

CONTENTS

APRIL 2012 / VOLUME 57 / NUMBER 4

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
8310 Nieman Rd
Lenexa KS 66214
(913) 599-4200 • Fax (913) 541-0156
<http://www.nbrcc.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

RESPIRATORY CARE

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 RNDex Library Edition. Abridged versions of RESPIRATORY CARE are also published in Italian and Japanese, with permission from Daedalus Enterprises Inc.

Periodicals postage paid at Irving, 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 © 2012 by Daedalus Enterprises Inc.

EDITOR'S COMMENTARY

Commentary on the April 2012 Issue **505**

ORIGINAL RESEARCH

Determining the Basis for a Taxonomy of Mechanical Ventilation
*by Robert L Chatburn—Cleveland, Ohio
Teresa A Volsko, John Hazy, Louis N Harris, and Salvatore Sanders—Youngstown, Ohio* **514**

An Evaluation of Peak Inspiratory Pressure, Tidal Volume, and Ventilatory Frequency During Ventilation With a Neonatal Self-Inflating Bag Resuscitator
by Mariana Almada Bassani, Francisco Mezzacappa Filho, Maria Regina de Carvalho Coppo, and Sérgio Tadeu Martins Marba—São Paulo, Brazil **525**

Modification of a High Frequency Oscillator Circuit With a Heated Expiratory Filter to Prevent Infectious Pathogen Transmission: A Bench Study
by Shari I McKeown and Nicola Serreqi—Vancouver, British Columbia, Canada **531**

Observational Study of Head of Bed Elevation Adherence Using a Continuous Monitoring System in a Medical Intensive Care Unit
by Robert F Wolken, Russell J Woodruff, Jan Smith, Richard K Albert, and Ivor S Douglas—Denver, Colorado **537**

Evaluation of Functional Respiratory Parameters in AIDS Patients Assisted in the Infectious Diseases Ambulatory Care Clinic of a Tertiary Care University Hospital in Brazil
by Ana Isabela Morsch Passos, Evelyn Regina Couto, Silvio Moraes de Rezende, and Maria Luíza Moretti—São Paulo, Brazil **544**

Relationship Between Anxiety, Depression, and Quality of Life in Adult Patients With Cystic Fibrosis
by Abebaw Mengistu Yohannes, Thomas George Willgoss, Francis Ade Fatoye, Mary Dodd, and Kevin Webb—Manchester, United Kingdom **550**

Comparison of Airway Wall Remodeling in Asthma and COPD: Biopsy Findings
by Justyna Kosciuch, Rafal Krenke, Katarzyna Gorska, Wojciech Baran, Marek Kujawa, Katarzyna Hildebrand, and Ryszarda Chazan—Warsaw, Poland **557**

Correlation of Airway Hyper-responsiveness With Obstructive Spirometric Indices and FEV₁ > 90% of Predicted
*by George H Kotti—Biloxi, Mississippi
David G Bell, Tokunbo Matthews, Pedro F Lucero, and Michael J Morris—San Antonio, Texas* **565**

The Role of Pro-inflammatory and Anti-inflammatory Adipokines on Exercise-Induced Bronchospasm in Obese Adolescents Undergoing Treatment
*by Patrícia Leão da Silva, Marco Túlio de Mello—São Paulo, Brazil
Nadia Carla Cheik—Uberlândia, Brazil
Priscila Lima Sanches, Aline de Piano, Flávia Campos Corgosinho, Raquel Munhoz da Silveira Campos, June Carnier, Daniela Inoue, Claudia MO do Nascimento, Lila M Oyama, Lian Tock, Sérgio Tufik, and Ana R Dâmaso—São Paulo, Brazil* **572**

Ventilatory Inefficiency as a Limiting Factor for Exercise in Patients With COPD
by Iván R Caviedes, Iris Delgado, and Rodrigo Soto—Santiago, Chile **583**

REVIEWS

Respiratory Care Year in Review 2011: Long-Term Oxygen Therapy, Pulmonary Rehabilitation, Airway Management, Acute Lung Injury, Education, and Management
*by Patrick J Dunne—Fullerton, California
Neil R MacIntyre—Durham, North Carolina
Ulrich H Schmidt—Boston, Massachusetts
Carl F Haas—Ann Arbor, Michigan
Kathy Jones-Boggs Rye—Little Rock, Arkansas
Garry W Kauffman—Winston-Salem, North Carolina
and Dean R Hess—Boston, Massachusetts* **590**

CONTENTS

CONTINUED...

ALSO IN THIS ISSUE

665	Call for Abstracts
670	Calendar
671	Author Index
672	Advertisers Index & Help Line



Become a fan!
[www.facebook.com/
RespiratoryCare](http://www.facebook.com/RespiratoryCare)



Follow us!
[www.twitter.com/
RespCare](http://www.twitter.com/RespCare)

RESPIRATORY CARE

A Monthly Science Journal
Established in 1956

The Official Journal of the
American Association for
Respiratory Care



Imaging of Acute Respiratory Distress Syndrome **607**
by Sarah Sheard, Praveen Rao, and Anand Devaraj—London, United Kingdom

AARC CLINICAL PRACTICE GUIDELINE

Aerosol Delivery Device Selection for Spontaneously Breathing Patients: 2012 **613**
*by Arzu Ari—Atlanta, Georgia
and Ruben D Restrepo—San Antonio, Texas*

CASE REPORTS

Percutaneous Dilational Tracheotomy for Airway Management in a Newborn With Pierre-Robin Syndrome and a Glossopharyngeal Web **627**
*by Arash Pirat, Selim Candan, Aytekin Ünlükaplan, Özgür Kömürçü, Selim Kuşlu,
and Gülnaz Arslan—Ankara, Turkey*

Eosinophilic Pneumonia Associated With Azacitidine in a Patient With Myelodysplastic Syndrome **631**
by Girish B Nair, Melissa Charles, Lorna Ogden, and Peter Spiegler—Mineola, New York

Novel Multimodality Imaging and Physiologic Assessments Clarify Choke-Point Physiology and Airway Wall Structure in Expiratory Central Airway Collapse **634**
*by Hiroshi Handa, Teruomi Miyazawa—Kawasaki, Japan
Septimiu D Murgu—Irvine, California
Hiroki Nishine, Noriaki Kurimoto—Kawasaki, Japan
Jyongsu Huang—Uchinada, Ishikawa, Japan
and Henri G Colt—Irvine, California*

Lung Bullae With Air-Fluid Levels: What Is the Appropriate Therapeutic Approach? **642**
*by Andres F Henao-Martinez—Aurora, Colorado
Juan F Fernandez, Sandra G Adams, and Carlos Restrepo—San Antonio, Texas*

Emergency Bedside Extracorporeal Membrane Oxygenation for Rescue of Acute Tracheal Obstruction **646**
*by David C Willms, Ruben Mendez, Vanjah Norman,
and Joseph H Chammas—San Diego, California*

TEACHING CASE OF THE MONTH

An 87-Year-Old Woman With Unilateral Pulmonary Edema **650**
by Joseph Demidovich, Hamid Nasseri, and Amita P Vasoya—Stratford, New Jersey

EDITORIALS

Too Many Ventilator Modes! **653**
by Alexander B Adams—St Paul, Minnesota

Manual Ventilation During Resuscitation: Does Device Matter? **655**
by Kathleen Deakins—Cleveland, Ohio

An Ounce of Prevention Is Worth a Pound of Cure **657**
by Ariel Berlinski—Little Rock, Arkansas

Head of Bed Elevation and Ventilator-Associated Pneumonia **659**
by Brian G Harbrecht—Louisville, Kentucky