Summary
Evaluation of Factors Associated with Mortality in Neonates

Sponsor
Pediatrix Medical Group, Inc.

Steering Committee
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Study Type
Descriptive study

Multicenter Study – 30 sites
Enrollment Goal - 600

Purpose
The factors associated with death in neonates who die after receiving healthcare can be better defined and the potentially preventable causes of death can be identified.

Study Population

Inclusion Criteria
- Neonates for whom healthcare was provided
- Born alive
- Neonates ≥ 22 0/7 weeks estimated gestational age

Exclusion Criteria
- Still born
- Fetal demise
- Neonates < 21 6/7 completed weeks estimated gestational age

Outcome Measures
Identification of all the factors associated with death
Identification of potentially preventable cause of death

Background
One of the high priority goals of THE HEALTHY PEOPLE 2010 objectives is the reduction of the US infant mortality rate. After years of significant decline, there has been minimal progress in recent years in changing the neonatal mortality rate. Public health policies aimed at improving infant survival rates must be informed by a thorough understanding of the factors contributing to infant mortality rates. Prematurity is a major cause of infant death, but standard ways of categorizing the underlying cause of death do not fully summarize this relationship. Infants born at the lowest gestational ages and birth weights have a large impact on overall U.S. infant mortality. More than one-half (55 percent) of all infant deaths in the United States in 2004 occurred to the two percent of infants born at less than 32 weeks of gestation. Still, infant mortality rates for late preterm (34-36 weeks of gestation) infants were three times those for term (37-41 week) infants. The three leading causes of infant death-congenital malformations, low birth weight, and SIDS-taken together accounted for 45 percent all infant deaths.
The National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention uses standard conventions for categorizing and ranking the leading causes of death by using International Classification of Diseases, 10th Revision (ICD-10), codes. The ICD-10 is an international system for classifying disease entities and causes of death that tends to emphasize body system or pathophysiologic criteria.\(^1\) This standardized method allows consistent accurate monitoring of trends over time.\(^4\) However, this classification system does not capture adequately the overall contribution of preterm birth (<37 weeks of gestation) to the national infant mortality rate, because the relationship between preterm birth and death during the first 1 year of life is not distinctly identifiable by using available cause-of-death titles. Of the ranked causes, only deaths resulting from “disorders related to short gestation and low birth weight not elsewhere classified” (short gestation/low birth weight, ICD-10 codes P07.0–P07.3) seem to be explicitly attributable to preterm birth. However, if short gestation/low birth weight is listed in conjunction with a more-specific cause of death or an antecedent condition, then typically the other cause is selected as the underlying cause of death. Therefore, many deaths involving preterm births are classified elsewhere, in separate categories. For example, infant deaths attributable to respiratory distress syndrome, which almost always result from incomplete lung maturation in preterm infants, are counted in the category of respiratory distress of the newborn (ICD-10 code P22) instead of the category of disorders related to short gestation and low birth weight not elsewhere classified. Despite the fact that 65% of infants who died in 2002 were born preterm, only 17% of infant deaths were reported as being attributable to short gestation/low birth weight. Therefore, preterm birth was ranked as the second leading cause of infant death, following congenital malformations, which accounted for 20% of infant deaths. Other methods for classifying major causes of infant death in the United States and abroad found that prematurity and related conditions accounted for a substantially greater proportion of infant deaths than conventional leading-cause analyses indicated.\(^1,5\) In light of the strong connection between preterm birth and infant deaths and the relatively small proportion of infant deaths attributed to preterm birth with standard methods, a new approach that assesses more accurately how preterm birth contributes to infant mortality rates is needed. To reduce neonatal and infant mortality, there is a need to better understand the potentially preventable causes of death.

Reference List