concepts) for bronchopulmonary hygiene for neonates. The figures used to illustrate bronchopulmonary hygiene for neonates (page 100) shows a model of a 6–8 month old infant, not a neonate. Chapter 7 contains a nice overview of general nursing care of the newborn, but most of the information can be found in other areas of the text and the chapter adds little overall.

Chapter 8 provides a comprehensive overview of continuous positive airway pressure (CPAP). The authors provide a brief introduction of various methods and devices and then take an evidence-based approach to case studies, cohort comparisons, and randomized, controlled trials that used CPAP. The chapter concludes with a brief review of nasal ventilation, other CPAP applications, hazards, adverse events, and complications of CPAP, and CPAP optimization and weaning.

Chapters 9 (on pressure-controlled ventilation), 10 (on volume-controlled ventilation), and 11 (on high-frequency ventilation) should also be required reading for any clinician responsible for assisted ventilation of neonates. These chapters compare the advantages and disadvantages of those 3 ventilation modes, and each chapter ends with a section on implementation and weaning strategies. In chapter 9 there are tables that identify the advantages and disadvantages of each ventilator control component (eg, peak inspiratory pressure, positive end-expiratory pressure) of pressure-controlled ventilation, and these tables will make excellent teaching tools for residents, fellows, and novice neonatal therapists. In Figure 9-7 (page 163) I noted that bullet points 2 and/or 3 in the box for infants < 1,500 g appear to be in error: they conflict with one another. The disease-specific, evidence-based sections of the chapter on high-frequency ventilation are clinically relevant and should be helpful for teaching purposes.

Chapters 12 through 15 address special ventilatory techniques and modalities for neonates. For many years patient-triggered ventilation has been advocated as being extremely beneficial for adults, but we only recently gained the ability to provide patient-triggered ventilation to neonates. Chapter 12 discusses neonatal patient-triggered ventilation, synchronized intermittent mandatory ventilation, and pressure-support ventilation, including potential problems. The chapter concludes with a look at the available equipment for neonatal patient-triggered ventilation.

Chapter 13 details concepts and theories behind lung-protective strategies and liquid ventilation. Lung-protective strategies begin in the delivery room with resuscitation and continue into the nursery, and the chapter discusses the history and current approaches to neonatal mechanical ventilation. This section reiterates and expands on some of the concepts in Chapters 9 through 12 and introduces some newer treatment concepts, such as nitric oxide and tracheal gas insufflation. The remainder of Chapter 13 discusses the history and current clinical trials of liquid ventilation.

Chapter 14 takes a closer look at the use of inhaled nitric oxide with neonates. The chapter authors summarize initial patient evaluation and clinical experiences with inhaled nitric oxide in near-term and term infants suffering hypoxic respiratory failure. Centers that use inhaled nitric oxide may find the sections on treatment strategies, dose, duration of treatment, weaning, and discontinuation especially helpful. The authors conclude the chapter with a brief discussion on the controversies regarding: inhaled nitric use at centers that do not use extracorporeal membrane oxygenation; patient transport with inhaled nitric oxide; and off-label and potential future uses of nitric oxide with other patient populations in the nursery.

Chapter 15 uses the concepts, theories, and devices discussed and debated in Chapters 8 through 14 to review neonatal assisted-ventilation strategies, with an emphasis on lung protection. The chapter begins with a general conceptual approach and finishes with suggested strategies that target disease-specific conditions.

The book then shifts its focus from assisted ventilation technologies and strategies to adjuncts that play a vital role in managing neonates who require assisted ventilation. Chapter 16 comprehensively surveys extracorporeal membrane oxygenation; the chapter includes excellent graphics and sections on management, weaning, decannulation, and follow-up.

Chapter 17 concisely summarizes the technical aspects and interpretation of neonatal blood gas analysis. The chapter includes a brief section on noninvasive measurement (eg, pulse oximetry and transcutaneous and end-tidal carbon dioxide monitoring).

Chapter 18 provides a general overview of pulmonary graphics and pulmonary functions as clinical adjuncts in the management of ventilated neonates. The chapter's good description of those adjuncts is supported by some excellent graphics. The chapter includes 5 case studies, also with supporting graphics.

Chapter 19 discusses the frequently used drugs (not discussed elsewhere in the text), including sedatives, analgesics, muscle relaxants, cardiotonic agents, pulmonary vasodilators, bronchodilators, mucolytics, diuretics, steroids, and respiratory stimulants. Chapter 20 gives an evidence-based review of exogenous surfactant therapies.

Chapter 21 covers ventilation complications, including bronchopulmonary dysplasia, air leak syndromes, and retinopathy of prematurity. Chapters 22 through 28 concern, respectively: surgical management of the airway; cardiovascular aspects; nutritional support; central nervous system morbidity; intraoperative management; transport of ventilated infants; and pulmonary outcomes and follow-up. Chapter 29 will be a valuable teaching tool for the previous chapters: it provides 8 ventilatory management scenarios. The appendices are clearly designed and are valuable resources and quick-reference guides to many aspects of neonatal care.

Though the text is over 500 pages, it is fairly concise and quickly read, with many excellent graphics that effectively illustrate and clarify the text. The editors did a great job in minimizing redundancy among the chapters. Overall the book is a valuable resource to bedside clinicians working with newborns who require assisted ventilation in the neonatal intensive care unit.

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An Atlas of Infant Polysomnography. David H Crowell PhD and the Collaborative Home Infant Monitoring Evaluation Study Group. (The Encyclopedia of Visual Medicine Series). New York: Parthenon. 2003. Hard cover, illustrated, 168 pages, $129.95.

Electrographic and polygraphic recordings of newborns and infants have been performed for almost half a century. The pioneering studies provided information on the development of the central nervous system. Electroencephalographic and behavioral

characteristics differ between adults and newborns, so specific terms were developed to describe sleep states in newborns. Whereas the classification of sleep states in adults was developed solely on the basis of electroencephalograph patterns, polygraphic recording became the accepted standard for sleep-state classification and developmental physiology studies of neonates. Unfortunately, despite a considerable wealth of information, evaluation of existing data is complicated by the lack of standardization of infant sleep studies. As was the case with adult polysomnography, infant sleep studies have evolved and systems for data acquisition and analysis have differed, depending on the purposes and resources available to scientists and clinicians.

This atlas makes available the standardized infant polysomnography procedures used by the Collaborative Home Infant Monitoring Evaluation (CHIME) study group. This atlas is very valuable because it offers researchers and clinicians the benefit of the CHIME experience with nocturnal infant polysomnography and demonstrates that high-quality recordings of sleep and cardiorespiratory variables can be obtained, measured, and analyzed. If infant polysomnograms done at different sites are derived with comparable data acquisition and measurement techniques, then those data can be accumulated to address multiple issues related to ontogeny and normal development.

This atlas is a necessary resource for sleep researchers who work with infants from 35 weeks conceptional age to 6 months postterm. Because it addresses fundamentals of infant polysomnography, it is essential to all pediatric sleep laboratories and all sleep centers that study infants. Because this atlas is unique in terms of the age range addressed and the depth of the illustrations of infant polysomnography variables, sleep states, and the transition to sleep stages, as well as other physiological events that occur during sleep, it is essential reading for all professionals interested in infant sleep.

Following a brief introduction, the atlas is divided into 3 sections: Basics of Physiological Signal Acquisition and Processing for Infant Polysomnography; Infant Polysomnography Recording Procedures; and Infant Polysomnography Scoring Procedures. The first section presents the fundamentals of obtaining and processing infant polysomnogram signals. The section is well done and will be useful for polysomnographers and polysomnography technicians.

The next section focuses on methods and considerations of preparing for and conducting infant polysomnography. Again this is important reading for technicians and other personnel in the sleep center. It emphasizes that good preparation and well trained technicians are essential to achieving optimal recordings in infants.

The final section covers the identification and scoring of awake and sleep states for infants < 3 months of age post-term, sleep stages for infants > 3 months of age post-term, transient arousal, cardiorespiratory events, and final summary reports. Numerous high-quality figures are provided to illustrate the points made in the text. It is in this section (Chapter 4) that the reader gets the full value of the CHIME experience. The CHIME researchers are currently active in long-term sleep recordings and have contributed the latest available electronic and behavioral information.

This atlas is well organized, well written, and has high-quality illustrations and figures. It is reasonably priced, considering the wealth of information and the breadth of knowledge and experience it contains.

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Prevention and Control of Nosocomial Infections, 4th edition. Richard P Wenzel MD MSc, editor. Philadelphia: Lippincott Williams & Wilkins. 2003. Hard cover, illustrated, 642 pages, $149.

In the late 1950s particularly aggressive *Staphylococcus aureus* nosocomial infections caused many deaths and also brought closures of hospital surgical and maternity centers, including nurseries. There was little information at that time about what factors might be increasing the infection risk, how the infectious agents might be transmitted, or what data about their occurrence might be useful in predicting or preventing infections.

From that gloomy period the field now called hospital epidemiology was formed. By the end of the 1960s some United States and British hospitals had formed infection control committees, generally headed by a pathologist or pediatrician, and had appointed someone on the staff, usually a nurse or laboratorian, to organize data about nosocomial infections and to direct prevention strategies. The National Communicable Disease Center was formed, and it later became the Centers for Disease Control and Prevention. It provided training and impetus for excellence. The American Hospital Association supported publication of books on the subject and publications to guide isolation policies and procedures. The Joint Commission on Accreditation of Healthcare Organizations began to take a regulatory interest in infection prevention. At that time the few tiny paperback books (devoid of references) that were available about hospital infection control perpetuated the myth that isolation should be the main approach to reducing infection risk. The weaknesses in knowledge and in patient care practices became dreadfully apparent as the years brought nosocomial outbreaks due to improperly sterilized instruments, fluids, and supplies. Frequently, the outbreaks were associated with respiratory care and mechanical ventilation. Health care workers were also at risk for hospital-acquired infections, including occupational hepatitis B and, some years later, hepatitis C and human immunodeficiency virus.

By the time Richard Wenzel began his career, a considerable amount of science had come to the field of infection control. The tiny paperbacks became great big books: this new edition of Wenzel's **Prevention and Control of Nosocomial Infections** weighs about 5 pounds. There are 3 other major texts on infection control:

- *Hospital Infections*,[1] by Bennett and Brachman, 2 Centers for Disease Control and Prevention pioneers, is also in its 4th edition; it focuses on United States hospitals.

- *APIC Infection Control and Applied Epidemiology: Principles and Practices*,[2] by the Association for Professionals in Infection Control and Epidemiology (APIC), is available in paper and compact-disc versions. It is for infection-control personnel in health care facilities; it covers the science and provides many detailed infection-control procedures.

- *Hospital Epidemiology and Infection Control*,[3] by Glen Mayhall, is similar to **Prevention and Control of Nosocomial Infections.**

Wenzel covers nosocomial infections in United States hospitals and includes infor-