomes a requisite dimension of the environment.

> "Maybe what is distinctive about HROs is that they are threatened by much smaller deviations than is the case with non-HRO organizations. HROs are more aware of the power of amplification of small events. So, they see bigger threats in smaller disruptions (e.g., near miss, reversing two steps in a protocol, poor positioning at bedside when diagnosing)." Karl Weick, personal communication, March 5, 2019.

"A significant difficulty in preparing people to work in liminal zones with threats is the belief in the overpowering inevitability of stress and fear. Stress research and the consequences of stress focus on uncontrollability."

A significant difficulty in preparing people to work in liminal zones with threats is the belief in the overpowering inevitability of stress and fear. Stress research and the consequences of stress focus on uncontrollability. These approaches, almost foundational for risk management and management science, disregard the adaptive function of stress responses and effective neurohormonal responses in the brain (10, 11). When we withdraw from threats or adversity or seek out external authority such as executives, administrators, or experts, we also withdraw from experience. We then lose the learning and development necessary for extending neonatal care to improve lives or for healthcare to improve society (12).

"It is the inherent vice of stress and fear that facilitates engagement or creates chaos from failure to engage. Stress takes the executive functions "offline," allowing us to focus on the problem. Succumbing to stress decreases cognitive function. Fear brings rapid change and movement to our attention; what was relevant becomes relevant."

It is the inherent vice of stress and fear that facilitates engagement or creates chaos from failure to engage. Stress takes the executive functions "offline," allowing us to focus on the problem. Succumbing to stress decreases cognitive function. Fear brings rapid change and movement to our attention; what was relevant becomes relevant. Fear keeps us at a safe distance from the

threat. Unrestrained fear contributes to anger and actions to increase distance from the threat, whether physically, mentally, or emotionally. The adaptive product of stress is allostasis – strength through change.

"One paradox of fear is managing fear by not showing fear. This paradox is not the same as not showing fear through denial of the threat or false bravado."

One paradox of fear is managing fear by not showing fear. This paradox is not the same as not showing fear through denial of the threat or false bravado. This comes from acceptance of fear by all participants and realizing that showing fear impairs performance (personal experience and observation of the authors; (13-15)). A significant norm in mining is not to become victim to your own emotions, "don't get excited," "play it cool" (14). As a journeyman high-rise ironworker described, "One must accept danger and fear without allowing it to control or adversely affect your behavior" (15).

"WWII American bomber crews arriving in the theater of operations were insecure and defensive. In action, they were overly self-assured, though some were remarkably diffident. After the men had experienced fear, they found the importance of care, skill, and coolness. He developed a sense of his responsibility to his fellow crewmembers."

WWII American bomber crews arriving in the theater of operations were insecure and defensive. In action, they were overly self-assured, though some were remarkably diffident. After the men had experienced fear, they found the importance of care, skill, and coolness. He developed a sense of his responsibility to his fellow crewmembers. "At this stage…the men were effective, careful, fighting men, quiet and cool on the ground and in the air. They attained a sort of tranquility despite their anxiety. *They had little need for defensive mechanisms to deceive themselves or anyone else.* [Author's emphasis.] They talked easily and quietly" (16).

While anger and fear emerge in many forms, what counts is its direction toward destructive or constructive effects. *"Fear must be clearly related to its real cause, and that relationship must be maintained because you can't attack a problem if you don't know what the problem is,"* David G. Wright, Captain, Medical Corps, USAAF (17).

Descriptions:

Accurate descriptions are essential for communication, decisions, and, most importantly, actions. Accuracy changes due to self-organization during the flux of events. Accuracy is a subjective judgment – when is someone too accurate or not accurate enough? In many people's minds, it is better to use precision in their evaluation, a fatal flaw for rules, protocols, and descriptions. The determination for intubation depended on a specific value of oxygen or carbon dioxide levels. The author pointed out that if the blood gas indicated intubation, it should have occurred 20 minutes earlier when the blood was obtained.

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The author drew upon his experience in early EMS when medics acted from visual evaluation and response to their actions. He combined various clinical evaluations for hypoxemia and hypercarbia and scoring systems for upper airway obstruction (croup scores) and lower airway obstruction (asthma scores). This resulted in a five-point respiratory exam that visually identified impending respiratory failure, upper airway obstruction, subglottic versus subglottic obstruction, and lower airway obstruction and could identify improvement or deterioration (18).

Three infant deaths occurred in six months during helicopter transport to the PICU from referral emergency departments. The author identified pressure from the ED staff to take the infant while the transport team waited for a chest X-ray and blood gas results. The transport team began using the respiratory exam rather than obtaining a chest X-ray and lab studies. They spent less time in the ED, and at the same time, they were more likely to intubate their patient before transport.

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It was not a complete solution as later intensive care physicians did not accept the respiratory exam, preferring the precision of blood gas analysis. As a result, respiratory care practitioners (RCP) continued its use but not for communication with the intensivist (19). Later, intensivists started using the exam after learning it from the RCPs (Merrick Lopez, personal communication).

This is a problem in healthcare, where the ready availability of precise measurements gives them the privilege of descriptions. Sometimes precision cannot help due to rapid changes or the because of the novelty of the situation. In such situations, people with limited experience use cliché, analogy, and metaphor (20).

"Analogies and metaphors are adequate for understanding novelty, uncertainty, and ambiguity. However, heavy reliance on analogies and metaphors signals that the individual has little acquaintance with the situation or even operations in the liminal zone."

Analogies and metaphors are adequate for understanding novelty, uncertainty, and ambiguity. However, heavy reliance on analogies and metaphors signals that the individual has little acquaintance with the situation or even operations in the liminal zone. This is particularly true when the individual uses analogies with weak correspondence to the domain, or the correspondence becomes excessively detailed (20). Without analogical strength, metaphors and analogies become thought-terminating cliches (21).

"In a subacute care facility where one of the authors (DvS) manages mechanical ventilators, the RCPs initially hand ventilate patients with 100% oxygen. Once stable, they wean the oxygen to the minimum titratable oxygen. In this manner, they immediately differentiate V/Q mismatch from hypoventilation."

One effective communication method in liminality's uncertainty, ambiguity, and flux is to describe the action and response. Such an approach also communicates information the person generates and the individual's thinking. For example, an individual will report that the patient "needs" oxygen after administering oxygen to a patient. We conveyed more information by reporting the effect of supplemental oxygen: "I gave 4 lpm of oxygen, and oxygen saturation increased from 86% to 93%." In a subacute care facility where one of the authors (DvS) manages mechanical ventilators, the RCPs initially hand ventilate patients with 100% oxygen. Once stable, they wean the oxygen to the *minimum titratable oxygen*. In this manner, they immediately differentiate V/Q mismatch from hypoventilation.

The Embedded Problem:

Situational hazards and abrupt changes keep spectators at a distance from operations. As a result, operations become decontextualized, making imperceptible local, subjective judgments. There is a gap between observations in combat and laboratory studies (22), theory and practice (23), discrete concepts and continuous perceptions (24), and abstractions and concreteness (Karl Weick, personal communication). For the HRO, the source of this gap is more than context; it is also time and threat.

A Euclidean reference system consists of points linked by lines – the basis of hierarchies, typologies, and conceptual models. There exists an absolute point from which everything is measured and an absolute time that serves as a reference. All units can move, but an Euclidean system cannot accommodate movements in different directions or velocities because of absolute time constraints. There is no preferred or absolute time or frame of reference in relativity. All motion creates new contexts without anyone being privileged.

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In all inertial frames. (reference system), *all* laws of physics are the same. For the operators of HRO, special relativity demonstrated that time is a dimension, and no preferred or absolute reference frame or elapsed time exists. The laws of physics applied to all reference frames. Inertia is a property of energy, not a fundamental property of matter, nor an irreducible magnitude, but a property of energy.

The effect of threat as a function, or considered an environment, is maybe too casually dismissed by spectators. Three academic sociologists criticized the findings of a study of soldiers in combat conditions (22, 25). The research findings did not comport with knowledge developed from a scientific methodology away from combat (26).

> "Their findings are intriguing because they appear to contradict long-standing research in organizational theory

and sociology on the relationship between cohesion and performance, as well as more recent studies of unit cohesion and military effectiveness."

Thomas A. Kolditz responded:

"Empirical work relevant to combat should ideally be conducted in situ, under circumstances where death must be actively avoided. Leadership researchers have referred to such situations with a unique term: *in extremis*, or 'at the point of death.' Soldiers, law enforcement personnel, mountain-climbing guides, firemen, and extreme-sport coaches live and work in extremis settings—circumstances where outcomes mean more than mere success or failure at task performance but instead involve life or death."

"Objectivity is independent of contextuality and individual perspectives to provide standardization and easy reproducibility. Faithful to facts, objectivity more correctly describes the world. Value-free objectivity is strengthened by rationality and reason (27). The absence of personal bias facilitates communication and translation of information to other areas."

Contextuality and Subjectivity:

Objectivity is independent of contextuality and individual perspectives to provide standardization and easy reproducibility. Faithful to facts, objectivity more correctly describes the world. Value-free objectivity is strengthened by rationality and reason (27). The absence of personal bias facilitates communication and translation of information to other areas. Finally, objectivity supports metrics and measurability—objectivity makes experiences quantifiable.

We too quickly mistake subjectivity as a loosening of standards to accommodate individual taste, pleasure, and even a person's emotions. As a *preference* in judgment, subjectivity does contain elements of emotion and feeling, sensations that enhance, rightly or wrongly, a person's sense of intuition. However, subjectivity also includes a person's attitudes and values, forming the foundation for decision-making under uncertainty. Subjectivity's strength lies in adapting attitudes and values to a fluctuating environment (19, 28).

The privileging of objectivity over subjectivity leads to a rigid, normative stance for HRO, washing out its strength (5). The inability or failure to appreciate the HRO operating environment makes invisible the details and methods that give HRO its function (12, 29). The result is a divide between the subjectivity-based mechanism of HRO and the objectivity-based teaching and design of HRO. Liminality has blurred the two methodologies, preventing HRO characterization as a duality of subjectivity and objectivity.

Internalization of HRO:

Emphasis on abstract, objective conceptualizations leads to disregarding the vital use of contextuality and subjectivity. Missed is the interaction between the internalization of HRO practice and the participants' motivation. Internalized belief creates passion, and imposed belief creates resistance.

"A learning agenda focuses on development. A learning orientation arouses a positive belief in one's capability and the hope of improvement." The use of a learning style fosters approach motivation (30). A learning style in operations fosters *approach motivation*. Using reciprocal feedback as a form of decision-making keeps the operator close to events, generates information, identifies relevance, and gives meaning. The experience of reciprocal feedback forms the sense of agency that staff need to engage in uncertainty. As a means of generating information, the agency, through reciprocal feedback, supports action as learning. The HRO becomes a self-organizing system of engagement and continuous learning.

"A learning agenda is difficult to measure, particularly for moving from competency to proficiency. Organizations may use competency training for a high turnover workforce (31) and the metrics available. This is similar to teaching from the cognitive domain – how knowledge fits together – rather than the affective domain – how knowledge helps (30)."

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When the organization focuses on performance rather than learning, success becomes the predominant motivating force. It gives measure to our capabilities. One easy metric is monitoring workplace errors, generally human error by subordinates. There is less research on errors by superiors. Emphasis on performance over learning evokes anxiety and doubt about capabilities.

Performance goals arouse the wrong parts of our brain for development. Performance styles foster *avoidance motivation* (30). Error fosters avoidance motivation, which contributes to error. It does not take much to develop than an ecology of fear where the threat, for example, error, causes more damage by its absence than its presence (31).

"Patricia Benner (32) described moral agency as a result of the individual acting independently and then observing that the actions made someone's life better. Benner placed the development of moral agency at the crossing of the gap between simple competence and the richness of expertise."

Patricia Benner (32) described *moral agency* as a result of the individual acting independently and then observing that the actions made someone's life better. Benner placed the development of moral agency at the crossing of the gap between simple competence and the richness of expertise. Moral agency gives meaning to one's actions, either internalized by the individual or interpreted for the individual by a leader. *This means that giving* can reduce the effects of stress that may develop into post-traumatic stress (33).

The individual gains an enhanced ability to read the situation as the limits of planning and prediction become apparent. The individual begins to make a difference – improvement is from the individual's judgment and actions rather than algorithms. With that knowledge comes responsibility for the care provided (34).

Only the executive can say "no." One of the authors (TAM) kept this as a rule of command for a US Navy ship – only the captain can say "no." The subordinate would learn how to solve a problem or provide assistance through direct action or with support from a superior. This increased the person's capabilities and contributed to a sense of agency. Benner described how providing such assistance engenders *moral agency* and *identity* within the profession (32). Before saying "no" to the captain, midlevel managers would consult each other, resulting in a body of *distributed knowledge*. In *epistemic logic*, distributed knowledge is a modal operator for pooled knowledge in a specific frame of reference (5, 35). The most difficult decisions would more quickly reach and alert the captain. Whatever decisions were made at the appropriate level, positive or negative, were passed up the chain of command to inform the executive.

"The most difficult decisions would more quickly reach and alert the captain. Whatever decisions were made at the appropriate level, positive or negative, were passed up the chain of command to inform the executive."

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Capability

During a training exercise, a US Army Special Forces (Green Berets) operator asked one of the authors (DvS) about risk management. Curious, the author asked the reason for his interest. He was studying for an MBA course. The author roughly explained risk as the cost of a venture compared to what can be lost. More properly from the International Organization for Standardization (ISO), ISO 31000:2009. (36):

- Risk is the "effect of uncertainty on objectives."
- Risk-benefit assessment is "decision-aiding techniques that weigh advantages against disadvantages in numerical terms."
- Risk management is the "coordinated activities to direct and control an organization concerning risk."

Unlike a business, a Special Forces team cannot turn down a mission due to risk. They first evaluate their capabilities for the mission, then the team's and the unit's capabilities to support the mission. The purpose is to identify and obtain the necessary capabilities. HRO describes a method of organizing uncertainty.

The authors come from organizations that could not turn down assignments. Risk is a term they use to describe what they faced, not an evaluation of whether to accept the assignment. HRO is a means to have the necessary capabilities for the organization's uncertainties.

"Karl Weick and Kathleen Sutcliffe describe capability in the organization's commitment to resilience: HROs develop the capability to detect, contain, and recover from errors [ref]. Weick [ref legitimation of doubt] described capability as crucial for purposes of sensemaking."

Karl Weick and Kathleen Sutcliffe describe capability in the organization's *commitment to resilience*: HROs develop the capability to detect, contain, and recover from errors [ref]. Weick [ref legitimation of doubt] described capability as crucial for purposes of sensemaking. People must "have the capability to *act their way into an understanding* of where they are, who they are, and what they are doing" [author's emphasis]. Their capabilities to act will produce differentiated sensing, a necessity when knowledge is perception-based rather than conceptual (37).

Acting "their way into an understanding" is, perhaps, one of the best descriptions of how engagement becomes enactment. Reciprocal decision-making, that is, responding to the reactions created by one's actions, generates information in uncertainty, gives value to ambiguous information, and develops structure. The HRO acts its way into uncertainty and ambiguity, solving emerging problems continuously. Engagement enactment in this manner would appear to create errors.

"If you face ambiguity, what does it mean to make an error?" (Karl Weick, personal communication September 24, 2011). Error, however, is expected and is used as a tool by the HRO (38). "Errors will happen, but HROs are not paralyzed by them" (Karl Weick, personal communication). For the HRO, rapid identification of errors and their correction is fundamental to high-reliability *operations* and forms the actions of engagement. Enactment, then, prevents the paralysis that could arise from engagement.

"For the HRO, rapid identification of errors and their correction is fundamental to high-reliability operations and forms the actions of engagement. Enactment, then, prevents the paralysis that could arise from engagement."

Such extreme situational intimacy is knowledge acquaintances acquire, as Bertrand Russel described (39). Knowledge is one of the three domains in Richard E Boyatzis' capability characterization. Competencies and motivational drivers are the other two domains. The three domains describe "what a person can do (i.e., knowledge), how a person can do it (i.e., competencies), and why a person feels the need to do it (i.e., values, motives, and unconscious dispositions)."

Weick's writings explore the varied elements of sensemaking processes and show how sensemaking shapes actors' environments in addition to reflecting them. People "enact" their environments insofar as taken actions alter the actors' contexts and implicitly convert the actors' perceptions and beliefs into realities. Enactment implies that organizations constantly reorganize and that ambiguity and uncertainty create options.

"Threats, whether from a supervisor, fear of being wrong, or errors, cause more significant damage by their absence than their presence. Individuals seek to avoid problems instead of engaging in problems. As an HRO characteristic, attraction motivation drives individuals to learn. These individuals and the organization begin to act into understanding."

Conclusion:

Rather than fit the situation into understanding, individuals and the HRO use the situation to *expand understanding*. This learning environment creates an attraction motivation within operators rather than an *avoidance motivation*. Attraction motivation initiates engagement. Avoidance motivation, derived from performance pressure to "do the right thing" and avoid error, creates the *ecology of fear*. Threats, whether from a supervisor, fear of being wrong, or errors, cause more significant damage by their absence than their presence. Individuals seek to avoid problems instead of engaging in problems. As an HRO characteristic, attraction motivation drives individuals to learn. These individuals and the organization begin to act into understanding.

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How to protect your little ones from germs and viruses

Cold and flu season can be dangerous - especially for vulnerable infants and children. Fortunately, there are proven protective measures that we can take to stay healthy.

Here's what you can do...

Wash Your Hands

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



Limit Contact with Others



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

Provide Protective Immunity

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



Take Care of Yourself

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



Get Immunized

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



WARNING

Never Put a Mask on Your Baby

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



If you feel sick or are positive for COVID-19

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



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How to Care for a Baby with Signs of Withdrawal

Use the Right Words

I was exposed to substances in utero. I am not an addict. And my parent may or may not have a Substance Use Disorder (SUD).

Treat Us as a Dyad

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

Support Rooming-In

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

Promote Kangaroo Care

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

Try Non-Pharmacological Care

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

Provide Lactation Support

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

Treat My Symptoms

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

Academy of Perinatal Harm Reduction
www.perinatalharmreduction.org

National Perinatal Association
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Review Committee for Pediatrics (RC-Peds) Nominee Qualifications

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

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

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



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Medicolegal: Making "Baby Friendly" Baby Safe

Jay P. Goldsmith, MD, Jonathan K. Muraskas, MD

Case:

A 3410 gram AGA term male was born by spontaneous vaginal delivery at 1546 hours to a 30-year-old G_7P_1 mother in a Level 1 hospital. The mother had a significant history of a balanced translocation of chromosome 15 and multiple pregnancy losses. Premature rupture of membranes had occurred 3 days prior to delivery, and labor was augmented with Pitocin. There was no evidence of clinical chorioamnionitis. The baby was assigned Apgar scores of 6 and 9 at 1 and 5 minutes of age and did not need positive pressure ventilation in the delivery room. He was placed skin-to-skin with the mother and allowed to breastfeed in the LDRP in the first hour of life.

The maternal-baby dyad was assessed twice in the medical record during the "bonding period," the last time at 1647 hours (born at 1546 hours). At 1655 hours, the nurse found the baby to be gray, apneic, and bradycardic in the mother's arms. The baby was rushed to the nursery, and resuscitation was started. The local pediatrician arrived at 1700 hours and successfully intubated the baby on the second attempt. The providers could not place a peripheral IV, and the first heart rate and gasp were recorded at 1729 hours. The neonatologist arrived at 1737 hours.

"The maternal-baby dyad was assessed twice in the medical record during the "bonding period," the last time at 1647 hours (born at 1546 hours). At 1655 hours, the nurse found the baby to be gray, apneic, and bradycardic in the mother's arms. The baby was rushed to the nursery, and resuscitation was started."

The baby was successfully resuscitated and transported to a Level 3 hospital for therapeutic hypothermia. At 3 years of age, the child has significant developmental delays and spastic quadriplegic cerebral palsy. A malpractice suit was filed against the hospital and the local pediatrician, claiming inadequate monitoring of the baby during the "bonding period" and resuscitation that was below the standard of care.

Skin to skin care and early breastfeeding: definitions, benefits:

"Skin-to-skin (STS) care is defined as placing a naked infant in direct contact with the mother with the baby's ventral skin touching the caregiver's ventral skin, usually at the breast. STS is recommended immediately following birth for 1–2 hours and later in the newborn period."

Skin-to-skin (STS) care is defined as placing a naked infant in direct contact with the mother with the baby's ventral skin touching the caregiver's ventral skin, usually at the breast. STS is recommended immediately following birth for 1–2 hours and later in the newborn period. (1) Concomitant with STS care, it is recommended to delay painful or invasive procedures such as Vitamin K administration, eye prophylaxis, and any painful procedures for the first 1–2 hours of bonding. This approach has been advocated for all "well" term newborns, including those born by cesarean section. Late preterm infants may also "benefit" from early bonding and STS care but are at increased risk of early morbidities.

"Reported benefits of STS immediately after birth include stabilizing the newborn temperature and preventing hypothermia and earlier (<5 minutes) stabilization of the newborn's heart rate. Other studies have shown improved neonatal blood glucose, decreased neonatal crying, and faster cardio-respiratory stability."

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Reported benefits of STS immediately after birth include stabilizing the newborn temperature and preventing hypothermia and earlier (<5 minutes) stabilization of the newborn's heart rate. Other studies have shown improved neonatal blood glucose, decreased neonatal crying, and faster cardio-respiratory stability. Longer periods of STS (>60 minutes) have shown lower salivary cortisol levels (i.e., less stress) in babies. Studies in preterm infants with STS vs. controls show improved neurobehavioral maturation and gastrointestinal adaptation, better sleep patterns, and improved growth. The ultimate goal of improving breastfeeding with reduced formula use has also been demonstrated in multiple studies of early use of STS. (1, 2)

"Studies in preterm infants with STS vs. controls show improved neurobehavioral maturation and gastrointestinal adaptation, better sleep patterns, and improved growth."

Reported parental benefits of immediate STS after birth are decreases in maternal stress and improved paternal perception of stress in the relationship with the baby, decreased postpartum hemorrhage, improved postpartum depression scores, and lower maternal salivary cortisol levels over the first postpartum month. Post-delivery STS also enhances the opportunity for early first breastfeeding, leading to more readiness to breastfeed, organized suckling patterns, and more success in exclusive and overall breastfeeding. Studies have shown that early STS supports more cue-based feeding, decreases neonatal hyperbilirubinemia, and increases the likelihood of babies breastfeeding at 6 months of age.

"Reported parental benefits of immediate STS after birth are decreases in maternal stress and improved paternal perception of stress in the relationship with the baby, decreased postpartum hemorrhage, improved postpartum depression scores, and lower maternal salivary cortisol levels over the first postpartum month."

The American Academy of Pediatrics (AAP) has promoted early breastfeeding in policy statements from the Section on Breastfeeding, which recommends *exclusive* breastfeeding for the first 6 months of life. The statement cites the protective effect of breastfeeding against asthma, eczema, atopic dermatitis, gastrointestinal infections, lower respiratory tract infections, and otitis media. SIDS was also reduced by >33% in breastfed babies, and there is a reported 15–30% decrease in adolescent and adult obesity in breastfed vs. non-breastfed infants. The AAP encourages pediatricians to promote breastfeeding to mothers and for hospitals to accommodate and stimulate breastfeeding during birth hospitalization. (2)

"The Baby Friendly Hospital Initiative (BFHI) was launched in 1991 by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) to encourage more breastfeeding around the world. It was based on the WHO/UNICEF Ten Steps Program (1991) and the Innocenti Declaration (1990), which called for implementing a 10-step program to encourage breastfeeding and discourage the use of formulas."

The Baby Friendly Hospital Initiative (BFHI):

The Baby Friendly Hospital Initiative (BFHI) was launched in 1991 by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) to encourage more breastfeeding around the world. It was based on the WHO/UNICEF Ten Steps Program (1991) and the Innocenti Declaration (1990), which called for implementing a 10-step program to encourage breastfeeding and discourage the use of formulas. A certifying body was established in the United States (Baby-Friendly USA, Inc.), and in the ensuing years, the first certified Baby Friendly Hospital was designated in 1996. The hospital paid a fee and a 4-step program that the certifying hospital had to complete, including discovery, development, dissemination, and designation before being certified by this organization. In 2009, the AAP endorsed the 10-step program, which called for hospitals to have a written breastfeeding policy and staff training to promote breastfeeding, including STS care and breastfeeding within 1 hour of birth. The AAP also advised revising hospital policies that interfere with early skin-to-skin contact or limit the time the newborn can spend with the mother in the hospital and eliminate human milk substitutes and pacifier use. By 2022, there were about 900,000 births in over 560 Baby-Friendly hospitals, representing over 25% of all US births performed in Baby-Friendly hospitals. (3)

Unintended risks of early STS and breastfeeding:

Bass et al. raised concerns regarding the breastfeeding initiatives in 2016. The authors cited several unintended consequences of these policies, including sudden unexpected perinatal collapse (SUPC), co-sleeping, leaving mother-baby unattended in the first hours of life, and falls. The authors advocated against "overly rigid insistence" on following the 10 STEPS program and voiced potential concerns regarding advice against pacifiers, which may have a protective effect against SIDS. (4) Other concerns include having babies in STS

"Bass et al. raised concerns regarding the breastfeeding initiatives in 2016. The authors cited several unintended consequences of these policies, including sudden unexpected perinatal collapse (SUPC), co-sleeping, leaving mother-baby unattended in the first hours of life, and falls."

who have contraindications to the procedure, including babies who require positive pressure ventilation (PPV) in the delivery room, low Apgar scores (<7 at 5 minutes), arterial cord blood pH <7.0 or BD >-12, babies <37 weeks' gestation and babies at risk for hypoglycemia. In 2018, Gomez-Pumar and Blubaugh did a critical review of the literature on early STS and expressed similar concerns regarding the lack of standardization in care, lapses of observation by staff in the first hours of life, and lack of education of staff to potential dangers. They suggested that the 10 STEP program was "in urgent need of update" and that hospitals should explore other options to improve policies for increased and sustained breastfeeding. (5) Other concerns include the modeling of babies in unsafe sleep environments when mothers fall asleep with babies doing STS, leading to unsafe sleep practices at home. (6)

"Other concerns include having babies in STS who have contraindications to the procedure, including babies who require positive pressure ventilation (PPV) in the delivery room, low Apgar scores (<7 at 5 minutes), arterial cord blood pH <7.0 or BD >-12, babies <37 weeks' gestation and babies at risk for hypoglycemia."

Sudden unexpected perinatal collapse:

Sudden unexpected perinatal collapse is defined as a potentially fatal event in an otherwise healthy-appearing term newborn. The British definition includes the following criteria: >35 weeks gestation, well at birth (normal 5-minute Apgar ≥8), collapses unexpectedly requiring CPR, dies or goes to NICU and develops encephalopathy, and other medical conditions (sepsis, cardiac, etc.) ruled out. (7) Serious SUPC requiring medical CPR is estimated to occur in 2.6 to 133 cases/100,000 live births. The wide range in incidence is due to some studies counting acute life-threatening events (ALTEs) as SUPC. Kernicterus is estimated to occur at 1–2/100,000 live births. Several reports of SUPC have been published in multiple countries. (6–8) These reports have several features in common: most occurred in the first 2 hours of life in a previously deemed healthy newborn who was born to a primiparous mother who was breastfeeding, unattended by staff, and in a prone position doing STS. Most cases had no pathological etiology discovered after extensive testing and/or autopsy.

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Making "Baby Friendly" baby safe:

Paviotti et al. suggested ways to make newborns' first few days of life safer. They suggested that hospitals develop a protocol to promote safe mother-infant bonding, establish successful early breastfeeding, and correct risk factors for SUPC. Their suggested protocol concentrates on maternal education, frequent assessments, discouraging bed-sharing, STS only when the mother is awake, and not leaving the mother alone in the first hours after birth. (9) Mothers post-delivery may be exhausted and under the influence of opioids, $MgSO_4$, and other depressant or sedating medications. Monitoring should be done by hospital personnel and not by an untrained observer such as the father, who may also be fatigued. It is suggested that a trained observer stay with the mother during the first 1–2 hours of life during STS, limit bonding in compromised infants, and increase maternal education regarding bed-sharing. There should be risk stratification for STS, including

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disqualification for STS in infants who have received PPV, had low 5-minute Apgar scores, are preterm (i.e., <37 weeks gestation), had a difficult operative vaginal delivery, or when the mother is excessively sleepy or under the influence of sedating drugs. In addition, there should be appropriate lighting, an unobstructed view of the baby's face during STS, and staff education in SUPC, including safe positioning of the baby at the mother's breast.

"It is suggested that a trained observer stay with the mother during the first 1–2 hours of life during STS, limit bonding in compromised infants, and increase maternal education regarding bed-sharing. There should be risk stratification for STS, including disqualification for STS in infants who have received PPV, had low 5-minute Apgar scores, are preterm (i.e., <37 weeks gestation), had a difficult operative vaginal delivery, or when the mother is excessively sleepy or under the influence of sedating drugs. In addition, there should be appropriate lighting, an unobstructed view of the baby's face during STS, and staff education in SUPC, including safe positioning of the baby at the mother's breast."

The outcome of the case:

The case dragged on for several years. Multiple expert depositions were taken for both sides. The defense claimed no protocol required full-time staff in the mother's room after the first hour of life (arrest occurred after 1 hour of age) and that the resuscitation met the standard for a Level 1 hospital and general pediatrician. The pediatrician was dismissed from the case, and the defendant hospital settled for an undisclosed amount before the trial.

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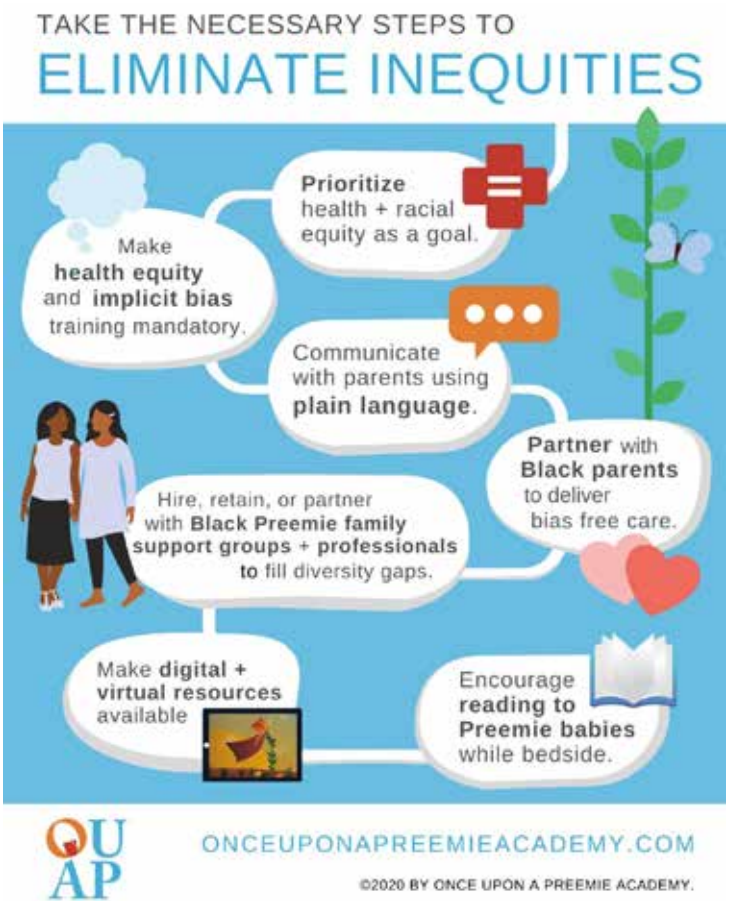
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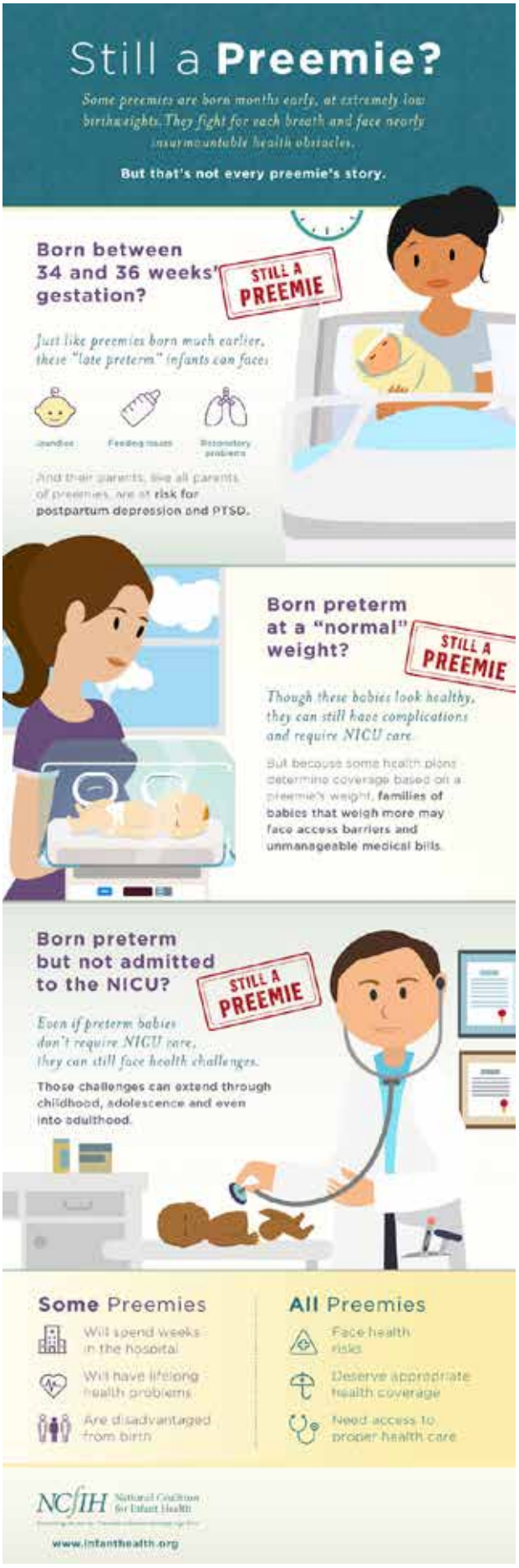


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2024

Protecting your baby and family from

Respiratory Viruses:

What parents need to know this RSV and flu season

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

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

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

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

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

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

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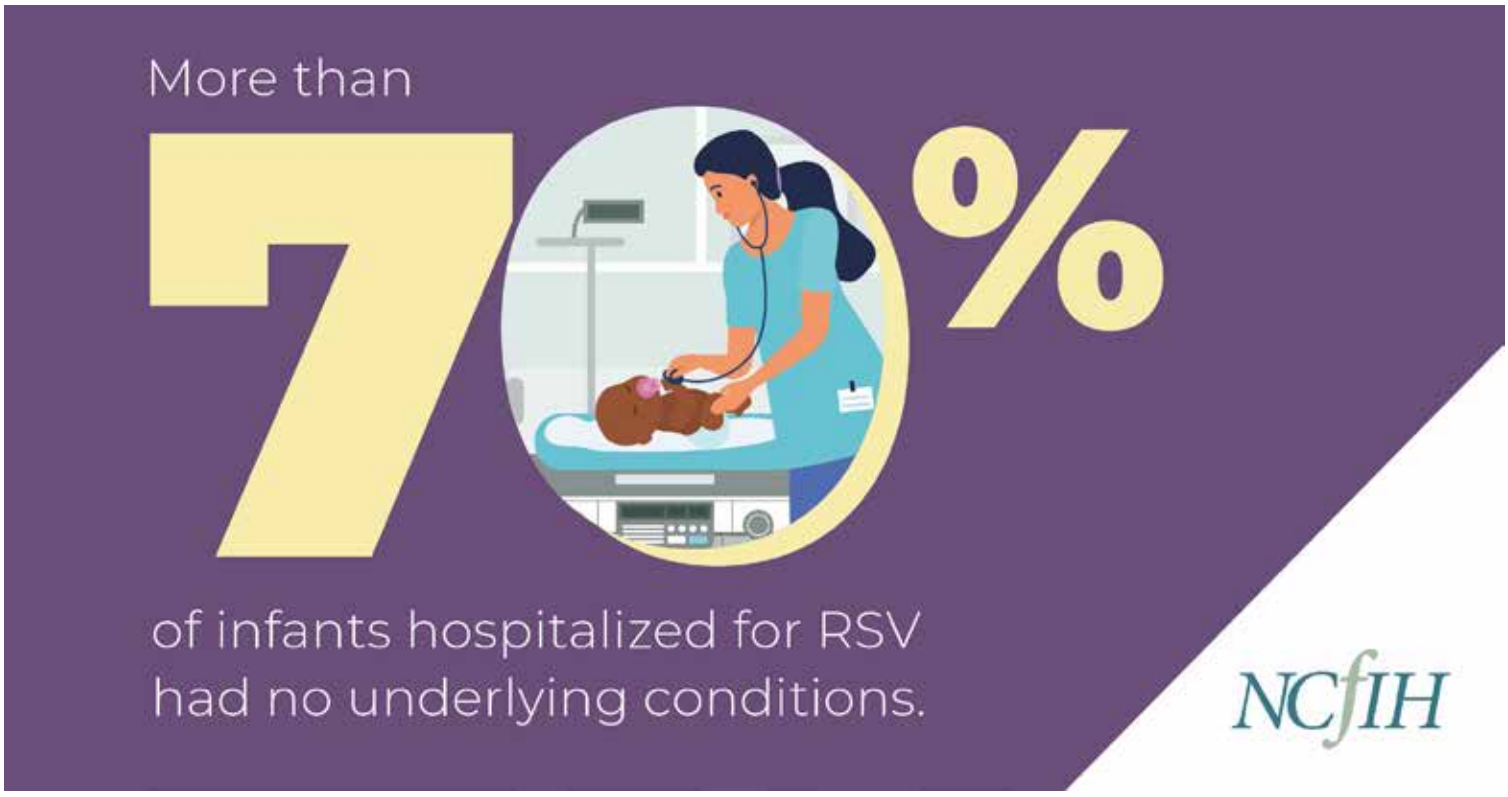
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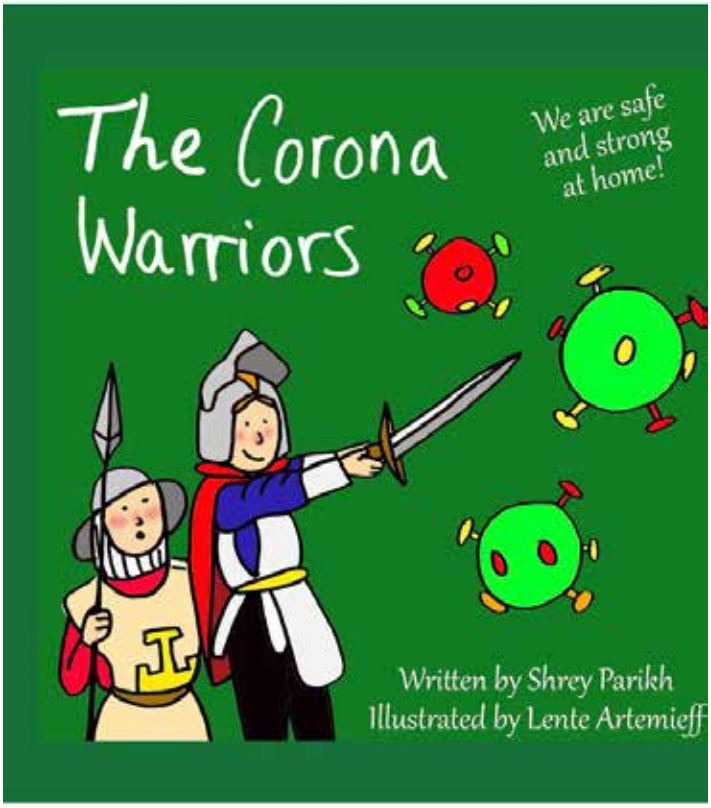
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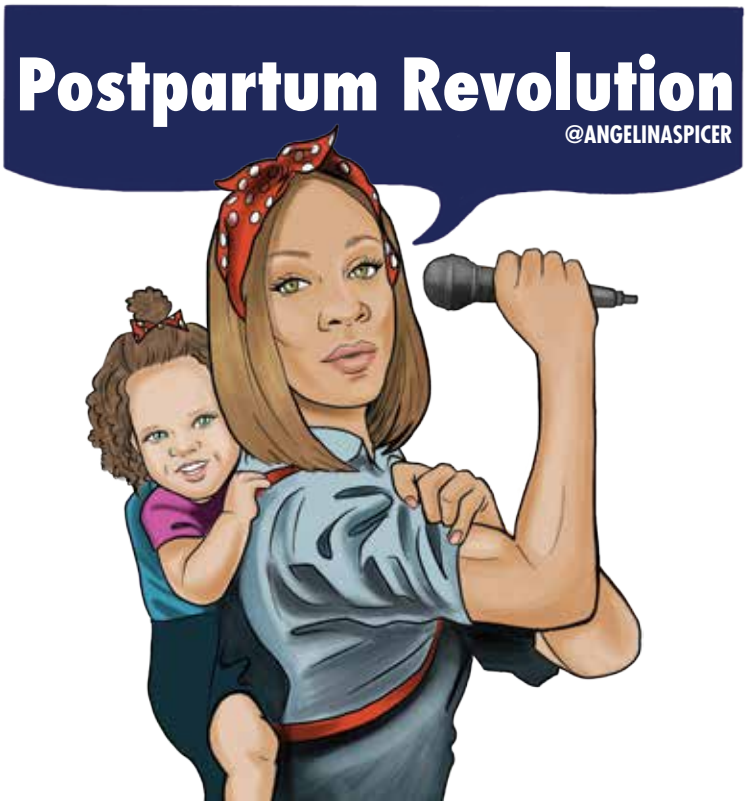


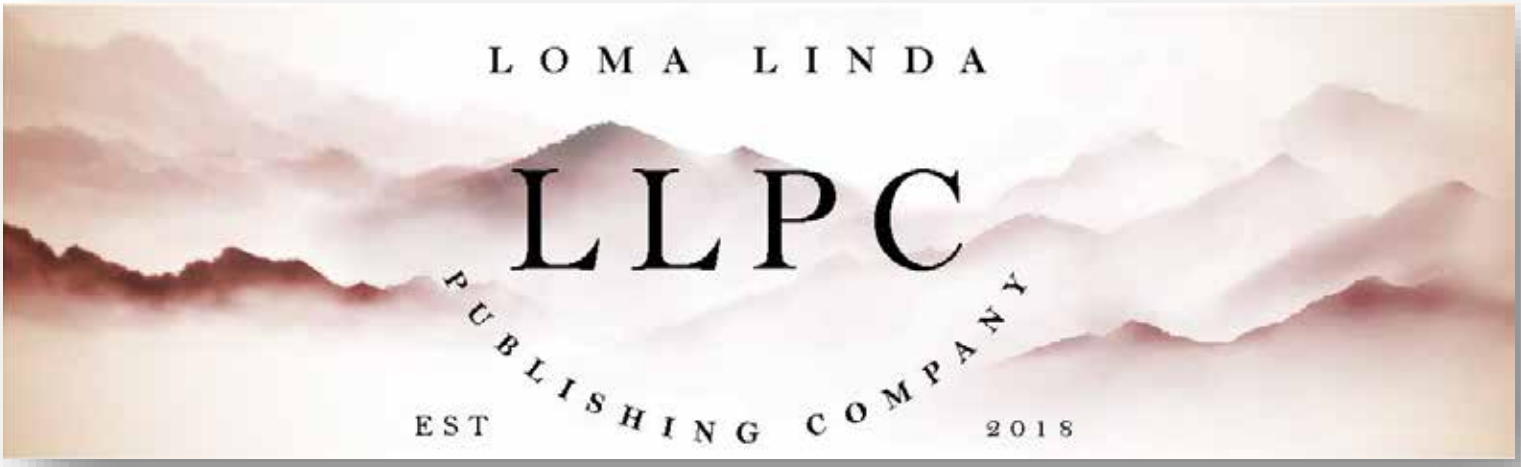
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Genetics Corner: Caudal Limb-like Appendage with Complex Spinal Dysraphism in a Newborn with a Likely Pathogenic Variant in ACTB

Jennifer Shin, MS, Robin D. Clark, MD

Case Summary:

The Genetics service initially evaluated a now 6-year-old female as a 1-day-old for dysmorphic features, agenesis of the corpus callosum, cystic dilatation of the fourth ventricle, and complex spinal dysraphism with vertebral anomalies and an ectopic caudal limb-like appendage.

"The Genetics service initially evaluated a now 6-year-old female as a 1-day-old for dysmorphic features, agenesis of the corpus callosum, cystic dilatation of the fourth ventricle, and complex spinal dysraphism with vertebral anomalies and an ectopic caudal limb-like appendage."

The infant was born at 36 weeks 1-day gestation by induced vertex vaginal delivery after artificial rupture of membranes for intrauterine growth restriction and oligohydramnios to a 25-year-old primigravida. Pregnancy was complicated by oligohydramnios and poor fetal growth, noted four weeks before delivery. Fetal ultrasound (US) identified a two-vessel cord and echogenic focus in the left ventricle. APGAR scores were 7 and 9 at one and five minutes, respectively. Birth weight was 2035 grams (7th percentile), birth length was 40.5 cm (1st percentile), and birth head circumference was 29.5 cm (2.5th percentile). Maternal serum screening was negative. Teratogen exposure, leakage of amniotic fluid, vaginal bleeding, and trauma during pregnancy were denied. The baby did not pass the initial or subsequent newborn hearing screen in her left ear.

Spine US on day 1 showed complex spinal dysraphism with herniation of a sizeable terminal syrinx through a posterior spinal defect at the level of the inferiormost sacrum. A soft tissue projection was arising along the left gluteal/sacral region and possible segmentation of vertebral body anomalies of the sacrum. Brain MRI on day 3 of life showed severe vermian hypoplasia with dilatation of the 4th ventricle extending posteriorly, compatible with Dandy-Walker malformation, agenesis of the corpus callosum,



Figure 1: Photos at 1 day of life.
This infant was microcephalic. There was excess posterior nuchal tissue, a short wide neck, an anteriorly placed anus, and a caudal limb-like appendage arising from a fatty mass on the left buttock. Dysmorphic features include long smooth philtrum, thin upper lip, micrognathia, and low set and posteriorly rotated ears. The excess fatty tissue on the left buttocks distorted the midline gluteal fold. Arising from the base of this extra fatty tissue was a tripartite skin appendage of about 4 cm in length with no osseous components. There was a small fissure at the base of the appendage, divided by circumferential narrowings at two places. The distal element had a finger-like appearance without a nail, and its appendage was brown and wrinkled, suggesting a necrotic accessory digit.

and moderate ventriculomegaly with intraventricular hemorrhage.

Physical exam on 1 day revealed microcephaly, dysmorphic facial features, excess posterior nuchal tissue, a short wide neck, low-set nipples, an anteriorly placed anus, and an eccentric (not midline) caudal appendage arising from a fatty mass on the left buttock (Figure 1). Bilateral single palmar creases with small thenar eminences were observed. Dysmorphic features included long smooth philtrum, thin upper lip, micrognathia, low set, and posteriorly rotated ears. The patient had a loud, high-pitched cry.

When she was reexamined at age 6, she had similar dysmorphic features (Figure 2). She was nonverbal and ambulatory, with global developmental delay, intellectual disability, hearing loss, failure to thrive, left hip dysplasia and dislocation, and leg length discrepancy. She had a seizure-like activity with a normal electroencephalogram.

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Family history was significant for autism spectrum disorder in a paternal first cousin and paraplegia due to a birth injury in a paternal uncle. No other known family history of congenital anomalies, developmental delay, intellectual disability, and recurrent miscarriages was reported. Mother is of Peruvian ancestry. The father is of Mexican ancestry. Consanguinity was denied.

Chromosome microarray was negative. Whole exome sequencing at 8 months old identified a *de novo* likely pathogenic variant in *ACTB* (c.629G>A; p.R210H) and a maternally inherited pathogenic variant in *DHCR7* (c.1342G>A; p.E448K) (Baylor Medical Genetics; reported as Patient #1). (1)

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Discussion:

Disorganization (Ds) is an autosomal dominant mouse mutant that causes many anomalies, including limb duplications and limbs originating from abnormal sites. Donnai and Winter (1989) described similar anomalies in humans, who reported patients with aberrant limbs, such as a fingerlike structure arising from the abdomen. (2) Other authors (Petzel and Erickson,1991) suggested that this could explain the duplication of organs and

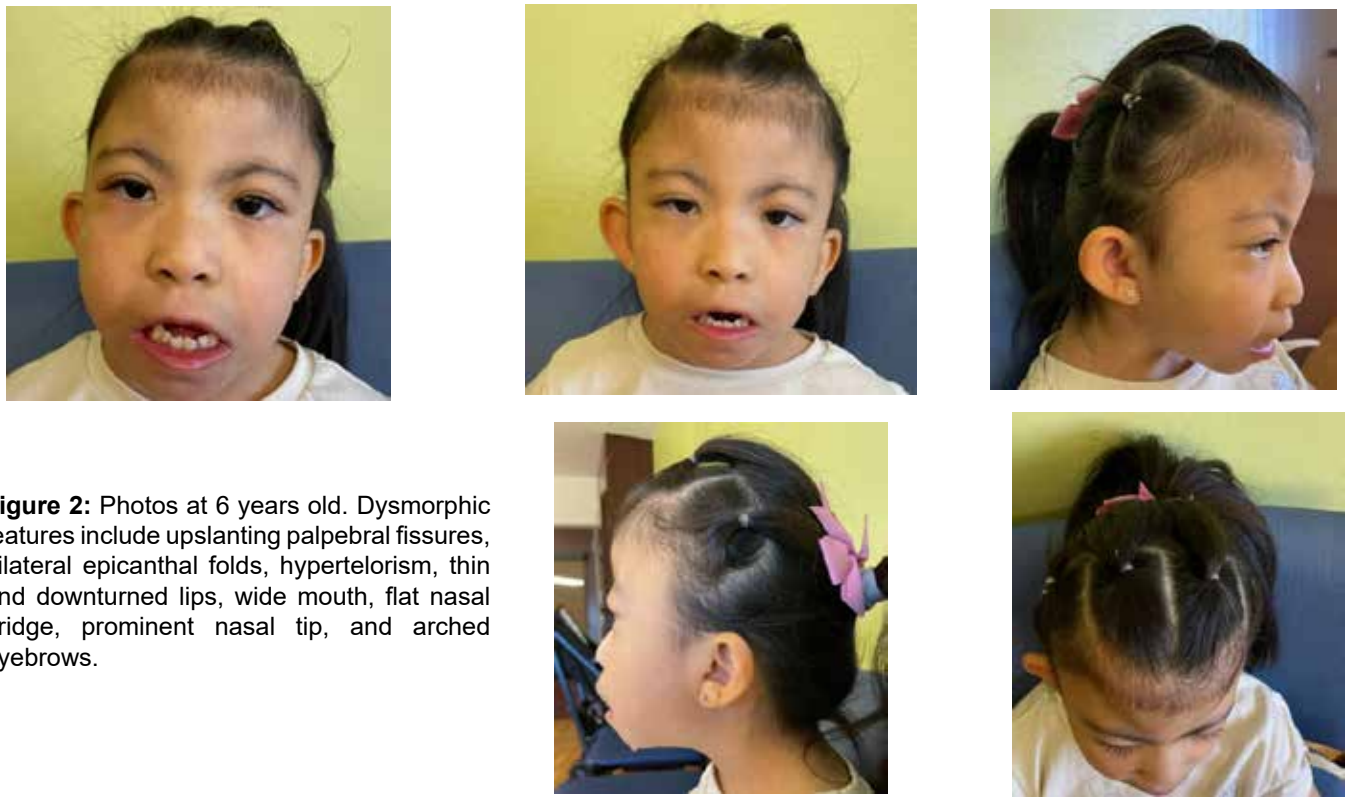


Figure 2: Photos at 6 years old. Dysmorphic features include upslanting palpebral fissures, bilateral epicanthal folds, hypertelorism, thin and downturned lips, wide mouth, flat nasal bridge, prominent nasal tip, and arched eyebrows.

external structures that traditionally were explained as incomplete twinning. (3) It comes full circle then that our patient has a variant in *ACTB*, the gene associated with Baraitser-Winter syndrome (MIM 243310), which was named after the very same author, Robin M. Winter, a revered English dysmorphologist, who, with Dian Donnai postulated that there might be a human homolog for the Disorganization mutant in the mouse.

Located on the short arm of chromosome 7, *ACTB* encodes β-actin, a cytoskeleton housekeeping protein essential for actin filament formation and implicated in nearly all cellular processes, including cell structure, transport, and gene expression. Actin polymerization modulates cell migration during embryogenesis, differentiation, and possibly carcinogenesis. (4) In mouse models, *ACTB* −/− neural crest cells failed to populate distant sites in the embryo. Pre-migratory neural crest cells displayed high levels of apoptosis. Fewer cells were found to delaminate, and migration was arrested shortly after. (5) As a result, differences in cell migration during embryogenesis may be seen in individuals with pathogenic variants in *ACTB*.

"Located on the short arm of chromosome 7, ACTB encodes β-actin, a cytoskeleton housekeeping protein essential for actin filament formation and implicated in nearly all cellular processes, including cell structure, transport, and gene expression. Actin polymerization modulates cell migration during embryogenesis, differentiation, and possibly carcinogenesis."

Depending on the variant's effect on gene expression or protein function, *ACTB* is associated with two overlapping phenotypes. Gain-of-function (GoF) variants are associated with Baraitser-Winter syndrome (BWCFF, cerebrofrontofacial syndrome, MIM 102630). Distinct craniofacial features, ocular colobomata, and neuronal migration anomalies, including pachygyria, lissencephaly, or neuronal heterotopia, characterize this condition. Additional features include hypertelorism, broad nose with a large tip and prominent root, ptosis, ridged metopic suture, arched eyebrows, sensorineural deafness, shoulder girdle muscle bulk, and progressive joint stiffness. Cleft lip and palate, hallux duplex, congenital heart defects, and renal tract anomalies are seen in some cases. Microcephaly may develop with time. Early muscular involvement, occasionally with congenital arthrogryposis, may be present. Intellectual disability and epilepsy are variable in severity and largely correlate with central nervous system anomalies (MIM 243310). (6)

Loss-of-function (LoF) variants in *ACTB* are associated with a pleiotropic developmental disorder. Features may include developmental delay, intellectual disability, congenital heart defects, renal anomalies, leukocytosis, thrombocytopenia with platelet anisotropy, recurrent infections, and cleft lip. Facial dysmorphism may differ from BWCFF (interrupted wavy eyebrows, dense eyelashes, broad nose, wide mouth, and prominent chin). (6, 7) Missense variants, such as our patient's variant, have been reported as LoF and GoF variants. (8) A GoF variant is suspected in our patient based on her phenotype. However, further studies are needed to determine its effect on protein expression or function due to the overlapping features of GoF and LoF variants.

To our knowledge, caudal appendages have not been previously reported in individuals with pathogenic variants in *ACTB*. Caudal appendages may be limb-like or tail-like. When in the midline, they may be described as vestigial or pseudo tails or coccygeal eversions with osseous components, but this is not what is present in our patient. Her appendage is limb-like, without any osseous elements, and not in the midline. The underlying spinal dysraphism may have played a role in this process. Accessory limbs associated with spina bifida are called dysraphic appendages and may involve the lower or upper extremities. The exact underlying mechanism of their embryogenesis is still being explored. (9–11)

"To our knowledge, caudal appendages have not been previously reported in individuals with pathogenic variants in ACTB. Caudal appendages may be limb-like or tail-like. When in the midline, they may be described as vestigial or pseudo tails or coccygeal eversions with osseous components, but this is not what is present in our patient."

We postulate that the ectopic caudal skin appendage in our patient is a consequence of the disruption of normal development caused by spinal dysraphism, separating tissue destined for the lower limb from the rest of the anlage. Therefore, that tissue created its own small but incomplete ectopic limb and buttock. This may have been caused by the disruption of signaling patterns responsible for migrating cells destined for limb formation at about 34 days of embryonic development when limb buds are formed. Our patient's accessory limb-like caudal appendage expands the phenotype associated with variants in *ACTB*.

"We postulate that the ectopic caudal skin appendage in our patient is a consequence of the disruption of normal development caused by spinal dysraphism, separating tissue destined for the lower limb from the rest of the anlage."

Practical Applications:

1. Look for evidence of spinal dysraphism in individuals with a

caudal limb-like appendage.

2. Understand that gain-of-function and loss-of-function variants in the same gene may cause different phenotypes.

3. Appreciate that the most unusual and, therefore, the rarest anomaly a child has, regardless of its clinical impact, often provides essential insights into the diagnosis.

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**This manuscript is dedicated to the memory of my (RDC) mentor, Professor Robin M. Winter (1950-2004).*

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

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Amplitude-Integrated Electroencephalography (aEEG) in Neonatal Care: Development, Interpretation, and Clinical Application

Noel Tan, MD

Abstract:

Amplitude-integrated electroencephalography (aEEG) is a simplified, continuous monitoring technique used primarily in neonatal intensive care units (NICUs) to assess brain function in infants. This paper explores the origins, interpretation, advantages, and limitations of aEEG compared to traditional EEG. Transforming raw EEG data into aEEG involves band-pass filtering, rectification, smoothing, and time compression, making it easier to interpret at the bedside. Particular emphasis is placed on the application of aEEG in the management of neonatal hypoxic-ischemic encephalopathy (HIE) and the use of therapeutic hypothermia (TH). While aEEG offers ease of use, portability, and cost-effectiveness, it lacks traditional EEG's detailed resolution and comprehensive diagnostic capability. The complementary roles of aEEG and traditional EEG in clinical practice are discussed, emphasizing the importance of both in different medical contexts.

"The transformation of raw EEG data into aEEG involves several steps, including band-pass filtering to reduce artifacts, rectification to convert all values to positive, smoothing to reduce noise, and time compression to visualize long-term trends. These steps result in a user-friendly tool that can be easily interpreted in the NICU."

Introduction:

The need for continuous, non-invasive brain monitoring in NICUs led to the development of amplitude-integrated electroencephalography (aEEG). Traditional EEG, although comprehensive, is complex and resource-intensive, making

Comparison of aEEG and Traditional EEG

Aspect	aEEG	Traditional EEG
Ease of Use	Simple, user-friendly, bedside monitoring	Complex setup requires specialized personnel
Monitoring Duration	Continuous, long-term monitoring	Typically short-term recordings
Detail and Resolution	Simplified, lower-resolution	Detailed, high-resolution
Portability	Portable and compact	Bulkier and less portable
Cost	Generally lower cost	Higher cost
Diagnostic Scope	Trend monitoring, early detection	Comprehensive diagnostic capability
Training	Easier for non-specialists with basic training	Requires specialized training for interpretation
Use Cases	Primarily neonatal and pediatric settings	Broad use, including adults and complex conditions
Number of Leads	2-4 electrodes	16-32 electrodes (10-20 system)
Lead Placement	Parietal-Temporal (simplified)	Full scalp coverage (10-20 system)

aEEG Background Patterns and Their Interpretation:

Parameter	Characteristics	Interpretation
Continuous Normal Voltage (CNV)	Continuous activity, voltage 10-25 µV	Normal brain activity, healthy brain function
Discontinuous Normal Voltage (DNV)	Mixed periods of higher and lower voltage, 1-25 µV	Common in preterm infants, it may indicate normal development
Burst Suppression (BS)	Periods of very low voltage with bursts of higher voltage	Severe brain injury or deep sedation

Parameter	Characteristics	Interpretation
Continuous Low Voltage (CLV)	Continuous activity, voltage consistently below 5 µV	Severe brain dysfunction or injury
Flat Tracing (FT)	The near absence of activity, voltage below 5 µV	Severe brain damage or very poor prognosis
Sleep-Wake Cycling	Alternating high and low voltage periods	Normal cycling, intact brain function
Absence of Sleep-Wake Cycling	Lack of alternation between high and low-voltage	Possible neurological impairment
Seizure Activity	Rapid, repetitive spike and wave patterns	Indicative of seizures

it less suitable for continuous bedside use. aEEG provides a simplified, condensed version of EEG, allowing for long-term monitoring and more straightforward interpretation by healthcare providers. The transformation of raw EEG data into aEEG involves several steps, including band-pass filtering to reduce artifacts, rectification to convert all values to positive, smoothing to reduce noise, and time compression to visualize long-term trends. These steps result in a user-friendly tool that can be easily interpreted in the NICU.

"aEEG has become particularly valuable in the management of neonatal hypoxic-ischemic encephalopathy (HIE) and the application of therapeutic hypothermia (TH). In these contexts, aEEG aids in the early detection of neurological impairment, monitoring treatment effects, and predicting neurodevelopmental outcomes."

aEEG has become particularly valuable in the management of neonatal hypoxic-ischemic encephalopathy (HIE) and the application of therapeutic hypothermia (TH). In these contexts, aEEG aids in the early detection of neurological impairment, monitoring treatment effects, and predicting neurodevelopmental outcomes. This paper examines the development, interpretation, advantages, and disadvantages of aEEG compared to traditional EEG, highlighting its role in neonatal care and specific applications in HIE and TH.

Advantages of aEEG:

aEEG offers several advantages over traditional EEG, including simplicity, ease of use, and portability. Its ability to provide continuous, long-term monitoring makes it invaluable in NICUs for early detection of neurological issues. Compared to traditional EEG equipment, the cost-effectiveness of aEEG systems makes it more accessible for routine use in neonatal care.

Development and Interpretation:

aEEG emerged from the necessity to simplify continuous brain monitoring, particularly for vulnerable neonatal patients. Researchers focused on condensing the traditional EEG signal into a more manageable format, resulting in a device that is easier to use and interpret at the bedside.

Interpreting aEEG involves recognizing various background

patterns, sleep-wake cycles, seizure activity, and amplitude. These patterns help assess brain function and detect neurological issues early.

1. **Abnormal aEEG Findings:**Understanding and identifying abnormal aEEG patterns are crucial for diagnosing and managing neurological issues in neonates. Below are key abnormal findings:
2. **Discontinuous Normal Voltage (DNV)**: Mixed periods of higher and lower voltage (1-25 μV) are common in preterm infants but, if persistent, may indicate potential neurological concerns.
3. **Burst Suppression (BS)** is characterized by bursts of high voltage interspersed with periods of very low voltage, suggesting severe brain injury or the effects of deep sedation.
4. **Continuous Low Voltage (CLV)**: Reflects continuous low-voltage activity, generally below 5 μV, indicating severe brain dysfunction or injury.
5. **Flat Tracing (FT)**: The near absence of electrical activity, with voltage consistently below 5 μV, points to severe brain damage or a very poor prognosis.
6. **Absence of Sleep-Wake Cycling (SWC)**: Lack of normal alternation between high and low voltage periods, possibly indicating significant neurological impairment.
7. **Seizure Activity**: Rapid, repetitive spike and wave patterns; frequent or prolonged seizures may suggest severe neurological disturbances and require urgent medical attention.

Figure: Interpretation of aEEG Background Patterns, Cycling, and Seizures

Feldman, K., et al. (2023). An amplitude-integrated electroencephalography "quick reference" sheet (developed by The Hospital for Sick Children NICU) may be found here:

https://connect.springerpub.com/content/sgrnn/42/4/215/F2.large.jpg

1. **Background Patterns**: The figure illustrates various aEEG background patterns, such as Continuous Normal Voltage (CNV), Discontinuous Normal Voltage (DNV), Burst Suppression (BS), Continuous Low Voltage (CLV), and Flat Trace (FT). Each pattern has specific characteristics that aid in diagnosing brain function or dysfunction.
2. **Cycling**: The figure shows imminent and established sleep-wake cycling, crucial indicators of normal or impaired neurological function.
3. **Seizures**: Different seizure patterns, including single seizures, repetitive seizures, and status epilepticus, are depicted. These visuals highlight the importance of recognizing seizure activity and understanding the underlying EEG waveform changes.

Source: SickKids NICU-MIND QI *Team.*

Algorithm for aEEG **Transformation:**

The transformation of raw EEG signals into a simplified aEEG tracing involves several critical steps:

1. **Band-pass Filtering**: This step attenuates activity below 2 Hz and above 15 Hz, minimizing artifacts from movements and electrical noise. Understanding this step helps clinicians recognize what types of information may be filtered out, ensuring that background activity and potential artifacts are correctly identified.
2. **Rectification**: Converts all negative EEG values to positive, creating a clearer signal for further processing. This standardization facilitates interpretation by highlighting significant brain activity.
3. **Smoothing**: A moving average or similar technique is applied to reduce noise and smooth out the signal. Awareness of this step allows clinicians to recognize when the data may be oversimplified, which is crucial for distinguishing between real clinical patterns and artifacts.
4. **Time Compression**: The signal is compressed over time for long-term monitoring and easier visualization. This transformation provides an overview of brain activity trends and reduces the ability to see high-resolution details, emphasizing the need for careful interpretation.

"Knowing how the EEG signal is processed and transformed is critical for accurate interpretation, recognizing limitations, and making informed clinical decisions. Familiarity with these processes allows clinicians to identify artifacts, understand the potential loss of detailed information, and use aEEG effectively for monitoring brain function. This knowledge is especially crucial when deciding if a full EEG is warranted for a more comprehensive diagnostic evaluation."

Importance of Understanding Signal Processing:

Knowing how the EEG signal is processed and transformed is critical for accurate interpretation, recognizing limitations, and making informed clinical decisions. Familiarity with these processes allows clinicians to identify artifacts, understand the potential loss of detailed information, and use aEEG effectively for monitoring brain function. This knowledge is especially crucial when deciding if a full EEG is warranted for a more comprehensive diagnostic evaluation.

General Implementation of aEEG in NICUs:

Introducing aEEG monitoring in NICUs highlights the practical benefits and challenges of implementing this technology in various clinical settings. According to Feldman et al., aEEG monitoring can facilitate the timely transfer of neurologically compromised infants and help keep mother–infant dyads together when appropriate neurological status can be assured. The simplified use of aEEG in monitoring helps improve the quality of care for at-risk newborns by enabling continuous brain function assessment.

Clinical indications for aEEG monitoring in the NICU include:

- Definitive or suspected brain insult (e.g., HIE, meningitis, significant intraventricular hemorrhage)
- Abnormal neurologic exam (e.g., excessive jitteriness, irritability, lethargy, suspected seizures, hypertonia, or hypotonia)
- Unexplained symptoms that could be seizure equivalents (e.g., apnea, hypertensive episodes, recurrent desaturations)
- At the discretion of the most responsible physician (MRP)

"NICU nurses are trained to set up the equipment and apply electrodes, while physicians interpret the aEEG tracings and provide medical management based on the findings. Educational initiatives, including hands-on training for nurses and didactic sessions for physicians, are essential to support the successful implementation of aEEG monitoring in clinical practice."

NICU nurses are trained to set up the equipment and apply electrodes, while physicians interpret the aEEG tracings and provide medical management based on the findings. Educational initiatives, including hands-on training for nurses and didactic sessions for physicians, are essential to support the successful implementation of aEEG monitoring in clinical practice.

"aEEG and traditional EEG are not interchangeable but serve complementary roles in neonatal neurological care. aEEG is ideal for continuous, bedside monitoring to identify trends in brain activity, detect seizures, and assess overall brain function, especially in critical care settings. It is instrumental in monitoring infants with conditions such as HIE and during therapeutic hypothermia."

Complementary Role of aEEG and Traditional EEG:

aEEG and traditional EEG are not interchangeable but serve complementary roles in neonatal neurological care. aEEG is ideal for continuous, bedside monitoring to identify trends in brain activity, detect seizures, and assess overall brain function, especially in critical care settings. It is instrumental in monitoring infants with conditions such as HIE and during therapeutic hypothermia.

Traditional EEG, on the other hand, offers detailed spatial and temporal resolution, allowing for precise localization of brain abnormalities and identification of subtle or complex seizures that aEEG might miss. Traditional EEG is essential for comprehensive neurological evaluation, especially when specific localization of seizures or detailed brain mapping is needed. aEEG provides continuous monitoring, while traditional EEG offers in-depth analysis, ensuring a comprehensive assessment of neonatal brain function.

Application in Hypoxic-Ischemic Encephalopathy (HIE) and Therapeutic Hypothermia

Recognizing the need for neurological monitoring in critically ill neonates, neonatologists and neurologists have become more familiar with using aEEG in the NICU. aEEG is particularly useful for monitoring cerebral background activity, diagnosing and treating seizures, and predicting neurodevelopmental outcomes for preterm and term infants. Its application is especially emphasized in neonatal hypoxic-ischemic encephalopathy (HIE) and therapeutic hypothermia.

Hypoxic-Ischemic Encephalopathy (HIE):

aEEG is valuable in assessing infants with HIE, as it provides early indicators of neurological impairment. Infants with mild HIE typically show continuous or slightly discontinuous aEEG patterns with normal outcomes. At the same time, those with severe HIE often have severely abnormal aEEG backgrounds, such as low voltage or flat tracings, indicating a high risk for adverse outcomes. The onset and quality of sleep-wake cycles (SWC) within the first 36 hours can also predict outcomes, with earlier appearance of SWC associated with better outcomes.

"Therapeutic hypothermia (TH) is a standard treatment for neonatal asphyxia to reduce secondary neuronal death. aEEG helps identify candidates for TH, monitor the effects of hypothermia, and predict outcomes. Studies show that early aEEG patterns can help select infants for cooling therapy and monitor their response."

Therapeutic Hypothermia:

Therapeutic hypothermia (TH) is a standard treatment for neonatal asphyxia to reduce secondary neuronal death. aEEG helps identify candidates for TH, monitor the effects of hypothermia, and predict outcomes. Studies show that early aEEG patterns can help select infants for cooling therapy and monitor their response. The presence of seizures during or after TH can also be effectively monitored using aEEG, which aids in managing seizure burden and optimizing neurodevelopmental outcomes.

Limitations of aEEG:

Despite its benefits, aEEG has limitations. It provides a

lower resolution of brain activity, potentially missing subtle abnormalities that a full EEG would detect. The fewer channels used in aEEG result in less spatial resolution and specific localization of brain activity. Additionally, aEEG's primary application is in neonatal and pediatric settings, with limited use in adult neurology and complex diagnostic scenarios.

Summary:

Amplitude-integrated electroencephalography (aEEG) has revolutionized brain monitoring in neonatal care, offering a practical, continuous, and cost-effective solution. While it lacks the detailed diagnostic capability of traditional EEG, its ease of use and portability make it an essential tool in NICUs. The complementary use of aEEG and traditional EEG allows for comprehensive neurological assessment, ensuring early detection and effective management of brain function in infants. Particularly in the context of HIE and therapeutic hypothermia, aEEG provides valuable insights and helps guide treatment decisions.

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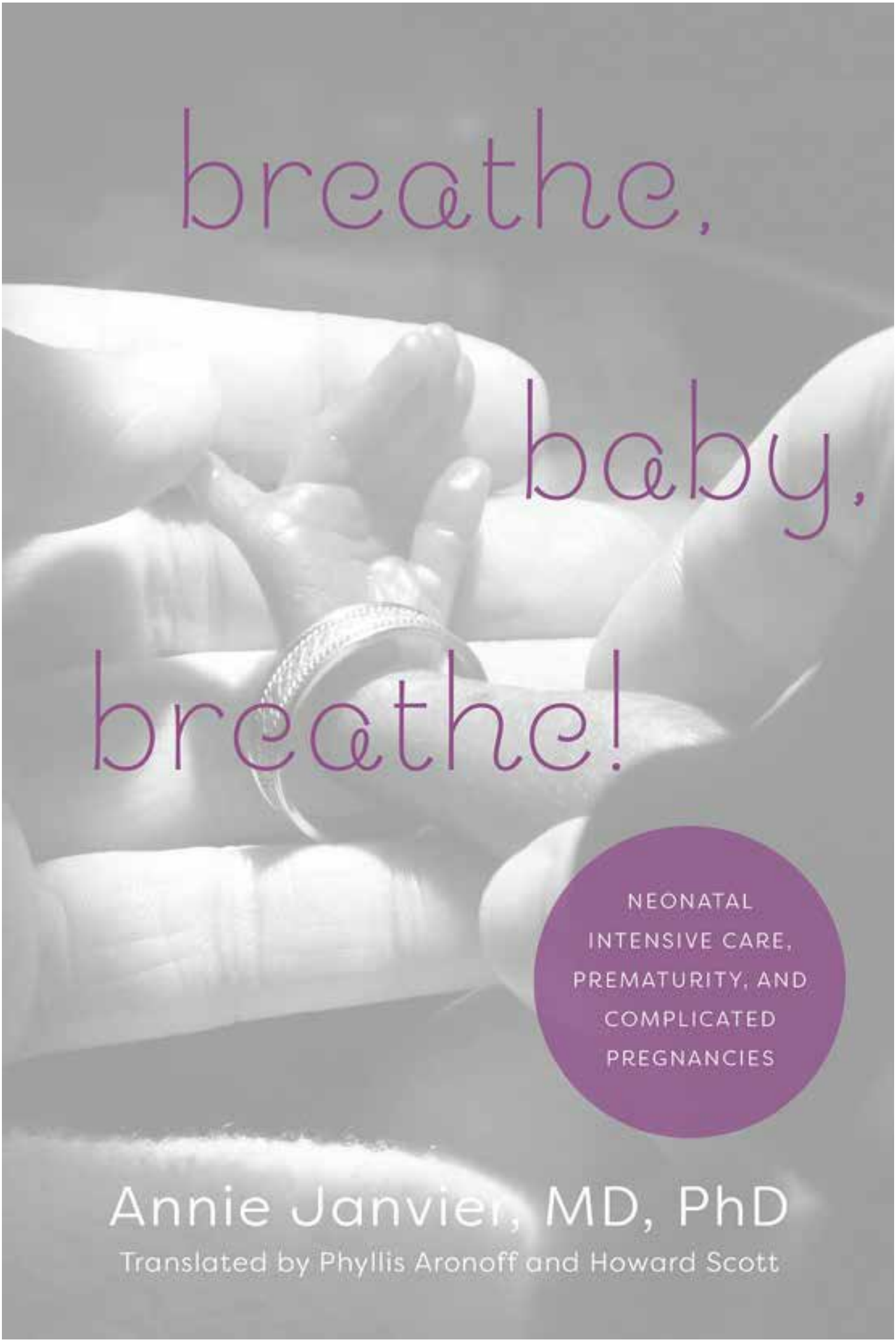
Disclosures: The author has no disclosures

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breathe,
baby,
breathe!
NEONATAL INTENSIVE CARE, PREMATURITY, AND COMPLICATED PREGNANCIES
Annie Janvier, MD, PhD
Translated by Phyllis Aronoff and Howard Scott



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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%

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Family Centered Care: A Tribute to our Dear Friend and Colleague, Aida Simonian, MSN, RNC-NIC, SCM, SRN

Morgan Kowalski

"With heavy hearts, we announce the passing of our dear friend and colleague, Aida Simonian, MSN, RNC-NIC, SCM, SRN. Many of you remember Aida as the Chief Executive Officer of PAC/LAC and a valued Family-Centered Care Taskforce's Executive Council of Healthcare Partners member."

With heavy hearts, we announce the passing of our dear friend and colleague, Aida Simonian, MSN, RNC-NIC, SCM, SRN. Many of you remember Aida as the Chief Executive Officer of PAC/LAC and a valued Family-Centered Care Taskforce's Executive Council of Healthcare Partners member. Aida was a champion of perinatal quality improvement and was dedicated to medical advancements in family-centered care and leadership in the NICU, and bolstered the California Perinatal Quality Care Collaborative and California Department of Public Health's Maternal, Child, and Adolescent

"Aida was a champion of perinatal quality improvement and was dedicated to medical advancements in family-centered care and leadership in the NICU, and bolstered the California Perinatal Quality Care Collaborative and California Department of Public Health's Maternal, Child, and Adolescent Health Division with her over 40 years of expertise in maternal and infant/child health."

Rest in Peace, Aida Simonian



Aida Simonian, MSN, RNC-NIC, SCM, SRN
CEO, PAC/LAC

Health Division with her over 40 years of expertise in maternal and infant/child health.

What follows are sentiments from her colleagues at the FCC Taskforce and CPQCC's Perinatal Quality Improvement Panel:

"We are so grateful to Aida for her tireless support of infant health and family-centered care throughout her career. She was a passionate contributor to the FCC Taskforce and will be greatly missed."

-Colby Day, MD

Medical Director, Golisano Children's Hospital NICU at University of Rochester Medical Center

Co-Chair, FCC Taskforce

"Aida was a fearless nurse leader who touched the lives of countless NICU families and patients. Her advocacy for them was not just a job, but a lifelong commitment that left a profound impact on all who knew her, both personally and professionally. "

"I have known Aida through volunteer work on the California Perinatal Quality Care Collaborative Executive Panel for the past 8 years. For the past three years, we have collaborated as part of the Gravens Conference planning committee. I met with her a few times one-on-one and learned more about her long-standing passion for family-centered care in the NICU, how she included families in her early career as a neonatal nurse, and how she has advocated for family inclusion. Without hesitation, Aida joined the FCC Taskforce as an Executive Council member. She did not want to receive any honorarium or financial support for her time, so she provided CME support for educational activities. Despite her busy schedule, she facilitated FCC Taskforce Office Hours earlier in the year and shared her expertise. Aida was a fearless nurse leader who touched the lives of countless NICU families and patients. Her advocacy for them was not just a job, but a lifelong commitment that left a profound impact on all who knew her, both personally and professionally. I'm deeply saddened that we won't be able to work alongside one another in our passion of advocating for NICU families. I will truly miss her."

-Malathi Balasundaram, MD

Attending Neonatologist, El Camino Health NICU

Founder & Co-Chair, Family-Centered Care Taskforce

"Aida's commitment to family-centered care in the NICU has impacted countless families during some of their most vulnerable moments. Her legacy is one of empathy, advocacy, and the belief that the well-being of the family as a whole is essential to the success of every infant's journey. "

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-Keria Sorrells

Founder & Executive Director, NICU Parent Network

Co-Chair, Family-Centered Care Taskforce

"Aida was a tireless worker for NICU babies and their families. She was a kind-hearted and warm person. She put her heart and soul into her work on the Gravens Conference, making sure things went smoothly. We are grateful and thankful to her for all the support that she provided. She will be missed."

-Vincent C. Smith, MD

Division Chief of Newborn Medicine, Boston Medical Center

Professor of Pediatrics, Boston University Medical School

"Aida was a nursing leader who passionately & selflessly gave to others. Her contributions to the nursing profession and commitment to equitable care will have a lasting impact, and she will be deeply missed by all who had the privilege of working alongside her."

"It was truly an honor to partner with Aida in many initiatives over the past 15+ years. Aida was a nursing leader who passionately & selflessly gave to others. Her contributions to the nursing profession and commitment to equitable care will have a lasting impact, and she will be deeply missed by all who had the privilege of working alongside her."

-Courtney C Breault, MSN, RN, CPHQ
Associate Director of Quality, CPQCC

"Aida was a nursing leader who passionately & selflessly gave to others. Her contributions to the nursing profession and commitment to equitable care will have a lasting impact, and she will be deeply missed by all who had the privilege of working alongside her."

"I recall her fierce advocacy for the babies, parents and nurses and how it helped raise the bar for all of us in that nursery in our efforts to bring our best selves and our best teamwork in service of each other and our families."

-David Braun, MD

Associate Investigator of Neonatology, South California Permanente Medical Group

"She was always eager to contribute and supported us on both a larger scale as an Organizational Partner with PAC/LAC and on a smaller scale by facilitating Office Hours and helping us disseminate best practices around FCC in the NICU."

"I remember Aida as an avid contributor to the leadership team and Advocacy Committee, supporting zero-separation in the NICU. She was always eager to contribute and supported us on both a larger scale as an Organizational Partner with PAC/LAC and on a smaller scale by facilitating Office Hours and helping us disseminate best practices around FCC in the NICU. She was a bright light who will be dearly missed by all who knew and worked with her."

-Morgan Kowalski

NICU Parent

Program Manager, Family-Centered Care Taskforce

Disclosure: *This work is supported by an educational grant from Chiesi Inc. USA and a Seed 1 Partnership Award from Stanford Impact Labs. Thank you to Reckitt/Mead Johnson for supporting our work.*

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The Signs & Symptoms of RSV

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- Runny Nose
- Struggling to Breathe *(breastbone sinks inward when breathing)*
- Difficulty Eating
- Lethargy
- Wheezing

RESPIRATORY SYNCYTIAL VIRUS
is a highly contagious seasonal virus that can lead to hospitalization for some babies and young children.

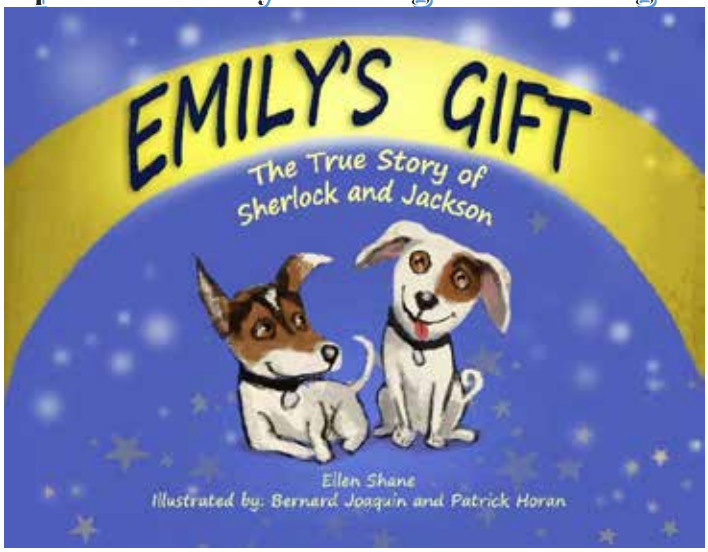
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Robert F. Kennedy, Jr.: A Complex Personality

Joseph R. Hageman, MD

"Robert F. Kennedy, Jr., the son of Attorney General Robert F. Kennedy and Ethel Skakel and nephew of U.S. President John F Kennedy and Senator Ted Kennedy, is a Harvard graduate with a Bachelor of Arts in American History and Literature in 1976. He earned a Juris Doctor degree from the University of Virginia School of Law in 1982 and a Master of Laws from Pace University in 1987 (1). "

Robert F. Kennedy, Jr., the son of Attorney General Robert F. Kennedy and Ethel Skakel and nephew of U.S. President John F Kennedy and Senator Ted Kennedy, is a Harvard graduate with a Bachelor of Arts in American History and Literature in 1976. He earned a Juris Doctor degree from the University of Virginia School of Law in 1982 and a Master of Laws from Pace University in 1987 (1).

After childhood and adolescence, which included being a leader of a childhood gang, a substance use disorder of heroin and cocaine, and extensive rehabilitation, he was able to complete his education as listed above and become a successful environmental lawyer (1).

Over time, his interests have involved many different areas, from helping people whose environment was contaminated by toxic chemicals and waste spilled by large companies to a greater interest in politics (1).

However, what is challenging and the reason we are writing about him and his interests over time is the fact that, even though all six of his children have been fully vaccinated, he has become a prominent "anti-vaxxer" and has spoken on many programs, written a number of anti-vaccine articles regarding thimerosal and the development of autism, of which the causal relationship has been thoroughly disproven by many scientific clinical research studies as well as talked about the development of autism and other vaccines without any factual supportive data (1).

"However, what is challenging and the reason we are writing about him and his interests over time is the fact that, even though all six of his children have been fully vaccinated, he has become a prominent "anti-vaxxer" and has spoken on many programs, written a number of anti-vaccine articles regarding thimerosal and the development of autism, of which the causal relationship has been thoroughly disproven by many scientific clinical research studies as well as talked about the development of autism and other vaccines without any factual supportive data (1)."

He has also proposed several conspiracy theories regarding the COVID-19 vaccine, again without any scientific supportive data, and has written books about the development of the vaccine for purely economic benefits for wealthy Americans, including Bill Gates (1).

What I find most challenging and complex is how intelligent and accomplished RFK, Jr. can be in some areas of his professional life, as I summarized above, and why he has become so negative regarding vaccine efficacy and other conspiracy theories in medical science.

Reference:

1. Kennedy RF. Jr, Wikipedia https://en.wikipedia.org/wiki/Robert_F._Kennedy_Jr..

Disclosures: *No relevant financial disclosures noted.*

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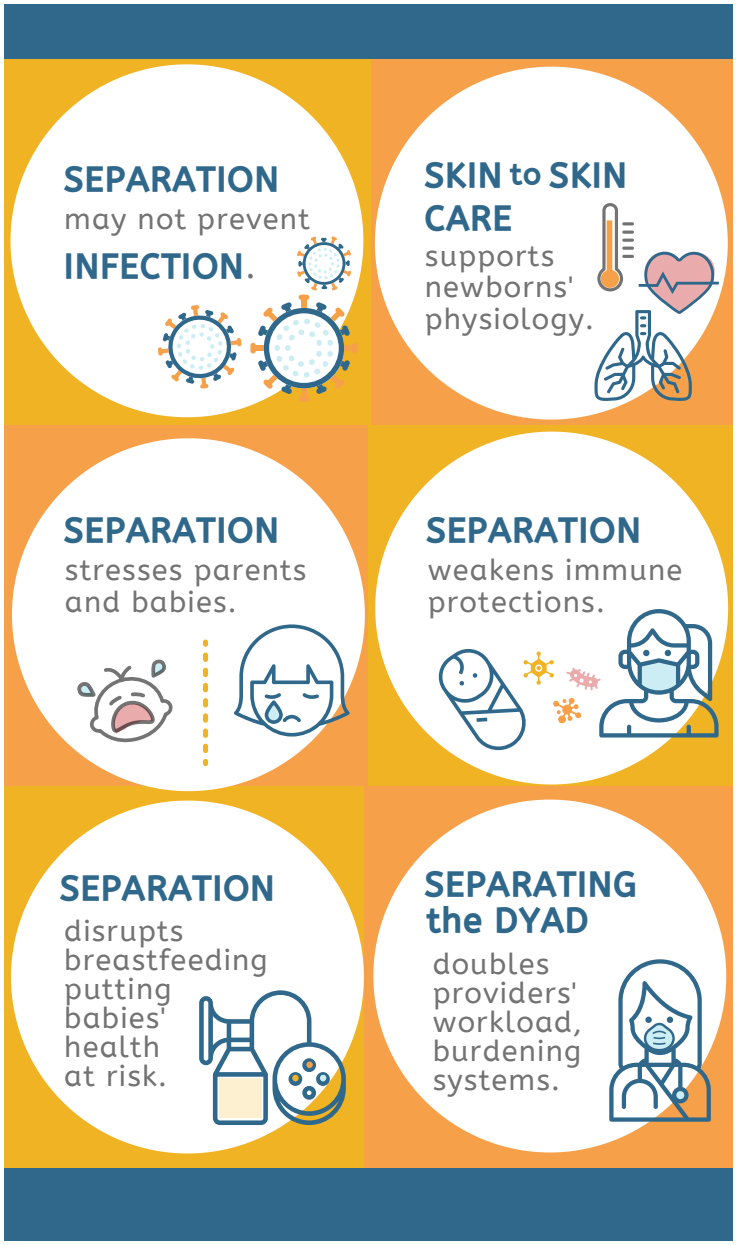
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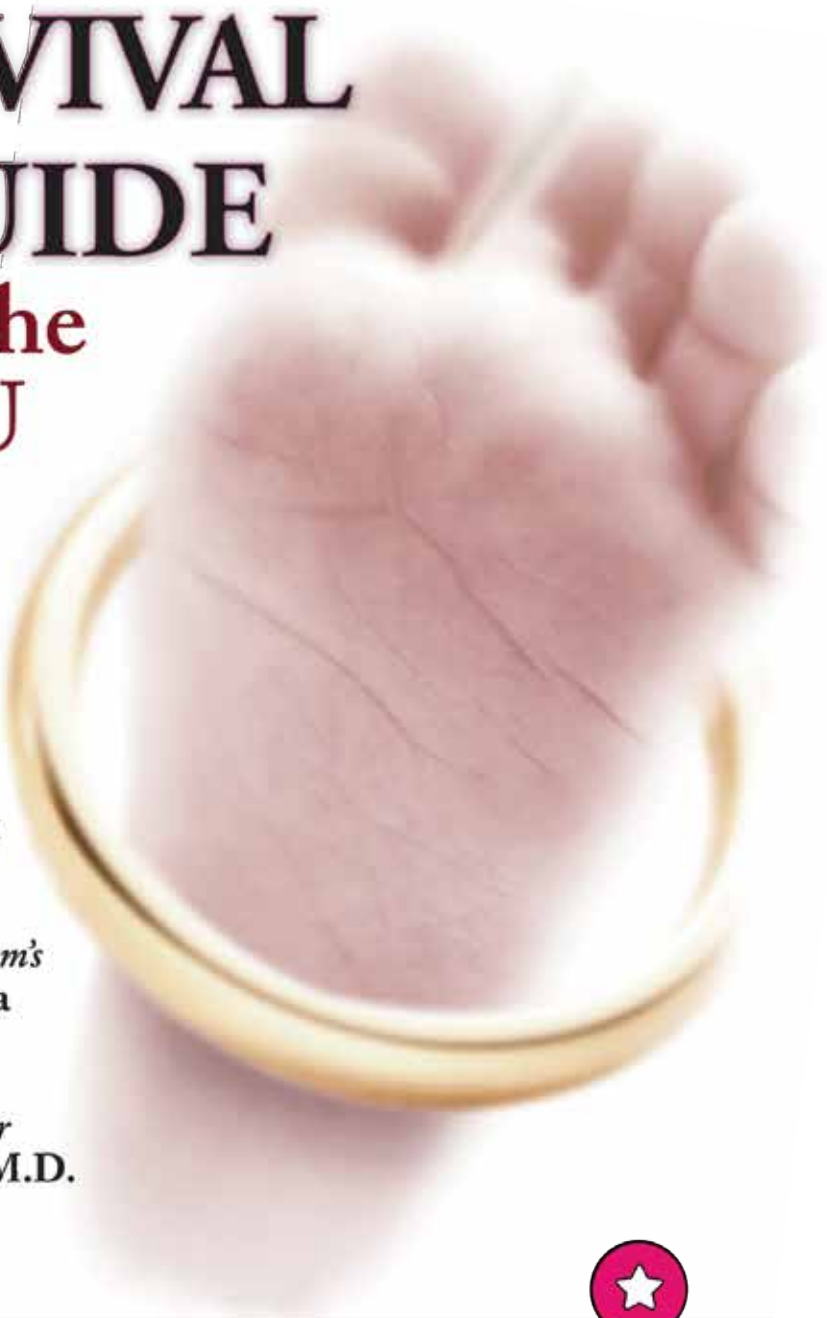


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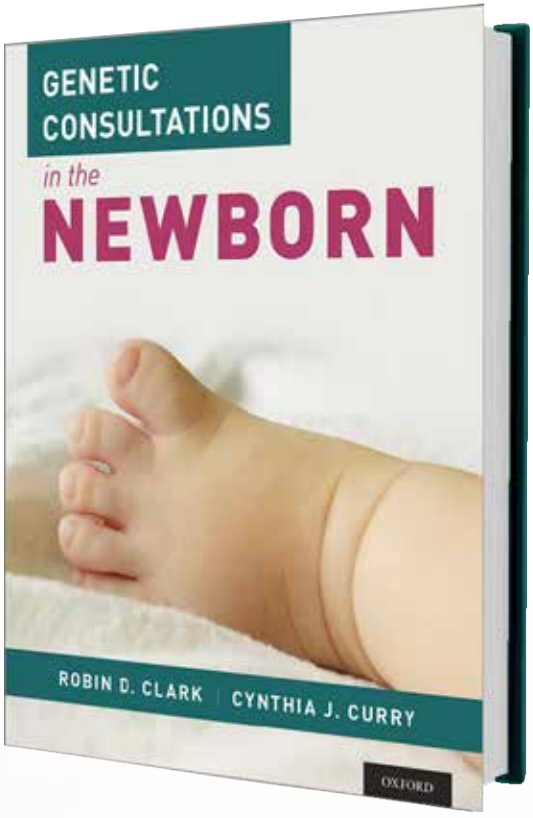
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Clinical Pearl: Caffeine Therapy for Preterm Infants:A Review of Relevant Clinical Trials and Systematic Reviews

Gustave H. Falciglia, MD, MSCI, MSHQPS, Joseph R. Hageman, MD, Mitchell Goldstein, MD, MBA, CML

"The most common reasons included the treatment of apnea, facilitation of extubation, and prevention of apnea. Therapy was continued at the neonatologist's discretion, but the study recommended continuing treatment with caffeine until the infant had experienced five days without positive pressure."

Following last month's discussion on apnea of prematurity and intermittent hypoxemia, it is worth reviewing the evidence for caffeine and what questions remain unanswered. In 2006, Dr. Barbara Schmidt *et al.* published the Caffeine for Apnea of Premature (CAP) Trial. They randomized over two thousand infants between 500 and 1,250 grams to receive caffeine or placebo if they had an indication for therapy in the first 10 days. (1) The most common reasons included the treatment of apnea, facilitation of extubation, and prevention of apnea. Therapy was continued at the neonatologist's discretion, but the study recommended continuing treatment with caffeine until the infant had experienced five days without positive pressure.

"Caffeine also reduced medical and surgical closures of patent ductus arteriosus (PDA) from 38% to 29% and 13% to 5%, respectively. (1) Infants randomized to caffeine were extubated 6 days earlier, discontinued positive pressure one week earlier, received about one-third less postnatal steroids, and one less transfusion on average compared to infants in the control group."

The study demonstrated that caffeine reduced bronchopulmonary dysplasia (BPD) from 47% to 36%. Caffeine also reduced medical and surgical closures of patent ductus arteriosus (PDA) from 38% to 29% and 13% to 5%, respectively. (1) Infants randomized to caffeine were extubated 6 days earlier, discontinued positive pressure one week earlier, received about one-third less postnatal steroids, and one less transfusion on average compared to infants in the control group. At 18 to 21 months, caffeine reduced the risk of cerebral palsy from 7.3% to 4.4% and cognitive delay from 38.3% to 33.8%; (2) however, this difference decreased by 5 years. (3) The reduction in BPD may be due to caffeine's reduction in apnea; however, a recent observational study using ultrasound to evaluate the infant diaphragm before and after receipt of caffeine demonstrated that caffeine increased diaphragmatic thickening, excursion, and contraction velocity. (4)

"The CAP Trial was one of the most vigorous randomized control trials to evaluate the effects of caffeine on preterm infants; however, it was not the only study. A recent systematic review and meta-analysis of infants randomized to caffeine versus placebo or high-dose versus low-dose caffeine found similar findings. (5) Caffeine reduced BPD and PDA in addition to apnea."

The CAP Trial was one of the most vigorous randomized control trials to evaluate the effects of caffeine on preterm infants; however, it was not the only study. A recent systematic review and meta-analysis of infants randomized to caffeine versus placebo or high-dose versus low-dose caffeine found similar findings. (5) Caffeine reduced BPD and PDA in addition to apnea. High-dose caffeine further reduced the risk of BPD compared to low-dose caffeine. High- and low-dose, however, were inconsistently defined across the eligible studies. High-dose maintenance ranged from 12-30 mg/kg/day, while low-dose ranged from 3-10 mg/kg/day. Caffeine probably decreases the risk of motor impairment later in childhood. Another review and meta-analysis of studies evaluating the gastrointestinal effects of caffeine confirmed that caffeine did not increase the risk of NEC. Interestingly, a reduction in reflux was found with caffeine exposure in the early postnatal period.

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(6) These studies demonstrate short- and long-term benefits with minimal risk.

"Several questions, however, remain, including the optimal time to initiate and discontinue caffeine. A systematic review and meta-analysis of 9 observational and two randomized control trials evaluated early versus late caffeine administration. Early caffeine, defined as the initiation during the first 0-2 days, was associated with less BPD, PDA, intraventricular hemorrhage, late-onset sepsis, and retinopathy of prematurity compared to late caffeine, initiated ≥3 days. (7)"

Several questions, however, remain, including the optimal time to initiate and discontinue caffeine. A systematic review and meta-analysis of 9 observational and two randomized control trials evaluated early versus late caffeine administration. Early caffeine, defined as the initiation during the first 0-2 days, was associated with less BPD, PDA, intraventricular hemorrhage, late-onset sepsis, and retinopathy of prematurity compared to late caffeine, initiated ≥3 days. (7) There was a direct association between early caffeine and mortality. The author of one of the most extensive observational studies included in the review speculated that the increased risk of mortality may be secondary to "survival bias". (8) Most deaths occurred early in a preterm infant's life. Therefore, an infant who died early would have been alive to receive early caffeine but not to receive late caffeine.

"However, is there a benefit to extending the course of caffeine? A trial in 16 neonatal intensive care units randomized infants under 32 weeks gestational age who had previously received caffeine and were now 34 to 37 weeks old to receive a low dose (6mg/kg/day) of caffeine through 40 weeks. (9)"

Finally, it has been typical to discontinue caffeine in infants when they no longer require significant respiratory support or reach a certain gestational age. However, is there a benefit to extending the course of caffeine? A trial in 16 neonatal intensive care units randomized infants under 32 weeks gestational age who had previously received caffeine and were now 34 to 37 weeks old to receive a low dose (6mg/kg/day) of caffeine through 40 weeks. (9) They were placed on sensitive monitors to evaluate for "clinically inapparent" intermittent hypoxemia. Clinicians still would not discharge an infant home until "clinically apparent apnea" had resolved, and the infant would go home with the study monitor. They found that caffeine reduced the number of intermittent hypoxemic events by almost half.

"Caffeine has been studied thoroughly in the NICU, and the benefits appear to outweigh the risks for preterm infants. Further studies are needed to determine the optimal dosage and whether neonatologists should continue caffeine beyond 34 weeks' gestation."

Caffeine has been studied thoroughly in the NICU, and the benefits appear to outweigh the risks for preterm infants. Further studies are needed to determine the optimal dosage and whether neonatologists should continue caffeine beyond 34 weeks' gestation.

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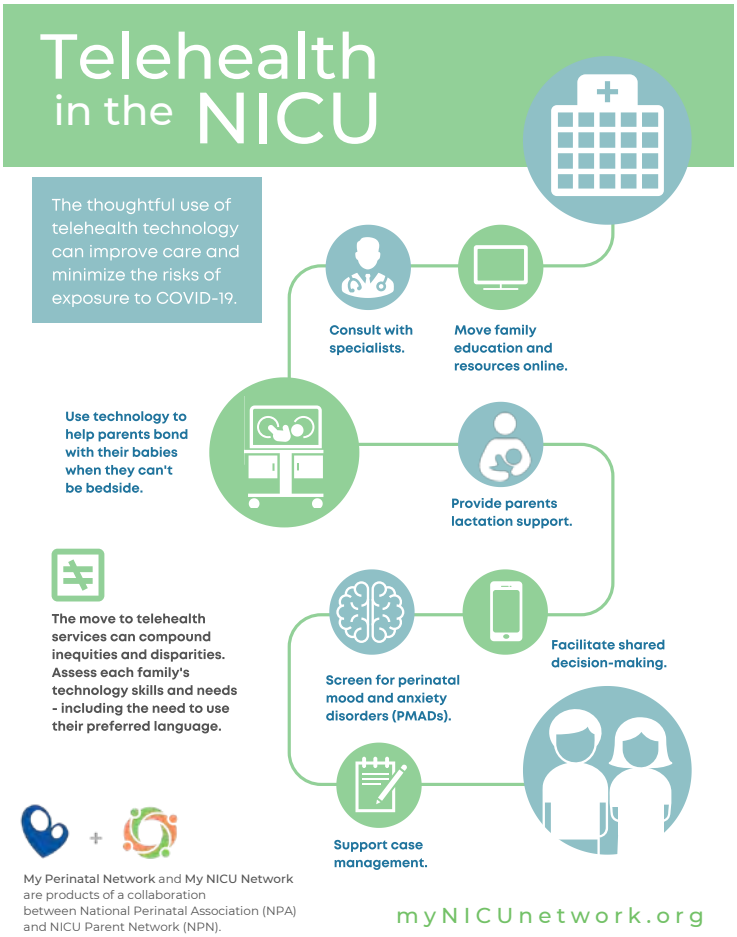
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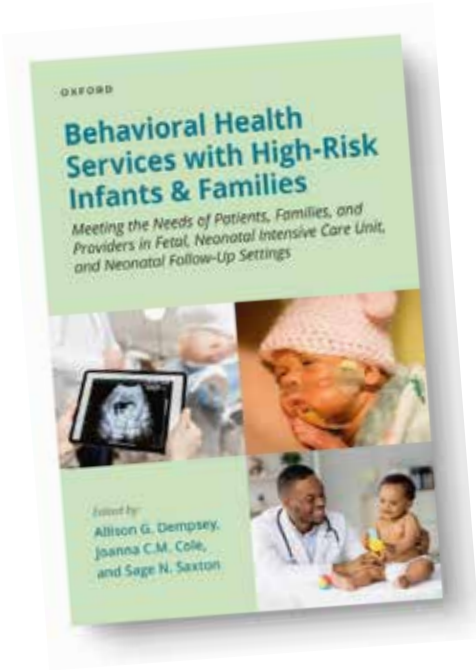
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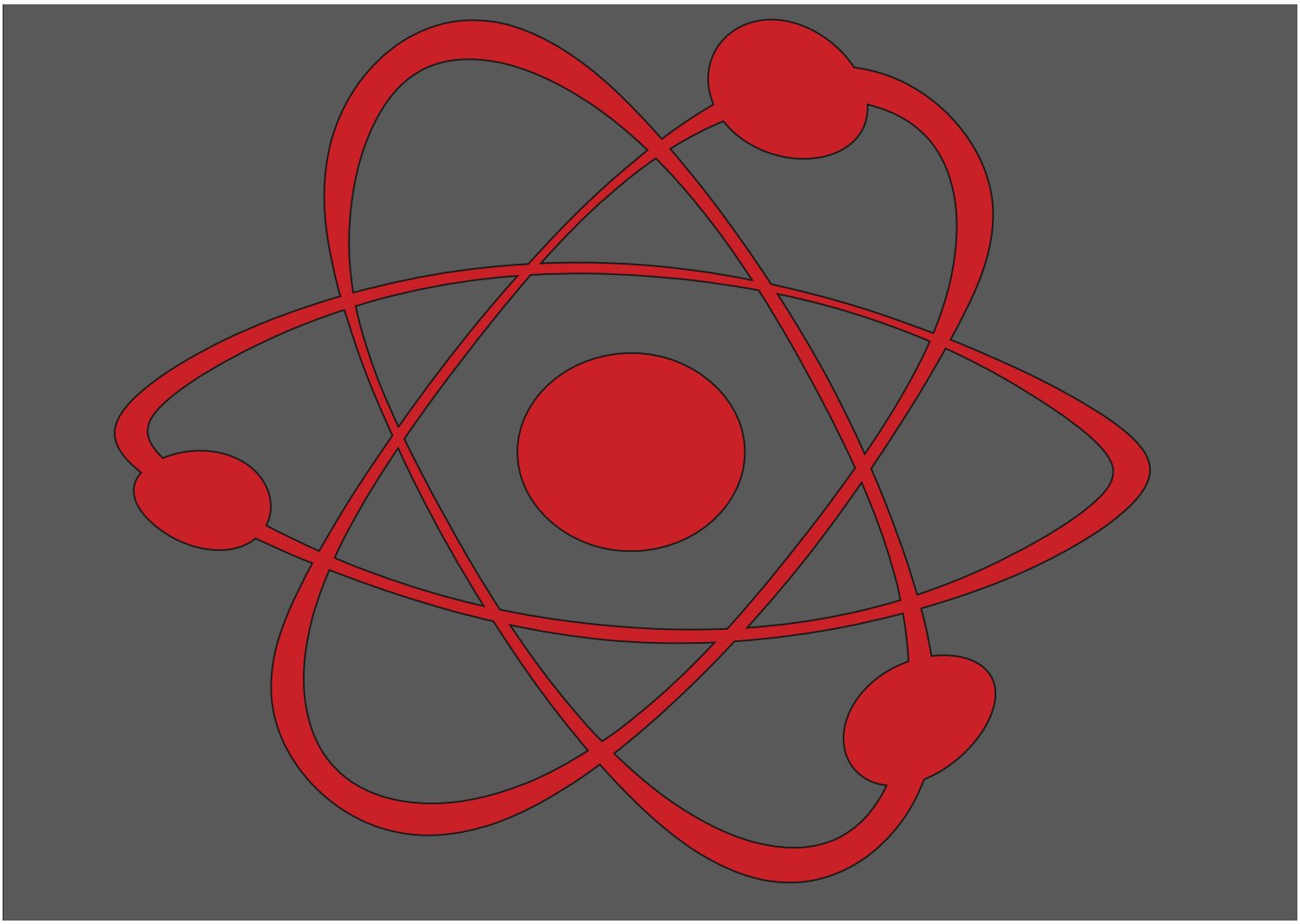
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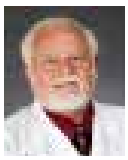
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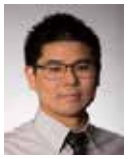
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Neonatology and the Arts

This section focuses on artistic work which is by those with an interest in Neonatology and Perinatology. The topics may be varied, but preference will be given to those works that focus on topics that are related to the fields of Neonatology, Pediatrics, and Perinatology. Contributions may include drawings, paintings, sketches, and other digital renderings. Photographs and video shorts may also be submitted. In order for the work to be considered, you must have the consent of any person whose photograph appears in the submission.

Works that have been published in another format are eligible for consideration as long as the contributor either owns the copyright or has secured copyright release prior to submission.

Logos and trademarks will usually not qualify for publication.

This month we continue to feature artistic works created by our readers on the next to last page as well as photographs of birds on rear cover. For this edition, our art was again graciously provided by Colleen Kraft, MD. It is a work called "Family" done by her son Tim. Our birds are from Bonelli park lake in San Dimas provided by Larry Tinsley, MD.



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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.

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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.**

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Invitation to Apply:

Seeking content development experts for an AAP Project Advisory Committee (PAC)

The White Zone – Developing A Perinatal Loss Toolkit for LMICs

The Need: Over 2.4 million neonatal deaths and 2.6 million stillbirths occur each year; 98% occur in Low- and Middle-Income Countries (LMICs). While programs such as Helping Babies Breathe (HBB) and Essential Newborn Care (ENC 1 and 2) have revolutionized how providers in LMICs train in and provide neonatal resuscitation and post-delivery care for small and sick newborns, gaps remain in how to best offer end-of-life care and post-loss psychosocial care in these settings.

The Babies: HBB and ENC 1 begin with assessing if a baby is crying and conclude with the "Red Zone" where a baby who is unable to sustain an appropriate heart rate and/or respirations is provided with PPV support as someone attempts to get help. Within the HBB/ENC framework, we could imagine several babies for whom an extension of this framework to include palliative/perinatal loss guidelines could be helpful:

1. A stillbirth for whom no resuscitation is attempted. (Stillbirth)
2. A baby who proceeds through the red zone but never has a heartbeat or breathing despite the best resuscitative efforts of the team. (Stillbirth)
3. A baby who proceeds through the red zone who, after 20 or so minutes still has a very low heartbeat and/or gasping breathing. (Anticipated neonatal death)
4. A preterm baby who is too small for ongoing support, based on local resource constraints or resuscitation guidelines, despite a sustained heart rate and breathing. (Anticipated neonatal death)

The Approach: Create a suite of resources that could accompany ENC 1 and 2, focused on end-of-life care and perinatal loss. These resources would be less algorithmic than ENC, as local practices around death vary significantly – meaning there is not one "right" way to approach this care. Rather, the "White Zone Toolkit" would combine structured guidance about symptom management as well as reflective tools for implementing contextually and culturally appropriate post-loss care. This could consist of, but is not limited to, the following:

1. Structured guidance on what physiologic changes may happen at the end of life (ex: gasping) as well as pharmacologic and non-pharmacologic options for symptom management.
2. Reflective questions about if/when to offer seeing or holding of the baby.
    - Data shows that many women want to see and/or hold their infant following stillbirth or neonatal death but are often not offered that opportunity based on historic cultural norms.
3. Reflective questions about cultural traditions around loss and if/how these practices can be supported by those attending the delivery.
4. Anticipatory guidance guides on how mothers may still produce milk and how to manage those symptoms.
5. Anticipatory guidance on potential maternal mental health needs. Reflective questions on how to approach mental health and psychosocial support after loss.
6. Access to a set of adaptable practice scenarios that could help providers gain experience in handling perinatal loss and communicating with families surrounding perinatal loss.

Introducing Dr. Zahera Etter

It is our pleasure to introduce Zahera Etter, médecin pédiatre, Cagnes-sur-Mer, Provence-Alpes-Côte d'Azur, France. In an interest to bring more beautiful content to our readers, we will feature her amazing photographs from all over the world monthly. Please find her bio below in French and English.

Je suis médecin , spécialiste en pédiatrie, diplômée de la Faculté de Médecine de Nice. J'ai exercé dans des services de pédiatrie, néonatalogie et réanimation néonatale et en maternité au sein de centres hospitaliers universitaires en France (CHU de Nice, Fondation Lenval à Nice, Antibes, Cannes) et en Principauté de Monaco (Centre hospitalier Princesse Grace), durant 11 ans et je pratique la pédiatrie en libéral depuis 1999 avec une activité dans des services de maternité en cliniques privées à Cagnes sur Mer et à Nice. Je suis très engagée dans la prévention des maladies infectieuses, ainsi que dans le repérage des troubles du neuro développement devenus assez fréquents et entachant lourdement le développement de l'enfant. Je suis également très attentive aux spécificités pharmacologiques propres à chaque tranche d'âge chez l'enfant, un domaine peu développé en pédiatrie. Je suis membre de l'association des pédiatres de Nice Côte d'Azur.

I am a doctor, specialist in pediatrics, graduated from the Faculty of Medicine of Nice. I worked in pediatrics, neonatology and neonatal intensive care units and in maternity in university hospitals in France (Nice University Hospital, Fondation Lenval in Nice, Antibes, Cannes) and in the Principality of Monaco (Princess Grace Hospital Center). , for 11 years and I have practiced pediatrics privately since 1999 with activity in maternity services in private clinics in Cagnes sur Mer and Nice. I am very committed to the prevention of infectious diseases, as well as to the identification of neurodevelopmental disorders which have become quite frequent and seriously affect the development of the child. I am also very attentive to the pharmacological specificities specific to each age group in children, an area that is little developed in pediatrics. I am a member of the association of pediatricians of Nice Côte d'Azur.





