Since it’s inception around the early 1920s, the domain of neonatal intensive care in a hospital setting grew substantially, becoming an established part of most hospitals in the developed world by the 1970s. Technological advances, such as improved incubators, extracorporeal membrane oxygenation (ECMO), and extracorporeal life support (ECLS), have led to its continued growth. The beneficial effects of these neonatal intensive care units (NICU) on newborn health-related outcomes reflect this growth, with a cohort born in 2006 having a 13% greater survival rate than a cohort born in 1995 (Duffin, 2013). Despite such reductions in the rate of adverse health-outcomes, there has been approximately a 40% increase in the number of admissions into NICUs over the same period (Duffin, 2013). Such statistics indicate that there is an increasing burden on neonatal medical teams across the developed world.
Allison Mason has a bachelor of science in nursing and is the clinical learning specialist in the NICU at Kingston General Hospital (KGH). The NICU at KGH is a 22-bed facility that houses approximately 400 patients per year, with an average stay of a newborn being approximately 16 days. Despite the relatively modest size of NICUs, Allie acknowledges that the demands of neonatal care “isn’t for everyone”. She believes that the stressful environment stems from the extreme variability in patient outcomes, “one day the baby can be fully functional, ready for discharge, then the next day they can be deceased.”

So, for the sake of both patient outcomes and neonatal nursing staff burden, addressing areas for neonatal healthcare improvement is of extreme importance. The question then becomes, what is the area in which the need for improvements is most pressing? “I’d have to say the most recent area of attention with regards to Ontario NICU patient care is neonatal intraventricular hemorrhaging,” said Mason. She cites the increasing rates of preterm infant survival as the main force that is propagating the intraventricular hemorrhaging issue.

Allie was a part of a team of neonatal nurses that composed the most recent Small Baby Brain Care Guidelines for KGH. These guidelines are an extensive set of recommendations that cover all aspects of neonatal intraventricular hemorrhaging care, from delivery room practices to vascular access in neonates; all the way to lighting and noise in NICUs. Additionally, they cover an extensive amount of possible health outcomes such as vascular resistance, and white matter injury. Such guidelines are a promising step forward with regards to neonatal healthcare because of the thorough multidimensional approach that they put forth.

In addition to improved intraventricular hemorrhaging care, several studies have suggested that perhaps looking upstream, at prenatal care, might be an ideal approach for progressing neonatal health outcomes. Ray et al. (2012) found when both mother’s and their babies were admitted into intensive
care, family discord and stress were highly increased. Such discord was found to lead to an increase in newborn mortality rates. In fact, short-term infant mortality in NICUs was increased two-fold when the infant’s mother was admitted to ICUs post-birth compared to when they were not (Ray et al., 2012). This suggests that the presence of the newborn’s mother during neonatal intensive care can lead to improved health outcomes.

When presented with the results of this study, Mason was not surprised; “Making sure that mothers have a lot of skin-to-skin contact with their newborns is a large part of our NICU treatment plan, so when this contact is not present I can understand why adverse outcomes would arise.”

Furthermore, she mentioned a technique often used in KGH and hospitals around the world, called Kangaroo Care. The defining feature of Kangaroo Care is skin-to-skin contact between the neonate and the mother. Support for it as a valid technique is widespread. In fact, despite being such a simple intervention, its affects can be as profound as increased oxytocin release, leading to a shift in autonomic nervous system control from sympathetic to parasympathetic in the neonates (Bystrova, 2009).

Moreover, in a randomized controlled trial by Wilson et al. (1992), it was observed that when adequate prenatal care was provided, NICU admission rates declined from 5.10% to 2.86%. Not only did this correlate with decreases in neonatal mortality, but also decreases in economic, physical and psychological burden for hospitals and their health-care providers. Thus providing objective evidence that prenatal care would be a valid avenue through which improvements in neonatal care could be made.

The NICU has evolved over the years, having become a multidimensional entity, and along the way has led to drastic improvements in neonatal care. Despite such advances, there still seems to be room for improvement. Ironically, many of the challenges that these units face today arise because of how they have positively affected the neonate survival rates. As Allie alluded to, perhaps the areas of focus that could lead to the greatest
Improvements in patient care are intraventricular hemorrhaging treatment and prenatal care. Nonetheless, the substantial refinement in patient care that NICUs have been able to induce with such a high-risk population is promising not only for the future of NICUs, but for the future all dimensions of healthcare.

References


