
Healthy Birth Practice #6: Keep Mother and Newborn Together—It's Best for Mother, Newborn, and Breastfeeding

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ABSTRACT

Mothers and newborns have an emotional and physiological need to be together at the moment of birth and during the hours and days that follow. Keeping mothers and newborns together is a safe and healthy birth practice. Evidence supports immediate, undisturbed skin-to-skin care after vaginal birth and during and after cesarean surgery for all medically stable mothers and newborns, regardless of feeding preference; and, no routine separation during the days after birth. Childbirth educators and other health-care professionals have an ethical responsibility to support this essential healthy birth practice through education, advocacy, and implementation of evidence-based maternity practices.

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A crucial practice for safe and healthy birth is keeping mothers and newborns together, which ensures unlimited opportunities for skin-to-skin care (SSC) and breastfeeding. Mothers and newborns have an emotional and physiologic need to be together during the moments, hours, and days following birth. Being together leads to optimal maternal and newborn outcomes. Routine separation of healthy mothers and newborns is harmful and negatively effects short- and long-term health

outcomes and breastfeeding success. Childbirth educators and health professionals must address this vital need for unlimited opportunities for SSC and breastfeeding to promote optimal maternal and child outcomes.

THE EXTRAORDINARY MOMENT OF BIRTH

The extraordinary moment of birth is a joyful time of mother and newborn togetherness, discovery, and exploration; and, a time for those who surround them at birth to pause and be mindful of its crucial short and long-term physiologic and psychologic consequences. This time-sensitive perinatal period, often called magical, golden, and sacred, requires respect, protection, and support. Based on decades

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of research, experts worldwide recommend that all healthy mothers and newborns, regardless of feeding preference and method of birth, have immediate and undisturbed SSC for at least an hour or more (American Academy of Pediatrics, 2012; Holmes, McLeod, & Bunik, 2013; World Health Organization [WHO] & UNICEF, 2018).

SSC at birth means placing an unclothed newborn prone on mother's abdomen or chest immediately after birth, with no clothing separating them, drying and removing wet towels, and covering them with light blankets (American Academy of Pediatrics, 2012; Moore et al., 2016; WHO & UNICEF, 2018). All routine procedures, including maternal and newborn assessments, can be done during SSC. Nonemergent procedures that require separation, such as obtaining a birth weight, can be done at time that doesn't interrupt this psychophysiological sensitive period.

Hormonal Orchestration

Oxytocin, one of a mother's reproductive hormones, crosses the placenta to her baby and prepares them to need and seek each other at the moment of birth, which enriches their interactions during the moments and hours after birth (Buckley, 2015). Levels of oxytocin increase during SSC and mutually regulate maternal and newborn hormonal physiology (Buckley, 2015, p. xi). While skin to skin, a mother's brain releases beta-endorphin, an analgesic-like hormone, which helps her respond to her newborn, reinforces the pleasure of her interactions, and helps her feel calm as she touches, gazes at, and breastfeeds her newborn. The hormonal physiology of birth strengthens maternal and newborn attachment, reduces stress, and promotes safe newborn transition to postnatal life (Buckley, 2015; Moore et al., 2016). Separating mothers and newborns at birth, or delaying or disrupting SSC, has adverse consequences on newborns' transition to life outside the uterus; their innate protective behaviors; and, breastfeeding initiation, duration, and exclusivity (Sobel, Silvestre, Mantaring, Oliveros, & Nyunt, 2011; WHO & UNICEF, 2018), and a mother's sensitivity and attachment to her newborn (WHO & UNICEF, 2018).

Newborns and Mothers at Birth

SSC strengthens the intrinsic response newborns have to maternal tactile, odor, and thermal cues

(Bergman & Bergman, 2013; Buckley, 2015; Maayan-Metzger et al., 2014; Moore et al., 2016; Valigo, 2009; Widström, Lilja, Aaltomaa-Michalias, Dahllöf, & Nissen, 2011). During SSC, this heightened psychophysiological response stimulates instinctive newborn behaviors to meet basic biologic and physiologic needs, activates neuroprotective mechanisms, enables early neurobehavioral self-regulation, and reduces stress. Compared with newborns who did not have SSC, newborns who did, cried less; stayed warm; had more stable blood glucose levels; and, had higher scores for cardiorespiratory stability, including oxygen saturation (Moore et al., 2016). Early SSC (defined as within 5 minutes of birth) and longer durations of SSC (defined as 60 minutes to 2 hours or more after birth) compared to no SSC, delayed SSC, or shorter durations, reduced newborn salivary cortisol levels (a biochemical marker for stress), suggesting a dose-response effect (Takahashi, Tamakoshi, Matsushima, & Kawabe, 2011).

SSC shortens the duration of the third stage of labor (Safari, Saeed, Hasam, & Moghaddam-Banaem, 2018) and reduces the risk of neonatal hypothermia, as the mother's breasts adjust in temperature to regulate her newborn's temperature, promoting thermoregulation and providing the optimal environment for a newborn to "crawl" to the breast, find the areola, latch, and breastfeed (Moore et al., 2016; Safari et al., 2018). Interrupting SSC for early bathing increases the risk of neonatal hypothermia; disrupts colonization by maternal microbiota (reducing a newborn's immunize responses and increasing the risk of hospital-acquired infections); and, may inhibit the crawling reflex (reducing the time to effective breastfeeding latch).

Long-term consequences of early maternal and newborn separation were studied. Children who had SSC for 1 to 2 hours after birth had better self-regulation and were less easily frustrated during structured play at 1 year of age compared to children who were separated at birth for several hours after birth (Bystrova et al., 2009). Mothers who were separated from their newborns during the

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first 2 hours of life were at greater risk for poor maternal-child bonding at 1 year of age. This impact was not ameliorated by rooming-in during remainder of the hospital stay.

Early SSC and Breastfeeding

Immediate, undisturbed SSC for at least 1 hour is among the most effective strategies in maternity settings to promote exclusive breastfeeding (WHO & UNICEF, 2018). Breastfeeding reflexes "awaken" during SSC and newborns exhibit a species-specific sequence of nine behaviors that result in finding and attaching to their mother's breast (Widström et al., 2011; see Table 1). A newborn's instinctive behavior during SSC, enhanced by high levels of oxytocin at birth, may explain why immediate and undisturbed SSC improves breastfeeding outcomes. Newborns who had SSC initiated breastfeeding earlier (Moore et al., 2016; Safari et al., 2018), were more likely to exclusively breastfeed at hospital discharge, to exclusively breastfeed after discharge, and to breastfeed for longer durations (Bramson et al., 2010; Gabriel et al., 2010; Moore et al., 2016).

TABLE 1
Newborns' Nine Instinctive Behaviors During Skin-to-Skin Care After Birth

Stage	Name	Description
1.	Birth cry	Occurs after birth as newborn's lungs expand
2.	Relaxation	Exhibits relaxed hands without mouth movements
3.	Awakening	Exhibits small movements of the head and shoulders
4.	Activity	Exhibits mouthing, suckling, and rooting movements
5.	Rest	Has periods of rest between any stage
6.	Crawling	Approaches the breast with short periods of action, reaching the breast and nipple
7.	Familiarization	Licks the nipple, touches, and massages the breast
8.	Suckling	Self-attaches and suckles
9.	Sleep	Falls into restful sleep

Note. Adapted from Widström, A., Lilja, G., Aaltomaa-Michalias, P., Dahllöf, M., & Nissen, E. (2011). Newborn behaviour to locate the breast when skin-to-skin: A possible method for enabling early self-regulation. *Acta Paediatrica*, 100, 1-7. doi:10.1111/j.1651-2227.2010.019

Both timing and duration of early SSC influence breastfeeding outcomes (Bramson et al., 2010; Gabriel et al., 2010; Moore et al., 2016). Shorter intervals between birth and the start of SSC and longer durations of SSC after birth improved breastfeeding exclusivity and duration. These results were not dependent on whether birth was vaginal or cesarean. Breastfeeding during the first hour after birth has a significant impact on newborn and child survival (NEOVITA Study Group, 2016; Smith et al., 2017). The risk of newborn death during the first 28 days was 33% higher when breastfeeding did not begin until 2 to 23 hours after birth compared to the first hour after birth, and twice as high when breastfeeding did not begin until one day or more after birth.

SSC During and After Cesarean Surgery

After vaginal birth, SSC can effortlessly begin straightaway, prior to cord clamping, as a newborn is placed on a mother's abdomen, dried, and covered with a blanket (WHO & UNICEF, 2018). Once the cord is clamped, a newborn then can easily be moved to the mother's chest.

The vast majority of mothers having a medically uncomplicated cesarean birth with spinal, epidural, or combined spinal-epidural anesthesia are alert and responsive at the moment of birth; therefore, SSC can also and should begin immediately during surgery, as soon as the cord is cut (WHO & UNICEF, 2018). Women who had SSC during a cesarean described the experience as meaningful, reported less pain, were focused on their newborn rather than the stress of the surgical procedure, and said they welcomed an opportunity for SSC again during a future birth (Crenshaw et al., 2012; Stevens, Schmied, Burns, & Dahlen, 2014; Sundin & Mazac, 2015).

Newborns safely transitioned to extrauterine life while skin to skin on their mother's chest during medically uncomplicated cesarean surgery (Crenshaw, Adams, Gilder, Debuty, & Scheffer, unpublished manuscript; Kollman et al., 2017; Stevens et al., 2014). Having SSC following a cesarean improved breastfeeding exclusivity rates at hospital discharge, and at 3 and 6 months postpartum (Guala et al., 2017). Newborns who had SSC during cesarean surgery compared to after were significantly less likely to be transferred to a neonatal intensive care unit for observation (Schneider, Crenshaw, & Gilder, 2017). Delaying SSC and breastfeeding may be harmful (Smith et al., 2017; Sobel et al., 2011), and no evidence supports a delay in SSC until after surgery or until after an assessment in a radiant warmer.

BEYOND THE MOMENT OF BIRTH

The benefits of SSC extend beyond the moment of birth. Whether in a maternity care setting or at home, the maternal and newborn physical and emotional need for each other continues beyond the first hours after birth. Mothers and their newborns who room-in together have unlimited opportunities to be skin to skin, recognize their newborns' feeding cues, and practice responsive breastfeeding (WHO & UNICEF, 2018). During each opportunity for SSC and breastfeeding, maternal and newborn beta-endorphin levels rise, rewarding and reinforcing maternal and infant interactions (Buckley, 2015, p. xv). While together, a mother quickly learns her newborn's needs and how best to care for, comfort, and soothe her baby.

More than 20 years ago researchers reported that mothers who room-in with their newborns scored higher on tests that measure mothering confidence, and that newborns who room-in with their mothers had more quiet sleep than those who were separated from their mothers (Keefe, 1987; Keefe, 1988; Norr & Roberts, 1989; Yamauchi & Yamanouchi, 1990). In fact, experts questioned the safety of separating infants from their mothers, even during sleep (Morgan, Horn, & Bergman, 2011).

Rooming-in makes breastfeeding easier. Women who room-in with their newborns make more milk, produce an abundant milk supply sooner, breastfeed for longer durations, and are more likely to exclusively breastfeed compared with women who are separated from their newborn (Bystrova et al., 2009; Colombo et al., 2018; Zenkner et al., 2013).

Rooming-in has a dose-response effect. Women who roomed-in with their newborn were more likely to be exclusively breastfeeding at hospital discharge compared to women who had partial rooming-in (Zuppa et al., 2009). SSC while rooming-in reduced maternal physiologic stress and depressive feelings after hospital discharge, which may help to empower women in their role as mothers and ameliorate the risk of postpartum depression. Duration of breastfeeding in mothers who had frequent skin-to-skin contact while rooming-in was longer compared to mothers who spent less time skin to skin with their newborns during the first 5 days after birth (Bigelow et al., 2014). SSC while rooming-in also is an effective intervention for mothers having breastfeeding difficulties and who are at risk for supplementation or breastfeeding cessation (Chiu, Anderson, & Burkhammer, 2008; Hughes, Rodriguez-Carter, Hill, Miller, & Gomez, 2015).

Rooming-in reduces newborn stress. Morgan et al. (2011) compared sleep cycles of 2-day-old newborns while having SSC for 1 hour to sleeping alone (separated) for 1 hour. Separated infants had an 86% reduction in quiet sleep, a 176% increase in autonomic nervous system activity, and higher levels of cortisol. They concluded that maternal separation stresses newborns and that this stress may not be benign.

Few randomized or quasi-randomized controlled trials have been conducted comparing separation of mothers and newborns after birth with rooming-in. However, the ethical concerns of conducting randomized trials, in light of evidence from less rigorous studies, support keeping mothers and newborns together to improve maternal mothering efficacy and breastfeeding outcomes; to reduce and ameliorate maternal and newborn stress; and, to promote safe maternal and newborn rest (Ball, Ward-Platt, Heslop, Leech, & Brown, 2006; Bystrova et al., 2009; Keefe, 1987; Keefe, 1988). Just like the sensitive period immediately after birth, this continued togetherness also requires respect, protection, and support to avoid routine and unnecessary disruptions.

INTERNATIONAL RECOMMENDATIONS FOR SSC AND BREASTFEEDING

The *Baby-friendly Hospital Initiative*, released in 1998 and revised in 2018, describes 10 evidence-based maternity practices that promote, support, and protect breastfeeding (WHO & UNICEF, 2018). These *Ten Steps to Successful Breastfeeding* must be implemented by maternity settings seeking "Baby-friendly" designation. Step 4 advises health-care professionals to "facilitate immediate, uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth" (WHO & UNICEF, 2018, p. 23). To implement Step 4, health professionals provide SSC for all healthy mothers and newborns, regardless of feeding preference and mode of birth, and support mothers to recognize their newborn's readiness to breastfeed, and to offer their breast. To be designated as a Baby-friendly birth facility, 80% of mothers of term infants and staff who cared for them must report that SSC began as soon as possible (immediately or within 5 minutes), continued

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undisturbed for at least an hour, and that newborns were offered the breast within 1 hour of birth (WHO & UNICEF, 2018).

Interpretation and implementation of SSC “*as soon as possible*” should focus on *immediate*, rather than *after* a planned 5-minute delay. SSC frequently is delayed until after a newborn assessment under a radiant warmer, or in mothers having cesarean birth, until surgery is completed—often for staff convenience or due to insufficient or inaccurate knowledge about the significant positive impact of immediate SSC on maternal and newborn outcomes. This routine delay occurs despite overwhelming evidence in support of immediate SSC, its dose–response effect, and the known harmful effects of a delay or maternal and newborn separation. Withholding SSC in the cesarean birth population is particularly alarming considering the increasing rise in cesarean rates globally (Betrán et al., 2016), resulting in maternal–newborn dyads throughout the world without access to the critical physiologic and psychologic health outcomes provided by SSC.

Step 7 of the Baby-friendly Hospital Initiative advises health-care professionals to “enable mothers and their infants to remain together and to practice rooming-in 24 hours a day” (WHO & UNICEF, 2018, p. 26). Step 7 reminds health professionals that keeping mothers and newborns together day and night (rooming-in), regardless of method of birth, provides many opportunities for mothers to learn to recognize and quickly respond to their infant’s needs, including feeding cues. To implement Step 7, health professionals promote birth settings where healthy mothers and newborns remain together day and night and encourage and support frequent SSC, and responsive feeding. To be designated as a Baby-friendly birth facility, 80% of mothers of term infants, regardless of birth mode, and staff who cared for them, must confirm that a mother and her newborn remained together from the moment of birth; and, if separation was medically necessary, that the separation lasted no more than 1 hour (WHO & UNICEF, 2018).

WHY IT MATTERS GLOBALLY: EARLY AND UNLIMITED OPPORTUNITIES FOR BREASTFEEDING

Decades of evidence show that keeping mothers and newborns together during and after birth improves breastfeeding outcomes (WHO & UNICEF, 2018). Breastfeeding is the foundation of infant and child survival. Delays in

breastfeeding initiation reduce infant survival (Smith et al., 2017) and exclusive breastfeeding prevents at least 800,000 deaths of children under 5 years of age every year (Victora et al., 2016). After controlling for socioeconomic and health system factors, researchers found that only a ten-percentage point increase in exclusive breastfeeding rates globally can prevent five deaths per 1,000 live births in children under 5 (Azuine, Murray, Alsafi, & Singh, 2015, p. 13). In addition to its contribution to infant and child mortality, breastfeeding initiated during the first hour of life, continued exclusively for 6 months, and combined with safe and culturally appropriate complementary foods for 2 years or more is unparalleled as a no cost, primary public health promotion strategy for maternal, infant, and child health.

Breastfeeding promotes optimal brain growth and is linked to enhanced cognitive performance across all socioeconomic groups (Global Breastfeeding Advocacy Initiative, 2016). Breastfeeding protects against a child becoming overweight and obesity. Children who are not optimally breastfed are at higher risk for short- and long-term illnesses and diseases such as diarrhea, lower respiratory infections, sudden infant death syndrome, type 1 and 2 diabetes, obesity, elevated cholesterol, pneumonia, and leukemia (WHO & UNICEF, 2018). These risks increase substantially for medically compromised, preterm, and late-preterm infants; and, for infants born in underdeveloped counties.

A growing body of evidence shows the maternal risks of suboptimal breastfeeding, including increased risk of type 2 diabetes, hypertension, and ovarian and breast cancer (Chowdhury et al., 2015; Feltner et al., 2018). Exclusive breastfeeding for 6 months could decrease deaths from breast cancer by 20,000 per year (Victora et al., 2016). Breastfeeding may reduce the risk of postpartum depression, cardiovascular disease, and postpartum weight loss, but more research is needed (Feltner et al., 2018).

All health professionals have an ethical responsibility to promote, support, and protect breastfeeding and to be competent in breastfeeding care. Educating women about healthy birth practices, including keeping mothers and newborns together, is a significant strategy for improving breastfeeding initiation, duration, and exclusivity.

Zero Separation

Ensuring evidence-based maternity policies that facilitate “zero separation” is an essential responsibility for all health professionals (Bergman, 2014).

Keeping mothers and newborns together during the perinatal period is so critical to the safety and health of mothers and newborns, that Bergman, a specialist in perinatal neuroscience, called for promoting, supporting, and protecting a policy of “zero separation” at all costs. Bergman emphasized that SSC with zero separation is the biologic norm and the one intervention above any other that can improve maternal and neonatal outcomes and the quality of survival.

Bergman (2014) also emphasized that maternal and newborn SSC, zero separation, and “togetherness” should include fathers. Newborns separated from their mother for medical reasons and held skin to skin with their father remained warm (Christensson, 1996), cried less, and calmed more easily compared to newborns swaddled in a cot (Erlandsson, Dsilna, Fagerberg, & Christensson, 2007), and SSC with fathers promoted paternal attachment (Chen, Gau, & Lee, 2017; Shorey, He, & Morelius, 2017).

PRIMARY IMPLICATIONS FOR PRACTICE

Everyone has a role in keeping mothers and newborns together after birth. Women who have their baby in a birth center or hospital can choose a facility that is Baby-friendly or working to achieve Baby-friendly designation. They can choose a birth clinician who supports their wishes for immediate SSC and to be with their newborn during the hours and days that follow. If cesarean surgery is medically indicated, women can discuss with the health-care team their wish to begin SSC during surgery. Women can communicate their decisions to their family and ask for support.

Childbirth educators can discuss the evidence for keeping mothers and newborns together and the importance of immediate and undisturbed SSC after birth; as well as breastfeeding during the first hours after birth, frequent SSC and breastfeeding during the days following birth; and, exclusive breastfeeding. Those who care for women before and during birth, including midwives, nurses, physicians, and doulas, can make sure women know about the joy and health benefits of being with their newborn, and the risks of separation (Császár-Nagy & Bókkon, 2018; NEOVITA Study Group, 2016; Smith et al., 2017). They can work to eliminate routines and procedures that interfere with a woman and her newborn’s physiologic and emotional need to be together.

CONCLUSIONS

What mothers and newborns need most after birth is each other, with unlimited opportunities for

SSC and breastfeeding. When health professionals respect, honor, and support the physiologic and emotional need that mothers and newborns have for each other after birth, they also improve short- and long-term health outcomes. Preventing separation except for compelling medical indications is an essential safe and healthy birth practice and an ethical responsibility of health-care professionals.

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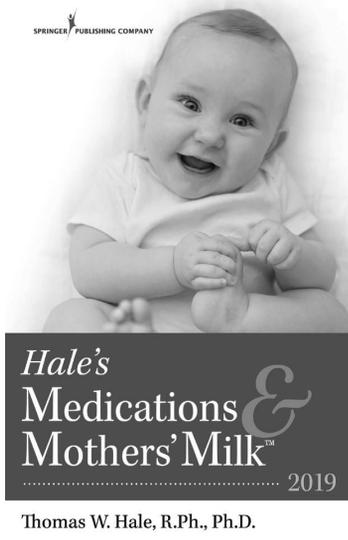
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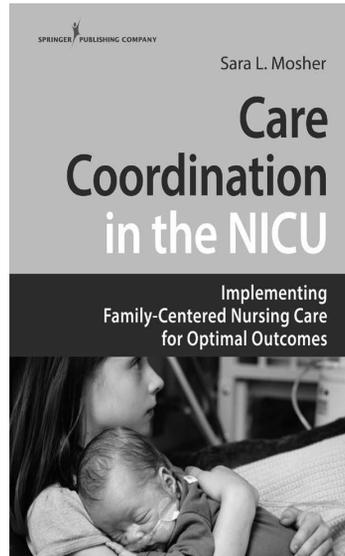
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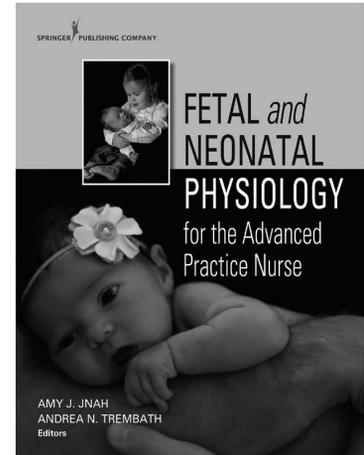
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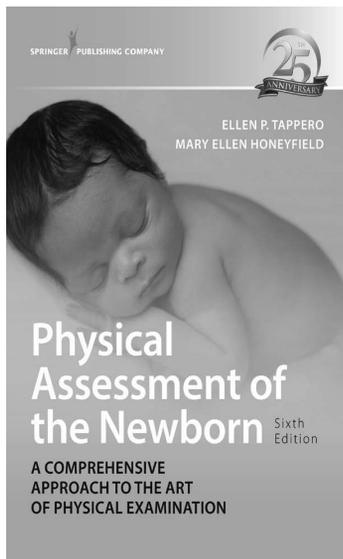
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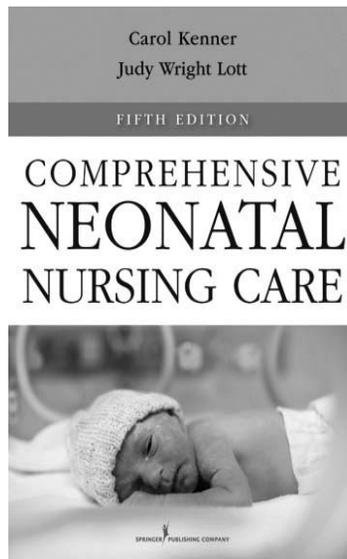
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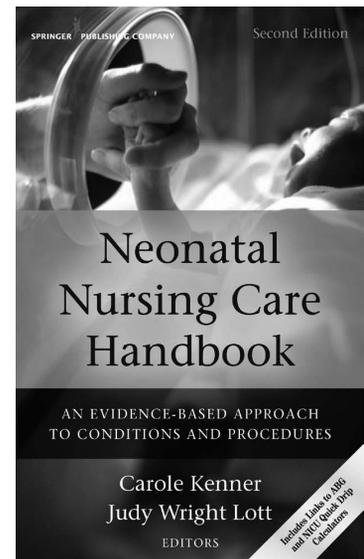
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