

Foreword

Confronting the Limits of Viability



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There are stories that we all like to tell, many of which are permanently etched in our memories. One such story is from nearly thirty years ago, while as a freshly minted neonatologist, I was confronted with a clinical and ethical dilemma that I vividly remember in excruciating detail even to this day. A mother had presented in advanced labor with a fetus of 24-weeks' gestation. Delivery was imminent, allowing for only a hurried discussion of choices. Both parents were physicians and were diametrically split on what they wanted us to do. Put in an uncomfortable position of brokering an agreement, I opted for resuscitation, hoping that the progress of the infant would guide us as to how far we should go with the care. Things are never as simple as we would like them to be however; one thing led to the other, and the infant had every known complication of extreme prematurity. The young parents were devastated. Mom ended up dropping out of her residency training, and the father moved to the west coast to pursue a fellowship. At her second visit to the developmental clinic, our little NICU graduate had clear signs of spastic diplegia, was blind from retinopathy of prematurity, and had missed most cognitive milestones. I struggled with many aspects of this case, and for many years have relived the traumatic experience every time I was confronted with a similar infant at the limit of viability.

Over the years, our confidence in caring for these tiny babies has grown as well as our ability to predict outcomes. **Fig. 1** shows recent data from the National Institute of Child Health and Human Development (NICHD) Neonatal Research Network with remarkable gains over the past decade, particularly in survival of 23-week infants (article by Ravi Mangal Patel and colleagues, "[Survival of Infants Born at Periviable Gestational Ages](#)," in this issue). Similar improvements have been reported from several other countries.¹ However, there is wide variability in outcomes raising the issue of inconsistent care practices and overall approach to care.² Centers with the highest survival numbers also report the highest rates of antenatal steroids, resuscitation, surfactant use, and so forth, reflecting a more consistent and comprehensive approach to the care being offered.² Neurodevelopment outcomes have also improved. A recent study³ showed

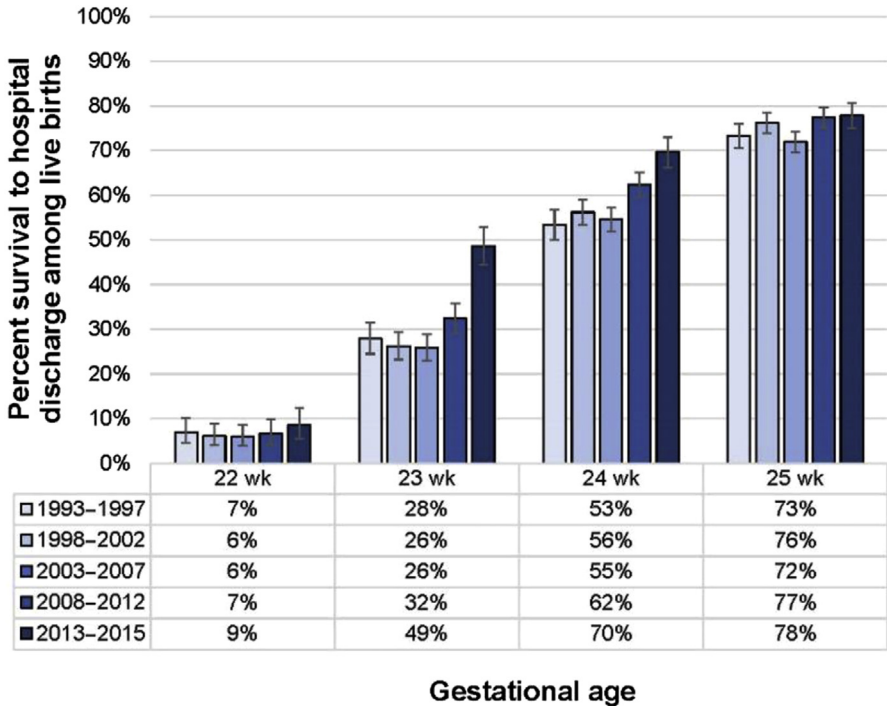


Fig. 1. Survival from 1993 through 2015 following live birth in the NICHD Neonatal Research Network. (Data from Stoll BJ, Hansen NI, Bell EF, et al. Trends in care practices, morbidity, and mortality of extremely preterm neonates, 1993-2012. *JAMA* 2015;314(10):1039–51, for 1993-2012; and Courtesy with permission of the NICHD Neonatal Research Network, Bethesda, MD, USA for 2013-2015.)

that among 22- to 24-week preterm infants, the percentage of infants who survived without neurodevelopmental impairment increased from 16% to 20% (adjusted relative risk, 1.59 [confidence interval, 1.28 to 1.99]).

So where does this discussion lead us? A decade ago, obstetricians and neonatologists were convinced that 24 weeks reflected a biologic barrier in fetal development below which survival without significant impairment was going to be improbable.⁴ The same is now being said for infants at 23 weeks of gestation. Care continues to evolve, and we learn from the care we provide for these tiny babies. These and many other issues are the focus of our attention in this issue of the *Clinics in Perinatology*. Drs Mercer and Barrington are to be congratulated for bringing together a superb set of state-of-the-art articles on this topic. As always, I am grateful to the editors, authors, and the publishing team at Elsevier (Kerry Holland and Casey Potter) for creating a masterful issue of the *Clinics in Perinatology* on this important topic.

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