with postpartum OCD experience aggressive obsessions about possibly harming their newborns and develop compulsions that involve their infants’ safety. Treatment – The treatment for postpartum OCD is no different from other OCD occurrences. The primary treatments are typically medication and discussing dysfunctional emotions, behaviors and conditions with appropriate mental health practitioners. However, it is important to note that treatment must be sensitive to the unique characteristics of postpartum OCD including sudden onset, symptoms and patient preferences. “Information about the frequency, cause, symptoms and treatment of postpartum OCD are not only important to new parents, but also for the nurses who spend considerable time caring for new mothers,” said AWHONN’s Chief Executive Officer Karen Peddicord, PhD, RN. “Education and information for nurses about postpartum OCD is essential.” Ultimately, nurses can help women identify postpartum OCD, and if obsessions and compulsions are problematic, they can facilitate timely and necessary referrals for treatment. For more info contact jognn.awhonn.org.

CANCER VARIABLES
The cancer-causing potential of fetal exposure to carcinogens can vary substantially, according to researchers at Oregon State University, depending on when the fetus is exposed. The damage manifests due to epigenetic changes in the cells. (See our guest commentary on page 56 of the Jan/Feb issue.) Researchers gave mice four separate doses of a carcinogen commonly found in air pollutants or other combustion products. The mice had triple the level of ovarian cancer at the rodent equivalent of middle age. About 80% also got lung cancer, and many of the male mice had abnormally small testes. In previous research the same amount of this carcinogen given in a single dose caused a much higher rate of T-cell lymphoma, while in this study, lymphoma disappeared when the carcinogen exposure was spread out over time, as was liver cancer. The mice in these experiments were exposed to polycyclic aromatic hydrocarbons, commonly produced by many processes, from coal combustion to automobile exhaust. PAHs can also get into soils, be taken up by plants and get into the human food chain.

JUST BEAR IT
Pregnant women are being warned about taking common cold medicines by the California Teratogen Information Service. According to the CTIS, expectant moms should only take medications needed for their specific symptoms, and not those medications with multiple combinations of ingredients. Instead of taking oral decongestants in the first trimester, moms should use saline drops or short-term nasal sprays. Pregnant moms should beware of unresearched herbal ingredients. Don’t take too many vitamins or throat lozenges. The ideal amount of daily vitamin C for pregnant women is 80 to 100 mg, and 11 mg of zinc. Moms are also urged to get alcohol-free cough syrup. Information is from Medical News Today, written by Grace Rattue, copyright Medical News Today.

INHALE
Inhaled glucocorticoids for the treatment of asthma during pregnancy are not associated with an increased risk of most diseases in offspring, but may be a risk factor for endocrine and metabolic disturbances, according to a study at the University of Basel, Switzerland. In a population-based cohort study, 65,085 Danish mother-child pairs were followed from early pregnancy into childhood. Maternal use of inhaled glucocorticoids for asthma during pregnancy was not related to an increased risk of most diseases in childhood, except for endocrine and metabolic disorders, as compared to the risk in asthmatic mothers without glucocorticoid inhalation during pregnancy. Of the study

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At any given time in the history of medicine, there are many medical conditions that are considered unavoidable and are the result of the baby’s premature birth. Others are preventable by providing the best possible developmentally supportive habitat to the baby in the NICU.

Through research we create new understandings of phenomena, with the goal of finding ways to minimize the negative consequences of the “nature” of being born prematurely. Often the results of research find that there are conditions that can be reversed, and that, by practicing evidence-based developmentally supporting care, can lessen, or even prevent – without the need for expensive equipment, invasive procedures, or medication. I call it “nurture.”

Here are some examples:

- Preemies have undeveloped organs and systems (nature), so we work to provide the appropriate habitat to provide the best possible physical, psychological, physiological, and neurological development, including the effective inclusion into the family (nurture.)
- Preemies are born with underdeveloped skeletal structure (nature), so we now know how to successfully prevent plagiocephaly/flat head caused by poor positioning (nurture.)
- Preemies no longer feel the sense of protection provided by the womb (nature), so we simulate it (to the best of our ability) by providing proper lighting, sound protection, minimal disruptions, proper positioning, boundaries, containment, closeness to the mother, and we introduce the father as an effective source of sense of security and comfort (nurture.)

I don’t have a medical background. I have a PhD in ergonomics engineering and for a decade have been the leader in applying ergonomic principles and best practices to improving the morbidity and habitat of convalescent infants, especially those in the NICU. By definition, “Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance. Practitioners of ergonomics, ergonomists, contribute to the planning, design and evaluation of tasks, jobs, products, organizations, environments and systems in order to make them compatible with the needs, abilities and limitations of people.”1

As an ergonomist, as an engineer, and as the mother of a former preemie, I work with NICU staff and families and acquire evidence-based knowledge to continuously enhance the standard of care during the stay NICU so that we can give the babies and families a chance for the best possible quality of life, not only in the hospital but for a lifetime.

My son was born prematurely in 2001 in Houston, Texas where I have resided since 1988. Everything about having a preemie felt unnatural and foreign to me, except Kangaroo Care (KC). I was born and raised in Bogota, Colombia, and I had heard about Kangaroo Mother Care because the method was first born in my city in 1978. According to the US Institute for Kangaroo Care (USIKC), “Kangaroo Care, Skin-To-Skin Contact, and Kangaroo Mother Care are terms that relate to the holding of a diaper clad infant bare-chest to bare-chest, ventral-surface to ventral-surface by the mother, father, or others.”2

I appreciate very much the existence of the NICU for saving Zachary’s life; however, it was not a place I dreamt about when I was pregnant. In fact, I don’t wish anyone to go through what we went through. My reality was that I was in the NICU for 155 days watching my son struggling to survive, holding on to his every breath. His cry broke my soul and I heard it loud and clear even when he couldn’t make any sound.

After a “mourning” period for not having a healthy pregnancy, and the guilt of getting better while he was getting worse (I had preeclampsia), I had to be strong for him. One of my biggest challenges was to learn how to combine my maternal instinct with ergonomics in understanding my son’s limitations and his interaction not only with me, but also with the NICU staff, the equipment, and with his own environment (on the bed/incubator/Kangaroo Care).

My son, like the majority of extremely low birth weight preemies, had bradycardia and apnea of prematurity. Uncountable times I heard the alarms go off and saw (and learned) how he had to be “reminded” to breathe by touching him. Every nurse and doctor told me, “it is normal for preemies to have apnea and bradycardia and they will resolve as Zachary grows.”

Many clinical factors including recurrent apnea and bradycardia, as well as stressful environmental conditions, including infant-
provider interaction, constant noise, and bright light, may act in combination to impact on the developing brain, even in the absence of overt hemorrhage and/or ischemia.9

One of the consequences of brain development is that apnea and bradycardia contribute to the infant’s sleep deprivation. Nurses spend a significant amount of time monitoring, assessing, and managing apneic and bradycardic episodes, given that nearly all ELBW infants experience them.4

Here is how I see it:

1. **Premies need to sleep.** Only while in REM sleep do babies develop sensory systems: somesthetic (touch), kinesthetic (motion), proprioeception (position), chemosensory (smell and taste), auditory (hearing), vision, limbic (emotion), social learning, and hippocampus (memory).5 A presentation by Drs Stan and Michael Gravens in Vienna in 2008 explained that “sleep is necessary for: neurosensory development, preservation of brain plasticity, and learning and long-term memory.” They explained that REM Sleep Deprivation leads to: 1. Disordered sensory system-infants, 2. Disordered or disrupted learning and memory creation, 3. Loss of cortical plasticity into adult life, and 4. Smaller adult brain size. Non REM Sleep Deprivation Leads to: 1. Decreased learning and memory consolidation from sensory experiences (vision, hearing and touch). 2. Less ability to learn in childhood and adult life. 3. Loss of brain plasticity into adult life, and 4. Smaller adult brain size.”7

2. If preemies have apnea/bradycardia, we wake them up. Clinical interventions for apnea include tactile stimulation, provision of thermoneutral environment, methylxanthine therapy, continuous positive airway pressure or ventilatory support.6,7 Stimulants such as caffeine that are considered drugs, since they cause difficulty sleeping, increase of heart rate, etc. Methylxanthines (theophylline and caffeine) have been used for almost four decades to treat apnea of prematurity.8 These medications are successful in decreasing the episodes of apnea/bradycardia but they may be causing sleep deprivation.

3. If babies don’t sleep, they don’t develop their brains. Apnea/bradycardia usually resolve as the baby grows;9 however, these events don’t allow babies to fall or stay asleep and any negative consequences from lack of sleep may never be outgrown.

4. There is evidence that episodes of apnea and bradycardia can be reduced. Evidence shows that during Kangaroo Mother Care Method (KMC) preemies sleep significantly better than in the incubator/bed.10 Several studies have been done about apnea and bradycardia during KMC and some results show a decrease or even an absence of these life-threatening events while using Kangaroo Care.11 Also, control studies of intubated infants who have been given 1 to 2 hours of KC have shown among other benefits, fewer apnea and bradycardia spells12 and fewer or no desaturation events.13

Kangaroo Care is still in its infancy in the US. Unfortunately, parents in the US do not kangaroo 24/7 as they do in Sweden. Often and for many reasons, parents are not available, they don’t know about KMC, and/or the baby is not “stable” enough to be held. Those babies still need an ergonomic habitat and my job is to use my personal and professional experience and my education to provide it.

A recent independent randomized control trial about the effectiveness of simulating maternal intervention was presented at the American Public Health Association’s (APHA) Annual Meeting. The results: Infants receiving the maternal simulated intervention device had fewer episodes of apnea/bradycardia (p<0.05).14 The group using the maternal simulation intervention device that was maternally scented experienced zero apnea and zero bradycardia events.15

That leads me to my question:
If all the current literature and experts explain that apnea/bradycardia is caused by nature (the immaturity of the brain, heart, and respiratory systems), why is it that we can see an improvement when the baby is in Kangaroo Care or when we simulate the mother’s intervention (nurture)? After all, the baby’s circulatory, respiratory, and nervous systems are just as developed when the baby is in the incubator as they are when the infant is transferred to Kangaroo Care.

I, like you, cannot ignore the evidence that preemies respond differently during diverse environmental conditions (Kangaroo Care/Maternal Simulation vs incubator/bed). With more research we can prevent and/or lessen apnea and bradycardia of prematurity, move preemies from the category “nature” to “nurture,” and elevate the standard of care in NICUs.

My “call to arms” for neonatal professionals is to work together to give preemies an ergonomic, nurturing and most effective and developmentally supportive care: an individualized environment with high interaction of the parents, which promotes and understands the importance of sleep.

Let’s increase parental involvement and Kangaroo Care and allow parents to work with you to reduce the episodes of apnea and bradycardia. Having a positive impact in each baby’s neurological development has the potential to decrease the cost of healthcare/therapy/etc, reduce the time spent dealing with episodes of apnea/bradycardia, reduce the alarms and sound
levels of the NICU, and improve the quality of life not only of the infant, but also of the family and society at large.

Imagine how you will feel when together we significantly decrease or even eradicate apnea and bradycardia of prematurity. May I count you in?

References


