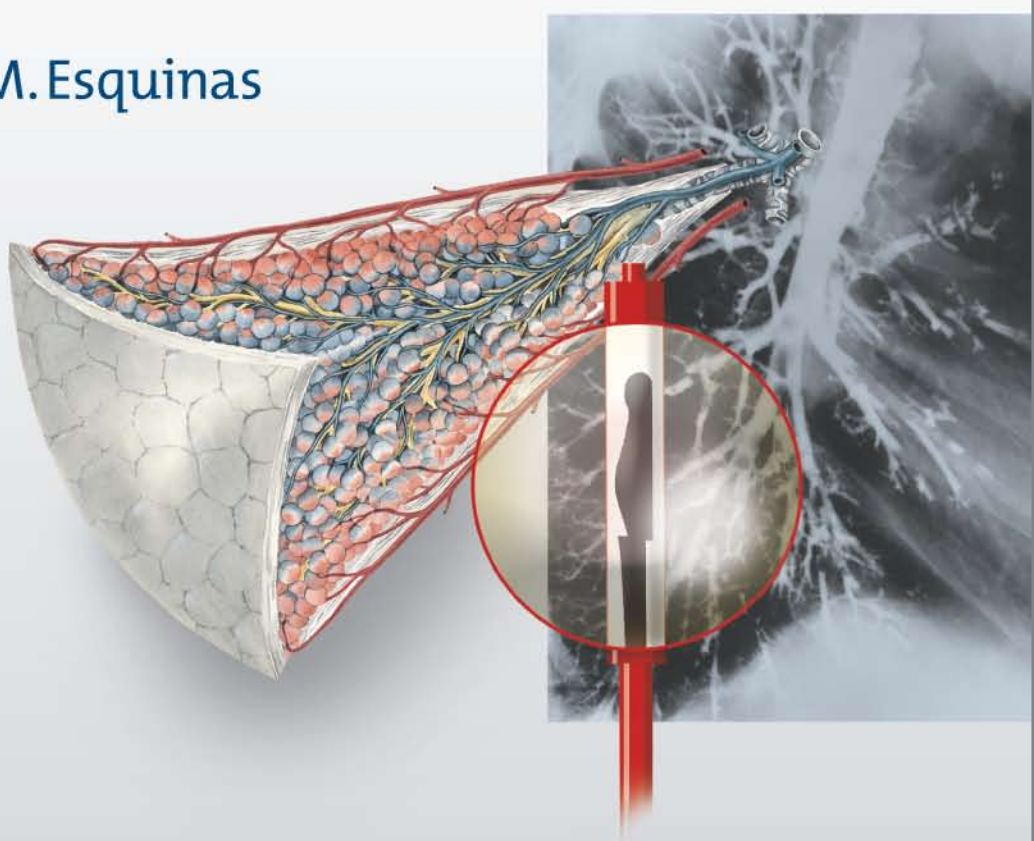
Applied Technologies in Pulmonary Medicine

Editor
Antonio M. Esquinas



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'To Rosario, my wife, inspiration and love for all.'
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Preface

Technological innovations in the treatment of respiratory diseases involve a critical vision of all aspects from basic physics, pathophysiology, diagnosis and treatments, to clinical experience.

Applied Technologies in Pulmonary Medicine is an updated selection of the most current original articles published on new technological advances in the diagnosis and treatment of respiratory problems. The analytical methodology is a very original aspect of this book in comparison to other textbooks on respiratory medicine, where invited authors critically present their results and the clinical implications of their findings.

The analysis includes basic areas such as pulmonary and critical care medicine, mechanical ventilation, ventilator modes (extracorporeal membrane oxygenation, time-adaptive modes, proportional assist ventilation, automatic control mechanical ventilation, etc.), new pharmacological treatments during mechanical ventilation (weaning options and post-extubation failure), the basics of pathophysiology, treatment and how to prevent ventilator-associated pneumonia (new antibiotics, viral infections and healthcare-associated pneumonia). We have also included original advances in technologies that are applied in anesthesiology and postoperative critical care (minimally invasive thoracic surgery, open-heart surgery, intraoperative and pulmonary resections) and in the preservation of organs.

Further topics that the readers will find in this book include the outcome of patients with lung cancer admitted to the ICU, new results on pulmonary rehabilitation and technologies, evidence-based guidelines and the basics on discharge from the ICU, how to optimize the problems in pediatric and neonatal critical care telemonitoring and assistance in chronic respiratory failure and capnography innovations, the newest options for diagnosis of pulmonary diseases (polysomnography, ultrasound), technology in emergency medicine such as cardiopulmonary resuscitation, and new options in inhalation therapies (macromolecules such as insulin).

Recently, two new major topics have gained the interest of all specialists engaged in the field of pulmonary medicine and related technologies: firstly the diagnosis of health respiratory problems and the environment, and secondly new concepts of organizational issues in global disaster management and the role of mechanical ventilation, guidelines and options.

The major topics in *Applied Technologies in Pulmonary Medicine* and their clinical implications have involved hard and meticulous work. It presents a novel approach to help clinicians easily understand the technologies provided in the numerous papers. We hope that the reader and younger researchers will acquire practical ideas when carrying out their laboratory and clinical trials on a daily basis.

I would like to thank all the authors as well as the following collaborators: Penny Andrews, BSN, RN, Baltimore, Md., USA; Melissa Brown, RRT-NPS, San Diego, Calif., USA; Andrea Calkovska, MD, PhD, Martin, Slovakia; Ettore Capoluongo, MD, Rome, Italy; Bart L. De Keulenaer, MD, FJFICM, East Fremantle, W.A., Australia; Emmanuel Douzinas, MD, Athens, Greece; Lothar Engelmann, MD, Leipzig, Germany; J. Pat Herlihy, MD, Houston, Tex., USA; Pavlos M. Myrianthefs, MD, PhD, Kifissia/Athens, Greece; Naomi Kondo Nakagawa, BSc, PhD, São Paulo, Brazil; Catherine S. Sassoon, MD, Long Beach, Calif., USA; Ilias I. Siempos, MD, Athens, Greece; Giovanni Vento, MD, Rome, Italy, and M.Terese Verklan, PhD, CCNS, RNC, Houston, Tex., USA. Their efforts to reach these objectives are greatly appreciated. I personally believe that the knowledge and *'application of technologies in pulmonary medicine'* will become a continuous dynamic process of ideas and experiences of trial and error, where the final conclusions can be drawn once they become routine.

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