

Third Edition

*Deshpande's*  
**Mechanical  
Ventilation**  
Clinical Application

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*Deshpande's*  
**Mechanical  
Ventilation**  
Clinical Application

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to  
*my patients and my students*

***Dr R Vijai Kumar***

*all my students and my grandchildren— Deven and Bodhi*

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# Foreword

I am very pleased to write the Foreword to the book *Deshpande's Mechanical Ventilation: Clinical Application* edited by Dr Ratnavelu Vijai Kumar.

Having been a teacher and a practitioner of critical care for over 4 decades. I have been a witness to the evolution of sophisticated technology in mechanical ventilatory support. This is in response to the needs of the clinicians and the changing patient population.

The beginning of the specialty of respiratory care practitioners and the maturation of the scope of their practice also brought forth significant contributions to the art and science of providing mechanical ventilatory support. The integration of the intensivist, respiratory care practitioner, residents, fellows, and nurses into the ICU team requires that they all be familiar with the workings of the ventilator albeit at various levels of expertise. It also means there should be educational tools that are suitable for the entire team.

What do these various learners want from a book on mechanical ventilation?

A book that is written by authors who are reputable, scholarly and experts in the content matter.

Table of contents, that is comprehensive addressing different disease conditions.

Chapters cover historical perspectives to make the reading interesting and put it in today's perspective.

This book incorporates all of the above and more mechanical ventilation, being a life-supporting/life-sustaining intervention, necessarily is technically advanced, complicated, and sophisticated. While fulfilling the changing and varied nature of the patient, it should also have several modes to respond to the differing needs of the patient.

Being the life support device for a major organ system, ventilator also affects other organs systems, and all these nuances must be understood by the clinicians. This book addresses all these requirements.

Data from reputable journals/trials is reviewed and recommendations are based on high-grade peer-reviewed articles.

Contributors are respiratory care practitioners, intensivists, and pulmonologists from the global community, which makes it relevant to a larger audience.

A book that allows you to recognize the pros and cons of using different modalities and their use in varied conditions in an ICU.

This book on mechanical ventilation satisfies the needs of all levels of learners. It is comprehensive. Dr Vijai Kumar has built upon the first edition by Mr Vijay Deshpande incorporating the newer developments, and adding almost 10 new chapters. Chapters on communication, transport of patient on mechanical ventilator, ultrasound for a patient on ventilator, maintenance of ventilator after their use, etc. are welcome additions.

The many years of bedside experience of the chapter contributors are obvious and highlights the context of the recommendation as it relates to the local conditions.

It will be a “must have” and “must read” book on mechanical ventilation for intensivists, pulmonologists, respiratory therapists, nurses, and postgraduate students.

I congratulate Dr R Vijai Kumar for pulling this yeoman’s task together and wish him the very best!

**Kalpalatha K Guntupalli**

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# Foreword

Mechanical ventilation stands as a beacon of modern medicine, illuminating the path toward life-saving interventions in critical care settings. As we embark on this journey through the intricate mechanisms of ventilatory support, it is with great honor that I introduce, *Deshpande's Mechanical Ventilation: Clinical Application* this profound and updated exploration into the realm of mechanical respiration. Ventilators, once deemed marvels of technology, have become indispensable allies in the fight against respiratory failure. From the early prototypes born out of necessity to the sophisticated computers adorning modern intensive care units, the evolution of mechanical ventilation mirrors the relentless pursuit of excellence in medical science. In this comprehensive, third edition, expert contributors delve into the fundamental principles underlying mechanical ventilation, unraveling the complexities of graphic waveforms that govern decisions with each breath. Some information on the modes of ventilation are meticulously orchestrated by the interplay of pressure, volume, and flow, describing the management of each possible disease or syndrome. Yet, beyond the realm of technical prowess of the practitioner lies the essence of patient care. Mechanical ventilation transcends mere mechanical support; it embodies the essence of empathy, dedication, and unwavering commitment to preserve life as the discussion on sedation and analgesics is used to combat asynchrony. Each breath delivered through the ventilator serves as a lifeline, as you learn of newer forms of ventilation, such as neurally adjusted assist and interplay the addition of extracorporeal membrane oxygenation bridging ventilation and oxygenation

Within these pages of *Deshpande's Mechanical Ventilation: Clinical Application*, clinicians and students will find a treasure trove of knowledge, ranging from the basic principles of respiratory physiology to the intricacies of ventilator management. Through explanations, illustrative diagrams, and clinical vignettes, the authors aim to demystify the enigma of mechanical ventilation, empowering learners to navigate its complexities with confidence and competence. As you embark on this odyssey through the realm of mechanical ventilation, let us remember the patients whose lives are entrusted to our care. May their resilience inspire us, their struggles humble us, and their triumphs fuel our relentless pursuit of excellence. I am so grateful to all the contributing authors for continuing this work and the dedication to my good friend and colleague, Prof Vijay Deshpande.

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# Preface to the Third Edition

This textbook *Deshpande's Mechanical Ventilation: Clinical Application* is just out of the printing press, and is being served hot to all those who were eagerly waiting for a long time.

This book is packed in its 520 pages, very comprehensive, authentic, contemporary, knowledge on almost all aspects of mechanical ventilation.

The right place for this book, is on the study table of every doctor connected with the care of patient who needs mechanical ventilation. Of course, this textbook is not just a reference book but also a quick guide to questions arising in everyday critical care work in the hospital. Every intensive care unit (ICU) dealing with mechanical ventilation should have a copy in an easily accessible place.

This book is special, because it has 35 chapters covering almost every aspect of mechanical ventilation. Many of us desperately will be searching for answers to some issues, while engaged in care of patients on mechanical ventilation.

This book has 57 contributing authors, who are highly accomplished and are leaders in their field of expertise. Many of these authors have published their own books, contributed chapters to various textbooks, and have been authors of original research papers.

This book is special because almost all chapters from the previous edition have been rewritten by new authors, and 10 new chapters have been added. Some of the eleven new chapters will fill the void arising out of evolving critical care practice. These new chapters include the following topics:

1. How to perform suctioning
2. How to transport a patient who is on a ventilator
3. How to use an ultrasound bedside of a patient on ventilator
4. Neonatal ventilation
5. How to talk to the family of a patient on a ventilator
6. How to organize an ICU to provide MV
7. How do we maintain the MV support system
8. Role of ECMO and its relation to MV
9. How to perform bronchoscopy on a patient on MV
10. However, there is one new chapter which is very close to my heart, and that is "Role of a Respiratory Therapist" in the management of MV.

As a result of rewriting, the existing chapters and adding new chapters, the book may look slightly bulkier but certainly provides interesting and immersive reading.

As Sir William Osler, an all-time great physician has said "that to study medicine without books is to sail an uncharted sea, but to study books alone, is not to go to sea at all." This book provides the much-needed down to earth practical knowledge.

**R Vijai Kumar**





# Contents

<i>Contributors</i>	<i>vii</i>
<i>Foreword by Kalpalatha K Guntupalli</i>	<i>xi</i>
<i>Foreword by Douglas S Gardenhire</i>	<i>xiii</i>
<i>Preface to the Third Edition</i>	<i>xv</i>
<b>1. Indications for Mechanical Ventilation</b>	<b>1</b>
<i>Krushna Chandra Misra, Hari Prasad A</i>	
<b>2. Terms and Definitions Related to Mechanical Ventilation</b>	<b>9</b>
<i>Vijay Deshpande, TR Chandrashekar</i>	
<b>3. Initial Settings</b>	<b>17</b>
<i>Madhuragauri Shevade, Vijay Deshpande</i>	
<b>4. Indications of Mechanical Ventilation</b>	<b>25</b>
<i>Vijay Deshpande, TR Chandrashekar, Srinivas Jakkinaboina</i>	
<b>5. Basic Modes of Ventilation</b>	<b>42</b>
<i>Shyamsunder Tipparaju, Swarna Deepak, K Hima Bindu, Vijay Deshpande</i>	
<b>6. Interpretation of Arterial Blood Gases and Acid–Base Disorders</b>	<b>55</b>
<i>Ashfaq Hasan</i>	
<b>7. Hypoxemic Respiratory Failure (Prevention and Management)</b>	<b>67</b>
<i>Srinivas Samavedam</i>	
<b>8. Essentials of Ventilator Waveforms</b>	<b>78</b>
<i>Vijay Deshpande, Ruben Restrepo</i>	
<b>9. Positive end Expiratory Pressure (PEEP)</b>	<b>100</b>
<i>Anitha Shenoy, Shwethapriya R</i>	
<b>10. Volume versus Pressure Ventilation</b>	<b>113</b>
<i>Manimala S Rao, Vijay Deshpande</i>	
<b>11. Dual Controlled Modes of Ventilation</b>	<b>118</b>
<i>Manjush Karthika, Sanjay Sasikumar</i>	
<b>12. Patient Monitoring and Abnormal Waveforms</b>	<b>125</b>
<i>Vijay Deshpande</i>	

<b>13. Aerosol Therapy and Humidification</b>	<b>142</b>
	<i>Saamy Johnson</i>
<b>14. Sedation, Analgesics, and Neuromuscular Blockers</b>	<b>165</b>
	<i>Venkat Raman Kola, Ravi Krishna M</i>
<b>15. Suctioning</b>	<b>188</b>
	<i>Anitha Patil GK, Narasimha Murthy T</i>
<b>16. Strategies and Protocols to Prevent and Manage Hospital Acquired Infections in Patients on Mechanical Ventilator</b>	<b>193</b>
	<i>Monalisa Sahu, Sudipta Mukherjee</i>
<b>17. Role of Respiratory Therapist in the Management of Mechanical Ventilation</b>	<b>212</b>
	<i>Jithin K Sreedharan</i>
<b>18. Mechanical Ventilation in Clinical Scenarios</b>	<b>227</b>
i. Chronic Obstructive Pulmonary Disease (COPD)	227
	<i>Lisha PV, Vijay Deshpande</i>
ii. Mechanical Ventilation in Asthma	240
	<i>Nalini Nagalla</i>
iii. Mechanical Ventilation in Traumatic Brain Injury	253
	<i>Sagar Sunka, Pavan Kumar Reddy N</i>
iv. Mechanical Ventilation in Chest Trauma	258
	<i>Pavan Kumar Reddy N, Shweta Ram Chandankhede</i>
v. Mechanical Ventilation in Neuromuscular Disorders	264
	<i>Saurabh Biswal, Pavan Kumar Reddy N</i>
vi. Acute Respiratory Distress Syndrome (ARDS)	270
	<i>Srinivas Samavedam</i>
<b>19. Patient–Ventilator Asynchrony</b>	<b>286</b>
	<i>Hillary Vaughan, Dharani Narendra, Kalpalatha K Guntupalli</i>
<b>20. Fluids and Electrolytes</b>	<b>301</b>
	<i>Srinivas Samavedam</i>
<b>21. Weaning and Extubation</b>	<b>316</b>
	<i>Anand Vinaykumar Joshi, R Vijai Kumar</i>
<b>22. Novel Modes of Ventilation</b>	<b>336</b>
	<i>Anand Vinaykumar Joshi, Chandresh Kumar Sudani</i>
<b>23. Hazards of Mechanical Ventilation</b>	<b>357</b>
	<i>Viswesvaran Balasubramanian, Sumita Agrawal</i>
<b>24. Non-Invasive Ventilation</b>	<b>368</b>
	<i>R Vijai Kumar</i>

<b>25. Nutritional Assessment</b>	<b>383</b>
<i>Subba Reddy K, Raj Kumar Jupally</i>	
<b>26. Heart–Lung Interactions during Mechanical Ventilation</b>	<b>389</b>
<i>Balasubrahmanyam CH, Palepu B Gopal</i>	
<b>27. Extracorporeal Membrane Oxygenation (ECMO)</b>	<b>405</b>
<i>Sambit Sahu, Rakesh Venuturumilli</i>	
<b>28. Transporting a Patient on a Ventilator</b>	<b>412</b>
<i>Uthara Vijai Kumar, Jayaprakash Narayana Reddy</i>	
<b>29. Role of Bronchoscopy while on Ventilator</b>	<b>415</b>
<i>Nagarjuna Maturu, Rinoosha BR</i>	
<b>30. Tracheostomy</b>	<b>432</b>
<i>Vajrapu Rajendra, Maneendra Singarapu</i>	
<b>31. Setting up an ICU</b>	<b>444</b>
<i>Pavan Gorukanti, Sricharan G</i>	
<b>32. Maintenance of Ventilators</b>	<b>452</b>
<i>Anil Kumar Chillimuntha</i>	
<b>33. Talking to Family and Counselling</b>	<b>468</b>
<i>Sai Praveen Haranath</i>	
<b>34. Thoracic Ultrasound in Ventilated Patients</b>	<b>478</b>
<i>Manjush Karthika, Chris Sara Mathew</i>	
<b>35. Basics of Neonatal Ventilation</b>	<b>497</b>
<i>Tisha Ann Skariah</i>	
<i>Index</i>	<b>509</b>

