Collaborating for a Brighter Future

Polly Parsons, MD, ATSF, president of the American Thoracic Society, opened the 115th ATS International Conference Saturday afternoon by welcoming Mary E. Klotman, MD, dean of the Duke University School of Medicine and vice chancellor for Health Affairs, as the guest speaker.

An NIH funded investigator, Dr. Klotman focuses on the molecular pathogenesis of HIV-1. She and her team demonstrated that HIV resides in and evolves separately in kidney cells, a critical step in HIV-associated kidney disease. She said 25 years ago there was not much known about kidney disease. But today, thanks to input from many different team collaborators, it is all known.

“Teamwork is now a science,” she said. Great solutions can be uncovered to knotty problems by necessarily like-minded individuals from the same background, she added. “Diverse perspectives really contribute to success,” she said. That includes diversity in perspectives, education, and culture.

One example she gave is MEDx at Duke, a collaboration of members from the Duke Schools of Medicine and Engineering where they developed a device that allows one nurse to turn a patient without getting hurt. Dr. Klotman said the same principles of team science can be applied to clinical health systems and their academic institutions.

The Deep Care Management Project investigated ways to reduce costs. She said inpatient care accounts for 30 percent of Duke Connected Care total costs with primary admissions representing 90 percent of the cost burden.

By putting unusual teams of clinicians, researchers, data scientists, and health system providers together, she said they were able to take health records of Medicare patients and develop predictive algorithms to reduce unplanned admissions for at-risk patients.

She observed that diverse teamwork is forcing us to “redo” education. “If we expect our physicians and scientists to work together in teams, we have to train them. We see this.”

Using Big Data to Shape a New LHS

Imagine a health care system so advanced that it continuously gathers and analyzes the massive amount of data generated in the ICU to improve patient care in real time. "When the system is optimized, patients can be confident that we’re learning from the care we provide every day," said Vincent Liu, MD, research scientist at the Kaiser Permanente Division of Research in Oakland, California, and a co-chair of the session. "That means safer care and better outcomes for patients."

Dr. Liu is speaking of a Learning Health System (LHS) that leverages high-quality evidence, internal data and informatics, and systematic implementation to improve everyday patient outcomes in critical and other care settings.

“We care for hundreds, thousands, millions of patients each day,” Dr. Liu noted, explaining the traditional approach to improving patient care can take a long time to get and implement results. “The LHS describes a feedback loop that uses data from our practices so we can make our care better with a relatively short lag time.”

An LHS doesn’t happen naturally, though. It requires investment and expertise from health care’s top minds to get the system running. Much of it has to do with extracting big data from existing electronic health record systems (EHRs). "We’re sitting on billions of data elements that are essentially unretrieved."
Gilead is committed to expanding healthcare options for individuals living with cardiovascular and pulmonary diseases.

Visit us at Booth #4344
ATS Pays Tribute to Scientists

Three scientists were recognized for their exceptional contributions to medicine and research during the opening ceremony on Saturday. Yvonne J. Huang, MD, received the Jo Rae Wright Award for Outstanding Science; Peter Sly, MD, DSc, received the World Lung Health Award; and Dona Upson, MD, received the Public Service Award.

JO RAE WRIGHT AWARD FOR OUTSTANDING SCIENCE

Dr. Huang’s research on the role of the microbiome in airway disease phenotypes has led to new insights and hypotheses, and her cystic fibrosis expertise has contributed to understanding microbiome-disease-phenotype relationships across chronic inflammatory airway diseases.

She has co-led a number of investigations of the lower airway microbiome in asthma and COPD, including multicenter studies performed by the NHLBI-sponsored Asthma Clinical Research Network and AsthmaNet, and more recently in SPIROMICS. Currently, her laboratory at the University of Michigan is applying cross-disciplinary translational approaches, including in vitro, ex vivo and computational methods, to understand microbiome interactions that shape asthma and the COPD phenotype.

Dr. Huang has served on numerous committees and panels regarding microbiome science and respiratory disease, including for the National Academy of Science, Engineering, and Medicine. She received a Young Physician-Scientist Award from the American Society for Clinical Investigation, and the ATS-Allergy, Immunology & Inflammation Assembly Early Career Achievement Award.

WORLD LUNG HEALTH AWARD

Dr. Sly of Melbourne, Australia, has been an international leader in pediatric respiratory research for three decades, making major contributions to the understanding of how lung disease begins in early life. From a background in respiratory physiology and clinical pediatric respiratory medicine, Dr. Sly’s research has been instrumental in understanding the major risk factors for the development of asthma and for the initiation and progression of lung disease in infants with cystic fibrosis.

Dr. Sly has been a prominent figure in international public health through his work with the World Health Organization, including his collaboration with the WHO Department of Public Health, Environment and Social Determinants and Health, as well as the establishment and direction of the WHO Collaborating Centre for Research on Children’s Environmental Health in Perth and the WHO Collaborating Center for Children’s Health and Environment in Brisbane.

His current research interests include preventing asthma, improving the detection of early lung disease in children with cystic fibrosis, and improving assessment of adverse environmental exposure in early life.

PUBLIC SERVICE AWARD

Dr. Upson has testified before the U.S. Congress to increase VA research funding, and on the importance of clean air to children’s health, and during local and state hearings. She received the American Lung Association’s Clinton P. Anderson award “for outstanding work and commitment to the citizens of New Mexico” and the Volunteer of the Year award (Albuquerque) for chairing the Air Quality Board. Dr. Upson is working to educate clinicians and the public about electronic nicotine delivery systems, and recently contributed to the New Mexico PBS documentary, “VAPE.”

Dr. Upson has been an active ATS member since 1988 and has served on numerous committees and councils in various positions. She co-founded the LGBTQ Interest Group and is currently serving her fourth year as chair for the Health Policy Committee and her second year as Section Editor for Health Policy and Financing for AnnalsATS. She works to provide education about electronic nicotine delivery systems and is involved in ATS-funded projects to develop clinical practice guidelines for the treatment of tobacco dependence and supplemental oxygen therapy.

Inspired to Learn

By Jess Mandel, MD
International Conference Committee Chair

On behalf of the American Thoracic Society International Conference, welcome to Dallas and ATS 2019!

Since 1904, when the forerunner to the ATS held its first conference, the touchstone of this event has been the realization that progress in science and health is best achieved by sharing information. At ATS 2019, you’ll find the leaders in pulmonary, critical care, and sleep medicine leading sessions and sharing their views. You’ll also find tomorrow’s leaders—some who haven’t yet finished their training—presenting their research.

What ties them—and every one of us—together is a shared passion for this field and the belief that we can all learn from each other. Think, for instance, what those of us who trained in the last century can learn from early career professionals about integrating technology into our practices. Think how much more we learn from having participants from around the world.

Solutions to world health problems depend on bringing perspectives from both resource-rich and resource-limited countries together.

In our advances in this field also require learning from colleagues outside of pulmonary, critical care, and sleep medicine. This is why many of the sessions at ATS 2019 will include presenters from outside our field of medicine and, sometimes, from outside medicine itself.

The scope of the International Conference is inspiring but makes summarizing impossible. Nonetheless, I would like to offer a few highlights.

- Big Data, machine learning, artificial intelligence, and data sharing are likely to change pulmonary, critical care, and sleep medicine and are topics that will be discussed at several sessions, including our keynote addresses.
- The New England Journal of Medicine and the Journal of the American Medical Association will again present the latest groundbreaking research in respiratory and critical care medicine during two sessions today featuring the study authors and journals’ editors.
- The Basic Science Core topic, “Cell Fate Determination in Lung Health and Disease,” will highlight a promising, and growing, area of research during symposia throughout the conference.

Experts will lead Year-in-Review sessions every day for adult and pediatric specialists, reviewing practice-changing studies and discussing clinical questions that remain unanswered.

An ATS Clinical Practice Guidelines session on Tuesday afternoon will give participants a chance to understand the strengths and limitations of the AT’s latest guidelines, as well as ask questions of guidelines developers.

Wherever you go during the conference, I’m confident that you’ll find a collegial environment that inspires you to learn and to become an active participant in the important changes that will bring hope to pulmonary, critical care, and sleep patients around the world.

KEYNOTE SERIES

Decisions and Implementation Science

Artificial intelligence, data sharing, inclusiveness in medicine, and decision-making are a few of the themes you can expect from ATS 2019 keynote speakers. This diverse group of speakers will present cutting-edge research and their perspectives on a variety of topics highly relevant to the pulmonary, critical care, and sleep medicine community.

Keynotes are presented at 8 a.m. each day, when no other programming is scheduled.

Today’s speakers will examine medical decision-making and implementation science.

When Experts Disagree: The Art of Decision-Making (K1)

Ballroom C One-Two (Level 2), KBHCCD

Two speakers will present the first lecture. They are Jerome E. Groopman, MD, professor of medicine at Harvard Medical School and chief of experimental medicine at Beth Israel Deaconess Medical Center in Boston, and Pamela L. Hartbland, MD, assistant professor at Harvard Medical School and attending physician in the Division of Endocrinology at Beth Israel Deaconess Medical Center. Drs. Groopman and Hartbland will present the formula used in classic medical decision analysis and identify its limitations. They will also discuss the different mindsets that patients and doctors may bring to choosing among several treatment options.

Dr. Groopman is one of the world’s leading researchers in cancer and see KEYNOTE SERIES page 35
PAR Encourages Patient Empowerment

T
ing charge of your own lung health was the theme of Saturday’s ATS Public Advisory Roundtable (PAR) Meet the Experts panel. The PAR panel opened with a two-hour panel featuring five experts who explored pulmonary rehabilitation, oxygen therapy, clinical trials, and shared decision-making as they relate to lung health.

For patients with lung diseases, PAR Meet the Experts serves as an opportunity to learn more about their diseases—and themselves.

“I’m 72, and I don’t know much about my own disease,” said Jewella Sky of Joshua, Texas, who has primary ciliary dyskinesia. “I found out about it one day through a small Facebook group I have with people with PCD worldwide. Someone posted on Facebook that this was going on in Dallas, and there’s not a lot out there on PCD. I have some questions for my doctors now. Like, alright, I’ve learned all this stuff, so what can we do about this?”

Barb McManemin, from Dallas, came to hear from experts who specialize in her own disease, lymphangioleiomyomatosis (LAM).

“There were a number of different topics that they discussed,” she said. “Something as simple as oxygen was really educational.” Ms. McManemin said she learned different ways of delivering oxygen, as well as therapy for increasing pulmonary function on your own, whether at the office or at home. She is particularly interested in treatments that might benefit her in the future as she ages.

“Because my disease is a progressive disease, I won’t get well,” she said. “I’ve had it for two years, and I’ve been kind of in denial, so now it’s time for me to get educated.”

Presenters at PAR Meet the Expert included:

• Anne-Marie Russell, PhD, MScN, on “Shared Decision-Making: Partnership to Empower Patients”
• Daniel Croft, MD, MPH, on “Myths and Misconceptions: Managing Your Work and Home Space for Lung Health”
• Narelle Cox, PhD, on “Pulmonary Rehabilitation: What? Why? Who? Where?”
• Kathleen Lindell, PhD, RN, on “The Importance of Oxygen Therapy in Lung Disease”
• Kelly Chin, MD, on “Your Role in Clinical Trials”

Following the presentations, attendees broke out into five different ballrooms for discussions covering:

• Allergy/Asthma
diLD
• Hermansky Pudlak Syndrome
• LAM/Tuberous Sclerosis Complex
• Sarcoidosis
• Lung Transplant
• Primary Ciliary Dyskinesia
• Pulmonary Fibrosis

Sharp Intakes: RIS Unites Innovators and Investors

This year’s startup companies that presented at the Research Innovation Summit:

• 4Dx Limited
• Altavant
• Amiko
• ArtiQ
• AVISA
• Bellerophon Therapeutics
• Body Vision Medical
• Cohere Health, Inc.
• Eldec Pharmaceuticals
• FLUIDDA
• Gala Therapeutics
• HCmed Innovations
• Indalo Therapeutics
• Inscope Medical Solutions
• Lungpacer Medical, Inc.
• Nuvaire
• Optellum
• Pharmosa Biopharm Inc.
• Plant Therapeutics
• Pulmocide
• Savara Inc.
• Sommetrics, Inc.
• Spire Health
• VIDA

PAR Encourages Patient Empowerment

The second annual Respiratory Innovation Summit welcomed nearly 70 speakers and more than 110 startup companies that previewed dozens of new therapies, drugs, devices, and diagnostics designed to treat respiratory disease.

Each of these innovators, investors, and clinicians is leading the fight to create powerful treatments for deadly and crippling diseases of the lungs and airways, and this event provides an opportunity to connect them during single-hour “spotlight” presentations.

Two dozen startups were given the opportunity to present to an audience that included entrepreneurs, investment banks, venture firms, large medical technology companies, and more—an intentional choice made with the hope of driving awareness and, ultimately, funding.

As she did last year, RIS Co-Chair Cecilia Gonzalez, partner at Oberland Capital, led off RIS with a call out to investors to commit more capital to this underfunded space. “We hope that this year’s Respiratory Innovation Summit accomplished its mission of bringing together multiple stakeholders to advance innovation in the respiratory space to serve patients in need of new therapies,” Ms. Gonzalez said.

This year’s spotlight focused heavily on four main areas: airway disease, idiopathic pulmonary fibrosis and interstitial lung disease, interventional pulmonology, and artificial intelligence. Within each spotlight, clinicians gave a short overview of those areas and participated in panel discussions with start-up and industry executives.

Other discussions held during the day included:

• How Innovation Impacts Patient Perspectives
• How to Find—and Fund—Innovative Respiratory Ideas
• Emerging Medtech M&A and Fundraising Trends
• The Future of Financing Respiratory Start-Ups

The program has strong support from ATS leadership, including its Drug, Device, Discovery, and Development (Quad D) Committee. Tim Watkins, MD, MSc, who is chair of the DDDD committee and co-chair of RIS, said the program brought necessary attention to respiratory innovation.

“The strong showing at this year’s RIS reflects the rising interest in new respiratory therapies,” said Dr. Watkins, who also is director of clinical research in respiratory/inflammation therapies at Gilead Sciences. “We look forward to building on the momentum this year and increasing the size of the RIS community in 2020.”

Product Presenters

This year’s startup companies that presented at the Research Innovation Summit:

• 4Dx Limited
• Altavant
• Amiko
• ArtiQ
• AVISA
• Bellerophon Therapeutics
• Body Vision Medical
• Cohere Health, Inc.
• Eldec Pharmaceuticals
• FLUIDDA
• Gala Therapeutics
• HCmed Innovations
• Indalo Therapeutics
• Inscope Medical Solutions
• Lungpacer Medical, Inc.
• Nuvaire
• Optellum
• Pharmosa Biopharm Inc.
• Plant Therapeutics
• Pulmocide
• Savara Inc.
• Sommetrics, Inc.
• Spire Health
• VIDA

NEJM/JAMA Editors, Authors Discuss New Research

B
e a part of the discussion as editors and authors present papers that were recently published in the Journal of the American Medical Association and the New England Journal of Medicine.

These interactive sessions provide a forum for attendees to have a question-and-answer period with the authors and editors, who select published papers to discuss at the conference based on their significance to the fields of critical care medicine (Session A84) and pulmonary medicine (Session A2).

These discussions are intended to provide insight into the papers, the selection process, and how research applies directly to each of these important fields of medicine.

Jeffrey Drazen, MD, will co-chair the morning session. Dr. Drazen is editor-in-chief of NEJM, a senior physician at the Brigham and Women’s Hospital in Boston, and professor of physiology at the Harvard School of Public Health. George T. O’Connor, MD, will also co-chair this session. Dr. O’Connor is professor of medicine at Boston University School of Medicine and an associate editor for JAMA. Howard Bauchner, MD, JAMA editor-in-chief, will co-chair the afternoon session. Dr. Bauchner is vice chair of pediatrics at the Boston University School of Medicine. He has published more than 125 papers in peer-reviewed journals. Dr. Drazen, MD, who co-chairs the morning session, will also co-chair this session.

NEJM and JAMA Discussion on the Edge: Reports of Recently Published Pulmonary Research (A2)

11:15 a.m.-11:55 a.m., Sunday Room D163/D165/D170/D172 (Level 1), KBHCCD

JAMA and NEJM Discussion on the Edge: Reports of Recently Published Critical Care Research (A84)

2:15 p.m.-4:15 p.m., Sunday Room D163/D165/D170/D172 (Level 1), KBHCCD
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The Spiration Valve System (SVS) for bronchoscopic lung volume reduction is proven to improve lung function, reduce shortness of breath, and restore quality of life. The SVS has demonstrated a strong risk benefit profile, with a low rate of serious pneumothorax and minimal risk of valve migration and expectoration.*

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Rounds Honored as ATS Foundation Champion and Benefactor

Throughout her career, Sharon I.S. Rounds, MD, has been a teacher, a mentor, a champion of diversity, and a pioneer. She has been a distinguished researcher and a leader. She’s worked toward not only her own success, but to help others be successful, too.

For these reasons and more, the ATS Foundation identified Dr. Rounds as the recipient of the 2019 Breathing for Life Award—the highest honor given to an ATS member for philanthropy—during the 11th annual ATS Foundation Research Program Benefit on Saturday evening at Union Station in Dallas. As ATS president in 2004-05, Dr. Rounds championed the formation of the ATS Foundation. In addition to being one of the most generous supporters of the Foundation, she served on the Foundation’s board from 2012 until 2018.

Throughout her career, Dr. Rounds has pressed for more opportunities for women and minorities in the fields of pulmonary, critical care, and sleep medicine, both at Brown University, where she is a professor and associate dean for clinical affairs, and the ATS. Along with Alvin Thomas, MD, and Estelle Gauda, MD, she created the ATS Minority Trainee Development Scholarships program two decades ago. “This is the history of the United States of America: We’re only as good as our diversity,” she said. “It makes us better health care professionals, and it makes our research more relevant to the needs of the community.”

Elizabth Harrington, PhD, considers Dr. Rounds a pioneer. She was among the few women “to do many things during her career in a very male dominated field,” said Dr. Harrington, who is co-director with Dr. Rounds of the CardioPulmonary Vascular Biology Center for Biomedical Research Excellence.

At a time of life when many consider retiring, Dr. Rounds remains active as a mentor, researcher, and clinician. She also remains active in the ATS. One might think that her many committee assignments and leadership roles within ATS are a way of paying the Society back for helping to launch her career. But Dr. Rounds, characteristically, offers a humbler explanation. “I view my time contribution to ATS, not as work, but as fun,” she said. “The ATS is interesting and engaging and keeps my mind off things that I might find boring.”

The ATS Foundation is now accepting applications for the 2019-2020 Research Program grant cycle. Letters of intent are due by June 17, 2020.

The ATS Foundation extends a special thanks to GlaxoSmithKline, who supported this year’s benefit at the Sapphire level, bringing its commitment to the next generation of researchers to a half-million dollars.

The Foundation also thanks: Mylan Inc./Theravance Biopharma at the Crystal Level; Mallinckrodt Pharmaceuticals, Novartis Pharma AG, and Sanoﬁ Genzyme Regeneron at the Gold Level; AstraZeneca LP; Boehringer Ingelheim Pharmaceuticals, Inc.; FREEMAN, Gilead Sciences, Inc., Inamed Incorporated, Sunovion Pharmaceuticals Inc., and Vertex Pharmaceuticals Inc., at the Silver Level; and Ascend Media, National Board for Respiratory Care, and Sunovion Pharmaceuticals Inc., at the Bronze Level.

For the most up-to-date list of generous donations from individuals, medical institutions, and corporate supporters of the ATS Foundation, visit thoracic.org/benefit.

Please join us for an Industry-Organized Symposium at the ATS 2019 International Conference. A non-CME educational program sponsored by GSK open to all ATS 2019 International Conference attendees.

A Disease-State Presentation: Exploring Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Michael Wechsler, MD, MMSc
Professor of Medicine
Director, Asthma Program, National Jewish Health
Director, Cohen Family NHJ Asthma Institute
Division of Pulmonary, Critical Care and Sleep Medicine
Department of Medicine
National Jewish Health and
University of Colorado School of Medicine

This educational session will review the pathogenesis, clinical manifestations, classification criteria, diagnosis, and prognosis of EGPA.
The management of pulmonary arterial hypertension (PAH) continues to evolve, with targeting multiple pathways through sequential combination therapy now at the forefront of treatment strategies. This interactive, case-based theater will feature a PAH thought leader who will discuss a treatment for PAH, targeting the prostacyclin pathway.

12:20 – 1:05 PM CDT
Sunday, May 19, 2019
Presentation and Lunch

Medium Theater
The ATS 2019 Exhibit Hall
The Kay Bailey Hutchison
Convention Center
Dallas

Featured Faculty:
Rajeev Saggar, MD
Executive Director, Lung Institute
Dir. of Pulmonary Hypertension
and Fibrosis Programs,
University of AZ
COM-Phoenix Banner University
Medical Center-Phoenix
Phoenix, Arizona
Taking Credit: MOC and CME

Each year, the ATS Educational and the International Conference committees collaborate to ensure that International Conference symposia are eligible for Maintenance of Certification points.

A

TS 2019 attendees are able to earn up to 54.5 American Board of Internal Medicine MOC Medical Knowledge points and 20 American Board of Pediatrics Part 2 MOC Self-Assessment points.

In addition to the adult and pediatric Core Curriculum there are 26 symposia that are eligible for MOC and will cover adult pulmonary, critical care, and sleep medicine as well as pediatric pulmonary symposia. The Adult and Pediatric Symposia eligible for MOC at the conference can be found at http://conference.thoracic.org/program/moc.php

**HOW TO EARN MOC POINTS AT ATS 2019**

**During ATS 2019:** Attend any or all of the MOC symposia you are interested in. These sessions will be highlighted in the Final Program.

**After ATS 2019:** Take the post-session test. All the tests are available on Wednesday, May 22, 2019, 4 pm CST and attendees can take the tests at no cost through July 31, 2019. Please note: audience response during a session does not count at the post-test.

**HOW TO EARN CME ATS 2018**

There are two separate pathways for claiming MOC and CME. In order to claim both CME and MOC you will need to follow both for both. You must pass the MOC post-test to earn MOC and complete the CME evaluation to claim CME. Claiming one will not automatically transfer to the other.

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**JOIN US FOR A PRESENTATION AT ATS 2019**

**Intervening in Pulmonary Embolism with EKOS Therapy**

Tuesday, May 21, 12:30pm

Location – Mini Theater, Hall C

Presented by:
Gregory Piazza, MD, MS
Assistant Professor of Medicine, Harvard Medical School
Brigham and Women’s Hospital, Boston, MA

This presentation is sponsored by BTG, and is open to all ATS 2019 International Conference attendees.

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Search for ATS (@atscommunity) on Snapchat. Followers can check the “Our Story” page for behind-the-scenes pictures and conference videos.

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**SETTING THE STANDARD FOR VASCULAR THERAPIES**
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YOU’RE INVITED

• **Monday, May 20** from **11:30 AM-12:15 PM**

• **Theater 2, Exhibit Hall** at the Kay Bailey Hutchison Convention Center

• Speaker:

  **David E Griffith, MD**

  *Professor of Medicine*
  
  *WA and EB Moncrief Distinguished Professor, Pulmonary Infectious Disease Section Chief*
  
  *University of Texas Health Science Center at Tyler*

An Industry Theater Presentation at the ATS 2019 International Conference. This presentation is sponsored by Insmed. Due to regulatory restrictions, this presentation is only available to attendees from the United States.
Enrich Learning With Non-CME Symposia

6:30-9:30 p.m. Bronchiectasis: Emerging Trends and Unmet Needs
Fairmont Dallas, Regency Ballroom
In this non-CME educational symposium, global non-cystic fibrosis bronchiectasis experts describe why awareness of the condition is growing, how to accurately identify patients with NCFB, and how to address symptoms within the framework of “treutable traits.” They will present the latest research, clinical guidelines, and actionable information related to this under-recognized but critically important pulmonary condition.

Speakers: Michael Polkey, MD, Royal Brompton Hospital in London, U.K.; Timothy Aksamit, MD, Mayo Clinic in Rochester, Minnesota; James Chalmers, MBChB, PhD, University of Dundee and Ninewells Hospital and Medical School in Dundee, U.K.; Tara Barto, MD, Baylor College of Medicine in Houston
Company: RespiriTech, a Philips Company

6:30-9:30 p.m. Exploring Idiopathic Pulmonary Fibrosis With the Experts: A Multidisciplinary Program on the Diagnosis, Treatment, and Management of IPF
Sheraton Dallas Hotel, Austin Ballroom
Join us for an innovative symposium led by a multidisciplinary team of idiopathic pulmonary fibrosis (IPF) experts. In this interactive and case-based program, attendees will explore such topics as the importance of prompt diagnosis, the potential benefits and risks of treating patients with an FDA-approved IPF-specific therapy, and the steps for initiating and maintaining a comprehensive management plan.

Speakers: Anne Whitney Brown, MD, director of clinical operations, Inova Advanced Lung Disease & Transplant Program, assistant professor of medicine, Virginia Commonwealth University School of Medicine Inova Fairfax Campus Falls Church, Virginia; Cedric Jamie Rutland, MD, Pacific Pulmonary Medical Group, assistant clinical professor of internal medicine, University of California, Riverside School of Medicine; Riverside, California; Jubal Watts Jr., MD, Radiology of Huntsville, Huntsville, Alabama
Company: Genentech, A Member of the Roche Group

6:30-9:30 p.m. In Pursuit of the Leaking Lymph: Nonmalignant Thoracic Lympathic Disorders
Sheraton Dallas Hotel, Lone Star Ballroom B
Experts will discuss classification of pulmonary lymphatic disorders and evaluate new imaging and therapeutic approaches for the differentiation and treatment of these disorders. They will also assess pulmonary involvement in patients with lymphatic malformations. Interactive clinical case presentations will provide scientific pearls for integrating diagnostic and therapeutic algorithms into your practice.

Speakers: Maxim Ikin, MD, FSIR, professor of radiology and pediatrics at the Center for Lymphatic Disorders at Perelman School of Medicine, University of Pennsylvania; Bruce K. Rubin, MD, MEng, MBA, FRCP; Jessie Ball duPont Distinguished Professor and chair in the department of pediatrics, professor of biomedical engineering, and physician in chief at Virginia Commonwealth University School of Medicine and Children’s Hospital of Richmond at VCU; Christopher Towe, MD, assistant professor of pediatrics, pediatric pulmonary and pediatric lung transplant and director of rare lung diseases at Cincinnati Children’s Hospital Medical Center
Company: Vindico Medical Education, supported by an educational grant from Guerbet, LLC

6:30-9:30 p.m. Nasal High Flow in the Critical Care Setting
Hyatt Regency Dallas, Landmark Ballroom A
This session highlights advances in improved care of respiratory failure and the clinical outcomes in critical care and emergency medicine using nasal high flow therapy. Clinical studies demonstrate that nasal high flow therapy may reduce escalation of care, reduce mortality rates, and improve symptomatic relief.

Speakers: Nicholas Hill, MD, professor at Tufts University, Gregory Schmidt, MD, professor at the University of Iowa, Tomaso Mauri, MD, PhD, associate professor at the University of Milan
Company: Fisher & Paykel Healthcare

6:30-9:30 p.m. Systemic Sclerosis-Associated Interstitial Lung Disease: Expert Insights on Early Diagnosis and Optimal Management
Hyatt Regency Dallas, Martin’s Exhibit Hall A
A panel of expert faculty will offer insight to help clinicians achieve a greater understanding into the recognition, diagnosis, and management of systemic sclerosis and interstitial lung disease, including the latest clinical evidence with respect to emerging therapies.

Speakers: Marilyn K. Glassberg, MD, director, interstitial lung disease program director, pulmonary diseases at interdisciplinary stem cell institute, professor of medicine, surgery, and pediatrics vice chair of medicine for diversity and innovation at the University of Miami School of Medicine; Arvyash Fischer, MD, associate professor of medicine division of rheumatology, division of pulmonary sciences and critical care medicine at the University of Colorado School of Medicine; Kristin B. Highland, MD, MSCR, associate program director for research and scholarly activity, pulmonary fellowship at the Cleveland Clinic Foundation
Company: PVI PeerView Institute for Medical Education, supported by educational grants from Boehringer Ingelheim Pharmaceuticals, Inc. and Genentech, a member of the Roche Group

Let’s discover together.
JOIN US FOR A MULTIDISCIPLINARY DINNER SYMPOSIUM

6:30 – 8:30 p.m., SUNDAY, MAY 19, 2019

SHERATON DALLAS HOTEL, AUSTIN BALLROOM
400 North Olive Street, Dallas, TX 75201

Join us for an innovative symposium led by a multidisciplinary team of experts. In this interactive and case-based program, attendees will explore such topics as the importance of prompt diagnosis, the potential benefits and risks of treating patients with Esbriet® (pirfenidone), and the steps for initiating and maintaining a comprehensive management plan.

ANNE WHITNEY BROWN, MD
Director of Clinical Operations
Inova Fairfax Campus
Falls Church, VA

CEDRIC JAMIE RUTLAND, MD
Pacific Pulmonary Medical Group
Riverside, CA

JUBAL R. WATTS, JR., MD, FCCP
Radiology of Huntsville
Huntsville, AL

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ESB/030519/0016b 04/19

An Industry-Organized Symposium at the ATS 2019 International Conference.

A non-CME educational program sponsored by Genentech. Due to regulatory restrictions, this program is only available to attendees from the United States.

Minnesota, New Jersey, Vermont, and Federal Entities (e.g., the Department of Defense and the Department of Veterans Affairs) have restrictions on receiving in-kind benefits (e.g., meals, valet parking) at company-sponsored events. You are accountable for understanding such restrictions and complying with them. If you are licensed in or affiliated with any of these states or federal agencies, Genentech policies may restrict you from consuming any portion of the Genentech-sponsored meal at this program or from receiving any other in-kind benefit from Genentech (e.g., valet parking) in connection with the program.
At Northwestern Memorial Hospital, the #1 hospital in Illinois, our nationally ranked pulmonary program is leading the way in innovative lung care. Our advanced lung disease programs are led by multidisciplinary teams experienced in treating complex cases. So you can rest assured, even after most medical therapies have failed, we are your optimal partner in improving patient care. Alongside our entire Northwestern Medicine family, we’re committed to our relentless pursuit of better medicine.

For more information or to refer a patient, visit nm.org/nmhats

Northwestern Memorial Hospital
Four Honored for Outstanding Efforts in Medicine

The ATS will recognize four physicians and researchers for their remarkable contributions to medicine during Sunday’s Awards Session, featuring the Amberson Lecture and the presentation of the Trudeau Medal and two Distinguished Achievement Awards.

AMBERSON LECTURE
Jahar Bhattacharya, MD, DPhil., will deliver this year’s Amberson Lecture on “Lung Injury as Seen Through the Lens of the Alveolus.” He is professor of medicine and director of lung research at Columbia University in New York. The Amberson Lecture recognizes exemplary professionalism, collegiality, and citizenship through mentorship and leadership in the ATS community.

In his lecture, Dr. Bhattacharya plans to cover several key points including:
- Visualizing the onset of alveolar injury
- Macrophage-epithelial interactions in alveolar immunity
- Alveolar mitochondria in injury resolution

Dr. Bhattacharya said the goal of his lecture is to convey unique alveolar mechanisms of evolution and resolution of injury. “The ATS membership will learn about new mechanistic approaches to therapy for lung injury.”

Dr. Bhattacharya’s live lung studies led to the discovery of a new class of lung macrophages, now called sessile alveolar macrophages (SAMs), that communicate Ca++ with the lung epithelium via GAP junctions to suppress immunity during endotoxin challenge. His group has recently demonstrated that S. aureus stabilize in the lung in alveolar niches, accounting for the severity of lung injury in an infection model. His work has had implications for basic understanding of lung vascular biology, cellular physiology, immunity, and the pathogenesis and repair of acute lung injury.

EDWARD LIVINGSTON TRudeau MEDAL
The recipient of this year’s Edward Livingston Trudeau Medal is Jacob I. Sznajder, MD. The Trudeau Medal recognizes lifelong major contributions to prevention, diagnosis, and treatment of lung disease through leadership in research, education, or clinical care. Dr. Sznajder is professor of medicine and cell and molecular biology at Northwestern University Feinberg School of Medicine in Chicago. His research has focused on the mechanisms of lung injury and edema clearance, effects of hypercapnia and hypoxia, and signal transduction pathways in the lungs. Dr. Sznajder is passionate about the training of physician/scientists and researchers of diverse backgrounds. For more on Dr. Sznajder, see his profile on page 27.

DISTINGUISHED ACHIEVEMENT AWARDS
John Hansen-Flaschen, MD, ATS, and Meir Kryger, MD, will receive this year’s Distinguished Achievement Awards.

Dr. Hansen-Flaschen is a professor of medicine at the University of Pennsylvania in Philadelphia. He served from 1990 to 2015 as the third chief of the Pulmonary, Allergy, and Critical Care Division at the university, where he also founded the multidisciplinary Paul Harron Lung Center in 2007. Dr. Hansen-Flaschen redirected his scholarship to an exploration of the burdens endured by patients and family members in ICUs. At a time when many people thought the practice was tantamount to euthanasia, he was the first at the University of Pennsylvania to palliatively withdraw mechanical ventilation in the presence of family members and with full medical record documentation. The practice took hold locally and was reported in a series of newspaper articles published in 1983 that won a Pulitzer prize for the Philadelphia Inquirer. Dr. Hansen-Flaschen expanded on that experience to write about and advocate for routine, active engagement of intensivists in family-centered palliative care of patients near the end of life. He was also one of the first to draw the attention of medical intensivists to the benefits and perils of intravenous sedation and analgesia for the palliative management of acute respiratory failure.

Meir Kryger, MD, is a professor of medicine at Yale School of Medicine in New Haven, Connecticut, who has been treating patients with sleep disorders for more than 40 years. He has also worked as professor of medicine at the University of Manitoba in Canada, and was director of the Sleep Disorders Center at St. Boniface Hospital Research Center, the first clinical laboratory studying patients with sleep breathing problems in Canada. He described what is probably the first case of sleep apnea in North America while a trainee at the Royal Victoria Hospital in Montreal, Canada.

Dr. Kryger is chief editor of The Principles and Practice of Sleep Medicine, a textbook that is now in its sixth edition, and the Atlas of Clinical Sleep Medicine. He has published more than 200 peer reviewed articles and book chapters. His next project is called Dreaming in Color, which explores how artists look at sleep.

Join the Conversation #ATS2019

Enhance your International Conference experience by keeping connected through social media. Or join the conversation even if you can’t make it to Dallas. Each day, the ATS promotes the conference on a variety of social media platforms. Staying social could even land you a prize.

THE OFFICIAL HASHTAG IS #ATS2019.
Tweet #ATS2019 and pick-up a ribbon IRL in the Kay Bailey Hutchison Convention Center Dallas in Lobby F (Level 2) next to Assisted Registration, to highlight your online participation! Make sure to print your Twitter handle on your badge, and add it to your ATS member page.

GET IN ON THIS YEAR’S INSTAGRAM CONTEST.
HERE ARE THE RULES:
1. Follow @atscommunity on Instagram.
2. Comment on photos of Al and Viola with your best captions. Contestants must be attending ATS 2019. Pick up your prizes at the Membership Booth in Lobby F, May 17-18, or the ATS Center (Exhibit Hall, booth 2726), May 19-22.
3. Bonus: Run into Al and Viola at the conference? Take a selfie with them and post it to your Instagram! Look for your shot to be regrammed to the ATS IG page.

PREFER SNAPCHAT TO INSTAGRAM?
Simply scan this code to follow ATS (or search @atscommunity). Followers can check the “Our Story” page for behind-the-scenes pictures and conference videos.

THE ATS IS GOING LIVE ON FACEBOOK DURING ATS 2019!
Sunday, May 19, from 1 to 2 p.m. CT: How to Deal With Professional Conflicts
Monday, May 20, from 6:45 to 7:45 a.m. CT: Faculty Promotion and Tenure: Unraveling the Faculty Handbook (FD1)
Tuesday, May 21, from 6:45 to 7:45 a.m. CT: Using Digital Scholarship Strategically for Career Advancement (FD2)
Wednesday, May 22, from 6:45 to 7:45 a.m. CT: Negotiating for Your Future: Skills and Strategies for Success (FD3)
Guru Bars: Lightning Learning Sessions

Guru Bars are short, lightning-learning sessions that allow you to collaborate with leaders on an array of subjects. Each session features a 10-minute outline of a problem statement, mitigating factors, and the host's perspective/solution. The sessions end with a challenge or question posed to participants, who discuss it for the remaining 10 minutes.

Each Guru Bar can accommodate 25 seated participants, with standing room around the perimeter, which allows for a dynamic and interactive discussion. Guru Bars are organized by categories of interest:

**Guru Bars 1 and 2: Education/Awareness/Prevention or Diagnosis**

Guru Bars 1 run every 30 minutes from 11 a.m. to 2 p.m. Sunday through Tuesday in the Exhibit Hall (Level 2, Halls C-F).

**Guru Bars 3 and 4: Treatment of Adherence/Compliance**

Guru Bars 3 run every 30 minutes from 11 a.m. to 2 p.m. Sunday through Tuesday in the Exhibit Hall (Level 2, Halls C-F).

### Education/Awareness/Prevention or Diagnosis

#### Guru BAR 1

11:30-11:50 a.m.

Best Practices in PFT Data Quality and Interpretation

Incongruences between pulmonary function test results, other respiratory diagnostic exams, and/or symptoms adversely affect clinical decisions in millions of cases where pulmonary functions testing is indicated each year. Learn how new best practices can eliminate these incongruences and provide diagnostic confidence in the PFT data you receive from your labs.

**Speaker:** Todd Scheiblich, BS, MBA, director, clinical applications, nSpire Health

**Company:** nSpire Health

12:30-12:50 p.m.

Bronchoscopic Lung Volume Reduction With the Spiration Valve System

Join us as we discuss the Spiration Valve System, an innovative endobronchial therapy that offers patients with severe emphysema a customized, minimally invasive treatment option for lung volume reduction with a favorable risk-benefit profile. Patients treated with the Spiration Valve System in clinical trials experienced improvements in breathlessness, lung function, and quality of life. For complete benefit and risk information, please visit svss.com.

**Speaker:** Gerard J. Criner, MD, ATSF, founding chair and professor of thoracic medicine and surgery of Temple University Health System

**Company:** Olympus America Inc.

1:00-1:50 p.m.

Fluoroscopic Navigation Technology: Solving for CT to Body Divergence

As pioneers of ENB procedures, we take our responsibility of transforming lung cancer from a deadly disease to a managed condition seriously. That's why we continue to create technologies that help enable a better outcome for patients—including our latest innovation: Fluoroscopic Navigation Technology. Our new software algorithms use multiple fluoroscopic images which provide enhanced visualization of soft tissue objects like lung lesions, accurate modeling of 3-D distances on 2-D images, local registration to help compensate for local CT-to-body divergence, updated catheter position relative to nodule, and the ability to visualize smaller nodules. Join us and Dr. Krish Bhadra in the discussion.

**Speaker:** Krishnendu Bhadra, MD, interventional pulmonologist, CHI Memorial Medical Group

**Company:** Medtronic

#### Guru BAR 2

**12:12-12:20 p.m.**

A New Therapeutic Option for Oral Corticosteroid Dependent Asthma

Our speaker will lead an interactive discussion of a hypothetical case with moderate to severe oral corticosteroid dependent asthma. The speaker will describe the data supporting an add-on maintenance treatment option that may reduce and possibly even eliminate the needs for the corticosteroids.

**Speaker:** Cedric “Jamie” Rutland, MD, assistant clinical professor of internal medicine, University of California Riverside

**Company:** Sanofi Genzyme and Regeneron

1:00-1:50 p.m.

COPD Exacerbations: Beyond Inhaler Treatment

Learn more about an available treatment option for patients with uncontrolled COPD continuing to exacerbate on current bronchodilator therapy. Enhance your knowledge and discuss an alternative to help prevent COPD exacerbations.

**Speaker:** Sanjay Sethi, MD, VA WNY Healthcare System

**Company:** AstraZeneca

#### Guru BAR 3

**11:30-11:50 a.m.**

Minimizing Patient Escalation With Effective Nasal High Flow

Confirm mechanisms of action and physiological effects. Outline role of nasal high flow with minimizing patient escalation. Practical application of nasal high flow.

**Speaker:** Chris Hutchinson, senior product manager

**Company:** Fisher & Paykel Healthcare

**12:30-12:50 p.m.**

Optimizing Post-Exubation With Effective Nasal High Flow

Confirm mechanisms of action and physiological effects. Outline role of nasal high flow with optimizing post-extubation. Practical application of nasal high flow.

**Speaker:** Chris Hutchinson, senior product manager

**Company:** Fisher & Paykel Healthcare

1:00-1:50 p.m.

Minimizing Patient Escalation With Effective Nasal High Flow

Confirm mechanisms of action and physiological effects. Outline role of nasal high flow with minimizing patient escalation. Practical application of nasal high flow.

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COPD Exacerbations: Beyond Inhaler Treatment

Learn more about an available treatment option for patients with uncontrolled COPD continuing to exacerbate on current bronchodilator therapy. Enhance your knowledge and discuss an alternative to help prevent COPD exacerbations.

**Speaker:** Sanjay Sethi, MD, VA WNY Healthcare System

**Company:** AstraZeneca

#### Guru BAR 4

**12:12-12:20 p.m.**

Corecath: A Novel Way of Debubbling Airways

As pioneers of ENB procedures, we take our responsibility of transforming lung cancer from a deadly disease to a managed condition seriously. That's why we continue to create technologies that help establish a better outcome for patients—including our

latest innovation: the CoreCath™ 2.75 T device. This electrosurgical device lets you remove soft tissue obstructions in the upper airways and tracheobronchial tree by debulking, coagulating, and evacuating surgical smoke with integrated suction. This multiple-application tool provides electrosurgical hemostasis and may be delivered through the working channel of a flexible bronchoscope, and is designed to reduce the number of tools in a procedure.

**Speaker:** Amit “Bobby” Mahajan, MD, FCCP, DAABIP, medical director of interventional pulmonology, Inova Heart and Vascular Center

**Company:** Medtronic

**1:10-2 p.m.**

Robotics and the Future of Lung Cancer Diagnosis: A Community Hospital’s Experience With the Monarch Platform

Stephen Kovacs, DO, FCCP, will host a presentation about his current use of the Monarch Platform in U.S. cases. Visit Booth 613 to learn more about the Monarch Platform.

**Speaker:** Stephen Kovacs, DO, FCCP, co-director, UPMC Hamot Comprehensive Lung Center, UPMC

**Company:** Auris Health
In adult patients with pulmonary arterial hypertension (PAH) (WHO Group 1) to improve exercise capacity

**INDICATION**
Orenitram is a prostacyclin vasodilator indicated for treatment of pulmonary arterial hypertension (PAH) (WHO Group 1) to improve exercise capacity. The study that established effectiveness included predominately patients with WHO functional class II-III symptoms and etiologies of idiopathic or heritable PAH (75%) or PAH associated with connective tissue disease (19%). When used as the sole vasodilator, the effect of Orenitram on exercise is about 10% of the deficit, and the effect, if any, on a background of another vasodilator is probably less than this.

**IMPORTANT SAFETY INFORMATION**

**CONTRAINDICATIONS**
- Orenitram is contraindicated in patients with severe hepatic impairment (Child Pugh Class C)

**WARNINGS AND PRECAUTIONS**
- Abrupt discontinuation or sudden large reductions in dosage of Orenitram may result in worsening of PAH symptoms
- Orenitram inhibits platelet aggregation and increases the risk of bleeding
- The Orenitram tablet shell does not dissolve. In patients with diverticulosis, Orenitram tablets can lodge in a diverticulum

**DRUG INTERACTIONS / SPECIFIC POPULATIONS**
- Concomitant administration of Orenitram with diuretics, antihypertensive agents, or other vasodilators increases the risk of symptomatic hypotension
- Orenitram inhibits platelet aggregation; there is an increased risk of bleeding, particularly among patients receiving anticoagulants

**ADVERSE REACTIONS**
- Co-administration of Orenitram and the CYP2C8 enzyme inhibitor gemfibrozil increases exposure to treprostinil; therefore, Orenitram dosage reduction may be necessary in these patients
- Pregnancy Category C. Animal reproductive studies with Orenitram have shown an adverse effect on the fetus. There are no adequate and well-controlled studies in humans
- It is not known whether treprostinil is excreted in human milk or absorbed systemically after ingestion. Because many drugs are excreted in human milk, choose Orenitram or breastfeeding

**REFERENCES**

Please see Brief Summary of Prescribing Information on the following page.

**Visit Booth #3511 to learn more**

or www.ImpactEarlier.com for additional information

**OREIShcpJAN17**

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INDICATIONS AND USAGE
Orenitram is indicated for the treatment of pulmonary arterial hypertension (PAH) (WHO Group 1) to improve exercise capacity. The study that established effectiveness included predominately patients with WHO functional class II-III symptoms and etiologies of idiopathic or heritable PAH (75%) or PAH associated with connective tissue disease (19%). When used as the sole vasodilator, the effect of Orenitram on exercise is about 10% of the deficit, and the effect, if any, on a background of another vasodilator is probably less than this.

CONTRAINDICATIONS
Severe hepatic impairment (Child Pugh Class C).

WARNINGS AND PRECAUTIONS
Worsening PAH Symptoms upon Abrupt Withdrawal—Abrupt discontinuation or sudden large reductions in dosage of Orenitram may result in worsening of PAH symptoms.

Risk of Bleeding—Orenitram inhibits platelet aggregation and increases the risk of bleeding.

Use in Patients with Blind-end Pouches—The tablet shell does not dissolve. In patients with diverticulosis, Orenitram tablets can lodge in a diverticulum.

ADVERSE REACTIONS
Clinical Trials Experience—Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice. In a 12-week placebo-controlled monotherapy study (Study 1; WHO Group 1; functional class II-III), the most commonly reported adverse reactions that occurred in patients receiving Orenitram included: headache, diarrhea, nausea and flushing. Table 1 lists the adverse reactions that occurred at a rate on Orenitram at least 5% higher than on placebo. Orenitram patients in Table 1 for Study 1 (N = 151) had access to 0.25 mg tablets at randomization. Approximately 91% of such patients experienced an adverse reaction, but only 4% discontinued therapy for an adverse reaction (compared to 3% receiving placebo). The overall discontinuation rate for any reason was 17% for active and 14% for placebo.

Orenitram was studied in a long-term, open-label extension study in which 824 patients were dosed for a mean duration of approximately 2 years. About 70% of patients continued treatment with Orenitram for at least a year. The mean dose was 4.2 mg BID at one year. The adverse reactions were similar to those observed in the placebo-controlled trials. The safety of Orenitram was also evaluated in an open-label study transitioning patients from Remodulin. The safety profile of this study was similar to that observed in the three pivotal studies.

Post-Marketing Experience—The following adverse reactions have been identified during post approval use of Orenitram: dizziness, dyspnea, vomiting, myalgia, and arthralgia. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

DRUG INTERACTIONS
Antihypertensive Agents or Other Vasodilators—Concomitant administration of Orenitram with diuretics, antihypertensive agents or other vasodilators increases the risk of symptomatic hypotension.

Antiarrhythmics—Treprostinil inhibits platelet aggregation; there is increased risk of bleeding, particularly among patients receiving antiarrhythmic agents.

Effect of CYP2C8 Inhibitors—Co-administration of Orenitram and the CYP2C8 enzyme inhibitor gemfibrozil in healthy adult volunteers increases exposure to treprostinil. Reduce the starting dose of Orenitram to 0.125 mg BID and use 0.125 mg BID increments every 3 to 4 days.

Effect of Other Drugs on Orenitram—Based on human pharmacokinetic studies, no dose adjustment of Orenitram is recommended when co-administered with either fluconazole, rifampin, sildenafil, bosentan or esomeprazole.

Warfarin—A drug interaction study was carried out with Remodulin co-administered with warfarin (25 mg/day) in healthy volunteers. There was no clinically significant effect of either medication on the pharmacokinetics of treprostinil. Additionally, treprostinil did not affect the pharmacokinetics or pharmacodynamics of warfarin. The pharmacokinetics of R- and S-warfarin and the international normalized ratio (INR) in healthy subjects given a single 25 mg dose of warfarin were unaffected by continuous subcutaneous infusion of treprostinil at an infusion rate of 10 ng/kg/min.

USE IN SPECIFIC POPULATIONS
Pregnancy—Pregnancy Category C. Animal reproductive studies with treprostinil dikainide have shown an adverse effect on the fetus. There are no adequate and well-controlled studies in humans.

Labor and Delivery—The effect of Orenitram on labor and delivery in humans is unknown. No treprostinil treatment-related effects on labor and delivery were seen in animal studies.

Nursing Mothers—it is not known whether treprostinil is excreted in human milk or absorbed systemically after ingestion. Because many drugs are excreted in human milk, choose Orenitram or breastfeeding.

Pediatric Use—Safety and effectiveness in pediatric patients have not been established.

Geriatric Use—Clinical studies of Orenitram did not include sufficient numbers of patients aged 65 years and over to determine whether they respond differently from younger patients. In general, dose selection for an elderly patient should be cautious, reflecting the greater frequency of decreased hepatic or cardiac function, and of concomitant disease or other drug therapy.

Patients with Hepatic Impairment—Plasma clearance of treprostinil is reduced in patients with hepatic insufficiency. Patients with hepatic insufficiency may therefore be at increased risk of dose-dependent adverse reactions because of an increase in systemic exposure. Titrate slowly in patients with hepatic insufficiency, because such patients will likely be exposed to greater systemic concentrations relative to patients with normal hepatic function. In patients with mild hepatic impairment (Child Pugh Class A) start at 0.125 mg BID with 0.125 mg BID dose increments every 3 to 4 days. Avoid use of Orenitram in patients with moderate hepatic impairment (Child Pugh Class B). Orenitram is contraindicated in patients with severe hepatic impairment (Child Pugh Class C).

Patients with Renal Impairment—No dose adjustments are required in patients with renal impairment. Orenitram is not removed by dialysis.

OVERDOSAGE
Signs and symptoms of overdose with Orenitram during clinical trials reflect its dose-limiting pharmacologic effects and include severe headache, nausea, vomiting, diarrhea, and hypotension. Treat supportive.

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Table 1. Adverse Reactions with Rates at Least 5% Higher on Orenitram Monotherapy than on Placebo

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Orenitram (N=151)</th>
<th>Placebo (N=77)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>63%</td>
<td>19%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>30%</td>
<td>16%</td>
</tr>
<tr>
<td>Nausea</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Flushing</td>
<td>15%</td>
<td>6%</td>
</tr>
<tr>
<td>Pain in jaw</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Pain in extremity</td>
<td>14%</td>
<td>8%</td>
</tr>
<tr>
<td>Hypokalemia</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Abdominal discomfort</td>
<td>6%</td>
<td>0%</td>
</tr>
</tbody>
</table>
ATS Daily Bulletin • ATS 2019 International Conference • Sunday, May 19, 2019

Networking Events Offer a Global Connection

The ATS International Conference is where science and health care intersect. It’s our aim to provide you with abundant opportunities to connect and engage with colleagues on the latest research and scientific breakthroughs and best practices in patient care. We’re planning a number of special events and learning opportunities beyond the conference. Consider adding these events to your itinerary.

ATS FOUNDATION DONOR APPRECIATION SUITE
As a way to thank donors, the ATS Foundation will again feature its ATS Foundation Donor Appreciation Suite located in Hall B (Level 2) of Kay Bailey Hutchison Convention Center Dallas. Conference attendees who contribute $250 or more between June 2018 and May 2019 are invited to the suite to enjoy complimentary breakfast, refreshments, free Wi-Fi, concierge services, and private meeting rooms (be sure to reserve these ahead of time).

EARLY CAREER PROFESSIONALS
If you are a graduate or medical student, medical resident, clinical or postdoctoral fellow, or junior faculty member, these networking opportunities are for you.

The Center for Career Development, located in Hall B (Level 2) of Kay Bailey Hutchison Convention Center Dallas, will offer a complimentary breakfast each day at 7 a.m. and a Professional Networking Hour from 4 to 5 p.m. with free cocktails and appetizers. Each day during the conference, the CCD features informal workshops aimed at enhancing the professional development of early career professionals. You can learn more about CCD scheduled activities at conference.thoracic.org/program/early-career-professionals/ccd.php

ATS WOMEN’S AND DIVERSITY FORUMS
Take the opportunity to support women and diversity during two separate luncheon forums. The Diversity Forum takes place on Sunday and the Women’s Forum will be on Monday. Both forums, which take place in the Hyatt Regency, Landmark D Ballroom, are free and include a plated lunch. Pre-registration is required, but there are usually seats available at the door on a first-come, first-served basis.

CLINICIANS CENTER
All clinicians are invited to meet, network, relax, refresh, and learn in the Clinicians Center and Learning Lab, located in Hall B (Level 2) of Kay Bailey Hutchison Convention Center Dallas. The Center is open Sunday through Wednesday. Every morning, coffee and a light breakfast will be available from 7 to 9 a.m. Educational programs kick off on Sunday. On Monday, May 20, don’t miss the ATS Outstanding Clinician Award Reception.

INTERNATIONAL PARTICIPANTS CENTER
All international attendees are invited to stop by the International Participants Center, open Sunday through Wednesday in Hall B (Level 2) of Kay Bailey Hutchison Convention Center Dallas. Use the Center to connect with colleagues, network, or just relax while enjoying complimentary snacks, coffee, and soda.

Don’t miss the reception to recognize international attendees and honor this year’s International Trainee/MECOR award recipients on Tuesday, May 21, at the Center.

SCIENCE AND INNOVATION CENTER
Scientists and researchers looking to network, learn, and relax should plan some time in the Science and Innovation Center, open Sunday through Wednesday. Every morning, coffee and a light breakfast will be available from 7 to 9 a.m. If you need to catch up on basics before attending a symposium, you can attend an SIC 101 series presentation. Look for a complete list of these online in the Resource Center at conference.thoracic.org/attendees/resource-centers.

The ATS International Conference is where science and health care intersect. It's our aim to provide you with abundant opportunities to connect and engage with colleagues on the latest research and scientific breakthroughs and best practices in patient care. We're planning a number of special events and learning opportunities beyond the conference. Consider adding these events to your itinerary.

ATS The ATS Would Like to Acknowledge our 2019 Corporate Members

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Ten years ago, pulmonologists understood that a damaged adult lung could repair itself under certain circumstances via the plasticity of well-defined progenitor cells that sense when resident cells are damaged.

Although it was known in the medical community that progenitor cells in the lung move out to repair and repopulate portions of damaged lung, ongoing research suggests that progenitor cells are doing more than previously thought.

Gregory P. Downey, MD, ATSF, a pulmonologist at National Jewish Health in Denver, and one of the session’s co-chairs, explained that it’s now known that progenitor cells can move back and forth between the junctions of the airways and air sacs within the lung to repopulate damaged cells. Such knowledge is opening up many avenues through which researchers can manipulate experimentally and therapeutically to help the lung repair itself after injury. This research is aided by cell fate determination, through which researchers gain the ability to tag specific cells and follow the cell’s fate.

Based on the cell’s change over time, an inference can be made that the cell started out as “Cell Type X” and later turned into “Cell Type Y.”

“Finding the signaling pathways and mechanisms to promote the healthy repair [of the lung] may provide a window in addressing some pretty important diseases of the lung,” said Bruce D. Levy, MD, ATSF, of Brigham and Women’s Hospital in Boston, a session co-chair.

“This session was designed with a broad audience in mind,” Dr. Levy said. “Any provider—in particular those interested in COPD, pulmonary vascular disease, and those interested in translational research—[will find value here].” Additional conditions of interest include pulmonary fibrosis, pulmonary infections, ARDS, and LAM.

Although there is still much research to be completed before clinical interface, the topics within the symposia will be relevant to next-step translational research that will lead to the therapeutic interventions relevant to clinical care. Basic scientists, clinical translational scientists, and providers caring for patients will be brought up to date on the restorative repair processes that occur in the lung.

Dr. Levy explained the dream of such research is to treat patients who have suffered a maladaptive repair process by being able to go in and regenerate those portions of the lung that have been injured. Another possibility includes the ability to extract cells from the body to create cell structures like organoids, which could be helpful when reintroducing the cells back into the patient to repair areas of lung damage and recapture normal function.

“Attendees can certainly get involved and identify people working on topics within this complex subject matter that’s relevant to their projects or interests,” Dr. Levy said.

Finding the signaling pathways and mechanisms to promote the healthy repair (of the lung) may provide a window in addressing some pretty important diseases of the lung.

— Bruce D. Levy
Pro/Con: Managing OSA and PAP Therapy

When it comes to choosing the most appropriate treatment for a patient with sleep-disordered breathing, clinicians must make controversial choices. For example, the evidence regarding the benefit of long-term continuous positive airway pressure (CPAP) therapy for asymptomatic patients is unclear. Similarly, there is debate among physicians about the best therapeutic approach for patients who have heart failure and central sleep apnea, as well as those who have obesity hypoventilation syndrome (OHS).

These controversies will take center stage as a series of debates during Sunday morning’s session. Short, 10-minute presentations on the pros and cons of each controversy will allow thorough discussion of controversial topics. “We believe that the ATS attendees will be interested in hearing ongoing controversies in the field of sleep-disordered breathing,” said Babek Mokhlesi, MD, MSc, professor of medicine at the University of Chicago. “These talks will highlight the latest data and will help provide a clinical perspective on what the important issues are to consider when managing sleep apnea patients with cardiovascular disease and obesity hypoventilation syndrome, and how the field should move forward with respect to future clinical trial design,” said Sushmita Pamidi, MD, assistant professor at McGill University in Montreal, Quebec, Canada.

The first round of debate will focus on whether moderate to severe obstructive sleep apnea (OSA) should be treated in order to improve cardiovascular outcomes. Although observational studies have consistently reported an independent association between OSA and cardiovascular disease, more recent research raises questions. “The largest randomized clinical trial to date, the SAVE trial, failed to demonstrate a statistically significant benefit from CPAP for recurrent CVD events,” says Neomi Shah, MD, MPH, MS, associate division chief at Icahn School of Medicine at Mount Sinai in New York City. A systematic review and meta-analysis reached a similar conclusion: The use of CPAP compared to no treatment or sham treatment didn’t demonstrate a lower risk of cardiovascular events or death in patients with sleep apnea. “This topic is important as we are in an urgent need to determine the role of OSA treatment in the primary and secondary prevention of cardiovascular disease events,” said Dr. Shah.

The second round of debate will consider the treatment of ambulatory patients with obesity hypoventilation syndrome. Should they be treated first with CPAP or with non-invasive ventilation? The same pro/con format will give attendees information supporting each treatment choice. “When should one treatment modality be chosen over the other has remained a matter of controversy,” said Dr. Mokhlesi. The presenters will explore the most recent published clinical trial on the treatment of OHS, co-authored by Dr. Mokhlesi, which aimed to compare the long-term effectiveness of treating OHS with non-invasive ventilation or CPAP. The researchers found that the two treatments have similar long-term results; however, given that the cost and complexity of CPAP is less than that of non-invasive ventilation, CPAP may be the most appropriate first treatment until more studies can be conducted.

The third area of controversy will be PAP therapy in patients with central sleep apnea and heart failure. “Since the results of the SERVE-HF trial have been published, the management of central sleep apnea in heart failure is not standardized and often requires a discussion among sleep providers to determine best management,” said Dr. Shah. Dr. Pamidi agreed. “We expect attendees will be able to improve their understanding of the clinical trials to date, including the nuances of the study protocols and patient populations included in the studies, and see how this evidence applies to their clinical practice.”

“The ATS really focuses on two very important things: how to bring the most quality, high-yield, beneficial content to their membership, and how to improve the health of all humans, worldwide.”

Laura E. Crotty Alexander, MD, ATS
Associate Professor of Medicine
University of California, San Diego
Staff Physician
VA San Diego Healthcare System

PAP for All or PAP for Few: Controversies in Management of Sleep-Disordered Breathing (A6)
9:15-11:15 a.m., Sunday
Room C155-C156 (Level 1), KBHCCD

“” This topic is important as we are in an urgent need to determine the role of OSA treatment in the primary and secondary prevention of cardiovascular disease events.
– Neomi Shah “”
When a diagnosis is made, take

A PATH

TO ACTION
SEE WHERE DIAGNOSIS IS MET WITH ACTION ON THIS UNIQUE INTERACTIVE PATIENT JOURNEY

VISIT BOOTH 2800 AND SEE WHERE THE JOURNEY LEADS YOU
Get Involved in the Society's Assemblies and Sections

Enhance your ATS 2019 International Conference experience by getting more involved. There is no better way to do that than to participate in your assembly and/or section activities.

The Society's assemblies and sections will hold their annual member-assemblies and/or section activities.

All ATS 2019 attendees are encouraged to attend these meetings. (See the schedule below for specific times and locations of assembly membership meetings, receptions, section meetings, and assembly dinners.)

**ASSEMBLY MEMBERSHIP MEETINGS**

The Assembly Membership Meetings provide updates on assembly activities from each assembly's leadership. These meetings give members the opportunity to provide input on future direction and get involved in assembly and networking activities. Voting results for the assembly's future leaders also will be announced.

These meetings will all be 4:30 to 7 p.m. Monday, May 20, with the exception of the Assembly on Behavioral Science and Health Services Research and the Assembly on Pediatrics, which will meet Sunday, May 19.

*All membership meetings, receptions, and dinners will take place at the Hyatt Regency Dallas Hotel.*

**SUNDAY**

5:30-7:30 p.m. Pediatrics  
*Chair:* Stephanie Davis, MD, ATSF  
Reunion Ballroom A-B (Lobby Level)

6:30-8:30 p.m. Behavioral Science and Health Services Research  
*Chair:* J. Darryl Thornton, MD, MPH  
Reunion Ballroom A-B (Lobby Level)

**MONDAY**

4:30-7 p.m. Allergy, Immunology, and Inflammation  
*Chair:* Bethany Moore, PhD, ATSF  
Reunion Ballroom E-F (Lobby Level)

Clinical Problems  
*Chair:* McElhaney Ham, MD, MS  
Landmark Ballroom A (Lobby Level)

Critical Care  
*Chair:* John P. Kress, MD  
Marsalis Hall B (Exhibition Level)

Environmental, Occupational, and Population Health  
*Chair:* Howard Kipen, MD, MPH  
Reunion Ballroom G-H (Lobby Level)

**TUESDAY**

4:30-6:30 p.m. Section on Medical Education  
*Chair:* Henry E. Foster, MD  
*Co-Chair:* W. Graham Carlos, MD, MSCR, ATSF  
Cumberland A-C (Exhibition Level)

Section on Terrorism and Inhalation Disasters  
*Chair:* Steven Jordh, PhD  
Windsor (Atrium Level)

**ASSEMBLY DINNER**

**SUNDAY**

7:30-10:30 p.m. Pediatrics  
Reunion Ballroom E-F (Lobby Level)

**ASSEMBLY RECEPTIONS**

**MONDAY**

7-10 p.m. Sleep and Respiratory Neurobiology  
Cumberland K-L (Exhibition Level)

**SECTION MEETINGS**

**SUNDAY**

6-8 p.m. Section on Genetics and Genomics  
*Chair:* Michael H. Cho, MD, MPH  
*Co-Chair:* Anthony N. Gerber, MD, PhD  
Reverchon AB (Atrium Level)

**TUESDAY**

6-8 p.m. Section on Genetics and Genomics  
*Chair:* Michael H. Cho, MD, MPH  
*Co-Chair:* Anthony N. Gerber, MD, PhD  
Reverchon AB (Atrium Level)

**MONDAY**

6-8 p.m. Allergy, Immunology, and Inflammation  
*Co-Chair:* W. Graham Carlos, MD, MSCR, ATSF  
Cumberland A-C (Exhibition Level)

**ASSEMBLY RECEPTIONS**

**MONDAY**

7-10 p.m. Sleep and Respiratory Neurobiology  
Cumberland K-L (Exhibition Level)

Obesity has long been recognized as a significant risk factor for asthma. Nearly 60 percent of patients with severe asthma are obese, presenting a host of treatment challenges. In general, obese patients do not respond as well to conventional asthma therapies as lean patients. This leaves health care providers on the hunt for new options.

Obesity and associated factors associated with obesity and the state of metabolic dysregulation, as well as the inflammatory phenotype of the airway disease for appropriate medical management, according to Anne E. Dixon, MD, ATSF, a professor at the University of Vermont in Burlington.

“Obesity and associated factors (high fat, low fiber diet, and metabolic syndrome) profoundly alter adaptive and innate immune function, increase susceptibility to respiratory infection, and alter prototypical pathways that cause asthma,” said Dr. Dixon. “These changes alter response to standard treatments, and often lead to severe, difficult-to-control disease.”

Adult asthma affects the peripheral airway, a zone of the lung not easily measured by conventional lung function testing. It has a unique physiological signature compared with asthma in lean patients, according to Dr. Dixon. Dr. Dixon will co-chair a panel of physicians and scientists during today’s session to examine the pathophysiology of the different phenotypes of obese asthma, and how this affects treatment responses. The panelists will discuss the role of medications, lifestyle interventions, and comorbidities, including a sharp focus on depression and obstructive sleep apnea. The speakers will preview future therapies in development for this challenging new patient population, as well.

In developing a treatment approach, speakers will explore several options, including treatments that address the phenotype of asthma—specifically whether there is evidence of a corticosteroid-sensitive pathway. Additional treatment discussions will take shape over long-term systemic corticosteroids, which Dr. Dixon said actually worsen the disease, and the importance of a proper diet, exercise, and weight loss. In fact, studies suggest that weight loss of between 5 and 10 percent may produce significant improvement in asthma control.

Diet isn’t the only thing that contributes to obesity. Tobacco smoke and air pollution lead to obesity and further obstruct airway health, Dr. Dixon said.

“Discuss lifestyle changes with your patients and consider a referral to a weight loss program,” Dr. Dixon said. “Evaluate [patients] for co-morbidities that may be contributing to asthma severity. It’s important to understand that obesity profoundly alters asthma, and conventional treatments for asthma may have limitations, particularly in patients with little in the way of type 2 inflammation.”

Studies suggest that weight loss of between 5 and 10 percent may produce significant improvement in asthma control.

—Anne Dixon

**The Obesity, Asthma Equation**

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“Discuss lifestyle changes with your patients and consider a referral to a weight loss program,” Dr. Dixon said. “Evaluate [patients] for co-morbidities that may be contributing to asthma severity. It’s important to understand that obesity profoundly alters asthma, and conventional treatments for asthma may have limitations, particularly in patients with little in the way of type 2 inflammation.”

**Treating Asthma in Patients With Obesity: The Need for a New Approach (A10)**

9:15-11:15 a.m., Sunday  
Room D221/D225/D226  
(Level 2), KBHCCD

Anne Dixon
Research Approach May Change Drug Development

In classical pharmacology, drug-receptor interactions are considered under static conditions. A relatively new concept, mechanopharmacology, differs in that the normal mechanical environment of a tissue is a factor, with potentially significant impacts on function.

It is only recently that we recognized that tissue response to the action of drugs in the moving organs is affected by the movements. For example, airways dilate more in response to bronchodilators in the presence of pressure oscillation due to the action of breathing,” said Chun Seow, PhD, ATSF, professor at the University of British Columbia, in Vancouver, BC, Canada.

In organs “living” in a mechanically dynamic environment, drug actions should no longer be considered as simple agonist-receptor-based reactions, said Dr. Seow, co-chair of this afternoon’s session on mechanopharmacology. Normal and disease-related changes in the mechanical environment of lung tissue, for example, may have an impact on drug-dose response behavior.

“Our recommendation is that drug-design models be revised to incorporate contemporary knowledge on mechanotransduction that ultimately determine drug efficacy,” said Dr. Seow.

Although focused and solid basic research is first required to develop an improved understanding of mechanopharmacology, there are important clinical implications. For example, changes in mechanical properties of lung tissues may contribute to the proportion of patients who do not have a good response to medications that are effective in other patients. The synergistic effects of bronchodilators when administered in the presence of airway pressure oscillation, either due to natural breathing maneuver or artificially imposed pressure wave, have the potential to reduce drug dosage and, therefore, reduce side effects.

“With mechanical intervention, a whole new venue of drug targets will become available, which will lead to improvements in response and quality of life for patients,” said Dr. Seow.

“The session is a wonderful demonstration of how focused basic research, both collaborative and competitive, generates knowledge that can be translated to clinical practice,” said Peter Noble, PhD, senior lecturer at the University of Western Australia in Perth, also a co-chair of the session. “This knowledge is borne out of pure scientific curiosity, without an initial application in mind. The main message is that drugs act differently in tissues that constantly move.”

The presentations in the session will address the mechanical effects on drug action, specifically, the enhanced drug action in the presence of mechanical movements, the molecular pathways perturbed by mechanical actions associated with breathing, and the incorporation of mechanical effects into drug screening.

Relevant for both scientists and clinicians, this session is designed to generate innovative thinking. For example, current laboratory-based technologies could be expanded to include consideration of mechanopharmacology, emerging technologies could be used to assess mechanical changes that may have an impact on treating patients, and mechanical devices could be developed to reduce drug dosage or even achieve therapeutic effects without drugs.

Mechanopharmacology of Airway and Airway Smooth Muscle (A86)
2:15-4:15 p.m., Sunday
Ballroom D One (Level 3), KBHCCD

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COPD Is Not A Geriatric Disease

Conventional wisdom suggests that COPD is a disease that typically strikes later in life. The reality is that COPD may start in early childhood. It just doesn’t become obvious in most patients until their sixth or seventh decade of life.

Most clinicians don’t know a lot about the actual origins of COPD,” said Don D. Sin, MD, director at the Center for Heart Lung Innovation (HLI) and professor of medicine at the University of British Columbia, Vancouver, BC, Canada. “Because so many clinicians see COPD patients in their 60s, 70s, and 80s, the impression is that it is a geriatric disease. You may see the final consequences in the geriatric years, but a lot of this has been imprinted in the lungs by birth or early in childhood.”

Dr. Sin is one of three co-chairs for this morning’s session. He shares the platform with Fernando Martinez, MD, director of the Asthma/Airway Disease Research Center and professor of pediatrics at the University of Arizona in Tucson, and Francesca Polverino, MD, PhD, assistant professor of medicine and assistant research scientist at the University of Arizona Asthma/Airway Disease Research Center.

Cigarette smoking has long been viewed as the primary driver of COPD, Dr. Sin said. A growing body of evidence, however, indicates that COPD can be rooted in much more than smoking.

“Well, don’t smoke, but you can see reduced lung function in babies that presents as COPD decades later,” he said. “COPD may be driven by secondhand smoke, air pollution, genomics, abnormal immune response, and dysbiosis of both the lung and the gut microbiomes.”

The immune system also develops in the mother’s womb and matures during the first few years of life. Environmental factors, in combination with individual genomics, can give rise to early bronchopulmonary dysplasia, an emerging culprit in the pathogenesis of COPD.

Medical therapy 60 to 70 years later cannot alter those early changes. The only way to prevent these changes that lead to COPD in adulthood are to alter the early risk factors and exposures in childhood.

Reducing the prevalence and the toll of COPD calls for education.

“I remember my dad smoking in the car when I was a kid,” Dr. Sin said. “Not because he wanted to hurt me, but because he didn’t have enough information about the harmful effects that smoking has on the developing lungs. Kids have the most sensitive lungs. If a child’s lung growth is stunted by 20 percent, their risk of COPD is five times higher by age 50. There is a profound amplification of even small deficits in childhood over the decades.”

The new Global Initiative for Chronic Obstructive Lung Disease (GOLD) mentions the impact of lung development on COPD, he continued, but not prominently. Lung growth is not a familiar concept for adult COPD physicians.

“We are breaking the paradigm of COPD,” Dr. Sin said. “This information will profoundly impact not only present COPD but future COPD and the way we practice medicine. We have never thought about targeting kids (and possibly even mothers) for intervention to prevent COPD. The new approach is that in COPD, we can have the biggest impact by targeting kids and their parents. Modifying the factors that drive poor lung growth will have a profound impact on the individual and on society going forward.”

Breaking the Paradigm: Early Origins of COPD — Tomoko Betsuyaku, MD, Memorial Symposium (A7)

9:15-11:15 a.m., Sunday
Ballroom D One (Level 3), KBHCCD

Restoring Joy in Health Care

What does burnout look like and how can we change things personally and professionally for the better? Explore the Restoring Joy in Health Care booth (A4733) to view the NAM Expressions of Wellbeing art installation, crowd source ways to improve the professional environment, or visit with a therapy dog to bring you back to center.

Want to take a deeper dive into preventing burnout and promoting wellbeing? Look for this programming.

Promoting Wellness in Health Care Teams: A Practical Approach Workshop (WS4)
Room D171/D173 (Level 1), KBHCCD
Monday, May 20
11:45 a.m.-1:15 p.m.

Determinants of Burnout and Wellness Among Physicians and Trainees
Poster Discussion Session (C21)
Trinity Ballroom 5-7 (Level 3), Omni Dallas Downtown
Tuesday, May 21
9:15-11:15 a.m.

Mindfulness for Optimizing Health Care Professional Wellbeing: Reducing Burnout
Scientific Symposium (SS201)
Greenville Avenue (Level 2), Omni Dallas Downtown
Wednesday, May 22
6:45-7:45 a.m.
Don’t let pneumonia bugs evade detection.

An Industry Theater presentation at the ATS 2019 International Conference.

This presentation is sponsored by BioFire Diagnostics, and is open to all ATS 2019 International Conference attendees.

Molecular diagnostics for pneumonia: An initial evaluation of the BioFire® FilmArray® Pneumonia Panel

Mini Theater | May 21, 2019 | 11:30 am–12 pm

Richard G. Wunderink, MD
Professor of Medicine (Pulmonary and Critical Care), Feinberg School of Medicine, Northwestern University

A discussion of the current state of molecular diagnostics for pneumonia, including results from an initial clinical evaluation of the BioFire Pneumonia Panel.

An Industry Theater presentation at the ATS 2019 International Conference.

This presentation is sponsored by BioFire Diagnostics, and is open to all ATS 2019 International Conference attendees.

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**BOOTH 4122**

This activity is sponsored by Mallinckrodt Pharmaceuticals in support of the ATS Foundation Research Program in partnership with the Foundation for Sarcoidosis Research, a member of the ATS Public Advisory Roundtable (ATS PAR). Contributions will be used to match the funding provided by the ATS PAR Member, and will be recognized as appropriate in the title of the resulting program.
Trudeau Medalist’s Research Creates New Paradigm for ARDS Treatment

Jacob I. Sznajder, MD, is the recipient of the 2019 Edward Livingston Trudeau Medal, which recognizes significant contributions to the prevention, diagnosis, and treatment of lung disease. Dr. Sznajder spoke with the ATS Daily Bulletin about his past research regarding a reduction in capillary wedge pressure and mechanical ventilation with smaller tidal volumes for ARDS patients—and what he’s up to now in an effort to improve treatments for patients with lung treatments.

Q: What has most of your research focused on, and what kind of impact has that had for patients who are suffering from diseases or injuries of the lungs?

A: Most of my research pertains to understanding the mechanisms of lung injury and repair. We focus on preclinical models of lung injury to be translated into clinical studies. Some of our early publications, with my mentor Dr. Larry Wood, defined the physiologic advantage of reducing the capillary wedge pressure while maintaining adequate cardiac output, which resulted in less edema formation and improved gas exchange. This was later confirmed in clinical studies, and it is now the accepted paradigm in the treatment of patients with ARDS.

Our group also demonstrated that in a model of acute lung injury, mechanical ventilation with smaller tidal volumes resulted in less injury than when ventilating with high tidal volumes. These approaches were controversial until studies in patients with ARDS showed that mechanical ventilation with lower tidal volumes resulted in better outcomes.

Q: What are you working on now?

A: We are studying the effects of hypercapnia in the lungs. Earlier studies have proposed that hypercapnia is beneficial in patients with lung injury, which led to the current paradigm of tolerating and encouraging “permissive hypercapnia” in patients with ARDS. We and others have recently reported that hypercapnia is associated with increased mortality in patients with ARDS, in patients with alveolobronchial fistulae, and in patients with COPD, in whom hypercapnia was not corrected. We are pursuing studies to shed light on the signaling mechanisms of hypercapnia to inform and effect a shift in paradigm regarding the need to normalize the CO₂ levels in patients with lung diseases.

Another project is focusing on the alveolar epithelial response to influenza A-induced lung injury, focusing on the role of ubiquitination and protein synthesis in the lungs and muscle function and how this is affected with age.

Q: Why is it important for you to participate in mentoring?

A: I am committed to mentoring the young generation of physician-scientists and PhD-scientists in our field. At Northwestern University we have a NHLBI T32 training grant where I am actively involved in the training of students, residents, postdoctoral fellows, and junior faculty from diverse backgrounds which reflects our society. I believe in collaborations and multidisciplinary approaches, which have inspired me to learn from the research of our trainees/mentees.

Our specialty has been energized by novel technologies that have shed new light on genomics, epigenetics, and proteomics, which we have used to foster a community of scholars to attract talented young scientists to our field to understand and alleviate the burden of respiratory diseases. Now more than ever we need team science and trainees — often the glue that brings researchers together.

Q: What does it mean to you to receive the Trudeau Medal?

A: I am very honored and humbled in accepting this award from the American Thoracic Society, which has been a home for me as a physician-scientist for more than 30 years. It represents the work of many of my trainees and colleagues, because I see my work and this award as “we” rather than “me” award. For that, I am very thankful to them.

Our specialty has been energized by novel technologies that have shed new light on genomics, epigenetics, and proteomics, which we have used to foster a community of scholars to attract talented young scientists to our field to understand and alleviate the burden of respiratory diseases.

— Jacob I. Sznajder
NUCALA is indicated for the add-on maintenance treatment of patients 12 years and older with severe asthma with an eosinophilic phenotype. NUCALA is not indicated for the relief of acute bronchospasm or status asthmaticus.

IMPORTANT SAFETY INFORMATION

CONTRAINDICATIONS
NUCALA should not be administered to patients with a history of hypersensitivity to mepolizumab or excipients in the formulation.

WARNINGS AND PRECAUTIONS

Hypersensitivity Reactions
Hypersensitivity reactions (eg, anaphylaxis, angioedema, bronchospasm, hypotension, urticaria, rash) have occurred with NUCALA. These reactions generally occur within hours of administration but can have a delayed onset (ie, days). If a hypersensitivity reaction occurs, discontinue NUCALA.

Acute Asthma Symptoms or Deteriorating Disease
NUCALA should not be used to treat acute asthma symptoms, acute exacerbations, or acute bronchospasm.

Opportunistic Infections: Herpes Zoster
In controlled clinical trials, 2 serious adverse reactions of herpes zoster occurred with NUCALA compared to none with placebo. Consider vaccination if medically appropriate.

Reduction of Corticosteroid Dosage
Do not discontinue systemic or inhaled corticosteroids abruptly upon initiation of therapy with NUCALA. Decreases in corticosteroid doses, if appropriate, should be gradual and under the direct supervision of a physician. Reduction in corticosteroid dose may be associated with systemic withdrawal symptoms and/or unmask conditions previously suppressed by systemic corticosteroid therapy.

Parasitic (Helminth) Infection
Treat patients with pre-existing helminth infections before initiating therapy with NUCALA. If patients become infected while receiving NUCALA and do not respond to anti-helminth treatment, discontinue NUCALA until infection resolves.

*Source: IQVIA - NPA™ audit: 12 mo. TRX data ending 11/18 (All rights reserved).

December 2015 to November 2018 data sourced from IQVIA and GSK. Claims data based on total number of unique patients who had at least one claim for NUCALA in the United States. Not all patients remained on therapy. Individual results may vary.

*MENSA (Trial 2)
347 patients with SEA.

Primary Endpoint Results:
Frequency of exacerbations requiring hospitalization and/or ED visit; NUCALA: 0.08/year; placebo: 0.20/year; SEA.

Secondary Endpoint Results:
347 patients with SEA.

Powerful Reduction in OCS Dose

3:
Percent reduction in daily dose of OCS: 61% (NUCALA vs placebo).

Reduction in exacerbations/ED visits

NUCALA decreased exacerbations/ED visits 61% from baseline.

Lasting Evidence

4:
Mean percent change in asthma control over 1 year: 

High-Dose ICS + 2 Controllers

Standard of care (SOC)=regular treatment with high-dose inhaled corticosteroids (ICS) and at least 1 other controller with or without oral corticosteroids (OCS).

Patient Reported Outcomes (PREVIEW)

Patient-Reported Outcome Measures (PROMs) assessed the burden of asthma and health-related quality of life (HRQoL) in patients with severe eosinophilic asthma. There was a significant improvement (p<=0.05) in asthma health status (Asthma Control Test [ACT] score) with NUCALA compared to placebo. A score of 19 represents "minimal asthma control". In the open-label study that evaluated asthma control with NUCALA, the mean baseline ACT score was 19.5 (SD 4.3). The mean ACT score improved with NUCALA to 24.3 (SD 4.7) with a median (IQR) of 24 (21, 27). Mean ACT score with placebo was 19.6 (SD 4.3) on day 156 (95% CI 19.2, 20.0).

"I HAVE SEVERE ASTHMA

#1 prescribed biologic indicated for severe eosinophilic asthma*—31,000 patients and counting1†

*Source: IQVIA - NPA™ audit: 12 mo. TRX data ending 11/18 (All rights reserved).

†December 2015 to November 2018 data sourced from IQVIA and GSK. Claims data based on total number of unique patients who had at least one claim for NUCALA in the United States. Not all patients remained on therapy. Individual results may vary.

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Standard of care (SOC)=regular treatment with high-dose inhaled corticosteroids (ICS) and at least 1 other controller with or without oral corticosteroids (OCS).


REFERENCES
1. Data on file, GSK.
Choose NUCALA:

**Powerful Protection From Exacerbations**

- **53% REDUCTION** in exacerbations
- **61% REDUCTION** in exacerbations requiring hospitalizations/ED visits

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**Powerful Reduction in OCS Dose**

- **without sacrificing asthma control**

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**Lasting Evidence**

- Only anti-interleukin 5 (IL-5) with a 4.5-year open-label study that evaluated safety and efficacy

MENSA (Trial 2): 32-week study comparing NUCALA 100 mg to placebo, each added to SOC in 576 patients with severe eosinophilic asthma (SEA). **Primary Endpoint Results:** Frequency of exacerbations. NUCALA: 0.83/year, placebo: 1.74/year; P<0.001. **Secondary Endpoint Results:** Frequency of exacerbations requiring hospitalization and/or ED visit; NUCALA: 0.08/year; placebo: 0.20/year; P=0.02.

SIRIUS (Trial 3): 24-week study comparing NUCALA 100 mg to placebo in 135 patients with SEA receiving prednisone 5-35 mg (or equivalent) per day and regular use of high-dose ICS and 1 other controller. **Primary Endpoint Results:** Percent reduction in daily OCS dose (Weeks 20 to 24) while maintaining asthma control vs placebo; P=0.008.

COLUMBA*: 4.5-year open-label study assessing the safety, immunogenicity, and efficacy of NUCALA 100 mg added to asthma controller therapy in 347 patients with SEA.

*Worsening of asthma that required use of oral/systemic corticosteroids and/or hospitalizations and/or emergency department (ED) visits; for patients on maintenance oral/systemic corticosteroids, exacerbations were defined as requiring at least double the existing maintenance dose for at least 3 days.

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Learn more at KnowNucalaHCP.com

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**IMPORTANT SAFETY INFORMATION (cont’d)**

**ADVERSE REACTIONS**

The most common adverse reactions (≥3% and more common than placebo) reported in the first 24 weeks of 2 clinical trials with NUCALA (and placebo) were: headache, 19% (18%); injection site reaction, 8% (3%); back pain, 5% (4%); fatigue, 5% (4%); influenza, 3% (2%); urinary tract infection, 3% (2%); abdominal pain upper, 3% (2%); pruritus, 3% (2%); eczema, 3% (<1%); and muscle spasms, 3% (<1%).

Systemic Reactions, including Hypersensitivity Reactions: In 3 clinical trials, the percentages of subjects who experienced systemic (allergic and nonallergic) reactions were 3% for NUCALA and 5% for placebo. Manifestations included rash, flushing, pruritus, headache, and myalgia. A majority of the systemic reactions were experienced on the day of dosing. Injection site reactions (eg, pain, erythema, swelling, itching, burning sensation) occurred in subjects treated with NUCALA.

**USE IN SPECIFIC POPULATIONS**

A pregnancy exposure registry monitors pregnancy outcomes in women exposed to NUCALA during pregnancy. To enroll call 1-877-311-8972 or visit www.mother-tobaby.org/asthma.

The data on pregnancy exposures are insufficient to inform on drug-associated risk. Monoclonal antibodies, such as mepolizumab, are transported across the placenta in a linear fashion as the pregnancy progresses; therefore, potential effects on a fetus are likely to be greater during the second and third trimesters.

**References:**
1. Data on file, GSK.

**Please see Brief Summary of Prescribing Information for NUCALA on the following pages.**

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MPLRNA190002 March 2019
Produced in USA.
NUCALA (mepolizumab) for injection, for subcutaneous use

The following is a brief summary only and is focused on the indication for maintenance treatment of severe asthma with an eosinophilic phenotype. See full prescribing information for complete product information.

1 INDICATIONS AND USAGE
1.1 Maintenance Treatment of Severe Asthma
NUCALA is indicated for the add-on maintenance treatment of patients with severe asthma aged 12 years and older, and with an eosinophilic phenotype.

Limitation of Use
NUCALA is not indicated for the relief of acute bronchospasm or status asthmaticus.

4 CONTRAINdications
NUCALA should not be administered to patients with a history of hypersensitivity to mepolizumab or excipients in the formulation.

5 WARNINGS AND PRECAUTIONS
5.1 Hypersensitivity Reactions
Hypersensitivity reactions (e.g., anaphylaxis, angioedema, bronchospasm, hypotension, urticaria, rash) have occurred following administration of NUCALA. These reactions generally occur within hours of administration, but in some instances can have a delayed onset (i.e., days). In the event of a hypersensitivity reaction, NUCALA should be discontinued [see Containmations (4)].

5.2 Acute Asthma Symptoms or Deterioration of Disease
NUCALA should not be used to treat acute asthma symptoms or acute exacerbations. Do not use NUCALA to treat acute bronchospasm or status asthmaticus. Patients should seek medical advice if their asthma remains uncontrolled or worsens after initiation of treatment with NUCALA.

5.3 Opportunistic Infections: Herpes Zoster
Herpes zoster has occurred in subjects receiving NUCALA 100 mg in controlled clinical trials [see Adverse Reactions (6.1)]. Consider vaccination if medically appropriate.

5.4 Reduction of Corticosteroid Dosage
Do not discontinue systemic or inhaled corticosteroids (ICS) abruptly upon initiation of therapy with NUCALA. Reductions in corticosteroid dosage, if appropriate, should be gradual and performed under the direct supervision of a physician. Reduction in corticosteroid dosage may be associated with systemic withdrawal symptoms and/or urmak conditions previously suppressed by systemic corticosteroid therapy.

5.5 Parasitic (Helminth) Infection
Eosinophils may be involved in the immunological response to some helminth infections. Patients with known parasitic infections were excluded from participation in clinical trials. It is unknown if NUCALA will influence a patient’s response against parasitic infections. Treat patients with pre-existing helminth infections before initiating therapy with NUCALA. If patients become infected while receiving treatment with NUCALA and do not respond to anti-helmint treatment, discontinue treatment with NUCALA until infection resolves.

6 ADVERSE REACTIONS
The following adverse reactions are described in greater detail in other sections:
- Hypersensitivity reactions [see Warnings and Precautions (5.1)]
- Opportunistic infections: herpes zoster [see Warnings and Precautions (5.3)]

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

6.1 Clinical Trials Experience in Severe Asthma
A total of 1,327 subjects with asthma were evaluated in 3 randomized, placebo-controlled, multicenter trials of 24 to 52 weeks’ duration (Trials 1, 2, and 3). Of these, 1,192 had a history of 2 or more exacerbations in the year prior to enrollment despite regular use of high-dose ICS plus additional controller(s) (Trials 1 and 2), and 135 subjects required daily oral corticosteroids (ICS) in addition to regular use of high-dose ICS plus additional controller(s) to maintain asthma control (Trial 3). All subjects had markers of eosinophilic inflammation [see Clinical Studies (14.1) of full prescribing information]. Of the subjects enrolled, 59% were female, 85% were white, and age ranged from 12 to 82 years. Mepolizumab was administered subcutaneously or intravenously once every 4 weeks. 263 subjects received NUCALA (mepolizumab 100 mg SC) for at least 24 weeks. Serious adverse events that occurred in more than 1 subject and in a greater percentage of subjects receiving NUCALA 100 mg (n = 263) than placebo (n = 257) included 1 event, herpes zoster (2 subjects vs. 0 subjects, respectively). Approximately 2% of subjects receiving NUCALA 100 mg withdrew from clinical trials due to adverse events compared with 3% of subjects receiving placebo.

The incidence of adverse reactions in the first 24 weeks of treatment in the 2 confirmatory efficacy and safety trials (Trials 2 and 3) with NUCALA 100 mg is shown in Table 1.

Table 1. Adverse Reactions with NUCALA with ≥3% Incidence and More Common than Placebo in Subjects with Asthma (Trials 2 and 3)

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>NUCALA (Mepolizumab 100 mg Subcutaneous)</th>
<th>Placebo (n=257)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Headache</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>Injection site reaction</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Back pain</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Fatigue</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Influenza</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Abdominal pain upper</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pruritus</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Eczema</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Muscle spasms</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

52-Week Trial
Adverse reactions from Trial 1 with 52 weeks of treatment with mepolizumab 75 mg intravenous (IV) (n = 153) or placebo (n = 155) and with ≥3% incidence and more common than placebo and not shown in Table 1 were: abdominal pain, allergic dermatitis, allergic rhinitis, allergic sinusitis, bronchitis, cystitis, dizziness, dyspnea, ear infection, gastroenteritis, lower respiratory tract infection, musculoskeletal pain, nasal congestion, nasopharyngitis, nausea, pharyngitis, pyrexia, rash, toothache, viral infection, viral respiratory tract infection, and vomiting. In addition, 3 cases of herpes zoster occurred in subjects receiving mepolizumab 75 mg IV compared with 2 subjects in the placebo group.

(continued on next page)
8 USE IN SPECIFIC POPULATIONS (cont'd)

8.4 Pediatric Use
The safety and efficacy in pediatric patients younger than 12 years with asthma have not been established. A total of 28 adolescents aged 12 to 17 years with asthma were enrolled in the Phase 3 asthma studies. Of these, 25 were enrolled in the 32-week exacerbation trial (Trial 2) and had a mean age of 14.8 years. Subjects had a history of 2 or more exacerbations in the previous year despite regular use of high-dose ICS plus additional controller(s) with or without OCS and had blood eosinophils of ≥150 cells/μL at screening or ≥300 cells/μL, within 12 months prior to enrollment. [See Clinical Studies (14.1) of full prescribing information.] Subjects had a reduction in the rate of exacerbations that trended in favor of mepolizumab. Of the 19 adolescents who received mepolizumab, 9 received NUCALA 100 mg and the mean apparent clearance in these subjects was 35% less than that of adults. The adverse event profile in adolescents was generally similar to the overall population in the Phase 3 studies [see Adverse Reactions (6.1)].

The safety and efficacy in pediatric patients older than those with asthma have not been established.

8.5 Geriatric Use
Clinical trials of NUCALA did not include sufficient numbers of subjects aged 65 years and older that received NUCALA (n = 46) to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosage range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy. Based on available data, no adjustment of the dosage of NUCALA in geriatric patients is necessary, but greater sensitivity in some older individuals cannot be ruled out.

10 OVERDOSAGE
Single doses of up to 1,500 mg have been administered intravenously to subjects in a clinical trial with eosinophilic disease without evidence of dose-related toxicities. There is no specific treatment for an overdose with mepolizumab. If overdose occurs, the patient should be treated supportively with appropriate monitoring as necessary.

13 NONCLINICAL TOXICOLOGY
13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility
Long-term animal studies have not been performed to evaluate the carcinogenic potential of mepolizumab. Published literature using animal models suggests that IL-5 and eosinophils are part of an early inflammatory reaction at the site of tumorigenesis and can promote tumor rejection. However, other reports indicate that eosinophil infiltration into tumors can promote tumor growth. Therefore, the malignancy risk in humans from an antibody to IL-5 such as mepolizumab is unknown.

Male and female fertility were unaffected based upon no adverse histopathological findings in the reproductive organs from cynomolgus monkeys receiving mepolizumab for 6 months at IV dosages up to 100 mg/kg once every 4 weeks. The margin of exposure (MfE) was approximately 10,000 times the MRHD of 100 mg on an AUC basis. Maternal and reproductive performance were unaffected in male and female CD-1 mice receiving an analogous antibody, which inhibits the activity of murine IL-5, at an IV dosage of 50 mg/kg once per week.

17 PATIENT COUNSELING INFORMATION
See FDA-Approved Patient Labeling.

Hyper敏感性 反应
Inform patients that hypersensitivity reactions (e.g., anaphylaxis, angioedema, bronchospasm, hypotension, urticaria, rash) have occurred after administration of NUCALA. Instruct patients to contact their physicians if such reactions occur.

Not for Acute Symptoms or Deteriorating Disease
Inform patients that NUCALA does not treat acute asthma symptoms or acute exacerbations. Inform patients to seek medical advice if their asthma remains uncontrolled or worsens after initiation of treatment with NUCALA.

Opportunistic Infections: Herpes Zoster
Inform patients that herpes zoster infections have occurred in patients receiving NUCALA and where medically appropriate, inform patients that vaccination should be considered.

Reduction of Corticosteroid Dosage
Inform patients not to discontinue systemic or inhaled corticosteroids except under the direct supervision of a physician. Inform patients that reduction in corticosteroid dose may be associated with systemic withdrawal symptoms and/or unmask conditions previously suppressed by systemic corticosteroid therapy.

Pregnancy Exposure Registry
Inform women there is a pregnancy exposure registry that monitors pregnancy outcomes in women with asthma exposed to NUCALA during pregnancy and that they can enroll in the Pregnancy Exposure Registry by calling 1-877-311-8972 or by visiting www.motherbababy.org/asthma [see Use in Specific Populations (6.1)].

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Join us to learn more about the

EVOLVING UNDERSTANDING OF INFLAMMATORY MEDIATORS IN ASTHMA

Mario Castro, MD, MPH
Alan A. and Edith L. Wolff Professor of Pulmonary and Critical Care Medicine
Professor of Medicine, Pediatrics, and Radiology
Washington University School of Medicine
St. Louis, MO

This presentation is sponsored by Novartis, and is open to all ATS 2019 International Conference attendees.

Tuesday, May 21
1:15 PM to 2:00 PM
The Kay Bailey Hutchison Convention Center Dallas
The ATS 2019 Exhibit Hall, Theater 1

Boxed lunches will be provided by The American Thoracic Society (ATS)

COME VISIT US AT
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SUBMIT YOUR QUESTIONS
at the Novartis Booth for the opportunity to have them answered personally by Dr. Castro during the presentation. Select questions will be used for discussion.
Refine Your Clinical Skills Over Lunch

THEATER 1
11:30 a.m.-12:15 p.m.
Eosinophilic Asthma: Patient Identification and a Targeted Treatment Approach

Eosinophilic asthma is a common type of severe asthma in adult patients. Eosinophils can contribute to exacerbations and lung function decline in patients with allergic or non-allergic severe asthma. This complimentary symposium will highlight the growing body of evidence on eosinophils and severe asthma. The presenter will use a case-based approach to help clinicians identify eosinophilic asthma in clinical practice and will discuss a targeted approach to the management of severe eosinophilic asthma. Attendees should leave being able to translate the growing science of eosinophils into real-world applications for severe asthma patients in the clinic.

Speaker: Reynold Panettieri Jr., MD, professor and vice chancellor clinical and translational science, Rutgers University
Company: AstraZeneca

1:15-2 p.m.
Company: Sanofi Genzyme and Regeneron

THEATER 2
11:30 a.m.-12:15 p.m.
Rethinking the “O” in COPD

This symposium will explore how the physiologic finding of “airflow obstruction” became central to the definition, classification, and treatment of COPD, even though this occurs late in the disease process. Rethinking how we approach disease modification in the future will require that we rethink what comprises early disease, before obstruction is present, and focus on important phenotypes, endotypes, and treatable traits that will guide interventions.

Speakers: Bart Celli, MD, professor of medicine, Harvard Medical School; David Mannino, MD, U.S. medical expert, GlaxoSmithKline; Brad Drummond, MD, associate professor of medicine, director, Obstructive Lung Diseases Clinical and Translational Research Center, University of North Carolina; Mei Lan K. Han, MD, professor, division pulmonary and critical care, University of Michigan
Company: GlaxoSmithKline

1:15-2 p.m.
The First LAMA for Inhalation Using Natural Breathing

Speaker: Donald A. Mahler, MD, emeritus professor of medicine, Geisel School of Medicine at Dartmouth
Company: Sunovion Pharmaceuticals Inc.

MEDIUM THEATER
12:20-1:05 p.m.
An Oral Treatment for Pulmonary Arterial Hypertension (PAH, WHO Group I): Targeting the Prostacyclin Pathway

The management of pulmonary arterial hypertension (PAH) continues to evolve with targeting multiple pathways through sequential combination therapy now at the forefront of our treatment strategies. This interactive case-based theater will feature a PAH thought leader who will discuss an oral treatment for PAH targeting the prostacyclin pathway. Lunch will be provided. (Lunch will not be provided to physicians and other HCPs licensed in Vermont or other states where gifts and meals are prohibited.) This presentation is sponsored by Actelion Pharmaceuticals US, Inc., a Janssen Pharmaceutical Company of Johnson & Johnson, and is open to all ATS 2019 International Conference attendees. This promotional educational activity is not accredited.

Speaker: Rajeev Saggar, MD, executive director, Lung Institute, director of pulmonary hypertension and fibrosis programs, University of Arizona, COM-Phoenix Banner University Medical Center-Phoenix, Phoenix, Arizona

MINI THEATER
11:30 a.m.-12 p.m.
Going Beyond the Prescription – Consider First the Medication Delivery System

Device delirium. So many choices of inhalers and aerosol delivery systems lead to patient confusion. What needs to be taken into consideration when prescribing medication devices?

Speaker: James B. Fink, PhD, RRT, FAARC, FCCP, chief scientific officer, Aerogen Pharma Corp.
Company: Philips

12:30-1 p.m.
What You Didn’t Know About Budesonide

A retrospective review of the budesonide molecule and its history. Challenge what you thought you knew about budesonide and why the future of this molecule remains bright.

Speaker: Donald Tashkin, MD, professor emeritus of medicine, David Geffen School of Medicine at UCLA
Company: AstraZeneca

1:30-2 p.m.
Interstitial Lung Disease in Systemic Sclerosis: A Case-Based Discussion

This presentation will enlist an expert pulmonologist and rheumatologist who will present patient case studies providing insight into the interactions required to recognize and diagnose systemic sclerosis-associated interstitial lung disease (SSc-ILD). The presentation of these case studies will underscore the importance of the interactions that occur between these specialties to diagnose SSc-ILD and monitor disease progression. An overview of the current knowledge regarding SSc examining the pulmonary manifestations of the disease will also be reviewed.

Speakers: S. Samuel Weigt, MD, MS, director, UCLA Interstitial Lung Disease Center; associate professor of medicine, David Geffen School of Medicine at UCLA; Elizabeth Volkmann, MD, MS, founder, co-director, UCLA Connective Tissue Disease-Related Interstitial Lung Disease Program, assistant professor of medicine, David Geffen School of Medicine at UCLA
Company: Boehringer Ingelheim Pharmaceuticals, Inc.
Stay connected

TODAY’S TOP TWEETS #ATS2019

Spending a rainy day with a group of amazing physicians, nurses, and pharmacists, and scientists creating the ATS guidelines on treatment of tobacco dependence. Great PICO questions that will be impactful for all those who care for people who smoke. #ATS2019 #tobacco

@panagis21

True difficult airway dominated by the disposable bronchoscope! #ats2019 #ATSBootcamp @crottyalexander

Here is the largest fear of graduating away from home institution to another. How to fight self-doubt as the environment changes and ways to “prove” oneself to peers and learners. #ATS2019

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Throwing down about social media by @virenkaul @NitinSeam at #ats2019 #F2FBC @ATSMedEd

@CooperAvraham

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pulmonaryfibrosis.org

Visit booth 4076 to learn about managing chest congestion in stable chronic bronchitis patients and claim your Starbucks $5 giftcard!

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Dr. Hartzband is a noted endocrinologist and educator specializing in disorders of the thyroid, adrenal, and pituitary glands and in women’s health. She is the author of articles in the New England Journal of Medicine and the ACP Internist.

The University of Arizona
Hanania, MD
Baylor College of Medicine
Linda Rogers, MD
Icahn School of Medicine at Mount Sinai

BIG DATA
Continued from page 1

identifying common interventions where there is variation between providers,” Dr. Semler said. “This information, combined with patient outcomes, could provide new evidence that can be applied for better patient care.”

Patient privacy is always a concern. “We often talk about the limits of patient protection, HIPPA, and how we navigate those,” Dr. Semler said, noting that there are encryption tools that can be applied to keep records anonymous.

“This all depends on us making strategic tweaks to the care we deliver every day and analyzing what those results are,” Dr. Liu continued. “The flip side is to never learn from the data derived from the care we deliver patients.”

Want More?
Don’t miss these sessions that also explore how learning may be shaped by data and artificial intelligence, both taking place in Ballroom C One-Two (Level 2), KBHCCD.

Monday
8:00-8:45 a.m.
Data Sharing in the Context of Clinical Trials (K3)
Wednesday
8:00-8:45 a.m.
What Should Pulmonologists Know About Artificial Intelligence and Machine Learning? (K7)

Tara Carr, MD
The University of Arizona
Health Sciences
Nicola Hanania, MD
Baylor College of Medicine

Join us for a multimedia learning experience examining U.S. presidents who had severe asthma.

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A MECC-Organized Symposium at the ATS 2019 International Conference. All ATS 2019 International Conference attendees are invited to attend this Non-CME educational program sponsored by The France Foundation and supported by grants from Sanofi Genzyme and Regeneron Pharmaceuticals.
Early Career Professionals Tap Resources

Career advice, small-group learning, hands-on training, and networking comprised key elements of the ATS programming for Early Career Professionals on Friday and Saturday.

Added to the lineup of the Student Scholars Program, Resident Boot Camp, and Fellows Track Symposium this year is the Fellow-to-Faculty Boot Camp. Thirty attendees (15 clinical fellows and 15 post-doctoral PhD fellows) tapped the boot camp to address specific topics and challenges related to the field and to their independent transitions into their careers.

“The fellow-to-faculty transition is something that you haven’t done until you do it,” said Avraham Cooper, MD, of Columbus. “It seems like, historically, a lot of the advice people get is ad hoc. It happens after they’ve already gone through the transition. Part of the point of the boot camp is to give us that advice now, while we still have time to look at habits and incorporate that advice into this transition period.”

The Student Scholars Program gave 70 medical, graduate, and undergraduate students the opportunity to attend the ATS 2019 International Conference for free in addition to receiving access to special educational sessions in mentorships.

Lorene Cudjoe, BA, a second-year medical student from Indianapolis, came in for the Student Scholars Program. “I’m not sure what I’m interested in, so I felt like if I’m able to get sort of a mentor, and also do some hands-on learning and networking, that will give me a better idea of how to navigate—if I’m interested in pulmonary care—what that looks like and what I can do.”

Internal medicine and pediatric fellows who have already matched into a fellowship program for July 2019 participated in the Resident Boot Camp. There, more than 140 faculty teachers participated in presentations, small-group breakouts, and hands-on workshops.

Attendee Cameron McGuire, MD, MPH, Denver, said he is excited but terrified to be a fellow next year. “I’m hoping that all of this hands-on training and the larger lectures and smaller group work with experts helps me to feel more confident and comfortable.”

The two-day Fellows Track Symposium allowed adult and pediatric fellows in pulmonary, critical care, and sleep medicine programs to arrive early to get oriented for the ATS 2019 International Conference. FTS participants learned about topics that correspond to specific sessions and poster presentations at ATS 2019 as well as interacted with world-renowned leaders in the field.

Would you recognize EGPA if it were right in front of your face?

EGPA is eosinophilic granulomatosis with polyangiitis, formerly known as Churg-Strauss syndrome.

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Dr. Polly Parsons, MD, provided an update on ATS.

have to refocus within schools, flip the classrooms so time is spent on teamwork.

To that point, Dr. Parsons spoke about the ATS's own efforts of improving education.

“Members now expect enhanced access to information, and they thrive with novel learning strategies that rely heavily on technology,” Dr. Parsons said. “And in the even more competitive field of academic medicine, they need additional resources to advance the field of medicine and opportunities to earn academic capital to advance their careers.”

Dr. Parsons addressed the decline in specialists focusing on pediatric pulmonary care and the constant struggles for the scientist all along the pipeline. The ATS is working to address these needs with expanded early career educational opportunities such as The Resident Bootcamp, improved technology and association infrastructure, and the adoption of clear policies covering the areas of diversity, inclusion, and professional conduct.

“While we did have policies in place for some time, these new policies set higher standards and reflect a membership that prizes the extraordinary, not merely the acceptable,” she said.

Moving forward, Dr. Parsons encouraged continuing to cultivate the next generation of researchers.

“Ten years ago, we awarded four unrestricted research grants. This past year, we awarded 14. Including MECOR and partner grants, in the 2018 grant cycle, the Foundation awarded 30 research grants totaling more than $1.6 million. For this coming year, ATS has contributed additional dollars to the foundation to increase the number of unrestricted grants from 14 to 17, and we earmarked significant funds to ensure the program's future.”

Early career education, hands-on learning, and networking were all key components to the kick-off of this year’s International Conference.

Dr. Parson pointed to the growth of ATS as an association in the last 10 years, including members, trainees, assemblies, committees and more.
Applications Now Being Accepted

Gilead Sciences
Research Scholars Program
In Cystic Fibrosis

The program supports innovative scientific research that will advance knowledge in the field of cystic fibrosis, and provides support for 3 junior faculty researchers in Canada, Europe, or the United States for a 2-year period. Each award will be funded up to USD130,000, to be paid in annual installments of up to USD65,000.

Awards are subject to separate terms and conditions.

SCIENTIFIC REVIEW COMMITTEE
Applications will be reviewed by a committee comprised of internationally recognized experts in basic and clinical research in the field of cystic fibrosis.

Application Deadline:
Friday, August 9, 2019, 11:59 PM Eastern Daylight Savings

For more information and to apply for an award, please visit:
http://researchscholars.gilead.com
Click on the CF program logo.
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