

# Ethical Issues in Newborn Care

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## Book Review

### *Preterm Birth: Causes, Consequences, and Prevention*

by Richard E. Behrman, MD, JD, and Adrienne Stith Butler, PhD  
(National Academies Press, 2007, ISBN-13:978-0-309-10159-2)

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This new book is edited by 2 experts in pediatrics and public policy, Richard E. Behrman, MD, JD, who has been the dean of several departments of pediatrics and is past editor of *Future of Children Journal*, and Adrienne Stith Butler, a PhD psychologist specializing in public policy with the Institute of Medicine. The text is a 772-page comprehensive analysis of mostly every aspect of research that has been conducted regarding prematurity and preterm birth. The strengths include the collection and synthesis of important data and the presentation of the data in excellent tables and figures. It would, however, have been good to have seen additional acknowledgment of the years of perinatal research by doctorally prepared nurses. Briefly cited are Meier's<sup>1</sup> and Kavanagh et al's<sup>2</sup> work on breast milk, Romesberg's<sup>3</sup> work on ethics, and Franck's<sup>4</sup> work regarding neonatal pain. Not included were Ludington et al's work on kangaroo care,<sup>5</sup> Kenner and McGrath's<sup>6</sup> or Philbin and associates'<sup>7</sup> work in developmental care, Melnyk and Gillis-Alpert's<sup>8</sup> work with creating opportunities for parent empowerment, or the work of Penticuff,<sup>9</sup> Catlin and associates,<sup>10-13</sup> Hurst,<sup>14</sup> Kavanaugh and associates,<sup>15</sup> Rushton,<sup>16,17</sup> Kain,<sup>18</sup> or Wocial<sup>19</sup> in neonatal ethics and palliative care. (In fact, the only nurse researchers cited in the ethics section are colleagues from Scotland and Norway.) Three nurse educators (Drs Anne Koontz, Kerri Durnell-Schuiling, and Sharon Landesman Ramey) were invited to participate in the days of committee testimony, but no American nursing scholar was included on the Institute of Medicine team.

The text is a helpful addition to the neonatal nurse's library. The Institute of Medicine was correct

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to spend the time and effort on creating a useful synopsis of the facts behind the illusive disease of prematurity. The book is divided into 5 sections, which include (1) dilemmas in the measurement of fetal and infant maturity, (2) the causes of preterm birth, (3) diagnosis and treatment of preterm labor, (4) consequences of preterm birth, and (5) research and public policy. Each section concludes with research recommendations. There is a reference section and appendices. The appendices include material on ethical dilemmas and a systematic review of the costs associated with preterm birth.

The introduction of the text identifies the difficulty in "curing" prematurity based on the multicausal and complicated associated factors. As Catlin<sup>11</sup> and Armigo<sup>20</sup> have identified, the authors cite the lack of inclusion of prematurity education/prevention in prenatal care, reminding us that prenatal care was designed to identify impending preeclampsia and has done little regarding preterm labor. In fact, the third section of the Institute of Medicine publication begins with a statement's acknowledging that "preterm birth has historically not been emphasized in prenatal care" (p. 261) and further admits that "current prenatal care is focused on risks other than preterm birth" (p. 263).

The authors report that for years extensive and multinational research has found no way to actually predict, diagnose, or treat preterm birth. The main focus of treatment has been to prevent preterm contractions, but the prevention of preterm contractions has done nothing to lower the incidence of preterm births. Despite not changing the numbers of preterm births, controlling preterm labor has accomplished the only 2 factors proven to influence infant morbidity and mortality: it has successfully allowed the administration of antenatal steroids prior to the birth to aid in lung maturity, and it has allowed for maternal transfer to higher-level maternity/neonatal tertiary care centers.

Interesting components of section 1 on measurement and section 2 on causation were as follows:

- The authors encourage closer association between obstetric and neonatal colleagues in

considering the care for fetuses whose internal organ systems are not yet ready to support extrauterine life and state that we need to better identify women and fetuses that are and are not candidates for the arrest of labor.

- The methods of identifying accurate gestational age are discussed and compared, with the authors recommending an early-in-pregnancy (prior to 20 weeks) ultrasound as the most accurate method of dating.
- The authors wonder (as do many neonatal nurses) if the biological limit has been reached, and whether the grave statistics on US infant mortality (37th among nations) is not due to the initial resuscitation of marginally viable infants who later expire. The authors invite providers to be more careful in clarifying in the delivery room whether what is seen is the involuntary gasp or transient cardiac contraction of a fetal demise or stillborn infant versus a true pulse and respiratory effort. It is recommended that management should focus not just on survival, but on a working definition of the limit of viability, or on survival without major disability (p. 74).
- The authors state that to provide accurate epidemiologic data on which to base decision making, the birth record must be amended to include additional data such as gestational age verification by ultrasound.
- We are reminded that regional NICUs with greater than 15 beds are more successful with infant outcomes.
- The authors recommend that in addition to placing limits on the number of embryos placed for in vitro fertilization, there needs to be mandatory reporting of all use of follicle stimulation medications.
- Of interest in the section on behavioral and psychosocial contributors to preterm birth are the inclusion of major life events, chronic and catastrophic stress, maternal anxiety, personally experienced racism, and lack of support. Also reported are the inconsistent results in programs to treat these conditions. Many studies find stress, poverty, and living in a high-crime area to be contributory. The authors continue to research the illusive questions about the high rate of African American preterm infants, regardless of economics or living situations.
- Discussion of physical contributors to premature birth included tobacco use, alcohol use, illicit drugs, nutrition, employment, physical activity, sexual activity, and douching. Medical and pregnancy conditions of hypertension, diabetes, lupus, and assisted reproductive technologies are also known contributors.
- Discussion of animal experiments to define the physiology of preterm labor and the complications of preterm birth was very interesting.

- Impairments of neonatal physiology that are associated with developmental sequelae are well described, such as the physiologic review of how local lesions in the white matter of the brain come to exist. There are excellent graphs of meta-analyses and data synthesis on which to base recommendations. There is also an admirable discussion of the sequelae of premature lung development.

Section 3 includes clinical predictors of preterm delivery.

- Data are provided on the factors associated with preterm delivery. These include low prepregnancy weight, genitourinary bacterial colonization/infection, African American ethnicity, multiple gestation, history of preterm births, and vaginal bleeding.
- The authors review data on biophysical predictors of preterm delivery, such as 4 or greater uterine contractions per hour. Cervical changes, sonographic visibility of cervical shortening, and fetal fibronectin are discussed.
- A comprehensive table of medical interventions that have been tried to prevent preterm birth is presented. Unfortunately, none of the 45 studies reviewed were greatly successful and neither was the use of antibiotics, dental care, tocolytic prophylaxis, or surgical cerclage. One somewhat promising finding was the use of progesterone supplementation. Cessation of smoking, gaining the appropriate amount of weight, and attending prenatal care were also helpful.
- There is an excellent review of the use of antenatal corticosteroids and of maternal transport as factors that can help improve fetal outcomes.
- Material not commonly included in nursing education is found in the expansive material on the relationship between human genetics and prematurity. Discussion of environmental toxins is also provided.
- The authors found that each potential factor discussed as a cause for preterm birth was only weakly and inconsistently associated, and that only an interaction of multiple factors might be causative. They call for the need of a large, national research sample with sufficient statistical power on which to base care recommendations.
- Final recommendations include improving methods for the identification and treatment of women at increased risk of preterm labor, including assessment (and education) early in or before the pregnancy.

In section 4, the authors turn to the consequences of preterm birth, specifically mortality and acute complications, neurodevelopmental support, health and family outcomes, and societal costs. Extensive neonatal nursing research has been devoted to these very

topics, as developmentally appropriate nursing care contributes to improved outcomes for neonates and their families; yet, unfortunately, little of this work has been included. Material included in this chapter include the following.

- Although extremely preterm births represent just 6% of all preterm births, the extremely preterm infants accounted for more than one third of the total medical costs associated with preterm birth through 7 years of age.<sup>(p401)</sup>
- The authors admit that infants born at the lower limit of viability (which is not defined in this report) have the highest mortality rates and the highest rates of all complications.<sup>(p313)</sup>
- The major complications are detailed as those affecting the lungs and respiratory system, the gastrointestinal system, skin, infections and the immune system, the cardiovascular system, the hematologic system, the auditory system and hearing, the ophthalmic system and vision, and the central nervous system.
- As neonatal nurses, we are all too familiar with the associated complications of each immature system. As described in the section “Neurodevelopmental Support,” those aspects that can influence improved neonatal outcomes are those provided by NICU RNs: NICU design and lighting, nursing routines and care plans, feeding methods, management of pain, attention to sensory input (reduced noise levels), activity and signs of stress, and the involvement of parents in the care of their infants.<sup>(p337)</sup>
- The attempt at financial analysis was extremely comprehensive and of interest but may actually be misleading. The authors present the cost for a premature infant’s hospitalization as \$51,000 per child. They obtain this number by grouping together the costs for infants 24 to 38 weeks’ gestation. In a separate review of hospitalizations of premature infants who could not leave the hospital for more than 6 months, costs were estimated at \$703,000 per infant.<sup>10</sup>

In section 5, addressing research and policy regarding preterm birth, the authors admit that the barriers to clinical research are considerable. The research would need to be conducted over an extended period of time to effectively evaluate treatments, interventions, and outcomes, sustained funding would be required, and career choices in medicine (and nursing) would affect the number of qualified scientific researchers. Discussed in this section was the following:

- pharmaceutical testing in pregnant women adds the special challenge of determining potential effect on the developing fetus;
- the ethical and liability issues in reproduction research are many and may be obstacles to the research;

- it is acknowledged in this report that preterm birth occurs disproportionately in populations of low socioeconomic condition; because many public programs target this population, costs of preterm birth are substantial; and
- the research that is required regarding preterm birth will inform public policy to reduce preterm birth and ensure healthy outcomes for infants and their families.

In conclusion, the report suggests a research agenda to investigate preterm birth, with 3 priority areas:

- Establishment of multidisciplinary research centers
- Establishment of priority areas for research
- Studying and informing public policy

The appendices, located behind the 96-page list of references, include 2005–2006 meeting agendas, statistical information, review of costs, funding programs for preterm birth research, and a review of ethical issues involved in premature birth. Considering the many ethical issues involved in the resuscitation and care of preterm infants, especially the extremely premature, it is gratifying to see ethical issues addressed in this important report yet puzzling that it seems to be buried in the appendices. The review presents some literature on the complexity of decision making, which the authors agree is one of the most frequently addressed areas in neonatal ethics, yet the literature referenced is somewhat dated and the cases referred to are from the 1980s and 1990s. Minor reference is made to the limitation or withdrawal of life-sustaining medical treatment, pain management and palliative care, and the concept of futility in the care of extremely ill infants. NICU nurses have conducted studies addressing the conscientious objection to care orders that cause suffering at the end of life,<sup>13</sup> infants unable to be discharged,<sup>12,21</sup> barriers to palliative care,<sup>18</sup> and the implementation of a palliative care program in a NICU,<sup>22,23</sup> yet none of these works, nor any nursing studies, are referenced in the ethics review. As the consistent care providers of sick neonates, it would seem reasonable that the valuable contributions of neonatal nurses should be included in the next study of preterm birth.

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## Two Other New Books of Interest

### From the American Nurses Association **Guide to the Code of Ethics for Nurses: Interpretation and Application**

Edited by Marsha Fowler, PhD, RN, 2008  
 Nursingbooks.org; ISBN 13:978-1-55810-258-3

### **Pain in Neonates and Infants, Third Edition**

Edited by K. J. S. "Sunny" Anand, B. S. Stevens,  
 and P. J. McGrath  
 Elsevier Press, 2007; ISBN 10:0-444-52061-9