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Esin Koc* and Sezin Unal

Viability of Extremely Premature neonates: clinical approaches and outcomes

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Abstract: Viability refers to an infant's ability to survive outside the womb, which is influenced by both developmental maturity and the quality of medical care received. The concept of periviability, which has evolved alongside medical advancements, describes the stage between viability and nonviability, typically spanning from $20^{0/7}$ to 25 $^{6/7}$ weeks of gestation. While the chances of survival are extremely low at the earlier end of this range, the possibility of surviving without significant long-term complications improves towards the later end. The effectiveness of various antenatal and postnatal care practices, particularly those considered to be part of an active approach, plays a crucial role in influencing survival rates and mitigating morbidities. However, the decision to provide such active care is heavily influenced by national guidelines as well as international standards. The variability in guideline recommendations from one country to another, coupled with differences based on gestational age or accompanying risk factors, prevents the establishment of a standardized global approach. This variability results in differing practices depending on the country or institution where the birth occurs. Consequently, healthcare providers must navigate these discrepancies, which often leads to complex ethical dilemmas regarding the balance between potential survival and the associated risks. This review article explores the evolution of the definition of viability, the vulnerabilities faced by periviable infants, and the advancements in medical care that have improved survival rates. Additionally, it examines the viability and periviability definitions, the care and outcomes of periviable infants and recommendations in guidelines.

***Corresponding author: Prof. Esin Koc**, MD, Professor of Neonatology, Department of Pediatrics, Division of Neonatology, Gazi University Faculty of Medicine, Emniyet, Mevlana Blv. No:29, Yenimahalle, 06560, Ankara, Türkiye, E-mail: esinkoc@gazi.edu.tr
Sezin Unal, Department of Pediatrics, Division of Neonatology, Baskent University Faculty of Medicine, Ankara, Türkiye,
E-mail: sezinunal@gmail.com

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Introduction

The viability of an infant refers to their ability to survive independently outside the womb, influenced by developmental maturity and medical care. Survival outside the uterus is mainly determined by the development of the infant's organs at embryological, histological, and cellular levels [1]. As the lungs are responsible for breathing and circulation transition occurs, other organs, such as the kidneys, liver, and gastrointestinal system, must also function adequately [2]. Medical care is a crucial factor in an infant's survival. In neonatology, advances such as incubators, humidity control, surfactant therapy, volume assurance, and high-frequency oscillatory ventilation, along with innovations in patent ductus arteriosus (PDA) management and precise fluid therapy, have significantly improved the survival rates of smaller infants [3]. As these innovations have evolved, the viability of premature infants has significantly increased over time [4]. The increased survival rates of infants born at the threshold of viability have driven by improvements in both antenatal and postnatal care [5–8]. As medical and technological advances intersect with evolving ethical standards and legal frameworks, the care of periviable infants has become a multifaceted issue, further complicated by the absence of a global consensus [9–11]. This article focuses on the viability and periviability definitions, the care and outcomes of periviable infants and recommendations in guidelines.

The definition of viable infant

Viability was initially based solely on gestational age, with Hippocrates defining it as full development by the sixth months and Ballantyne later expanded this to describe viability as a premature infant's ability to survive independently outside the womb [12, 13]. Numerous interpretations of viability emphasize different aspects: some focus on the potential for survival outside the womb regardless of duration, while others consider the ability to live a healthy and fulfilling life. Viability has been defined as achieving lung maturity around 24 weeks, reaching a certain level of consciousness through central nervous system maturation, or benefiting from technological and medical advancements that improve survival prospects for premature infants [14–16]. These varied characteristics highlight the complicated nature of viability. However, considerations of life quality or duration are less commonly factored into determining an infant's viability [17].

The median survival weight, indicating the gestational week where half of births result in survival and half in death, is another criterion for defining viability. Research by Obladen M shows a significant decrease in this weight, from around 2,000 g in the early 1900s to 500 g in the early 2000s [18]. For instance, between 2004 and 2007, infants born at 23 weeks had a survival rate exceeding 50 %, and a similar trend was seen for 22-week infants during 2013–2014 [19].

Over time, the increasing viability of more prematurely born babies and the dynamic process of viability definitions have led to an important role for diagnostic coding. The World Health Organization took responsibility for the International Classification of Diseases (ICD) starting with the sixth revision and proposed reporting for fetuses and infants weighing at least 500 g or with a gestational age of 22 weeks in 1979 [20]. The codes for "Extreme Immaturity" and "Extremely Low Birth Weight" available in ICD-10 have been expanded in ICD-11 to include separate codes [21–23]. In the current version, coding for gestational age begins with "Extreme Prematurity of Newborn, gestational age less than 22 weeks, 0 days," and each gestational week is coded separately. Additionally, coding for birth weight starts with "Extremely Low Birth Weight of Newborn, 499 g or less," and a separate code exists for birth weight less than 750 g. The revised coding allows for better documentation of outcomes for specific weeks of prematurity, in line with the improving survival rates of extremely preterm infants.

The periviability

Periviability, evolving with medical progress, is the stage when extrauterine survival becomes possible, typically between viability and nonviability. Advances in medicine have made viability a dynamic concept [11, 24]. Periviability, evolving with medical progress, is the stage when extrauterine survival becomes possible, usually between viability and nonviability. As survival rates for very early births improve, medical terminology updates to reflect this while highlighting the significant risks involved. Terms like "extremely low gestational age," "extreme preterm," "micro preemie," and "periviable" describe premature births at various stages and sizes [25]. "Periviability" is now defined by leading institutions for both academic and legal contexts. The current definition of periviable birth was stated in the "Executive Summary of a Joint Workshop by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Academy of Pediatrics, and American College of Obstetricians and Gynecologists" as $20^{0/7}$ weeks through $25^{6/7}$ weeks of gestation [25, 26]. The periviability interval is also called "gray zone" because of prognostic uncertainty.

Survival and outcomes of periviable infants, and impact of active postnatal care

Survival

The largest recent data which is from United States shows that the incidence of infants born≤24 weeks increased from 18.4 to 31.9 % during the period between 2007 and 2018 [5]. Similarly, Patel et al. shows gestational age specific change in survival over last 20 years: 22 weeks; 7 %–9 %, 23 weeks; 28 %–49 %, 24 weeks; 53 %–70 %, 25 weeks; 73 %–78 % [27].

Advancements in medical practices have enabled the survival of smaller infants, leading to the implementation of different care services to ensure the healthy lives of even smaller babies. Active postnatal care was defined using the CDC definition of abnormal conditions of newborns as the presence of any of the following: neonatal intensive care unit (NICU) admission, surfactant administration, assisted ventilation, antibiotics, and seizures. Survival-focused care, defined by Smith et al., is initiation of active respiratory support immediately after birth [28]. Rysavy et al. defined active care as respiratory support, chest compressions, or epinephrine [29]. Data from the Vermont Oxford Network showed that the rate of active treatment for infants born at 22 weeks was more than doubled from 26 % in 2014 to 58 % in 2019. The survival rate for 22-week-old infants was tripled, reaching 17 % of liveborn infants in 2019 [29].

Among from global data, statistics differ among different countries due to partial differences in perinatal and postnatal care practices [7, 30–33]. In countries, such as Sweden, Germany and Spain, where active care is implemented as a policy, survival rates in national cohorts are reported as 58–64 % for babies born at 22–23 weeks, 55–77 % for those born at 24 weeks, and 75–86 % for those born at 25 weeks [7, 30, 31]. However, in countries where standard care is more commonly applied, survival rates vary: 7–20 % for babies born at 22–23 weeks, 29–36 % for those born at 24 weeks, and 43–60 % for those born at 25 weeks [32, 33]. On the other hand, the existing Dutch guideline for managing care at the threshold of perinatal viability, which is determined by gestational age, advises starting active treatment for infants born at 24 weeks or later, following comprehensive discussions and collaborative decision-making with parents. The latest Dutch data reported a survival around 30 % in infants born at 24 weeks of gestation [34].

Evidence from two separate datasets has demonstrated the clear survival benefits of active postnatal care for periviable infants. In Sweden, studies have shown that active postnatal care significantly improves survival rates, with early surfactant therapy playing a key role in enhancing outcomes [7, 35, 36]. Similarly, research by Smith et al. in England and Wales revealed that increasing active care from 20 to 50 % led to a rise in neonatal unit admissions (from 7.4 to 28.1 %) and a notable improvement in survival to discharge (from 2.5 to 8.2 %) for infants born before 24 $^{6/7}$ weeks of gestation [28].

Causes of death and management of related conditions

Data from Sweden, which implemented active postnatal care, show that most live-born periviable infants die within the first week. Early neonatal death accounts for about 80 % at 22 weeks and 21 % at 24 weeks of gestation, while late neonatal death represents nearly 8 % for infants born between 22 and 24 weeks [7]. Similar findings are reported by the German data and English EPICure cohort, which also show an average time of death around 6 days [30, 37]. While pulmonary insufficiency is the leading cause of death, the next most common causes are respiratory distress syndrome, necrotizing enterocolitis (NEC), and infection [30, 34, 37]. Focal intestinal perforation has been noted as the cause of death in 12 % of infants. According to Humberg et al. (2014–2016), mortality rates from respiratory distress syndrome, NEC, and intraventricular hemorrhage (IVH) were reported as 3.6 , 1.2, and 1.3 %, respectively, with a nearly 50 % reduction compared to previous years [30].

Ensuring proper ventilation for extremely premature infants, especially those at the threshold of viability, is crucial. However, care for these infants now also requires close attention to cardiovascular health, brain development, and gastrointestinal function, extending beyond respiratory support. Recommendations for care of premature infants as non-invasive ventilation, volume guarantee ventilation, rapid extubation, thin catheter surfactant administration, expectant management for PDA, and early enteral feeding with proper advancement are not always feasible for periviable infants and are not preferred by some experienced centers [38–42].

The effectiveness of thin catheter surfactant administration and non-invasive ventilation in reducing major complications remains uncertain for periviable infants [38, 43, 44]. Furthermore, extremely preterm neonates are at high risk of failure with thin catheter surfactant administration which is independently linked to a higher risk of severe IVH, a major cause of mortality and morbidity [45]. Although volume-targeted ventilation is a proven lung-protective strategy for preterm infants, data on those born before 24 weeks is limited [46, 47]. A definitive decrease in the duration of mechanical ventilation has not been shown in periviable infants [48]. Centers with favorable outcomes for periviable infants often use delivery room intubation and start volume-guaranteed or high-frequency jet ventilation within the first few hours of life, continuing this support until the infant reaches 29–36 weeks postmenstrual age [41, 42]. Thus, the optimal ventilation strategy for the periviable group remains unclear.

The prevalence of persistent pulmonary hypertension increases with decreasing gestational age: 18.5 % for infants born at 22 weeks, 13.1 % at 23 weeks, 11.1 % at 24 weeks, and 8.1 % at 25 weeks [43, 48]. Although inhaled nitric oxide can improve oxygenation in premature infants with documented pulmonary hypertension, achieving benefits in 60–80 % of periviable infants, some suggest starting with doses of 10 ppm at most – half the suggested dose for older preterms and term newborns [38, 40, 49, 50].

Hemodynamic support for impaired oxygenation and systemic hypoperfusion is essential, as circulatory failure may result from an immature cardiovascular system, decreased cardiac function, relative adrenal insufficiency, or perinatal hypoxia [51, 52]. Limited adrenal cortisol production in micropreemies leads to insufficient cortisol secretion after placental separation, causing relative adrenal insufficiency [53]. Hydrocortisone should be considered for managing catecholamine-resistant hypotension and is increasingly accepted for supporting hemodynamics in these infants [54, 55].

The care is complicated with PDA as pulmonary vascular resistance decreases. Expectant management and early pharmacologic therapy are two main options for managing PDA in preterm infants, with similar outcomes in terms of mortality, neurodevelopmental impairment, bronchopulmonary dysplasia (BPD), and NEC [56–59]. However, prolonged PDA can increase the risk of moderate to severe BPD in intubated infants and late pulmonary vascular disease in extremely preterm infants [60, 61]. Given that nearly

60 % of periviable infants still have a ductal shunt by the end of the second week of life, timely treatment is considered crucial for these infants [62].

Gastrointestinal complications as enteral intolerance, NEC, and spontaneous intestinal perforation are major challenges in enteral nutrition for periviable infants [63–65]. In addition to known risk factors for NEC – such as genetic predisposition, intestinal immaturity, reduced local immunity, imbalanced microvascular tone, abnormal microbial colonization, and a highly reactive intestinal mucosa – delayed or newly initiated peristalsis and secretion of digestive enzymes further complicates the situation [66, 67]. Intestinal peristalsis usually begins around 24–25 weeks of gestation, so it has only just started in most periviable infants [68]. Digestive enzymes usually start functioning properly around 28 weeks of gestation, leaving periviable infants with insufficient levels, which contributes to enteral intolerance and related issues [69]. The ESPGHAN recommendations for early enteral feeding and daily increment of 18–30 mL/kg/day, and Cochrane analyses showing improved clinical outcomes without side effects with this feeding protocol, do not specifically address periviable infants [39, 70, 71]. The use of rectal glycerin and enemas in preterm infants has not been conclusively proven beneficial, but a randomized trial indicates that rectal saline accelerates the transition to full enteral feeding in infants weighing 700–1,000 g [72, 73]. German NICUs report reduced spontaneous intestinal perforation with early rectal enema [74]. In Japan, some centers use a protocol of minimal enteral feeding combined with regular rectal enemas after 3 days, showing positive outcomes for periviable infants [75, 76]. Despite these approaches, nutritional recommendations for this group remain unclear.

Drug therapy in periviable infants presents significant challenges throughout their NICU stay, primarily aiming to optimize therapeutic effects while minimizing side effects. A major concern is the limited pharmacokinetic data for this vulnerable group, which complicates medication dosing and efficacy. Factors such as immature organ systems in continuous maturation, multiple comorbidities, and concurrent medications affect drug pharmacokinetics and further complicate treatment [77]. Pharmacokinetic-pharmacodynamic models are crucial for tailoring drug therapy, as they predict how drugs are absorbed, distributed, metabolized, and eliminated, considering the unique physiological characteristics of extremely preterm infants. Given that care for neonates with lower gestational ages includes intensive pharmacological treatment, evidence-based pharmacotherapy will be increasingly important in the future to maximize efficacy and minimize toxicity [78].

Morbidities

The outcomes among infants born at 22–24 weeks of gestation in United States, across three consecutive birth-year epochs (2000–2011; every three years period) were examined by Young et al. The authors demonstrated an increase in survival rates, while the incidences of IVH (29–30 %), NEC (6–9 %), and BPD (70 %) remained steady. However, the incidence of retinopathy of prematurity (ROP) decr 2eased in the most recent period [79]. On the other hand, Qattea et al. pointed a rise in incidence of NEC among 10 years [5]. The EPICure studies from England revealed differences in outcomes for preterm infants born at 22–25 weeks between 1995 and 2006. The prevalence of BPD (68 % in 2006) and major cerebral injury (13 % in 2006) among survivors remained similar to 1995 levels. However, the proportion of babies discharged on supplementary oxygen increased by 7–41 %, and the rate of laser treatment for ROP rose by 8 %, from 3 to 13 % [37]. The results of the EPIPAGE-2 cohort study indicated that morbidities among infants born between 24 and 25 weeks of gestation remained stable from 1997 to 2011, with the following incidences in the last epoch: BPD at 28–37 %, severe IVH at 14–22 %, severe NEC at 5 %, and severe ROP at 9–17 % [33]. Spanish data presented by García-Muñoz Rodrigo et al. (2002–2006 and 2007–2011) show that the rate of BPD remained unchanged at 15 %, while the proportion of severe ROP decreased from 18.0 to 14.9 % in the later period [32].

Norman et al. reported data from the Nordic countries for infants born at or below 24 weeks of gestation, revealing morbidity rates of 12 % for severe IVH, 27 % for ROP requiring treatment, and 70 % for BPD [80]. The EXPRESS Group from Sweden reported morbidities stratified by gestational age as follows: for 22–23 weeks of gestation, BPD at 26–40 %, severe IVH at 19–20 %, NEC at 2 %, and ROP>stage 2 at 62–80 %. For 24–25 weeks of gestation, BPD was reported at 29–31 %, severe IVH at 10–12 %, NEC at 6–9%, and ROP greater than stage 2 at 32–48 % [7]. We recently reported Turkiye's national data as follows: BPD at 74 %, severe IVH at 17 %, NEC (≥Stage II) at 25 %, and severe ROP at 56 % among infants born at 22–24 weeks of gestational age [81].

The persistence of comorbidities such as ROP, BPD, IVH, and NEC is due to the combination of extremely low gestational age and other contributing risk factors. As infants born at earlier gestational ages are saved, these morbidities continue to manifest at varying levels [82].

Survival without neurodevelopmental impairment

Long-term neurologic outcomes have been reported in studies from the United States, England, France, Sweden, and the Netherlands, with data from the first three countries providing comparative insights into past outcomes [79, 83–88]. The NICHD cohort study reported that survival without any neurodevelopmental impairment at around two years was 20 % for infants born at 22–24 weeks of gestation between 2008 and 2011 [79]. In the EPICure study from England, survival without moderate to severe neurological disability was 48–65 % for infants born at 22–24 weeks and 72–79 % for those born at 25–26 weeks. Comparing 2006 to 1995, survival without disability increased by 15 % for 25-week-olds and 10 % for 24-week-olds, with no improvement for 22 or 23-week-olds [84]. The follow-up data of French EPIPAGE-2 study showed that survival without severe to moderate disabilities among live births did not change for infants born at 24 weeks of gestation, remaining at 25.8 % in 2011 [85, 86].

In the Swedish trial of infants born between 2004 and 2007, it was observed that at 30 months, 40 % of those born at 22 weeks, 49 % of those born at 23 weeks, and 73–77 % of those born between 24 and 25 weeks of gestation survived without moderate to severe disability [29]. The Dutch EPI-DAF study reported that survival without neurodevelopmental impairment was 48 % for infants born at 24 weeks and 67 % for those born at 25 weeks, among those admitted to the NICU [83]. The 5.5-year follow-up showed that 30 % of survivors born at 24 weeks and 49 % born at 25 weeks had no neurodevelopmental impairments [88].

Data show improved survival rates for periviable infants, but the impact on early childhood neurodevelopment is not well understood. None of the studies directly assessed the effect of active postnatal care on neurodevelopment. Swedish data were analyzed after standardizing care practices, but without earlier comparisons; Dutch studies focused on higher gestational ages; and the NICHD study shows no variation in active care by gestational age [79, 83, 87, 88]. Thus, further research is needed on the long-term effects of active postnatal care on neurodevelopment in periviable infants.

The effect of perinatal practices on periviable births

Given that active postnatal care improves survival rates for periviable infants, antenatal practices should also be conducted with equal attention to enhance outcomes [6, 89, 90]. Effective antenatal strategies include corticosteroids, tocolysis, magnesium sulfate, antibiotic prophylaxis, and cesarean delivery [91]. Implementing active antenatal care increases the likelihood of successful neonatal interventions when individual decisions are required [92].

Studies showing a lower risk of periviable infant death over the years have also observed a rise in antenatal practices [7, 92, 93]. A 2016 meta-analysis and a retrospective study demonstrated that corticosteroid exposure markedly reduces mortality rates in infants born at 22–23 weeks, supporting the evidence that administering antenatal corticosteroids for births at≤25 weeks significantly reduces both mortality and morbidity [7, 8, 94, 95]. Additionally, cesarean section has been shown to lower the risk of neonatal death for infants delivered by cesarean section at 22–25 weeks of gestation, with adjusted odds ratios of 0.58, 0.52, 0.72, and 0.81 for 22, 23, 24, and 25 weeks, respectively [93]. Tocolysis has also been recognized as effective in preventing preterm births, and delaying delivery by even one day can allow time for corticosteroid administration, which is crucial for patient groups with high mortality and morbidity [96]. However, since studies often include infants older than 24 weeks of gestation, there remains a lack of definitive evidence-based outcomes.

Additionally, the specifications of the hospital where the birth takes place – such as higher rates of active care, past high success rates in survival, and whether the hospital is a teaching hospital or university – have shown to effect postnatal outcomes [6, 7, 81, 95, 97]. The INDEED Study highlights the importance of the delivery center in deciding whether to resuscitate infants between 22 and 24 weeks of gestation [98]. These data underscore the importance of conducting periviable births at appropriate centers and the significance of intrauterine transfers.

There are two health system care policies relevant to this topic: centralization and regionalization. Centralization consolidates specialized services into higher-volume care centers, while regionalization focuses on optimizing physician distribution, equipment, and patient movement within the healthcare system, often enforced by law. This approach improves practitioners' clinical skills for urgent cases and utilizes the volume-outcome relationship, showing that specialized care is more effective in centers with higher patient volumes [99]. A recent umbrella review suggests that perinatal regionalization may reduce perinatal and neonatal mortality and morbidity, highlighting its importance in improving outcomes for preterm and premature newborns [100]. However, there remains some debate about implementing these strategies. Critics highlight possible challenges that need to be addressed, such as long-distance *in utero* transport and the need for extrauterine transport of premature newborns, resulting from a decreased number of hospitals offering advanced neonatal care [101, 102].

Variability in neonatal and perinatal care

In the 2015 review article by Guillen et al., the differences in approaches to periviable gestational age infants, both between countries and among international guidelines, are clearly described [103]. Although some guidelines from this review (ACOG, BAPM, Sweden, Spain, Portugal, Ireland) have been updated, differences in approaches still persist [104–109].

Neonatal care

The 2017 version of Obstetric Care Consensus, (American College of Obstetricians and Gynecologists and the Society for Maternal–Fetal Medicine), states that neonatal assessment for resuscitation is strongly recommended after $24^{0/7}$ weeks of gestation while advised to be considered in pregnancies between $22^{0/7}$–$23^{6/7}$ [104]. The 2019 revision of British Association of Perinatal Medicine recommends neonatal stabilization to be considered together with parents according to assumed prognosis for infants born after $22^{0/7}$ weeks of gestation [105]. The Swedish guideline is the most proactive, recommending active resuscitation for infants born at 23 weeks of gestation and considering it for those born at 22 weeks, based on parental wishes [106]. Prognosis-based decision-making, along with parental wishes, has also been recommended in the previous Swiss and revised Spanish guidelines [107]. There is still a general consensus to recommend comfort care at 22 weeks of gestational age and active care at 25 weeks, as noted in Guillen's review [103]. For 24 weeks of gestation, Spain and Portugal recommend active care, while other countries view it as optional [107, 110]. The Dutch recommendation is the least proactive, offering active neonatal care starting at 24 weeks and comfort care for those born earlier [100]. Turkish legislation mandates resuscitation for infants born after 20 weeks showing signs of vitality, and Italy has a legal approach to these decisions. Dutch laws classify infants born at or after 24 weeks as viable [110–112].

The World Association of Perinatal Medicine has issued a statement emphasizing that the approach to periviable infants should not be based only on gestational age [113]. Moreover, a neonatologist must balance the newborn's best interests with respect for the parents' autonomy [114]. In the absence of clear age-specific recommendations, clinicians typically prioritize care for viable infants. However, those in the "gray zone" between viability and nonviability pose unique challenges and often lead to complex and sometimes controversial decisions about prenatal care, delivery room protocols, and postnatal treatments. Surveys showed a significant preference among French, Belgian, and Dutch neonatologists to provide active care for infants who fall into the gray zone of viability [115–117].

Antenatal care

However, if good postnatal outcomes are desired, necessary antenatal interventions must be carried out [118]. The 2017 version of Obstetric Care Consensus states that antenatal corticosteroid, tocolysis for preterm labor, magnesium sulphate, intrapartum antibiotics prophylaxis are recommended to be considered for deliveries at 23rd week and are recommended to be administered after $24^{0/7}$ weeks of gestation [104]. The 2019 revision of the British Association of Perinatal Medicine recommends offering any or all antenatal care interventions based on their decision for pregnancies at risk of delivery after 22 weeks of gestation [105].

Some guidelines provide recommendations on antenatal care. Definitive *in utero* transfer is recommended from 22 weeks of gestational age in Sweden, Spain, and Ireland; from 23 weeks in Switzerland and Italy; and from 24 weeks in Portugal [106–109, 114, 115]. Antenatal steroid administration is highly recommended from 22 weeks in France; from 23 weeks in Sweden and Ireland; and from 24 weeks in Switzerland, Spain, the Netherlands, and Portugal [106–110, 119, 121]. Cesarean section for fetal indications has been evaluated in fewer guidelines. It is recommended from 24 weeks in Switzerland and Portugal, and from 24 weeks in Italy [108, 119, 120]. In Dutch recommendations, cesarean section for fetal indications is optional for all periviable gestations [116].

Conclusions

Advances in technology have expanded our understanding of viability limits, improving survival rates for periviable infants but often resulting in poor outcomes for many. It still remains unclear which extremely premature baby has a reasonable chance of survival. Variations in prenatal and postnatal care recommendations lead to differing approaches. An extremely preterm infant born at the limits of viability might receive vastly different postnatal care depending on the place of birth – ranging from active resuscitation and discharge without disability to comfort care and passing away.

Active prenatal care is crucial for effective postnatal management. Decision on resuscitation in such babies may be individualized and family centered. Counselling parents is a key component in periviable births because currently it is impossible to achieve a global consensus or establish a unifying ethical, moral, or practical strategy [122].

In conclusion, navigating decisions for periviable births and infants remains highly challenging, requiring careful consideration and prompt action within ethical frameworks.

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