

TIPQC TN's Tiniest Babies The Prevention of Necrotizing Enterocolitis (NEC) Project



BASELINE DATA COLLECTION FORM

This document is designed to accompany the "Baseline Data Collection" excel template provided for the Tennessee's Tiniest Babies – The Prevention of Necrotizing Enterocolitis (NEC).

For this bundle, the VON definition is utilized for defining NEC. The retrospective baseline data should be collected and submitted based on this definition for the target population.

Target Population

Infants born 29.6 or less weeks gestation admitted to one of the participating NICUs for care. This includes all infants including transfers admitted within 24 hours of birth.

VON CRITERIA

NEC is assessed by radiographic and clinical definition 10 days of life or later and includes at least one of the following clinical findings:

- Bilious gastric aspirate, residual or emesis
- Abdominal distension or discoloration or occult or gross blood in stool (no fissure)
- Occult or gross blood in stool (no fissure)

AND at least one of the following diagnostic imaging findings:

- Pneumatoxis
- Portal venous gas
- Pneumoperitoneum

Retrospective Baseline Data Collection

Participating NICUs will retrospectively capture and report annual baseline data for the previous 4 years (2021, 2022, 2023, and 2024) including:

- **Annual NEC rates** among infants born ≤ 29.6 weeks gestation.
- **Annual NEC Mortality rate of infants diagnosed with NEC** among infants born ≤ 29.6 weeks gestation.
- **Annual Mortality rate of infants by hospital discharge or 40 weeks corrected gestational age, whichever comes first** (among infants born ≤ 29.6 weeks gestation).

An excel baseline data template is provided to all teams for ease of data collection. This tool allows for data collection for each the numerator and denominator values requested, and the rate calculation is embedded.

Tennessee's Tiniest Babies: Necrotizing Enterocolitis (NEC) Baseline Data capture						
Target Population: All infants born at 29.6 weeks or less gestation admitted (within 24 hours of birth) to your NICU for care						
		2021 (Jan 1 to Dec 31)	2022 (Jan 1 to Dec 31)	2023 (Jan 1 to Dec 31)	2024 (Jan 1 to Dec 31)	
<p>The VON criteria is the preferred definition of NEC. All participating hospitals should adopt this criteria, and submit retrospective baseline data based on this definition for the targeted population.</p> <p>NEC is diagnosed by radiographic and clinical definition 10 days of life or later and includes at least one of the following clinical findings:</p> <ul style="list-style-type: none">-Bilious gastric aspirate, residual or emesis-Abdominal distension or discoloration or occult or gross blood in stool (no fissure)-Occult or gross blood in stool (no fissure) <p>AND at least one of the following diagnostic imaging findings:</p> <ul style="list-style-type: none">-Pneumatosis-Portal venous gas-Pneumoperitoneum	Annual NEC rate	Numerator = among the denominator, the number diagnosed with NEC Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care Rate = numerator/denominator	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Annual NEC mortality rate of infants diagnosed with NEC	Numerator = among the denominator, the number of infants with died of NEC before discharge Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care diagnosed with NEC Rate = numerator/denominator	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Annual Mortality rate of infants by hospital discharge or 40 weeks corrected gestational age, whichever comes first	Numerator = among the denominator, the number of infants that died by hospital discharge or 40 weeks corrected gestational age, whichever comes first. This does not include delivery room deaths or deaths <24 hours. Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care. This does not include delivery room deaths or deaths <24 hours. Rate = numerator/denominator	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Denominator Defined

Denominator = number of infants born at 29.6 or less gestation admitted (within 24 hours of birth) to your NICU for care

How to collect this information?

1. Query your EHR:

a. ICD-10-CM/PCS MS-DRGv33 Definitions

PREMATURITY

PRINCIPAL OR SECONDARY DIAGNOSIS

P0721 Extreme immaturity of newborn, gestational age less than 23 completed weeks

P0722 Extreme immaturity of newborn, gestational age 23 completed weeks

P0723 Extreme immaturity of newborn, gestational age 24 completed weeks

P0724 Extreme immaturity of newborn, gestational age 25 completed weeks

P0725 Extreme immaturity of newborn, gestational age 26 completed weeks

P0726 Extreme immaturity of newborn, gestational age 27 completed weeks

P0731 Preterm newborn, gestational age 28 completed weeks

P0732 Preterm newborn, gestational age 29 completed weeks

P0730 Preterm newborn, unspecified weeks of gestation (cross reference to clinical notes)

b. Born outside your facility?

Z381 Single liveborn infant, born outside hospital

Z382 Single liveborn infant, unspecified as to place of birth

Z384 Twin liveborn infant, born outside hospital

Z385 Twin liveborn infant, unspecified as to place of birth

Z387 Other multiple liveborn infant, born outside hospital

Z388 Other multiple liveborn infant, unspecified as to place of birth

REFERENCE: https://www.cms.gov/icd10manual/version33-fullcode-cms/fullcode_cms/P0300.html

CAUTION: This is provided as guidance to begin the creation of an infant list. It will be necessary to perform chart reviews to ensure that infants included *accurately* meet the denominator definition. Once an accurate infant list is obtained, further chart review can be conducted to identify data for each numerator.

2. Query Neodata or similar neonatal patient documentation platform to create an infant list.

Neodata query example: Query Name: Gestational age < 30 weeks

The screenshot shows the 'Queries And Reports' window with a tabbed interface. The '2:Query Filters' tab is active. It displays a table with columns: CGroup (OR), Category (AND), FGroup (OR), and Filter (AND). There are three rows of filters:

CGroup (OR)	Category (AND)	FGroup (OR)	Filter (AND)
1	Patient	1	Gest Age less than 30
	Admission	1	Admit Date between (istart AND iend)
	Any Admission		

Buttons for 'Add', 'Delete', and 'Edit' are visible in the top right of the filter table.

CAUTION: This is provided as guidance to begin the creation of an infant list. It will be necessary to perform chart review to ensure that infants included accurately meet the denominator definition. Once an accurate infant list is obtained, further chart review can be conducted to identify data for each numerator.

Numerators Defined

1. **Annual NEC rates** (among infants born ≤ 29.6 weeks gestation).

Numerator = number of infants (among the denominator) diagnosed with NEC as defined by VON criteria above

- Using the infant list created from collecting the denominator population, determine the number of babies diagnosed with NEC using the appropriate definition

How to collect numerator?

- a. Individual chart review of the denominator list to determine infants diagnosed with NEC using the VON criteria. Total count of these infants is the numerator.
- b. Vermont Oxford – Nightingale database:
 - Filter to extract infants born less than 30 weeks gestation.
 - Nightingale Data Definitions: NEC is coded 'yes' if the infant is in your center after 10 days of life is answered yes.
 - Review infant list for potential inaccuracies.

c. **Query EHR:** ICD-10 codes:

P77.9: Necrotizing enterocolitis in newborn, unspecified

P77.1: Stage 1 necrotizing enterocolitis in newborn

P77.2: Stage 2 necrotizing enterocolitis in newborn

P77.3: Stage 3 necrotizing enterocolitis in newborn

*****Chart review is required to determine if infant meets VON criteria of NEC.*****

Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care

2. **Annual Mortality rate of infants diagnosed with NEC** among infants born ≤ 29.6 weeks gestation.

Numerator = number of infants (among the denominator) diagnosed with NEC that died before discharge

As defined in #1, the same ICD codes would be utilized, then individual chart review to determine infants diagnosed with NEC using the VON criteria. After this, count the number of babies that expired (among the denominator, had NEC and expired).

Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care and diagnosed with NEC

3. **Annual Mortality rate of infants by hospital discharge or 40 weeks corrected gestational age, whichever comes first** (among infants born ≤ 29.6 weeks gestation).

Numerator = number of infants (among the denominator) that died by hospital discharge or 40 weeks corrected gestational age, whichever comes first. This does not include delivery room deaths or deaths <24 hours.

Using the infant list generated from examples provided in the section 'Denominator Defined,' perform a chart review to determine the number of deaths *by hospital discharge or 40 weeks gestational age, whichever comes first*. Total count of these infants is the numerator.

Denominator = number of infants born at 29.6 or less weeks gestation admitted (within 24 hours of birth) to your NICU for care. This does not include delivery room deaths or deaths <24 hours.

Note: Deaths during the neonatal period may result from a variety of clinical conditions. The following resource published by the World Health Organization may provide guidance with ICD coding and neonatal deaths.

The WHO application of ICD-10 to deaths during the perinatal period: ICD-PM

Reference: <https://www.who.int/publications/i/item/9789241549752>