Letters to the Editor

Is Length of Stay a Quality Indicator in Chronic Ventilated Neonate?

Letter to the Editor

As a fourth-year medical student going through my Newborn Intensive Care Unit (NICU) rotation, I am required to learn about systems-based practice. I found an interesting case of a preterm infant who suffered a traumatic birth at home. The gestational age was estimated to be 30-32 weeks by Ballard scoring. It was a precipitous breech delivery by a mother with a history of drug abuse. She was unaware of the pregnancy and received no prenatal care. At the scene, the infant was resuscitated by Emergency Medical Services (EMS) and brought to the emergency room (ER). Per EMS, the patient received 45 minutes of resuscitation, including cardiac compression, intubation, intraosseous line placement in the femur, and multiple doses of epinephrine. At the ER, the infant was re-intubated and umbilical lines were placed. Initial blood gas at ~ 75 minutes of life was pH 6.9/ pCO₂ 30/PO₂ 145/HCO₃ 8/ Base access – 22.4, lactate 20. The infant was then admitted to the NICU for further directed care and later placed on a ventilator. Throughout this infant's prolonged stay in the NICU, the following problems were addressed: Hypoxic-Ischemic encephalopathy, severe metabolic acidosis, seizures, decreased cardiac function, respiratory failure, transaminitis, and suspected lower extremities vascular injury.

The infant's social situation included the involvement of CPS delaying the end-of-life decision. As the infant continued to require respiratory and nutritional support, tracheostomy and gastrostomy placement were needed. Finally, a DNR decision was obtained. At the time of this report, the infant is awaiting placement to a medical facility, foster services, or hospice care that can provide continuous care.

The length of stay (LOS) in the NICU could depend upon many factors. (1) With regards to this case and in the light of system-based practice, I pose the question; should the length of stay (LOS) be viewed as a quality indicator in chronically ventilated neonates? If yes, what could be the financial impact on the health-care system?

Reference:

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Dear Student Physician Deville,

Your question is a very apt summation of the frustration that embodies the standard metrics when applied to the exceptional. Length of stay as a predictor of quality is only valid for identical patients in identical circumstances where only the mode of treatment or staff providing care differ. Oftentimes, the same physician can have very different results with "similar" patients because of crucial differences in the patient profile that are not captured by the quality tool.

The prospective payment system or PPS describes several methods by which remuneration is predicted based on the acuity or intensity of the service provided to the patient. These generate predetermined "prices" based on actuarial tables of what these patients "should cost." Staying within the length of stay (LOS) guidance for a particular diagnosis-related group (DRG) for inpatient care defines this metric. Regardless of the number of complications noted, unless another DRG with a higher LOS can be invoked by a change in diagnosis or change in the patient's status not related to an iatrogenic cause, the original DRG anticipated LOS determines the performance indicator.

Updates to the expected length of stay based on "new" technology or enhanced resuscitation are often delayed by decades. Patients affected by Hypoxic Ischemic Encephalopathy have improved survivability because of cooling, ECMO, and other extreme measures. The quality matrix does not recognize improved survival as a valid outcome measure if it is associated with a longer length of stay. The predicted and often anticipated death preserves outcome measures but does not sit well with families expecting modern medical science to deliver a miracle. A "timely" death results in a compliant LOS but may not adequately represent quality care. A 23-week gestation neonate who survives to term with minimal residua from extreme prematurity who goes home without oxygen or a GTT is considered a failure based solely on the length of stay and non-compliance to a DRG that may not even recognize that a 23-week gestation neonate has an "expected" NICU stay of 17

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weeks (to reach term equivalent).

The dilemma is worsened by new or innovative care, social delays in discharge, placement issues, and now COVID-19 related shortages of discharge equipment and sub-acute care facilities. Long COVID-related complications and MIS-C syndrome are forcing many facilities to restrict or delay access to our compromised NICU graduates, thus further increasing the LOS.

Worse, there is no obvious solution in sight. Unfortunately, it will take a failure of the remuneration system resulting in "loss of access" to drive improvement. However, closing non-profitable areas of the hospital and, in fact, hospitals themselves can potentially worsen disparity and access for our most vulnerable patients. Until length of stay is replaced by "quality" of stay, the benchmark will continue to punish those providing exceptional care and reward those who expediently dispatch their "non-performing" patients through forced discharge or expedited transition to celestial care.

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Sincerely,

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Erratum (Neonatology Today September 2021)

Neonatology Today is not aware of any erratum affecting the September, 2021 edition.

Corrections can be sent directly to LomaLindaPublishingCompany@gmail.com. The most recent edition of Neonatology Today including any previously identified erratum may be downloaded from www.neonatologytoday.net.

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