

## Increased rate of U.S. premature infants may toll in future

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Many babies are born before their mother's pregnancy has reached full-term. Babies born before 38 weeks gestation - about 10% of the total - are considered premature.

This can lead to health problems - although most go on to lead active and fulfilling lives. Most babies are fully developed and ready for within one or two weeks of their estimated due date, so a full term pregnancy is defined as anything between 38-42 weeks of gestation.

Infants born prematurely are much more likely to die during childhood and, if they survive, they're much less likely to have children of their own in adulthood, according to the largest study of prematurity undertaken.

Researchers already knew that premature infants faced many neurological and developmental problems, but the new findings, released today, indicate that the spectrum of problems is even broader than suspected and persist throughout the child's lifetime.

The study, conducted using Norwegian data, suggests that, as the percentage of premature infants who make it through their first year continues to grow because of advances in neonatology, the number of troubled infants and adults also will rise.

"Are we improving their survival at the expense of significant problems down the road?" asked the lead author, Dr. Geeta Swamy of the Duke University Medical Center.

The situation probably is worse in the United States because of racial disparities in the care of newborns, Melissa Adams of RTI International in Atlanta and Dr. Wanda Barfield of the federal Centers for Disease Control and Prevention wrote in an editorial accompanying the report in the Journal of the American Medical Association.

"This is an important paper because it documents something we have all known in our hearts - that being born premature has enduring implications," said Dr. William Benitz, chief of the division of neonatal and developmental medicine at Lucile

There is no exact physical or physiologic point at which a fetus ceases to be premature and becomes mature, no matter how precisely the pregnancy is dated. All the changes that occur are gradual, especially in the latter two-thirds of the third trimester. There are no great leaps forward in baby behavior from one day to the next. In general, however, 37 weeks completed gestation is considered mature. Any labor occurring before 37 weeks is considered preterm labor and any baby born before 37 weeks is considered preterm.

Quantifying the burden of socioeconomic and racial/ethnic inequities in premature mortality, researchers at the Harvard School of Public Health (HSPH) found that from 1960 to 2002, 14% of the white premature deaths and fully 30% of the premature deaths among people of color would not have occurred had all persons experienced the same yearly age-specific premature mortality rates as whites living in the most affluent counties.

Another study found that "Rates of Caesarean delivery started to rise at a cervical length of 25 millimeters and plateaued at a cervical length of 50 millimeters, approximately doubling across the range of observed values," said the team led by Dr. Gordon Smith of Cambridge University.

"These findings suggest that cervical length at mid-pregnancy is an important indicator of the risk of primary Caesarean delivery at term." Studies had previously shown that a short cervix increased the risk of premature birth.

Packard Children's Hospital at Stanford University. "Most of the babies do pretty well in the long run. But a substantial portion of them have problems.

"There is an epidemic of prematurity in this country, where our rates of preterm labor and low birth weight are continuing to increase," he said. "We are going in the wrong direction."

One in eight U.S. infants is born prematurely, a total of more than half a million per year, despite the best efforts of physicians to bring more pregnancies to full term - defined as 38 weeks or longer.

Researchers are not sure why the U.S. rate is so high, but contributing factors include the growing incidence of assisted reproduction, which often produces twins or triplets, which are more likely to be born prematurely.

There also is a rising incidence of induced premature deliveries and caesarean sections - many because of distress to the mother or infant, but some for the convenience of doctor or mother.

The consequences can be devastating, particularly for very early births. They include learning disabilities, neurological problems, lung diseases and cerebral palsy.

Using Norway's extensive registry of births and medical care, Swamy and her colleagues studied all 1,167,506 single births in the country from 1967 to 1988, following the children through 2002. They also looked at educational achievement and reproduction in the group born from 1967 to 1976.

For boys born the most prematurely, from 22 to 27 weeks, their risk of death was 5.3 times the normal risk from age 1 to 6 and seven times the normal risk from age 7 to 13. For boys born from 28 to 32 weeks, the risk of death was 2.5 times the normal risk in early childhood and 2.3 times normal in late childhood.

The most premature girls had 9.7 times the normal risk of death from age 1 to 6, but no increased risk from age 7 to 13. Girls born from 28 to 32 weeks did not have a significantly increased risk of death.

The investigators are not sure what accounts for the increased risk, but some of it is due to cancer and congenital abnormalities, Swamy said.

Now, new drugs and therapies introduced in the 1990s save smaller and even sicker babies than those in the study, Benitz said.

"The survival rate for small babies is a great deal higher than it was 20 years ago. More of these tiny babies are surviving - and the implications are still with us," he said.

Lifestyle does make a difference. An astonishing 46.5 million Americans smoke, even though it will result in disability and premature death for half of them.

In the United States, premature birth rates among black mothers are higher than among white mothers. The findings suggest people may want to tell their doctors if they were born early. "That may help doctors to manage adult health and reproductive conditions for future generations"; study concluded.

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