How to Engage Your Team to Implement Delayed Cord Clamping

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In 1801, Erasmus Darwin, a respected English physician, philosopher, and physiologist, stressed the importance of delaying the clamping of the umbilical cord as a provision for maternal and neonatal health. In one of his writings titled *Zoonomia; or, the Laws of Organic Life* (Darwin, 1801), Darwin wrote

> *Another thing very injurious to the child is the cutting (of) the navel-string too soon; which should always be left till the child has not only*

Abstract This article describes how a health care team changed practice by implementing delayed cord clamping as standard practice. After administration of a survey to assess clinicians' knowledge and to discover barriers to this proposed practice change, members of a multidisciplinary committee used the results to create a guideline for delayed cord clamping and a plan for successful implementation. Integral to embedding and sustaining changes in practice was development of the Delivery Room Brief and Debrief Tool and inclusion of the process into nursing guidelines and the electronic health record. Through the use of these tools and teamwork, delayed cord clamping was implemented as standardized practice across six hospitals within this health care system. http://dx.doi.org/10.1016/j.nwh.2017.10.003

Keywords change management | delayed cord clamping | implementation | protocol | shared vision

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repeatedly breathed, but till pulsation in the cord ceases. As otherwise the child is much weaker than ought to be; a part of the blood being left in the placenta which ought have been in the child. (p. 133)

Assessment of current practice and review of current literature around delayed cord clamping, coupled with the drive to improve outcomes, heightened our team's attention to changing the current practice of cord clamping

The timing of when to clamp the umbilical cord has been a point of debate for centuries. As births moved to the hospital setting, concern about polycythemia and hyperbilirubinemia (Leslie, 2015; Mercer & Erickson-Owens, 2012) and maternal hemorrhage (Callahan, 2017) developed and advancements in neonatal resuscitation accelerated (Callahan, 2017), and immediate cord clamping became routine practice, and this is still ingrained in the culture of many labor and delivery units today.

Background

The act of *immediate cord clamping* is performed as soon as a newborn is born, whereas *delayed cord clamping* provides continued placental exchange over a variable period of time after birth. The recommended specific times of delay differ in the literature but are dependent on gestational age (Hutton & Hassan, 2007), signs of vigor (American Heart Association & American Academy of Pediatrics, 2015), position of the newborn in relation to the placenta (Farrar et al., 2011), volume of blood transfused over time (Boere et al., 2015), and concerns for maternal hemorrhage (McDonald, Middleton, Dowswell, & Morris, 2013). Hooper et al. (2015) suggested that timing cord clamping based on the respiratory function of the newborn at the time of birth may offer more clinical benefit than setting specific yet arbitrary time frames.

The Neonatal Resuscitation Program (American Heart Association & Academy of Pediatrics, 2015) and the American College of Obstetricians and Gynecologists (ACOG, 2017) recommend that without concerns for compromised placental circulation, delayed cord clamping should occur for at least 30 to 60 seconds for most vigorous term and preterm newborns (Raju & Singhal, 2012). Delayed cord clamping provides increased initial blood volume that favors improved hemoglobin levels (Ultee, van der Deure, Swart, Lasham, & van Baar, 2008); cardiopulmonary adaptation (Bhatt et al., 2013); cerebral and gastrointestinal blood flow; and iron stores, which decrease the risk of newborn anemia (ACOG, 2017; Andersson, Domellöf, Andersson, & Hellström-Westas, 2014; Blouin et al., 2013; Eichenbaum-Pikser & Zasloff, 2009; Georgieff, 2011). In preterm newborns, it further decreases the need for treatment of hypotension and hypovolemia with blood transfusions and inotropes, thereby improving cardiovascular stability; delayed cord clamping also leads to a decreased incidence of intraventricular hemorrhage and late-onset sepsis (Arca, Bolet, Palacio, & Carbonell-Estrany, 2010; Ghavam et al., 2014). The practice does not increase a woman's risk of bleeding (Leslie, 2015; McDonald et al., 2013), and it facilitates immediate skin-to-skin contact, which enhances extrauterine transition and bonding for the mother and newborn. A Cochrane Review from 2013 highlighted a nonpublished study suggesting that delayed cord clamping increased the rates of term newborns requiring phototherapy for hyperbilirubinemia (McDonald et al., 2013); however, no other studies conducted since 1980 support this finding (Mercer & Erickson-Owens, 2012).

Current Practice Leading to Research Question

Assessment of current practice and review of current literature around delayed cord clamping, coupled with the drive to improve outcomes, heightened our team's attention to changing the current practice of cord clamping. Investigation of existing practice showed lack of standardized guidelines and lack of adherence to the mission of evidence-based practice. Furthermore, the variation in practice among providers created confusion for the nursing staff and inconsistent care among births.

The team hypothesized that with an understanding of why variation existed, a process