A Holistic Approach to Neonatal Resuscitation

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Full Text: Headnote ABSTRACT: The emerging science of pre and perinatal psychology and developmental neuroscience suggests newborns are conscious and capable of feeling and establishing memory at birth. The science points to the potential for imprinting traumatic events at birth which may then become the foundation for future mal adaptive behavior patterns and mental illness. Pre and perinatal thought leaders are calling for new models of obstetric and neonatal care that acknowledge the consciousness and suffering of babies at the time of the trauma. Nurses at a small community hospital in Portland, Maine have developed a neonatal resuscitation model that honors the consciousness and capability of neonates and may potentially minimize the risk of lasting impact. KEY WORDS: Pre and perinatal psychology, neonatal resuscitation, consciousness. INTRODUCTION The Neonatal Resuscitation Training Program (NRP) was developed jointly by the American Academy of Pediatrics (AAP) and The American Heart Association (AHA) to standardize the approach to neonates in distress at birth and ultimately to save lives. The training program is based on the AAP and AHA's International Guidelines for Emergency Cardiovascular Care of the Newborn. It has been in existence since 1987 and is revised periodically according to the latest neonatal medicine science (Kattwinkel, 2000). It is standard in most hospital obstetric units for nurses and medical staff to receive training in NRP and have annual re-certification to insure their competence. While the NRP training program describes a step-by-step approach to evaluating and treating the neonate in distress, it says nothing of who the neonate is with regard to his or her consciousness and suffering. Pre and perinatal psychology (PPN) research suggests the neonate is aware of his or her surroundings and is extremely sensitive and responsive to the environment before, during and after birth. Writings and research by thought leaders in the field of PPN such as Thomas Verny, William Emerson, Frederick Leboyer, Robert Oliver, David Chamberlain and others predict that the greater the frequency and magnitude of trauma a baby experiences during the prenatal and perinatal periods, the deeper and more lasting the psychological impact may be. A neonatal resuscitation event holds great potential to cause a high degree of trauma in a baby because of its life and death nature. Awareness of PPN research led two nurses at a small community hospital in Portland, Maine to imagine a way to incorporate an attitude of honoring the innate consciousness of the neonate during the lifesaving procedure of NRP and to call on the baby's consciousness during the resuscitation. The nurses believed the added dimension might lessen the life long impact of the catastrophic birth event and have a profound impact on the nursing and pédiatrie staff as well. What follows is a brief description of neonatal resuscitation and pre and perinatal psychology research pointing to neonatal consciousness and the lasting impact of birth trauma. I will present a model of care that honors the mind/body and spirit of newborns undergoing neonatal resuscitation. This model is congruent with the recommendations of thought leaders in pre and perinatal psychology to create new obstetric and neonatal models of care based on the emerging pre and perinatal psychology science. NEONATAL RESUSCITATION In the event of an obstetric emergency physicians, midwives and nurses caring for mothers and babies must act quickly and competently. The Neonatal Resuscitation Program (NRP) training manual states, "Making the transition from the intrauterine to the extrauterine life is probably the single most dangerous event that most of us will ever encounter in our lifetimes.. .the remarkable aspect of birth is that more than 90% of babies make the transition perfectly smoothly with little to no assistance required" (Kattwinkel, 2000). Birth asphyxia as the result of an obstetric emergency accounts for 19% of the 5 million neonatal deaths worldwide (World Health Organization, 1995). The NRP training manual states, "Approximately 10% of newborns require some assistance to begin breathing at birth;

about 1% need extensive resuscitative measures to survive" (Kattwinkel, 2000). Care providers need to be well practiced to competently respond to the small percentage of neonates requiring assistance. NRP training was created to provide such practice. Essentially NRP training consists of reading and understanding the manual, completing and passing a written test and demonstrating competence at a mock neonatal emergency. Elements of neonatal resuscitation include providing a warm, well equipped field upon which to place the baby, a quick assessment of the baby for breathing and heart rate and a step by step approach to provide ventilation, oxygen, suctioning, cardiac compressions, placement of an endotracheal tube and medications as needed to revive the infant. The steps of resuscitation are dictated by the status of the infant as he transitions into the extrauterine environment. Post stabilization care includes careful observation, and or transfer to a neonatal intensive care unit. The training also includes considerations for not undertaking neonatal resuscitation as in the case of a severely premature or non-viable infant or stillborn (Kattwinkel, 2000). POTENTIAL IMPACT OF RESUSCITATION It is beyond the scope of this paper to discuss whether or not current highly medicalized birth practices contribute to the frequency of neonatal and obstetric emergencies. The wording of the NRP training manual describes birth as, "the single most dangerous event that most of us will ever encounter in our lifetimes" (Kattwinkel, 2000) inferring the necessity of medical interventions during the birth process. It is suggested by pre and perinatal researchers that prevention of neonatal emergencies is possible when birth is not so highly medicalized. William Emerson (1998) describes the psychological effects of obstetrical interventions drawing from his twenty-five plus years of studying birth and the psychological impact of birth. He writes, "The foremost discovery is that medical interventions appear to have long-term detrimental (physical and psychological) effects and, because of this, even the most commonly used obstetrical interventions must be questioned" (p. 11). A neonatal resuscitation process is not a gentle one for a baby. As a neonatal intensive care nurse for fourteen years, I have witnessed many emergency Caesarean section and high-risk vaginal births of babies who required resuscitation. I have observed babies roughly plucked or sometimes suctioned or pulled with forceps from their wombs, their umbilical cords cut quickly. The environment is usually cold, bright and the neonatal and obstetric teams are often tense, loud and sometimes shout demands. In the case of an emergency cesarean section, babies are routinely plopped on a cold metal table next to the operative field or into the arms of a nurse draped with a sterile blanket (so to preserve the sterility of the surgeon), picked up abruptly by the neonatal team, placed on a firm surface, roughly dried, slapped and vigorously rubbed to stimulate a cry. If no cry ensues an oxygen mask is thrust to the face and air pumped in vigorously. If the baby does not readily respond to mask ventilation an endotracheal tube is passed through the vocal cords by way of a laryngoscope made of hard cold metal. Suction catheters are passed into the mouth, nose, trachea and stomach. Intravenous catheters are inserted into the umbilical cord; medications are given to speed the heart. In response the baby often positions himself in the Moro or startle position with arched back, either splayed hands or tight fists and eyes either shut tight or wide open. All of these are known signs of stress in newborns according to the Brazelton Neonatal Behavioral Assessment Scale (Behrman, Kliegman, &Jenson, 2004). Questions to consider are: Does the baby remember this? Does this traumatic event become imprinted in the brain or psyche of the baby? Are there behaviors in the baby during infancy, childhood or adulthood suggesting an implicit memory of the event? When an obstetric or neonatal emergency occurs, responding appropriately to the physiologic needs of the baby is indeed critical to his survival. When response is not timely or competent, the potential for lasting brain damage due to asphyxia can occur. In his review of recent neuroscience literature on the impact of perinatal trauma to the neonate's brain, Liu writes that birth trauma can cause brain damage and may predispose individuals to externalizing behaviors, such as conduct disorders, hyperactivity, aggression and violence. Birth hypoxia may damage sensitive areas in the limbic system, which regulate emotional reactions (Liu, 2004). A study by Jacobsen and Bygdeman found a positive correlation between birth trauma and increased risk of violent suicide for adult men. Meconium stained fluid, resuscitation at birth, presentation other than vertex, forceps delivery and internal version were identified as significant birth traumas in suicide victim's birth records

(Jacobson &Bygdeman, 1998). Ward cites an earlier study by Dr. Lee Salk linking teenage suicide to birth trauma (Ward, 2004). Ward examined the relationship between negative pre and perinatal events and suicide concluding that these events may predispose an individual to suicidal thoughts, or actual suicide and that more study is needed to clearly determine the pre and perinatal roots of suicide (Ward, 2004). Although it is not yet firmly established that neonatal resuscitation leads to externalizing behavior patterns and eventual suicide, it is becoming clear that there are links. Liu (2004) concludes in his literature review on the impact of birth trauma as predisposition to externalizing behaviors, "Nurses, midwives, obstetricians, childbirth educators and social workers are in an ideal position to develop early prevention and intervention programs to help reduce prenatal and perinatal complications.. .such a multidisciplinary approach may potentially help reduce the likelihood of later externalizing behavior problems" (p. 308). A question to consider is, does resuscitation or other traumatic events at birth create an implicit memory so terrifying and therefore establish a pattern of needing to be rescued, feeling anxious or feeling victimized? Researchers and therapists uncovering birth memories as a way to heal persistent maladaptive behavior patterns in children and adults describe healing of those behaviors and patterns when the traumatic birth memory is recovered and understood (Emerson, 1998). Correlation between negative birth experiences and development of later symptoms (alcoholism, anxiety, depression, phobias, marital problems, asthma, nail biting, hair pulling) was reported by Barnett in a study using hypnosis to inquire about birth events in clients with mental health issues (Barnett, 1987). If the traumatic birth memory was recovered in hypnosis it could be argued that the memory was inaccurate or that a baby could not form a memory of such an event given the brain's immaturity. In Chamberlain's study of the accuracy of birth memories he compared mother's memories and children's memories of the birth retrieved using regressive hypnosis. Chamberlain describes the memories of mothers and babies representing two different points of view, the mother's and the baby's. They were largely coherent with few inconsistencies. Chamberlain concluded that the memories of birth when retrieved through regressive hypnosis are most likely real and represent a fairly accurate accounting of the details of birth. Where there are inconsistencies Chamberlain reasoned that may in part be due to the nature of memories, mostly accurate with potential for errors, misperceptions and omissions (Chamberlain, 1986). The ability to retrieve nearly accurate birth memories through hypnosis suggests a baby is aware of what is happening around him and records the events sequentially at birth. In his book, The Mind of Your Newborn Baby, Chamberlain (1998) describes birth memories of children when regressed back to their births through hypnosis. He builds evidence for a baby's awareness of birth events as in the following case of a child remembering her birth while in hypnosis. She has awareness of what was happening to her and an awareness that people did not know she was aware. I saw all these people acting real crazy. What's when I thought I really had a more intelligent mind, because I knew what the situation was with me and they didn't seem to. They seemed to ignore me. They were doing things to me-to the outside of me. But they acted like that's all there was. When I tried to tell them things, they just wouldn't listen ... I just really felt like I was more intelligent than they were (Chamberlain, 1998, p. 157). In another case Chamberlain describes a 37-year-old woman remembering her birth and the elements of her resuscitation. Throughout her life she had suffered breathing problems, an inability to take in enough air and a crushing feeling in her chest during stressful situations. She had not been aware of the root of the problem. Recalling her birth in hypnosis she said: I wish they'd hurry up! I'm stiff as a board. He wants to stick a tube down my throat but I don't want him to ... He's stuffing it all the way down me. It's awful! ... And the reason he's got the tube pushed down so far is that he's never done this before ... Oh its been so long! I can't feel anything except the upper part of my chest ... it feels like my body's shriveling up ... the nurse keeps saying, "She's dead." If they don't hurry up I'm going to be in real trouble ... I know if they'll get me breathing I'll be just fine ... (Chamberlain, 1998, p. 158-163). Chamberlain questions the prevailing belief that newborns are incapable of awareness or memory because of brain immaturity in the pre and perinatal time period. In a recent article by Chamberlain he asserts babies are capable of awareness, memory making and learning during this early time. He concludes, "Birth professionals are in a

privileged position to communicate with prenates from the first prenatal visits to the climactic experience of labor and birth-if they choose" (Chamberlain, 2003). NEW MODELS OF CARE TO PREVENT TRAUMA Frederick Leboyer, French obstetrician, envisioned the possibility of a non-violent birth in bis paradigm-shattering book, Birth Without Violence. In it he describes a way to assist the newborn to transition into the world gently and free of trauma and fear. His observation is that children born in this way grow up to be strong individuals free of fear and living life fully instead of marked by the fear of a traumatic birth (Leboyer, 2002). Dr. Robert Oliver, an obstetrician, began to rethink standard obstetric care after his exposure to the pre and perinatal psychology literature especially the manner in which cesarean section delivery was practiced. Understanding the baby was aware at birth he proposed an ideal cesarean section (Oliver, 2000). He proposes elements of his ideal C-section could be practiced even in the event of an emergency. These include the mother communicating with the baby about what is happening when the emergent situation is discovered, the father or nurse sending healing energy through his or her hands as the mother is taken to the operating suite, the surgeon reaching gently to the baby through the incision and tenderly removing the baby, the baby arriving in a warm, darkened room, quick assessment of the baby's condition on the mother's abdomen, preservation of the fetal circulation or fetal-placental resuscitation if possible until the cord ceases pulsation, gentle handing of the baby to the neonatal team who are also in a calm state of mind, "... to reach the barely alive consciousness of the child, talking quietly and reassuringly to this fresh-born, and avoiding excessive traumatic stimulation" (p. 338). Throughout the resuscitation event Oliver recommends, "At all times the child should be spoken to and informed" (p. 338). Awareness of a baby's consciousness and the extreme vulnerability of a baby to the terror of a traumatic resuscitation event led me and another registered nurse at the Birthplace of Mercy Hospital in Portland, Maine to create an added component to the NRP training for the nursing staff. We imagined that if a nurse practiced holding an awareness of the consciousness of the neonate during the NRP training that nursing behavior might become an actual part of a neonatal resuscitation. We wanted the nurses involved in resuscitation to validate the traumatic experience of the baby at the time of impact. We believed it might be possible to lessen the impact of such an insult or at least to change the experience for the baby in the direction of a positive experience. We envisioned creating a container of warmth, safety and love for the stressed newborn to arrive into much like the environment described by Oliver and Leboyer. We believed it was possible even in the most catastrophic of birth events to perform neonatal resuscitation competently and hold a space for gentleness and compassion for the new being. At the start of the NRP training, nurses are asked to sit quietly in a dimly lit room and enter into a state of relaxation. This is facilitated by focusing on the slowing and deepening of breath and a guided muscle relaxation exercise. A brief guided imagery experience is provided beginning with the nurse imagining an obstetrical emergency where she retains the feeling of a relaxed mind, clear thinking, easy breathing, and her feet grounded strongly on the floor. It is suggested that she is well prepared and capable to respond competently to the emergency. She is directed to tell the mother to go inside to communicate with the baby and tell the baby he is loved, safe and that help is coming. In the relaxed state the nurse is asked to visualize creating a container of quiet, warmth and peace into which the baby will enter with all of the equipment for resuscitation organized and ready. She then is told to imagine gently receiving and placing the baby on the warmer all the while talking to the baby and reminding him he is loved and safe and that now it is time to take that first breath he has practiced inside the womb. Next, she is asked to observe herself gently assessing the baby's respiratory effort and heart rate. During this she observes herself acknowledging the baby's fear and offering reassurance. She is then directed to visualize the steps of neonatal resuscitation as she continues to feel calm, competent and breathes easily. She is told to see her hands moving swiftly but gently, knowing exactly what to do. She observes herself calling to the baby telling him he is safe and that soon he will feel better. At the end of the imagery she is given the suggestion "It will be easy to remember all of the steps of NRP and to feel calm and remember to talk lovingly to the baby in the event of an emergency." After the imagery the children's book On the Day You Were Born by Debra Frasier (1991) is read. When we first began

to put this imagery component into the NRP training nurses told us they liked the experience and that it helped them to feel calmer and more relaxed as they took their written test and participated in the mock resuscitation that followed. But it was not until the nurses began to call on those skills in real emergencies did the full impact of the imagery appear. Nurses reported feeling calmer at stat C-sections. They told us they felt better about their place in the drama and that they had something important to do for the baby beyond stabilizing respirations and heart rate. Nurses have said, I really did slow down inside and I could think clearly. I didn't fumble with the equipment like I had in the past. I didn't feel as afraid. I noticed my voice being calmer. I noticed my hands moving just the way I had seen it in the imagery. A pediatrician called to attend to a baby in a stat C-section for fetal distress said later, "That was an amazing code. The nurses were so calm and they talked to the baby and assured him he was going to be okay. He opened his eyes and took a deep breath when she said that. It was the best code I have ever attended. And I felt calmer because the nurses were so calm. I think the baby did better as a result." THE CASE OF BABY SAMUEL Joan had a conscious conception and pregnancy. She and her husband planned to conceive a child and prepared themselves during the pre conception time with exercise, healthy diet, meditation and reading books about pregnancy and parenting. They conceived easily and received their prenatal health care from a nurse midwife. They planned a water birth at the community birthing center. Joan went into labor within a few days of the expected due date. She spent the early hours at home and arrived at the birthing center dilated to 5 centimeters. After 22 hours of labor she was fully dilated. After two hours of hard pushing the midwife advised a hospital transfer as the baby was not descending. When Joan arrived at the hospital she was placed on a fetal monitor. The monitor showed a deep deceleration in heart rate, which resolved slowly with a position change. Within a few minutes another deep deceleration in heart rate occurred in the baby. Joan was exhausted; the baby was no longer tolerating labor and was deemed to be in a position prohibiting descent through the birth canal. After a conversation with the obstetrician Joan and her husband agreed to a cesarean section. I met Joan and her husband as preparations were being made for the urgent C-section. I entered the room and found Joan frightened and in tears. Her husband, a nurse and experienced meditator, was trying his best to comfort her but he needed comforting himself. I suggested he place his hands on her belly and send his love to the baby and tell the baby he was safe, that things had been hard but help was coming. I said to Joan, "Go inside and tell the baby he is safe, you love him and you are ready for him to be born." She added, "I'll tell him he is bathed in white pure light and love." She closed her eyes for a few moments. The room calmed down and the voices of the other nurses in the room quieted. As Joan arrived in the surgery suite she was doing a great job breathing slowly and sending thoughts to her baby. Her husband was given a seat at her side. The lights in the room were dimmed except for the surgical field and light above the infant warmer. I prepared the infant warmer for receiving the baby and resuscitation if needed. I placed plenty of pre-warmed blankets on the warmer and arranged all of the equipment while watching my hands move slowly and surely and feeling my feet firmly on the floor. I sent love to Joan, her husband, the baby and to the surgical team as I watched and waited. I calmed myself by breathing in the tension and stress of the room and breathing out calm and peace. The obstetrician and assistant began the surgery after the epidural was placed. Joan was behind the surgical drapes with her husband seated next to her. The nurse anesthetist calmly described what was happening. When the baby was brought out through the incision he was floppy and pale without much respiratory effort. He was placed on Joan's belly as the cord was clamped and cut. The doctor welcomed him, saying, "Welcome Samuel, Happy Birthday" and handed him gently to the nurse who placed him on the warmer. I began immediately to talk to him and gently stroke his back with my gloved hands while assessing his status. I calmly told him it was okay to now take a big breath, that he'd been practicing for this moment while he was inside Mom, that he had done a beautiful job being born, that it was hard work and maybe scary but now he was safe. The nurse immediately checked his heart rate and told me it was 90 beats per minute. He attempted a few weak gasping respirations. I continued to talk to him calmly while assisting his respiratory efforts by giving breaths of warmed oxygen through a ventilatory bag and mask softly placed on his

face. He then made his first real respiratory efforts and his heart rate rose to 140 beats per minute as he began to take more vigorous breaths. I invited his father to come over to the warmer just as he was beginning to open his eyes saying, "Come here closer and talk to him so he can see you first." His father did that saying "Hello, Samuel, there you are." At that point Samuel took an even deeper breath and let out a hearty cry. He then rapidly became pink and his muscle tone improved. The attending nurse, father and I continued to talk to him saying he had done a great job and that the scary part was over and he was safe. By ten minutes of age he was in his mother's arms. He fed at the breast within the first 30 minutes of life. He was never separated from his parents while he was in the hospital. His post partum course included an osteopathic cranial sacral treatment. Joan, her husband, Samuel and I had daily discussions about the birth while they were in the hospital. Joan felt she had given it her best and was pleased with the outcome. Samuel had more than the usual amount of crying in his first 8 weeks of life but Joan acknowledged his crying and both of their fears at the time of the birth. Now at three months of age he is growing and developing normally and is a happy baby who easily engages with others and is settling into regular patterns of sleeping, eating and playing. (The names of individuals involved have been changed to protect identity). CONCLUSION David Chamberlain concluded a recent article stating, "Currently the territory of two-way communication with babies is uncharted, adult preparation for it is negligible, and guidelines are missing, yet the door stands completely open and the possibilities are unlimited" (Chamberlain, 2003, p. x). The doorway can stand open even in the midst of the chaos of a neonatal resuscitation event. We cannot yet imagine or measure the full impact of how babies being acknowledged for their pain and suffering at a traumatic birth makes a difference. We cannot yet know the effect of a nurse or doctor changing the harsh environment of a stat C-section to a gentler one or how changing their own inner environments in the midst of an obstetric calamity makes a difference for babies. It is only with more research can we begin to predict a difference. For now in this one hospital, we are walking through the doorway calmly, competently and compassionately providing resuscitation and following the medical imperative, "First, do no harm." References REFERENCES Barnett, E., (1987). The role of prenatal trauma in the development of a negative birth experience. Journal of Prenatal and Perinatal Psychology and Health, 1(3), 191-207. Behrman, R., Kliegman, R., &Jenson, H., (2004). Nelson textbook of pediatrics, 17th edition, (p. 65). Philadelphia: Saunders. Chamberlain, D. (1986). Reliability of birth memory: observations of mother and child pairs in hypnosis. Journal of the American Academy of Hypnoanalysts, 1(2), 89-98. Chamberlain, D. (1998). The mind of your newborn baby. Berkeley, CA: North Atlantic Books. Chamberlain, D. (2003). Communicating with the mind of a prenate: guidelines for parents and birth professionals, Journal of Prenatal and Perinatal Psychology and Health, 18(2), 95-108. Emerson, W. (1998). Birth trauma: the psychological effects of obstetrical interventions, Journal of Prenatal and Perinatal Psychology and Health, 13(1), 1-82. Kattwinkel, J. (Ed.). (2000). Textbook of neonatal resuscitation (4th Ed.). American Academy of Pediatrics and American Heart Association. Jacobsen B. &Bygdeman, M. (1998). Obstetric care and proneness of offspring to suicide as adults: A case control study, British Medical Journal, 377(7169), 1346-1349. Leboyer, F. (2002). Birth without violence revised edition. Rochester, VT: Healing Arts Press. Liu, J. (2004). Prenatal and perinatal complications as predispositions to externalizing behavior, Journal of Prenatal and Perinatal Psychology and Health, 18(4), 301-311. Oliver, R. (2000). Ideal cesarean birth. Journal of Prenatal and Perinatal Psychology and Health, 14(3-4), 331-343. Ward, S. (2004). Suicide and pre-and perinatal psychotherapy. Journal of Prenatal and Perinatal Psychology and Health, 19(2), 89-105. World Health Report. (1995). Geneva, Switzerland: World Health Organization. Children's book read as part of the adjunctive NRP training program for nurses: Frasier, D., (1991). On the day you were born. San Diego: Harcourt Inc. AuthorAffiliation Send correspondence to: Kathryn Landon-Malone, MSN, CPNP at True North Health Center, 202 US Route One, Falmouth, ME 04105, 207-781-4488, FAX: 207-781-4470. Email: klandonmalone@truenorthhealthcenter.org

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