

This Update summarizes a report recently completed by the Utah Department of Health (UDOH) Perinatal Mortality Review Program (PMRP). The objectives of this program are to provide timely and pertinent statewide data on perinatal health, to develop an efficient and practical review process and to make recommendations for improving pregnancy outcomes.

Birth and death certificates for all infants who died under one year of age were identified by the UDOH Office of Vital Records and Statistics, linked, and sent to the PMRP coordinator once a month. In the years 1995 through 1998, 962 infant deaths occurred in Utah. Only those infant deaths due to perinatal conditions were included (ICD-9 760-779.9). Deaths caused by injury, SIDS or birth defects were excluded from the study. Table 1 shows the causes of death for the 370 infant deaths that met the review criteria for study inclusion.

Infant Deaths Included in Study

Table 1. Infant deaths by cause, Utah, 1995-1998.

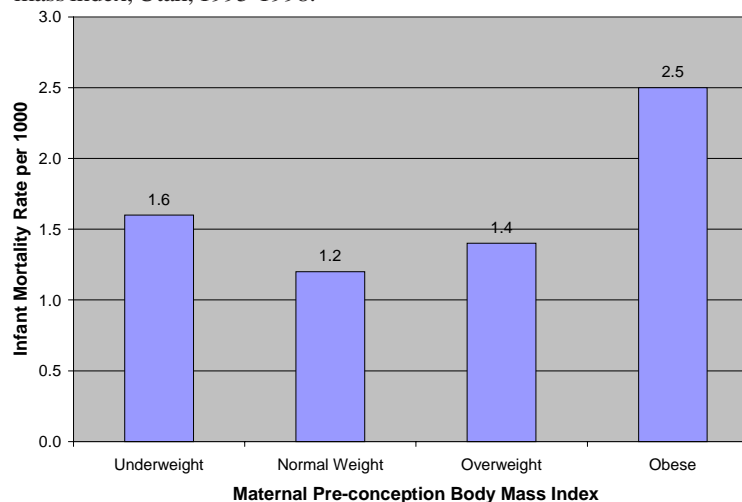
Cause of Death Category	ICD-9 Code	Number of Infants
Prematurity	765	99
Maternal Causes	760-763	75
Other Respiratory Disorders	519 & 770	50
Perinatal Infections	771	36
Digestive Disorders	777	22
Respiratory Distress Syndrome	769	19
Hypoxia/Asphyxia	768	18
Birth Trauma	767	13
Ill Defined Perinatal Conditions	779	13
Pulmonary Hypoplasia	748	12
All Other Causes	Residual	7
Other Infectious or Parasitic Diseases	001-139	6

Maternal Characteristics

- Maternal ages ranged from 14 to 40 years with higher mortality rates noted in the under 20 year old group (3.3/1000) and 30 to 39 year old group (2.1/1000). Both groups show a significant relationship between age and infant mortality ($p < 0.01$) when compared to 20-29 year olds (1.8/1000).
- Seventy-six percent of mothers of infants in the study group were married. Unmarried women had a statistically significant higher rate of infant mortality (2.9/1000) than married women (1.8/1000) ($p < 0.01$).
- Infant mortality rate by level of education for the study group was higher for mothers with less than a high school education (3.2/1000 live births) than for those who had graduated high school (2.0/1000 live births) ($p < 0.01$).
- The pre-conception weight of the women ranged from 88 pounds to 290 pounds, with 130 women having a low pre-

Infant Mortality by Mother's Pre-conception BMI

Figure 1. Infant mortality rate by maternal pre-conception body mass index, Utah, 1995-1998.



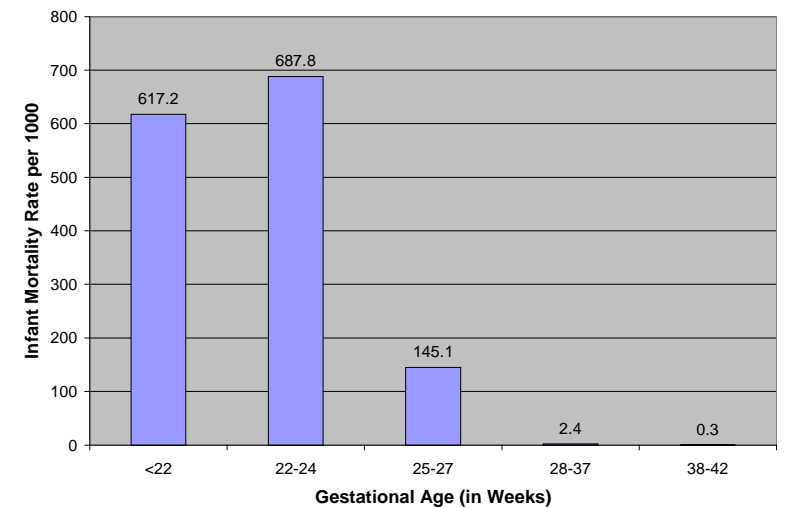
conception weight (<120 pounds), 160 women having a moderate pre-conception weight (120-199 pounds), and 40 women having a high pre-conception weight (>199 pounds). A Body Mass Index (BMI) of 29.1 or greater was associated with a significantly increased risk of infant mortality (2.5/1000) ($p < 0.01$) (Figure 1).

Infant Characteristics

- Preterm delivery at or below 24 weeks occurred in 231 of the 370 deaths. As gestational age increased, infant mortality decreased (Figure 2).

Infant Mortality by Gestational Age

Figure 2. Infant mortality rate by gestational age at birth, Utah, 1995-1998.

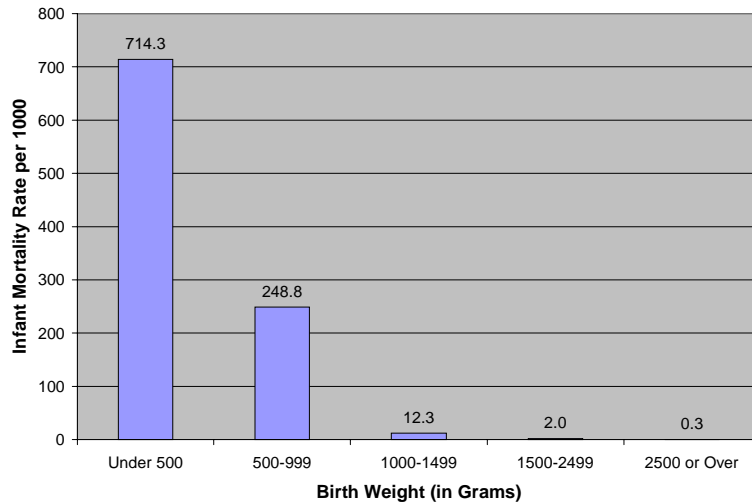


- The gender distribution of the infant group was 217 males and 153 females with a statistically significant higher mortality rate for males ($p < 0.01$).

- The infant mortality rate for multiple gestations in the study population was significantly higher than that of singletons ($p < 0.01$). This rate increased incrementally from 1.7/1000 for singletons to 19.9/1000 for twins to 56.1/1000 for triplets to 400/1000 for quadruplets. There were 79 twins, 11 triplets and 4 quadruplets reviewed.
- The association between low birth weight (<2500 grams) and infant mortality was statistically significant ($p < 0.01$). As birth weight increased, infant mortality rates decreased markedly from 714.3/1000 for infants <500 grams to 0.3/1000 for infants 2500 grams or more. The majority of the infants in the study group (88%) were low birth weight. Of the low birth weight infants, 94% were categorized as very low birth weight (less than 1500 grams) (Figure 3).

Infant Mortality by Birth Weight

Figure 3. Infant mortality rate by birth weight, Utah, 1995-1998.



The PMRC continues to review infant mortality on an ongoing basis in an effort to prevent future infant deaths in the state of Utah. Review of the perinatal mortality cases in this study has determined that no intervention would have altered the outcome

in the majority of cases. However, interventions such as early entry into prenatal care, certification for providers of assisted reproductive technology, treatment of genito-urinary infections, and recertification in neonatal resuscitation skills for pediatricians and nurses were among the recommendations of the report. For a copy of the full report, contact the Reproductive Health Program, or go to www.utah.gov/RHP.

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For more information about this topic, please contact the Reproductive Health Program, Utah Department of Health, P.O. Box 142001, Salt Lake City, Utah 84114-2001, (801) 538-9970, FAX (801) 538-9409, website: www.utah.gov/RHP, or the Office of Public Health Assessment, Utah Department of Health, P.O. Box 142101, Salt Lake City, Utah 84114-2101, (801) 538-6108, FAX (801) 538-9346, email: phdata@utah.gov.

RETURN SERVICE REQUESTED

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