

Outcome Data for 22 to 25 week and 401 to 1000 g Birth Weight Newborns

Background Information

Significant challenges remain for decision making at the lower border of viability. Individual patient decisions are made based on the best available information at the time. In an effort to assist individual decision making, data from the NICHD Neonatal Research Network are available for the practice community and parents with respect to survival and intact survival utilizing information from 4446 births at 22-25 weeks. The purpose of this website is to provide outcome to be used by physicians, care providers, and parents on a case-by-case basis.

This outcome data are based on standardized assessments at 18-22 months adjusted age (post term) in the NICHD Neonatal Research Network for 22-25 wk 401-1000 g infants born in Network centers between 1998 and 2003. (Outborn infants and infants with a major congenital anomaly were excluded). As was shown for these infants, use of five factors—gestational age (best obstetric estimate in completed weeks), birth weight, sex, antenatal corticosteroids (any), and singleton birth—allowed a better estimate than using gestational age alone. With different combinations of these risk factors, the percent of infants observed to have a favorable outcome was as large as 30% greater or 30% less than that estimated using gestational age alone.

Use of these 5 risk factors allows the likelihood of different outcomes to be estimated for individual infants assuming outcomes like those for the Network as a whole during this period. Because prognosis may be perceived differently depending on how it is expressed, the likelihood of a favorable outcome (top 3 rows of estimates) as well as the likelihood of an unfavorable outcome (bottom 3 rows) is shown. Two columns of estimates are provided. The first column is based on findings for all infants including those who died without receiving mechanical ventilation. The second column is based only on infants who received intensive care (mechanical ventilation). For risk groups in which some infants died without receiving mechanical ventilation, the first estimate is often lower than the second. The rate of a favorable outcome had no infants died without receiving mechanical ventilation is likely to be intermediate between the two estimates. Neurodevelopmental impairment (NDI) was defined as a Bayley mental developmental index or psychomotor developmental index <70, moderate/severe cerebral palsy, bilateral blindness, and/or bilateral hearing loss requiring amplification. Profound impairment was considered to be present when the lowest Bayley score was recorded as <50 or the gross motor function level was 5 (Palisano criteria).

These estimates apply only at birth. Sonographic estimates of fetal weight may be used in anticipating birth weight. However, it would be important to assess the minimum and maximum likely birth weight consistent with the potential error of sonographic estimates in your center.

In interpreting the estimates, it is important to recognize that outcomes change over time and that outcomes differ between centers for a variety of reasons, including patient population, obstetric care, and care after discharge home. (Within the Network, the ratio of the observed rate of adverse outcomes among ventilated infants in different centers relative to that expected from the outcomes for the Network as a whole varied more for death (0.60-1.38), than for death or profound impairment (0.75-1.23) or death or impairment (0.85-1.17). To help in assessing the extent to which findings in your center may differ from that for the overall network, the tables below describe the Network population and outcomes used in deriving these estimates.

Gestational Age Specific Outcomes for Inborn Infants 22-25 Weeks Gestational Age

Gestational Age (Completed Weeks; Best Ob Estimate)	Death before NICU Discharge	Outcomes at 18–22 Months Adjusted Age*		
		Death	Death or Profound Impairment	Death or Neurodevelopmental Impairment
22 weeks	95%	95%	98%	99%
23 weeks	74%	74%	84%	91%
24 weeks	44%	44%	57%	72%
25 weeks	24%	25%	38%	54%

* Death or profound impairment and death or neurodevelopmental impairment determined for 4165 examined infants; death at 18-22 month determination made using a denominator of all 4446 cohort infants.

**Gestational Age Specific Outcomes for Only Mechanically Ventilated Inborn Infants
22-25 Weeks Gestational Age**

Gestational Age (Completed Weeks; Best Ob Estimate)	Death before NICU Discharge	Outcomes at 18–22 Months Adjusted Age**		
		Death	Death or Profound Impairment	Death or Neurodevelopmental Impairment
22 weeks	79%	80%	90%	95%
23 weeks	63%	63%	76%	87%
24 weeks	40%	41%	55%	70%
25 weeks	23%	24%	37%	54%

**For mechanically ventilated infants, death or profound impairment and death or neurodevelopmental impairment determined for 3421 infants with known outcomes at 18-22 months; death at 18-22 month determination made using a denominator of all 3702 cohort infants.

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