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# Physician

THE NEWSPAPER OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS



Justin Sumner/University of Kentucky College of Public Health

Dr. Donna K. Arnett said the new guideline combines ACC and AHA recommendations and acknowledges the importance of social settings of individual patients.

## CV disease prevention guide adds social determinants of health

BY MITCHEL L. ZOLER

*MDedge News*

NEW ORLEANS – The first medical society guideline to comprehensively address all facets of primary prevention of cardiovascular disease put special emphasis on a team-based approach that takes into account each person’s social determinants of health. The guideline substantially dialed down prior recommendations on aspirin for primary prevention by calling for no use in people older than 70 years and infrequent use in those 40-70 years old.

The American College of Cardiology and the American Heart Association released their 2019 guideline on the primary prevention of

cardiovascular disease during the annual meeting of the American College of Cardiology (J Amer Coll Cardiol. 2019 Mar 17. doi: 10.1016/j.jacc.2019.03.010).

The guideline is a “one-stop shop” that pulls together existing recommendations from the two organizations and combines it with some new recommendations that address issues such as aspirin prophylaxis, and the social setting of each person, said Donna K. Arnett, PhD, professor of epidemiology at the University of Kentucky, dean of the university’s College of Public Health, and co-chair of the guideline writing panel.

“We made the social determinants of health front and center. With many people, clinicians

CV PREVENTION // *continued on page 4*

## Immunotherapy gaining ground for peanut allergy

BY MICHELE G. SULLIVAN

*MDedge News*

**I**mmunotherapy is showing success in treating a condition that is both dangerous to millions and on the rise: peanut allergy.

James Baker, MD, a specialist in pediatric allergy and immunology, at Providence Health & Services, Lake Oswego, Ore., has embraced an innovative immunotherapy approach to peanut allergy in his clinic. He and his team have successfully treated several hundred children with a carefully constructed, evidence-based, and monitored protocol of incremental desensitization. Dr. Baker and his colleagues who take this approach will have plenty of patients in the future if the current trend in the development of peanut allergy continues.

### Perception vs. reality

At the 2017 meeting of the American Academy of Allergy, Asthma, and Immunology, pediatric allergy specialist Ruchi Gupta, MD, of Northwestern University, Chicago, who presented the results of a 1-year survey of about 53,000 U.S. households, suggested that peanut allergies in kids had jumped close to 21% since 2010 (Ann Allergy Asthma Immunol. 2017 doi: 10.1016/j.anai.2017.08.060).

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### INSIDE HIGHLIGHT



#### PULMONARY PERSPECTIVES<sup>®</sup>

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## CV prevention guideline pulls back prior advice on aspirin use // *continued from page 1*

don't ask whether they have access to healthy foods or a way to get to the pharmacy. Asking about these issues is step one" toward helping people address their social situation, Dr. Arnett said while introducing the new guideline in a press briefing. The guideline recommends that

clinicians assess the social determinants for each person treated for cardiovascular disease prevention using a screening tool developed by the U.S. Centers for Medicare & Medicaid Services and made available by the National Academy of Medicine (NAM Perspectives. 2017.

doi:10.31478/201705b).

"No other guideline has highlighted the social determinants of health," noted Erin D. Michos, MD, associate director of preventive cardiology at Johns Hopkins Medicine in Baltimore, and a member of the guideline-writing panel. Other over-

arching themes of the guideline are its emphasis on the need for a team of clinicians to deliver all the disparate and time-consuming facets of care needed for comprehensive primary prevention of cardiovascular disease, and its call for a healthy lifestyle throughout life as foundations

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Dr. Michos

*“No other guideline has highlighted the social determinants of health,” noted Erin D. Michos, MD, associate director of preventive cardiology at Johns Hopkins Medicine in Baltimore, and panel member.*

for prevention, Dr. Michos said in a video interview.

With 48 recommendations, the guideline also deals with prevention issues such as a healthy diet and body mass, appropriate control of diabetes, smoking cessation, and control of blood pressure and cholesterol. The writing committee took the cholesterol and

blood pressure recommendations directly from recent guidelines from the ACC and AHA in 2017 (blood pressure: *J Amer Coll Cardiol.* 2018 May;71[19]:e177-248) and 2018 (cholesterol: *Circulation.* 2018 Nov 10. doi: 10.1161/CIR.0000000000000625).

The other major, new recommendations in the guideline deal with aspirin use for primary prevention, which recently underwent a shake up with publication of results from several studies that showed less cardio-

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Dr. Khera

*Aspirin is appropriate “generally no, occasionally yes,” said Amit Khera, MD, guideline-panel member, and professor of medicine at the University of Texas Southwestern Medical Center in Dallas.*

vascular benefit and more potential bleeding harm from routine aspirin prophylaxis than previously appreciated. Among the most notable of these reports, which led to a class III recommendation – do not use – for aspirin in people more than 70 years old came from the ASPREE (Aspirin in Reducing Events in the Elderly) study (*New Engl J Med.* 2018 Oct 18;379[16]:1519-28). For those 40-70 years old, the recommendation is class IIb, worded as “might be considered for select adults.”

“Generally no, occasionally yes,” is aspirin appropriate for people in this age group, notably those at high risk for cardiovascular disease and also at low risk for bleeding, explained Amit Khera, MD, a guideline-panel member, and professor of medicine and director of preventive cardiology at the University of Texas Southwestern Medical Center in Dallas.

As a guideline for primary prevention, a prime target audience is primary care physicians, who would need to be instrumental in apply-

*Continued on following page*

Continued from previous page

ing the guideline. But the guideline recommendations released by the ACC and AHA for blood pressure management in 2017 were not accepted by U.S. groups that represent primary care physicians, the American College of Physicians, and the American Academy of Family Physicians.



Dr. Gulati

John J. Warner, MD, an interventional cardiologist, executive vice president for health system affairs at UT Southwestern, and president of the AHA when the blood pressure guideline came out said that the ACC and AHA “learned



Dr. John J. Warner

some lessons” from the blood pressure experience. The societies responded this time around by “trying to view the document through as many lenses as possible” during the

peer review process, Dr. Warner said during the press conference.

“I don’t think the new guideline will be seen as anything except positive,” commented Martha Gulati, MD,

*“I don’t think the new guideline will be seen as anything except positive,” said Martha Gulati, MD, professor of medicine and chief of cardiology at the University of Arizona in Phoenix.*

professor of medicine and chief of cardiology at the University of Arizona in Phoenix. Collecting all the cardiovascular disease recommendations for primary prevention in one document “helps clinicians access the information easily and helps patients see the big picture,” said Dr. Gulati, who was not involved in the guideline’s writing or review. She especially applauded the recommendations to assess each person’s social determinants of health, the team-care approach, and the recommendations dealing with diet and other aspects of a healthy lifestyle. “This was a perfect time” to bring together the existing blood pressure and cholesterol guidelines, the new guidance on aspirin use, and the other recommendation in a single document, she said in an interview.

Dr. Arnett, Dr. Michos, Dr. Khera, Dr. Warner, and Dr. Gulati had no disclosures.

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**SOURCE:** Arnett DK et al. J Amer Coll Cardiol. 2019 Mar 17.doi: 10.1016/j.jacc.2019.03.010.

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David A. Schulman, MD, FCCP, is Medical Editor in Chief of CHEST Physician.

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Primary prevention guideline: The top 10 takeaways

1. Most importantly, advise patients to maintain healthy lifestyle throughout life.
2. Use team-based care, and evaluate each person’s social determinants of health to inform management.
3. Perform a 10-year atherosclerotic cardiovascular disease risk estimation on adults age 75 years or younger.
4. Advise patients to have a healthy diet and maintain normal weight.
5. Advise patients to engage in physical activity.
6. Manage type 2 diabetes appropriately.
7. Advise patients to stop smoking tobacco.
8. Prescribe aspirin infrequently for primary prevention.
9. Prescribe statin treatment appropriately to reduce risk and low-density lipoprotein cholesterol levels.
10. Manage patients’ blood pressure to recommended levels, generally less than 130/80 mm Hg.

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**SOURCE:** Arnett DK et al. J Amer Coll Cardiol. 2019 Mar 17.doi: 10.1016/j.jacc.2019.03.010.

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# February *CHEST Physician* story on LDCT screening complication risk: Further reflections

**W**e received several emails from our engaged readership about one of our front-page stories from the February issue. In brief, there were concerns raised about how *CHEST Physician* characterized the findings of the recent study by Huo et al. in *JAMA Internal Medicine*. On my repeat review of our story and the Huo manuscript, as well as several conversations with content experts both within and outside of *CHEST*, I agree that we did mischaracterize the findings in our write-up.

While the study was not necessarily poorly conducted, there were some methodological concerns that deserved more careful consideration before putting the findings into our publication. *CHEST Physician* Editorial Board member M. Patricia Rivera, MD, FCCP, and past *CHEST Physician* President Gerard A. Silvestri, MD, MS, FCCP, have kindly put together a brief discussion of the potential problems with this paper.

For those of you who took the time to write in, thanks so very much!

**David A. Schulman, MD, FCCP**  
Editor in Chief, *CHEST Physician*

**T**he cover story of the February 2019 edition of *CHEST Physician* titled “In real-world setting, LDCT screen is linked to high complication risk” erroneously interpreted a study by Huo and colleagues recently published in *JAMA Internal Medicine*. The cover story states that “the study included 174,702 individuals who underwent an invasive diagnostic procedure as a result of abnormal findings on lung cancer screening and 169,808 control subjects,” “the rates of complications associated with diagnostic procedures following LDCT for lung cancer screening were substantially higher than the rates reported in clinical trials of LDCT” and that “the findings emphasize the importance of discussing the risk of adverse events and cost as part of the shared decision-making process before LDCT screening.”

One wonders if the data reported by Huo and colleagues was skewed by the lens it was presented through or by the lens through which it was interpreted. Let us first elucidate that the study by Huo

and colleagues titled “Complication Rates and Downstream Medical Costs Associated with Invasive Diagnostic Procedures for Lung Abnormalities in the Community



Chainarong Praserttha/Getty Images

Setting” was NOT a study of patients who underwent LDCT for lung cancer screening but rather a retrospective, database cohort study from 2008-2013 of patients within the age eligible for screening (age 55 to 77) WITHOUT lung cancer, who underwent similar invasive diagnostic procedures as those performed in the NLST in non-protocol-driven community practices.

Huo et al. hypothesized that the rates of complications after invasive diagnostic procedures observed among screen-eligible patients in the general population would be higher than those reported in the NLST and tested their hypothesis by estimating the complication rate of common invasive diagnostic procedures using data from a database of procedure codes. The database did not however, provide the clinical condition or indication for the procedures, define the number of procedures required to achieve a diagnosis, or define what was the most invasive procedure performed.

The authors followed patients for 1 year after their procedure and reported any complication

that occurred during that period as related to that procedure. This is not the standard in reporting complications from diagnostic bronchoscopic or radiologic pro-

cedures (usually occur within 24-48 hours, or maybe days) or thoracic surgery (30-90 days). As a significant number of the complications reported in the NLST were cardiac, it would be atypical to consider a cardiac complication occurring 1 year after an invasive diagnostic procedure as a complication related to the procedure.

Although the results of the study by Huo and colleagues may not be representative of complications from invasive diagnostic procedures in patients undergoing lung cancer screening, they do show that diagnostic procedures performed in the inpatient and outpatient setting for any pulmonary abnormalities (nodules, masses, adenopathy, infiltrates) are associated with a high risk of complications. In an era of advanced technologies and an increasing aging and chronic critically-ill population, clinicians need to carefully appraise the risks that may be incurred following a diagnostic procedure for a pulmonary lesion and equally, the benefit and diagnostic yield of the procedure.

Multidisciplinary discussions, particularly in high-risk patients, can provide guidance to clinical decision-making regarding which procedure will be the least invasive, safest, and most likely to render a diagnosis for the individual patient.

Furthermore, we need to take into account that complication rates following procedures are likely higher in centers with a low volume of diagnostic procedures or the inability to provide a less-invasive procedure that can still provide a diagnosis.

Although it is easy to be critical of large database analyses because of the inherent limitations associated with constructing cohorts that can provide meaningful data, we should not ignore the trends outlined in this article, particularly as the size of the cohort is substantial.

One cannot argue about the importance of discussing the risk of potential complications and cost as part of the shared decision-making process before LDCT screening, but the increased rate of complications reported by Huo et al. should not be interpreted as the complication rate from lung cancer screening in real-world setting, for this is inaccurate and has potential to create additional barriers in lung cancer screening, already beset by barriers on multiple levels. Moreover, we must emphasize that discussions of potential risks and cost from diagnostic pulmonary procedures should not be isolated to lung cancer screening.

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## Peanut allergy – choosing the right patients // continued from page 1

Children were experiencing more allergic reactions to other foods too. Allergy to tree nuts increased 18% from 2010, when data were last collected, and allergy to shellfish increased 7%.

The data support what parents and clinicians have been anecdotally reporting for years now: Food allergies in children are on the rise and have been for 2 decades.

A pivotal trial introduced the notion of the benefit of early food introduction. Conducted in the United Kingdom, LEAP (Learning Early About Peanut Allergy) randomized 640 infants with severe eczema, egg allergy, or both, to either consume or avoid peanuts until 60 months of age. Among the 530 who initially had negative skin-prick peanut testing, peanut allergy developed in 13.7% in the avoidance group and 1.9% in the consumption group, a highly statistically significant difference ( $P$  less than .001).

### The protocol

In 2008, a group at Duke University, in Durham, N.C., headed by A. Wesley Burks, MD, published the first peanut oral immunotherapy (OIT) protocol (J Allergy Clin Immunol. 2009 Aug;124:286-91.e6). Tested in 28 children with a mean age of 5 years, the protocol consisted of three phases. On the initial escalation day, children started out with 0.1 mg of peanut protein, doubling the dose every 30 minutes as tolerated until a maximum dose of 50 mg, for a total ingestion of 99 mg. Next, there was an at-home build-up phase between appointments consisting of a dose escalation of 25 mg every 2 weeks until children reached 300 mg. Finally, the home-maintenance phase was a daily ingestion of 300 mg of peanut protein, the equivalent of about one peanut.

Almost all of the children experienced some reaction on the first day, mostly respiratory and gastrointestinal symptoms and itching. The risk of reaction decreased in each dosing phase. There were only a few serious reactions during the 8-week trial, with two children requiring epinephrine during their home build-up phase.

Dr. Baker started treating patients soon after the trial appeared, basing his protocol on the Duke study. Since then, he and his assistant, Marianne Paul, have treated about 800 children with

peanut, wheat, egg, soy, seed, and tree nut allergies. The team focused on these foods because they are the hardest to avoid in everyday life. Peanut allergy, however, “is the most common



Marianne Paul and Dr. James Baker (right)

and the most vicious, and the one that causes the most kids to need emergency care.”

Ms. Paul prepares and administers the allergens, and medical staff monitor children for several hours after each exposure. She mixes peanut flour with grape juice or another liquid and administers it in increasing doses. The first visit takes several hours, beginning with skin-prick testing for a wide variety of food allergens. Then the child gets an initial dose of 0.25 mg of peanut flour. The first visit usually includes a few dose escalations, each one a doubling of the previous, until there is a mild reaction or the dose reaches 10 mg. The final goal is 4 g by 1 month, although not every child can get to that amount, Dr. Baker said.

Between the weekly visits, parents give sub-threshold doses of the allergen every day, with a 1-hour observation period afterward. They are well educated in the process, have an EpiPen at the ready, and know they can call Ms. Paul at any time of the day or night for guidance.

There are also strict controls on any activities

or illnesses that might rev up the immune system: No exercise for an hour before or after the dose, no hot baths or outside activity in hot weather, and strict asthma control for children with that disorder. The dose is usually reduced or held if a child gets a fever or any kind of illness, and also during vaccinations.

### Choosing the right patients and parents

“It’s so important to choose the right patients, and also the right parents. They all have to be extremely motivated,” Dr. Baker said.

Age is a critical factor, too. Younger immune systems are more malleable, but preverbal children can’t communicate well enough to describe their reactions. The ideal age, Dr. Baker said is 4-8 years old. By the time many parents enter Dr. Baker’s office, they’re stuck in “helicopter mode,” in a constant state of worry about accidental allergen exposure. But they’re usually extremely motivated to stick with the program, especially when they learn that the incidence of serious adverse events is very, very low – about 4% in a case series Dr. Baker and Ms. Paul published, along with allergists at four other practices (J Allergy Clin Immunol Pract. 2014 Jan-Feb;2[1]:91-6).

The paper reviewed reaction and success rates in 352 children treated for peanut allergy. In all, they received 240,351 doses of peanut, peanut butter, or peanut flour. Most children experienced reactions during the treatment, but the majority were mild and transient (itching, rash, mild wheezing treated with bronchodilator). Overall, 85% of the children were able to reach the target maintenance dose.

### Immunotherapy products in the pipeline

Results of a potentially pivotal phase 3 study were just released. PALISADE (Peanut Allergy Oral Immunotherapy Study of AR101 for Desensitization) randomized 551 adults and children with peanut allergy to AR101 or placebo for 12 months (Clinicaltrials.gov identifier: NCT02635776). Subjects had a 1-day initial dose escalation from 0.5 mg to 6 mg. This was followed by dose increases every 2 weeks, from 3 mg to 300 mg, and a 24-week maintenance phase with a 300-mg target.

At the end of the study, 67.2% in the active arm and 4% in the placebo arm were able to eat the target dose of at least 600 mg of peanut protein, without a consumption-limiting symptom.

Dr. Baker is a PALISADE coinvestigator, but he expresses a tempered view of the product, which is essentially the same thing he uses in his clinic. The results of PALISADE weren’t as good as those he and his colleagues achieved in their clinical case review. He predicted that the approved treatment will be substantially more expensive than using food-grade peanuts.

The peanut desensitization protocol is absolutely not a one-person show, Dr. Baker said. Any practice that wants to enter the field has to provide 24-7-365 phone support, advice, and emergency counseling. “It’s part art and part science,” Dr. Baker said.

“I am happy they are [conducting trials],” Dr. Baker said. “But it’s costing millions of dollars, and it’s only a peanut.”

### VIEW ON THE NEWS

**Daniel Ouellette, MD, FCCP, comments:** Like most baby-boomers, I grew up eating peanut butter. Every day. None of my friends had peanut allergies. As a young resident in adult internal medicine in the 1980s, I had heard about peanut allergies but had never seen a case. Was it a common problem?

Decades passed. At a festive family gathering at my house, my adolescent son innocently ate a couple of peanuts from one of many dishes of holiday treats. Fifteen minutes later, he had fulminant urticaria, shortness of breath, and wheezing. Our holiday party was turned into a medical emergency event.

The scenario had a happy ending. Well, mostly happy. My son’s life includes his constant companions: epinephrine auto-injectors and anxiety about the ingredients in his next meal. There are special precautions made at his college dormitory. He minors in Chinese and loves the language; but is fearful of travel abroad for study because of his severe allergy and the attendant potential problems with cultural food choices, precise expression of his needs, and availability of emergency medical treatment.

Take it from a parent: The peanut allergy epidemic is real. Treatments such as desensitization allowing peanut allergy sufferers to have a better, worry-free life, would be a welcome advance.

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# Subcutaneous immunotherapy appears dangerous for patients with severe, uncontrolled asthma

BY MITCHEL L. ZOLER

*MDedge News*

SAN FRANCISCO – Asthma that's severe and uncontrolled when a patient receives subcutaneous immunotherapy appears to be the "major factor" causing higher-grade systemic reactions or death from this treatment, David I. Bernstein, MD, said at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

While that was Dr. Bernstein's top take-home message on how to optimize tolerability of subcutaneous immunotherapy (SCIT), a few other empiric rules have also emerged from his ongoing analysis of survey results from the AAAAI/American College of Allergy, Asthma, and Immunology SCIT surveillance study. The study began tracking the safety of SCIT in 2008 through annual surveys sent to members of either of these two allergy societies. By early 2019, the surveys had gathered data from more than 55 million office vis-

its for SCIT, with responses from roughly 200-500 allergy practices annually, said Dr. Bernstein, professor of medicine at the University of Cincinnati.

The survey results identified seven SCIT-related fatalities over about a decade of surveillance. The most common risk factor among these cases was severe, uncontrolled asthma, prompting Dr. Bernstein to conclude that these patients should not receive SCIT. "If the asthma is well controlled, then SCIT is fine," even if it had been severe before treatment, he said in an interview.

Other factors affecting SCIT safety based on the survey results included:

- Screening patients with an asthma history for current asthma symptoms and lung function before each injection. Survey results showed that while 86% of respondents screened for symptoms, only a third also checked lung function.
- Modifying the dose or stopping SCIT injections after a severe



Mitchel L. Zoler/MDedge News

Dr. David I. Bernstein

systemic reaction. Survey results showed that more than a quarter of all systemic reactions and more than a third of grade 3 systemic reactions (severe anaphylaxis) happened following a prior systemic reaction. Dr. Bernstein called this "an important, modifiable risk factor."

- Administering SCIT only in a setting staffed to manage a possible

anaphylaxis episode, and adhere to at least a 30-minute observation period. "A key step is observing for at least 30 minutes, and giving epinephrine promptly when needed; the sooner the better," Dr. Bernstein said. The percentage of practices that observe patients for at least 30 minutes has steadily improved during the decade that the survey has run.

- Modifying the SCIT dose in high-risk patients during the peak season for aeroallergens like pollen. Survey results showed that practices that did not adjust their SCIT dosages during peak pollen seasons had about double the rate of grade 3 or 4 systemic reactions, compared with practices that dialed down their dosages.
- Reducing SCIT dosages during an accelerated cluster buildup, a treatment approach that in general increases the risk for systemic reactions.

Dr. Bernstein had no relevant disclosures.

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# Poor asthma control during pregnancy raises risk of preterm delivery

BY MITCHEL L. ZOLER

MDedge News

SAN FRANCISCO – Women with poorly-controlled asthma during pregnancy had a decreased rate of live births, and among the live births had a significantly increased rate of both preterm delivery and neonatal intensive care admissions, according to a review of insurance claims data for more than 1 million American women during 2011-2015.

On the other hand, asthma severity, which the researchers inferred based on the type and amount of treatment patients received, showed essentially no link with the live birth rate, Jennifer Yland said at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

“The findings add to the body of evidence that relate poor asthma control to an increased risk for pregnancy complications,” explained Michael X. Schatz, MD, an allergist at Kaiser Permanente of Southern California, in San Diego, and a coauthor of the study.

Results from several prior studies had shown links between asthma and an increased rate of preterm birth, “but the larger, more generalizable population is a strength of the current findings. Results from prior studies have less frequently shown a link between asthma during pregnancy and neonatal ICU admissions,” he added. “The findings strengthen the case for good asthma control during pregnancy.”

For their review, Ms. Yland and her co-authors used insurance claims data from privately insured American women aged 12-55 years who were pregnant and had drug prescription records during the study period. The database included 996,861 women without an asthma diagnosis and 29,882 women diagnosed with asthma. The analysis excluded women diagnosed with chronic obstructive pulmonary disease at least twice during pregnancy.

To analyze the pregnancy outcomes by asthma severity Ms. Yland and her associates divided the asthma patients into five subgroups based on the

drug regimens they were on during pregnancy as a surrogate marker of disease severity. This analysis showed no relationship between disease severity and live birth rate.



Jennifer Yland

The researchers also ran an analysis that divided patients into the quality of their management during pregnancy – either good or poor – based on either of two markers of poor control: filling five or more prescriptions for a short-acting beta-antagonist, or at least one exacerbation episode defined as an asthma-related emergency department visit, hospitalization, or need for oral corticosteroid treatment. By these criteria 7,135 (24%) of the pregnant women with asthma were poorly controlled. The live birth rate was 74% among women without asthma, 71% among those with well-controlled asthma, and 68% among women with poorly-controlled asthma, reported Ms. Yland, a researcher at the Harvard T.H. Chan School of Public Health in Boston.

In a multivariate analysis that adjusted for demographic differences and comorbidities, women with poorly-controlled asthma had preterm delivery a statistically significant 30% more often than did women with well-controlled asthma, and the rate of neonatal ICU admissions was a significant 24% higher in women with poorly-controlled asthma, compared with women who

had well-controlled asthma. However, the rates of small-for-gestational-age infants and infants with congenital malformations was not significantly different between the well-controlled and poorly-controlled subgroups.

The finding that almost a quarter of the pregnant women in the study were poorly controlled wasn't surprising, Dr. Schatz said in an interview. In some studies as many as half the asthma patients have poor control.

The 24% rate of poor asthma control during pregnancy in the studied women is “most likely an underestimate of poor control in the general population” because the study used data from women with commercial health insurance, noted Sonia Hernandez-Diaz, MD, lead investigator for the study and professor of epidemiology at Harvard T.H. Chan School of Public Health. “More disadvantaged populations, such as pregnant women on Medicaid, tend to have worse control.”

Barriers to good asthma control during pregnancy include smoking, weight gain, undertreatment, poor adherence, and viral infection. The overall approach to managing asthma during pregnancy is the same as when women are not pregnant, although certain asthma medications have a better safety record during pregnancy. “The most reassuring data exist for albuterol and inhaled steroids, particularly budesonide and fluticasone. Reassuring data also exist for the long-acting beta-agonists salmeterol and formoterol, which are combined with inhaled steroids, and for montelukast,” Dr. Schatz said.

The study was funded by GlaxoSmithKline, and a coauthor of the study is a company employee. Ms. Yland had no disclosures. Dr. Schatz has received research funding from ALK, AstraZeneca, Medimmune, GlaxoSmithKline, and Merck. Dr. Hernandez-Diaz has been a consultant to Boehringer Ingelheim, Roche, and UCB, and has received research funding from GlaxoSmithKline, Lilly, and Pfizer.

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**SOURCE:** Yland J et al. *J Allergy Clin Immunol.* 2019 Feb;143(2)AB422.

## New IPF diagnostic test now covered by Medicare

BY LUCAS FRANKI

MDedge News

A new genomic classifier (Envisia), produced by Veracyte, has received final Medicare local coverage determination for the diagnosis of idiopathic pulmonary fibrosis (IPF).

The test is a complement to high-resolution CT that can help differentiate IPF from other interstitial lung diseases, as more than half of patients with IPF/interstitial



lung disease report being misdiagnosed at least once. The test analyzes samples obtained through

transbronchial biopsy, a nonsurgical procedure commonly used in lung evaluation. It has been shown to detect usual interstitial pneumonia, a signature of IPF, with high accuracy.

The new policy was issued through the Palmetto GBA MolDx program and will go into effect on April 1, 2019, making Envisia the first commercially available test of its kind, available to the 55 million people who are currently enrolled in Medicare.

“We are pleased that the evidence supporting the Envisia classifier met the MolDx program's high standards for coverage. This important milestone will enable us to begin making the Envisia Classifier more widely available to patients with suspected IPF so that they can obtain an accurate, timely diagnosis and, in turn, appropriate treatment,” Bonnie Anderson, chairman and chief executive officer of Veracyte, said in a press release.

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# Daily aspirin users had fewer acute COPD flares

BY TARA HAELE

MDedge News

**FROM JOURNAL CHEST®** ■ Daily aspirin use could reduce the risk of acute exacerbations of chronic obstructive pulmonary disease, new data suggest.

Researchers reported the outcomes of an observational cohort study of 1,698 individuals with COPD, 45% of whom said they were taking daily aspirin at baseline. Their findings were published in *Chest*.

After a median follow-up of 2.7 years, aspirin users had an overall 22% lower incidence of acute COPD exacerbations compared with nonusers. This was largely accounted for by a 25% reduction in moderate exacerbations, but there was no significant difference between aspirin users and nonusers in severe exacerbations.

A similar pattern was seen after just 1 year of follow-up, with an overall 30% reduction in the incidence of exacerbations, a 37% re-

duction in moderate exacerbations, but no significant reduction in severe exacerbations.

“Though aspirin use has previously been linked with reduced mortality risk in patients with COPD, to our knowledge, this is the first study to investigate the association of daily aspirin use with respiratory morbidity in COPD,” wrote Ashraf Fawzy, MD, of the division of pulmonary and critical care medicine at Johns Hopkins University, Baltimore, and his coauthors.

The association between aspirin use and reduced incidence of exacerbations was stronger among individuals with chronic bronchitis, which prompted the authors to suggest that future studies of aspirin in COPD should focus on participants with chronic bronchitis.

However, the association was not affected by COPD severity, emphysema presence or severity, or cardiometabolic phenotype.

Aspirin users reported better respiratory-specific quality of life than

that of nonusers, including 34% lower odds of reporting moderate to severe dyspnea, and better baseline COPD health status.

“Findings of this study add to the existing literature by highlighting that aspirin use is also associated with reduced respiratory morbidity across several domains – including exacerbation risk, quality of life, and dyspnea – factors related to patient well-being and healthcare utilization,” the authors wrote.

Aspirin users were more likely to be white, male, and obese, and less likely to be smokers. They had better lung function but more cardiovascular comorbidities at baseline, although the aspirin users and nonusers were matched on baseline characteristics.

Speculating on the mechanisms by which aspirin might impact COPD exacerbations, the authors noted that the drug has both systemic and local pulmonary mechanisms of action.

For example, a pathway that results in elevated levels of a urinary

metabolite in patients with COPD is irreversibly blocked by aspirin. Aspirin also attenuates the elevation of inflammatory markers interleukin-6 and C-reactive protein, which are part of the inflammatory phenotype of COPD. Aspirin has been shown to reduce proinflammatory cytokines in the lung.

The authors did note that aspirin use was self-reported, so they did not have data on dosage or duration of use.

The National Institutes of Health funded the study. Six authors declared advisory board positions, research support, and other funding from the pharmaceutical sector. One author was also a founder of a company commercializing lung image analysis software. No other conflicts of interest were declared.

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**SOURCE:** Fawzy A et al. *Chest*. 2019 Mar;155(3): 519-27. doi: 10.1016/j.chest.2018.11.028.

# Algorithm ruled out acute PE in pregnant women

BY ANDREW D. BOWSER

MDedge News

**A** diagnostic algorithm adapted for use in pregnancy safely ruled out acute pulmonary embolism in nearly 500 women with suspected pulmonary embolism enrolled in a recent prospective study, investigators are reporting.

With the adapted algorithm, there was only one deep-vein thrombosis (DVT) and no pulmonary embolism (PE) in follow-up among those women, according to the investigators, including senior author Menno V. Huisman, MD, of the department of thrombosis and hemostasis at Leiden (Netherlands) University Medical Center and his coauthors.

The main advantage of the algorithm is that it averted CT pulmonary angiography in nearly 40% of patients, thus sparing radiation exposure to mother and fetus in many cases, the investigators added.

“Our algorithm provides solid evidence for the safe management of suspected PE in pregnant women, with selective use of CT pulmonary angiography,” Dr. Huisman and colleagues said in their March 21 report in the *New England Journal of Medicine*.

In a previous clinical trial, known as the YEARS study, a specialized diagnostic algorithm had a low incidence of failure in men and women with clinically suspected PE, as shown by a venous thromboembolism (VTE) rate of just 0.61% at 3 months and by use of CT pulmonary angiography that was 14 percentage points lower than with a conventional algorithmic approach.

For the current study, the investigators took the YEARS algorithm and adapted it for use in preg-

nant women with suspected PE presenting at 1 of 18 centers in the Netherlands, France, and Ireland.

Their adapted algorithm was based on the three criteria investigators said were most predictive in the YEARS trial, namely, clinical signs and symptoms of DVT, hemoptysis, and PE as the most likely diagnosis. Patients also underwent



Courtesy Wikimedia Commons/Walter Serra, Giuseppe De Iaco, Claudio Reverberi and Tiziano Ghetti

D-dimer testing, and if they had clinical signs and symptoms of DVT, underwent compression ultrasonography of the symptomatic leg.

Pulmonary embolism was considered ruled out in patients who met none of the three YEARS criteria and had a D-dimer under 1,000 ng/mL, or if they met one to three YEARS criteria and had a D-dimer under 500 ng/mL. Otherwise, patients underwent CT pulmonary angiography and started anticoagulant treatment if results of that test indicated PE.

The primary endpoint of the study was the cumulative 3-month incidence of symptomatic VTE among patients with PE ruled out by this algorithm.

Of 498 patients participating in the study,

477 (96%) had a negative result on the adapted YEARS algorithm at baseline, while 20 (4.0%) received a diagnosis of PE, according to results of the study. One patient was lost to follow-up.

Of the 477 patients with negative results, 1 patient (0.21%) had a diagnosis of symptomatic DVT over the 3 months of follow-up, investigators reported, adding that there were no PE diagnoses over the follow-up period.

That patient with the DVT diagnosis met none of the three YEARS criteria and had a D-dimer level of 480 ng/mL, and so did not undergo CT pulmonary angiography, investigators said.

In the worst-case scenario, the VTE incidence would have been 0.42%, assuming the one patient lost to follow-up would have had a VTE diagnosis over the 3-month follow-up period, they added.

“These data meet the proposed criteria for assessing the safety of diagnostic methods in VTE, even in the context of a low baseline prevalence of disease,” the investigators wrote.

Overall, CT pulmonary angiography avoided potential radiation exposure-related harms in 39% of the patients, the investigators said, noting that the proportion of women avoiding the diagnostic test decreased from 65% for those evaluated in the third trimester, 46% in the second trimester, and 32% in the third.

The study was supported by unrestricted grants from Leiden University Medical Center and 17 other participating hospitals. Many authors reported financial ties to the pharmaceutical industry.

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**SOURCE:** van der Pol LM et al. *N Engl J Med*. 2019;380:1139-49.

# Infective endocarditis isn't what it used to be

BY BRUCE JANCIN

MDedge News

SNOWMASS, COLO. – Infective endocarditis in 2019 is very different from the disease most physicians encountered in training, both in terms of epidemiology and clinical presentation, Patrick T. O’Gara, MD, observed at the Annual Cardiovascular Conference at Snowmass sponsored by the American College of Cardiology.

The classic description of infective endocarditis provided by Sir William Osler, MD, was of a subacute bacterial infection characterized by a long latent phase of low-grade



Dr. Patrick T. O’Gara

fever, back pain, weight loss, and night sweats. It was mainly a right-heart disease of younger individuals with an infected native valve, and the predominant pathogens were streptococci, Dr. O’Gara said.

“I think in the current era endocarditis is more often characterized by an acute illness with toxic features in the context of adults with a high burden of degenerative diseases – for example, patients with rheumatoid arthritis or psoriatic arthritis on immunosuppressive therapy, or diabetes, end-stage renal disease, and risk factors for hospital-acquired infection. Injectable drug use is through the roof; there’s a wider prevalence of cardiac implanted electronic devices, which are a wonderful place for bacteria to hide; and *Staphylococcus aureus* has certainly become the leading pathogen with regard to endocarditis in the United States, especially MRSA, often multidrug resistant,” said Dr. O’Gara, professor of medicine at Harvard Medical School, Boston.

“Also, no talk about endocarditis is sufficient without paying some attention to the opioid crisis in which we find ourselves. It’s one of the top

three causes of death among young men in the United States, along with accidents and gun violence. No region of the country is spared. This has completely inundated our ER and hospitalist services and our inpatient cardiology services with folks who are often repeat offenders when it comes to the difficulty in being able to give up an injectable drug use habit. They have multiple infections and hospitalizations, tricuspid valve involvement, and depending upon the aggressiveness of the *Staphylococcus* organism, typically they have left-sided disease with multiple complications, including aortic regurgitation and heart failure,” the cardiologist continued.

This description underscored one of Dr. O’Gara’s major points about the challenges posed by infective endocarditis in contemporary practice: “Expect the unexpected,” he advised. “When you’ve seen one case of infective endocarditis, you’ve seen one case of infective endocarditis.”

## Outcomes are ‘sobering’

In the current era, outcomes are “sobering,” the cardiologist noted. Infective endocarditis carries a 6-month mortality rate of 20%-25% despite early surgery being performed during the index hospitalization in up to 60% of patients, with a relatively high perioperative mortality rate of about 10%. However, the risk of reinfection occurring in a newly implanted cardiac valve is impressively low at about 2%.

## Refer early for multimodality imaging and surgical consultation

Transesophageal echocardiography is valuable in assessment of the infected valve. However, when extra-valvular extension of the infection is suspected and the echo assessment is nondiagnostic or indeterminate, it’s time to quickly move on to advanced imaging, such as PET-CT.

The ACC/American Heart Association class I recommendations for early surgery in infected native valves haven’t changed substantially in over a decade. Based largely on observational data, there is an association between early surgery and lower in-hospital mortality (Lancet. 2012 Mar 10;379[9819]:965-75).

Class IIa recommendations for native valve surgery include recurrent emboli and a persistent vegetation despite appropriate antibiotic therapy. A “very controversial” class IIb recommendation for surgery be-

## VIEW ON THE NEWS

**G. Hossein Almassi, MD, FCCP, comments:** In this brief overview of infective endocarditis, the author brings up some important points on the management of this deadly disease. Aggressive and early surgical intervention with radical excision and debridement of all infected tissue is the key to better surgical outcomes and survival. With the epidemic of drug addiction, clinicians are now faced with mixed organisms and gram-negative left-sided endocarditis. Unfortunately, and due to lack of adequate and appropriate rehabilitation facilities to transfer these patients to following their hospitalization, there is a high rate of recurrence and hospital readmission.



cause of weak supporting data is the identification of a mobile vegetation larger than 10 mm, particularly if it’s located on an anterior mitral valve leaflet, he said. If the decision is made to forgo early surgery, be sure to repeat transesophageal echocardiography on day 7-10 to reassess the size of the patient’s vegetation.

“There is an association between size of vegetation and 1-year mortality, with a cut point of greater than 15 mm. Some would argue this constitutes a reasonable indication for early surgery,” Dr. O’Gara noted.

The embolization rate in patients with infective endocarditis is highest during the day before presentation, the day of presentation, and through the first 2 days afterward. The rate drops precipitously within 2 weeks after initiation of appropriate antibiotic therapy. Thus, to utilize early surgery to maximum effect in order to decrease the risk of embolization, it makes sense to operate within the first several days following presentation, before antibiotics have had sufficient time to catch up with the evolving disease process.

## Removal of cardiac implanted electronic devices

The guidelines are clear regarding infected pacemakers, implanted cardioverter defibrillators, and cardiac resynchronization devices: “It all needs to come out,” Dr. O’Gara emphasized. That includes all leads and the generator in patients with documented infection of only one portion of the device system, as a class I, level of evidence B recommendation. Moreover, complete removal of a pacemaker or defibrillator system is deemed “reasonable” as a class IIa recommendation in all patients with valvular infection caused by *S. aureus* or fungi even in the absence of evidence of device infection.

“I think we as general cardiologists

have become increasingly impressed about how sick and festering these kinds of patients can become, even when we’re not able to prove that the lead is infected. The lead looks okay on transesophageal echo or PET-CT, blood cultures are negative, the valvular heart disease is really not that advanced, but several days go by and the patient is just not responding. We should have a high index of suspicion that there’s an infection we cannot appreciate. But obviously, you make these difficult decisions in consultation with your electrophysiology colleagues,” he added.

## Know when to say ‘no’ to early aggressive surgery

While an aggressive early surgical approach often pays off in terms of prevention of embolic sequelae and a reduction in heart failure, the timing of surgery in the 20%-40% of patients with infective endocarditis who present with stroke or other neurologic complications remains controversial. An international group of Canadian and French cardiac surgeons and neurologists developed a useful algorithm regarding the types of neurologic complications for which early cardiac surgery is a poor idea because of the high risk of neurologic exacerbation. For example, a mycotic neuroaneurysm is grounds for postponement of cardiac surgery for at least 4 weeks (Circulation. 2016 Oct 25;134[17]:1280-92).

Dr. O’Gara reported receiving funding from the National Heart, Lung, and Blood Institute, the National Institute of Dental and Craniofacial Research, from Medtronic in conjunction with the ongoing pivotal APOLLO transcatheter mitral valve replacement trial, and from Edwards Lifesciences for the ongoing EARLY TAVR trial.

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not available for the digital edition.**



# Before you refer for AFib ablation, educate your patient

BY BRUCE JANCIN

MDedge News

SNOWMASS, COLO. – Appropriate counseling before making a referral for atrial fibrillation ablation entails helping the patient understand what can realistically be expected in the way of benefit, along with instilling awareness of the warning signals heralding serious late complications, Samuel J. Asirvatham, MD, said at the Annual Cardiovascular Conference at Snowmass sponsored by the American College of Cardiology.

“Who to steer toward ablation? You have to have a symptomatic patient – that’s a given. For the ones who are paroxysmal, the ones with a relatively normal heart, there’s a much better chance that you’ll help manage their symptoms with ablation than if they have persistent or permanent AFib. Notice I do not use the word ‘cure’ for AFib. We talk about controlling symptoms and decreasing frequency, because the longer follow-up you have with intensive monitoring, the more you realize that patients still tend to have some AFib,” explained Dr. Asirvatham, an electrophysiologist who is professor of medicine and pediatrics at the Mayo Clinic in Rochester, Minn.

The rationale for early atrial fibrillation (AFib) ablation in younger patients with troublesome symptoms of paroxysmal AFib despite pharmacologic attempts at rate or rhythm control is that it will arrest the progression from an atrial arrhythmia that has just a few triggers readily neutralized by pulmonary vein isolation to persistent AFib with a diseased heart and a multitude of arrhythmia trigger points coming from many directions.

A solid candidate for ablation of paroxysmal AFib has about a 75% likelihood of having a successful first ablation procedure, with substantial improvement in symptoms and no need for medication. Another 9%-10% will achieve marked reduction in symptom burden upon addition of antiarrhythmic agents that weren’t effective before ablation.

## Late complications can be deceptive

Periprocedural stroke/transient ischemic attack, tamponade, or bleeding on the table are infrequent complications readily recognized by the interventionalist. More problematic are several late complications which are often misinterpreted, with the resultant delay causing major harm.

- **Pulmonary vein stenosis.** This complication of inadvertent ablation inside the pulmonary vein manifests as shortness of breath, typically beginning about 4 weeks post ablation.

“This is very different from the shortness of breath they had with



Dr. Samuel J. Asirvatham

atrial fibrillation. They almost always have a cough that they didn’t have before, and they may have hemoptysis. It’s very important to recognize this promptly, because before it closes completely we can do an angioplasty and stent the vein with good results. But once it closes completely, it becomes an extremely complicated procedure to try to reopen that vein,” according to Dr. Asirvatham.

Very often the patient’s general cardiologist, chest physician, or primary care physician fails to recognize what’s happening. He cited an example: He recently had a patient with a cough who was first referred to an infectious disease specialist, who ordered a bronchoalveolar lavage. The specimen grew atypical actinomycetes. That prompted a referral to thoracic surgery for an open-lung biopsy. But that procedure required cardiac clearance beforehand. It was a cardiologist who said, ‘Wait – all this started after you had an ablation?’

“That patient had pulmonary vein stenosis. And, unfortunately, that complication has not gone away. Being a referral center for pulmonary vein isolation, we see just as many cases of pulmonary vein stenosis today as we did a few years ago,” he said.

- **Atrial esophageal fistula.** The hallmark of this complication is onset of a plethora of what Dr. Asirvatham called “funny symptoms” more than a month post ablation. These include fever, transient ischemic attacks (TIAs),

sepsislike symptoms, discomfort in swallowing, and in some cases hemoptysis.

“The predominant picture is endocarditis/TIA/stroke. If you see this, and the patient has had ablation, immediately refer to surgery to have the fistula between the esophagus and heart fixed. This is not a patient where you say, ‘Nothing by mouth, give some antibiotics, and see what happens.’ I can tell you what will happen: The patient will die,” the cardiologist said.

- **Atrial stiffness.** This typically occurs about a month after a second or third ablation procedure, when the patient develops shortness of breath that keeps worsening.

“You think ‘pulmonary vein stenosis,’ but the CT scan shows the veins are wide open. Many of these patients will get misdiagnosed as having heart failure with preserved ejection fraction even though they never had it before. The problem here is the atrium has become too stiff from the ablation, and this stiff atrium causes increased pressure, resulting in the shortness of breath. Sometimes patients feel better over time, but sometimes it’s very difficult to treat. But it’s important to recognize atrial stiffness and exclude other causes like pulmonary vein stenosis,” Dr. Asirvatham continued.

- **Gastroparesis.** This occurs because of injury to the vagus nerve branches located at the top of the esophagus, with resultant delayed gastric emptying.

“It’s an uncomfortable feeling of fullness all the time. The patient will say, ‘It seems like I just ate, even though I ate 8 hours ago,’ the electrophysiologist said. “Most of these patients will recover in about 6 months. They may feel better on a gastric motility agent, like a macrolide antibiotic. I personally have not seen a patient who did not feel better within 6-8 months.”

## Novel treatment approaches

“Patients sometimes will ask you, ‘What is this ablation? What does that mean?’ You have to be truthful and tell them that it’s just a fancy word for burning,” the electrophysiologist said.

Achievement of AFib ablation without radiofrequency or cryoablation, instead utilizing nonthermal direct-current pulsed electrical fields, is “the hottest topic in the field of electrophysiology,” according to Dr. Asirvatham.

These electrical fields result in ir-

reversible electroporation of targeted myocardial cell membranes, leading to cell death. It is a tissue-specific intervention, so it’s much less likely than conventional ablation to cause collateral damage to the esophagus and other structures.

“Direct current electroporation has transitioned from proof-of-concept studies to three relatively large patient trials. This is potentially an important breakthrough because if we don’t heat, a lot of the complications of AFib ablation will probably decrease,” he explained.

Two other promising outside-the-box approaches to the treatment of AFib are autonomic nervous system modulation at sites distant from the heart and particle beam ablation without need for cardiac catheters.

“If you put electrodes everywhere in the body to see where AFib starts, it’s not in the atrium, not in the pulmonary veins, it’s in the nerves behind the pulmonary veins, and before those nerves it’s in some other area of the autonomic nervous

## VIEW ON THE NEWS

**G. Hossein Almassi, MD, FCCP, comments:** With the aging population, clinicians are faced with an increasing number of patients with atrial fibrillation. The important point brought up by the author is the obligation of the electrophysiologist to have a frank discussion with the patient on the expected outcome of ablation and the potential for serious and life-threatening complications. The ongoing research on alternative technology for treatment of AF should be of interest to cardiologists and electrophysiologists.

system. This has given rise to the notion that AFib may be an autonomic epilepsy of the heart,” according to the electrophysiologist.

This concept has given rise to a completely different approach to treatment of AFib through neurostimulation. Dr. Asirvatham reported having no financial conflicts regarding his presentation, although he serves as a consultant to a handful of medical startup companies and holds patents on intellectual property, the royalties for which go directly to the Mayo Clinic.

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# Palliative care has improved for critically ill children, but challenges remain

BY JIM KLING

MDedge News

SAN DIEGO – Palliative care among critically ill pediatric patients in the intensive care unit is highly variable across institutions, and is more common among older children, female children, and those with government insurance or at a high risk of mortality. The findings come from a retrospective analysis of data from 52 hospitals, which included ICU admissions (except neonatal ICU) during 2007-2018.

The good news is that palliative care consultations have increased, with consultations in less than 1% of cases at the start of the study and rising quickly to more than 7% in 2018.

“In the adult world, palliative care has expanded in recent decades, and I think now that it’s coming to the pediatric world, it’ll just continue to go up,” said Siobhan O’Keefe, MD, in an interview. Dr. O’Keefe is with Children’s Hospital Colorado, Aurora. She presented the study at the Critical Care Congress sponsored by the Society of Critical Care Medicine.

More work needs to be done, she said. “We are not uniformly

using palliative care for critically ill children in the U.S., and it varies across institutions. That’s probably not the ideal situation,” said Dr. O’Keefe. The study did not track



Dr. Siobhan O’Keefe

palliative care versus the presence of board-certified palliative care physicians or palliative care fellowships, but she suspects they would correlate.

Dr. O’Keefe called for physicians to think beyond the patient, to family members and caregivers. “We need to focus on family outcomes, how they are taking care of children with moderate disability, and incorporate that into our outcomes,” she

said. Previous research has shown family members to be at risk of anxiety, depression, unemployment, and financial distress.

The researchers analyzed data from 740,890 patients with 1,024,666 hospitalizations (82% had one hospitalization). They divided subjects into three cohorts, one of which was a category of patients with criteria for palliative care based on previous research (PC-ICU). The PC-ICU cohort included patients with an expected length of stay more than 2 weeks, patients receiving extracorporeal membrane oxygenation (ECMO), severe brain injuries, acute respiratory failure with serious comorbidity, hematologic or oncologic disease, metabolic disease, renal failure that required continuous renal replacement therapy, hepatic failure, or serious chromosomal abnormality. A second cohort included chronic complex conditions not found in the PC-ICU cohort (additional criteria), and a third cohort had no criteria for palliative care.

Thirty percent of hospitalizations met the PC-ICU cohort criteria, 40% met the additional cohort criteria, and 30% fell in the no criteria

cohort. The PC-ICU group had the highest mortality, at 8.03%, compared with 1.08% in the additional criteria group and 0.34% in the no criteria group (*P* less than .00001).

Palliative care consultations occurred more frequently in 5-12 year olds (odds ratio 1.06; 95% confidence interval, 1.01-1.13) and in those aged 13 years or older (OR, 1.38; 95% CI, 1.3-1.46), in females (OR, 1.13; 95% CI, 1.06-1.15), and in patients with government insurance (OR, 1.23; 95% CI, 1.17-1.29). Compared with those in the no criteria cohort, PC-ICU patients were more likely to receive a palliative care consult (OR, 75.5; 95% CI, 60.4-94.3), as were those in the additional criteria group (OR, 19.1; 95% CI, 15.3-23.9).

Cross-institutional palliative care frequency varied widely among patients in the PC-ICU group, ranging from 0% to 44%. The frequency ranged from 0% to 12% across institutions for patients in the additional criteria group.

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**SOURCE:** O’Keefe S et al. Critical Care Congress 2019, Abstract 418.

## Half of children with atopic dermatitis have sleep problems

BY HEIDI SPLETE

MDedge News

Poor sleep quality, but not sleep duration, was significantly associated with active atopic dermatitis in a longitudinal study of more than 13,000 children.

The itching associated with atopic dermatitis (AD) may interfere with children’s sleep, and sleep studies suggest that children with active disease are more restless at night, wrote Faustine D. Ramirez of the University of California, San Francisco, and her colleagues. Their report is in *JAMA Pediatrics*.

“Acute and chronic sleep disturbances have been associated with a wide range of cognitive, mood, and behavioral impairments and have been linked to poor educational performance,” the researchers noted.

To determine the impact of active AD on children’s sleep, the researchers reviewed data from 13,988 children followed for a median of 11 years. Of these, 4,938 children met the definition for AD between age 2 and 16 years.

Overall, children with active AD were approximately 50% more likely to experience poor sleep quality than were those without AD (adjusted odds ratio, 1.48). Sleep quality was even worse

for children with severe active AD (aOR, 1.68), and active AD plus asthma or allergic rhinitis (aOR 2.15). Sleep quality was significantly worse in children reporting mild AD (aOR, 1.40) or inactive AD (aOR, 1.41), compared with children without AD. Nighttime sleep duration was similar throughout childhood for children with and without AD.

“In addition to increased nighttime awakenings and difficulty falling asleep, we found that children with active atopic dermatitis were more likely to report nightmares and early morning awakenings, which has not been previously studied,” Ms. Ramirez and her associates said.

Total sleep duration was statistically shorter overall for children with AD, compared with those without AD, but the difference was not clinically significant, they noted.

The participants were from a longitudinal study in the United Kingdom in which pregnant women were recruited between 1990 and 1992. For those with children alive at 1 year, their children were followed for approximately 16 years. Sleep quality was assessed at six time points with four standardized questionnaires between ages 2 and 10 years, and sleep duration was assessed at eight time points between ages 2 and 16 years with standardized questionnaires.

The study findings were limited by several factors, including some missing data and patient attrition, as well as possible misclassification bias because of the use of parent and patient self-reports, and a possible lack of generalizability to other populations, the researchers noted.

However, the results support the need for developing clinical outcome measures to address sleep quality in children with AD, they said. “Additional work should investigate interventions to improve sleep quality and examine the association between atopic dermatitis treatment and children’s sleep.”

The study was funded primarily by a grant from the National Eczema Association. Ms. Ramirez disclosed a grant from the National Institutes of Health. Two other investigators received grants, one from NIH and the other Wellcome Senior Clinical Fellowship in Science. One coauthor reported receiving multiple grants, as well as paid consulting for TARGETPharma, a company developing a prospective atopic dermatitis registry.

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**SOURCE:** Ramirez FD al. *JAMA Pediatr*. 2019 Mar 4. doi: 10.1001/jamapediatrics.2019.0025.

# Home oxygen therapy for children: New guidelines combine limited evidence, expert experience

BY ANDREW D. BOWSER

MDedge News

Based on the very limited evidence available, an expert panel convened by the American Thoracic Society has devised a clinical practice guideline specific to children who require home oxygen therapy.

The guideline authors not only addressed specific indications for chronic lung and pulmonary vascular diseases, but also defined hypoxemia in children – noting that Medicare and Medicaid coverage determinations for home oxygen therapy in children are based on decades-old studies that lacked pediatric patients – and offer expert advice on how to wean and discontinue oxygen, when warranted.

The disease-specific recommendations on whether or not to prescribe home oxygen therapy are characterized either as strong, meaning that it's the right course of action for at least 95% of patients; or conditional, meaning it might not be right for a "sizable minority" of patients, authors explained in the guideline.

Home oxygen therapy gets a strong recommendation, for example, in patients with cystic fibrosis complicated by severe chronic hypoxemia, but gets a conditional recommendation for sickle cell disease with severe chronic hypoxemia, according to the guideline, published in the *American Journal of Respiratory and Critical Care Medicine*.

Regardless of strong or conditional, the recommendations were largely based on "very low-quality evidence," according to ad hoc subcommittee of the ATS Assembly on

Pediatrics, cochaired by Don Hayes Jr., MD, of Nationwide Children's Hospital, Columbus, Ohio, and Robin R. Deterding, MD, of Children's Hospital Colorado, Denver.

"Despite widespread use of home oxygen therapy for various lung and pulmonary vascular diseases, there is a striking paucity of data regarding its implementation, efficacy, monitoring, and discontinuation," Dr. Hayes, Dr. Deterding, and 20 additional committee members wrote in their report.

Accordingly, the panel sought to add expert opinion and experience to the limited evidence, in the hope that it would aid clinicians in the management of complex pediatric patients, they said.

One new tool they provide, toward that end, is a definition of hypoxemia in children based on oxygen saturation as quantified by pulse oximetry (SpO<sub>2</sub>).

Based on a review of 31 selected studies measuring oxygenation in healthy children, the expert panel defined hypoxemia (at or near sea level) as SpO<sub>2</sub> of 90% or lower for 5% of the recording time in children under 1 year old, and an SpO<sub>2</sub> of 93% or lower in older children; or alternatively, as three independent measurements of SpO<sub>2</sub> less than or equal to 90% in the younger children and 93% in the older children.

By contrast, an SpO<sub>2</sub> of less than 88% is one of the indications for funding home oxygen therapy as determined by the Centers for Medicare & Medicaid Services for both pediatric and adult patients, according to the committee.

The CMS indications derived from "seminal studies" showing that

## VIEW ON THE NEWS

### More research sorely needed

It is unfortunate that, over the course of a decade, the evidence base supporting home oxygen therapy in children has not substantially changed, according to Ian Balfour-Lynn, MD, a member of the American Thoracic Society (ATS) committee that developed the clinical practice guideline.

The ATS clinical practice guideline on home oxygen therapy for children echoes conclusions reached in a 2009 guideline published by the British Thoracic Society (BTS), he wrote in *The Lancet Respiratory Medicine*.

Dr. Balfour-Lynn, who chaired the BTS guideline committee, said new research is sorely needed, particularly in the prevention of preterm births, which he said constitute the commonest cause of home oxygen need among children, according to the *Lancet* report.

In addition, a large prospective trial is needed to evaluate strategies for weaning or discontinuing oxygen, he said, noting that the ATS recommendations on weaning were almost entirely based on the expert panel's combined clinical experience.

*Dr. Balfour-Lynn is a consultant in pediatric respiratory medicine at Royal Brompton Hospital, London. This summary of his opinions is based on his comments in a report that appeared March 8 in The Lancet Respiratory Medicine. He reported no relationships with commercial interests relevant to his work on the ATS clinical practice guideline.*

continuous oxygen therapy reduced mortality in adults with chronic obstructive pulmonary disease, they said in the guideline document.

"Despite the lack of pediatric patients in these historic studies performed over 35 years ago, the CMS coverage determination for [home oxygen therapy] is the same for pediatric patients of all ages compared with adult patients," they wrote in the report.

The committee unanimously agreed that 2 weeks of low SpO<sub>2</sub> was "sufficient evidence" to indicate chronic hypoxemia, their report says.

Dr. Hayes reported no relationships with relevant commercial interests, while Dr. Deterding provided disclosures related to Boehringer Ingelheim, Novartis, and Elsevier Publishing, among others. Fellow committee members provided disclosures related to Shire Pharmaceuticals, United Therapeutics, and others as listed in the clinical practice guideline document.

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**SOURCE:** Hayes D et al. *J Respir Crit Care Med*. 2019 Feb 1;199(3):e5-e23. doi: 10.1164/rccm.201812-2276ST.

## AAP updates 2019-2020 flu vaccine recommendations to include nasal spray

BY CHRISTOPHER PALMER

MDedge News

Although the American Academy of Pediatrics had cited a preference for injected flu vaccines for children during the 2018-2019 flu season, this year's recommendations say either that or the nasal spray formulation are acceptable, according to a press release. The Centers for Disease Control and Prevention has given similar guidance.

Because the spray did not work as well against

A/H1N1 as the injected vaccine had during the 2013-2014 and 2014-2015 seasons, the AAP did not recommend the spray during the 2015-2016 and 2016-2017 seasons. However, in 2017 the spray's manufacturer included a new strain of A/H1N1, and new data has supported the spray's effectiveness against some strains.

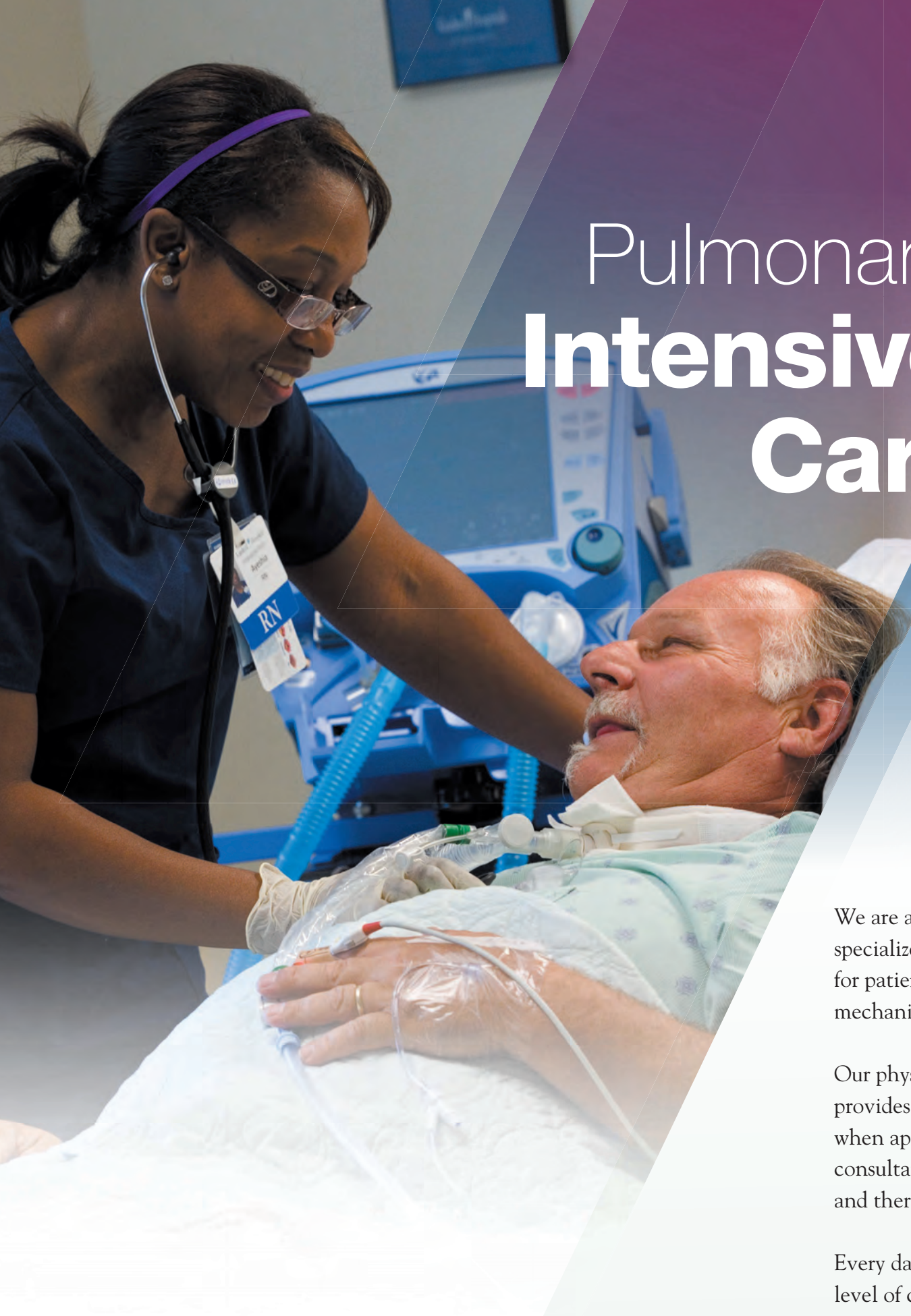
The AAP recommends all children aged 6 months and older should be vaccinated, but the flu nasal spray is approved only for nonpregnant patients aged 2-49 years, according to the CDC.



Louise A. Koenig/MDedge News

That said, the spray is especially appropriate for patients who refuse to receive the injected form, so the choice of formulation is at the pediatrician's discretion, according to the AAP release.

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# Disruptive behavior on the job linked to depression, burnout

BY RANDY DOTINGA

MDedge News

SAN DIEGO – Hospitals pay a price for bad behavior by staff in the workplace, results of a large multi-center study suggest.

A work culture in which disruptive behavior is tolerated can have consequences. Research on this topic has linked disruptive behavior by staff in the health care setting to increased frequency of medical errors and lower quality of care (Am J Med Qual. 2011 Sep-Oct;26[5]:372-9; J Caring Sci. 2016 Sep 1;5[3]:241-9). This new study, based on a workplace culture survey of 7,923 health care workers and 325 work settings at 16 hospitals in a large West Coast health care system, found higher rates of depression and burnout among staff where disruptive behavior is prevalent, researchers found. The paper was presented by study lead Allison Hadley, MD, of Duke Children's Hospital, Durham, N.C., at the Critical Care Congress sponsored by the Society of Critical Care Medicine.

The investigators developed a novel survey scale for evaluating disruptive behaviors in the health

care setting. The objective was to look at the associations between disruptive behavior, teamwork, safety culture, burnout, and depression. Disruptive behaviors included turning backs or hanging up the phone before a conversation is over, bullying or trying to publicly humiliate other staff, making inappropriate comments (with sexual, racial, religious, or ethnic slurs), and physical aggression (such as throwing, hitting, and pushing).

San Francisco internist Alan H. Rosenstein, MD, who studies disruptive behavior in medicine, said in an interview that the findings confirm anecdotal experience of medical staff. "One of the downsides of disruptive behavior is very unsatisfied and unhappy people," he said.

The investigators used a t-test analysis to study the strength of the association between disruptive behavior and work culture in health care work settings. They found a statistically significant association between less disruptive behavior and lower levels of burnout and depression among staff (t = 6.4 and t = 4.1, respectively, P less than .001) and higher levels of teamwork, safety culture, and work-



Dr. Allison Hadley

life balance (t = 10.2, t = 9.5, and t = 5.8, respectively, P less than .001). Settings in which disruptive behaviors were more common were more likely to have poor teamwork culture (P less than .001) and safety climate (P less than .001), and higher rates of depression (P less than .001). Settings in which disruptive behaviors were common were more likely to have poor teamwork culture (P less than .001) and poor safety climate (P less than .001), and higher rates of depression among staff (P less than .001).

Bullying was reported at about 40% of workplaces with low teamwork levels, compared with nearly 20% in those with high teamwork levels.

Physical aggression was reported in nearly 20% of those workplaces with low teamwork levels, compared with 5% in workplaces with high teamwork levels (P less than .001).

Researchers also found that disruptive behaviors were least common during day shifts and more common among health care workers who care for both adults and children than among those who care for only adults. "Teamwork, safety culture, and work-life balance were highest in those [hospital] units with the least disruptive behaviors," said Dr. Hadley.

Overall, the highest positive correlation was found between higher levels of teamwork and lower levels of disruptive behavior, Dr. Hadley said. If a hospital department is trying to address one issue to improve disruptive behavior, she'd suggest it "focus on teamwork first. I hope that would have the greatest impact."

No study funding was reported. Dr. Hadley and Dr. Rosenstein reported no relevant disclosures.

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**SOURCE:** Hadley A et al. Critical Care Congress 2019, Abstract 114.

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# Updates from your CHEST Board of Regents

BY DAVID A. SCHULMAN,  
MD, FCCP

In late January, your Board of Regents met for its first face-to-face quarterly meeting under the leadership of new President Clayton Cowl, MD, MS, FCCP. One of the most valuable aspects of serving on the Board is an opportunity to take an overall look at the direction of the organization.

The Board makes a concerted effort not to get too deep into the weeds planning out specific tactics for achieving goals; we have a great many outstanding volunteers serving on dozens of our committees who do an incredible job of making things happen. The Board tries to focus on overall organizational strategy. Are we going in the right direction? Are there opportunities of which we should be taking better advantage? Are there efforts in which we are currently engaged that may not be yielding outcomes as we expected?

To better answer these questions, Dr. Cowl and his team asked all members of the Board of Regents and the Strategic Planning Subcommittee members of the Foundation Board of Trustees, as well as senior CHEST staff, to engage in an environmental scan to take an aggressive look at where we are and where we are headed. The output from our first environmental scan is currently being curated into a list of highest priority items that will be shared with the general membership in the coming months.

A review of our accomplishments over the last 6 months came next. Our new Executive Vice President and Chief Operating Officer, Dr. Robert Musacchio, has superseded all expectations in his first few

months in the role. In addition to continuing to push the organization toward the “One CHEST” model by better integrating the Foundation with the College, as well as refining our operating principles in working with industry, Bob is further developing our international reach—exploring collaborations with a number of large international societies and planning meetings abroad this year (CHEST Congress Thailand and CHEST Regional Congress Athens) and into the next (in Italy, with the regional meeting location to be determined).

We are also in the process of recruiting for a new position, Chief Learning Officer, a role that will serve not only to better organize the educational activities of CHEST, but to also serve as a visionary to better imagine what future projects we should be pursuing to be of better service and value to our members.

We took a few moments to recognize the new, incoming Editor in Chief of the journal *CHEST*<sup>®</sup>; Peter Mazzone, MD, FCCP, will have some huge shoes to fill in taking the editor’s chair from Richard Irwin, MD, Master FCCP, who has served the journal in this role for more than a decade.

Under Dr. Irwin’s leadership, *CHEST*<sup>®</sup> journal has been the most-read publication amongst practicing pulmonary specialists; he is also responsible for having launched the journal’s social media presence, including both video series that integrated directly with the journal (such as Ultrasound Corner) and podcasts. Richard also spoke beautifully about his passion for patient-centered care as a keynote speaker at CHEST 2018.

## Welcoming a new Section Editor for Sleep Strategies

Michelle Cao, DO, FCCP, is a Clinical Associate Professor in the Division of Sleep Medicine and Division of Neuromuscular Medicine, at the Stanford University School of Medicine.

Her clinical expertise is in complex sleep-related respiratory disorders and home mechanical ventilation for chronic respiratory failure syndromes. She oversees the Noninvasive Ventilation Program

for the Stanford Neuromuscular Medicine Center. Dr. Cao also holds the position of Vice-Chair for the Home-Based Mechanical Ventilation and Neuromuscular Disease Network with CHEST and is a member of the Scientific Presentations and Awards Committee.

CHEST thanks Dr. Chris Lettieri for his time and efforts as the previous Section Editor for Sleep Strategies.

Peter has outlined a number of different areas of focus for the journal in the next year, including putting a high priority on improving the reader experience and crafting an even better web and multimedia presence. We look forward to great things from the journal!

Chris Carroll, MD, FCCP, who chairs CHEST’s Digital Strategy Task Force, presented to the Board on their progress to date. The goal of this group is to evaluate the user experience for CHEST’s content delivery platforms, including the website, apps, and our social media platforms to identify opportunities for improvements that will enable us to better provide our members with on demand, high quality information to improve patient care through a personalized, seamless digital user experience.

The team is being co-led by Nicki Augustyn, Senior Vice President for Marketing, Communications, and Publishing, and Ron Moen, Chief Information Officer. We look forward to further updates on this important project.

As I stated in my opening, many of the good things that CHEST does can only happen with the participation of our great members, and so I want to take the time to recognize the NetWorks and everything that they do for the College. In the past year, under the leadership of Council of NetWorks Chairs Hassan Bencheqroun, MD, FCCP, and David Zielinski, MD, FCCP, the NetWorks produced more than 60% of the content at the 2018 CHEST meeting and are actively working on projects ranging from creating educational videos for public consumption to CHEST guidelines proposals and crafting a donor registry for lung transplantation. Our volunteer leaders are our most valuable resource; if you are not currently engaged in the NetWorks, please consider getting involved this spring during the nomination process!

It remains a privilege for the Board to serve this great organization. If you are interested in hearing more, or getting more engaged, please send me an email at [chest-physiciannews@chestnet.org](mailto:chest-physiciannews@chestnet.org).

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# Thank you to the CHEST 2019 Scientific Program Committee

BY WILLIAM F. KELLY, MD, FCCP

The CHEST 2019 Scientific Program Committee has been working tirelessly to select the best and most clinically relevant sessions for the upcoming meeting. CHEST would like to extend a heartfelt thank you to all who actively participated in grading, curriculum group calls, the live meeting in February, and all the homework in between. We're not done, but your work has been instrumental in making the CHEST Annual Meeting 2019 a success.



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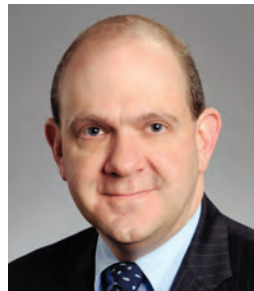
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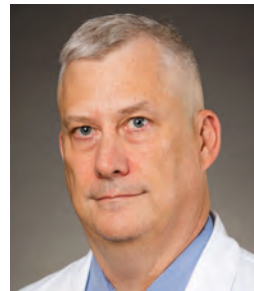
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## CRITICAL CARE COMMENTARY

# Risks of removing the default: Lung protective ventilation IS for everyone

BY KUSUM S. MATHEWS,  
MD, MPH, MSCR; AND  
DANIEL HOWELL, MBBS, MSC

Since the landmark ARMA trial, use of low tidal volume ventilation (LTVV) at 6 mL/kg predicted body weight (PBW) has become our gold standard for ventilator management in acute respiratory distress syndrome (ARDS) (Brower RG, et al. *N Engl J Med.* 2000;342[18]:1301). While other studies have suggested that patients without ARDS may also benefit from lower volumes, the recently published Protective Ventilation in Patients Without ARDS (PReVENT) trial found no benefit to using LTVV in non-ARDS patients (Simonis FD, et al. *JAMA.* 2018;320[18]:1872). Does this mean we let physicians set volumes at will? Is tidal volume ( $V_T$ ) even clinically relevant anymore in the non-ARDS population?

Prior to the PReVENT trial, our practice of LTVV for patients without ARDS was informed primarily by observational data. In 2012, a meta-analysis comparing LTVV with “conventional”  $V_T$  (10–12 mL/kg IBW) in non-ARDS patients found that those given LTVV had a lower incidence of acute lung injury and lower overall mortality (Neto AS, et al. *JAMA.* 2012;308[16]:1651). While these were promising findings, there was limited follow-up poststudy onset, and the majority of included studies were based on a surgical population. Additionally, the use of  $V_T > 10$  mL/kg PBW has become uncommon in routine clinical practice. How comparable are those previous studies to today’s clinical milieu? When comparing outcomes for ICU patients who were ventilated with low ( $\leq 7$  mL/kg PBW), intermediate ( $> 7$ , but  $< 10$  mL/kg PBW), and high ( $\geq 10$  mL/kg PBW)  $V_T$ , a second meta-analysis found a 28% risk reduction in the development of ARDS or pneumonia with low vs high, but the similar difference was not seen when comparing low vs intermediate groups (Neto AS, et al. *Crit Care Med.* 2015;43[10]:2155). This research suggested that negative outcomes were driven by the excessive  $V_T$ .

Slated to be the definitive study

on the matter, the PReVENT trial used a multicenter randomized control trial design comparing target  $V_T$  of 4 mL/kg with 10 mL/kg PBW, with setting titration primarily based on plateau pressure targets. The headline out of this trial may have been that it was “negative,” in that there was no difference be-



Dr. Kusum S. Mathews

tween the groups in the primary outcome of ventilator-free days and survival by day 28. However, there are some important limitations to consider before discounting LTVV for everyone. First, half of the trial patients were ventilated with pressure-control ventilation, the actual  $V_T$  settings were 7.3 (5.9 – 9.1) for the low group vs 9.1 (7.7 – 10.5) mL/kg PBW for the intermediate group by day 3, statistically significant differences, but perhaps not as striking clinically. Moreover, a secondary analysis of ARDSnet data (Amato MB, et al., *N Engl J Med.* 2015;372[8]:747) also suggests that driving pressure, more so than  $V_T$ , may determine outcomes, which, for most patients in the PReVENT trial, remained in the “safe” range of  $< 15$  cm  $H_2O$ . Finally, almost two-thirds of patients eligible for PReVENT were not enrolled, and the included cohort had  $Pao_2/Fio_2$  ratios greater than 200 for the 3 days of the study, limiting generalizability, especially for patients with acute hypoxemic respiratory failure.

When approaching the patient who we have determined to not have ARDS (either by clinical diagnosis or suspicion plus a low  $Pao_2/Fio_2$  ratio as defined by PReVENT’s

protocol), it is important to also consider our accuracy in recognizing ARDS before settling for the use of unregulated  $V_T$ . ARDS is often underrecognized, and this delay in diagnosis results in delayed LTVV initiation. Results from the LUNG SAFE study, an international multicenter prospective observational



Dr. Daniel Howell

study of over 2,300 ICU patients with ARDS, showed that only 34% of patients were recognized by the clinician to have ARDS at the time they met the Berlin criteria (Bellani G, et al. *JAMA.* 2016;315[8]:788). As ARDS is defined by clinical criteria, it is biologically plausible to think that the pathologic process commences before these criteria are recognized by the clinician.

To investigate the importance of timing of LTVV in ARDS, Needham and colleagues performed a prospective cohort study in patients with ARDS, examining the effect of  $V_T$  received over time on the outcome of ICU mortality (Needham DM, et al. *Am J Respir Crit Care Med.* 2015;191[2]:177). They found that every 1 mL/kg increase in  $V_T$  setting was associated with a 23% increase in mortality and, indeed, increases in subsequent  $V_T$  compared with baseline setting were associated with increasing mortality. One may, therefore, be concerned that if we miss the ARDS diagnosis, the default to higher  $V_T$  at the time of intubation may harm our patients. With or without clinician recognition of ARDS, LUNG SAFE revealed that the average  $V_T$  for the patients with confirmed ARDS

was 7.6 (95% CI 7.5–7.7) mL/kg PBW. While this mean value is well within the range of lung protective ventilation (less than 8 mL/kg PBW), over one-third of patients were exposed to larger  $V_T$ . A recently published study by Sjoding and colleagues showed that  $V_T$  of  $> 8$  mL/kg PBW was used in 40% of the cohort, and continued exposure to 24 total hours of these high  $V_T$  values was associated with increased risk of mortality (OR 1.82 (95% CI, 1.20–2.78) (Sjoding MW, et al. *Crit Care Med.* 2019;47[1]:56). All three studies support early administration of lung protective ventilation, considering the high mortality associated with ARDS.

Before consolidating what we know about empiric use of LTVV, we also must highlight the important concerns about LTVV that were investigated in the PReVENT trial. Over-sedation to maintain low  $V_T$ , increased delirium, ventilator asynchrony, and possibility of effort-induced lung injury are some of the potential risks associated with LTVV. While there were no differences in the use of sedatives or neuromuscular blocking agents between groups in the PReVENT trial, more delirium was seen in the LTVV group with a  $P = .06$ , which may be a signal deserving further exploration.

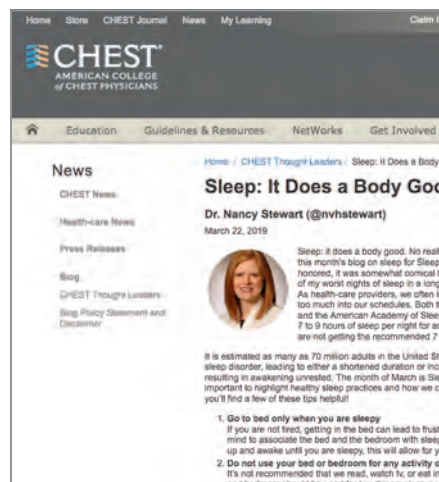
Therefore, now understanding both the upside and downside of LTVV, what’s our best approach? While we lack prospective clinical trial data showing benefit of LTVV in patients without ARDS, we do not have conclusive evidence to show its harm. Remembering that even intensivists can fail to recognize ARDS at its onset, default utilization of LTVV, or at least lung protective ventilation of  $< 8$  mL/kg PBW, may be the safest approach for all patients. To be clear, this approach would still allow for active physician decision-making to personalize the settings to the individual patient’s needs, including the use of higher  $V_T$  if needed for patient comfort, effort, and sedation needs. Changing the default settings and implementing friendly reminders about how to manage the ventilator have already been shown to be

*Continued on following page*

# Check out the current CHEST Thought Leaders Blog

## Sleep: It Does a Body Good by Dr. Nancy Stewart

Sleep: it does a body good. No really, it does. When asked to write this month's blog on sleep for Sleep Awareness Month, although honored, it was somewhat comical because the night prior I had one of my worst nights of sleep in a long time, taking care of a sick child. As health-care providers, we often lead stressful lives and pack way too much into our schedules. Both the Centers for Disease Control and Prevention and the American Academy of Sleep Medicine recommend obtaining 7 to 9 hours of sleep per night for adults; unfortunately, many of us are not getting the recom-



mended 7 to 9 hours of sleep.

Find the entire blog at [www.chestnet.org/News/Blogs](http://www.chestnet.org/News/Blogs).

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helpful for the surgical population (O'Reilly-Shah VN, et al. *BMJ Qual Saf.* 2018;27[12]:1008).

We must also consider the process of health-care delivery and the implementation of best practices, after considering the facilitators and barriers to adoption of said practices. Many patients decompensate and require intubation prior to ICU arrival, with prolonged boarding in the ED or medical wards being a common occurrence for many hospitals. As such, we need to consider a ventilation strategy that allows for best practice implementation at a hospital-wide level, appealing to an interprofessional approach to ventilator management, employing physicians outside of critical care medicine, respiratory therapists, and nursing. The PReVENT trial had a nicely constructed protocol with clear instructions on ventilator adjustments with frequent plateau pressure measurements and patient assessments. In the real world setting, especially in a non-ICU setting, ventilator management is not as straightforward. Considering that plateau pressures were only checked in approximately 40% of the patients in LUNG SAFE cohort, active management and attention to driving pressure may be a stretch in many settings.

Until we get 100% sensitive in timely recognition (instantaneous, really) of ARDS pathology augmented by automated diagnostic tools embedded in the medical record and/or incorporate advanced

technology in the ventilator management to avoid human error, employing simple defaults to guarantee a protective setting in case of later diagnosis of ARDS seems logical. We can even go further to separate the defaults into LTVV for hypoxic respiratory failure and lung protective ventilation for everything else, with future development of more algorithms, protocols, and clinical decision support tools for ventilator management. For the time being, a simpler intervention of setting a safer default is a great universal start.

*Dr. Mathews and Dr. Howell are with the Division of Pulmonary, Critical Care, and Sleep Medicine, Department of Medicine; Dr. Mathews is also with the Department of Emergency Medicine; Icahn School of Medicine at Mount Sinai, New York, NY.*

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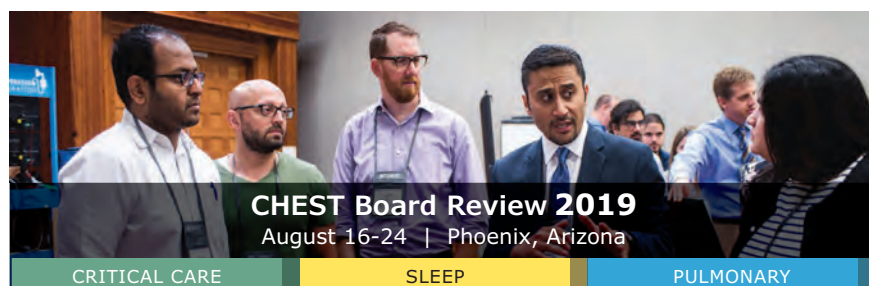
## 2019 Education Calendar



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May 3 - 4	Bronchoscopy Procedures for the ICU
May 30 - June 1	Advanced Critical Care Echocardiography
June 6 - 8	Difficult Airway Management
June 28 - 29	Therapeutic Bronchoscopy for Airway Obstruction
July 25 - 27	Mechanical Ventilation: Advanced Critical Care Management
August 8 - 10	Cardiopulmonary Exercise Testing (CPET)
September 5 - 7	Difficult Airway Management
September 12 - 14	Ultrasonography: Essentials in Critical Care
September 19 - 21	Comprehensive Bronchoscopy With Endobronchial Ultrasound
November 7-9	Extracorporeal Support for Respiratory and Cardiac Failure in Adults
November 14 - 16	Critical Care Ultrasound: Integration into Clinical Practice
November 22 - 23	Comprehensive Pleural Procedures
December 5 - 7	Ultrasonography: Essentials in Critical Care
December 13 - 14	Advanced Critical Care Echocardiography Board Review Exam Course



Calendar subject to change. For most current course list and more information, visit [livelearning.chestnet.org](http://livelearning.chestnet.org).

## PULMONARY PERSPECTIVES®

# Social media for physicians: Strong medicine or snake oil?

BY HASSAN BENCHEQROUN, MD, FCCP

For most of us, social media is a daunting new reality that we are pressured to be part of but that we struggle to fit into our increasingly demanding schedules. My first social media foray as a physician was a Facebook fan page as a hobby rather than a professional presence. Years later, I have learned the incredible benefit that being on social media in other platforms brought to my profession.

## What's social media going to bring to my medical practice?

The days where physicians retreat to the safety of our offices to deliver our care, or to issue carefully structured opinions, or interactions with patients have made way for a more direct interaction. Social media has, indeed, allowed us to share more personal glimpses of our daily struggle to save lives, behind-the-scenes snapshot of ethical struggles in decision making, our difficulties qualifying patients for therapies due to insurance complications, or real-time addressing medical news and combating misinformation. Moreover, when patients self-refer, or are referred to my practice, they look me up online before coming to my office. Online profiles are the new “first impression” of the bedside manner of a physician.

Other personal examples of social media benefits include being informed of new publications, since many journals now have an online presence; being able to interact in real-time with authors; learning from physicians in other countries how they handled issues, such as shortage of critical medications; or earning CME, such as the Twitterchats hosted by CHEST (eg, new biologic agents in difficult to treat asthma, or patient selection in triple therapy for COPD).

## Why should I pay attention to social media presence?

The pace by which social media changed the landscape took the medical community by surprise. Patients, third-party websites, and online review agencies (official or not) adopted it well before physicians became comfortable with it. As such, when I decided to google myself online, I was shocked at the level of misinformation about me (as a pulmonologist, I didn't know I had performed sigmoidoscopies, yet that's what my patients learned before they met me). That was an important lesson: *If I don't control the narrative, someone else will.* Consequently, I dedicated a few hours to establish an online presence in order to introduce myself accurately and to be accessible to my patients and colleagues online.

## Who decides what's ethical and what's not?

As the lines blurred, our community struggled to define what was appropriate and what was not. Finally, we welcomed with relief the issuance of a Code of Ethics, regarding social media use



Dr. Hassan Bencheqroun

by physicians, from several societies, including the American Medical Association (<https://goo.gl/8zX7iM>). The principles guiding physicians use of social media include respect for human dignity and rights, honesty and upholding the standards of professionalism, and the duty to safeguard patient confidences and privacy.

## Which platform should I use? There are so many.

While any content can be shared on any platform, social media sites have organically differentiated into being more amenable to one content vs the other. Some accounts tend to be more for professional use (ie, Twitter and LinkedIn), and other accounts for personal use (ie, Facebook, Instagram, Snapchat, and Pinterest). CHEST has selected Twitter to host its CME chats regarding preselected topics, post information about an upcoming lecture during the CHEST meeting, etc. New social media sites are now “physician only,” such as Sermo, Doximity, QuantiMD, and Doc2Doc. Many of these sites require doctors to submit their credentials to a site gatekeeper, recreating the intimacy of a “physicians’ lounge” in an online environment (*J Med Internet Res.* 2014;Feb 11;16[2]:e13). Lastly, *Figure1* is a media sharing app between physicians allowing discussions of de-identified images or cases, recreating the “curbside” consult concept online.

## I heard about hashtags. What are they?

Hashtags are simply clickable topic titles (#COPD #Sepsis # Education, etc) that can be added to a post, in order to widen its reach. For instance, if I am interested in sepsis, I can click on the hashtag #Sepsis, and it would bring up all the posts on any Twitter account that added that hashtag. It's a filter that takes me to that topic of interest. I can then click on the button “Like” on the message or the account itself where the post was found. The “Like” is similar to a bookmark for that account on my own Twitter. In the future, all the posts

from that account would be available to me.

## What are influencers or thought leaders?

Anyone who “liked” my account is now “following” me. The number of followers has become a measure of popularity of anyone on social media. If it reaches a high level, then the person with the account is dubbed an “influencer.” Social media “influencers” are individuals whose opinion is followed by hundreds of thousands. Influencers may even be rewarded for harnessing their reach to make money off advertising. One can easily see how it is powerful for a physician to become an influencer or a “thought leader,” not to make money but to expand their reach on social media to spread the correct information about diets, drugs, e-cigarettes, and vaccinations, to name a few.

## Can social media get me in trouble?

In 2012, a survey of the state medical boards published by *JAMA* (2012;307[11]:1141) revealed that approximately 30% of state medical boards reported complaints of “online violations of patient confidentiality.” More than 10% stated they had encountered a case of an “online depiction of intoxication.”

Another study a year earlier revealed that 13% of physicians reported they have discussed individual, though anonymized, cases with other physicians in public online forums (<http://www.quantiamd.com/qcqp/DoctorsPatientSocialMedia.pdf>).

Even if posted anonymously, or on a “personal” rather than professional social media site, various investigative methods may potentially be used to directly link information to a specific person or incident. The most current case law dictates that such information is “discoverable.” In fact, Facebook's policy for the use of data informs users that, “*we may access, preserve, and share your information in response to a legal request*” both within and outside of U.S. jurisdiction”.

## What kind of trouble could I be exposed to?

Poor quality of information, damage to our professional image, breaches of patient's privacy, violation of patient-physician boundary, license revoking by state boards, and erroneous medical advice given in the absence of examining a patient, are all potential pitfalls for physicians in the careless use of social media.

## How can I minimize my legal risk when interacting online?

It has been suggested that a legally sound approach in response to requests for online medical advice would be to send a standard response form that:

- informs the inquirer that the health-care provider does not answer online questions;
- supplies offline contact information so that an appointment can be made, if desired; and
- identifies a source for emergency services if the

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inquirer cannot wait for an appointment.

In circumstances where a patient-physician relationship already exists, informed consent should be obtained, which should include a careful explanation regarding the risks of online communication, expected response times, and the handling of emergencies, then documented in the patient's chart (PT. 2014 Jul;39[7]:491,520).

### In summary

Social media, much like any area of medicine one is interested in, can be daunting and exciting but fraught with potential difficulties. I liken its adoption in our daily practice to any other decision or interest, including being in a private or academic setting, adopting procedural medicine or sticking to diagnostic consultations, or participating in research. In the end, it's an individual expression of our desire to practice medicine. However, verifying information already existing online about us is of paramount importance. *If I don't tell my story, someone else will, and they may not be as truthful.*

*Dr. Bencheqroun is Assistant Professor, University of California Riverside School of Medicine, Pulmonary/Critical Care Faculty Program Coordinator & Research Mentor - Internal Medicine Residency Program Desert Regional Medical Center, Palm Springs CA; and Immediate Past Chair of the CHEST Council of NetWorks.*

## On your mark, get set, GO! The NETWORKS Challenge is now underway

**W**e are so excited to once again host the NetWorks Challenge. During the next 3 months, you have the opportunity to be a Champion and make a donation to the CHEST Foundation. Every time you contribute, you can designate a NetWork of your choice to benefit from your gift. Each NetWork is eligible to receive travel grants to CHEST 2019 based on the amount raised.

Last year, we more than doubled the number of early career clinician travel grants to attend CHEST 2018. This year, we want to raise the bar again. Don't delay, make a donation today by visiting [Chestfoundation.org/donate](http://Chestfoundation.org/donate) and be a Champion for your NetWork!

**Length:** This year, the NetWorks Challenge will span 3 months. Contributions made between April 1 and June 30 count toward your NetWork's fundraising total! Just be sure to list your NetWork when making your contribution on [chestfoundation.org/donate](http://chestfoundation.org/donate).

Additionally, any contributions made to the CHEST Foundation during your membership renewal will count toward your NetWorks total amount raised - no matter when your membership is up for renewal.

Contributions made in this manner after

June 30 will count toward your Network's 2020 amount raised.

Each month has a unique theme related to CHEST, so be sure to watch our social media profiles to engage with us and each other during the drive.



**Prizes:** This year, every NetWork is eligible to receive travel grants to CHEST 2019 in New Orleans based on the amount raised by the NetWork. Our final winners - the NetWork with the highest amount raised and the NetWork with the highest participation rate, will each receive two additional travel grants to CHEST 2019.

Plus, the NetWork with the highest amount raised over the course of the challenge receives an additional prize - a seat in a CHEST Live Learning course of the winner's choosing, offered at CHEST's Innovation, Simulation, and Training Center in Glenview, Illinois.

Visit [chestfoundation.org/nc](http://chestfoundation.org/nc) for more detailed information!

### 2019 GRANTS CYCLE

Grant Portal Open | March-April 2019  
Grants Reviewed | April - June 2019  
Winners Notified | July 2019  
Grants Awarded at CHEST 2019

## CHAMPIONS for LUNG Health

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- Sleep Medicine
- VTE
- Women's Lung Health

Visit [chestfoundation.org/grants](http://chestfoundation.org/grants) for a complete listing of funding opportunities available in 2019.

For more information about the 2019 grants cycle, contact Andrew Gillen at [agillen@chestnet.org](mailto:agillen@chestnet.org)

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Rotating content will include articles, videos, commentary, and news on diagnostic, therapeutic, and prevention strategies, including the latest research and breakthroughs.

**New content will be added often, so check back for updates.**

- JUST ADDED
- Asthma Emergencies: A Guide to Treating Potentially Life-Threatening Exacerbations [video]
  - Biology of Asthma and Biologics: A Primer
  - Transitioning Adolescents With Asthma to the Adult Model of Care [video]

- Other current topics include:
- Asthma Redefined-Managing Multiple Diseases: Unmasking the Culprit
  - Diagnosing Severe Asthma: Not as Easy as it Sounds
  - Bronchial Thermoplasty: A Viable Option for Severe Asthma

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## CHEST NETWORKS

# Black lung. Choosing the right words. Low-tidal volume. Recent key OSA articles.

## Occupational and Environmental Health Black lung disease in the 21st century

Inhalation and deposition of coal dust particles cause a range of lung injury from coal workers' pneumoconiosis (CWP) to dust-related diffuse fibrosis to COPD. Despite workplace standards and improved environmental controls to limit dust exposure within coal mines, incidence of "black lung disease" in the United States has increased since the turn of the century (Antao VC, et al. *Occup Environ Med.* 2005;62[10]:670).

Coal miners working in the Appalachian Mountains have been particularly vulnerable to developing rapidly progressive and severe pneumoconiosis. In 2018, three black lung clinics in central Appalachia uncovered the largest cluster of progressive massive fibrosis (PMF) ever reported (Blackley DJ, et al. *JAMA.* 2018;319[5]:500).

An investigation by National Public Radio (NPR) and the Public Broadcasting Service (PBS) program Frontline identified more than 2,000 Appalachian coal miners suffering with PMF from 2011 to 2016, while



Dr. Harris



Dr. Ahasic

only 99 cases of PMF were identified by the current federal monitoring program during the same period (<https://goo.gl/ZJXp1W>).

Only about one-third of coal miners may participate in screening for black lung disease, and lack of participation could result from barriers such as fear of retaliation from

employers (Siddons A. CQ-Roll Call, Inc. March 1, 2019; <https://goo.gl/5mfVFv>).

Ongoing research is studying factors leading to the resurgence in CWP. Increasing silica content in coal dust is a likely culprit that has escaped mine safety regulations. Given the rising incidence and the increasing morbidity and mortality of black lung disease, there is a need to educate and engage pulmonologists and others to improve surveillance and early recognition of the spectrum of coal-dust-related lung diseases to decrease morbidity and mortality among this vulnerable occupational group.

Drew Harris, MD  
Amy Ahasic, MD, MPH, FCCP  
Steering Committee Members

In medicine, we identify patients with their illness, "the septic patient," or category, "the terminal patient" or "the DNR patient" (Altillio, et al. *AAHPM Quarterly.* 2013;14-18).

We escape responsibility for ade-



Dr. Moses

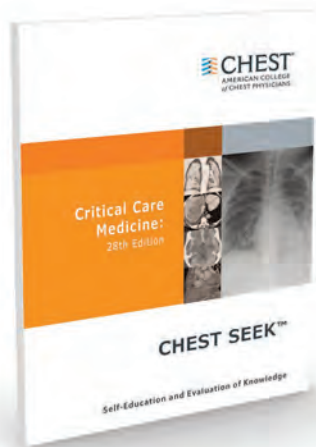


Dr. Kelemen

quate communication by adopting a language filled with anatomic and pharmaceutical references where we blame patients for their disease process, eg, "the patient failed extubation" or "the patient is noncompliant." We tend to resort to medical jargon or terror language in order to achieve the desired outcome. Never is this more evident than when discussing code status. In the ICU, when one hopes to "get the DNR," it is not uncommon to hear the phrase, "If your heart stops, we would have to break all of your ribs, and that would be torture."

While the data are clear on harm-

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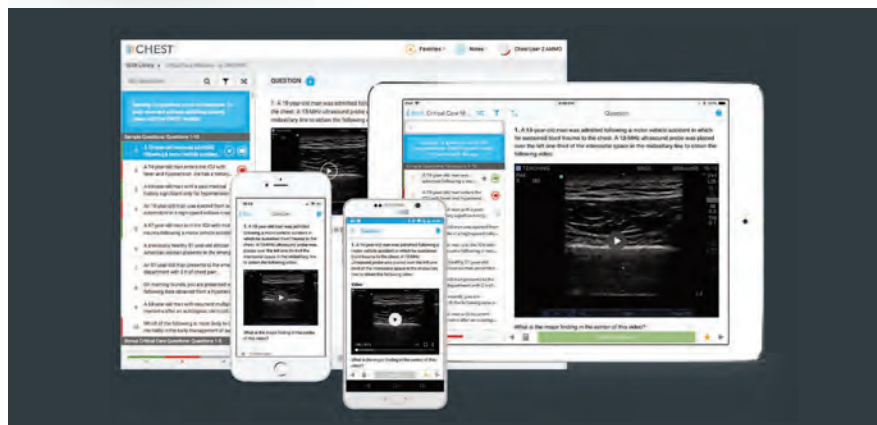


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## Palliative and End-of-Life Care Importance of language and word choice when discussing cardiopulmonary resuscitation (CPR)

Words matter. Whether spoken or written, the words we choose when communicating with each other are fundamentally important, both by intention of the originator and the understanding of the audience, whether or not the meaning is imparted faithfully.

# This month in the journal CHEST®

## Editor's Picks

BY RICHARD S. IRWIN, MD, MASTER FCCP

**Giants in Chest Medicine**  
David C. Zavala, MD, FCCP

**Original Research**  
**Accuracy of Algorithms to Identify Pulmonary Arterial Hypertension in Administrative Data: A Systematic Review.**  
By K. R. Gillmeyer, et al.

**Hypersensitivity Pneumonitis: Radiologic Phenotypes Are Associated**

**With Distinct Survival Time and Pulmonary Function Trajectory.**  
By M. L. Salisbury, et al.

**The Effects of Long-term CPAP on Weight Change in Patients With Comorbid OSA and Cardiovascular Disease: Data From the SAVE Trial.**  
By Q. Ou, et al, on behalf of the SAVE investigators.





# Five things to do near the convention center in NOLA

While CHEST 2019 will have your days busy, don't forget to find time to explore entertaining, cultural, and historic places around New Orleans. Grab your friends and colleagues for some fun, and try out a few of these places!

## 1. House of Blues New Orleans

If you're already heading to the city known for jazz and blues, there's no better place to experience that than the House of Blues New Orleans. Enjoy live music and great food under one roof. Be sure to check the House of Blues website as the annual meeting draws nearer to see which concerts and events will be happening in October.

## 2. Audubon Aquarium of the Americas

Located just north of the convention center, head over to the Audubon Aquarium of the Americas. During the fall and winter months, the aquarium has less traffic, which allows you to take in all the animals and exhibits at your own pace. See exhibits like the Great Maya Reef, a walk-through tunnel into a submerged Maya city of the Yucatan peninsula;



Ogden Museum of Southern Art

la; the penguins, sea otters, or the sharks and rays in the 400,000-gallon Gulf of Mexico Exhibit.

## 3. Ogden Museum of Southern Art

Less than 5 minutes from the convention center, the Ogden Museum of Southern Art holds the largest and most comprehensive collection of southern art, including visual art, music, literature, and culinary heritage. If you're in the city

before or after the annual meeting, catch a guided tour on a Thursday afternoon. Tours are free with admission into the museum. Check their website for museum hours.

## 4. Escape My Room

Who doesn't love a good escape room? At Escape My Room, look for clues and hints to help the DeLaporte family as you're transported through history into the DeLaporte Family Museum. Bring your family or team in a group of up to eight, depending on the room, and see if you can solve the mystery.

## 5. A walking tour of the Garden District

Take a cable car a few stops to the Garden District, a historic neighborhood in New Orleans. This picturesque neighborhood showcases plantation-style mansions, streets separated by stretches of green parks, and the historic Lafayette Cemetery No. 1 and cable car line that runs along St. Charles Avenue. There are guided tours available, but you can also choose to take a self-tour of the area.

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ful effects of CPR, and its general lack of success for people with a serious illness (Dunham, et al. *Eur Radiol.* 2018;28[10]:4122), it is unnecessary to use threatening language in our communication.

Compassionate care begins and ends with effective communication. The Palliative and End of Life Care NetWork supports making better word choices. We encourage framing end-of-life care around what will continue to work to help support the patient and not doing things that we know do not work.

"We will do everything to help manage his/her breathing and heart rate, and when his/her heart stops, we will allow him/her to die naturally" (Curtis, et al. *Intensive Care Med.* 2014;40:606).

Benjamin Moses, MD  
Anne Kelemen, LICSW  
Steering Committee Members

## Respiratory Care Low-tidal volume ventilation

Mechanical ventilation in postoperative (post-op) patients is essential in care because it can determine the patient's overall outcome, especially in post-op cardiovascular surgery patients. The risks of hemodynamic instability and consideration of total body organ function make choosing the correct strategy of mechanical ventilation vital (Ball, et al. *Crit Care.* 2016;22[4]:386).

The current standard of prac-

tice for mechanically ventilated patients is to use low-tidal volume (LTV) ventilation, meaning administering 6-7 mL/kg of ideal body weight (Hoegl, et al. *Anesthesiology.* 2016;29[4]:94).



Dr. Markos

The benefits of LTV ventilation include significantly decreased risk in lung injury, decreased risk of developing ARDS, and lessening of hemodynamic compromise (Hoegl, et al. *Anesthesiology.* 2016;29[4]:94; Stephens, et al. *Crit Care Med.* 2015;43:1477).

Also, due to its high efficacy in terms of cost-effective care, such as shorter ICU stays and less number of days supported by mechanical ventilation, many hospitals have incorporated LTV strategy into the care of almost all post-op patients (Stephens, et al. *Crit Care Med.* 2015;43:1477).

However, no randomized controlled trials have been conducted in post-op cardiovascular patients undergoing mechanical ventilation to determine if LTV ventilation (6-7 mL/kg) has superior efficacy over higher levels of ventilation (8-10 mL/kg). This patient population tends to have normal lung function and, therefore, a LTV strategy could possibly be too conservative, whereas larger tidal volumes may be more

comfortable and provide better ventilation considering the increased dead space in post-op cardiovascular patients.

In order to address this gap in the literature, it is essential to determine if significant differences exist in patient mortality, ventilator days, hospital stay, and incidence of pulmonary complications for this population undergoing ventilation volumes of approximately 6 mL/kg or 8 mL/kg of ideal body weight.

Bethlehem Markos  
Steering Committee  
Fellow-in-Training

## Sleep Medicine

### In case you missed it: Recent findings in obstructive sleep apnea

On behalf of the Sleep Medicine NetWork, I would like to highlight a few key articles related to OSA:

**A potential drug combo to treat OSA** (Taranto-Montemurro, et al. *Am J Respir Crit Care Med.* Articles in Press. Published on 05-November-2018 as 10.1164/rccm.201808-1493OC) The apnea-hypopnea index (AHI) decreased by over 20 events/hour in a small group of patients receiving atomoxetine and oxybutynin, presumably via increased activity of the upper airway dilator muscles.

**CPAP may reduce hospitalizations** (Truong, et al. *J Clin Sleep Med.* 2018;14[2]:183) Patients non-adherent to CPAP had greater all-cause 30-day readmission rates over

an 8-year period after adjusting for comorbidities, suggesting the potential of CPAP to prevent recurrent hospitalizations.

### Patients getting in-lab sleep testing are increasingly complex



Dr. Tobias

(Colaco, et al. *J Clin Sleep Med.* 2018;14[4]:631) Patients undergoing PSG as opposed to home testing have more medical comorbidities than in the

past, with implications for how labs are staffed and what monitoring is available.

**OSA severity predicts amyloid burden** (Sharma. *Am J Respir Crit Care Med.* 2018;197[7]:933) This study highlights a potential pathway in which OSA impacts amyloid deposition and, thereby, vulnerability to developing Alzheimer disease.

**A drug for residual sleepiness in OSA** (Schweitzer, et al. *Am J Respir Crit Care Med* Articles in Press. Published on 06-December-2018 as 10.1164/rccm.201806-1100OC) For patients with OSA whose sleepiness persisted despite PAP adherence, this 12-week randomized trial showed dose-dependent improvements in wakefulness with use of solriamfetol, a dopamine/norepinephrine reuptake inhibitor.

Lauren Tobias, MD  
Steering Committee Member

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