AIMS For a better birth...

Newborn resuscitation without violence

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By Joanne Foster - a UK Resuscitation Council Newborn Life Support Instructor

Being approached to write an article on newborn resuscitation without violence has offered me the opportunity for some quiet contemplation and reflection, both as a mother and midwife. Firstly, my experiences of my own children's births are rejoiceful. I met both my babies when the midwife placed them skin to skin into my arms as they transitioned to extrauterine[1] life. My own mother's experience of my birth was very different; this occurred immediately post Peel Report.[2] The report recommended 100% hospital births on the basis of safety, removing the choice of place of birth for women. It wasn't until Tew challenged the recommendations from this report[3] that it was concluded that the recommendations were not based on any robust evidence.

As such, my birth was planned at the local hospital. My father worked night duty, so my mother stayed with my grandparents and my auntie at the family home when he was on shift. I was the second child and, in true second time fashion, didn't give my family much time to prepare for my arrival. In the early hours of the morning my mother started with her first labour pains. My grandfather and auntie took the perilous walk on icy footpaths to call the ambulance from the local phone box. My mother arrived at the hospital at the end of the night shift to an even more frosty reception by the midwife in charge. The student midwife was summoned to attend to my mother with the prerequisite shave and enema[4] as was the practice at the time. My mother explained she didn't need the enema as her own body had purged, as is nature's way. The student, fearful of the reprisals, gave my mother an enema anyway. Moments later as my mother sat on the toilet with enema fluids running from her, she could feel my head descending. This prompted the swift return of the senior midwife who catapulted my mother onto the birthing bed just in time for my arrival. Both my mother and I were rather stunned and as such there was some delay in my response, no crying - not surprising given I was almost born into the toilet. My mother's

first memory of my arrival was watching the midwife slapping my buttocks hard to elicit what my mother describes as my full-blown bawling. Unfortunately, my mother's experience is not an isolated case, many newborns have faced a similar if not more extreme arrival into the world, and in 1974 Leboyer offered a perceptive insight into the potential feelings of a newborn baby.[5]

As a midwife, I can without a doubt state that the first breath taken by a newborn touches all those who are privileged to be in attendance. But what if the baby doesn't breathe and needs support? Midwives are usually the professional making the initial assessment; this responsibility remains one of the most daunting aspects of our roles.[6] Dr Hey and Professor Kenneth Cross's 1980s research into birth asphyxia[7] and temperature control forms an intrinsic part of our current approach to care. They acknowledged the need for supportive literature to help healthcare professionals develop their newborn resuscitation practices. The Resuscitation Council UK set up a working group chaired by the late Dr Sam Richmond who developed the first three NLS (newborn life support) manuals. Sam was also Chair of the NLS international courses and The European Resuscitation Council.[8] Professor Jonathan Wyllie is our current Vice-President, and Joe Fawke our Chair, and we are now on the fifth edition of the NLS manual.[9] The Resuscitation Council UK guidelines are adapted from the European Resuscitation Council guidelines and have been developed using a process accredited by the National Institute for Health and Care Excellence to reflect the needs of the National Health Service.

I have been fortunate to practice with some exceptional healthcare professionals and trained early in my career as an NLS Instructor. My confidence in NLS grew along with my ability to advocate for women and their newborns regarding their birth choices. Evidence based NLS guidelines are now a mandatory aspect of our training, also openly available for anyone to access on the website.[10] NLS training remains one of the most rewarding aspects of my role as a midwifery educator and I would like to think I have made a difference for those who have been in receipt of that knowledge - professional and parent.

The NLS training course is run largely by nurses, doctors and midwives who are trained as NLS Instructors, often running the full day course in their own time.[11] It is recommended that those regularly attending births undertake the course every four years, with local annual training in between. Over the 50 years since my own birth there has been a shift in the approach to newborn resuscitation, with a more contemporary focus on supporting the transition to extrauterine life. The language we use has been strengthened with the term resuscitation now being used loosely in favour of the more accurate references to assisted transition at birth.[9] It is accepted that some newborns will need additional support at this time and, as such, the safest resources, including escalation to appropriately trained healthcare professionals and specialist service provision, should be available.

Reassuringly, 85% of babies who are born at or close to their due date will initiate spontaneous breathing within 10-30 seconds of birth.[9] In addition, another 10% will respond through drying or gentle stimulation.[9] Madar *et al* indicate that approximately 5% will require the support of a healthcare professional breathing for the baby;[12] 1% requiring significant resuscitation with chest compressions [13] and medication.[10,14] Interestingly Mann et al conclude that although there are many areas of good evidence-based practice with hospital-based resuscitation, there is a marked variation in

management requiring a continuation of training and guideline review.[15]

Speaking to parents before their births about their expectations is essential, and although it is not possible to predict the need to resuscitate a newborn, there should be a discussion to identify any potential concerns. NLS training includes assessing breathing, muscle tone (being whether the baby seems floppy), heart rate, and the colour of skin and of the mucous membranes to assess how well oxygenated the newborn is.[16] Current NLS guidelines include recommendations regarding umbilical cord clamping. Research into delaying cord clamping has largely focused on preterm newborns;[17] however, babies who are born on or around their due date should have cord clamping delayed for at least 60 seconds, ideally until they are breathing.[9] When this is not possible, milking the cord[18] should be considered, although this practice is not recommended for babies who are born less than 28 weeks.[9] When delaying cord clamping is not possible, in that the newborn needs to be transferred to appropriate equipment to be resuscitated, NLS guidance recommends that the umbilical cord is clamped and cut.[9] Interestingly, some maternity care settings are taking essential steps to fund bedside resuscitation equipment, so the cord can remain intact if resuscitation is required. This should be the drive for all maternity settings to ensure there is equitable, evidenced based service provision and care for all newborns.

Keeping the newborn warm is also imperative; their small size alongside being born wet means they are prone to cooling. It is important to ask the mother if she wishes to have the baby placed directly onto her skin at birth. During the initial assessment, the newborn should be quickly but carefully dried, with wet towels being removed and replaced with warmed, dry ones to cover the newborn and mother. Connolly (2010)[19] explains that some heat loss is inevitable and results in the newborn using unnecessary glucose and oxygen. However, being skin to skin with the mother is thought to stabilise the cardio-respiratory system[20], increase glucose levels and support thermoregulation[21].[22] Once the newborn has initiated spontaneous respiration, continued skin to skin contact helps to maintain this physiological stability and support a successful first breastfeed. If further assistance is required, the newborn should be placed under radiant heat to prevent further heat loss;[9] ideally using a bedside resuscitaire.[23]

Some maternity units advocate the routine use of a hat to prevent heat loss through evaporation, however, there is no robust evidence base to support this during skin to skin contact with a healthy newborn; it should be the choice of the parents.

At times, I have observed professionals being too hasty in intervening with normal transition to extrauterine life. This can leave parents feeling anxious and less than satisfied with how they meet their newborn, and Leboyer also calls into question the feelings of the newborn.[5] This haste can unfortunately be down to a lack of confidence and understanding in making the initial assessment.[6] However, newborn resuscitation is an emergency and as such healthcare professionals carry the responsibility for ensuring the newborn is safe. Midwives are present at every type of birth, from complex, emergency childbirth to those in low technology birthing environments; this affords us a unique opportunity to develop a broad range of experience, which in turn strengthens confidence and understanding in making our assessment

to determine how we support those newborns in our care. In my experience, babies who are born in quiet, calm environments such as a birthing pool with low lighting, are much quieter at birth. A Cochrane review of water immersion during labour and birth concluded that this is not associated with any difference in newborn outcomes.[24] Experience, knowledge and understanding of fetal adaptation to extrauterine life in these circumstances is vital in either supporting transition or initiating resuscitation.

The clear recall of my mother and myself looking back to our birth experiences is testament to the fact that parents never forget the arrival of their babies. Most newborns spontaneously transition to extrauterine life unaided, but for those who need support with this transition or resuscitation, health care professionals in every birth setting should be appropriately trained and should take responsibility for keeping up-to-date with the latest guidelines. Leboyer also reminds us about the feelings of the newborn, who may remember their birth experience. I can honestly say I don't remember my own birth, however maybe that is why I am so passionate about newborn transition and resuscitation being delivered with compassion and respect for both mother and baby.

Author Bio: Jo graduated as a Registered General Nurse in 1994 and then completed a BSc in Midwifery in 1999. Jo practised in a range of clinical midwifery roles and her passion for intrapartum care ultimately led her to practice in a leadership role as a Labour Suite Coordinator. Jo's Masters research was in Preceptorship and she is currently an Assistant Professor and Module Convenor for both undergraduate and postgraduate courses at the University of Nottingham. Jo trained as a UK Resuscitation Council Newborn Life Support Instructor in 2011 and remains an active instructor.

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[1] Editor's note: Extrauterine means life outside of the uterus or womb

[2] Department of Health and Social Security (1970) *Domiciliary Midwifery and Maternity Bed Needs (The Peel Report)*. His Majesty's Stationery Office: London.

[3] Tew, M. (1998) *Safer Childbirth*. 3rd edition. London: Chapman & Hall.

[4] Editor's note: A shave and enema refers to the former practice of removing the woman in labour's pubic hair and then giving her an emema.

[5] Leboyer F. (1974) *Birth Without Violence*. Vermont: Healing Arts Press.

[6] Ljungblad L.W., Skovdahl K., McCormack B. and Dahl B. (2020) Balancing Life and Death During the Golden Minute – Midwives' Experiences of Performing Newborn Resuscitation.*Journal of Multidisciplinary Healthcare.* 13 943–952.

[7] Editor's note: Birth asphyxia is when the baby is deprived of sufficient oxygen at or around the time of the birth.

[8] Royal College of Physicians. Inspiring Physicians. Samuel William John Richmond. https://history.rcplondon.ac.uk/inspiring-physicians/samuel-william-john-richmond

[9] Newborn Life Support Subcommittee (2021) *Newborn Life Support.* 5th Edition. Resuscitation Council UK.

[10] Resuscitation Council UK (2021) Newborn resuscitation and support of transition of infants at birth Guidelines. https://www.resus.org.uk/library/2021-resuscitation-guidelines/newborn-resuscitation-and-support-transition-infants-birth

[11] Editor's note: AIMS applauds the passion and dedication reflected in this, but at the same time, wonders why this generosity is necessary.

[12] Madar J, Roehr CC, Ainsworth S, Ersdal H, Morley C, Rüdiger M, Skåre C, Szczapa T, Te Pas A, Trevisanuto D, Urlesberger B, Wilkinson D, Wyllie JP. European Resuscitation Council Guidelines 2021: Newborn resuscitation and support of transition of infants at birth. Resuscitation. 2021 https://www.resuscitationjournal.com/article/S0300-9572(21)00067-8/fulltext

[13] Editor's note: Chest compressions refer to a resuscitation procedure given if the baby's heartbeat is very weak or absent at birth. The midwife or doctor applies repeated finger pressure compressions to the baby's chest.

[14] Perlman J.M. and Risser R. (1995) Cardiopulmonary resuscitation in the delivery room. Associated clinical events. *Archives of Pediatrics & Adolescent Medicine.*149:20–5.

[15] Mann C., Ward C., Grubb M., Hayes-Gill B., Crowe J., Marlow N. and Sharkey D. (2012) Marked variation in newborn resuscitation practice: A national survey in the UK.*Resuscitation.* 83 607– 611.

[16] Editor's note: This is often referred to as the APGAR test after Dr Virginia Apgar who developed it in 1952.

[17] Seidler A.L., Gyte G.M.L., Rabe H., Díaz-Rossello J., Duley L., Aziz K., Costa-Nobre D.T., Davis P.G., Schmölzer G., Ovelman C., Askie L.M. and Soll R. (2021) Umbilical Cord Management for Newborns 34 Weeks' Gestation: A Meta-analysis. *Pediatrics.*147:3.

[18] Editor's note: Umbilical cord milking is a procedure in which the umbilical cord is grasped, and blood in the cord is pushed two to four times towards the newborn, usually within 20 seconds.

[19] Connolly G. Resuscitation of the Newborn, in Boxwell, G. (Ed.). (2010). Neonatal Intensive Care Nursing (2nd ed.). Routledge. Chapter 4, pages 65-86 - https://www.taylorfrancis.com/books/edit/10.4324/9780203857076/neonatal-intensive-care-nursing-glenys-boxwell.

[20] Editor's note: The cardio-respiratory system refers to the working of the baby's heart and lungs.

[21] Editor's note: Thermoregulation is a mechanism by which we maintain body temperature

[22] Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2016 https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003519.pub4/full

[23] Editor's note: A resuscitaire is a workstation that includes everything that might be needed to resuscitate a baby. A bedside resuscitaire can be moved to the mother's bedside enabling resuscitation to take place without the need to clamp and cut the baby's cord.

[24] Cluett E.R., Burns E. and Cuthbert A. (2009) Immersion in water in labour and birth (Review). *Cochrane Database of Systematic Reviews Issue.* John Wiley & Sons.