OBSTETRICS

Resuscitation of likely nonviable infants: a cost-utility analysis after the Born-Alive Infant Protection Act

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OBJECTIVE: The purpose of this study was to compare the effects of universal vs selective resuscitation on maternal utilities, perinatal costs, and outcomes of preterm delivery and termination of pregnancy at 20-23 weeks 6 days' gestation.

STUDY DESIGN: We used studies on medical practices, prematurity outcomes, costs, and maternal utilities to construct decision-analytic models for a cohort of annual US deliveries after preterm delivery or induced termination. Outcome measures were (1) the numbers of infants who survived intact or with mild, moderate, or severe sequelae; (2) maternal quality-adjusted life years (QALYs); and (3) incremental cost-effectiveness ratios.

RESULTS: Universal resuscitation of spontaneously delivered infants between 20-23 weeks 6 days' gestation increases costs by $313.1 million and decreases QALYs by 329.3 QALYs; after a termination, universal resuscitation increases costs by $15.6 million and decreases QALYs by 19.2 QALYs. With universal resuscitation, 153 more infants survive: 44 infants are intact or mildly affected; 36 infants are moderately impaired, and 73 infants are severely disabled.

CONCLUSION: Selective intervention constitutes the highest utility and least costly treatment for infants at the margin of viability.

Key words: decision-making, extreme prematurity, nonintervention, resuscitation, withholding medical care

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Even with improved aggressive life-support measures, >75% of infants who are born at <24 weeks' gestational age do not survive to hospital discharge.[1-8] At least 50% of the survivors experience complications that are severe enough to affect their future quality of life.[9-12] Because the establishment of an accurate clinical prognosis for survival in the immediate perinatal period is difficult,[6] many centers routinely resuscitate extremely premature infants, despite emotional and financial burdens on parents[13-15] and high risk of disabilities among surviving infants.[16,17] Other perinatal providers hesitate to resuscitate fetuses and infants whom they judge to be nonviable or highly likely to experience life-long severe disability.[1,18-21]

★ EDITORS' CHOICE ★

The Born-Alive Infant Protection Act of 2002 (BAIPA)[22] specified a legal definition of liveborn infants at any gestational age. *Live birth* is defined as "the complete expulsion or extraction from his or her mother of that member, at any stage of development, who after such expulsion or extraction breathes or has a beating heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, regardless of whether the umbilical cord has been cut and regardless of whether the expulsion or extraction occurs as a natural or induced labor, cesarean section, or induced abortion."[22] In April 2005, Michael Leavitt, Secretary of the Department of Health and Human Services, issued federal guidance on BAIPA that required investigation of "all circumstances where individuals and entities are reported to be withholding medical care from an infant born alive in potential violation of federal statutes. . . ."[23] If the delivery of an extremely premature infant is perceived as a medical emergency, then "the hospital and its medical staff would be required to perform a medical screening examination on that born-alive infant. . ., [and] there would then arise an obligation to admit the infant, or to comply with either the stabilization requirement or the transfer requirements, or risk a finding of an Emergency Medical Treatment and

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Reprints will not be available from the authors.

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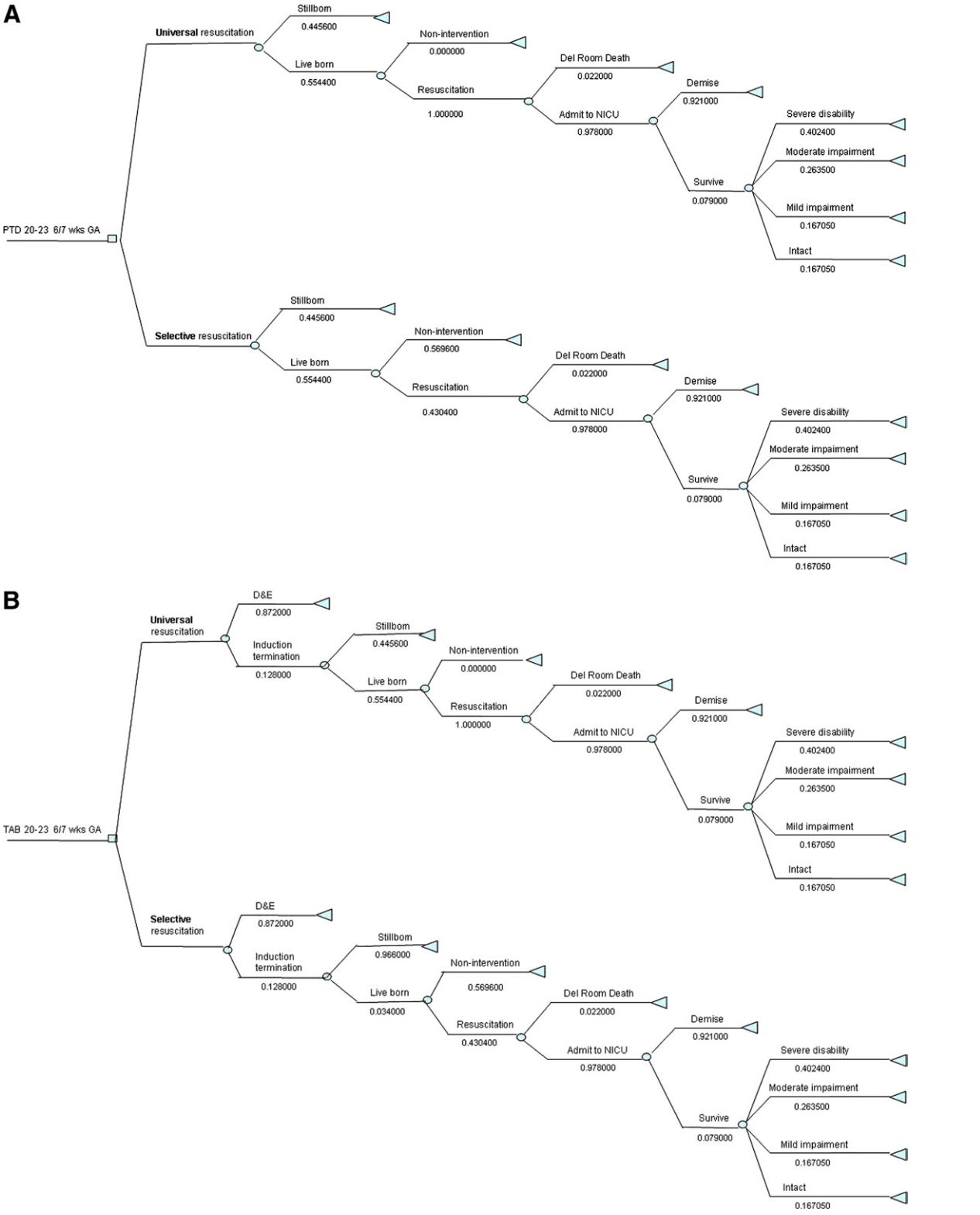
FIGURE 1
Schematic of decision trees



A, Preterm delivery (*PTD*). **B,** Induced termination of pregnancy.

D&E, dilation and evacuation; *Del,* delivery; *GA,* gestational age; *NICU,* neonatal intensive care unit; *TAB,* therapeutic abortion; *wks,* weeks.

Partridge. Cost-utility analysis of resuscitation of extreme prematurity. Am J Obstet Gynecol 2012.