

Building a Business Case for Nutrition Technology in the NICU

Tracy Warren

We have seen tremendous technological breakthroughs in neonatal care in the past fifty years that have advanced care and improved infant outcomes. From state-of-the-art monitors for pulse ox, blood pressure, and heart rate, to warmers, human milk fortifiers and other novel nutritional interventions. However significant gaps in care still remain, and the pressure is building to find the best gadget or technology to improve care for our most vulnerable patients.

As a unit within a hospital, NICUs contribute solid profit margins, affording them an opportunity to invest in new technologies to further advance care and optimize workflow. However, few clinicians see their role as one of building a business case for a new technology, and while outcomes are a priority, nothing trumps the almighty dollar in health care.

Building a business case requires a clinical champion to not only think about outcomes and performance improvement but how purchasing technology can improve the economic profile for the hospital or unit. Does it allow for increased billing or greater profitability? If we make the investment in this technology, how can we recoup the cost and over what period of time? This is not what clinicians went to medical school for, and this business case burden can often stymie projects which can't articulate clear metrics, both operational, clinical and economic. Some vendors assist these clinical champions by creating tools to demonstrate how a NICU can perform better, improve outcomes and lower cost, which is essential to supporting her/him in bringing in the business-types to get the required approvals.

An area that has tremendous promise in building a solid business case is in standardization of care and reducing the burden of reporting, whether to quality collaboratives or internal quality improvement projects. As EMRs capture trillions of datapoints, technology that "talks to" the EMR can greatly enhance care and support a strong return on investment. The perfect example is nutrition.

Nutrition is an essential part of NICU care and requires substantial resources, yet adverse outcomes, such as growth failure, remain high. Not all units have the good fortune of having a dedicated registered dietitian and many neonatologists aren't comfortable prescribing nutrition and ascertaining the optimal plan for infants who are struggling. Hospitals have invested in

substantial labor resources, whether RDs, nurses or others who extract data from an EMR, run calculations—on a calculator or in a spreadsheet—and then create care plans. Interestingly enough, those calculations and plans are often not captured in the EMR leaving the "secret sauce of success" in the circular file.

Successful progression from parenteral to enteral to oral feeding is key to achieving appropriate growth and development.

Studies have shown that the implementation of a standardized feeding strategy has effectively minimized practice variability, accelerated the attainment of enteral and oral feeding milestones, reduced central line days and decreased length of stay without increasing adverse morbidities. Technology, with a backbone of math, 0s and 1s, can automate and standardize many of the aspects of nutrition planning and enable efficient use of time and resources increasing time at the bedside and empower clinicians to practice at the top of license. Successful progression from parenteral to enteral to oral feeding is key to achieving appropriate growth and development. Moreover, initiation of early enteral nutrition reduces parenteral nutrition use which can average \$1436/day. Given nutrition is embedded in the DRG and other bundled payments, this increases profit for the hospital. As infants achieve full feeds faster, central line days are reduced, which then reduces the risk of CLABSI, a hospital acquired condition that is not reimbursed. For hospitals that have at-risk contracts with payers or Medicaid ACOs, optimizing discharge planning and reducing length of stay can improve profits and performance metrics as well.

Neonatal nutrition is complex but providing the preterm infant with optimal nutrition to achieve the same growth and development of the healthy, growing fetus is the next imperative in neonatal critical care. Clinicians must be relentless in providing top quality care in the face of time constraints, a growing catalog of available and often expensive dietary options, staying current on the vast amount of new research, all while assessing the overall impact on infant outcomes. A person at the bedside cannot possibly know all about an infant's metabolism, growth, development, nutrition, changes over time, influence of diseases and treatments, and all related outcomes. Technology is the answer and as more hospitals embrace clinical decision

Tracy Warren, Co-founder and CEO, Astarte Medical @TracyAstarte; tracy@astartemedical.com

support for such challenging elements of care, they will benefit from increase profits, reduced risk and optimal performance measures.

References

- 1 Jadcherla SR, Dail J, Malkar MB, McClead R, Kelleher K, Nelin L. Impact of Process Optimization and Quality Improvement Measures on Neonatal Feeding Outcomes at an All-Referral Neonatal Intensive Care Unit. *JPEN J Parenter Enteral Nutr.* 2016;40(5):646-655.
- 2 Stefanescu BM, Gillam-Krakauer M, Stefanescu AR, Markham M, Kosinski JL. Very low birth weight infant care: adherence to a new nutrition protocol improves growth outcomes and reduces infectious risk. *Early Hum Dev.* 2016;94:25-30.
- 3 Edwards TM, Spatz DL. Making the case for using donor human milk in vulnerable infants. *Adv Neonatal Care.* 2012;12(5):273-280. doi:10.1097/ANC.0b013e31825eb094

News...continued from page 14

bronchopulmonary dysplasia (BPD), a common complication of prematurity, may benefit the most from an EHMD when it comes to shortening their hospital stays. A retrospective study published in the *Journal of Perinatology* found that 293 infants between gestational ages 23 and 34 weeks and birth weights between 490 and 1,700 g who received Prolacta's fortifiers as part of an EHMD achieved full feeds at faster rates and ultimately reduced their NICU stay by 4.5 to 22.9 days, compared with infants fed their mother's milk with a cow milk-based fortifier or a combination of mom's milk with cow milk-based fortifier and formula. *Frontiers in Pediatrics* published findings from a study of more than 12,000 premature infants born at ≤ 28 weeks indicating that among the 41% who developed BPD, hospital stays were 19 days longer on average ($P = .001$) than those who did not develop BPD. A secondary analysis of a study that originally looked at the impact of Prolacta's cream fortifier on growth among premature infants weighing 750 to 1,250 g showed that adding Prolacta's human milk-based cream fortifier to an EHMD resulted in an average stay in the NICU that was 12 days shorter, from 86 days without the cream supplement to 74 days when it was used. In this study, the infants with BPD may have benefited the most from the addition of Prolacta's cream fortifier, with 17 fewer days in the NICU, from an average of 121 to 104 days ($P = .08$). This updated analysis was published in *Breastfeeding Medicine* in 2016. A 2019 study published in *Advances in Neonatal Care* compared 104 infants born weighing $\leq 1,250$ g who received an EHMD to a similar group of 101 infants who received cow milk-based fortifier. In this study, an EHMD was associated with decreased rates of BPD ($P = .018$) and sepsis ($P = .06$) and an average five-day reduction in length of hospital stay. "The goal of all parents with a premature infant in the NICU is to bring their baby home as soon as possible. When you add the concerns about exposure to hospital-based infections for both the parents and the baby, that desire for discharge is stronger than ever," said Melinda Elliott, MD, chief medical officer of Prolacta. "The clinical evidence shows an EHMD including Prolacta's products helps to overcome the complications of prematurity, resulting in better health outcomes and shorter hospital stays in the NICU."

Neotech Earns B Corp Certification

Neotech announced its newly earned B Corp certification, furthering a commitment to using business as a force for good. "Since its inception, Neotech has always strived to

create a lasting impact and do the right thing. Becoming certified as a B Corp is a natural step for Neotech," said Henry Heyman, Neotech Consultant. "It's a way to solidify many of the amazing initiatives and choices Neotech has already made." Certifying as a B Corporation goes beyond product or service level certification. B Corp Certification is the only certification that measures a company's entire social and environmental performance. The B Impact Assessment evaluates how a company's operations and business model impacts its workers, community, environment, and customers. From supply chain and input materials to charitable giving and employee benefits, B Corp Certification assures that Neotech is meeting the highest verified standards of social and environmental performance. "We are extremely happy that Neotech Products has joined our community of Certified B Corporations," said Lindsey Wilson, B Lab Senior Associate, Business Development. "Neotech's existing culture and values align perfectly with the global B Corp movement to redefine success in business to balance both profit and purpose. With their dedication to their customers, their employees, and the community, Neotech serves as an excellent example of People Using Business as a Force for Good," Wilson continued. In conjunction with the B Corp initiative, Neotech has recently launched the Being the Difference charitable giving program. Being the Difference launched in May 2020 with three newly-formalized opportunities to individuals and organizations in need: Product Donations, Monetary Donations and Scholarship Aid. Additionally, Being the Difference encompasses our two existing Research Grant programs.