

Public Health Implications of Very Preterm Birth



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KEYWORDS

- Very preterm birth • Public health implications • Disparities • Extreme preterm birth
- Neurodevelopmental outcomes

KEY POINTS

- Although very preterm births (<32 weeks gestation) represent approximately 1.6% of all US live births, they account for 52% of infant deaths, substantial medical complications, neurodevelopmental disability, and associated health care costs.
- Clinicians and health systems should be aware of population-based risks, including disparities, associated with very preterm birth and data available to inform decision-making.
- Public health engagement and collaboration offers opportunities to address social determinants to improve the quality of care and health of reproductive-age women and their newborns.

INTRODUCTION/BACKGROUND

Epidemiology of Very Preterm Birth

Infants born very preterm (<32 weeks gestation) are at increased risk for death, medical complications, and neurodevelopmental sequelae. The World Health Organization defines preterm birth before 37 weeks gestation with subcategories including very preterm birth, and extreme preterm birth (<28 weeks gestation).¹ Worldwide, it is estimated more than 1 in 10 infants were born preterm in 2013, accounting for approximately 15 million premature babies.² Among these, 1 million children younger than age 5 die annually because of complications related to preterm birth.² In developing countries, the measurement of very preterm birth and extreme preterm birth is more challenging and mortality is extremely high.³

In the United States, rates of overall preterm birth (<37 weeks gestation), calculated by last menses, increased from 10.6% in 1990 to a high of 12.8% of all live births in

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2006, and 12.7% in 2007. These increases were primarily caused by a rise in late preterm births.^{4,5} Based on revised measures to improve the accuracy of gestational age, the National Center for Health Statistics revised this measure of pregnancy length from last menses to obstetric estimate.⁶ Subsequently preterm birth rates were adjusted based on obstetric estimate. Based on obstetric estimate, preterm birth was estimated at 10.4% in 2007, declining to a rate of 9.6% of all births in 2014.^{6,7} This decline in overall preterm birth reflected successful clinical and public health efforts to decrease late preterm birth.⁸ However, recent data show new increases in overall preterm births in 2015, 2016, and early 2017 to be 9.6%, 9.8%, and 9.9%, respectively, caused primarily by increases in late preterm births.^{9–11} Nearly 400,000 preterm births occur annually among the nearly 4 million births in the United States.⁹

Preterm births less than 32 weeks gestation represent more than 60,000 births annually, yet the United States has seen little change in these rates over time.¹² In 2015, very preterm birth represented approximately 1.6% of live births but was associated with 52% of infant deaths in the United States; extreme preterm births represented 0.67% of live births and 45% of infant deaths (**Table 1**).¹³ The lack of change in the distribution of very preterm birth may be one reason why infant mortality declines are slow and disparate. In fact, a study by Callaghan and colleagues¹² explained that although infant mortality rates declined from 2007 to 2014, the very preterm birth weight distribution did not; yet birth weight–specific mortality rates for these tiny infants continued to decline. Causes of very preterm birth are not clear, but most are associated with premature rupture of membranes, preterm labor, and maternal medical conditions (**Box 1**).¹⁴

Mortality, Morbidity, and Neurodevelopmental Sequelae

Worldwide, survival among infants born very preterm varies by available resources for obstetric and neonatal care, and perceptions of viability.^{15–17} Preterm survival at the earliest gestational ages has improved dramatically in developed countries, where the limit of viability has extended to 22 to 23 weeks gestation; yet survival at these gestational ages in developing countries is rare.¹⁵ Improvements in the survival of very preterm infants in developed countries are the result of a variety of factors including improved insurance coverage during pregnancy; advanced obstetric and antenatal care; and improved systems of risk-appropriate care, including resuscitation and stabilization of high-risk newborns.^{18–20} In a comparison of developed countries in 2010, the United States ranked second compared with 11 European countries in gestational age–specific survival at the earliest gestations (for infants born between 24 and 27 weeks gestation). However, the United States ranked 26th among 29 countries in the Organisation for Economic Co-operation and Development for overall infant survival.²¹

Year	Total Preterm ^a	34–36 wk	32–33 wk	28–31 wk	≤27 wk
2015	9.62	6.87	1.17	0.91	0.68
2010	9.98	7.15	1.18	0.94	0.71
2007	10.44	7.51	1.22	0.97	0.74

^a Preterm defined as <37-wk gestation.

Data from Centers for Disease Control and Prevention. User guide to the 2015 period linked birth/infant death public use file. Available at: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/DVS/periodlinked/LinkPE15Guide.pdf. Accessed January 31, 2018.

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