

CONTENTS

October 2020 / VOLUME 65 / NUMBER 10

FOR INFORMATION, CONTACT:

AARC Membership and 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>

Credentialing Organization for RRT, CRT

National Board for
Respiratory Care
10801 Mastin St, Suite 300
Overland Park, KS 66210
(913) 895-4900 • Fax (913) 712-9283
<http://www.nbrc.org>

Accreditation of Education Programs

Commission 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.arcfoundation.org>

RESPIRATORY CARE

A Monthly Science Journal
Established in 1956

The Official Journal of the
American Association for
Respiratory Care



EDITOR'S COMMENTARY

Commentary on October 2020 Issue **i**

EDITOR'S CHOICE

Comparison of Vibrating Mesh, Jet, and Breath-Enhanced Nebulizers
During Mechanical Ventilation **1419**
by Sunya Ashraf, Michael McPeck, Ann D Cuccia, and Gerald C Smaldone—Stony Brook, New York

ORIGINAL RESEARCH

Local Effects of Two Intravenous Formulations of Pulmonary Vasodilators
on Airway Epithelium **1427**
*by Bradley A Kuch—Pittsburgh, Pennsylvania
Rosalie Linssen, Hiroki Yoshikawa—Richmond, Virginia
Craig D Smallwood—Boston, Massachusetts
and Michael D Davis—Indianapolis, Indiana*

Oxygen Conservation Methods With Automated Titration **1433**
by Stéphane Bourassa, Pierre-Alexandre Bouchard, François Lellouche, and Marc Dauphin—Québec, Canada

Importance of Nebulizer Drying for Patients With Cystic Fibrosis **1443**
by John E Moore, Rachel E Moore, Jane Bell, and B Cherie Millar—Belfast, Northern Ireland, United Kingdom

Clinical Efficacy of Vibrating Mesh and Jet Nebulizers With Different
Interfaces in Pediatric Subjects With Asthma **1451**
*by Gerald B Moody, Peter M Luckett, Rong Huang—Dallas, Texas
Courtney M Shockley—San Antonio, Texas
and Arzu Ari—Round Rock, Texas*

Feasibility of Aerosol Bronchodilators Delivery Through High-Flow Nasal
Cannula in Pediatric Subjects With Respiratory Distress **1464**
*by Awni M Al-Subu, Marlowe W Eldridge, Scott A Hagen, Yousef AlAli,
Rhonda A Yngsdal-Krenz, Michael R Lasarev—Madison, Wisconsin
and Vu T Nguyen—Richmond, Virginia*

Influence of Gender on Inhaler Technique **1470**
*by Birsan Ocakli, Ipek Ozmen, Eylem Acarturk Tuncay, Sinem Gungor, Aylin Ozalp,
Yesim Yasin, Nalan Adiguzel, Gokay Gungor, and Zuhul Karakurt—Istanbul, Turkey*

Reliability and Minimum Important Difference of Sputum Weight in
Bronchiectasis **1478**
*by Beatriz Herrero-Cortina—Zaragoza, Spain
Victoria Alcaraz-Serrano, Antoni Torres, and Eva Polverino—Barcelona, Spain*

Isolated Small Airway Dysfunction and Ventilatory Response to
Cardiopulmonary Exercise Testing **1488**
*by Aaron B Holley, Donovan L Mabe, Jacob F Collen, John H Sherner, Nikhil A Huprikar
—Bethesda, Maryland
John C Hunninghake, Robert J Walter, and Michael J Morris—San Antonio, Texas*

Adherence to an Oxygen-Weaning Protocol in Mechanically Ventilated
Adults in the Medical ICU **1496**
*by Kristina E Ramirez, Richard W Wettstein, Sylvia Cuevas, Ruben D Restrepo—San Antonio, Texas
and Donna D Gardner—Round Rock, Texas*

Changes in Attitudes and Actual Practice of Oxygen Therapy in ICUs after
Implementation of a Conservative Oxygenation Guideline **1502**
*by Chloe CA Grim, Hendrik JF Helmerhorst, David J van Westerloo, Evert de Jonge
—Leiden, The Netherlands
Marcus J Schultz, Tineke Winters, and Peter HJ van der Voort—Amsterdam, The Netherlands*

CONTENTS

CONTINUED...

Phased Quality Improvement Interventions in Reducing Unplanned Extubation in the Neonatal ICU <i>by Vrinda Nair and Helena Smith—Middlesbrough, United Kingdom</i>	1511
Higher Class of Obesity Is Associated With Delivery of Higher Tidal Volumes in Subjects With ARDS <i>by Saminder S Kalra—Gainesville, Florida Matthew Siuba, Eduardo Mireles-Cabodevila, Robert L Chatburn, Sudhir Krishnan, Abhijit Duggal—Cleveland, Ohio and Anupol Panitchote—Khon Kaen, Thailand</i>	1519
Incidence, Predictors, and Outcomes of Failure of Noninvasive Ventilation in Acute Heart Failure Hospitalization <i>by Thomas S Metkus, R Scott Stephens, Steven P Schulman, Shaker M Eid—Baltimore, Maryland and P Elliott Miller—New Haven, Connecticut</i>	1527
Respiratory Therapist Intubation Practice in Pediatric ICUs: A Multicenter Registry Study <i>by Andrew G Miller, David A Turner, Kyle J Rehder—Durham, North Carolina Natalie Napolitano and Akira Nishisaki—Philadelphia, Pennsylvania</i>	1534
Restarting CPAP Therapy for Sleep Apnea After a Previous Failure <i>by Heidi Avellan-Hietanen, Paula Maasilta, and Adel Bachour—Helsinki, Finland</i>	1541
Impact of Early Passive Exercise With Cycle Ergometer on Ventilator Interaction <i>by Júlia R Silva, Maycon M Reboredo, Bruno C Bergamini, Cristiane B Netto, Rodrigo S Vieira, Sérgio PS Pinto, Lídia MC Fonseca, and Bruno V Pinheiro—Minas Gerais, Brazil</i>	1547
Increased Ratio of Dead Space to Tidal Volume in Subjects With Inhalation Injury <i>by Thomas Granchi, Neil Mashruwala, Colette Galet—Iowa City, Iowa Ashley Lemere—Williston, North Dakota and Kathleen S Romanowski—Sacramento, California</i>	1555
SYSTEMATIC REVIEWS	
Impact of Radiographic Bronchiectasis in COPD <i>by Lei Shi, Fengxian Wei, Tiantian Ma, Weixin Zhou, Min Li, and Yixin Wan—Lanzhou, China</i>	1561
Noninvasive Ventilation as a Weaning Strategy in Subjects with Acute Hypoxemic Respiratory Failure <i>by Mengtian Shan, Xiaoqian Pang, Wei Wang, Chao Lan, Changju Zhu, Qi Liu—Zhengzhou, Henan Province, China and Rongchang Chen—Shenzhen, Guangdong Province, China</i>	1574
NARRATIVE REVIEWS	
Variation Among Spirometry Interpretation Algorithms <i>by Katrina A D'Urzo—Dublin, Ireland Florence Mok and Anthony D D'Urzo—Toronto, Ontario, Canada</i>	1585
Usual and Advanced Monitoring in Patients Receiving Oxygen Therapy <i>by François Lellouche—Québec, Canada and Erwan L'Her—Brest, France</i>	1591
NEW HORIZONS SYMPOSIUM	
Ventilator Liberation in the Pediatric ICU <i>by Christopher JL Newth, Justin C Hotz, and Robinder G Khemani—Los Angeles, California</i>	1601
Inhaled Pulmonary Vasodilators in the Neonatal and Pediatric ICU <i>by Brian K Walsh—Lynchburg, VA</i>	1611

CONTENTS

CONTINUED...

EDITORIALS

- | | |
|--|-------------|
| Innovation in Aerosol Drug Delivery During Adult Mechanical Ventilation
<i>by Ariel Berlinski—Little Rock, Arkansas</i> | 1624 |
| The Basic Problem
<i>by Bruce K Rubin—Richmond, Virginia</i> | 1626 |
| Automated Oxygen Delivery and Conservation: Promises and Pitfalls
<i>by David W Kaczka—Iowa City, Iowa
and Jacob Herrmann—Boston, Massachusetts</i> | 1627 |