Current Trends in Time to Full Enteral Feeding, Late-Onset Sepsis, NEC, and Growth Outcomes of Infants Born Extremely Preterm

NICHD
NEONATAL RESEARCH NETWORK

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Objective

To examine the association between the time required to achieve full enteral feeding and late-onset sepsis (LOS), necrotizing enterocolitis (NEC), and growth faltering in EPT infants admitted to NRN centers between 2012 and 2021.

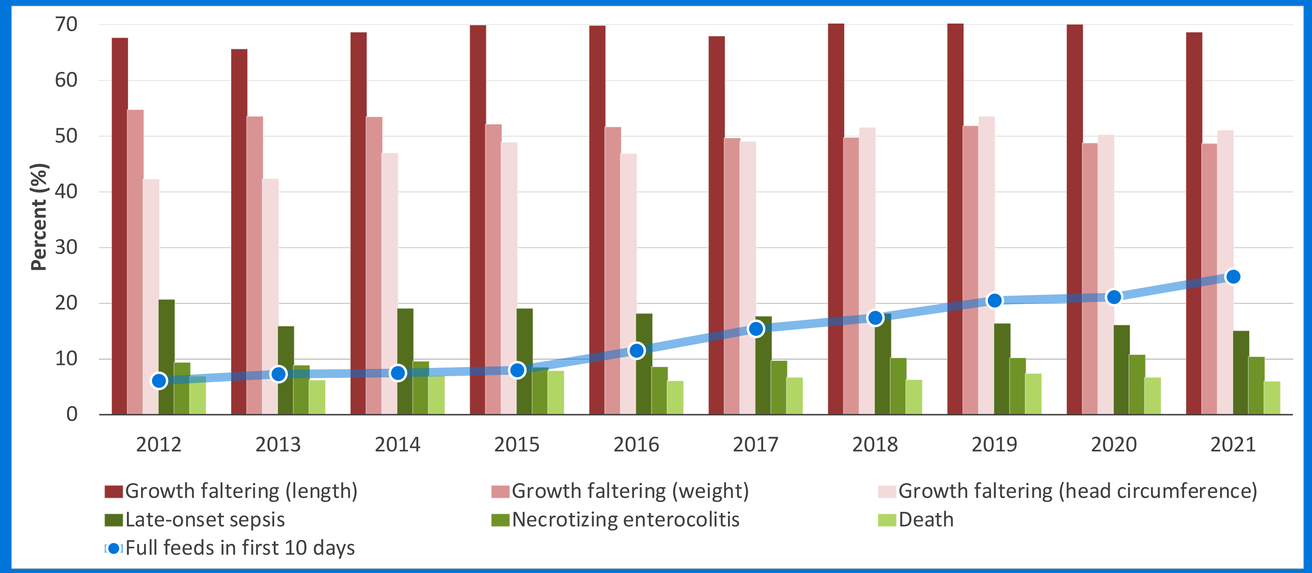
Eligibility Criteria

EPT infants born 23 to 28 weeks of gestation without major congenital or chromosomal anomalies who received enteral feedings and survived beyond postnatal day 7.

Methods

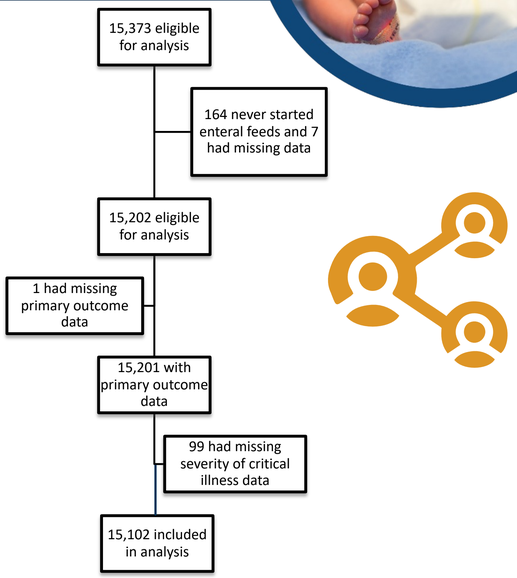
- **Exposure:** Time required to achieve full enteral feeding (120 ml/kg/day or more).
- **Primary efficacy outcome:** Late-onset sepsis confirmed through culture-positive results.
- **Primary safety outcomes:** NEC ≥ Stage 2 and mortality.
- **Secondary efficacy outcomes:** Faltering growth, defined as Fenton z-score declines > 1.2 in weight, length, or head circumference from birth to 36 weeks PMA
- **Covariates:** center, birth year, changes in the severity of critical illness (probability of survival to 36 weeks' PMA without BPD using the Neonatal BPD Outcome Estimator and change in the probability of survival to 36 weeks' PMA without BPD from birth to postnatal day 7) , 5-minute Apgar score, SGA status, as well as maternal characteristics, including education, insurance status, hypertension, and diabetes.

In this prospectively followed multicenter cohort of 15,102 extremely preterm infants, more time required to establish full enteral feeding was associated with a higher risk of late-onset sepsis (aRR: 1.16), NEC (aRR: 1.23), and growth faltering (aRR:1.07)



The practice of establishing full enteral feeding within the first 10 days after birth has increased over time and occurs in one quarter of EPT infants

https://Neonatal.RTI.org/Publications/



Results

The mean BW of infants included was 875g (SD: 242)

Table. Association between delays in achieving full enteral feeding (in increments of 7 d) and in-hospital outcomes by 36 weeks PMA among EPT infants

Outcome	RR (95% CI)	aRR (95% CI) †
LOS	1.26 (1.24, 1.28)	1.16 (1.14, 1.18)
NEC ≥ Stage 2 ‡	1.23 (1.21, 1.26)	1.20 (1.16, 1.24)
Postnatal growth faltering §		
Weight	1.07 (1.06, 1.08)	1.08 (1.07, 1.09)
Length	1.04 (1.03, 1.04)	1.03 (1.02, 1.03)
Head circumference	1.07 (1.06, 1.08)	1.07 (1.06, 1.08)

Abbreviations: aRR = adjusted relative risk; DOL = day of life; LOS = late-onset sepsis; NEC = necrotizing enterocolitis; PMA = postmenstrual age; RR = relative risk (unadjusted).
† Relative risks from robust Poisson regression are adjusted for center, birth year, severity of critical illness at birth, difference in severity of critical illness at birth and DOL 7, 5-minute Apgar score, SGA, and maternal characteristics of education, insurance, hypertension, and insulin-treated diabetes. Severity of critical illness is the predicted probability of survival to 36 weeks PMA without BPD based on neonatal characteristics (gestational age, birth weight, sex, receipt of antenatal steroids, type of respiratory support, and FiO2)
‡ NEC determined according to the modified Bell staging criteria.
§ Postnatal growth faltering is defined as the change in Fenton growth curve z-scores from birth to 36 weeks PMA follow-up < -1.2. 36 weeks PMA

Disclosures: The authors have no financial relationships to disclose or conflicts of interest to resolve. Any real or apparent conflicts of interest related to the content of this poster have been resolved. This poster does not involve discussion of unapproved or off-label, experimental or investigational use of a drug.

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