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Manual of Neonatal Care

Joint Program in Neonatology
Harvard Medical School
Beth Israel Hospital
Brigham and Women's Hospital
The Children's Hospital
Boston

Fourth Edition

配英汉索引

新生儿护理手册

Edited by

John P. Cloherty
Ann R. Stark



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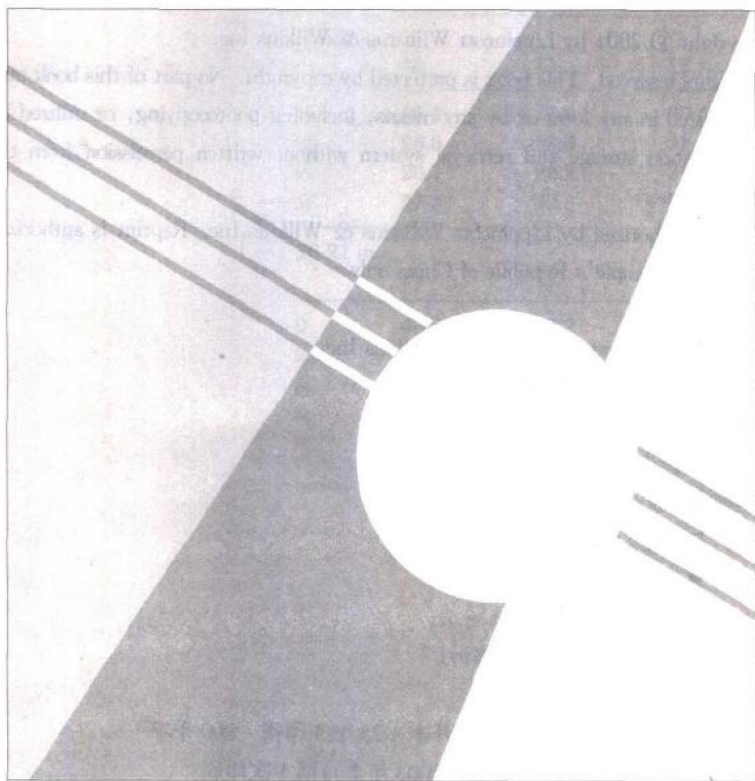
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Some drugs and medical devices presented in this publication have Food and Drug Administration (FDA) clearance for limited use in restricted research settings. It is the responsibility of the health care provider to ascertain the FDA status of each drug or device planned for use in their clinical practice.

**To Laura, Gregory, Maryann, Joan,
Danny, Tommy, Anne, David, Monica,
Victoria, Chrissy, Ann, and Peter**

Preface

The fourth edition of the *Manual of Neonatal Care* of the Joint Program in Neonatology (JPN) builds on the three previous editions (1980, 1985, 1991) and updates our practice in perinatal and neonatal medicine. The JPN has grown to 28 attending neonatologists and 12 fellows who care for over 14,000 newborns delivered annually at the Beth Israel Deaconess Medical Center (BIDMC), the Brigham and Women's Hospital (BWH, formerly the Boston Lying-In Hospital and Boston Hospital for Women), and more than 450 patients referred annually to the NICU at Children's Hospital (CH).

Our commitment to values including clinical excellence, collaboration with colleagues, and support of families, is evident throughout our book. BIDMC and BWH are referral centers for women with pregnancies complicated by maternal illness, fetal abnormalities, and anticipated neonatal problems. Obstetricians and neonatologists work together to provide prenatal and intrapartum care. This perinatal experience is reflected in the chapters on Fetal Assessment and Prenatal Diagnosis, Maternal Conditions That Affect the Fetus, and Genetic Issues Presenting in the Nursery. The NICU at CH provides telephone consultation to pediatricians at local community hospitals, and transports and cares for critically ill newborns delivered at hospitals throughout New England. Frequent problems seen in this outborn population include perinatal asphyxia, congenital heart disease, severe respiratory disorders, malformations, and metabolic disorders.

The practical approaches we have developed to address these problems are described in the *Manual*. Close involvement with the families of our patients is valued in our three NICUs. This is reflected in the chapters on Breast-Feeding, Developmentally Supportive Care, and Management of Neonatal Death and Bereavement Follow-Up.

This version of the *Manual* is completely updated and extensively revised. We have added new chapters on preeclampsia and related conditions, extracorporeal membrane oxygenation (ECMO), arterial and venous thrombosis, care of the very low-birth-weight infant, and neonatal anesthesia and sedation. The chapter on congenital heart disease has been markedly enhanced and includes excellent diagrams of cardiac malformations that will facilitate explanations for caregivers and parents. The chapter on infections has been expanded with new information on many conditions, including human immunodeficiency virus, toxoplasmosis, and Lyme disease. The chapters on hyperbilirubinemia, respiratory disorders, neurology and metabolic disorders have also been extensively expanded and updated.

In the *Manual*, we describe our current and practical approaches to evaluation and management of conditions encountered in the newborn. We recognize that many areas of controversy exist, that there is often more than one approach to a problem, and that our knowledge continues to grow. We acknowledge the efforts of many individuals to advance the care of newborns and the train-

ing of physicians in newborn medicine. We are indebted to Clement Smith and Nicholas M. Nelson for their insights into newborn physiology; Stewart Clifford, William D. Cochran, John Hubbell, and Manning Sears for their contributions to the care of infants at Boston Lying-In Hospital; and H. William Taeusch, Jr., Barry T. Smith, Michael Epstein, and Merton Bernfield who served as Directors of the JPN. We are grateful to Mary Ellen Avery for the markedly improved outcomes of premature infants facilitated by her seminal observation that surfactant deficiency results in Respiratory Distress Syndrome, her international leadership as an advocate for newborn infants, her role in establishing the JPN in 1974, and the personal support and advice she has provided to so many, including the editors.

We welcome the opportunity to thank the many others who helped in the preparation of the *Manual*. Individuals who assisted with previous editions, reviewed sections of the present edition, or helped make this work possible include Ann Colangelo, Frederic Frigoletto, Donald Fyler, Luke Gillespie, Donald Goldmann, Kenneth McIntosh, Alexander Nadas, Istvan Seri, Richard Slavin, and Joseph Volpe.

We appreciate our many local and national colleagues for their contribution of chapters or for permission to use data, illustrations, or tables. For their thoughtful questions and field-testing of management algorithms, we note the efforts of JPN fellows in 1995-1997, during the preparation of this edition: Sanjay Aurora, Timothy Baba, Wanda Barfield, Dara Brodsky, Donna Caliguri, Sule Cataltepe, Helen Christou, Anne Cullen, Thomas Diacovo, Marty Ellington, Jay Hagerty, Anne Hansen, Petra Huppi, Bertha Kao, Bilal Khodr, Mark Lawson, Kimberly Lee, Simon Manning, Camilia Martin, Geeta Mathur, Brendan Murphy, Manuel Peregrino, Diana Perry, Mariel Poortenga, Karen Puopolo, David Rowitch, Manisha Sakore, Timothy Watkins, John Zupancic. We thank Laura Mulhall, Stephanie Lightman, and Julie Ristaino for their administrative assistance and secretarial work, without which this would have been an impossible task. Finally, we gratefully acknowledge the nurses, residents, parents, and babies who provide the inspiration for and measure the usefulness of the information contained in this book.

John P. Cloherty, M.D.
Ann R. Stark, M.D.

Manual of Neonatal Care

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