

Survival rates for premature babies in high-level NICUs are better than previously reported

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Premature babies are more likely to survive when they are born in high-level neonatal intensive care units (NICUs) than in hospitals without such facilities, and this benefit is considerably larger than previously reported.

The likelihood that an extremely premature baby will survive if born in a high-technology, high-volume hospital unit was already known, but the current study, the largest to date, revealed a stronger effect. Pediatric researchers who analyzed more than 1.3 million premature births over a 10-year span found that the survival benefits applied not only to extremely [preterm babies](#), but also to moderately preterm [newborns](#).

The research team performed a [retrospective study](#) of all hospital-based deliveries of infants with a gestational age between 23 and 37 weeks in Pennsylvania, California and Missouri—a total of over 1,328,000 births. The study focused on preterm deliveries in high-level NICUs, compared to preterm [deliveries](#) at all other hospitals.

"Prior studies from the early 1990s found increased survival rates of 30 to 50 percent among preterm infants delivered at high-level NICUs, compared to preterm infants delivered elsewhere," said study leader Scott A. Lorch, M.D., a neonatologist at The Children's Hospital of Philadelphia. "However, our research found rates as high as 300 percent improvement, when our study design controlled for the effect of sicker

patients who typically deliver at high-level NICUs." Complication rates were similar for both types of hospitals.

The retrospective study, which appeared online July 9 in the journal *Pediatrics*, analyzed records for all births occurring between 1995 and 2005 in Pennsylvania and California, and all births between 1995 and 2003 in Missouri. Lorch added that the results varied slightly among the states, possibly reflecting state-level differences in health policies, such as whether or not the state government designated hospitals within a regional perinatal system.

[Premature babies](#) are those born before 37 weeks [gestational age](#) (full term is 40 weeks). In this study, the researchers defined extremely preterm infants as those born before 32 weeks and moderately preterm infants as those born between 32 and 37 weeks. They defined a high-level NICU as a level III facility that delivered at least 50 very low birth weight infants annually. "We found survival benefits in high-level NICUs for both extremely premature and moderately premature infants," said Lorch. "This suggests that the choice of a delivery hospital may influence the outcomes for the full range of preterm infants."

Unlike many previous analyses of birth outcomes, said Lorch, the current study covered more than a single state system. Using hospital data from states in three regions of the country suggests that the results may be more generalizable throughout the United States than in more limited studies, he added.

However, concluded Lorch, "this research does not imply that every hospital should aspire to build a high-tech NICU—there just aren't enough babies born prematurely for every birth [hospital](#) in the U.S. to have a high-level, high-volume NICU. Instead, the results may assist health care policy makers in organizing regional and statewide care systems to more efficiently provide the best care for premature infants

within a geographical area."

More information: "The Differential Impact of Delivery Hospital on the Outcomes of Premature Infants," *Pediatrics*, published online July 9, 2012, and in print, August 2012. [doi:10.1542/peds.2011-2820](https://doi.org/10.1542/peds.2011-2820)

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