CONTENTS

A P R I L  2 0 1 1  /  V O L U M E  5 6  /  N U M B E R  4

EDITOR’S COMMENTARY

Commentary on the April 2011 Issue

412

ORIGINAL RESEARCH

Diagnostic Utility of Plasma Procalcitonin for Nosocomial Pneumonia in the Intensive Care Unit Setting
by John Dallas, Sarah M Brown, Karl Hock, Mitchell G Scott, Lee P Skrupky, Walter A Boyle III and Marlin H Kollef—St Louis, Missouri

A Risk Tertiles Model for Predicting Mortality in Patients With Acute Respiratory Distress Syndrome: Age, Plateau Pressure, and P_{A{O}_2}/P_{F{O}_2} at ARDS Onset Can Predict Mortality
by Jesús Villar—Las Palmas de Gran Canaria, Spain
Lina Pérez-Méndez, Santiago Basaldúa—Tenerife, Spain
Jesus Blanco—Valladolid, Spain
Gerardo Aguilar—Valencia, Spain
Darío Toral—Madrid, Spain
Elizabeth Zavala—Barcelona, Spain
Miguel A Romera—Madrid, Spain
Gumersindo González-Díaz—Murcia, Spain
Fratos del Nogal—Madrid, Spain
Antonio Santos-Bouza—Santiago de Compostela, Spain
Luís Ramos—La Palma, Canary Islands, Spain
Santiago Macías—Segovia, Spain
and Robert M Kacmarek—Boston, Massachusetts
Hospitales Españoles Para el Estudio de la Lesión Pulmonar (HELP) Network

Pilot Study of a New Device to Titrate Oxygen Flow in Hypoxic Patients on Long-Term Oxygen Therapy
by Serena Cirio and Stefano Nava—Pavia, Italy

Symmetrical-Waveform High-Frequency Oscillation Increases Artificial Mucus Flow Without Changing Basal Mucus Transport in In Vitro Ovine Trachea
by Stanislav Tatkov and Rodger J Pack—Palmerston North, New Zealand

Transcutaneous Measurement of Carbon Dioxide Tension During Extended Monitoring: Evaluation of Accuracy and Stability, and an Algorithm for Correcting Calibration Drift
Donald A Campbell—Clayton, Australia
Peter G Catcheside—Daw Park, Australia
Ian Gordon—Melbourne, Australia
and Peter D Rochford—Heidelberg, Australia

Predicted Postoperative Product and Diffusion Heterogeneity Index in the Evaluation of Candidates for Lung Resection
by Walter A Boyle III and Marin H Kollef—St Louis, Missouri
Walter A Boyle III and Marin H Kollef—St Louis, Missouri
O R I G I N A L  R E S E A R C H

Effects of Mean Arterial Pressure and Needle Size on Arterial Sampler Filling Time
by Kimberly L Johnson, Ashley J Johnson, Katherine A Barnes, and F Herbert Douce—Columbus, Ohio

Classifying Different Types of Double Triggering Based on Airway Pressure and Flow Deflection in Mechanically Ventilated Patients
by Kuang-Ming Liao, Chih-Ying Ou, and Chang-Wen Chen—Tainan, Taiwan

Electrocardiographic Guidance for the Placement of Gastric Feeding Tubes: A Pediatric Case Series
by Michael L Green, Brian K Walsh, Gerhard K Wolf, and John H Arnold—Boston, Massachusetts

Assessment of Accuracy of the Vacu-Med 17053 Calibrator for Ventilation, Oxygen Uptake (\(\dot{V}_{O_2}\)), and Carbon Dioxide Production (\(\dot{V}_{CO_2}\))
by Jennifer A Bunn—Buies Creek, North Carolina
Jesse L Pittsley—Winston-Salem, North Carolina
Scott V Baker—Bellevue, Washington
and JW Yates—Lexington, Kentucky

FOR INFORMATION, CONTACT:

AARC Membership or Other AARC Services
American Association for Respiratory Care
9425 N MacArthur Blvd, Suite 100
Irving, TX 75063-4706
(972) 243-2272 • Fax (972) 484-2720
http://www.aarc.org

Therapist Registration or Technician Certification
National Board for Respiratory Care, Inc.
18000 W. 105th Street
Olathe, KS 66061-7543
(888) 341-4811 or (913) 895-4900 • Fax (913) 895-4650
http://www.aarc.org

Accreditation of Education Programs
Committee on Accreditation for Respiratory Care
1248 Harwood Rd
Bedford TX 76021-4244
(817) 283-2835 • Fax (817) 354-8519
http://www.coarc.com

Grants, Scholarships, Community Projects
American Respiratory Care Foundation
9425 N MacArthur Blvd, Suite 100
Irving, TX 75063-4706
(972) 243-2272 • Fax (972) 484-2720
http://www.aarc.org

RESPIRATORY CARE (ISSN 0020-1324, USPS 0489-190) is published monthly by Daedalus Enterprises Inc., at 9425 N MacArthur Blvd., Suite 100, Irving, TX 75063-4706, for the American Association for Respiratory Care. One volume is published per year beginning each January. Individual subscription rates are $89 per year in the US, $109 in all other countries (for airmail, add $94).

The contents of the Journal are indexed in Index Medicus/MEDLINE, Science Citation Index Expanded, Journal Citation Reports/Science Edition, Current Contents®/Clinical Medicine, Hospital and Health Administration Index, Cumulative Index to Nursing and Allied Health Literature, EMBASE/Excerpta Medica, and Rendex Library Edition. Abridged versions of RESPIRATORY CARE are also published in Italian and Japanese, with permission from Daedalus Enterprises Inc.

Periodicals postage paid at Dallas TX and at additional mailing offices. POSTMASTER: Send address changes to RESPIRATORY CARE, Membership Office, Daedalus Enterprises Inc., 9425 N MacArthur Blvd, Irving, TX 75063-4706.

© Printed on acid-free paper
Printed in the United States of America
Copyright © 2011 by Daedalus Enterprises Inc.

RESPIRATORY CARE

APRIL 2011 / VOLUME 56 / NUMBER 4

CONTENTS

EDITOR’S COMMENTARY

Commentary on the April 2011 Issue

412

ORIGINAL RESEARCH

Diagnostic Utility of Plasma Procalcitonin for Nosocomial Pneumonia in the Intensive Care Unit Setting
by John Dallas, Sarah M Brown, Karl Hock, Mitchell G Scott, Lee P Skrupky, Walter A Boyle III and Marlin H Kollef—St Louis, Missouri

A Risk Tertiles Model for Predicting Mortality in Patients With Acute Respiratory Distress Syndrome: Age, Plateau Pressure, and P_{A{O}_2}/P_{F{O}_2} at ARDS Onset Can Predict Mortality
by Jesús Villar—Las Palmas de Gran Canaria, Spain
Lina Pérez-Méndez, Santiago Basaldúa—Tenerife, Spain
Jesus Blanco—Valladolid, Spain
Gerardo Aguilar—Valencia, Spain
Darío Toral—Madrid, Spain
Elizabeth Zavala—Barcelona, Spain
Miguel A Romera—Madrid, Spain
Gumersindo González-Díaz—Murcia, Spain
Fratos del Nogal—Madrid, Spain
Antonio Santos-Bouza—Santiago de Compostela, Spain
Luís Ramos—La Palma, Canary Islands, Spain
Santiago Macías—Segovia, Spain
and Robert M Kacmarek—Boston, Massachusetts
Hospitales Españoles Para el Estudio de la Lesión Pulmonar (HELP) Network

Pilot Study of a New Device to Titrate Oxygen Flow in Hypoxic Patients on Long-Term Oxygen Therapy
by Serena Cirio and Stefano Nava—Pavia, Italy

Symmetrical-Waveform High-Frequency Oscillation Increases Artificial Mucus Flow Without Changing Basal Mucus Transport in In Vitro Ovine Trachea
by Stanislav Tatkov and Rodger J Pack—Palmerston North, New Zealand

Transcutaneous Measurement of Carbon Dioxide Tension During Extended Monitoring: Evaluation of Accuracy and Stability, and an Algorithm for Correcting Calibration Drift
Donald A Campbell—Clayton, Australia
Peter G Catcheside—Daw Park, Australia
Ian Gordon—Melbourne, Australia
and Peter D Rochford—Heidelberg, Australia

Predicted Postoperative Product and Diffusion Heterogeneity Index in the Evaluation of Candidates for Lung Resection
by Walter A Boyle III and Marin H Kollef—St Louis, Missouri
Walter A Boyle III and Marin H Kollef—St Louis, Missouri

Effects of Mean Arterial Pressure and Needle Size on Arterial Sampler Filling Time
by Kimberly L Johnson, Ashley J Johnson, Katherine A Barnes, and F Herbert Douce—Columbus, Ohio

Classifying Different Types of Double Triggering Based on Airway Pressure and Flow Deflection in Mechanically Ventilated Patients
by Kuang-Ming Liao, Chih-Ying Ou, and Chang-Wen Chen—Tainan, Taiwan

Electrocardiographic Guidance for the Placement of Gastric Feeding Tubes: A Pediatric Case Series
by Michael L Green, Brian K Walsh, Gerhard K Wolf, and John H Arnold—Boston, Massachusetts

Assessment of Accuracy of the Vacu-Med 17053 Calibrator for Ventilation, Oxygen Uptake (\(\dot{V}_{O_2}\)), and Carbon Dioxide Production (\(\dot{V}_{CO_2}\))
by Jennifer A Bunn—Buies Creek, North Carolina
Jesse L Pittsley—Winston-Salem, North Carolina
Scott V Baker—Bellevue, Washington
and JW Yates—Lexington, Kentucky

© Printed on acid-free paper
Printed in the United States of America
Copyright © 2011 by Daedalus Enterprises Inc.
REVIEWS
Tiotropium for Treatment of Stable COPD: A Meta-analysis of Clinically Relevant Outcomes
by Abebaw Mengistu Yohannes, Thomas George Willgoss, and Jørgen Vestbo—Manchester, United Kingdom

477

Respiratory Care Year in Review: Part 1. Asthma, COPD, Pulmonary Function Testing, Ventilator-Associated Pneumonia
by Bruce K Rubin—Richmond, Virginia
Rajiv Dhand—Columbia, Missouri
Gregg L Ruppel—St Louis, Missouri
Richard D Branson—Cincinnati, Ohio
and Dean R Hess—Boston, Massachusetts

488

AARC CLINICAL PRACTICE GUIDELINE
Capnography/Capnometry During Mechanical Ventilation: 2011
by Brian K Walsh—Dallas, Texas
David N Cromwell—Seattle, Washington
and Ruben D Restrepo—San Antonio, Texas

503

CASE REPORTS
Optimal PEEP Guided by Esophageal Balloon Manometry
by Tom Piraino and Deborah J Cook—Hamilton, Ontario, Canada

510

Customization of an Open-Lung Ventilation Strategy to Treat a Case of Life-Threatening Acute Respiratory Distress Syndrome
by David A Grooms, Stephen H Sibole, James R Tomlinson, Paul E Marik—Norfolk, Virginia
and Robert L Chatburn—Cleveland, Ohio

514

Experience With a New Device for Clearing Mucus From the Endotracheal Tube
by Robert H Stone and Stephen S Bricknell—Cape Girardeau, Missouri

520

TEACHING CASES OF THE MONTH
Hematologic Abnormalities Associated With Lung Carcinoma
by Majid Shafiq and Saiprakash Venkateshiah—Atlanta, Georgia

523

Cardiac Arrest Following Foreign-Body Aspiration
by Sally Cheukying Wong—Norfolk, United Kingdom
and Syed Mohammad Tariq—Luton, United Kingdom

527

EDITORIALS
Plasma Procalcitonin: Another Arrow in Our Quiver?
by Charles-Edouard Luyt and Jean Chastre—Paris, France

530

The Siren Song of Simple Tools That Predict Mortality
by Colin R Cooke—Ann Arbor, Michigan

533

Patient-Centric LTOT: No Room for Complacency
by Patrick J Dunne—Fullerton, California
and Robert W McCoy—Apple Valley, Minnesota

536

BOOKS, SOFTWARE, AND OTHER MEDIA
Asthma: A Clinician’s Guide (Clark MV)
reviewed by Edward Carter—Seattle Washington

538

Molecular Basis of Pulmonary Disease: Insights From Rare Lung Disorders
(McCormack FX, Panos RJ, Trapnell BC, editors)
reviewed by Bruce L Davidson—Seattle, Washington

539

Thoracic Imaging (Galanski M)
reviewed by Laura K Nason—Seattle, Washington

540