

The Respiratory Tract in Pediatric Critical Illness and Injury

Derek S. Wheeler, Hector R. Wong, and Thomas P. Shanley (Eds.)

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 Springer

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Preface

The principal role of the respiratory system is to permit efficient exchange of respiratory gases (O₂ and CO₂) with the environment. The respiratory system is unique in that it is constantly exposed to a barrage of foreign substances from both the internal environment (at any one point in time, approximately one-half of the cardiac output is received by the lungs) and the external environment (with each breath, the respiratory tract is exposed to pollens, viruses, bacteria, smoke, etc). According to the Centers for Disease Control and Prevention, diseases of the respiratory system were the seventh and eighth leading causes of deaths in children aged 1 to 19 years in 2003 [1]. Dr. George A. Gregory, one of the founding fathers of pediatric critical care medicine, once estimated that acute respiratory failure accounts for nearly 50% of all admissions to the pediatric intensive care unit (PICU) [2]. Just as important are the many diseases that affect the respiratory system that are not associated with acute respiratory failure, but nevertheless constitute a major portion of the practice of pediatric critical care medicine, some of which account for significant morbidity and mortality [3]. Once again, we would like to dedicate this textbook to our families and to the physicians and nurses who provide steadfast care every day in pediatric intensive care units across the globe.

Derek S. Wheeler
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2. Gregory GA. *Respiratory Failure in the Child*. New York: Churchill Livingstone, 1981.
3. Vidyasagar D. *Clinical Diagnosis of Respiratory Failure in Infants and Children*. New York: Churchill Livingstone, 1981.

Preface to *Pediatric Critical Care Medicine: Basic Science and Clinical Evidence*

The field of critical care medicine is growing at a tremendous pace, and tremendous advances in the understanding of critical illness have been realized in the last decade. My family has directly benefited from some of the technological and scientific advances made in the care of critically ill children. My son Ryan was born during my third year of medical school. By some peculiar happenstance, I was nearing completion of a 4-week rotation in the newborn intensive care unit (NICU). The head of the pediatrics clerkship was kind enough to let me have a few days off around the time of the delivery—my wife, Cathy, was 2 weeks past her due date and had been scheduled for elective induction. Ryan was delivered through thick meconium-stained amniotic fluid and developed breathing difficulty shortly after delivery. His breathing worsened over the next few hours, so he was placed on the ventilator. I will never forget the feelings of utter helplessness my wife and I felt as the NICU transport team wheeled Ryan away in the transport isolette. The transport physician, one of my supervising third-year pediatrics residents during my rotation the past month, told me that Ryan was more than likely going to require extracorporeal membrane oxygenation (ECMO). I knew enough about ECMO at that time to know that I should be scared! The next 4 days were some of the most difficult moments I have ever experienced as a parent, watching the blood being pumped out of my tiny son's body through the membrane oxygenator and roller pump, slowly back into his body (Figures 1 and 2). I remember the fear of each day when we would be told of the results of his daily head ultrasound, looking for evidence of intracranial hemorrhage, and then the relief when we were told that there was no bleeding. I remember the hope and excitement on the day Ryan came off ECMO, as well as the concern when he had to be sent home on supplemental oxygen. Today, Ryan is



FIGURE 1

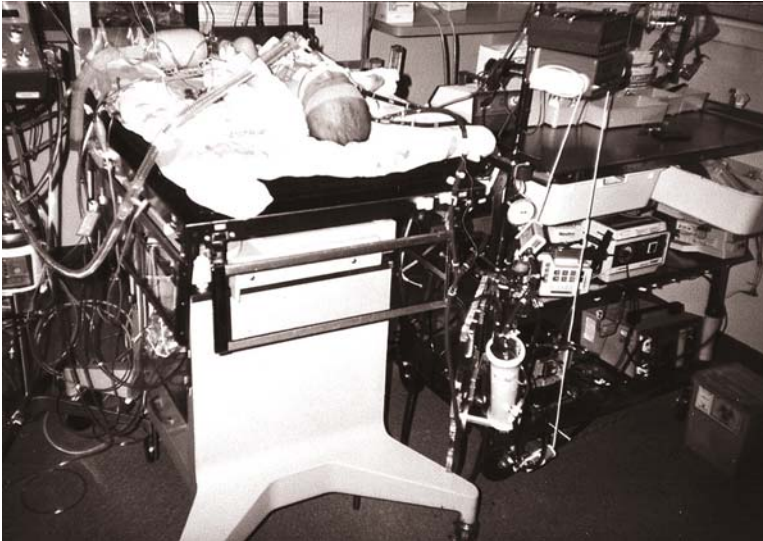


FIGURE 2

happy, healthy, and strong. We are thankful to all the doctors, nurses, respiratory therapists, and ECMO specialists who cared for Ryan and made him well. We still keep in touch with many of them. Without the technological advances and medical breakthroughs made in the fields of neonatal intensive care and pediatric critical care medicine, things very well could have been much different. I made a promise to myself long ago that I would dedicate the rest of my professional career to advancing the field of pediatric critical care medicine as payment for the gifts with which we, my wife and I, have been truly blessed. It is my sincere hope that this textbook, which has truly been a labor of joy, will educate a whole new generation of critical care professionals and in so doing help make that first step toward keeping my promise.

Derek S. Wheeler

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