

Surgeon General's Perspectives

PRETERM BIRTH AS A PUBLIC HEALTH INITIATIVE

The number of infants born prematurely in the U.S., defined as a gestation of 37 completed weeks or less, has greatly increased in recent decades. The rate of preterm birth has risen from 10.6 for every 100 live births in 1990 to 12.7 per 100 live births in 2005 (the most recent year for which final data is available), with the increase primarily attributed to infants born at 34 to 36 weeks' gestation.¹ Preterm birth is a strong predictor of infant mortality and morbidity, and is shown to be significantly associated with a number of poor health outcomes. These outcomes include cerebral palsy, problems with vision and hearing, poor motor skills, asthma, and learning disabilities.^{2,3} Infants born full-term experience much lower rates of health problems throughout their lives.

The severity of adverse outcomes is inversely correlated with gestational age and, therefore, the earlier in gestation an infant is born, the higher the risk of long-term problems. Additionally, the survival rate of very preterm infants (those born before 28 weeks' gestation) has increased over time as prenatal technology has improved. Approximately 25% of survivors born at less than 28 weeks' gestation experience disabilities, including higher rates of behavioral problems and more hospital readmissions, but problems are not limited to those born very prematurely.⁴ The increase in preterm births from 2004 to 2005 was primarily among late preterm births, those delivered at 34 to 36 completed weeks of gestation. Since 1990, the rate of late preterm birth has increased 25%.¹ When compared with full-term infants, later preterm infants experience increased morbidity, including higher rates of respiratory distress, jaundice, seizures, apnea, feeding problems, and periventricular leucomalacia (a condition in which decreased blood flow to brain tissue causes the brain to soften up and eventually die).

Preterm births also result in a substantial economic burden for the U.S. Advances in technology and the use of corticosteroids and surfactants have greatly improved the chances of survival for preterm infants; however, these infants are still at increased risk for poor health outcomes, which cost billions of dollars a year in treatments.⁵ The Committee on Understanding Premature Birth and Assuring Healthy Outcomes estimated that the U.S. economic burden is \$26.2 billion, or roughly



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\$51,600 per preterm infant.⁶ Of these expenses, two-thirds is for medical care.

The health challenges faced by premature infants often necessitate that they spend the first few weeks or months in neonatal intensive care units. Ventilators are required to facilitate the infants' underdeveloped respiratory systems, incubators help them maintain their body temperature, and nasogastric tubes are typically required for feedings. Incorporated into these economic burdens is forfeited household and labor market productivity that accounts for \$5.7 billion a year.⁶

There are many known risk factors associated with preterm birth. For example, the greater number of fetuses a woman is carrying, the greater the likelihood that she will deliver prematurely, with nearly 60% of twins being delivered prematurely.^{7,8} Also, previous preterm delivery raises the risk that a woman's next delivery will also be preterm, with at least a 2.5-fold increase compared with women who had no prior spontaneous delivery.⁹ Other risk factors include smoking by the mother or others in the household, alcohol use by the mother, short intervals between pregnancies, underweight mothers, intrauterine infection, and psychologically or socially stressed mothers.¹⁰⁻¹²

The Office of the Surgeon General (OSG) is committed to eliminating health disparities in the U.S. The Committee on Understanding Premature Birth and Assuring Healthy Outcomes, convened by the Institute of Medicine, reported that non-Hispanic African American women have 1.3 times the risk of a preterm birth compared with non-Hispanic white women.⁶ Women from lower socioeconomic backgrounds are also at increased risk for preterm birth. Lowering the rate of this health disparity is essential to the nation's public health.

The Prematurity Research Expansion and Education for Mothers Who Deliver Infants Early Act (PREEMIE Act) passed unanimously by the U.S. House of Representatives and Senate and was signed into law (Public Law 109-450) on December 22, 2006.¹³ The purposes of the PREEMIE Act are to: (1) reduce rates of preterm labor and delivery, (2) work toward an evidence-based standard of care for pregnant women at risk of preterm labor or other serious complications, and for infants born preterm, and (3) reduce infant mortality and disabilities caused by premature birth. As part of the PREEMIE Act, the OSG was charged with conducting a national conference on the prevention of preterm birth. The Surgeon General's Conference on the Prevention of Preterm Birth, held June 16–17, 2008, in Bethesda, Maryland, in conjunction with the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National Institutes of Health, was attended by many stakeholders and experts in the field interested in establishing a national agenda to combat this public health problem. The conference objectives were to:

1. Increase the awareness of preterm birth as a serious, common, and costly public health problem in the U.S.;
2. Review the findings and reports issued by experts in the field, key stakeholders, and any other relevant entities; and
3. Establish an agenda for activities in both the public and private sectors to mitigate this public health problem.

During the conference, six working groups were established to focus on (1) biomedical research, (2) epidemiologic research, (3) psychosocial and behavioral factors in preterm birth, (4) professional education and training, (5) communication and outreach, and (6) quality of care and health services. At the conference's conclusion, there was consensus among all the workgroups that preterm birth is a complex and multifaceted public health problem, requiring a

cross-cutting action plan to remediate the rising rates of preterm birth.

First, a broad-reaching agenda should aim to expand the existing research to understand the mechanisms of preterm birth, explore a spectrum of evidence-based interventions, and establish quality measures for provider-, hospital-, and systems-based levels of accountability. Second, it is crucial to develop a sustainable health tracking system that provides accurate, timely, and consistent surveillance data. Third, to minimize health disparities, communication strategies must bridge the gaps to reach at-risk populations and those institutions that can make a difference in their lives. The final recommendation was to educate and train dentists, pharmacists, nurses, physicians, and others in health-care delivery systems to play key roles in reducing the risk of preterm birth, along with seeking the help of health-care centers and facilities to serve as training sites. Proceedings from The Surgeon General's Conference on the Prevention of Preterm Birth can be found at <http://www.surgeongeneral.gov>.

There is clearly a need to act now to reduce the rates of preterm birth, while concurrently identifying pathways to maximize the likelihood that infants who are born preterm will survive, thrive, and grow to become healthy children and adults. The complications of preterm birth are not limited simply to mother and child; rather, it is a matter that concerns us all: mothers- and fathers-to-be, grandparents, policy makers, businesses, and communities at large. I urge all public health leaders to champion this urgent initiative as we work to improve the overall health of our nation.



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