AARC Times
An Official Publication of the American Association for Respiratory Care
April 2018 Vol. 42, Issue 4 www.aarc.org $11.50

Join Us for AARC Summer Forum in Texas Hill Country July 17–19

Tobacco Addiction Treatment

HUDSON RCI®

Hudson RCI®
Comfort Flo® Plus
HFNCT Cannula

One Smart, Simple Solution for High Flow Nasal Cannula Therapy (HFNCT)

Treatment with HFNCT has been shown to:

- Improve survival rate among patients with Acute Hypoxemic Respiratory Failure, compared to standard oxygen masks or non-invasive ventilation[1]
- Improve pulmonary compliance[2]
- Reduce work of breathing[2]
- Wash out dead space leading to improved fraction of alveolar gases[2]

Contact your sales representative for a sample of Comfort Flo® Plus HFNCT Cannula!

References:

1. Frat JP, Thille AW, Mercat A, et al. High-Flow Oxygen through Nasal Cannula in Acute Hypoxemic Respiratory Failure. *The New England Journal of Medicine* 2015: DOI: 10.1056/NEJMoa1503326.
2. Dysart K, Miller TL, et al. Research in High Flow Therapy: Mechanisms of Action. *Respiratory Medicine* 2009 103, 1400 – 1405 Cited in support of HFNCT benefits not including CPAP as CPAP is off-label for Comfort Flo Humidification System.

Teleflex®

Table of Contents

April 2018
Volume 42, Issue 4

AARC Strategic Plan

The American Association for Respiratory Care has a Strategic Plan that includes its Mission and Vision Statements for 2015–2020.

Bookmark this page: http://www.aarc.org/member_services/mission/.

American Association for Respiratory Care

Editor
Marsha Cathcart, BA

Managing Editor
Douglas Laher, MBA, RRT, FAARC

Contributors
Debbie Bunch, BA
Sheila Henegar

Manager of Marketing and Production
Jeanette Chawdhury, MBA

Graphic Designers
Joyce Havins
Michelle Plumlee
Jennifer Horn

Director of Business Development
Sarah Vaughn, BSRC, RRT

Advertising Rates and Media Information
Contact: phil.ganz@aarc.org
Phil Ganz, 48 Abbey Woods Ln., Suite 100, Dallas, TX 75248
Voice (972) 991-4994
Fax (888) 206-9006

Advertising Materials
Send production materials for AARC publications to advertising@aarc.org or AARC
9425 N. MacArthur Blvd.,
Suite 100
Irving TX 75063
c/o Advertising Department
Voice (972) 243-2272
Fax (972) 484-2720

AARC Times and Respiratory Care — official publications of the AARC

Daedalus Enterprises, Inc.
9425 N. MacArthur Blvd.,
Suite 100
Irving, TX 75063
Voice (972) 243-2272
Fax (972) 484-2720

Publisher
Thomas J. Kallstrom, MBA, RRT, FAARC

Printed in USA

Meet the AARC Staff

Pam Russell

Exhibits Coordinator
pam.russell@aarc.org

Grady Peters

Network Administrator
grady.peters@aarc.org

Jacquelyn Villafranca

Customer Service
jacqueline.villafranca@aarc.org

Richard Hernandez

Shipping Manager
richard.hernandez@aarc.org

LOW STRESS HIGH-FLOW

- **MaxBlend™2 by Maxtec** combines the features of an oxygen monitor, a dual scale "designed for blenders" acrylic flow meter, and gas saving technology to a standard blender.
- **Flexicare® Active Humidification** provides optimal humidity to the lungs during NIV therapy to support the patient's upper airway and improve patient comfort and compliance.
- **Flexicare® Veoflo®** High Flow Nasal Cannula is designed to allow for a range of oxygen concentrations between 24% and 60% and flow rates up to or equal to 60 L/min using warmed and humidified gas, providing versatility to meet the patient's changing conditions.

Contact your local Tri-anim Account Manager or
Visit ***tri-anim.com/active-humidification/default.aspx***

Tri-anim
Advancing Healthcare, Together

Information Contacts:

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

Respiratory Therapist Credentialing & Registration: National Board for Respiratory Care • 10801 Mastin Street, Suite 300, Overland Park, KS 66210 • (913) 895-4900 • Fax (913) 712-9283 • 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 • www.coarc.com

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

AARC Times **(USPS 491-930)** (ISSN 0893-8520) is a monthly publication of Daedalus Enterprises, Inc., for the American Association for Respiratory Care.

Periodicals Postage: Paid at Irving, TX, and at additional mailing offices. POSTMASTER: Send form 3579 to *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706.

Change of Address: Six weeks' notice is required. AARC members should include their membership number when submitting an address change. Nonmember subscribers should provide old mailing label and new address. Send changes to *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706. Periodicals postage paid at Irving, TX.

Article and Feature Contribution: *AARC Times* welcomes AARC member contributions of feature articles and information for the regular columns. All materials should be submitted via email to Editor Marsha Cathcart at cathcart@aarc.org. Letters from members will be considered for publication if they relate to specific articles appearing in *AARC Times* within the last three months. Editorials may be published if they are of interest to the AARC membership. The editor reserves the right to edit letters and articles without changing their meaning in order to suit legal and space requirements.

Subscriptions: Individual subscriptions are available for $90 per year (12 issues) in the United States or Puerto Rico; $125 per year in all other countries. Airmail postage is an additional $134 per year. Non-member Institution subscription $140 per year. Member rates available at www.AARC.org. Single copies, current and back issues, if available, are $11.50. Write *AARC Times*, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Daedalus Enterprises, Inc.

Let's Draw Attention to Asthma this May

by Thomas J. Kallstrom, MBA, RRT, FAARC

Did you know that World Asthma Day will be celebrated on May 1, 2018? The Global Initiative for Asthma (GINA) established this day of recognition 20 years ago. In fact, May is traditionally the month when attention is drawn to asthma and allergies. This affords a great opportunity for RTs to garner attention from the public by focusing on asthma at both local and national levels. Over the years, our members have been very creative in finding ways to recognize Asthma Day. I urge you to consider stepping up to help the AARC bring attention to asthma.

about the author...

Thomas J. Kallstrom, MBA, RRT, FAARC, is executive director of the AARC.

Some considerations:

- Reach out to local media. Put together a message that you think will grab their attention. A few years ago, I approached the local National Public Radio station here in Dallas.[1] They have a weekly medical segment called *Vital Signs*. My approach was to call attention to COPD. I was in communication with the station over a period of a year. It took a lot of perseverance, but in the end it paid off. Not only was I able to talk about COPD to a large media market, but I drew attention to respiratory therapists and their role in managing the disease. If this is something you may find of interest, I recommend that you personally contact local TV or radio stations. If your hospital has a public relations department, they may be able to assist you. As part of our AARC media kit, we have a section that provides the do's and don'ts when doing a TV or radio interview.[2]
- Partner with professional associations and organizations advocating for patients and families affected by asthma. One such group is the Allergy and Asthma Network (AAN). On May 9, they will be hosting their 2018 Allergy and Asthma Day on Capitol Hill in Washington, DC. This is a collaborative effort to advocate for people who have asthma, allergies, and related conditions. This event brings together members of Congress, their staffers, patients, caregivers, advocates, health care professionals, industry leaders, national and local partners, and researchers to discuss issues that involve asthma and allergy care. Later that day, there will be a Congressional briefing, which brings together members of Congress and key leaders of industry with the goal of addressing policy.[3] Every time I attend this briefing, I am moved by the personal stories that patients share. I have also been able to meet influential members of Congress there. Years ago, I met Congressman Patrick Kennedy at a briefing. He has a long history of asthma as well as many subsequent hospitalizations. As a result of this meeting I was able to do an interview with him that focused on his personal journey with asthma, which was published in *AARC Times*.[4]
- In keeping with the theme of getting the attention of our legislators, another option is to set up a booth with RTs at your state capital. Many state affiliates have done this in the past. This is a great way to share the message that telemedicine is effective in managing, educating, and assessing patients with asthma and that RTs are suitable for such a role. Some states already have laws on the books that allow RTs to provide this service.
- Set up a booth at your hospital or a local mall that focuses on asthma.

NOW AVAILABLE

Lonhala™ Magnair™

(glycopyrrolate) Inhalation Solution

25 mcg/1 mL

The **first and only** nebulized LAMA for COPD

including chronic bronchitis and/or emphysema

INDICATION

LONHALA™ MAGNAIR™ (glycopyrrolate) is an anticholinergic indicated for the long-term maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

COPD=chronic obstructive pulmonary disease; LAMA=long-acting muscarinic antagonist.

IMPORTANT SAFETY INFORMATION

LONHALA MAGNAIR is contraindicated in patients with a hypersensitivity to glycopyrrolate or to any of the ingredients.

LONHALA MAGNAIR should not be initiated in patients with acutely deteriorating or potentially life-threatening episodes of COPD or used as rescue therapy for acute episodes of bronchospasm. Acute symptoms should be treated with an inhaled short-acting beta$_2$-agonist.

As with other inhaled medicines, LONHALA MAGNAIR can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with LONHALA MAGNAIR, it should be treated immediately with an inhaled, short-acting bronchodilator; LONHALA MAGNAIR should be discontinued immediately and alternative therapy instituted.

Immediate hypersensitivity reactions have been reported with LONHALA MAGNAIR. If signs occur, discontinue LONHALA MAGNAIR immediately and institute alternative therapy.

LONHALA MAGNAIR should be used with caution in patients with narrow-angle glaucoma and in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort,

For additional information, please see the Brief Summary of Prescribing Information on the following pages. Please see full Prescribing Information and Patient Information for LONHALA MAGNAIR at www.sunovionprofile.com/lonhala-magnair.

Learn more about a new nebulized COPD therapy at
sunovionprofile.com/lonhala-magnair

Handset is 2.4 x 4.7 inches. Controller is 1.6 x 4.6 inches. Assembly required.

blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema) and of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Patients should be instructed to consult a physician immediately should any of these signs or symptoms develop.

The most common adverse events reported in ≥2% of patients taking LONHALA MAGNAIR, and occurring more frequently than in patients taking placebo, were dyspnea (4.9% vs 3.0%) and urinary tract infection (2.1% vs 1.4%).

LONHALA solution is for oral inhalation only and should not be injected or swallowed. LONHALA vials should only be administered with MAGNAIR.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Lonhala™ Magnair™
(glycopyrrolate) Inhalation Solution

Lonhala Magnair

(glycopyrrolate) Inhalation Solution

For oral inhalation use

BRIEF SUMMARY OF FULL PRESCRIBING INFORMATION

Please see package insert for full Prescribing Information, including Patient Information.

INDICATIONS AND USAGE

LONHALA™ MAGNAIR™ is an anticholinergic indicated for the long-term maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

CONTRAINDICATIONS

LONHALA MAGNAIR is contraindicated in patients with a hypersensitivity to glycopyrrolate or any of the ingredients.

WARNINGS AND PRECAUTIONS

Deterioration of Disease and Acute Episodes

LONHALA MAGNAIR should not be initiated in patients during acutely deteriorating or potentially life-threatening episodes of COPD. LONHALA MAGNAIR has not been studied in subjects with acutely deteriorating COPD. The initiation of LONHALA MAGNAIR in this setting is not appropriate.

LONHALA MAGNAIR should not be used as rescue therapy for the treatment of acute episodes of bronchospasm. LONHALA MAGNAIR has not been studied in the relief of acute symptoms and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting beta$_2$-agonist.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If LONHALA MAGNAIR no longer controls symptoms of bronchoconstriction the patient's inhaled, short-acting beta$_2$-agonist becomes less effective; or the patient needs more inhalations of a short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting, a re-evaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of LONHALA MAGNAIR beyond the recommended dose is not appropriate in this situation.

Paradoxical Bronchospasm

As with other inhaled medicines, LONHALA MAGNAIR can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with LONHALA MAGNAIR, it should be treated immediately with an inhaled, short-acting bronchodilator; LONHALA MAGNAIR should be discontinued immediately, and alternative therapy instituted.

Immediate Hypersensitivity Reactions

Immediate hypersensitivity reactions may occur after administration of LONHALA MAGNAIR. If signs suggesting allergic reactions occur, in particular, angioedema (including difficulties in breathing or swallowing, swelling of the tongue, lips, and face), urticaria, or skin rash, LONHALA MAGNAIR should be discontinued immediately and alternative therapy instituted.

Worsening of Narrow-Angle Glaucoma

LONHALA MAGNAIR should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

Worsening of Urinary Retention

LONHALA MAGNAIR should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

ADVERSE REACTIONS

Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The LONHALA MAGNAIR safety database included 2379 subjects with COPD in two 12-week efficacy studies and one 48-week long-term safety study. A total of 431 subjects received treatment with LONHALA MAGNAIR 25 mcg twice-daily (BID). The safety data described below are based on the two 12-week trials and the one 48-week trial.

12-Week Trials

LONHALA MAGNAIR was studied in two 12-week placebo-controlled trials in 431 subjects with COPD, treated with LONHALA MAGNAIR at the recommended dose of 25 mcg, twice daily. The population had a mean age of 63 years (ranging from 40 to 87 years), with 56% males, 90% Caucasian, and a mean post-bronchodilator forced expiratory volume in one second (FEV_1) percent predicted of 52% of predicted normal value (20%-80%) at study entry. The study population also included subjects with pre-existing cardiovascular disease as well as subjects with continued use of stable long-acting bronchodilator (LABA) +/- inhaled corticosteroid (ICS) and ipratropium bromide background therapy. Subjects with unstable cardiac disease, narrow-angle glaucoma, or symptomatic prostatic hypertrophy or bladder outlet obstruction were excluded from these studies.

The proportion of subjects who discontinued treatment due to adverse reactions was 5% for the LONHALA MAGNAIR-treated subjects and 9% for placebo-treated subjects.

Table 1: Adverse Reactions with LONHALA MAGNAIR ≥ 2.0% Incidence and Higher than Placebo

	Placebo (N=430) N (%)	LONHALA MAGNAIR 25 mcg BID (N=431) N (%)
Dyspnea	13 (3.0)	21 (4.9)
Urinary Tract Infection	6 (1.4)	9 (2.1)

Other adverse reactions defined as events with an incidence of ≥ 1.0% but less than 2.0% with LONHALA MAGNAIR but more common than with placebo included the following: wheezing, upper respiratory tract infection, nasopharyngitis, oedema peripheral, and fatigue.

48-Week Trial

In a long-term open-label safety trial, 1086 subjects were treated for up to 48 weeks with LONHALA MAGNAIR 50 mcg twice-daily (N=620) or tiotropium (N=466). The demographic and baseline characteristics of the long-term safety trial were similar to those of the placebo-controlled efficacy studies described above. The adverse reactions reported in the long-term safety trial were consistent with those observed in the placebo-controlled studies of 12 weeks. Adverse reactions that occurred at a frequency greater than that seen in either active treatment dose in the pooled 12-week placebo-controlled studies and ≥ 2.0% were: diarrhea, edema peripheral, bronchitis, nasopharyngitis, pneumonia, sinusitis, upper respiratory tract infection, urinary tract infection, back pain, headache, Chronic Obstructive Pulmonary Disease, cough, dyspnea, oropharyngeal pain, and hypertension.

DRUG INTERACTIONS

Anticholinergics

There is a potential for an additive interaction with concomitantly used anticholinergic medications. Therefore, avoid unnecessary co-administration of LONHALA MAGNAIR with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic effects.

USE IN SPECIFIC POPULATIONS

Pregnancy

Risk Summary

There are no adequate and well-controlled studies in pregnant women. LONHALA MAGNAIR should only be used during pregnancy if the expected benefit to the patient outweighs the potential risk to the fetus. Women should be advised to contact their physician if they become pregnant while taking LONHALA MAGNAIR. In animal reproduction studies, there were no teratogenic effects in Wistar rats and New Zealand White rabbits at inhaled doses approximating 1521 and 580 times, respectively, the maximum recommended human daily inhalation dose (MRHDID) based on an AUC comparison.

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

Labor or Delivery

The potential effect of LONHALA MAGNAIR on labor and delivery is unknown. LONHALA MAGNAIR should be used during labor and delivery only if the potential benefit to the patient justifies the potential risk to the fetus.

Animal Data

Developmental studies in Wistar rats and New Zealand White rabbits in which glycopyrrolate was administered by inhalation during the period of organogenesis did not result in evidence of teratogenicity at exposures approximately 1521 and 580 times, respectively, the MRHDID of LONHALA MAGNAIR based on a comparison of plasma AUC levels (maternal doses up to 3.8 mg/kg/day in rats and 4.4 mg/kg/day in rabbits).

Glycopyrrolate had no effects on peri-natal and post-natal development in rats following subcutaneous exposure of approximately 1137 times the MRHDID of LONHALA MAGNAIR based on an AUC comparison (at a maternal dose of up to 1.885 mg/kg/day).

Lactation

Risk Summary

There are no data on the presence of glycopyrrolate or its metabolites in human milk, the effects on the breastfed infant, or the effects on milk production. However, in a study of lactating rats, glycopyrrolate was present in the milk. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for LONHALA MAGNAIR and any potential adverse effects on the breastfed infant from LONHALA MAGNAIR or from the underlying maternal condition.

Data

Glycopyrrolate (and its metabolites) was detected in the milk of lactating rats following a single intravenous injection of 4 mg/kg of radiolabeled glycopyrrolate.

Pediatric Use

LONHALA MAGNAIR is not indicated for use in children. The safety and efficacy of LONHALA MAGNAIR in pediatric patients have not been established.

Geriatric Use

Based on available data, no adjustment of the dosage of LONHALA MAGNAIR in geriatric patients is warranted. LONHALA MAGNAIR can be used at the recommended dose in elderly patients 75 years of age and older.

Of the total number of subjects in clinical studies of LONHALA MAGNAIR, 41% were aged 65 and older, while 8% were aged 75 and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

Renal Impairment

No dose adjustment is required for patients with mild and moderate renal impairment. The effects of renal impairment on the pharmacokinetics of glycopyrrolate have not been studied.

Hepatic Impairment

No dose adjustment is required for patients with hepatic impairment. The effects of hepatic impairment on the pharmacokinetics of glycopyrrolate have not been studied.

OVERDOSAGE

An overdose of glycopyrrolate may lead to anticholinergic signs and symptoms such as nausea, vomiting, dizziness, lightheadedness, blurred vision, increased intraocular pressure (causing pain, vision disturbances, or reddening of the eye), obstipation or difficulties in voiding.

In COPD patients, orally inhaled administration of LONHALA MAGNAIR at a total daily dose of 200 mcg for 28 consecutive days (maximum of 1 mg) was well tolerated.

PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information and Instructions for Use).

sunovion

Manufactured for:
Sunovion Respiratory Development Inc.,
a wholly-owned subsidiary of Sunovion Pharmaceuticals Inc.,
Marlborough, MA 01752 USA

To report suspected adverse reactions, call 1-877-737-7226.
For customer service, call 1-888-394-7377.

- Social media is another great way to get the message across about asthma in the month of May. While the AARC will be posting asthma-related information, using some of your own original postings is a great way to get the message across. Be sure that anything you post is entirely accurate. The Centers for Disease Control and Prevention (CDC) and the National Institutes of Health are two great resources that you can use.
- The AARC has put together the Public Relations Guide for Respiratory Therapists, which is available online.[5] While it may be a bit dated, it is still pertinent and likely something that you will find valuable, should you pursue it. The AARC also has a feature on our website called AARC Members in the News which highlights members in the news.[6] If you participate in an event that is featured in the media, I encourage you to contact us so we can share this with our members.
- According to the CDC, asthma affects over 24 million people living in the United States, including more than 6 million children.[7] Sadly, the numbers are not going down. We know that properly educating our patients and those who care for them can lower the morbidity and mortality of the disease and improve lives. By drawing attention to asthma on a larger scale and by ensuring our voices are heard, perhaps we may bring about more funding for asthma research and improved tools that patients can use to better manage their disease. ■

References

1. Baker S. COPD: One more reason to quit smoking. Available at: http://keranews.org/post/copd-one-more-reason-quit-smoking *Accessed January 26, 2018.*
2. Available at: Local PR Is Effective PR Guidebook http://c.aarc.org/members_area/resources/dos_donts.asp *Accessed January 26, 2018.*
3. Allergy & Asthma Network web site. 2018 Allergy & Asthma Day Capitol Hill. Available at: https://aanma.site-ym.com/events/EventDetails.aspx?id=1057954&group= *Accessed January 26, 2018.*
4. Kallstrom, TJ. Focus on asthma. AARC web site. Available at: http://c.aarc.org/members_area/aarc_times/08.03/08.03.013.pdf *Accessed January 26, 2018.*
5. Local Public Relations Is Effective Public Relations: *A PR Guidebook for Respiratory Therapists.* Available at: http://c.aarc.org/members_area/resources/pr_kit.asp *Accessed January 26, 2018.*
6. AARC web site. AARC Members in the News: Tell Us About Your Good Press. Available at: http://www.aarc.org/aarc-membership/members-note/aarc-members-good-press/ *Accessed January 26, 2018.*
7. U.S. Centers for Disease Control and Prevention web site. National Center for Health Statistics: Asthma. Available at: https://www.cdc.gov/nchs/fastats/asthma.htm *Accessed January 26, 2018.*

HIPAA, or the Health Lawyers Full Employment Act?

by Anthony L. DeWitt, JD, RRT, FAARC

Legal professionals sometimes jokingly refer to the Health Insurance Portability and Accountability Act (HIPAA) as the Health Lawyers Full Employment Act. In an attempt to make a byzantine statute comprehensible, the U.S. Department of Health and Human Services (HHS) has issued regulations that have the force of law and that government agents follow when assessing compliance with HIPAA. The regulations are nearly as long as the statute, speak in specialized health care terms, and, for the most part, do a pretty poor job of helping you comply with HIPAA. Hence, the reference to a need for health care lawyers.

Updated regulations now require health care providers to provide patients with access to protected health information because this "empowers them to be more in control of decisions regarding their health and well-being." HHS says that putting individuals "in the driver's seat" with respect to their health also is "a key component of health reform and the movement to a more patient-centered health care system." Those of us who work in health care know that the system has always been patient-centered, and we're glad the government is finally catching on.

One purpose of HIPAA is to protect the security of health information, while a competing purpose is to ensure access by the patient — or in some limited cases, the person the patient designates. The law does not permit (and, in fact, punishes) entities to allow this information to be stolen by hackers in Smolensk for the purpose of raiding an individual's credit or other criminal purposes. Thus, access has to be balanced with security.

And, like pretty much every other governmental program, the regulations send mixed messages regarding health care access and security.

about the author...

Anthony L. DeWitt, JD, RRT, FAARC, is an attorney and a partner in the firm Bartimus, Frickleton, and Robertson, PC, and resides in Opelika, AL. He has also published two books and numerous legal journal articles. This article is not a substitute for legal advice.

First, the regulations require that providers make the "designated record set" available to the patient. Note, they did not say "the medical record." The designated record set is defined at 45 CFR 164.501 as a group of records maintained by or for a covered entity that comprises the:

- Medical records and billing records about individuals maintained by or for a covered health care provider;
- Enrollment, payment, claims adjudication, and case or medical management record systems maintained by or for a health plan; or
- Other records that are used, in whole or in part, by or for the covered entity to make decisions about individuals. This last category includes records that are used to make decisions about any individuals, whether or not the records have been used to make a decision about the particular individual requesting access.

The term "record" means any item, collection, or grouping of information that includes personal health information and is maintained, collected, used, or disseminated by or for a covered entity. Thus, radiographs, pulmonary function tests, billing and payment records, and clinical notes are all subject to this right of access.

Some records are excluded from access. For example, quality improvement records and management records are not included. Neither are certain mental health notes. But by and large, the bulk of what therapists do at a hospital is subject to these regulations regarding the release of medical records.

Second, HIPAA requires security and wants to ensure that only persons who have a right of access get that access. This doesn't mean, however, that health care entities can arbitrarily set up barriers to access. For example, while a provider may require individuals to request access in writing, web-based requests are also allowed. The caveat is that a written request on the provider's own form cannot unreasonably delay an individual from obtaining access to his records.

The entity must make a reasonable effort to verify the identity of the party making a request for access.[1] The rule does not specify the verification requirements, however, leaving that to the judgment of the provider. Again, this verification process cannot unreasonably delay access. While "unreasonable delay" has not been defined, certain measures have been singled out as being unreasonable. For example, a doctor may not require an individual:

- Who wants a copy of her medical record mailed to her home address to physically come to the doctor's office to request access and provide proof of identity in person.
- To use a web portal for requesting access, as not all individuals will have ready access to the portal.
- To mail an access request, as this would unreasonably delay the covered entity's receipt of the request and thus the individual's access.

While a provider may not require individuals to request access in these manners, a covered entity may permit an individual to do so, and covered entities are being encouraged to offer patients multiple options for access. The balancing being done here is to ensure that the need for verification and security is never used as a pretext for denying otherwise permissible access.

Interestingly, the provider, if it stores information electronically, must produce that information electronically if so requested. This generally means that if a patient wants to see their medical records, they can get them as a PDF file.[2] This is even true where the records are maintained on paper if the office has access to a scanner and can produce an electronic copy.

In providing access to patients, a provider must provide access no later than 30 calendar days from the initial request.[3] It is important to recognize that the 30-day rule is an outer limit, and if an entity can produce records more quickly, and simply waits until the 30-day timeframe to produce them, that might be seen as an unreasonable delay. HHS notes that "individuals may reasonably expect a covered entity to be able to respond in a much faster timeframe when the covered entity is using health information technology in its day-to-day operations."

Not all records are subject to being made available, as noted, and sometimes records may be denied if permitted under the rules. But the general rule for most routine health information is timely access.

The HIPAA statute can impose significant fines and draconian penalties on providers who do not follow the rules and safeguard information. Thus, if an entity has a question about this, it is best not to trust the electronic medical records provider or the information technology department. Getting a solid legal analysis of the company's HIPAA obligations under the new rules is the smartest bet. ■

References

1. Health Insurance Portability and Accountability Act, 45 C.F.R. § 164.514(h).
2. Health Insurance Portability and Accountability Act, 45 C.F.R. § 164.524(c)(2)(i).
3. Health Insurance Portability and Accountability Act, 45 C.F.R. § 164.524(b)(2).

For patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema

POWER

of a LABA/LAMA combination

FULL

audiovisual feedback each time a dose is inhaled

INDICATION

UTIBRON™ NEOHALER® (indacaterol and glycopyrrolate) is a combination of indacaterol and glycopyrrolate indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

Important limitations: UTIBRON NEOHALER is not indicated to treat acute deteriorations of COPD and is not indicated to treat asthma.

IMPORTANT SAFETY INFORMATION

WARNING: ASTHMA-RELATED DEATH

Long-acting beta$_2$-adrenergic agonists (LABAs) increase the risk of asthma-related death. Data from a large placebo-controlled US study that compared the safety of another LABA (salmeterol) or placebo added to usual asthma therapy showed an increase in asthma-related deaths in patients receiving salmeterol. This finding with salmeterol is considered a class effect of all LABAs, including indacaterol, one of the active ingredients in UTIBRON NEOHALER.

The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma.

All LABAs, including indacaterol, are contraindicated in patients with asthma without the use of a long-term asthma-control medication; UTIBRON NEOHALER is also contraindicated in patients with a history of hypersensitivity to indacaterol, glycopyrrolate, or to any of the ingredients.

UTIBRON NEOHALER should not be initiated in patients with acutely deteriorating or potentially life-threatening episodes of COPD or used as rescue therapy for acute episodes of bronchospasm. Acute symptoms should be treated with an inhaled short-acting beta$_2$-agonist.

sunovion

Powerful bronchodilation with UTIBRON™ NEOHALER® (indacaterol/glycopyrrolate)

- **>230 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in two trials (primary end point)**[1]
  - 262 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in Trial 1
  - 231 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in Trial 2
- **Reduction in rescue medication use all day and night with twice-daily UTIBRON NEOHALER vs placebo (secondary end point)**[1,2]
  - UTIBRON NEOHALER is not a rescue inhaler and is not indicated to treat episodes of acute bronchospasm
- **Whirring noise during inhalation confirms correct placement of the capsule in the chamber**[1]
- **Clear capsule design allows patients to visualize any medication left in the capsule and inhale all of the remaining dose**[1]
- **UTIBRON capsules are for oral inhalation only and should not be swallowed**[1]

Sunovion Answers is there for your patients with support and answers. Call 1-844-276-8262 for more information.

Visit www.UTIBRON.com to learn more.

AUC, area under the curve; FEV_1, forced expiratory volume in 1 second; LABA, long-acting $beta_2$-adrenergic agonist; LAMA, long-acting muscarinic antagonist.

UTIBRON NEOHALER should not be used more often, at higher doses than recommended, or in conjunction with other medicines containing LABAs as an overdose may result. Patients who have been taking inhaled short-acting $beta_2$-agonists on a regular basis should be instructed to discontinue their regular use and to use them only for symptomatic relief of acute respiratory symptoms. Clinically significant cardiovascular effects and fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs. Patients using UTIBRON NEOHALER should not use another medicine containing a LABA for any reason.

Immediate hypersensitivity reactions have been reported with UTIBRON NEOHALER. If signs occur, discontinue immediately and institute alternative therapy. UTIBRON NEOHALER should be used with caution in patients with severe hypersensitivity to milk proteins.

As with other inhaled medicines, UTIBRON NEOHALER can produce paradoxical bronchospasm that may be life threatening. If paradoxical bronchospasm occurs following dosing with UTIBRON NEOHALER, it should be treated immediately with an inhaled, short-acting bronchodilator; UTIBRON NEOHALER should be discontinued immediately and alternative therapy instituted.

STUDY DESIGN

The efficacy and safety of UTIBRON NEOHALER was established in two 12-week pivotal trials and one 52-week safety trial.[1,2]

For additional information, please see the Brief Summary of Prescribing Information, including BOXED WARNING, on the following pages.

Please visit www.SunovionProfile.com/UTIBRON for full Prescribing Information and Medication Guide.

References: 1. UTIBRON NEOHALER [prescribing information]. 2017. **2.** Data on file. FLIGHT2 and FLIGHT1 clinical study reports. Sunovion Pharmaceuticals Inc.

utibron™ neohaler®

(indacaterol/glycopyrrolate) inhalation powder 27.5 mcg/15.6 mcg

utibron™ neohaler®

(indacaterol/glycopyrrolate) inhalation powder

BRIEF SUMMARY OF FULL PRESCRIBING INFORMATION

Please see package insert for full Prescribing Information, including Patient Information.

INDICATIONS AND USAGE

UTIBRON™ NEOHALER® is a combination of indacaterol and glycopyrrolate indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

Important Limitations of Use: UTIBRON NEOHALER is NOT indicated for the relief of acute bronchospasm or for the treatment of asthma.

CONTRAINDICATIONS

UTIBRON NEOHALER is contraindicated in patients with asthma without use of a long-term asthma control medication.

UTIBRON NEOHALER is contraindicated in patients who have demonstrated hypersensitivity to indacaterol, glycopyrrolate, or to any of the ingredients.

WARNINGS AND PRECAUTIONS

WARNING: ASTHMA-RELATED DEATH

Long-acting beta$_2$-adrenergic agonists (LABAs) increase the risk of asthma-related death. Data from a large, placebo-controlled U.S. study that compared the safety of another LABA (salmeterol) or placebo added to usual asthma therapy showed an increase in asthma-related deaths in patients receiving salmeterol. This finding with salmeterol is considered a class effect of all LABAs, including indacaterol, one of the active ingredients in UTIBRON NEOHALER.

The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma.

Data from a large, placebo-controlled U.S. study in asthma patients showed that LABAs may increase the risk of asthma-related death. Data are not available to determine whether the rate of death in patients with COPD is increased by LABAs.

A 28-week, placebo-controlled U.S. study comparing the safety of another LABA (salmeterol) with placebo, each added to usual asthma therapy, showed an increase in asthma-related deaths in patients receiving salmeterol (13/13,176 in patients treated with salmeterol versus 3/13,179 in patients treated with placebo; RR 4.37, 95% CI 1.25, 15.34). The increased risk of asthma-related death is considered a class effect of the LABAs, including indacaterol, one of the ingredients in UTIBRON NEOHALER.

No study adequate to determine whether the rate of asthma-related death is increased in patients treated with UTIBRON NEOHALER has been conducted. The safety and efficacy of UTIBRON NEOHALER in patients with asthma have not been established. UTIBRON NEOHALER is not indicated for the treatment of asthma.

Deterioration of Disease and Acute Episodes

UTIBRON NEOHALER should not be initiated in patients with acutely deteriorating or potentially life-threatening episodes of COPD. UTIBRON NEOHALER has not been studied in patients with acutely deteriorating COPD. The initiation of UTIBRON NEOHALER in this setting is not appropriate.

UTIBRON NEOHALER should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. UTIBRON NEOHALER has not been studied in the relief of acute symptoms, and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting beta$_2$-agonist.

When beginning UTIBRON NEOHALER, patients who have been taking oral or inhaled, short-acting beta$_2$-agonists on a regular basis (e.g., 4 times a day) should be instructed to discontinue the regular use of these drugs and use them only for symptomatic relief of acute respiratory symptoms.

When prescribing UTIBRON NEOHALER, the healthcare provider should also prescribe an inhaled, short-acting beta$_2$-agonist and instruct the patient on how it should be used. Increasing inhaled beta$_2$-agonist use is a signal of deteriorating disease for which prompt medical attention is indicated.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If UTIBRON NEOHALER no longer controls the symptoms of bronchoconstriction; the patient's inhaled, short-acting beta$_2$-agonist becomes less effective; or the patient needs more inhalation of short-acting beta$_2$-agonist than usual, these may be markers of deterioration of disease. In this setting, a re-evaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of UTIBRON NEOHALER beyond the recommended dose is not appropriate in this situation.

Excessive Use of UTIBRON NEOHALER and Use with Other Long-Acting Beta$_2$-Adrenergic Agonists

As with other inhaled drugs containing beta$_2$-adrenergics, UTIBRON NEOHALER should not be used more often than recommended, at higher doses than recommended, or in conjunction with other medications containing LABAs, as an overdose may result. Clinically significant cardiovascular effects and fatalities have been reported in association with excessive use of inhaled sympathomimetic drugs. Patients using UTIBRON NEOHALER should not use another medicine containing a LABA for any reason.

Paradoxical Bronchospasm

As with other inhaled medicines, UTIBRON NEOHALER can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with UTIBRON NEOHALER, it should be treated immediately with an inhaled, short-acting bronchodilator; UTIBRON NEOHALER should be discontinued immediately and alternative therapy instituted.

Immediate Hypersensitivity Reactions

Immediate hypersensitivity reactions have been reported after administration of indacaterol or glycopyrrolate, the components of UTIBRON NEOHALER. If signs suggesting allergic reactions occur, in particular, angioedema (including difficulties in breathing or swallowing, swelling of tongue, lips and face), urticaria, or skin rash, UTIBRON NEOHALER should be discontinued immediately and alternative therapy instituted. UTIBRON NEOHALER should be used with caution in patients with severe hypersensitivity to milk proteins.

Cardiovascular Effects

Indacaterol, like other beta$_2$-agonists, can produce a clinically significant cardiovascular effect in some patients as measured by increases in pulse rate, systolic or diastolic blood pressure, or symptoms. If such effects occur, UTIBRON NEOHALER may need to be discontinued. In addition, beta-agonists have been reported to produce ECG changes, such as flattening of the T-wave, prolongation of the QTc interval, and ST segment depression, although the clinical significance of these findings is unknown.

Therefore, UTIBRON NEOHALER should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension.

Coexisting Conditions

UTIBRON NEOHALER, like all medicines containing sympathomimetic amines, should be used with caution in patients with convulsive disorders or thyrotoxicosis, and in patients who are unusually responsive to sympathomimetic amines.

Worsening of Narrow-Angle Glaucoma

UTIBRON NEOHALER should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

Worsening of Urinary Retention

UTIBRON NEOHALER should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

Hypokalemia and Hyperglycemia

Beta$_2$-adrenergic agonists may produce significant hypokalemia in some patients, which has the potential to produce adverse cardiovascular effects. The decrease in serum potassium is usually transient, not requiring supplementation. Inhalation of high doses of beta$_2$-adrenergic agonists may produce increases in plasma glucose.

In patients with severe COPD, hypokalemia may be potentiated by hypoxia and concomitant treatment, which may increase the susceptibility for cardiac arrhythmias.

In 2 clinical trials of 12-weeks duration evaluating UTIBRON NEOHALER in subjects with COPD, there was no evidence of a treatment effect on serum glucose or potassium.

ADVERSE REACTIONS

Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, the adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in clinical trials of another drug and may not reflect the rates observed in clinical practice.

The UTIBRON NEOHALER safety database included 2654 subjects with COPD in two 12-week lung function trials and one 52-week long-term safety study. A total of 712 subjects received treatment with UTIBRON NEOHALER 27.5 mcg/15.6 mcg twice daily (BID). The safety data described below are based on the two 12-week trials and the one 52-week trial.

12-Week Trials

The incidence of adverse reactions associated with UTIBRON NEOHALER in Table 1 is based on two 12-week, placebo-controlled trials (Trials 1 and 2; N=1,001 and N=1,042 respectively). Of the 2040 subjects, 63% were male and 91% were Caucasian. They had a mean age of 63 years and an average smoking history of 47 pack-years, with 52% identified as current smokers. At screening, the mean post-bronchodilator percent predicted forced expiratory volume in 1 second (FEV_1) was 55% (range: 29% to 79%), the mean post-bronchodilator FEV_1/forced vital capacity (FVC) ratio was 50% (range: 19% to 71%), and the mean percent reversibility was 23% (range: 0% to 144%).

The proportion of patients who discontinued treatment due to adverse reactions was 2.95% for the UTIBRON NEOHALER treated patients and 4.13% for placebo-treated patients.

Table 1. Adverse reactions with UTIBRON NEOHALER (greater than or equal to 1% incidence and higher than placebo) in COPD patients

Adverse Reaction	UTIBRON NEOHALER 27.5/15.6 mcg BID (N=508) n (%)	Indacaterol 27.5 mcg BID (N=511) n (%)	Glycopyrrolate 15.6 mcg BID (N=513) n (%)	Placebo (N=508) n (%)
Naso-pharyngitis	21 (4.1)	13 (2.5)	12 (2.3)	9 (1.8)
Hypertension	10 (2.0)	5 (1.0)	3 (0.6)	7 (1.4)
Back pain	9 (1.8)	7 (1.4)	2 (0.4)	3 (0.6)
Oropharyngeal pain	8 (1.6)	4 (0.8)	8 (1.6)	6 (1.2)

Other adverse reactions occurring more frequently with UTIBRON NEOHALER than with placebo, but with an incidence of less than 1% include dyspepsia, gastroenteritis, chest pain, fatigue, peripheral edema, rash/pruritus, insomnia, dizziness, bladder obstruction/urinary retention, atrial fibrillation, palpitations, tachycardia.

52-Week Trial

In a long-term safety trial, 614 subjects were treated for up to 52 weeks with indacaterol/glycopyrrolate 27.5 mcg/15.6 mcg twice-daily, indacaterol/glycopyrrolate 27.5/31.2 mcg twice-daily or indacaterol 75 mcg once-daily. The demographic and baseline characteristics of the long-term safety trial were similar to those of the placebo-controlled efficacy trials described above. The adverse reactions reported in the long-term safety trial were consistent with those observed in the placebo-controlled trials of 12 weeks.
Additional adverse reactions that occurred with a frequency greater than or equal to 2% in the group receiving indacaterol/glycopyrrolate 27.5 mcg/15.6 mcg twice-daily that exceeded the frequency of indacaterol 75 mcg once-daily in this trial were upper and lower respiratory tract infection, pneumonia, diarrhea, headache, gastroesophageal reflux disease, hyperglycemia, rhinitis.

Postmarketing Experience
The following additional adverse reactions of angioedema and dysphonia have been identified during worldwide post-approval use of indacaterol/glycopyrrolate at higher than the recommended dose. Because this reaction is reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate the frequency or establish a causal relationship to drug exposure.

DRUG INTERACTIONS

Adrenergic Drugs
If additional adrenergic drugs are to be administered by any route, they should be used with caution because the sympathetic effects of indacaterol, a component of UTIBRON NEOHALER, may be potentiated.

Xanthine Derivatives, Steroids, or Diuretics
Concomitant treatment with xanthine derivatives, steroids, or diuretics may potentiate any hypokalemic effect of $beta_2$-adrenergic agonists such as indacaterol, a component of UTIBRON NEOHALER.

Non-Potassium-Sparing Diuretics
The electrocardiographic (ECG) changes and/or hypokalemia that may result from the administration of non-potassium-sparing diuretics (such as loop or thiazide diuretics) can be acutely worsened by beta-agonists, such as indacaterol, a component of UTIBRON NEOHALER, especially when the recommended dose of the beta-agonist is exceeded. Although the clinical relevance of these effects is not known, caution is advised in the coadministration of UTIBRON NEOHALER with non-potassium-sparing diuretics.

Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, QTc-Prolonging Drugs
Indacaterol, one of the components of UTIBRON NEOHALER, as with other $beta_2$-agonists, should be administered with extreme caution to patients being treated with monoamine oxidase inhibitors, tricyclic antidepressants, or other drugs known to prolong the QTc interval because the action of adrenergic agonists on the cardiovascular system may be potentiated by these agents. Drugs that are known to prolong the QTc interval may have an increased risk of ventricular arrhythmias.

Beta-Blockers
Beta-adrenergic receptor antagonists (beta-blockers) and UTIBRON NEOHALER may interfere with the effect of each other when administered concurrently. Beta-blockers not only block the therapeutic effects of beta-agonists, but may produce severe bronchospasm in COPD patients. Therefore, patients with COPD should not normally be treated with beta-blockers. However, under certain circumstances, e.g., as prophylaxis after myocardial infarction, there may be no acceptable alternatives to the use of beta-blockers in patients with COPD. In this setting, cardioselective beta-blockers could be considered, although they should be administered with caution.

Anticholinergics
There is potential for an additive interaction with concomitantly used anticholinergic medicines. Therefore, avoid coadministration of UTIBRON NEOHALER with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic adverse effects.

Inhibitors of Cytochrome P450 3A4 and P-gp Efflux Transporter
Drug interaction studies with indacaterol, a component of UTIBRON NEOHALER, were carried out using potent and specific inhibitors of CYP3A4 and P-gp (i.e., ketoconazole, erythromycin, verapamil, and ritonavir). The data suggest that systemic clearance of indacaterol is influenced by modulation of both P-gp and CYP3A4 activities and that the 2-fold area under the curve (AUC) increase caused by the strong dual inhibitor ketoconazole reflects the impact of maximal combined inhibition. Indacaterol was evaluated in clinical trials for up to 1 year at doses up to 600 mcg. Inhibition of the key contributors of indacaterol clearance, CYP3A4 and P-gp, has no impact on safety of therapeutic doses of indacaterol. Therefore, no dose adjustment is warranted at the recommended 27.5/15.6 mcg twice-daily dose for UTIBRON NEOHALER when administered concomitantly with inhibitors of CYP3A4 and P-gp.

USE IN SPECIFIC POPULATIONS

Pregnancy
Teratogenic Effects: Pregnancy Category C
There are no adequate and well-controlled studies with UTIBRON NEOHALER or its individual components, indacaterol and glycopyrrolate, in pregnant women. Animal reproduction studies were conducted with individual components, indacaterol and glycopyrrolate. Because animal reproduction studies are not always predictive of human response, UTIBRON NEOHALER should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Women should be advised to contact their physician if they become pregnant while taking UTIBRON NEOHALER.

Indacaterol: Indacaterol was not teratogenic in Wistar rats and New Zealand rabbits at approximately 340 and 770 times, respectively, the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 1 mg/kg/day in rats and rabbits).

Glycopyrrolate: Glycopyrrolate was not teratogenic in Wistar rats or New Zealand White rabbits at approximately 1400 and 530 times, respectively, the MRHD in adults (on an AUC basis at maternal inhaled doses up to 3.83 mg/kg/day in rats and up to 4.4 mg/kg/day in rabbits).

Non-teratogenic Effects:
Indacaterol: There were no effects on perinatal and postnatal developments in rats at approximately 110 times the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 0.3 mg/kg/day).

Glycopyrrolate: There were no effects on perinatal and postnatal developments in rats at approximately 1100 times the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 1.88 mg/kg/day).

Labor and Delivery
There are no adequate and well-controlled human trials that have investigated the effects of UTIBRON NEOHALER during labor and delivery. Because beta-agonists may potentially interfere with uterine contractility, UTIBRON NEOHALER should be used during labor only if the potential benefit justifies the potential risk.

In human parturients undergoing Caesarean section, 86 minutes after a single intramuscular injection of 0.006 mg/kg glycopyrrolate, umbilical plasma concentrations were low.

Nursing Mothers
UTIBRON NEOHALER: It is not known whether UTIBRON NEOHALER is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when UTIBRON NEOHALER is administered to a nursing woman. Since there are no data from well-controlled human studies on the use of UTIBRON NEOHALER by nursing mothers, based on the data for the individual components, a decision should be made whether to discontinue nursing or to discontinue UTIBRON NEOHALER, taking into account the importance of UTIBRON NEOHALER to the mother.

Indacaterol: It is not known whether indacaterol is excreted in human breast milk. Indacaterol (including its metabolites) have been detected in the milk of lactating rats.

Glycopyrrolate: It is not known whether glycopyrrolate is excreted in human breast milk. Glycopyrrolate (including its metabolites) have been detected in the milk of lactating rats and reached up to 10-fold higher concentrations in the milk than in the blood of the dam.

Pediatric Use
UTIBRON NEOHALER is not indicated for use in children. The safety and efficacy of UTIBRON NEOHALER in pediatric patients have not been established.

Geriatric Use
Based on available data, no adjustment of UTIBRON NEOHALER dosage in geriatric patients is warranted. UTIBRON NEOHALER can be used at the recommended dose in elderly patients 75 years of age and older.

Of the total number of subjects in clinical studies of UTIBRON NEOHALER, 45% were aged 65 and older, while 11% were aged 75 and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

Renal Impairment
Based on the pharmacokinetic characteristics of its monotherapy components, UTIBRON NEOHALER can be used at the recommended dose in patients with mild to moderate renal impairment. In patients with severe renal impairment (estimated GFR less than 30 mL/min/1.73 m^2) or end-stage renal disease requiring dialysis, UTIBRON NEOHALER should be used if the expected benefit outweighs the potential risk since the systemic exposure to glycopyrrolate may be increased in this population.

Hepatic Impairment
Based on the pharmacokinetic characteristics of its monotherapy components, UTIBRON NEOHALER can be used at the recommended dose in patients with mild to moderate hepatic impairment. Studies in subjects with severe hepatic impairment have not been performed.

OVERDOSAGE
In COPD patients, doses of up to 600/124.8 mcg UTIBRON NEOHALER were inhaled over 2 weeks and there were no relevant effects on heart rate, QTc interval, blood glucose or serum potassium. There was an increase in ventricular ectopies after 14 days of dosing with 300/124.8 mcg and 600/124.8 mcg UTIBRON NEOHALER, but low prevalence and small patient numbers (N=49 and N=51 for 600/124.8 mcg and 300/124.8 mcg UTIBRON NEOHALER, respectively) precluded accurate analysis. In a total of four patients, non-sustained ventricular tachycardia was recorded, with the longest episode recorded being 9 beats (4 seconds).

UTIBRON NEOHALER contains both indacaterol and glycopyrrolate; therefore, the risks associated with overdosage for the individual components described below apply to UTIBRON NEOHALER. Treatment of overdosage consists of discontinuation of UTIBRON NEOHALER together with institution of appropriate symptomatic and/or supportive therapy. The judicious use of a cardioselective beta-receptor blocker may be considered, bearing in mind that such medicine can produce bronchospasm. Cardiac monitoring is recommended in cases of overdosage.

Indacaterol
The potential signs and symptoms associated with overdosage of indacaterol are those of excessive beta-adrenergic stimulation and occurrence or exaggeration of any of the signs and symptoms, e.g., angina, hypertension or hypotension, tachycardia, with rates up to 200 bpm, arrhythmias, nervousness, headache, tremor, dry mouth, palpitation, muscle cramps, nausea, vomiting, drowsiness, dizziness, fatigue, malaise, hypokalemia, hyperglycemia, metabolic acidosis and insomnia. As with all inhaled sympathomimetic medications, cardiac arrest and even death may be associated with an overdose of indacaterol.

In COPD patients, single doses of indacaterol 3000 mcg were associated with moderate increases in pulse rate, systolic blood pressure and QTc interval.

Glycopyrrolate
An overdose of glycopyrrolate may lead to anticholinergic signs and symptoms such as nausea, vomiting, dizziness, lightheadedness, blurred vision, increased intraocular pressure (causing pain, vision disturbances or reddening of the eye), obstipation or difficulties in voiding.

In COPD patients, repeated orally inhaled administration of glycopyrrolate at total doses of 124.8 mcg and 249.6 mcg once-daily for 28 days were well tolerated.

PATIENT COUNSELING INFORMATION
Advise the patient to read the FDA-approved patient labeling (Medication Guide and Instructions for Use).

sunovion

Manufactured for:
Sunovion Pharmaceuticals Inc.
Marlborough, MA 01752 USA

For customer service, call 1-888-394-7377.

Update on E-Cigarette and Hookah Smoking

by Amanda Richter, MHA, RRT, RPFT, RRT-NPS, RRT-ACCS, FACHE

It is no secret that cigarette smoking is the leading preventable cause of mortality in the United States and worldwide. The prevalence of tobacco cigarette use has declined in most countries, including the United States, where smoking among adults has declined from 42.4% in 1965 to approximately 15% in 2015.[1]

While cigarettes continue to be the most common tobacco product used in the United States, the use of non-cigarette forms of tobacco is increasing. In fact, 40% of U.S. tobacco users use tobacco in more than one form.[2] Public health concerns related to alternative devices include the renormalization of tobacco use and the potential to increase youth utilization and initiation of tobacco products.[3]

Electronic cigarettes, or e-cigarettes, are a type of electronic nicotine delivery system (ENDS), which entered the U.S. market around 2006. ENDS are battery-operated devices that utilize heat to turn a liquid, referred to as e-liquid or e-juice, into a vapor. Other forms of ENDS include e-cigars, e-pipes or e-hookahs, and vape pens, and utilization of these devices is known as vaping.[4]

Observational data examining the long-term health effects of e-cigarettes do not exist at this time. Because vaping doesn't expose the user to the known harmful components of cigarette smoke, many experts believe that inhaling e-cigarette vapor is likely to be less harmful than inhaling cigarette smoke.[5] There is still little known, however, about the consequences of chronic inhalation of e-cigarette vapor or the overall safety of heating and aerosolizing components within the e-liquid.

The typical e-liquid constituents are propylene glycol, nicotine, and flavorings. Unfortunately, it is difficult to know what e-cigarette products contain. For example, some e-cigarettes marketed as being nicotine-free have been found to contain nicotine.[6] A variety of other compounds have also been identified, including volatile organic compounds, carcinogens, and metals such as nickel, tin, and lead.[7] At high temperatures, propylene glycol decomposes and may form propylene oxide, a probable human carcinogen. Levels of toxic and carcinogenic compounds likely vary across liquid components and depending on the device used.[8]

As use of e-cigarettes has grown, recreational and professional vaping activities have developed, creating a demand for bigger and better vape. This is often achieved through device modifications — known as "hacks" — or even homemade devices. Other concerning activities include dripping, which involves disassembling a device to drip the e-liquid directly onto the coil to produce a larger and denser aerosol.[9]

Nicotine addiction is a concern, especially for youth. For the first time ever, e-cigarette usage in adolescents is surpassing traditional cigarette usage. The use of e-cigarettes among high school students increased by 900% from 2011 to 2015. Nicotine is highly addictive and can harm the brain development of adolescents.[7]

The e-liquid component also poses risks such as accidental poisoning. Nicotine is rapidly absorbed through the skin and poses a threat, particularly to small children. Data show that 42% of nicotine exposure related calls made to poison control centers in the United States are related to e-cigarettes. A lethal dose of nicotine has been estimated to be as little as 40 mg/kg in adults and 1 mg/kg in children. Several instances of nicotine exposure from e-liquid have resulted in serious injury and even death.[10]

about the authors...

Amanda Richter, MHA, RRT, RPFT, RRT-NPS, RRT-ACCS, FACHE is the cardiopulmonary and ICU director at Metroplex Adventist Hospital in Killeen, TX.

Defective e-cigarettes and e-cigarette batteries have caused explosions and fires, in some cases causing serious injuries. There have been alarming increases in emergency department visits by patients presenting with burns of various degrees because of device explosions.[11]

Hookah smoking differs in that it is not a "new" form of tobacco delivery; it dates back centuries. Hookah devices, or water pipes, utilize flavored tobacco, called shisha, which is heated to produce smoke that passes through water to cool before being drawn through a rubber hose to a mouthpiece. This form of tobacco smoking is increasing in popularity in the United States, especially among young adults.

Hookah smoking poses many of the same health risks as cigarette smoking.[12] The smoke contains tar, carbon monoxide, and other toxins found in cigarette smoke, and also raises concern for secondhand exposure. In a typical 1-hour hookah session, there is an average of 200 puffs and 90,000 mL of smoke inhaled, whereas smoking a cigarette averages 20 puffs and 500–600 mL of smoke inhaled. A meta-analysis of six cross-sectional studies found that hookah smoking negatively affects lung function, particularly in reducing FEV^{1}.[13] Transmission of infectious diseases is also possible because hookah smoking is typically a social or group activity, with a single mouthpiece passed from person to person.[14]

With a rising trend in the use of alternative tobacco products and the continuous evolution of technology, we are likely to see many new devices in the future. Although not yet available in the U.S. market, heat-not-burn (HNB) tobacco cigarettes are growing in popularity worldwide. HNBs are battery-operated devices that heat tobacco to create an aerosol, albeit at a lower temperature compared to e-cigarettes; this aerosol is said to contain lower amounts of harmful constituents than traditional cigarette smoke.[15] As new devices enter the market, research will be needed to understand their effects.

Respiratory therapists can take the opportunity to screen patients, discuss misconceptions, and provide counseling and education regarding smoking and utilization of alternative tobacco products. The "5 A's" model is a useful tool for assessing tobacco use: *Ask* about tobacco use, *Advise* users to quit, *Assess* willingness to quit, *Assist* with information, and *Arrange* support efforts.[16] Patients should also be encouraged to utilize FDA-approved cessation aids for quit attempts. Patients who are unwilling to use evidence-based approaches but ask about using e-cigarettes should not necessarily be discouraged.

There are many misconceptions that using these alternative devices is safe. While it is probable that inhaling e-cigarette vapor will be less harmful than cigarette smoke, it isn't necessarily safe. These devices continue to expose the user to nicotine, and the health consequences and risks for respiratory function of vapor exposure are unknown. It is important to ensure the smoker is informed about the uncertainties of the safety and efficacy of these devices. ■

References

1. Jamal A, King BA, Neff LJ, Whitmill J, Babb SD, Graffunder CM. Current cigarette smoking among adults - United States, 2005–2015. MMWR Morb Mortal Wkly Rep 2016;65:1205–1211.
2. Kasza KA, Ambrose BK, Conway KP, Borek N, Taylor K, Goniewicz ML, et al. Tobacco-product use by adults and youths in the United States in 2013 and 2014. N Engl J Med 2017;376:342–353.
3. Harrell PT, Simmons VN, Correa JB, Padhya TA, Brandon TH. Electronic nicotine delivery systems ("e-cigarettes"): review of safety and smoking cessation efficacy. Otolaryngol Head Neck Surg 2014;151:381–393.
4. U.S. Food and Drug Administration. Vaporizers, E-Cigarettes, and other Electronic Nicotine Delivery Systems (ENDS). Available at: https://www.fda.gov/TobaccoProducts/Labeling/ProductsIngredientsComponents/ucm456610.htm *Accessed February 20, 2018.*
5. Glynn TJ. E-cigarettes and the future of tobacco control. CA Cancer J Clin 2014;64:164.
6. Goniewicz ML, Gupta R, Lee YH, Reinhardt S, Kim S, Kim B, et al. Nicotine levels in electronic cigarette refill solutions: a comparative analysis of products from the U.S., Korea, and Poland. Int J Drug Policy. 2015;26(6):583–588.
7. U.S. Department of Health and Human Services. E-cigarette use among youth and young adults: a report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services; 2016.
8. Abrams DB. Promise and peril of e-cigarettes: can disruptive technology make cigarettes obsolete? JAMA 2014;311:135–136.
9. Krishnan-Sarin S, Morean M, Kong G, Bold KW, Camenga DR, Cavallo DA, et al. E-cigarettes and "dripping" among high-school youth. Pediatrics 2017;139(3):e20163224.
10. Seo AD, Kim DC, Yu HJ, Kang MJ. Accidental ingestion of e-cigarette liquid nicotine in a 15-month-old child: an infant mortality case of nicotine intoxication. Korean J Pediatr. 2016;59(12):490–493.
11. Toy J, Dong F, Lee C, Zappa D, Le T, Archambeau B, et al. Alarming increase in electronic nicotine delivery systems-related burn injuries: A serious unregulated public health issue. Am J Emerg Med. 2017;35(11):1781–1782.
12. American Lung Association. An emerging deadly trend: waterpipe tobacco use. Washington, DC: American Lung Association; 2007.
13. Raad D, Gaddam S, Schunemann HJ, Irani J, Abou Jaoude P, Honeine R, Akl EA. Effects of water-pipe smoking on lung function: a systematic review and meta-analysis. Chest 2011;139:764–774.
14. Cobb CO, Ward KD, Maziak W, Shihadeh AL, Eissenberg T. Waterpipe tobacco smoking: an emerging health crisis in the United States. Am J Health Behav 2010;34(3):275–285.
15. Auer R, Concha-Lozano N, Jacot-Sadowski I, Cornuz J, Berthet A. Heat-not-burn tobacco cigarettes: smoke by any other name. JAMA Intern Med 2017;177:1050–1052.
16. The Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel, Liaisons, and Staff. A clinical practice guideline for treating tobacco use and dependence: 2008 update: a U.S. Public Health Service Report. Am J Prev Med 2008;35(2):158–176.

A Standout Hospital Deserves a Standout RT Department

by Debbie Bunch

Boston's Children's Hospital regularly makes the "Best Children's Hospital" list published by *U.S. News & World Report*. For 2017–2018, the hospital came in at number one on the Children's Hospital Honor Roll and ranked in the Top Ten in 10 pediatric specialties, including pediatric pulmonology, where it came in at number three nationwide. The hospital has also received recognition as an Extracorporeal Life Support Organization Center of Excellence, and it was awarded Magnet status by the American Nurses' Credentialing Center.

Therapists at Boston Children's Hospital are proud of their Apex recognition

Boston's Children's Hospital is clearly a place where recognition matters. Now the respiratory care department has added a special recognition of its own by earning the Apex Award from the AARC.

Hitting the pause button

Department Director Peter Betit, MBA, RRT, RRT-NPS, FAARC, says applying for awards like the Apex is strongly encouraged by his organization, and there was no question that his department would go after it. It also provided the RT department a chance to step back and take a close look at its own operations.

"This was an opportunity for us to pause and complete a self-assessment," says Betit. Given the comprehensive nature of the Apex program requirements, he and his colleagues had to look at everything from their quality-improvement initiatives to their use of evidence-based protocols. For them, the most difficult hurdles to cross were related to AARC membership among the staff and staffing requirement in the Apex program. The latter posed a challenge because staffing at Boston Children's is not solely based on relative value units or similar metrics. Because the requirements address that possibility, however, they were able to fulfill this requirement by showing a copy of the department staffing policy demonstrating that the department adheres to a policy based on the clinical full-time equivalent as a per-time-based unit.

Meeting the Apex requirement calling for at least half of current clinical staff members to be AARC members took some creative thinking. "Encouraging staff to become a member of the AARC is always a challenge," explains Betit. "While the benefits and reasonable dues are appreciated, it simply falls off people's radar screen." He and his colleagues put it back on the radar screen by appealing to staff members' sense of professionalism. "We really did a big campaign with daily reminders and ongoing conversations," says Betit. Giving back to the profession was a central theme.

The Apex Recognition Award

The AARC developed the Apex Recognition Award to acknowledge the significant contributions of respiratory therapists and highlight best practices in respiratory care that are aligned with evidence-based medicine. The program can also help consumers choose health care facilities that promote patient safety by providing access to respiratory therapists to deliver their care.

Apex recognition is available for acute care hospitals, long-term care facilities, and home medical equipment companies. A complete set of resources is available on the AARC website for facilities that would like to apply for the recognition. Visit http://www.aarc.org/resources/programs-projects/apex-recognition-award/ to learn more about this great award program from the AARC to recognize excellence in respiratory care. Applications for the 2019–2020 Apex award will open in October 2018. ■

"We do good work"

Boston Children's has touted the department's Apex Award to a number of its communities of interest. "This recognition was well publicized throughout our organization and further highlighted the contributions that we make to our institution and patient care," says Betit.

In addition to being included in several public-relations forums, the Apex Award was announced during presentations made by ICU and hospital leadership, and the department is planning to use it in its staff recruiting efforts. This all reinforces the strong presence long enjoyed by the respiratory care department at Boston Children's. "We have always been the can-do department and have been well respected across all areas of the organization," notes Betit. "This recognition has punctuated that perception and our commitment toward excellence."

The RT staff has noticed, too. Now when the days are long, the care is complex, and everyone is working at full capacity, they have something to point to showing that the world acknowledges the dedication they have to their profession. Says the department director, "It is gratifying to come in to work day to day and see that recognition on display and reflect, 'Yeah, we do good work.'" ■

RT staff members at Boston Children's Hospital were honored to receive one of the first AARC Apex Awards.

For patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema

SUCCESS

of a proven LAMA

FULL

audiovisual feedback each time a dose is inhaled

INDICATION

SEEBRI™ NEOHALER® (glycopyrrolate) is an anticholinergic indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

IMPORTANT SAFETY INFORMATION

SEEBRI NEOHALER is contraindicated in patients with a hypersensitivity to glycopyrrolate or to any of the ingredients.

SEEBRI NEOHALER should not be initiated in patients with acutely deteriorating or potentially life-threatening episodes of COPD or used as rescue therapy for acute episodes of bronchospasm. Acute symptoms should be treated with an inhaled short-acting beta$_2$-agonist.

As with other inhaled medicines, SEEBRI NEOHALER can produce paradoxical bronchospasm that may be life threatening. If paradoxical bronchospasm occurs following dosing with SEEBRI NEOHALER, it should be treated immediately with an inhaled, short-acting bronchodilator; SEEBRI NEOHALER should be discontinued immediately and alternative therapy instituted.

Immediate hypersensitivity reactions have been reported with SEEBRI NEOHALER. If signs occur, discontinue immediately and institute alternative therapy. SEEBRI NEOHALER should be used with caution in patients with severe hypersensitivity to milk proteins.

sunovion

Improved symptom control all day and night with twice-daily SEEBRI™ NEOHALER® (glycopyrrolate)

- **>120 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in two trials (primary end point)**[1]
  - 139 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in Trial 1
  - 123 mL improvement in FEV_1 $AUC_{0\text{-}12hr}$ vs placebo at Week 12 in Trial 2
- **Reduction in rescue medication use all day and night with twice-daily SEEBRI NEOHALER vs placebo (secondary end point)**[1,2]
  - SEEBRI NEOHALER is not a rescue inhaler and is not indicated to treat episodes of acute bronchospasm
- **Whirring noise during inhalation confirms correct placement of the capsule in the chamber**[1]
- **Clear capsule design allows patients to visualize any medication left in the capsule and inhale all of the remaining dose**[1]
- **SEEBRI capsules are for oral inhalation only and should not be swallowed**[1]

Sunovion Answers is there for your patients with support and answers. Call 1-844-276-8262 for more information.

Visit www.SEEBRI.us to learn more.

AUC, area under the curve; FEV_1, forced expiratory volume in 1 second; LAMA, long-acting muscarinic antagonist.

SEEBRI NEOHALER should be used with caution in patients with narrow-angle glaucoma and in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema) and of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Patients should be instructed to consult a physician immediately should any of these signs or symptoms develop.

STUDY DESIGN

The efficacy of SEEBRI NEOHALER was established in two 12-week, pivotal trials. The safety of SEEBRI NEOHALER was established in four 12-week lung-function trials and one 52-week, long-term study.[1,2]

For additional information, please see the Brief Summary of Prescribing Information on the following pages.

Please visit www.SunovionProfile.com/SEEBRI for full Prescribing Information and Patient Information.

References: 1. SEEBRI NEOHALER [prescribing information]. 2017. 2. Data on file. GEM1 and GEM2 clinical study reports. Sunovion Pharmaceuticals Inc.

seebri™ neohaler®

(glycopyrrolate) inhalation powder 15.6 mcg

seebri™ neohaler®

(glycopyrrolate) inhalation powder

BRIEF SUMMARY OF FULL PRESCRIBING INFORMATION

Please see package insert for full Prescribing Information, including Patient Information.

INDICATIONS AND USAGE

SEEBRI™ NEOHALER® is indicated for the long-term, maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema.

CONTRAINDICATIONS

SEEBRI NEOHALER is contraindicated in patients who have demonstrated hypersensitivity to glycopyrrolate or to any of the ingredients.

WARNINGS AND PRECAUTIONS

Deterioration of Disease and Acute Episodes

SEEBRI NEOHALER should not be initiated in patients during acutely deteriorating or potentially life-threatening episodes of COPD. SEEBRI NEOHALER has not been studied in subjects with acutely deteriorating COPD. The initiation of SEEBRI NEOHALER in this setting is not appropriate.

SEEBRI NEOHALER should not be used for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. SEEBRI NEOHALER has not been studied in the relief of acute symptoms and extra doses should not be used for that purpose. Acute symptoms should be treated with an inhaled, short-acting $beta_2$-agonist.

COPD may deteriorate acutely over a period of hours or chronically over several days or longer. If SEEBRI NEOHALER no longer controls symptoms of bronchoconstriction; the patient's inhaled, short-acting $beta_2$-agonist becomes less effective; or the patient needs more inhalation of a short-acting $beta_2$-agonist than usual, these may be markers of deterioration of disease. In this setting, a re-evaluation of the patient and the COPD treatment regimen should be undertaken at once. Increasing the daily dose of SEEBRI NEOHALER beyond the recommended dose is not appropriate in this situation.

Paradoxical Bronchospasm

As with other inhaled medicines, SEEBRI NEOHALER can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with SEEBRI NEOHALER, it should be treated immediately with an inhaled, short-acting bronchodilator; SEEBRI NEOHALER should be discontinued immediately, and alternative therapy instituted.

Immediate Hypersensitivity Reactions

Immediate hypersensitivity reactions have been reported after administration of SEEBRI NEOHALER. If signs suggesting allergic reactions occur, in particular, angioedema (including difficulties in breathing or swallowing, swelling of the tongue, lips, and face), urticaria, or skin rash, SEEBRI NEOHALER should be discontinued immediately and alternative therapy instituted. SEEBRI NEOHALER should be used with caution in patients with severe hypersensitivity to milk proteins.

Worsening of Narrow-Angle Glaucoma

SEEBRI NEOHALER should be used with caution in patients with narrow-angle glaucoma. Prescribers and patients should be alert for signs and symptoms of acute narrow-angle glaucoma (e.g., eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema). Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

Worsening of Urinary Retention

SEEBRI NEOHALER should be used with caution in patients with urinary retention. Prescribers and patients should be alert for signs and symptoms of urinary retention (e.g., difficulty passing urine, painful urination), especially in patients with prostatic hyperplasia or bladder-neck obstruction. Instruct patients to consult a physician immediately should any of these signs or symptoms develop.

ADVERSE REACTIONS

Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, the adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in clinical trials of another drug and may not reflect the rates observed in clinical practice.

The SEEBRI NEOHALER safety database included 3415 subjects with COPD in four 12-week lung function trials and one 52-week long-term safety study. A total of 1202 subjects received treatment with SEEBRI NEOHALER 15.6 mcg twice-daily (BID). The safety data described below are based on the four 12-week trials and the one 52-week trial.

12-Week Trials

The incidence of adverse reactions associated with SEEBRI NEOHALER in Table 1 is based on four 12-week, placebo-controlled trials in 2908 subjects with COPD. In the total population, 61.2% of patients had moderate COPD and 37.8% had severe COPD. Overall, 62% were males, 90% were Caucasian, and the mean age was 63 years (ranging from 41 to 89 years). In this population, 53% were identified as current smokers with an average smoking history of 48 pack-years.

The proportion of subjects who discontinued treatment due to adverse reactions was 2.4% for the SEEBRI NEOHALER-treated patients and 3.8% for placebo-treated patients.

Table 1. Adverse reactions with SEEBRI NEOHALER (greater than or equal to 1% incidence and higher than placebo) in COPD patients

Adverse Reaction	SEEBRI NEOHALER 15.6 mcg BID (N=951) n (%)	Placebo (N=938) n (%)
Upper respiratory tract infection	32 (3.4)	22 (2.3)
Nasopharyngitis	20 (2.1)	18 (1.9)
Urinary tract infection	13 (1.4)	12 (1.3)
Sinusitis	13 (1.4)	7 (0.7)
Oropharyngeal pain	17 (1.8)	11 (1.2)

Other adverse reactions occurring more frequently with SEEBRI NEOHALER than with placebo, but with an incidence of less than 1% include rash, pruritus, gastroenteritis, hypersensitivity, atrial fibrillation, insomnia, pain in extremity, dysuria, vomiting, productive cough, and diabetes mellitus/hyperglycemia.

52-Week Trial

In a long-term safety trial, 507 subjects were treated for up to 52 weeks with glycopyrrolate 15.6 mcg twice-daily or indacaterol 75 mcg once-daily. The demographic and baseline characteristics of the long-term safety trial were similar to those of the placebo-controlled efficacy trials described above. The adverse reactions reported in the long-term safety trial were consistent with those observed in the placebo-controlled trials of 12 weeks. Additional adverse reactions that occurred with a frequency greater than or equal to 2% in the group receiving glycopyrrolate 15.6 mcg twice-daily that exceeded the frequency of indacaterol 75 mcg once-daily in this trial were: diarrhea, nausea, upper abdominal pain, fatigue, bronchitis, pneumonia, rhinitis, back pain, arthralgia, dyspnea, and wheezing.

Postmarketing Experience

The following additional adverse reactions have been identified during worldwide post-approval use of glycopyrrolate, the active ingredient in SEEBRI NEOHALER, at higher than the recommended dose. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. These adverse reactions are: angioedema, paradoxical bronchospasm and dysphonia.

DRUG INTERACTIONS

Anticholinergics

There is a potential for an additive interaction with concomitantly used anticholinergic medications. Therefore, avoid coadministration of SEEBRI NEOHALER with other anticholinergic-containing drugs as this may lead to an increase in anticholinergic effects.

USE IN SPECIFIC POPULATIONS

Pregnancy

Teratogenic Effects: Pregnancy Category C

There are no adequate and well-controlled studies with SEEBRI NEOHALER in pregnant women. Because animal reproduction studies are not always predictive of human response, SEEBRI NEOHALER should only be used during pregnancy if the potential benefit to the patient justifies the potential risk to the fetus. Women should be advised to contact their physician if they become pregnant while taking SEEBRI NEOHALER.

Glycopyrrolate was not teratogenic in Wistar rats and New Zealand White rabbits at approximately 1400 and 530 times, respectively, the MRHD in adults (on an AUC basis at maternal inhaled doses up to 3.83 mg/kg/day in rats and up to 4.4 mg/kg/day in rabbits).

Non-teratogenic Effects:

Glycopyrrolate had no effects on peri-natal and post-natal developments in rats at approximately 1100 times the MRHD in adults (on an AUC basis at maternal subcutaneous doses up to 1.88 mg/kg/day).

Labor and Delivery

There are no adequate and well-controlled human trials that have investigated the effects of SEEBRI NEOHALER during labor and delivery. In human parturients undergoing Caesarean section, 86 minutes after a single intramuscular injection of 0.006 mg/kg glycopyrrolate, umbilical plasma concentrations were low.

Nursing Mothers

It is not known whether SEEBRI NEOHALER is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when SEEBRI NEOHALER is administered to a nursing woman. Since there are no data from well-controlled human studies on the use of SEEBRI NEOHALER by nursing mothers, a decision should be made whether to discontinue nursing or to discontinue SEEBRI NEOHALER, taking into account the importance of SEEBRI NEOHALER to the mother.

It is not known whether glycopyrrolate is excreted in human breast milk. Glycopyrrolate (including its metabolites) have been detected in the milk of lactating rats and reached up to 10-fold higher concentrations in the milk than in the blood of the dam.

Pediatric Use

SEEBRI NEOHALER is not indicated for use in children. The safety and efficacy of SEEBRI NEOHALER in pediatric patients have not been established.

Geriatric Use

Based on available data, no adjustment of the dosage of SEEBRI NEOHALER in geriatric patients is warranted. SEEBRI NEOHALER can be used at the recommended dose in elderly patients 75 years of age and older.

Of the total number of subjects in clinical studies of SEEBRI NEOHALER, 45% were aged 65 and older, while 10% were aged 75 and older. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

Renal Impairment

No dose adjustment is required for patients with mild and moderate renal impairment. SEEBRI NEOHALER should be used in patients with severe renal impairment (estimated GFR less than 30 mL/min/1.73m^2), including those with end-stage renal disease requiring dialysis, if the expected benefit outweighs the potential risk since the systemic exposure to glycopyrrolate may be increased in this population.

Hepatic Impairment

No dose adjustment is required for patients with hepatic impairment. The effects of hepatic impairment on the pharmacokinetics of glycopyrrolate have not been studied.

OVERDOSAGE

An overdose of glycopyrrolate may lead to anticholinergic signs and symptoms such as nausea, vomiting, dizziness, lightheadedness, blurred vision, increased intraocular pressure (causing pain, vision disturbances, or reddening of the eye), obstipation or difficulties in voiding.

In COPD patients, repeated orally inhaled administration of SEEBRI NEOHALER at total doses of 124.8 and 249.6 mcg once-daily for 28 days were well tolerated.

PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information and Instructions for Use).

sunovion

Manufactured for:
Sunovion Pharmaceuticals Inc. Marlborough, MA 01752 USA

To report suspected adverse reactions, call 1-877-737-7226.
For customer service, call 1-888-394-7377.

Chronic Disease Manager

Starting the Conversation about Nicotine Dependence

by Georgianna Sergakis, PhD, RRT, CTTS, FAARC

If you ask an individual about their relationship with tobacco, you will likely hear, "It's complicated." Quitting tobacco use is also a complex intersection of a variety of factors. As cardiopulmonary health experts, our assessment should include careful evaluation of the delicate balance of motivation to quit and the degree to which the individual is dependent on (addicted to) nicotine.[1] To not consider both the severity of nicotine dependence and the individual's readiness to quit is like providing a patient with oxygen therapy without assessing work of breathing and quantifying oxygenation status. This article will discuss several methods to assess dependence and will explore practical tips for starting and continuing the crucial conversation about tobacco addiction. As an added bonus, we will explore practical tips from practicing therapists.

about the author...

Georgianna Sergakis, PhD, RRT, CTTS, FAARC, is an assistant professor of respiratory care at The Ohio State University in Columbus, OH.

Starting the conversation

You might be concerned about how to approach the topic with your patients. Beginning the conversation about tobacco use can be easy. Erna Boone, PH, RRT, CTTS, FAARC, is a Certified Tobacco Treatment Specialist and has found great success using this opening statement: "My name is Erna. I am a respiratory therapist and a tobacco treatment specialist. Your doctor asked me to speak with you about your tobacco use. Is that OK with you?" Dr. Boone shares that she has never had anyone answer "no" to this question. She reminds us that this opening statement says in a respectful way from the get-go that we are not going to make the patient do anything he or she doesn't want to do. Most patients have been trying to quit and have had a hard time, and many are grateful for the help. In fact, when we say, "I can help you," you can see their shoulders drop and the tension go out of their face — and every once in a while you'll get a smile! These tips are a wonderful way to open the conversation, develop a rapport with patients, and establish a non-threatening environment in which you can continue to evaluate all the factors that contribute to meaningful conversations about tobacco use and dependence.

Evaluate tobacco use

A full evaluation of tobacco use should include the following: the frequency with which they use tobacco (e.g., How many cigarettes do you smoke per day?), the products that they use (Do you use cigarettes, cigars, bidis, hookah/water pipe, smokeless tobacco, e-cigarettes, etc.?), the degree of severity of nicotine dependence (e.g., How soon after waking do you have your first cigarette?), and their readiness to quit.[1]

Assess severity of dependence

To assess the severity of nicotine dependence, the therapist can use the Fagerstrom test, or the therapist can explore the qualitative factors of an individual's dependence and past quit attempts through conversation (Table 1). If time does not allow for this conversational approach, a short interview about dependence should include a question about the number of cigarettes they smoke per day and how soon they have a cigarette after waking for an abbreviated assessment of dependence severity.

One method to quantify tobacco use is to measure cotinine, the metabolite of nicotine that is measured in blood, urine, saliva, hair, or nails.[2] This measure is influenced by patient characteristics such as diet, age, race, and gender, and it is not available in all clinical settings. Smoking can also be measured by exhaled carbon monoxide (CO), which is quick and noninvasive.[3] Both methods will provide information that can be used at subsequent visits to confirm cessation.[4] Dr. Boone finds that CO measurement is an effective way to elucidate the hazards of continued tobacco use. She states, "We measure exhaled CO levels on each patient. This is often

Table 1: Tobacco Use: Characteristics of More Dependent Individuals

Have a history of difficulty quitting
Started using tobacco at an early age
Smoke first cigarette within 30 minutes of waking
Can't refrain from smoking when it is prohibited (e.g., at the hospital)

an eye-opener for them. We give them a handout that shows their level and describes what it means. It is exciting when a patient quits tobacco and we repeat the exhaled CO level on the next clinic visit to find that it is in the normal range."

Explore tobacco history

As with other chronic diseases, it is imperative that the clinician take a thorough history. The tobacco history can reveal many important details of previous quit attempts, which can help the clinician (Table 2).

Dr. Boone tries to make it as conversational as possible. She advises, "It is important to partner with the patient as much as possible. For example, "Why do you think you are a 6 on the motivation to stop tobacco, instead of a 3?" Scaling is a motivational interviewing technique that allows the tobacco user to elicit reasons for change. In this example, telling more about the reasons they are motivated allows the patient to state those reasons aloud and gives the therapist insight into their rationale about this behavior change. Other conversation questions Dr. Boone recommends are "Would you prefer nicotine gum or the lozenge? What are some activities you can do, instead of smoking?" Most people who quit and are not successful do not think through what they will do instead of smoking. "Tell me about an activity that you could do in place of smoking a cigarette, something that would distract you from that urge. An urge only lasts 5–7 minutes, whether you smoke or not." Dr. Boone also uses humor to emphasize the challenges of tobacco addiction: "You have smoked a pack per day for 50 years? Wow! You have had a lot of practice, haven't you?" She states that this breaks the ice a little, but also makes the point that quitting smoking is hard. Having support from family or friends is also important when trying to quit. Engage and try to partner with the patient's support person, too, to help the patient. Sometimes, both parties will attempt to quit together.

Assess readiness to change

It is imperative that we meet the patient "where they are" in the behavior-change process and determine their readiness to quit. The stages of change and the transtheoretical model of behavior change provides us with an easy way to categorize a patient's readiness to quit. The stages are displayed as a cycle in Figure 1: pre-contemplative (not ready to quit), contemplative (thinking about quitting), preparation (ready to quit), action (quit), maintenance (staying quit), and termination (living quit). Once the stage of readiness has been determined, we can use tailored interventions (5 A's if ready to quit, and 5 R's if unwilling to quit) to best assist each individual.[5-7]

Treatment for tobacco addiction

To date, the two evidenced-based treatment strategies for tobacco dependence are pharmacotherapy and counseling. The use of counseling strategies and medications both alone and together have demonstrated an increase in the success rates of quit attempts.[9] Pharmacotherapy, like the five

Figure 2: Stages of Change

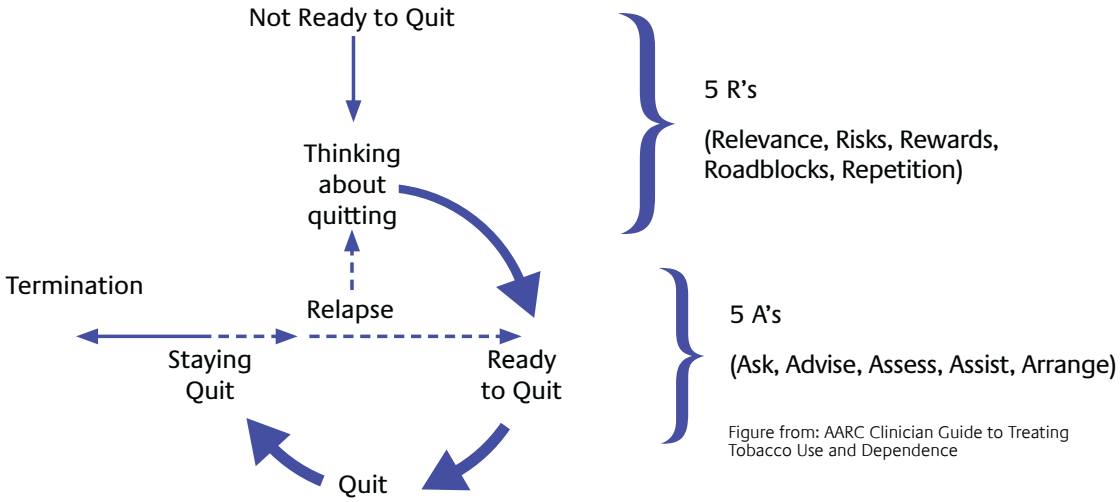


Figure from: AARC Clinician Guide to Treating Tobacco Use and Dependence

Table 2: Explore Tobacco History

History Details to Explore	Say this….
Explore past quit attempts	Tell me about a successful prior attempt, and what worked for you. Tell me about a prior attempt that didn't work well at all.
Discuss triggers and cues	Where and when do you use tobacco?
Identify stressors	What factors influence your temptation to turn to tobacco? How do you deal with stress?
Learn from prior attempts	What caused you to pick up that first cigarette after a prior attempt to quit? What would you do differently?
Emphasize it is never too late	Do not be discouraged if relapse occurs.

Table 3: Pharmacotherapy for Treating Nicotine Dependence

Nicotine replacement therapies	Other pharmacotherapies
Transdermal patch (Nicoderm)	bupropion (zyban, Wellbutrin SR)
Nicotine gum (Nicorette)	varenicline (Chantix)
Nicotine lozenge (Commit)	
Nicotine nasal spray (Nicotrol NS)	
Nicotine inhaler (Nicotrol)	

FDA-approved nicotine replacement therapies and two pharmaceutical oral medications, are evidenced-based strategies shown to double the chances of quitting (Table 3). Evidence-based literature also supports the use of behavioral counseling in treating tobacco addiction.[8,9] Dr. Boone also emphasizes that this conversation is the responsibility of the entire health care team. She states, "I am extremely fortunate to have the support of the physicians, residents, students, and MAs that work in this clinic. They make it easy to see the patient and reiterate to the patient how important it is to quit tobacco use." Patty Curtis, BS, RRT, staff therapist at The Ohio State University Medical Center, recommends that, at the very least, we can make sure that the patient is comfortable during their hospital stay and assure that they are on the correct level of nicotine-replacement therapy. She also refers patients to the hospital's smoking cessation clinic, local pharmacy (for nicotine replacement therapies), or national quit line (1-800-QUIT-NOW). For more training and information on the topic, check out the resources offered by the AARC on the Tobacco Resources page or take the Clinician Training on Tobacco Dependence for Respiratory Therapists. With your help, patients can sift through the multiple factors that influence this complicated relationship with tobacco and quit.

Curtis has provided brief tobacco interventions as a therapist on the Ross Heart Hospital core team. She emphasizes the importance of gauging readiness to quit with each patient interaction. She states "If they want and desire to quit, they will at least attempt to quit. Basically, I remind them sometimes it takes more than six attempts. As an RT, you get the feel from their body language if they want to talk about their smoking status or not."

Acknowledgement: I would like to thank Dr. Erna Boone and Patty Curtis, for their contributions to this article. ■

References

1. West R. Assessment of dependence and motivation to stop smoking. BMJ. 2004;328:338–339.
2. Benowitz NL, Hukkanen J, Jacob P. Nicotine chemistry, metabolism, kinetics and biomarkers. Handb Exp Ppharmacol. 2009;192:29–60.
3. Middleton ET, Morice AH. Breath carbon monoxide as an indication of smoking habit. Chest 2000;117:758–763.
4. Bize R, Burnand B, Mueller Y, Rège-Walther M, Camain JY, Cornuz J. Biomedical risk assessment as an aid for smoking cessation. Cochrane Database Syst Rev. 2012;12:CD004705.
5. Flott EA. Smoking cessation strategies for patients with COPD. Home Healthc Now. 2015;33(7):375–379.
6. Cahill K, Lancaster T, Green N. Stage-based interventions for smoking cessation. Cochrane Database Syst Rev. 2010;11:CD004492.
7. Fiore MC, Jaen CR, Baker TB, Bailey WC, Benowitz NL, Curry SJ, et al. Treating tobacco use and dependence: 2008 update. Rockville, MD: U.S. Department of Health Human Services; 2008.
8. Rigotti NA. Strategies to help a smoker who is struggling to quit. JAMA. 2012;308(15):1573–1580.
9. The health consequences of smoking – 50 years of progress. A report of the Surgeon General. Printed with corrections. Rockville, MD: U.S. Department of Health and Human Services; 2014.

Starting Your Own Tobacco Cessation Program

SMOKING CESSATION PROGRAMS

by Susan R. Gallo, MEd, RRT, CTTS, FAARC

Smoking is the leading cause of preventable disease and death in the United States. It has been more than 50 years since the U.S. Surgeon General's Advisory Committee on Smoking and Health first stated that smoking was harmful to health. At the time of that report, more than 40% of American adults smoked cigarettes. While it is very encouraging to know that the rate of adults who smoke has decreased to 15.1% in 2016, the battle against smoking has not yet been won.[1] Nearly 40 million U.S. adults still smoke cigarettes, and about 4.7 million middle and high school students use at least one tobacco product, including e-cigarettes. Every day, more than 3,800 youth younger than 18 years of age smoke their first cigarette. Each year, the U.S. spends nearly $170 billion, which is 8.7% of all health care costs, to treat smoking-related disease in adults.[2]

Susan R. Gallo, MEd, RRT, CTTS, FAARC, is an Epic Training Specialist at Duke Health in Durham, NC.

Quitting smoking is the single most important thing a person can do to improve their health. Smoking and tobacco use cause lung cancer, other cancers, heart disease, and respiratory diseases.[3] There are many positive outcomes of smoking cessation. After only one year of being smoke-free, the risk of coronary heart disease is reduced by 50%. Five years after quitting, the risk of certain other cancers is also reduced by 50%. After three months, coughing, congestion, and shortness of breath improve.[4] In short, quitting smoking will improve health, which means it will also decrease health care costs.

Despite the drastic reduction in smoking rates in the United States, current efforts to prevent and reduce tobacco use need to continue. Approximately two thirds of smokers want to stop smoking.[5] There is substantial evidence that the combination of evidence-based quit coaching and FDA-approved cessation medications such as nicotine replacement medications make up the most successful methods: 31% of smokers were able to quit with the combination of these two methods compared to 6.7% who quit with counseling only.[5] However, even minimal counseling — whether it be individual, group, or by telephone or text — is effective, and this effectiveness increases with intensity.[6]

Despite the drastic reduction in smoking rates in the United States, current efforts to prevent and reduce tobacco use need to continue.

Respiratory therapists (RTs) are ideally suited to provide smoking and tobacco cessation services to their patients. RTs are knowledgeable of cardiopulmonary anatomy and physiologies, have seen firsthand the effects of smoking on patients, and routinely work with patients who are smokers.

Tobacco smoking is major cause of COPD.[7] The economic burden associated with COPD in the United States is $32 billion in direct costs and $20 billion in indirect costs.[6] When COPD patients are hospitalized due to an exacerbation, it is an ideal time to offer counseling. RTs will most often be treating these patients and can take advantage of this teachable moment. Patients admitted to the hospital with coronary heart disease are often smokers. Yet, according to a recent meta-analysis, smoking cessation medications were only given to 20% of the smokers with coronary heart disease.[8] This study points out the need for more trained individuals.

Developing a smoking cessation service takes time and preparation, but it will be well worth the effort. The following list presents the logical steps for developing and presenting your plan.

1. Provide an evidence-based plan to your manager and medical director, which should include who will be providing the service, resource expenditure, and possible financial benefits.
2. It may be helpful to recruit a champion, such as your medical director or another interested physician. A physician can influence decision makers.
3. Check with your finance and coding representatives to determine billing opportunities.
4. Present the plan to your administrator for approval.
5. Acquire smoking cessation training. More details are provided in this article.
6. Find out which smoking cessation medications, prescription and over-the-counter, can be provided to patients or clients and the costs for those medications.
7. Determine who will function as cessation counselors or quit coaches. It is best to start out with a small group or even just one RT. Counselors and coaches require training and certification, so document those needs as well.

Table 1. Support Resources at smokefree.gov

Phone: 800-QUIT-NOW (800-784-8669)
No-cost telephone or online counseling available 24 hours a day, 7 days a week
Services include: • Evidence-based telephone counseling • Facilitation of free nicotine replacement therapy, mailed directly to tobacco user's home • Interpretation services for Spanish speakers and many other languages • Highly trained, professional Quit Coaches • Interactive web-based tobacco treatment program

8. Determine how smokers will be screened and how an RT will be notified. Screening is a multidisciplinary function, and it can start during the patient-admission process.
9. Determine what materials you will provide to the patients. There are many professional references available at no or minimal cost; one example is the AARC's Tobacco and Smoking Cessation Training.[9]
10. Consider starting with a pilot program, which can help identify what works (and what doesn't) and obstacles to a successful program.
11. Determine referral resources such as the Quit Line (Table 1) or other programs where the patient can receive counseling and support after discharge. Many such outpatient programs are covered by Medicare and other payers.
12. Determine how the RT will receive an order or consult to see the patient. There are a variety of options from physician orders, admitting nurse referrals, or an electronic notification for all admitted patients who smoke.
13. Discuss how your department will measure the benefits of this new service. You can track the number of patients who were followed as outpatients, the number who successfully quit smoking, track readmissions, and smoking status at subsequent hospitalizations.
14. Set a start date.
15. Communicate and publicize your program to everyone in your work setting. Find ways to reach nurses and providers, such as group e-mails, hospital wide announcements, presentations at physician and nursing meetings, and flyers.
16. Start your program and maintain records and data meticulously to help determine the effectiveness of this service.

While RTs are well suited to provide smoking cessation counseling, additional training will give the RT the added skills and confidence to be more effective at facilitating tobacco-dependence counseling. Many RTs may not be comfortable with the often-difficult conversation of tobacco cessation. The AARC provides comprehensive online training, which includes videos of patient–RT interactions that allow the RT to see the conversation take place in real-world settings using real-world scenarios.[9] The American Lung Association offers a 12-hour course with emphasis on conducting group counseling sessions.[10] These programs will increase knowledge and give credibility to counselors. There is also training to become a Certified Tobacco Treatment Specialist (CTTS). This training, which is approximately 40 hours long, provides more hands-on practice with the opportunity for feedback, a competency evaluation, and requires completing a project. Programs are offered at many locations around the United States.[11] Certification is highly recommended, but it is not mandatory to provide counseling.

Table 2. Smoking Cessation Coding

Care Setting	Code	Description
Inpatient and Outpatient	99406	Smoking and tobacco cessation counseling: Intermediate visit of 3–10 minutes
Inpatient and Outpatient	99407	Smoking and tobacco cessation counseling: Intensive visit of >10 minutes

Are you sure your patient is sleeping?

OxyMask™ does not cause rebreathing of exhaled CO_2 at low flow oxygen, addressing concerns for sentinel events.[1]

thebetteroxygenmask.com

OxyMask™

Manufactured by:
Southmedic Inc. 50 Alliance Blvd., Barrie, ON L4M 5K3
email: oxymask@southmedic.com

1-800-463-7146 Toll free in North America
1-705-726-9383
1-705-728-9537 Fax

1. 2017. Oxygen flow rate and the rebreathing of CO2 in oxygen simple masks and OxyMask™. Department of Clinical Engineering, Respiratory care division, Yokohama municipal citizens hospital, KANAGAWA JAPAN.

Smoking cessation counseling is reimbursed by Medicare and most insurance companies. The reimbursement codes are based on time, as seen in Table 2. Two cessation attempts, which are defined as eight sessions, are covered within a 12-month period. RTs can provide these services as an incident to service based on a physician's order. More information about billing can be found on the AARC's website.[12]

RTs can have a valuable impact in helping improve the health of their smoking patients. RTs are committed to promoting cardiopulmonary health. Through personal communication, the patient sees a member of the health care team who is looking out for them. Saving a person the agony of future negative outcomes can be very rewarding. ■

References

1. Centers for Disease Control and Prevention. Tobacco product use among adults—United States, 2015. MMWR Morb Mortal Wkly Rep. 2017;66(44):1209–15.
2. Centers for Disease Control and Prevention. Smoking & Tobacco Use. Available at: https://www.cdc.gov/tobacco/data_statistics/index.htm *Accessed February 23, 2018.*
3. U.S. Department of Health and Human Services. The health consequences of smoking—50 years of progress: a report of the surgeon general. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014.
4. Centers for Disease Control and Prevention. Get on the Path to a Healthier You. Available at: https://betobaccofree.hhs.gov/gallery/quit-infographic-text.html *Accessed February 14, 2018.*
5. Babb S, Malarcher A, Schauer G, Asman K, Jamal A. Quitting smoking among adults – United States, 2000–2015. MMWR Morb Mortal Wkly Rep. 2017;65(52):1457–1464.
6. U.S. Department of Health and Human Services. Treating tobacco use and dependence. Clinical practice guideline. Atlanta: U.S. Department of Health and Human Services; 2008.
7. Global Initiative for Chronic Obstructive Lung Disease. 2018 Report. Available at: www.goldcopd.org *Accessed February 20, 2018.*
8. Pack QR, Priya A, Lagu TC, Pekow PS, Rigotti NA, Lindenauer PK. Smoking cessation pharmacotherapy among smokers hospitalized for coronary heart disease. JAMA Intern Med. 2017;177(10):1525-1527.
9. American Association for Respiratory Care. Tobacco and Smoking Cessation Training. Available at: http://www.aarc.org/education/online-courses/smoking-cessation-training *Accessed February 14, 2018.*
10. American Lung Association. Become a Facilitator or Educator. Available at: http://www.lung.org/our-initiatives/education-and-training/become-a-facilitator-or-educator.html *Accessed February 14, 2018.*
11. Association for the Treatment of Tobacco Use and Dependency. TTS Training Program Accreditation. Available at: https://attud.org/ttspa.php *Accessed February 14, 2018.*
12. American Association for Respiratory Care. Smoking Cessation Codes – 2014. Available online: http://www.aarc.org/wp-content/%20uploads/2014/08/Coding.Smoking-Cessation.pdf%20Accessed%20February%2014,%202018

Current Topics in Respiratory Care 2018

8 DVD Team Series
for Team Development
and Continuing Education

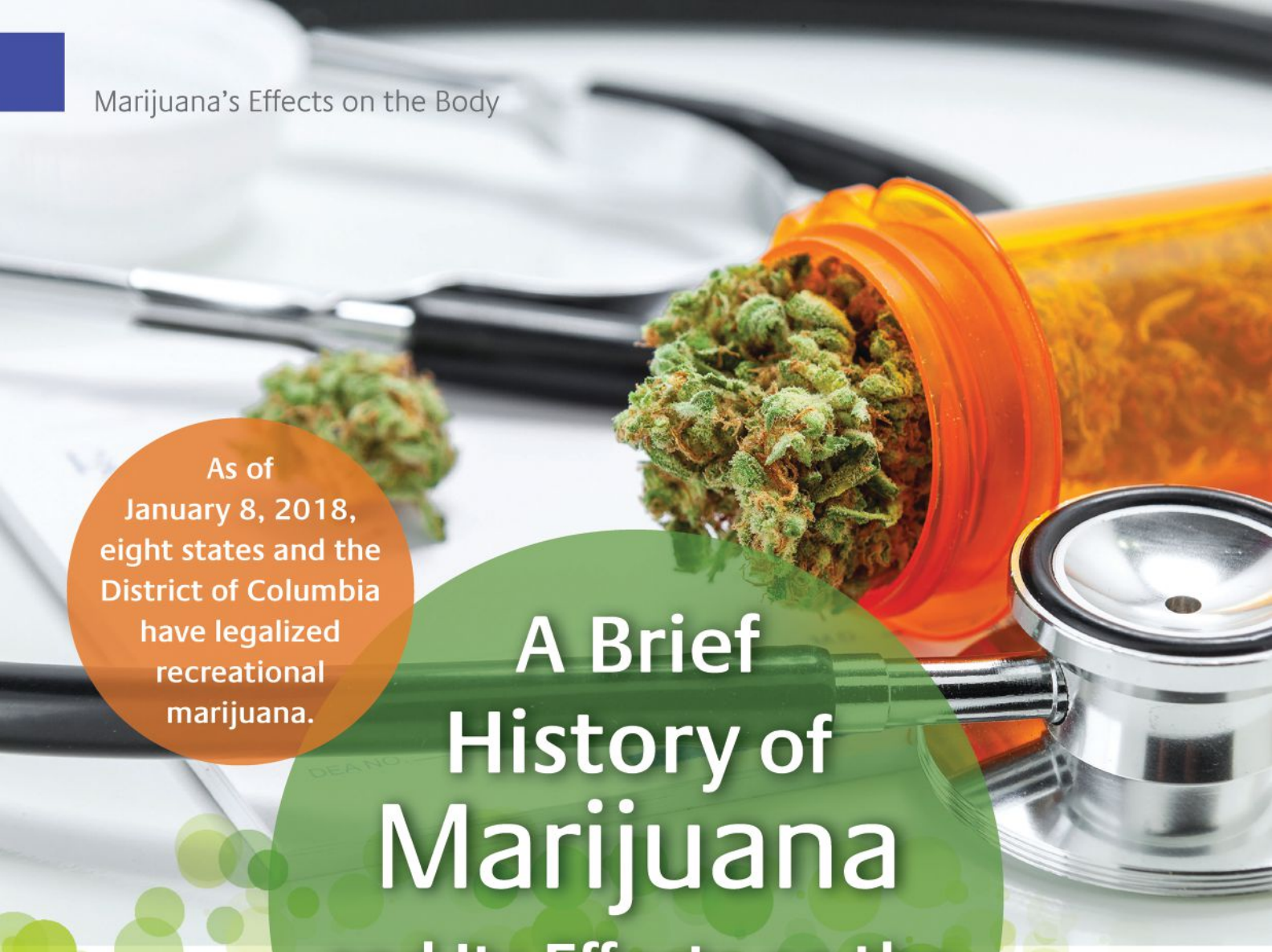
- **Pulmonary Rehabilitation: The Year in Review**
  By Brian W. Carlin MD, MAACVPR
- **Role of the Respiratory Therapist in Tracheostomy Care**
  By Dean Hess PhD, RRT, FAARC
- **Severe Asthma Attacks in the ER**
  By J. Brady Scott, MSc, RRT, RRT-ACCS, AE-C, FAARC
- **Ventilator Discontinuation: The Evidence Base, Guidelines, and "Best Practice"** *By Neil MacIntyre MD, FAARC*
- **The Use of Noninvasive Ventilation at the End of Life**
  By Shawna Strickland PhD, RRT, RRT-NPS, RRT-ACCS, AE-C, FAARC
- **Meeting the Challenge of COPD Care in the US: Access and Potential Solutions** *By MeiLan K. Han MD, MS*
- **Caring for the Mechanically Ventilated Patient: A Patient-Centered Approach** *By Sangeeta Mehta MD, FRCPC*
- **Evaluating the Value of the Respiratory Therapist: Where is the Evidence?** *By Marin Kollef MD*

CRCE

EARN UP TO 8 CRCE

Learn more about the Current Topics series:
http://c.aarc.org/go/ct18

AARC
American Association for Respiratory Care



As of January 8, 2018, eight states and the District of Columbia have legalized recreational marijuana.

A Brief History of Marijuana and Its Effects on the Respiratory System

by Mary P. Martinasek, PhD, MPH, RRT, RRT-NPS

Marijuana is the most commonly used psychoactive drug in the United States.[1] The term *marijuana* (cannabis) refers to the seeds, stems, leaves, and flowers, which are dried and consumed in various manners. Cannabis has been used for over 5,000 years and is native to central Asia. Despite repeated attempts to change the classification and decriminalize marijuana, it remains a Schedule I substance as defined by the Controlled Substances Act. Other Schedule I drugs include LSD, heroin, and ecstasy.[2] Drugs in this schedule are considered to have no accepted medical use and a high likelihood of abuse. A bipartisan bill in 2017 attempted to reclassify marijuana, which would make it more accessible for patients and researchers, but that bill failed to pass. Some forms of medical marijuana

are classified as a Schedule II drug. Prior to being classified as a Schedule I drug in the 1970s, cannabis was available in apothecaries in the United States. Cannabis was used recreationally in the early 1900s, and it was an ingredient in many medicines at the time. It was during the Mexican Revolution against Spain that the term *marijuana* (coming from the Spanish word *maraguanaquo* — meaning an inebriant plant) became prevalent. Marijuana was described as a drug that posed a terrible threat to public safety and health, it and was used by anti-drug campaigns and supporters of prohibition to vilify certain groups of people.

As of January 8, 2018, eight states and the District of Columbia have legalized recreational marijuana. Despite state legalization, marijuana is illegal under federal laws. Therefore, raids from federal entities can ensue, however, they are focused on larger scale growers because there are limitations to funds that can be used by the federal government to impose fines and conduct raids.

There are three principle species of cannabis: *Cannabis ruderalis*, *C. indica*, and *C. sativa*. These species contain varying levels of cannabinoids. The feeling one experiences from cannabis consumption is in fact the effect that cannabinoids have on the brain. THC is the cannabinoid known primarily for its mind-altering effects, but THC is only one of the many cannabinoids found in marijuana. Depending on the consumption route of cannabis, the effects of the drug can vary in degree and in duration. Inhalational marijuana, is self-regulating due to its quick uptake by the body — that is, users can more easily dictate how they want to feel. This is much different than edible marijuana products, where the effects are often potentially delayed for hours.

Mary P. Martinasek, PhD, MPH, RRT, RRT-NPS is an associate professor of public health and assistant dean of the College of Natural and Health Sciences at the University of Tampa, Tampa, FL.

As a respiratory therapist and smoking cessation specialist, the need to understand the respiratory effects of inhalational marijuana has become more apparent. Most people recognize that cigarette smoking is deleterious to one's health, but there is little research about marijuana. This interest propelled a systematic review of the literature to find what is currently known about the respiratory effects of inhalational marijuana. Understanding both the pros and the cons will serve as an informational platform to drive future research and knowledge.

In general, we know that inhaled smoke causes irritation to the throat

and a burning sensation to the bronchial passages, thereby increasing the risk for respiratory infections. Inhalational smoked marijuana (versus vaped) produces secondhand smoke, but we know little of its effects.

For this research, we searched three databases — Ovid, Pubmed, and Web of Science —using specific terms to yield articles directly related to the respiratory system and to recreational inhalation smoked marijuana. There was no date limit on the search, because we wanted to read about any research in this area. Of the initial 281 articles that were retrieved, less than 50 studies were specific to our search; only some of these are cited as references in this short article. The full text article can be found in Respiratory Care 2016;61(11) 1543-1551.[3] We categorized these findings into three groups: lung cancer, COPD/bullous emphysema, and other respiratory findings. Regarding lung cancer, there were multiple articles — ranging in sample size from 1 to more than 1,000 participants with a variety of study designs — that indicated an increased risk for lung cancer from inhalational smoked marijuana. Only a couple of studies found a weak or lower probability/association.[4-16] The articles related to COPD/bullous emphysema revealed an increased risk for bullous emphysema or COPD, with only one study suggesting no statistically significant association.[17-22] The respiratory findings varied in content. Asthmatics were more likely to experience symptoms such as wheezing, coughing, and shortness of breath compared to non-asthmatics. These symptoms seem to be a common thread in several articles. Although cannabis was associated with wheezing and coughing, it was also found to be a bronchodilator. Counter articles reported a decrease in certain pulmonary function values, in particular, FEV_1/FVC. A final study revealed no significant changes in pulmonary function test results with the use of recreational marijuana.[23-28] There is no research to date on the inhalational vaping of marijuana leaves or oil. We do know that vaping nicotine is associated with increased risks for cancers due to the known cancer-causing ingredients combined with the liquid nicotine and flavoring agents produced in the vape. However, if the device does not explode from lack of quality control, then vaping appears to be less harmful than traditional cigarettes in terms of the number of confirmed carcinogens and pollutants.

Clearly, much more research is needed to verify or deny the current research. Marijuana is considered to be much stronger today than what was used recreationally decades ago. Because of federal laws, research is limited to one university in the United States, so we have had to rely on international studies and social/behavioral research (eg, surveys and interviews) to learn and then educate on the effects of marijuana. While our article focuses on the respiratory system, we know that many other organ systems are affected by the use of inhalational smoked marijuana, especially if use starts at a young age. The message to our patients regarding the respiratory effects of inhalational smoked marijuana should be that it is not harm-free and that inhaling smoke poses increased risks, symptoms, and conditions that can alter the effectiveness of our lungs. As respiratory therapists, we can inform

our patients or clients as to what we do know, so they will be able to make informed decisions about these types of behaviors. ■

References

1. National Institute of Drug Abuse. What is marijuana? Available at: https://www.drugabuse.gov/publications/drugfacts/marijuana *Accessed January 20, 2018.*
2. Drug Enforcement Administration. Drug scheduling. Available at: https://www.dea.gov/druginfo/ds.shtml *Accessed January 20, 2018.*
3. Martinasek MP, McGrogan JB, Maysonet A. A systematic review of the respiratory effects of inhalational marijuana. Respir Care 2016;61(11) 1543–1551.
4. Callaghan RC, Allebeck P, Sidorchuk A. Marijuana use and risk of lung cancer: a 40-year cohort study. Cancer Causes Control 2013;24(10):1811–1820.
5. Jemal A, Chu KC, Tarone RE. Recent trends in lung cancer mortality in the United States. J Natl Cancer Inst 2001;93(4):277–283.
6. Aldington S, Harwood M, Cox B,Weatherall M, Beckert L, Hansell A, et al. Cannabis use and risk of lung cancer: a case-control study. Eur Respir J 2008;31(2):280–286.
7. Berthiller J, Straif K, Boniol M, Voirin N, Benhaim-Luzon V, Ayoub WB, et al. Cannabis smoking and risk of lung cancer in men: a pooled analysis of three studies in Maghreb. J Thorac Oncol 2008;3(12):1398–1403.
8. Hashibe M, Morgenstern H, Cui Y, Tashkin D, Zhang Z, Cozen W, et al. Marijuana use and the risk of lung and upper aerodigestive tract cancers: results of a population-based case-control study. Cancer Epidemiol Biomarkers Prev 2006;15(10):1829–1834.
9. Voirin N, Berthiller J, Benhaim-Luzon V, Boniol M, Straif K, Ayoub WB, et al. Risk of lung cancer and past use of cannabis in Tunisia. J Thorac Oncol 2006;1(6):577–579.
10. Barsky SH, Roth MD, Kleerup EC, Simmons M, Tashkin DP. Histopathologic and molecular alterations in bronchial epithelium in habitual smokers of marijuana, cocaine, and/or tobacco. J Natl Cancer Inst 1998;90(16):1198–1205.
11. Chen AL, Chen TJ, Braverman ER, Acuri V, Kemer M, Varshavskiy M, et al. Hypothesizing that marijuana smokers are at a significantly lower risk of carcinogenicity relative to tobacco-non-marijuana smokers: evidenced based on statistical reevaluation of current literature. J Psychoactive Drugs 2008;40(3):263–272.
12. Zhang LR, Morgenstern H, Greenland S, Chang S, Lazarus P, Teare MD, et al. Cannabis smoking and lung cancer risk: pooled analysis in the International Lung Cancer Consortium. Int J Cancer 2015;136(4):894–903.
13. Sidney S, Quesenberry CP Jr., Friedman GD, Tekawa IS. Marijuana use and cancer incidence (California, United States). Cancer Causes Control 1997;8(5):722–728.
14. Taylor FM 3rd. Marijuana as a potential respiratory tract carcinogen: a retrospective analysis of a community hospital population. South Med J 1988;81(10):1213–1216.
15. Kothadia JP, Chhabra S, Marcus A, May M, Saraiya B, Jabbour SK. Anterior mediastinal mass in a young marijuana smoker: a rare case of small-cell lung cancer. Case Rep Med 2012;2012:754231.
16. Graef S, Choo CG, Warfield A, Cullen M, Woolhouse I. Small cell lung cancer in a 26-year-old man with significant cannabis exposure. J Thorac Oncol 2011;6(1):218–219.
17. Fiorelli A, Accardo M, Vicidomini G, Messina G, Laperuta P, Santini M. Does cannabis smoking predispose to lung bulla formation? Asian Cardiovasc Thorac Ann 2014;22(1):65–71.
18. Hii SW, Tam JD, Thompson BR, Naughton MT. Bullous lung disease due to marijuana. Respirology 2008;13(1):122–127.
19. Johnson MK, Smith RP, Morrison D, Laszlo G, White RJ. Large lung bullae in marijuana smokers. Thorax 2000;55(4):340–342.
20. Van Landeghem A, Arys B, Heyse C, Gosselin R. Lung emphysema caused by marijuana smoking. JBR-BTR 2012;95(3):166–167.
21. Jay AL. Reduced lung function and bullae resulting from illicit drug use. JAAPA 2011;24(7):26–29, 33.
22. Hazouard E, Koninck JC, Attucci S, Fauchier-Rolland F, Brunereau L, Diot P. Pneumorachis and pneumomediastinum caused by repeated Muller's maneuvers: complications of marijuana smoking. Ann Emerg Med 2001;38(6):694–697.
23. Hancox RJ, Poulton R, Ely M, Welch D, Taylor DR, McLachlan CR, et al. Effects of cannabis on lung function: a population-based cohort study. Eur Respir J 2010;35(1):42–47.
24. Macleod J, Robertson R, Copeland L, McKenzie J, Elton R, Reid P. Cannabis, tobacco smoking, and lung function: a cross-sectional observational study in a general practice population. Br J Gen Pract 2015;65(631):e89–e95.
25. Morris RR. Human pulmonary histopathological changes from marijuana smoking. J Forensic Sci 1985;30(2):345–349.
26. Tan WC, Lo C, Jong A, Xing L, FitzGerald MJ, Vollmer WM, et al. Marijuana and chronic obstructive lung disease: a population-based study. CMAJ 2009;180(8):814–820.
27. Rooke SE, Norberg MM, Copeland J, Swift W. Health outcomes associated with long-term regular cannabis and tobacco smoking. Addict Behav 2013;38(6):2207–2213.
28. Aldington S, Williams M, Nowitz M, Weatherall, M, Pritchard A, McNaughton A, Robinson G, Beasley R. Effects of cannabis on pulmonary structure, function and symptoms. Thorax 2007;62(12):1058–1063.

New & Updated!

Aerosol Delivery Device Guides

As chronic respiratory diseases grow in prevalence, respiratory therapists' and medical professionals' ability to provide accurate and reliable education to patients is increasingly important. Stay up-to-date on the latest aerosol devices by downloading AARC's easy-to-use aerosol delivery device guides.

3 Formats Available:

Guide to Aerosol Delivery Devices for the Respiratory Therapist—4th Edition

Detailed information that will empower you to provide guidance to your physician, nurse, and pharmacist colleagues—but, most importantly, to your patients.

6 CRCE credit; free for AARC members, $15 for nonmembers

Free Guide Download

Guide to Aerosol Delivery Devices for Physicians, Nurses, Pharmacists and Other Health Care Professionals—3rd Edition

Provides the non-respiratory therapist a comprehensive, step-by-step application for aerosol delivery devices utilized with patients who have chronic respiratory disease.

Free Guide Download

A Patient's Guide to Aerosol Drug Delivery—3rd Edition

Commissioned respiratory therapists who were noted aerosol delivery experts prepared this guide, written with the patient in mind.

Free Guide Download

Visit: c.aarc.org/go/aerosol

American Association for Respiratory Care

AARC Summer forum

AARC Summer Forum 2018 Heads to Texas Hill Country

Come for the meeting, stay for the fun!

AARC Summer forum

The JW Marriott San Antonio Hill Country Resort & Spa has all the amenities you could ever want in a first-class resort.

Where can you enjoy some high-quality downtime with the family and earn the continuing education credits you need to maintain your license to practice at the same time? For managers and educators in respiratory care, the AARC Summer Forum is the answer. This year's event will take place July 17-19 at a brand new destination — the fabulous JW Marriott San Antonio Hill Country Resort & Spa!

Stunning views and more

Texas Hill Country is known for its rolling hills and laid-back atmosphere, and you'll find that and more at the Hill Country Resort & Spa. Located on 600 acres just outside of San Antonio, this non-smoking resort features upscale rooms, deluxe amenities, and stunning views of the surrounding area.

Adults and kids alike will love the outdoor spaces, with their luxurious pools and fun activities — including a 650-foot rapid-river ride and 1,100-foot lazy river. There's a children's outdoor pool and play area for the little ones and an infinity edge pool that's for adults only. You can get active at the state-of-the-art fitness center, and you can enjoy plenty of outdoor experiences as well. Take a jog on the fitness trail, enjoy a stroll down the nature preserve trail, get some colleagues together for a game of pick-up on the sport court, or find someone to take you on in a game of tennis or table tennis.

If golf's your thing, look no further than the two PGA-Certified TPC courses adjacent to the property. Designed by golf legends Greg Norman and Sergio Garcia, the AT&T Oaks Course is framed by mature live

oaks. The Pete Dye-designed AT&T Canyons Course features wide fairways, tall trees, and panoramic views of the Cibolo Canyons.

A soothing sauna awaits you to relieve any sore muscles you develop after golfing or hiking. The Lantana Spa is perfect for relaxing, too, sore muscles or not. Offering indigenous-inspired treatments that embrace the spirit and tradition of Latin American curanderos, the spa will ensure you leave feeling renewed and refreshed.

Time to eat!

When hunger strikes, the resort has you covered, too. An in-house Starbucks is there to provide your morning cup, and guests always enjoy the full breakfast buffet offered at Cibolo Moon, which features Tex-Mex for both lunch and dinner, and their crafted margaritas and tequila varieties are unrivaled.

You'll also find plenty of spirits at the Crooked Branch bar, and 18 Oaks, located in the TPC San Antonio Clubhouse, features fine dining at its best. Choose from an array of steak, seafood, and poultry dishes, and take advantage of the restaurant's extensive list of Hill Country wines. 18 Oaks also offers a great Sunday brunch.

Other onsite restaurants include the sports-themed High Velocity, where you can enjoy craft beers and savory American cuisine, and the Rivertop Grill, featuring everything from burgers and sandwiches to great salads and salsa dishes. The Replenish Spa Bistro,

located inside the resort's spa, offers healthy and tasty cuisine, along with organic products, smoothies, and fine wines.

Nearby Hill Country attractions

You'll find a lot to do near the resort as well. The city of San Antonio, with its world-renowned River Walk, is just a short drive down Highway 281, and if you've never been there it's worth the trip. Stroll along the banks of the San Antonio River to shops, restaurants, nightlife, and more.

For those who have already explored the city — perhaps at one of the many AARC Congresses that have been held in San Antonio — it may be time to see what the surrounding area has to offer. Just a short drive from the resort, Natural Bridge Caverns may be a good place to start. Discovered by a group of students from St. Mary's University in 1960, this underground wonderland is recognized as a National Natural Landmark by the U.S. Department of the Interior and offers two daily tours.

The Discovery Tour runs about 75 minutes and takes visitors through the largest spaces in the caverns — one the size of a football field. The Hidden Passages Tour is about 70 minutes long and features a total darkness experience. Guests can also pan for gems, minerals, and fossils at the Natural Bridge Mining Company mining sluice, and if you're really adventurous, you can take the Watchtower Challenge — one of the largest outdoor climbing and zip line towers in Texas.

Sea World San Antonio, an amusement/water-park with something for guests of all ages, is also just minutes away. Here you'll find everything from a kid-friendly roller coaster and the Rio Loco rafting ride to the

high-thrill adventures available on the Wave Breaker, the Great White Roller Coaster, and the Steel Eel Roller Coaster. Sea World's youngest guests will love all the activities and rides available in the Sesame Street Bay of Play.

Sea World offers some great animal experiences as well, including the chance to take an educational swim with dolphins, beluga whales, and sea lions. You can meet some cool penguins at the Penguin Encounter, check out the alligators in Alligator Alley, learn more about sharks and living coral reefs in the Explorer's Reef, and more. Pacific Point Preserve will take you inside a Pacific coastal town, complete with the chance to get up close and personal with sea lions and other coastal wildlife.

Six Flags Fiesta is also nearby, another must for amusement-park lovers, with its thrill rides like the world's first 4D free-fly coaster, BATMAN: The Ride, and more traditional rides like the Iron Rattler and SUPERMAN: Krypton Coaster. Little kids also have plenty of rides to enjoy, and they'll love the Looney Tunes characters who roam throughout the park. Even if you don't like rides, you'll find something cool to do while the rest of your family seeks out the thrills. Dip your feet in White Water Bay, just chill by the pool with a refreshing beverage in your hand, stroll through the park's many gift shops, catch a live show, or test your skill at the midway game booths.

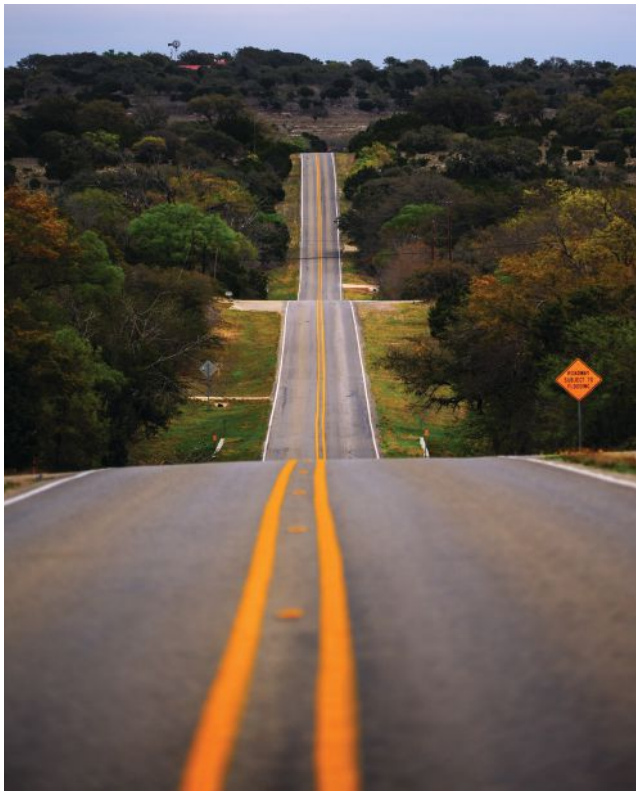
Wineries and vineyards abound

Just want to kick back, do a little shopping, and sip a little wine in Texas Hill Country? You'll find that close by, too, at more than 50 wineries and vineyards sprinkled throughout the area. You may want to gather some like-minded colleagues to spend time on a tour of the wine trails. A bus takes everyone to a selection of wineries for a day of relaxation and fun. Check with the hotel concierge for information.

Small towns like New Braunfels and Boerne are full of unique shops for visitors, and the scenery along the way is gorgeous, too.

Let's go!

So mark your calendars for July 17-19 and plan to join your respiratory care colleagues for AARC Summer Forum 2018. We guarantee you'll go home with a wealth of knowledge that you can put to work in your departments and programs — and you'll enjoy a great family vacation at the same time. ■



AARC'S COMPLETELY REDESIGNED MARKETPLACE FOR RESPIRATORY CARE PRACTITIONERS

Guiding you to an even smarter search

AARC has officially launched the most connected resource for Respiratory Care Practitioners. The new Marketplace is even easier to use, with new features that take the user experience to a whole new level.

Fluidity across all devices

No more scrolling, no more zooming – the Marketplace will react to your screen size, from your desktop to your tablet to your mobile phone.

Search with purpose

With its newest search technology, visitors will find results with increased relevancy at an unbelievable speed. Find what you're looking for – the first time around.

Fully-loaded listings

Enhanced company profile pages give users access to more information, including additional product/company photos, maps, certifications, key contacts and social media links.

The new AARC Respiratory Care Marketplace for RCPs helps you work smarter, not harder. **The future of product sourcing is here today!**

RESPIRATORYCAREMARKETPLACE.COM

972.402.7070 | aarc@mulitiview.com

American Association for Respiratory Care

MULTIVIEW

2018 AARC Summer Forum Program

Hill Country
San Antonio, Texas

AARC Summer forum
Where Challenges Become Opportunities

2018 Pre-Summer

Monday, July 16 | San Antonio, TX

NATIONAL BOARD FOR RESPIRATORY CARE (NBRC)

8:00 am – 11:00 am

Strengthen Teacher-Made Test Quality Item by Item

Robert C Shaw Jr PhD RRT FAARC, Olathe KS

In response to an evaluation of educators' needs the NBRC will again offer a free pre-session workshop focused on improving teacher-made tests one item at a time. There is no pre-registration system. The room will accommodate 50 people so come early to find a seat.

COMMISSION ON ACCREDITATION FOR RESPIRATORY CARE (CoARC)

12:00 noon – 1:30 pm

Meet the Commission

This session is an opportunity for program personnel and administrators to meet with their program referees on an individual basis to discuss:

- Recent changes to CoARC policies, procedures, and documentation involving the referee process;
- Interpretation of the new CoARC accreditation standards;
- What is recommended for improvement of the institution or program, including any progress reports; and
- How to communicate appropriately and effectively with their program referee and Executive Office staff.

Attendance for this session is on a first-come, first-served basis and attendees are required to pre-register with the CoARC by contacting Michelle Poster at michelle@coarc.com.

AMERICAN ASSOCIATION FOR RESPIRATORY CARE (AARC)

1:00 pm – 5:00 pm

Women in Leadership

Shawna L Strickland PhD RRT RRT-NPS RRT-ACCS AE-C FAARC/*Presiding*

Many women naturally possess effective leadership skills and competencies, including demonstrating communication and social skills, utilizing creativity and innovation, problem solving, demonstrating judgment and team leadership. It is important to recognize and represent these leadership qualities and competencies appropriately. This pre-course is designed for both women and men and for both emerging and current leaders. The sessions will encourage the participant to examine strengths, leverage mentorship opportunities, and establish a leadership presence as part of developing or helping others to develop a career path.

Forum Program

1:00 pm – 1:15 pm
Welcome and Introduction

1:15 pm – 2:10 pm
The Value of Self-Assessment

Cheryl Hoerr MBA RRT, Rolla MO

It is important for leaders and emerging leaders to assess and understand the value their strengths and abilities have on the growth and success of their department, division and organization. This session focuses on understanding how your personality type can impact your supervisory performance and how to leverage your unique leadership strengths to become a more effective leader.

2:10 pm – 2:20 pm
Break

2:20 pm – 3:15 pm
Mentoring 101: Finding the Right Fit

Ellen Becker PhD RRT RRT-NPS FAARC, Chicago IL

Mentoring relationships have powerful and positive personal, academic, and professional effects. Mentoring facilitates personal growth and development as well as social and economic opportunity. This session focuses on methods for identifying mentors and leveraging lessons learned, as well as describes how to become an effective mentor.

3:15 pm – 3:25 pm
Break

3:25 pm – 4:20 pm
Developing a Leadership Presence

Teresa Volsko MBA MHHS RRT FAARC, Akron OH

Effective leaders develop awareness of how their words, personal appearance, and actions impact others. This session presents the elements essential to achieving and maintaining a leadership presence. Participants will be introduced to, and have the opportunity to practice, behaviors and techniques which will enable them to command a presence which will empower others to excel.

4:25 pm – 5:00 pm
Panel Discussion

Cheryl Hoerr MBA RRT, Rolla MO

Ellen Becker PhD RRT RRT-NPS FAARC, Chicago IL

Teresa Volsko MBA MHHS RRT FAARC, Akron OH

*Course capacity is limited. Deadline is Friday, June 29, 2018 or when the course is full. Approved for 3.56 hours of continuing education credits (CRCE). You must attend the entire course to receive CRCE credit; no partial credit will be awarded. See registration form for course fees.

8:30 pm – 10:00 pm
Welcome Reception

Join us for a meet-and-greet with friends and colleagues.


Hoerr, Cheryl


Becker, Ellen


Volsko, Teresa

2018 AARC Summer

Tuesday, July 17 | San Antonio, TX

7:00 am – 8:00 am

Coffee service for registered attendees and exhibitors

GENERAL SESSION

8:00 am – 8:40 am

The State of the Profession

Brian K Walsh PhD RRT RRT-NPS FAARC, Boston MA

In this keynote address, AARC President Brian Walsh will update the audience on the goals, priorities, and strategic focus of the Association that he set forth when he took office in 2017. Attend this presentation and better understand where we were and where we currently are specific to the three domains of focus (safety, quality, and value) that have served, and will continue to serve, as the Association's road map during the remainder of Dr. Walsh's presidency. This is your opportunity to hear from our president regarding topics that are important to you!

Walsh, Brian

Forum

See pages 64–66 for registration form/fees, hotel reservation information, and travel discounts.
Approved for up to 13.49 hours of continuing education credit (CRCE).

EDUCATOR TRACK

8:50 am – 4:25 pm

Georgianna Sergakis PhD RRT FAARC
Chair, AARC Education Section/
Presiding

8:50 am – 10:15 am

The 360 Student Pre-Clinic Evaluations

8:50 am – 9:35 am

Evaluation Tools

Donna Gardner RRT RRT-NPS FAARC FCCP, San Marcos TX

The 360 student pre-clinic evaluation uses standardized patients, faculty, and self-evaluations of clinician-patient communication skills, patient assessment skills, and patient comfort during the patient assessment. This comprehensive evaluation provides feedback to the student for self-awareness communication and patient assessment skills.

9:35 am – 10:15 am

Standardized Patients

Ruben Restrepo MD RRT FAARC FCCP, San Antonio TX

This lecture will share the process for training the standardized patients for participating in the pre-clinical evaluation and the method for evaluating the students.

10:15 am – 11:15 am

Visit our Exhibitors

11:15 am – 11:55 am

Developing Effective Career Pathway Strategies

Diane Oldfather MHEd RRT FAARC, Rolla MO

The AARC's goal for 80% of respiratory therapists to earn or pursue a bachelor's degree by 2020 elicits conversations in all facets of the respiratory profession. Growth requires a thorough investigation of potential roadblocks and development of plausible solutions to overcome obstacles. This presentation shares some of the discovered fears, viable solutions to overcome, and examples of success realized when venturing through a career pathway.

12:00 noon – 12:40 pm

Paving the Path to a Bachelor's Degree

Tina Siddon BS RRT, Madisonville KY

In 2015 the AARC set a goal that 80% of respiratory therapists (by the year 2020) will have earned or will be pursuing a bachelor's degree. One viable pathway is for graduates of associate degree respiratory therapy programs to attend a degree advancement program to earn their BSRC degree.

12:40 pm – 2:15 pm

Lunch (on your own)


Gardner, Donna


Restrepo, Ruben


Oldfather, Diane


Siddon, Tina

Tuesday, July 17 | San Antonio, TX (continued)

2:15 pm – 4:25 pm

CoARC Symposium

2:15 pm – 2:55 pm

▶A Glimpse into the Future: The 2020 CoARC Standards for Entry into Practice

Tom Smalling PhD RRT RPFT RPSGT FAARC, Bedford TX

The presenter will describe the process for revision of the CoARC Standards and present proposed changes to the Standards. Time will be allotted for questions and comments from members of the audience.

3:00 pm – 3:40 pm

▶Competency Assessment in the Affective Domain

Sarah Varekojis PhD RRT FAARC, Columbus OH

Clinical educators and program faculty all have a need to ensure students have appropriate affective behaviors and professional behaviors. This presentation is designed to help participants develop defensible affective domain assessments that will help ensure the delivery of quality respiratory care.

3:45 pm – 4:25 pm

▶Associate to Baccalaureate Degree: Increase in Professional vs. Increase in Generalist Curriculum

Pat Munzer DHSc RRT FAARC, Topeka KS

Joseph Coyle MD FCCP, Charlotte NC

This presentation will provide viewpoints on curriculum related to an associate degree graduate deciding on the type of bachelor's degree completion program to pursue. Some options have more professional coursework versus others that have more generalist or health science focus with courses in leadership, management, etc.

Smalling, Tom

Varekojis, Sarah

Munzer, Pat

Coyle, Joseph

Forum

MANAGER TRACK

8:50 am – 4:25 pm

Cheryl A Hoerr MBA RRT FAARC

Chair, AARC Management Section/ Presiding

8:50 am – 9:30 am

Making the Case for You and Your Respiratory Care Services

Garry Kauffman MPA RRT FACHE FAARC, Walnut Cove NC

The days of obtaining reimbursement for every procedure, test, and intervention are only distant memories. Counting "procedures" and "billable units of service" are no longer of any value to administrators, consultants, medical staff, and others. How do you accommodate the demands placed upon you and, more importantly, proactively respond to these demands? This presentation will address how to create a value proposition for a change initiative, identify key stakeholders and decision-influencers, determine performance metrics and goals, and develop a communication strategy to secure approval of a change initiative, while reinforcing your value as an RT leader. Attendees will receive a template to utilize in "making the case" for their role as a health care leader and the services provided by respiratory therapists.

9:35 am – 10:15 am

Improving Retention in the Changing Health Care Climate

Kyle Mahan MSM RRT, Louisville KY

As a push for higher education and degree attainment is being encouraged this is creating a new population of RTs with a skill set positioning them for new opportunities. Career advancement is pushing respiratory therapy in new directions but putting the department manager in a challenging position. This presentation looks at ways for managers and directors to attract and retain respiratory therapists.

10:15 am–11:15 am

Visit our Exhibitors

11:15 am – 11:55 am

Use of a QI Approach to Decrease COPD Readmissions

Tom Cahill MS RRT RRT-NPS FAARC, Edgewood KY

Given the continued focus on reducing unplanned readmissions, RT leaders need to find new and innovative ways to impact the care of our COPD patients. While the current Hospital Readmissions Reduction Program (HRRP) was created to address 30-day readmissions, many expect the timeline to increase in the future. This presentation will demonstrate how to decrease readmissions in that 30-day period as well as sustain this positive impact by utilizing a comprehensive quality assurance program.

Kauffman, Garry

Mahan, Kyle

Cahill, Tom

2018 AARC Summer

Tuesday, July 17 | San Antonio, TX (continued)

12:00 noon – 12:40 pm

Assessing Skills Using Simulation during the Hiring-Interview Process

Cheryl Paulson RRT, Rochester MN

There are countless books and articles suggesting that "their way" is the best method to select the best candidates. Of these, which methods are based on evidence and which methods should we relegate to antiquated practices? This presentation will illustrate how to select the BEST FIT candidate for your department.

12:40 pm – 2:15 pm

Lunch (on your own)

2:15 pm – 2:55 pm

Changing Our Minds about Change: Using the Science of Change Management

Cheryl Hoerr MBA RRT CPFT FAARC, Rolla MO

As health care moves from a hospital-based, provider-centric model to a community-based, patient-centric model of care RT managers must develop expertise in changing management techniques. A change strategy map is an excellent way for managers to map the terrain, identify stakeholders and their level of support, evaluate potential resistance, and influence supporters to ensure project success.

Paulson, Cheryl

Hoerr, Cheryl

Forum

3:00 pm – 3:40 pm

Leveraging Your EMR Software to Fit Your Respiratory Needs

Daniel Shih MS RRT, Hammond IN

While EMRs offer benefits in several domains, many clinicians are frustrated with the complexity and additional time they require. Electronic documentation, as well as searching for documentation entered by other health care professionals, consumes more time than paper documentation and, in some cases, makes it actually more difficult for each discipline to see what other disciplines are doing. This presentation shows how to design your respiratory therapy workflow within your EMR to allow your respiratory therapists to spend more time with their patients than "in the chart" and to allow other disciplines to access the RT care plans.

3:45 pm – 4:25 pm

Should I Care About the Physician Supervision Regulation?

Kim Bennion MSHS RRT CHC, Salt Lake City UT

Follow the presenter as she defines "physician supervision" from the regulatory perspective and shares why knowledge about this is a "must know requirement" if you plan to expand your RT scope of practice to function at the top of your license. The presenter will share tools to use to ensure compliance that can be used to gain buy in for role expansion from your administrators.

Shih, Daniel

Bennion, Kim

2018 AARC Summer

Wednesday, July 18 | San Antonio, TX

7:45 am – 8:15 am

Breakfast buffet for registered attendees

GENERAL SESSION

8:15 am – 9:05 am

What's The "IT" For You At This Forum?

Jones Loflin, Leadership Consultant and Book Author, North Carolina

You've had a fantastic forum and soon will be returning home with lots of new ideas for your professional and personal growth. The big question is, how will you get to these "ITs" or "Important Things" when you already have a crazy busy schedule? You only have to remember four simple words to move your ITs from idea to reality.

EDUCATOR TRACK

9:20 am – 3:25 pm

Georgianna Sergakis PhD RRT FAARC

Chair, AARC Education Section/ *Presiding*

9:20 am – 10:00 am

Check Your Alignment! What are You Actually Teaching?

Jennifer Keely MEd RRT RRT-ACCS, Columbia MO

Course revision is an ongoing process. It occurs when content updates are necessary and with changes in textbook, class, delivery format, or instructor. When designing or revising course content, close attention must be given to alignment of the instructional materials. This lecture will highlight potential areas for misalignment and identify the need for alignment among program goals, course goals, unit objectives, and assessments.

10:05 am – 10:45 am

Put the Puzzle Together: Jigsaw Teaching Method

Jennifer Anderson EdD RRT RRT-NPS, Wichita Falls TX

The jigsaw technique is a method of organizing classroom activities that makes students depend on each other to succeed. Attend this lecture to learn how to improve student motivation, promote cooperative learning, and increase their enjoyment of learning experiences.

10:45 am – 11:45 am

Visit our Exhibitors

Loflin, Jones

Keely, Jennifer

Anderson, Jennifer

Forum

11:45 am – 12:25 pm

Every Little Thing: Tackling the "Quality Matters"

Jennifer Keely MEd RRT RRT-ACCS, Columbia MO

Online education is increasingly important in RT curricula. However, many educators would not include effective online course design among their strengths. Just as we use rubrics to assess the quality of students' work, the Quality Matters (QM) rubric can be used to evaluate a course and highlight areas for improvement. This lecture will present the course review process from the perspective of the educator as well as the QM peer reviewer.

12:25 pm – 2:00 pm

Lunch (on your own)

2:00 pm – 2:40 pm

Putting Research into Your Curriculum

Aaron Light DHSc RRT RRT-ACCS, Springfield MO

The presenter will discuss ways to incorporate a research component into a curriculum. He will also discuss ways to include actual research projects like bench studies and human testing studies. Examples of how he and his students have performed over 60 student-led research projects and transitioned them into OPEN FORUM abstracts for the AARC Congress will be presented.

AARC Summer forum
Where Challenges Become Opportunities

Education Section Membership Meeting

2:45 pm – 3:25 pm

Georgianna Sergakis PhD RRT FAARC

Chair, AARC Education Section/ *Presiding*

Updates on issues important to the section will be discussed, with interactive dialogue on how the section chair and the AARC can better serve the Education Section and its members. This is your opportunity to influence the profession and network with your peers. All Summer Forum attendees are invited to attend.

3:25 pm – 3:45 pm

Break

MANAGER TRACK

9:20 am – 3:25 pm

Cheryl A Hoerr MBA RRT FAARC

Chair, AARC Management Section/ *Presiding*

9:20 am – 10:00 am

Have You Refined Your Protocols Lately?

Thomas Malinowski MScRT RRT FAARC, Charlottesville VA

When was the last time your protocols or guidelines were modified to match best practices or evolving patient population? Refinement allows clinical protocols to remain applicable to the continuously changing care environment with new priorities and rules. This presentation will describe how two protocol pathways were modified: one targeting lung protective ventilation strategies and the second on the application of respiratory therapy Assess and Treat protocols to a new patient population.


Light, Aaron


Sergakis, Georgianna


Malinowski, Thomas

Wednesday, July 18 | San Antonio, TX (continued)

10:05 am – 10:45 am

What the C-Suite Expects of RT Leaders to Demonstrate Their Value and the Value of Their Respiratory Care Services

Anthony W Baird MHA RRT RRT-NPS CPFT, El Paso TX

The presentation will outline developmental and growth capabilities for RT managers and RT clinicians using our intrinsic global education and positioning as the platform for this development and growth. The discussion will include current and future challenges to health care in general and how RT leaders must play a major role. This presenter is a former RT who has made the leap to the C-Suite and will share his perspectives on how we are viewed by executives and what we must do to demonstrate, document, and communicate our value.

Baird, Anthony

10:45 am – 11:45 am

Visit our Exhibitors

11:45 am – 12:25 pm

The Many Hats of the Forgotten — Critical Access Hospitals

Jason Platzer RRT RPSGT, Gunnison CO

Of the some 1300 Critical Access Hospitals there have been 82 rural hospital closures across the U.S. since 2010. Could your hospital be next? Creativity and resourcefulness can contribute to the financial stability of your health care entity. See how wearing "many hats" is key to contributing so you do not become "the forgotten."

Platzer, Jason

12:25 pm – 2:00 pm

Lunch (on your own)

(Symposium)

2:00 pm – 3:25 pm

Human Factors Engineering

2:00 pm – 2:40 pm

▶ Introduction to Human Factors Engineering in Health Care

A Joy Rivera PhD, Milwaukee WI

Human Factors Engineering (HFE) in health care is both a science and a practice. It discovers and applies information about human behavior, abilities, and limitations to the design of tasks, tools, technology, environment, and organization to jointly increase safety, quality, efficiency, and productivity. In 2000 the Institute of Medicine called on Human Factors Engineers to study the contributing factors of errors that were leading to so many preventable deaths in the U.S. health care system. Despite this plea, health care has trailed other industries that actually require HFE in their designs (e.g., DOD, DOT, DOE, NASA). This presentation describes the benefits of applying HFE to health care and presents several real-world examples from a children's hospital that employs Human Factors Engineering in an operational role.

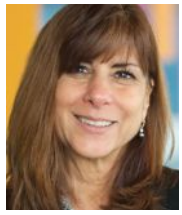
2:45 pm – 3:25 pm

▶ Human Factors Engineering's Impact on Safety

A Joy Rivera PhD

The overall objective of Human Factors Engineering (HFE) is to reduce errors, fatigue, stress, and injuries at work while at the same time improving productivity, ease of use, safety, comfort, acceptance, job satisfaction, and quality of life. HFE meets its objectives by taking a proactive, systems approach to identifying, analyzing, and designing hazards out of the work system. A hazard is defined as a condition or set of circumstances that can cause harm or increase the risk of harm. HFE recognizes the complexity of health care and the importance of studying system interactions to understand errors and their contributing factors. Health care must push past the instinct to blame humans for events or accidents but rather take a HFE perspective to explain the system components that surrounded the human at the time of the event. This approach will help to create system interventions that will mitigate hazards – reducing the opportunities for errors – and be sustained over time.

Rivera, A Joy



Volsko, Teresa

3:25 pm – 3:45 pm

Break

GENERAL SESSION

3:45 pm – 4:25 pm

The Journey to Great: Educator and Leader Collaboration to Create Value for our Professional Workforce

Teresa Volsko MBA MHHS RRT FAARC, Akron OH

For the profession of respiratory care, sustainable results depend upon the degree to which an organization's culture is aligned to specific guiding principles rather than depending solely on tools, programs, or initiatives. This lecture provides a framework that will guide collaboration between academia and health care employers and can facilitate and expedite that alignment.

2018 AARC Summer

Thursday, July 19 | San Antonio, TX

7:00 am – 8:00 am

Coffee service for registered attendees and exhibitors

GENERAL SESSION

8:00 am – 8:55 am

AGENCY UPDATES

Brain K Walsh PhD RRT FAARC — AARC President

Michael T Amato MBA — ARCF Chair

Allen Gustin Jr MD FCCP — CoARC President

Katherine L Fedor MBA RRT RRT-NPS CPFT — NBRC President

The leadership of the AARC, ARCF, CoARC, and NBRC will join attendees to discuss the latest professional, research, accreditation, and credentialing issues facing respiratory care.

EDUCATOR TRACK

9:00 am – 11:50 pm

Georgianna Sergakis PhD RRT FAARC

Chair, AARC Education Section/ *Presiding*

9:00 am – 10:30 am

Jimmy A Young Memorial Lecture

Changes to Examinations Linked to CRT and RRT Credentials

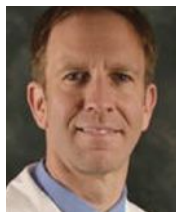
Presented by the National Board for Respiratory Care

Robert Shaw PhD RRT FAARC, Overland Park KS

The Jimmy A Young Memorial Lecture annually sponsored by the NBRC will share methods and results from the 2017 Study of Respiratory Therapists. Examination changes spurred by these results will be explained.


Walsh, Brian


Amato, Michael


Gustin, Allen


Fedor, Katherine


Shaw, Robert

Forum

10:30 am – 10:40 am

Break

10:45 am – 11:45 am

DR H FRED HELMHOLZ EDUCATION LECTURE SERIES

Presented by the Commission on Accreditation for Respiratory Care

Making Brain Science Work for Teachers

Dennis Wissing PhD RRT AE-C FAARC, Shreveport LA

An overview of how the brain learns and how factors such as exercise, sleep, and stress influence learning. Also discussed will be how visual stimulation improves learning. How to get and hold students' attention along with strategies to improve memory will also be presented.

MANAGER TRACK

9:00 am – 11:50 pm

Cheryl A Hoerr MBA RRT FAARC

Chair, AARC Management Section/ *Presiding*

Management Section Membership Meeting

9:00 am – 9:25 am

Cheryl A Hoerr MBA RRT FAARC

Chair, AARC Management Section/ *Presiding*

Updates on issues important to the section will be discussed, with interactive dialogue on how the section chair and the AARC can better serve the Management Section and its members. This is your opportunity to influence the profession and network with your peers. All Summer Forum attendees are invited to attend.

9:30 am – 10:10 am

Show Me the Evidence: An Evidence-Based Fellowship Program

Patty Silver RRT, Maplewood MO

The presenter will share the fundamental components of the fellowship program and examples of projects effectively completed due to participation. She will illustrate the positive impact experienced by both front line staff and management in developing a team of RCPs who can effectively address clinical requests or changes in practice based on "expert opinion."

10:15 am – 10:55 am

Value-Added Roles for RTs in Primary Care

Mike Hess BS RRT RPFT, Kalamazoo MI

Respiratory care IS primary care! Best practices are now shifting toward "transitioning" patients through the health care system rather than merely "discharging" patients from the acute care hospital and RTs must be prepared for the new paradigm. Learn how respiratory therapists can add value providing services as part of a primary care clinic model. The presenter will explain the process from pitching the idea to senior executives to creating the program all the way through operating the clinic.


Wissing, Dennis


Hoerr, Cheryl


Silver, Patty


Hess, Mike

2018 AARC Summer Forum

Thursday, July 19 | San Antonio, TX (continued)

10:55 am – 11:10 am

Break

11:10 am – 11:50 am

Make It Matter: Creating a Sense of Urgency for Change

Dana Evans MHA RRT RRT-NPS, Chicago IL

Why do we have to make a change? As a health care leader are you frustrated every time you hear "This is the way we have always done it" or "Why change it if it's working?" As leaders it is our responsibility to establish the need for change and get others to agree in order to be successful. The presenter will discuss the importance of creating a sense of urgency, tips for getting this done, and the potential consequences of not doing so.

Evans, Dana

CLOSING KEYNOTE

12:00 pm – 12:40 pm

To be determined: See the on-line Summer Forum Program for the most up-to-date information.

SMART RESPIRATORY MANAGEMENT TOOLS

American Association for Respiratory Care

Find more management and educational resources by visiting the AARC Store.

Order Online:
http://c.aarc.org/go/aarcstore

RESPIRATORY CARE PATIENT-DRIVEN PROTOCOLS, 3RD EDITION

The pressure is on to efficiently operate a respiratory care department more economically. One of the most significant ways to accomplish safe and effective cost savings is through the use of protocols by respiratory therapists. Protocols have been scientifically validated as an effective method to reduce expenses and this manual is an excellent resource for the development, implementation, or refinement of care plans. Contains algorithms with each protocol.

ORIENTATION AND COMPETENCY ASSURANCE DOCUMENTATION MANUAL FOR RESPIRATORY CARE, 2ND EDITION

Take the worry out of documenting orientation and competency in respiratory care. With its easy-to-use digital format, this manual provides tools for documentation of compliance for Respiratory Care Services with the 2010 standards for CMS, IHI (Institute for Healthcare Improvement), and The Joint Commission. Terminology is consistent with the AARC's Uniform Reporting Manual. Includes guidelines in chapter format with reference to over 90 detailed competency documentation forms.

2018 AARC Summer

Registration Form

Tuesday-Thursday, July 17-19, 2018 • San Antonio Hill Country, TX

INTERNET: **Go to www.AARC.org to register online and to receive a confirmation.**
or MAIL: **Send this form to AARC Summer Forum, 9425 N. MacArthur Blvd., Ste. 100, Irving, TX 75063-4706 U.S.A. Full payment must be included with your registration form. Make checks payable to the AARC.**
or FAX: **If paying by American Express, MasterCard, or VISA, you may fax your registration form to 972-484-2720.**

PLEASE PRINT

First/Last Name for Badge _____

Credential (check up to three to be printed after your name): ☐ RRT ☐ PhD ☐ MS ☐ MBA ☐ FAARC ☐ Other_____

AARC Member # _____ **E-mail Address** _____**@**_____

Employer _____

Preferred Mailing Address ☐ **Home or** ☐ **Business** **Daytime Phone ( )** _____

_____

City _____ **State** _____ **Zip** _____

Military Registration

The AARC pre-course and Summer Forum registration fees are being waived for all active duty military health care professionals (not just respiratory therapists) to thank you for your service. Go to www.aarc.org/aarc-meetings/summer-forum-2018/military.php to view the instructions and download a military registration form.

Pre-Course

Women in Leadership

Monday, July 16, 1:00 pm - 4:55 pm

CHECK ONE:	Through May 14	After May 14 and On-Site
AARC Member	☐ $100	☐ $125
AARC Senior Member	☐ $35	☐ $50
AARC Student Member*	☐ $20	☐ $25
Non-member	☐ $170	☐ $200

* **Must be registered for the Summer Forum. Will not receive CRCE credit.**

Summer Forum

Tuesday, July 17, 8:00 am – Thursday, July 19, 12:40 pm

CHECK ONE:	Through May 14	After May 14 and On-Site
AARC Member	☐ $365	☐ $430
AARC Senior Member	☐ $100	☐ $110
AARC Student Member **	☐ $40	☐ $40
Non-member***	☐ $525	☐ $550

Spouses may register on-site for $75.

Which track will you primarily attend? ☐ **Education** ☐ **Management**

** **Will not receive CRCE credit.**

Method of Payment

Check or Money Order enclosed ☐

Charge my ☐ **VIsa** ☐ **MasterCard** ☐ **American Express**

Name of Card Holder (print) _____

Credit Card # _____

Expiration Date_____ **Signature** _____

*** **Join the AARC and save! If you opt to pay the non-member fee, you are entitled to free, automatic 1 year AARC membership.**
Check here ☐ if you **DO NOT** wish to receive this complimentary membership.

No invoices will be issued. Cancellations must be in writing. There will be either a 25% or $50 handling fee, whichever is less, for cancellations received by Friday, June 29, 2018. No refunds will be made thereafter. Send an e-mail to AARC Customer Service at info@aarc.org with "2018 Summer Forum Cancellation" in the Subject line.

Site and Travel Information

Save with Discounted Transportation and Lodging

Site

All AARC Summer Forum meetings will be held at the JW Marriott San Antonio Hill Country Resort & Spa, 23808 Resort Parkway, San Antonio, Texas 78261; phone 210-276-2500.

Hotel Rates

- Rate shown is per room per night for single through quad occupancy. Deposit required.
- $187 + 16.75% tax ($218.32)

Nightly Rate Includes:

- Complimentary Wired for Business high speed internet access in guest room and public space
- Complimentary self-parking
- 10% discount at Lantana Spa
- 10% discount off published golf rates at TPC San Antonio
- Access to the River Bluff Water Experience

Resort Fee Benefits

The optional, additional resort fee is discounted from $40 per night per room to $5 per night per room.
Rate is plus 16.75% tax nightly. Show your Resort Fee Card for discounts and access.

- Unlimited local/domestic long distance calls from guest room
- Access to Resort and Lantana Spa Fitness Centers. Free fitness classes are included; select classes have an additional fee.
- 15% discount at Replenish Spa Bistro
- Golf bag storage at the bell stand
- One year complimentary subscription to Golf Digest
- Basketball and tennis court access with racket
- 10% discount for Kids' Night Out
- Two complimentary signature welcome drinks in Crooked Branch Lobby Bar per room per stay

Hotel Reservations/Deadline

- **Deadline** for the AARC's special sleeping room rate is **Friday, June 22.**
- **Call 877-622-3140.** Refer to **AARC Summer Forum.** Discounted rates are available only through this phone number.
- **Online** at https://aws.passkey.com/go/AARC2018SummerMeetings

Airline Discounts

Delta and United discount codes are valid for fares to the airports in San Antonio, as well Austin, Texas. Discounts also apply to family and friends. San Antonio International Airport (SAT) is approximately 14 miles from the Resort. Austin Bergstrom International Airport (AUS) is approximately 77 miles northeast of the Resort.

DELTA

- **Online** at www.delta.com. Click "Advanced Search" and enter Meeting Event Code **NMRMJ** in the box provided on the Book A Flight page.
- **Call,** Delta Meeting Network at 800-328-1111. Refer to meeting code **NMRMJ.**

UNITED

- **Online** at www.united.com. Click "All Search Options". On the "Book a Flight" page, enter **ZEU3345071** in the Offer Code box under "Promotions and Certificates".
- **Call** United Reservations Meetings Desk at 800-426-1122. Refer to **Z** code **ZEU3** and Agreement Code **345071.**

Ground Transportation

The Resort does not provide shuttle service.

There are a variety of ground transportation options available between the San Antonio Airport and the Resort [www.sanantonio.gov/SAT/Ground-Transportation]. Ground transportation is located on the outer commercial curb on the lower level outside the Terminals A and B baggage claim areas.

Rental cars are available for transportation from the Austin Airport.

Taxi Service/Rideshare/SuperShuttle from SAT

Taxicab fare to the JW Marriott Hill Country Resort & Spa is approximately $40 per cab. Up to 6 may share a cab, if both luggage and passengers fit safely.

Approved rideshare services meet customers on the outer commercial curb, lower level, outside Terminal A. Companies approved for operations at SAT: Uber, Lyft, Get Me and Wingz. [www.sanantonio.gov/SAT/Ground-Transportation/Rideshare]

SuperShuttle offers shared ride service between the San Antonio International Airport and the Resort. The van may make additional stops in route. The counter located in Terminal A Baggage Area is open from 8 am until Midnight. Reserve online at supershuttle.com or call 800-258-3826.

Rental Cars

Car rental discounts are valid for the Budget, Enterprise and Hertz locations in San Antonio and Austin.

Budget®

Reservations should be booked for the San Antonio Airport location no earlier than 45 days in advance in order to receive the discount. Prior to that date the website will show the location is sold out. The other locations are currently accepting reservations.

- **Online** at www.budget.com. Enter the **BCD** number, **U064639,** to receive the discount.
- **Call** 800-842-5628. Refer to **BCD** number **U064639.**

enterprise rent-a-car

- **Online** at www.enterprise.com. Enter Discount Rate Code **L9D0194** in the "Promotion Code" box.
- **Call** 800-736-8222. Refer to Discount Rate Code **L9D0194.**

Hertz®

- **Online** at www.hertz.com. Enter **049T0014** in the Convention Number (**CV**) discount code box.
- **Call** 800-654-2240 or 405-749-4434. Refer to Convention Discount Number **049T0014.**

▶ **DISCOUNT COUPONS for San Antonio and the Texas Hill Country www.sanantoniotourism.com/pages/coupon.html**

— 2018 —

Since 1947, the AARC has been leading the effort to advance the science and practices of the respiratory care profession while promoting the highest quality of care for our patients. Collaborating with the respiratory communities at-large, we have successfully advocated at the federal, state and local level for patients, their families, the community, the profession and the respiratory therapist.

The AARC'S CORPORATE PARTNERS

The collaborative efforts between the respiratory care profession and manufacturers in pursuing unique and innovative ways to improve both the quality and outcomes of our patients makes us natural partners in today's ever changing health care continuum.

As health care finances become more strained and patient care becomes increasingly more complex, the mutual challenges become greater for the profession and its industry partners. The inherent synergies of the corporate partner concept are to provide an effective and efficient way to address those needs utilizing our combined skills and resources.

AARC CORPORATE PARTNERS

vyaire MEDICAL

Masimo

Medtronic
Further, Together

monaghan

PHILIPS

Dräger

GETINGE

Teleflex®

Boehringer Ingelheim

AstraZeneca

Mallinckrodt Pharmaceuticals

ResMed
Changing lives with every breath

Fisher & Paykel HEALTHCARE

SUNOVION
Healthy bodies, healthy lives

Industry Watch

Rush University receives NIH grant to develop blood test for lung cancer

Researchers at Rush University Medical Center have received a two-year, $275,000 grant from the National Institutes of Health to develop a blood test for the early detection of lung cancer. People at risk for lung cancer are currently advised to receive a low-dose computed tomography (CT) scan of their lungs to detect early-stage cancers. "It is an effective screening tool, but most of the nodules we identify with CT scanning will turn out to be benign," noted Dr. Christopher Seder, a thoracic surgeon at Rush. "We are trying to develop a better way to determine whether the nodule is malignant or not."

ATS Foundation issues research grants

The American Thoracic Society (ATS) Foundation has awarded unrestricted research grants totaling more than $1 million to 16 researchers to advance pulmonary, critical care, and sleep medicine around the world. These one-year, $40,000 grants can be used to support basic science, patient-oriented, and public health research. Since it began in 2004, the ATS Foundation Research Program has awarded $16 million to 210 investigators, both in the United States and internationally. These researchers have gone on to receive $215 million in federal funding.

Temple University Hospital number one in 2017 lung transplants

According to the United Network for Organ Sharing, Temple University Hospital (TUH) performed 131 lung transplants in 2017, making it the number one program in the nation by volume. Lung transplants at Temple have grown markedly in recent years, up from just five in 2011. "To reach this level in such a short period of time is nothing short of extraordinary," says TUH President and CEO Verdi J. DiSesa, MD, MBA. "This truly is a demonstration of the talent and dedication of our transplant team and a measure of our commitment to serve patients who are in need of highly skilled, complex care."

Prometic Life Sciences' IPF drug gains orphan drug status

According to Prometic Life Sciences, Inc., the U.S. Food and Drug Administration has granted orphan drug designation to its plasminogen (Ryplazim™) for the treatment of idiopathic pulmonary fibrosis (IPF). In an animal model proven to emulate pulmonary fibrosis in humans, the drug performed favorably compared to recently approved IPF drugs to treat the condition. The drug significantly reduced tissue scarring in the lungs that was observed in non-treated animals, indicating the potential for providing clinically significant improvement and stabilization in lung function.

Another telehealth pilot launched for congestive heart failure and COPD care

CHI Health at Home is partnering with Health Recovery Solutions (HRS) to pilot a remote-monitoring platform designed to influence patient behaviors while reducing re-hospitalization. The initiative is kicking off in Kentucky and Nebraska, where patients with congestive heart failure and COPD will have the opportunity to receive telemonitoring to support their at-home chronic care management and reduce the risk of hospital readmission and ER utilization.

Patients will receive 4G-enabled tablets pre-loaded with HRS' disease-specific software paired with Bluetooth devices, technology that will perform biometric monitoring such as blood pressure, weight, oxygen saturation levels, and more. All data captured through the devices will be transmitted securely to the CHI Health at Home clinical team within seconds, allowing for real-time interventions for high-risk patients.

Pulmatrix receives go ahead for ABPA trial in the UK

Pulmatrix, Inc., has received authorization of its Clinical Trial Application from the UK Medicines and Healthcare Products Regulatory Agency (MHRA) to initiate its first-in-human study for Pulmazole (PUR1900), an inhaled iSPERSE™ formu-

lation of the anti-fungal drug itraconazole for the treatment of allergic bronchopulmonary aspergillosis (ABPA) in patients with asthma. ABPA occurs most often in patients with underlying asthma or cystic fibrosis and is characterized by an exaggerated allergic hypersensitivity response by the immune system to the fungus Aspergillus growing in the airways.

ALK's dust mite immunotherapy now available

ALK has announced that its sublingual allergy immunotherapy (SLIT) tablet ODACTRA™ is now available through prescription in the United States for those 18–65 years old who suffer from house dust mite (HDM)-induced allergic rhinitis, with or without conjunctivitis. ODACTRA™ is the first HDM SLIT-tablet to be approved for use in the United States. Its safety and efficacy were evaluated in the world's largest allergy immunotherapy clinical trial program, involving more than 6,000 patients, according to ALK.

Boehringer Ingelheim inhaler receives ease of use commendation

According to Boehringer Ingelheim, the Arthritis Foundation has recognized the Respimat® inhaler with its Ease of Use Commendation, which is awarded to products proven to make life easier for people with arthritis and other physical limitations. The Respimat inhaler went through a series of evaluations from experts and people living with arthritis to earn the commendation. "We are proud of our Respimat inhaler as being the first and only inhaler recognized by the Arthritis Foundation as easy-to-use for everyone," says Jean-Michel Boers, president, Human Pharma, Boehringer Ingelheim Pharmaceuticals, Inc.

ResMed introduces new POC

ResMed has introduced its first ResMed-branded portable oxygen concentrator (POC), dubbed Mobi. The POC was scheduled to be available to U.S. patients through their home medical equipment providers in the first quarter of 2018. The company is also pursuing clearance to sell it in other countries this year. "We have focused decades of patient-centered ResMed technology and design innovation into this POC," ResMed CEO Mick Farrell was quoted as saying. "Our patients demand a device that enables them to get out of their house and travel to visit friends and family."

True Health debuts three new allergy profiles for allergens

True Health is now offering three new comprehensive allergy profiles, including a Food Allergy Profile, a Regional Inhalant Allergy Profile, and a Pediatric Allergy Profile. The allergy profiles offer FDA-approved testing for up to 53 of the most common allergens seen in symptomatic adult and pediatric patients. When medically necessary, these tests will provide clinicians useful diagnostics to help patients avoid allergens that could potentially cause allergic reactions while minimizing unnecessary dietary or lifestyle restrictions.

Regeneron Pharmaceuticals, Sanofi move forward on drug

Regeneron Pharmaceuticals, Inc., and Sanofi will accelerate and expand investment for the clinical development of the IL-4/IL-13 pathway-blocking antibody dupilumab in Type-2 allergic diseases. The additional investment will help accelerate new studies in COPD, peanut and grass allergy, and in treatment for patients who have multiple allergic conditions.

Dupilumab is already in clinical development for pediatric atopic dermatitis, pediatric asthma, eosinophilic esophagitis, and nasal polyposis. Dupixent® (dupilumab) is approved for the treatment of adults with moderate-to-severe atopic dermatitis in the United States and the European Union, and a U.S. supplemental biologics license application was submitted for uncontrolled, persistent asthma for patients age 12 years and over in the fourth quarter of 2017.

Novoclem Therapeutics receives patent

Novoclem Therapeutics has received a U.S. patent covering the company's lead inhalable drug candidate, BIOC51, which has been designated as a Qualified Infectious Disease Product by the FDA for the treatment of chronic pulmonary infections due to Pseudomonas aeruginosa in patients with cystic fibrosis.

BIOC51 is a novel polyglucosamine biopolymer covalently modified with N-diazeniumdiolate nitric oxide (NO) donors to facilitate spontaneous (i.e., without the need of enzymes) and controlled NO release. The level of NO release from BIOC51 has proved sufficient for eradicating planktonic and biofilm-based bacteria. It can also be delivered to the lungs as a dry powder or as a solution through nebulization. ■

Brief submissions and photos for this column may be sent to *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org.

Industry Update

Featuring information on products and equipment from manufacturers

RC Currents

IN THE NEWS

Attention Students:
Here's a Deal You Can't Pass Up!

Respiratory care students who are nearing graduation know they will need to prepare for their upcoming credentialing exams. The AARC's Exam Prep program can help, and now the first 150 students to successfully complete the AARC's Respiratory Humidity Learning Module will be able to take advantage of Exam Prep at no cost. The offer is available to student members of the AARC who are currently enrolled in a respiratory care program and have a 2018 graduation date. So go to https://www.aarc.org/students/learning-modules-respiratory-care-students/ and sign up for the Learning Module today.

The AARC's Learning Modules for Respiratory Care Students focus on various aspects of respiratory care and aim to help newcomers succeed in their new profession. The learning modules are free for AARC student members. ■

Transitions

The AARC "Transitions" column is devoted to sharing news about the passing of AARC members. You can submit news about your colleagues' recent passing by going to http:c.AARC.org/transitions. Please provide any information about the member's recent obituary so that we can share it with the membership and pay tribute. ■

Educators:
Help Recognize Outstanding Students

The American Respiratory Care Foundation (ARCF) is accepting applications for its undergraduate and postgraduate Education Recognition Awards through **June 1** and is asking respiratory care educators to help get the word out to their students. Look at the list of available awards and then encourage your best and brightest students to apply.

The ARCF offers awards to students who are currently enrolled in accredited respiratory care educational programs and to respiratory therapists pursuing advanced degrees. Awards include registration and airfare to attend the AARC Congress in 2018.

To see all the awards bestowed by the ARCF every year, go to the Foundation's Grants, Awards, and Fellowships page at www.arcfoundation.org/awards. For information, contact Crystal Maldonado at crystal.maldonado@aarc.org. ■

Correction: Summer Forum Dates Are July 17-19

An advertisement on page 31 of the March issue of *AARC Times* listed incorrect dates of the 2018 AARC Summer Forum.

The correct dates are July 17–19, and we're taking this meeting for the first time to beautiful Texas Hill Country. ■

Telehealth Speeds Care

Telehealth is being touted as a way to bring much-needed care to patients living in areas where health care services are limited. Researchers from the University of Iowa looked at the timeliness of care delivered to patients in 14 rural hospitals in Iowa, Kansas, Nebraska, North Dakota, and South Dakota who subscribed to a telemedicine provider in Sioux Falls, SD, and they found that it's working.

The team matched 2,857 emergency department cases that used telemedicine services with non-telemedicine controls. Results showed that telemedicine decreased the door-to-provider time by six minutes. In 41.7% of cases, a telemedicine provider was the first provider to see the patient, and in these cases, telemedicine was 14.7 minutes faster. Among patients requiring a transfer to another hospital, length of stay in the first ER was shorter for patients who were seen by a telemedicine provider. The study appeared in a recent edition of *Telemedicine and e-Health*. ■

Smoking Ban Reduces Secondhand Smoke Exposure in Pregnant Women

Exposure to secondhand smoke during pregnancy can contribute to complications such as miscarriage, low birth weight, preterm birth, and learning and behavioral deficiencies in children. Do public bans on smoking make a difference?

That's the question Duke Health researchers asked in a study conducted among 668 women who had their cotinine levels measured before and after a smoking ban went into effect in North Carolina. Results showed pregnant women experienced less secondhand smoke exposure after the 2009 passage of the law, which outlawed smoking inside public places such as bars and restaurants. The study was published in a recent edition of the *International Journal of Environmental Research and Public Health*. ■

Contribute to "Reflections"

Our "Reflections" column publishes stories by AARC members who have recently retired from the respiratory care profession.

This is your invitation to look back at your career and tell us what it meant to you. Funny, sad, inspiring — you name it! Story submissions should go *AARC Times* Editor Marsha Cathcart at cathcart@aarc.org; please include your member number on the submission. ■

Define "Unnecessary"

The Joint Commission has issued new requirements calling for hospitals to reduce unnecessary alarms. But what does "unnecessary" really mean?

Researchers from Yale University attempted to answer that question in an integrative review of 12 previous studies on the issue published between 1986 and 2015. They found that when clinically irrelevant alarms were compared as a percentage of total annotated alarms, most studies revealed that only 5–13% of the alarms were clinically relevant. But the definitions of clinical relevance were inconsistent across studies, which made clinical relevance of alarms difficult to determine.

"Clinical relevance can be a subjective term, and interventions should focus on reducing clinically irrelevant alarms, with careful consideration for how clinical relevance is defined and measured," study author Halley Ruppel, RN, MS, was quoted as saying. "Clinical relevance should reflect alarms that may be informative, even if not immediately actionable or corresponding to a life-threatening incident." The study was published in a recent edition of the *American Journal of Critical Care*. ■

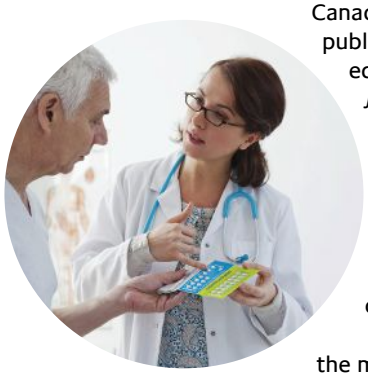
Pharmaceutical Smoking Cessation Aids Fall Short

It would be great if all you had to do to get your patients to kick the habit was get them to use pharmaceutical cessation aides. Unfortunately, that's little more than a pipe dream, report researchers who assessed the effectiveness of three first-line medications recommended by clinical practice guidelines: varenicline, bupropion, and nicotine replacement therapy via the patch. The report used data from a U.S. Census survey on tobacco use taken from two cohorts two decades apart.

No evidence was seen that suggested these pharmaceutical cessation aids improved the chances of quitting smoking. The authors note that this finding contradicts results from many clinical trials that have shown a benefit for these pharmaceutical aides, but they speculate that the intense behavioral counseling that often went along with these aides in those studies is what really made the difference.

"Smokers who are committed to quitting and want to use a pharmaceutical aid should also enroll in a program that could help them track their progress and support them in their attempt," says study author and postdoctoral scholar at the Stanford University School of Medicine Eric Leas, PhD, who conducted the study when he was a graduate student researcher at UC San Diego. The study appeared in the *Journal of the National Cancer Institute*. ■

Varenicline Smoking Cessation Aide Linked to Cardiovascular Events



Canadian researchers publishing in a recent edition of the *American Journal of Respiratory and Critical Care Medicine* have found that the smoking cessation drug varenicline may increase the risk of cardiovascular events.

In a trial based on the medical records of 56,851 new users of varenicline, patients were 34% more likely to have an emergency department visit or hospitalization for a cardiovascular event while taking the drug when compared to the year prior to taking the drug. The increased incidence was 12% among patients without a history of cardiovascular events. Overall, the investigators estimated that 3.95 adverse cardiovascular events per 1,000 varenicline users could be attributed to the drug.

The authors stopped short, however, of saying that varenicline should not be used for tobacco cessation. "Quitting smoking greatly reduces a person's chances of developing heart disease and cancer and has many other health benefits," study author Andrea S. Gershon, MD, was quoted as saying. "Our findings should not be used to suggest people not take varenicline. The findings should be used to help people make an informed decision about whether they should take varenicline based on accurate information about its risks as well as its benefits." ■

Packaging Sells Consumers on "Safer Cigarette" Concept

The federal government banned the practice commonly used by the tobacco industry to claim that some cigarette brands were safer than others by touting them as "low tar," "natural," or "organic" back in 2010. Research led by investigators from the University of California San Diego School of Medicine suggests the tobacco companies are sneakily achieving the same objective by giving certain brands healthier sounding names and packaging.

The researchers arrived at that conclusion after randomly assigning smokers of the Natural American Spirit, Marlboro Red, and Newport Menthol brands to view and rate images of the current cigarette packages and more generic versions. When they viewed the current packaging, survey participants rated the Natural American Spirits packaging 1.9 times higher than the Marlboro Red packaging and 1.7 times higher than the Newport Menthol packaging on a scale measuring their belief that the packaging implied the cigarettes were safer.

However, when they viewed the plain packaging of Natural American Spirits, their ratings on safety were 1.7 times lower than before. They were 5.4 times lower when they viewed Natural American Spirits with graphic warning images. The study was published in a recent edition of *BMJ Tobacco Control*. ■

Early Infections Shape Future Immune Response in Kids

Researchers from the Perelman School of Medicine are shedding some light on how early infections influence long-term immune response in children with acute respiratory tract infections (ARTIs) like the flu.

The investigators began by looking at how host responses change with different viral infections. During the 2009 H1N1 epidemic, they focused specifically on changes in CD8 T cells, key anti-viral cells in pediatric patients with influenza, with an eye toward ultimately connecting those changes to clinical outcomes such as severity of infection, future asthma, fever, and return visits to a physician.

Using blood samples from 29 children who came to the emergency department with flu symptoms, they found that different viruses elicit different immune responses — specifically, different patterns of genomic circuitry in CD8 T cells. From there, the team developed an Influenza Pediatric Signature (IPS) consisting of a small set of genes that consistently increased or decreased in expression in CD8 T cells from patients with an acute influenza infection. The IPS was able to distinguish acute influenza from ARTIs caused by other pathogens.

For example, the IPS helped identify an age-based difference in genome circuits related to the STAT1/2 pathway, showing that the STAT1/2 circuit operates in young children with previous exposure to influenza (or the vaccine) similar to older children. These data suggest that therapies targeting the STAT1/2 pathway may be fruitful or that monitoring these signatures could be used to determine whether a vaccine works. The team hopes to investigate the importance of this altered circuitry in relation to clinical outcomes in larger studies.

The study appeared in a recent edition of *Cell Reports*. ■

Do E-Cigarettes Really Minimize Harm?

A recent article published in the *Annual Review of Public Health* advocates for the use of e-cigarettes in a "harm minimization" strategy among smokers of traditional cigarettes. "Studies show that if most current American smokers switched to vaping e-cigarettes over the next 10 years, there could be as many as 6.6 million fewer premature deaths and 86.7 million fewer life years would be lost," noted lead author David Abrams, PhD, professor of social and behavioral sciences at NYU College of Global Public Health.

Dr. Abrams went on to cite scientific studies showing smoking-related diseases are caused not by nicotine but by the lethal mix of carbon monoxide and 70 known cancer-causing chemicals found in cigarettes. He believes e-cigarettes fall into the "sweet spot" of high appeal and satisfaction for smokers who need a nicotine replacement product.

"Alternative nicotine delivery systems, such as e-cigarettes, have the potential to disrupt the 120-year dominance of the cigarette and challenge the field on how the tobacco pandemic could be reversed if nicotine is decoupled from lethal inhaled smoke," writes Dr. Abrams. "E-cigarettes could provide a means to compete with, and even replace, cigarette use, saving more lives more rapidly than previously possible." The Truth Initiative, a non-profit group advocating for an end to tobacco use, funded the research. ■

Surviving One Influenza Pandemic May Raise Risk of Death in Another

The general theory is that, if you've had a virus before, you have probably developed some immunity to it that will help you fight it off if you are exposed to it or a similar virus again. Canadian investigators publishing in a recent edition of *mBio* say that's not always the case. They have found evidence that exposure to certain previous stains of the flu actually increases the risk of death among people who develop another similar strain years (even decades) later.

The researchers reviewed monthly mortality and influenza circulation data from 1997 to 2014 in the United States and Mexico, identifying peaks in excess mortality during the 2009 H1N1 pandemic and the resurgent 2013–2014 H1N1 outbreak among people born in 1952, who would have been children at the time of the 1957 H2N2 pandemic. Those people were at a higher risk of dying during both the 2009 and 2013–2014 outbreaks. The investigators believe these results align with at least two previous influenza A virus pandemics, in 1918 and 1968, when there were higher death rates among those born during previous pandemic years in 1890 and 1918, respectively. ■

Putting a Price Tag on Asthma

New research in the Annals of the American Thoracic Society suggests asthma costs the U.S. economy more than $80 billion a year in medical expenses, missed work and school days, and deaths.

Researchers at the U.S. Centers for Disease Control and Prevention analyzed data from the Medical Expenditure Panel Survey. Among 213,994 respondents over a six-year period, the study identified 10,237 people with treated asthma. Based on the pooled sample, the authors determined the following:

- About 15.4 million people in the United States had treated asthma each year.
- The total annual cost of asthma in the United States, including medical care, absenteeism, and mortality, was $81.9 billion.
- The annual per-person medical cost of asthma was $3,266. Of that, $1,830 was for prescriptions, $640 for office visits, $529 for hospitalizations, $176 for hospital outpatient visits, and $105 for emergency room care.
- Asthma-related mortality cost $29 billion per year, representing on average 3,168 deaths.
- Missed work and school days cost $3 billion per year, representing 8.7 million work days and 5.2 million school days lost due to asthma.
- People with no health insurance had significantly lower per-person total medical expenditure for asthma compared to insured people.

"The findings of the paper highlight the critical need to support and further strengthen asthma-control strategies," noted lead author Tursynbek Nurmagambetov, PhD. "In order to reduce asthma-related ER visits, hospitalizations, absenteeism, and mortality, we need to support guidelines-based care, expand self-management education, and reduce environmental asthma triggers at homes." ■

Overweight in the Preschool Years: How It Affects Asthma

Overweight preschoolers with asthma who don't use a daily controller medication suffer more days of asthma symptoms than healthy-weight children under the same circumstances, report Duke Heath researchers publishing in a recent edition of the *Journal of Allergy and Clinical Immunology*.

All of the children were taking part in clinical trials in which some children were assigned to use an inhaler, some received a placebo, and others received no treatment. Compared to healthy-weight peers who weren't using an inhaler, overweight children not using an inhaler suffered 37 more symptom days — more than five extra weeks — per year. Researchers also found that untreated children who were overweight had more asthma attacks than untreated peers of a healthy weight.

The investigators believe the good news from this study is that inhalers reduced symptom days in preschoolers who were overweight just as much as they did in preschoolers with a healthy weight, a finding that runs counter to research in older children and adults who have asthma and are overweight or obese. Those studies have shown a poor response to inhaled corticosteroids used to manage asthma. "This study suggests either pathways of inflammation are a bit different in preschool-aged patients or that it takes years for obesity to reduce the effectiveness of steroid inhalers," explained study author Jason Lang, MD. ■

Strange But True…

Sponging up sepsis: California researchers are developing macrophage "nanosponges" that they believe may one day be used to sop up the molecules in the bloodstream known to trigger sepsis. The nanosponges have already shown promise in studies conducted in mice. ■

Good for the lungs, too: Probiotics have been shown to benefit the gut. Georgia State researchers believe one specific type of probiotics can also be useful to the lungs. Their studies show that a heat-killed strain of lactic acid bacteria isolated from fermented vegetables was effective in helping mice survive a supposedly lethal dose of influenza A. ■

An apple a day: Your patients quit smoking, but lung damage remains. Is there anything they can do to repair it? According to Johns Hopkins researchers, eating more tomatoes and fruits — especially apples — is the answer. They found ex-smokers who ate a diet high in tomatoes and fruits had around an 80-mL slower decline in lung function over a 10-year period than those who didn't maintain such a diet. ■

Advertiser Index

To advertise, contact: Phil Ganz, 48 Abbey Woods Ln., Suite100, Dallas, TX 75248, Voice (972) 991-4994, Fax (888) 206-9006, phil.ganz@aarc.org. Or contact Sarah Vaughn, Director of Business Development, Daedalus Enterprises, Inc., 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063-4706, (972) 243-2272, Fax (972) 484-2720, advertising@aarc.org.

Recruitment Display Advertising Information & Requirements:

For Recruitment Display Ad Rates, go to http://www.aarc.org/resources/publications/media-kit/ or contact AARC Respiratory Jobs • Respiratory.Jobs@aarc.org (972) 243-2272 • Fax (972) 484-2720 9425 N. MacArthur Blvd., Suite 100, Irving, TX 75063

Get AARC Empowered!

AARC Has the Tools You Need to Achieve Your Goals.

Setting your professional goals is one thing – ensuring you have the knowledge, skills, and tools to reach them is something else entirely – but you can get there with the American Association for Respiratory Care. Whether you want to expand your specialty expertise, research skills, prepare for credential exams, network, improve your quality of care or your leadership skills *you'll find it all at the AARC.*

So tap into the power of an AARC membership - invest in yourself by making the most of your membership or join the AARC today!

Get Started!

http://c.aarc.org/go/empower3

American Association for Respiratory Care

EMMA™: Portable Real-time Capnography

Featuring $EtCO_2$ Measurement and Waveform

Measurements

$EtCO_2$ — End-Tidal Carbon Dioxide

RR — Respiration Rate

- > Pocket-sized, self-contained mainstream capnograph
- > Minimal warm-up time and requires no routine calibration[1]
- > Used in multiple environments including pre-hospital, emergency department, operating room, and intensive care unit

EMMA can be used with a breathing circuit to provide CO_2 measurements

www.masimo.com

[1] For complete specifications, including measurements, see Operator's Manual.

Caution: Federal (USA) law restricts this device to sale by or on the order of a physician. See instructions for use for full prescribing information, including indications, contraindications, warnings, and precautions.

Masimo

PLCO-001610/PLMM-10737A-0118
PLLT-10039C