

# Antibiotic use in extremely low birth weight infants decreases over time, finds study

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In a new study, researchers at Children's Hospital of Philadelphia found that the total amount of antibiotics prescribed to extremely low birth weight (ELBW) infants admitted to neonatal intensive care units

(NICUs) decreased over time. The findings [are published](#) in the journal *Archives of Disease in Childhood Fetal and Neonatal Edition*.

The authors speculated that antibiotic stewardship initiatives aimed at optimizing [antibiotic use](#) among these [vulnerable patients](#) to maximize efficacy while minimizing [adverse side effects](#) were likely key drivers of the change. However, the study also found that 9 in 10 ELBW infants were exposed to antibiotics, and that this did not change over time.

The authors applauded efforts at the decreasing duration of antibiotic courses and called for enhanced methods to identify ELBW infants at the highest risk of infection.

"Our findings show that stewardship aimed at antibiotic duration is working and must continue," said Dustin D. Flannery, DO, MSCE, an attending physician at CHOP, and CHOP Newborn Care at Pennsylvania Hospital, and a core faculty member in Clinical Futures, a CHOP Research Institute Center of Emphasis.

"It is also imperative that we cultivate new and different ways to risk stratify extremely [low birth weight](#) infants who are at risk of infection, to continue to optimize use of these drugs."

ELBW infants, who weigh less than about two pounds at birth, are often prescribed antibiotics at birth for suspected infections while awaiting confirmatory testing. Given that these infants have inherent illness, antibiotics are often continued despite negative confirmatory testing. In prior studies, individual centers reported the cumulative impact of stewardship on antibiotic use among [preterm infants](#), but large-scale changes across centers are not well known.

In this study, researchers used the Premier Health Database, a comprehensive administrative database of patients admitted to academic

and [community hospitals](#) across the US, to assess trends in antibiotic and [death rates](#) across a large cohort of ELBW infants over 13 years (2009 to 2021). They found that among nearly 37,000 infants admitted to 402 NICUs, there was no significant change in the number of infants exposed to antibiotics during this period (89.9% in 2009 to 89.3% in 2021).

However, researchers also observed a substantial reduction of one-third in the duration of antibiotic use per 1,000 patient days. Marked changes in drug-specific utilization were identified, including both increases and decreases in specific antibiotics. Death before discharge decreased over time, suggesting these changes did not lead to increased mortality.

**More information:** Dustin D Flannery et al, Antibiotic use among extremely low birth-weight infants from 2009 to 2021: a retrospective observational study, *Archives of Disease in Childhood - Fetal and Neonatal Edition* (2024). [DOI: 10.1136/archdischild-2023-326734](https://doi.org/10.1136/archdischild-2023-326734)

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