

CONTENTS

NOVEMBER 2011 / VOLUME 56 / NUMBER 11

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.nbrc.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 *RNdx 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 © 2011 by Daedalus Enterprises Inc.

EDITOR'S COMMENTARY

Commentary on the November 2011 Issue

1753

ORIGINAL RESEARCH

A Bench Study of the Effects of Leak on Ventilator Performance During Noninvasive Ventilation

by Yoshitoyo Ueno, Nobuto Nakanishi, Jun Oto, Hideaki Imanaka, and Masaji Nishimura—Tokushima, Japan

1758

Long-Term Survival in Patients With Tracheostomy and Prolonged Mechanical Ventilation in Olmsted County, Minnesota

by Marija Kojacic, Guangxi Li, Adil Ahmed, Lokendra Thakur, Cesar Trillo-Alvarez, Rodrigo Cartin-Ceba, Peter C Gay, and Ognjen Gajic—Rochester, Minnesota

1765

Use of Lambda-Mu-Sigma-Derived Z Score for Evaluating Respiratory Impairment in Middle-Aged Persons

by Carlos A Vaz Fragoso, Thomas M Gill, Gail McAvay, Peter H Van Ness, H Klar Yaggi, and John Concato—New Haven, Connecticut

1771

Comparison of the Lower Confidence Limit to the Fixed-Percentage Method for Assessing Airway Obstruction in Routine Clinical Practice

by Ashutosh N Aggarwal, Dheeraj Gupta, Ritesh Agarwal, and Surinder K Jindal—Chandigarh, India

1778

Respiratory Care Work Assignment Based on Work Rate Instead of Work Load

by Robert L Chatburn, Susan Gole, Philip Schenk, Edward R Hoisington, and James K Stoller—Cleveland, Ohio

1785

Bench Evaluation of 7 Home-Care Ventilators

by Thomas C Blakeman, Dario Rodriguez Jr, Dennis Hanseman, and Richard D Branson—Cincinnati, Ohio

1791

Effects of 2 Exercise Training Programs on Physical Activity in Daily Life in Patients With COPD

by Vanessa S Probst, Demétria Kovelis, Nidia A Hernandez, Carlos A Camillo, Vinicius Cavalheri, and Fabio Pitta—Londrina, Paraná, Brazil

1799

Distance Learning and the Internet in Respiratory Therapy Education

by Sarah M Varekojis, Georgianna G Sergakis, Crystal L Dunlevy, Elbie Foote, and Jill Clutter—Columbus, Ohio

1808

Time to Desaturation Less Than One Minute Predicts the Need for Long-Term Home Oxygen Therapy

by Ignacio Garcia-Talavera, Alfonso Tauroni, Jose Luis Trujillo, Ruth Pitti, Luisa Eiroa, Armando Aguirre-Jaime—Santa Cruz de Tenerife, Canary Islands, Spain
Alejandro Sánchez—Las Palmas, Canary Islands, Spain
and Juan Abreu—Tenerife, Canary Islands, Spain

1812

Bacteriological Differences Between COPD Exacerbation and Community-Acquired Pneumonia

by Xue-Jun Li, Qi Li, Liang-Yi Si, and Qiao-Ying Yuan—Chongqing, China

1818

Endotracheal Tube Extubation Force: Adhesive Tape Versus Endotracheal Tube Holder

by Takeru Shimizu, Taro Mizutani, Soichiro Yamashita, Keiichi Hagiya, and Makoto Tanaka—Tsukuba, Ibaraki Prefecture, Japan

1825

Effect of CPAP on Oxidative Stress and Circulating Progenitor Cell Levels in Sleep Patients With Apnea-Hypopnea Syndrome

by Mora Murri, Regina García-Delgado, José Alcázar-Ramírez, Ana Fernández-Ramos, Juan Alcaide, Fernando Cardona, and Francisco J Tinahones—Málaga, Spain

1830

CONTENTS

CONTINUED...

ALSO IN THIS ISSUE

1869	AARC Membership Application
1871	Calendar
1872	Author Index
1872	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



CASE REPORTS

Surgical Resection and Liposomal Amphotericin B to Treat Cavitary Pulmonary Zygomycosis in a Patient With Diabetes <i>by ZHU Hua-Ping—Beijing, China LIANG Jian, HUANG Jing-Bin—Nanning, Guangxi Zhuang Autonomous Region, China GAO Jie, MO Guo-Xin, JIA Yan-Hong, and XIE Li-Xin—Beijing, China</i>	1837
High-Frequency Chest-Wall Oscillation in a Noninvasive-Ventilation-Dependent Patient With Type 1 Spinal Muscular Atrophy <i>by Joanna M Keating, Nicola Collins, Andrew Bush, and Michelle Chatwin—London, United Kingdom</i>	1840
Pulmonary Hypertension: A Fatal Complication of Neurofibromatosis Type 1 <i>by Lina Gumbiene, Zaneta Petrulioniene, Kestutis Rucinskas, Vyte Maneikiene, Pranas Serpytis, Alicija Dranekiene, and Aleksandras Laucevicius—Vilnius, Lithuania</i>	1844

TEACHING CASES OF THE MONTH

Acute Hypoxemic Respiratory Failure in Sarcoidosis: A Case Report and Literature Review <i>by Dheeraj Gupta, Ritesh Agarwal, Abinash S Paul, and Kusum Joshi—Chandigarh, India</i>	1849
Skin Ulcers: A Sign of Disseminated Tuberculosis <i>by Guven Tekbas, Abdurrahman Abakay, Abdullah Cetin Tanrikulu, Ugur Firat, Faysal Ekici, Zeki Dostbil, and Bilal Sula—Diyarbakir, Turkey</i>	1853

EDITORIALS

Noninvasive Ventilation Failure: The Answer Is Blowing in the Leaks <i>by Luca Cabrini, Giovanni Landoni, and Alberto Zangrillo—Milan, Italy</i>	1857
Prolonged Mechanical Ventilation: Are You a Lumper or a Splitter? <i>by Heidi H O'Connor—Stoughton, Massachusetts</i>	1859
Diagnosing COPD: High Time for a Paradigm Shift <i>by Philip H Quanjer—Rotterdam, The Netherlands and Gregg L Ruppel—St Louis, Missouri</i>	1861
Staffing the Respiratory Care Department: New Considerations <i>by Richard M Ford—San Diego, California</i>	1864

LETTERS

Ventilator Software Version Markedly Affects Time to Trigger and Time Delay <i>by Marc Wysocki, Michael Kistler—Bonaduz, Switzerland Paul Garbarini and Robert Hamilton—Reno, Nevada author response by Robert M Kacmarek—Boston, Massachusetts</i>	1866
Is Noninvasive Ventilation Possible Only in New Jersey? <i>by Ondrea McKay and John R Bach—Newark, New Jersey</i>	1867

CORRECTION

Corrected legend to Figure 1 of the paper, "Approaches to conventional mechanical ventilation of the patient with acute respiratory distress syndrome" by Hess DR (<i>Respir Care</i> 2011;56[10]:1555-1572)	1868
---	------