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May 17- May 22, 2019

Dallas, Texas

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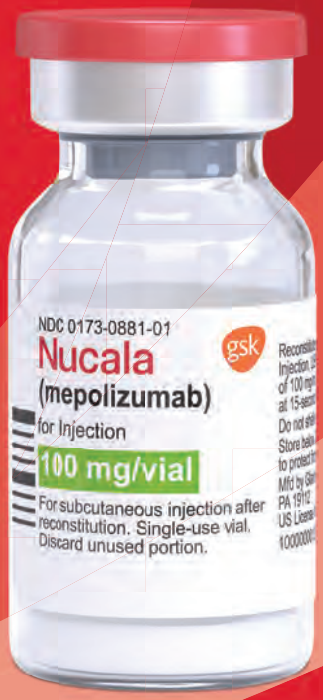

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ATS 2019 INTERNATIONAL CONFERENCE
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ATS 2019 INTERNATIONAL CONFERENCE
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This is the virtual Advance Program for the ATS 2019 International Conference, which is one of the largest gatherings of pulmonary, critical care and sleep medicine clinicians and researchers in the world. This publication contains the programs and speakers for the postgraduate courses, scientific and educational sessions to be held at the International Conference confirmed as of January 10, 2019.

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For information on conference registration, hotel accommodations and other conference details, please visit the ATS International Conference website at http://conference.thoracic.org.

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INVITATIONS FOR THE 2019 PROGRAM ARE NOW BEING SENT.
For details, please contact Vlada O'Hara at vohara@thoracic.org

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ATS 2019 INTERNATIONAL CONFERENCE
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As an accredited provider of the Accreditation Council for Continuing Medical Education (ACCME), the ATS must ensure objectivity, scientific rigor, balance, and freedom from commercial bias in Conference presentations.

ATS relies on the assistance of Conference Session organizers, chairs and presenters, Assembly Program Committees, the ATS Education Committee, and the ATS International Conference Committee to accomplish this. In keeping with ACCME standards and ATS policies on management of conflict of interest, all moderators and speakers must complete conflict of interest review and resolution prior to the Conference.

ATS thanks Conference presenters for their cooperation in completing disclosure forms by announced deadlines, and thanks Conference session organizers and all those involved in this important process.

POSTGRADUATE COURSES

Friday, May 17

CLINICAL

POSTGRADUATE COURSE

PG1A CRITICAL CARE ULTRASOUND AND ECHOCARDIOGRAPHY I

This is part 1 of a two-part course which includes PG1B on Saturday, May 18. Those registering for PG1A will be registered for PG1A and PG1B.

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $900 In-Training Member: $675
Non-Member: $1,200 In-Training Non-Member: $775

Registrants must bring a laptop to the course to view the course material.

Assembly on Critical Care

8:00 a.m. - 4:00 p.m.

Target Audience
Providers of critical care or emergency medicine

Objectives
At the conclusion of this session, the participant will be able to:

- apply ultrasound at bedside to assess critically ill;
- apply ultrasound to guide common ICU procedures;
- diagnose alternate etiologies of shock in the critically ill patient;

This is a 2-day postgraduate course that consists of didactic lectures and hands-on stations. The focus is primarily bedside transthoracic echocardiography, with some diagnostic ultrasound. The topics include basic and intermediate critical care echocardiography (including hemodynamic measures), assessment of fluid status, procedural guidance for vascular access and thoracentesis, venography. The hands-on stations will include both healthy models and laptops that can demonstrate abnormal pathology. If there is sufficient interest, a track will be offered for pediatric intensivists as well, with pediatric intensivists teaching hands-on skills.

Chairing: M.J. Lanspa, MD, MSCR, ATSF, Salt Lake City, UT
X. Monnet, MD, PhD, Le Kremlin-Bic, France

8:00 Welcome and Introduction to Critical Care Ultrasound: Training and Competency
M.J. Lanspa, MD, MSCR, ATSF, Salt Lake City, UT

8:15 **Basic Physics, Artifacts, Knobology**
Z. Shaman, MD, Cleveland, OH

8:45 **Transthoracic Windows and Views**
S. Nikravan, MD, Seattle, WA

9:15 **Basic Evaluation of LV Systolic Function, Measurement of Cardiac Output**
S. Price, MBBS, London, United Kingdom

9:45 **Basic Evaluation of RV Size and Function, Pulmonary Embolus**
D. Pradhan, MD, New York, NY

10:15 *Break*

10:30 **Practical Skills Session: Hands-On Station I**

Apical Window
V.A. Dinh, MD, Loma Linda, CA
E. Teo, MD, Atlanta, GA
P.K. Mohabir, MD, Stanford, CA
L. Rapoport, MD, Santa Clara, CA

Parasternal Window
X. Monnet, MD, PhD, Le Kremlin-Bic, France
Z. Shaman, MD, Cleveland, OH
A. Leibowitz, MD, Boston, MA
L. Grecu, MD, Durham, NC
S. Price, MBBS, London, United Kingdom

Subcostal Window
G.B. Allen, MD, Burlington VT
J. Kasal, MD, Saint Louis, MO
D. Pradhan, MD, New York, NY
S. Nikravan, MD, Seattle, WA
S. Cha, MD, Baltimore, MD

12:00 *LUNCH*

12:30 **Lunch and Clinical Cases I**
L. Grecu, MD, Durham, NC

12:45 **Chest Ultrasound**
P.K. Mohabir, MD, Stanford, CA

1:15 **Neurocritical Care Ultrasound and Echo**
A. Sarwhal, MBBS, Winston-Salem, NC

1:45 **Basic Assessment of Diastolic Function**
A. Leibowitz, MD, Boston, MA

2:15 *Break*

2:30 **Practical Skills Session: Hands-On Station II**

Lung Ultrasound (Model and Mannequin)
Z. Shaman, MD, Cleveland, OH
D. Pradhan, MD, New York, NY
P.K. Mohabir, MD, Stanford, CA
G.B. Allen, MD, Burlington VT
L. Rapoport, MD, Santa Clara, CA

Diastolic Measurements
J. Kasal, MD, Saint Louis, MO
X. Monnet, MD, PhD, Le Kremlin-Bic, France
A. Leibowitz, MD, Boston, MA
S. Nikravan, MD, Seattle, WA
S. Price, MBBS, London, United Kingdom

Cardiac Output
L. Grecu, MD, Durham, NC
V.A. Dinh, MD, Loma Linda, CA
A. Sarwhal, MBBS, Winston-Salem, NC
E. Teo, MD, Atlanta, GA
S. Cha, MD, Baltimore, MD

CLINICAL

POSTGRADUATE COURSE

PG2 ECMO FOR EXPERIENCED PROVIDERS

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $475 In-Training Member: $300
Non-Member: $550 In-Training Non-Member: $400

Registrants must bring a laptop to the course to view the course material.

Assemblies on Critical Care; Clinical Problems; Critical Care; Nursing; Pediatrics; Pulmonary Circulation; Pulmonary Infections and Tuberculosis

8:00 a.m. - 4:00 p.m.

Target Audience
All clinicians, bedside personnel and ancillary services that deal with severely ill cardioresp patients who require ECMO

Objectives
At the conclusion of this session, the participant will be able to:

- gain improved understanding of the EOLIA trial and what it means to ECMO from the PI as well as discussion as to how attendees interpret findings;
- gain understanding of how ECMO can be initiated in cardiac arrest emergencies and cannulation techniques will be addressed.

This postgraduate course is for more advanced practitioners of ECMO or who are expanding ECMO services to more complex patient populations. Both pediatric and adult providers are appropriate (neonatal ECMO will not be a focus). This course will be composed of expert discussion of critical topics and case scenarios and ECMO simulations. All stations will have ECMO circuit equipment, several will have mannekins as well and one will have ultrasound expertise as well. Simulation sessions will deal with advanced scenarios of both ECMO circuit issues as well as complex patient scenarios. Ample time for questions and answers during sims will be provided.

Chairing: H.J. Dalton, MD, Falls Church, VA
C. Agerstrand, MD, New York, NY

8:00 **Welcome and Intro**
H.J. Dalton, MD, Falls Church, VA

8:10 **PT Populations Receiving ECMO**
C. Agerstrand, MD, New York, NY

8:35 **After EOLIA: How to Use It in Decision Making**
A. Combes, MD, PhD, Clamart, France

9:00 **ECPR: Practical Aspects**
Speaker To Be Announced

9:25 **Economics and ECMO: Is It Worth It?**
E. Fan, MD, PhD, Toronto, Canada

9:50 *Break*

10:10 **Extubation and Ambulation: Pitfalls to Avoid**
D. Brodie, MD, New York, NY

10:35 **Anticoagulation: Beyond Heparin**
G. Schears, MD, Rochester, MN

11:00 **Rapid Fire: Difficult Cases, What Would You Do?**
H.J. Dalton, MD, Falls Church, VA

11:30 *LUNCH*

12:15 **Circuit Pressures: How to React and Fix**
M. Desai, MD, Falls Church, VA

12:35 **Simulation 1: Circuit Pressures**
C. Alwardt, PhD, CCP, Rochester, MN

12:55 **Simulation 2: Hypoxia on ECMO, VV and Femoral VA**
C. Agerstrand, MD, New York, NY
M. Robinson, RN, Columbus, OH

1:35 **Simulation 3: Transport on ECMO**
T. Friedrich, RN, MSN, Rochester, MN
G. Schears, MD, Rochester, MN

2:15 *Break*

2:30 **Simulation 4: Advanced Ultrasound and ECMO**
H.E. Callisen, PA, Scottsdale, AZ
B. Patel, MD, Phoenix, AZ

3:10 **Simulation 5: ECPR How to Do It**
V. Pellegrino, MD, Prahran, Australia

3:50 **Simulation 6: Ask the Experts**

3:51 **Panel Discussion and Wrap Up**

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POSTGRADUATE COURSE

PG3 A RESEARCHER'S GUIDE TO INTEGRATING THE PULMONARY 'OMICSVERSE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Allergy, Immunology and Inflammation; Environmental, Occupational and Population Health; Respiratory Cell and Molecular Biology; Respiratory Structure and Function; Section on Genetics and Genomics

8:00 a.m. - 4:00 p.m.

Target Audience Lung researchers interested in applying and integrating 'Omics-based approaches (e.g. transcriptomics, single cell, cistromics, proteomics, metabolomics) to study the lung, including endotype-based approaches to personalizing lung disease treatment

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings and methods with respect to transcriptome and chromatin profiling-based approaches to studying diverse forms of lung disease, including the application and pros/cons of RNA-seq, single cell RNA-seq, PRO-seq and ATAC-seq;
- understand how proteomics and metabolomics are being used to define disease phenotypes. biomarkers, and improve patient care;
- apply and integrate 'Omics-based approaches to study lung disease;

This session will expose attendees to state of the art practical lectures on key 'Omics-based methodologies that are transforming our approach to diagnosing, endotyping and treating lung disease. Included in this course will be sessions dedicated to methods for studying the transcriptome, including single cell approaches; 'Omics based studies of gene regulation and the enhancerome, including ChIP-seq and ATAC-seq; and approaches to characterize the proteome and metabolome in the context of lung disease. After practical overviews of each of these key methods, leading experts will subsequently provide detailed examples of integrated studies in which diverse 'Omics approaches have been applied together to yield key new insights about lung disease.

Chairing: A.N. Gerber, MD, PhD, Denver, CO
B.E. Himes, PhD, Philadelphia, PA
R.S. Kelly, MPH, PhD, Boston, MA

8:00 **Introduction: The Grand Challenge of Integrating 'Omics Data to Define Endotypes in Lung Disease**
C.P. Hersh, MD, MPH, ATSF, Boston, MA

8:20 **Harnessing the Power of RNA-seq to Study Lung Disease**
S.A. Gharib, MD, Seattle, WA

8:55 **Riding the Single Cell Transcriptome to Discover New Cellular Phentoypes in the Lung**
T. Desai, MD, MPH, Stanford, CA

9:30 *Break*

9:45 **Generating High Resolution Maps of Airway Enhancerome with ChIP and GRO-seq**
A.N. Gerber, MD, PhD, Denver, CO

10:20 **DNA Methylation in Lung Disease: Genomics and Gene Expression**
I.V. Yang, BS, PhD, Aurora, CO

10:55 **Defining Open Chomatin Using ATAC-seq: Applications to Pulmonary Immune Responses**
D.N. Cook, PhD, Durham, NC

11:30 *LUNCH*

12:25 **The Pulmonary Proteome: Tools and Implications**
C.H. Wendt, MD, Minneapolis, MN

1:00 **The Applications of Metabolomics in the Study of Respiratory Disease**
R.S. Kelly, MPH, PhD, Boston, MA

1:35 **Commonalities and Common Methods in Diverse 'Omics Data: A Practical Guide to Analysis**
B.E. Himes, PhD, Philadelphia, PA

2:10 *Break*

2:30 **COPD GWAS Meets Proteomics and Everything in Between**
R.P. Bowler, MD, PhD, Denver, CO

3:00 **A Multipronged 'Omics-Based ATAC to Define I-L13 Signaling in the Airway**
W. Eckalbar, PhD, San Francisco, CA

3:30 **Integrating Genomics and the Transcriptome in Asthma: From Gene to Function**
B.A. Raby, MPH, MD, Boston, MA

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POSTGRADUATE COURSE

PG4 FUNDAMENTALS OF WRITING SUCCESSFUL MENTORED CLINICAL RESEARCH GRANTS (FUND ME)

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $400 In-Training Member: $250
Non-Member: $475 In-Training Non-Member: $350

Registrants must bring a laptop to the course to view the course material.

Assemblies on Behavioral Science and Health Services Research; Clinical Problems; Critical Care; Nursing; Pediatrics; Pulmonary Infections and Tuberculosis; Sleep and Respiratory Neurobiology; Thoracic Oncology; Members in Transition and Training Committee

8:00 a.m. - 4:00 p.m.

Target Audience

Senior fellows, junior faculty, advanced care nurse practitioners,PhDs interested in pursuing a mentored fellowship or career development award in clinical, translational, health services, or implementation research

Objectives

At the conclusion of this session, the participant will be able to:

- compose a competitive mentored grant award application with an emphasis on innovative research and training plans that highlight the candidate's potential as well as the strength of their mentorship team and institutional environment;
- formulate and articulate integrated training, mentoring, and research plans that outline a clear path forward for future funding and career development;
- gain a better understanding of the grant review process through participation in a mock study section.

Writing mentored research awards can, but doesn't need to be, a daunting endeavor. In this session that combines didactics with hands-on practice, participants will learn fundamental skills needed to develop a competitive mentored clinical research grant proposal, including how to write compelling specific aims and develop integrated research, mentoring, and training plans that outline a clear trajectory to future awards and independence. Participants will gain an appreciation of the review process through participation in a mock study section and interact throughout the day with a diverse faculty composed of previous awardees, experienced mentors, grant reviewers and program officers from various funding bodies.

Chairing: L.C. Feemster, MSc, MD, Seattle, WA
R.S. Wiener, MD, MPH, Boston, MA
C.H. Weiss, MD, MS, Evanston, IL
V.G. Press, MD, MPH, Chicago, IL

8:00 **Introductions**

8:25 **How Do You Know You Are Ready to Write a Mentored Grant?**
B.J. Sheares, MD, MS, New Haven, CT

8:35 **What Are Potential Sources of Funding for Mentored Grants?**
A. Volerman, MD, Chicago, IL

8:45 **Part 1: Tips from Successful Grant Recipients**
K.O. Lindell, PhD, RN, ATSF, Pittsburgh, PA

8:55 **Part 2: Tips from Successful Grant Recipients**
C.H. Weiss, MD, MS, Evanston, IL

9:05 **Writing Compelling Specific Aims**
R.S. Wiener, MD, MPH, Boston, MA

9:20 *Break*

9:30 **Small Group Breakout: Writing Specific Aims**
All Faculty

10:45 **Research Plan Basics**
D.H. Au, MS, MD, ATSF, Seattle, WA

11:00 *Break*

11:10 **Integrated Career Development and Training Plans**
C.R. Cooke, MD, Ann Arbor, MI

11:25 **Small Group Breakout: Career Development/ Training Plans**
All Faculty

12:45 *LUNCH*

1:15 **Budgets and Justifications**
K.A. Riekert, PhD, Baltimore, MD

1:30 **Perspectives from an NIH Reviewer**
M. Moss, MD, ATSF, Aurora, CO

1:45 **Mock Study Section: Chair**
M. Moss, MD, ATSF, Aurora, CO

2:05 **Mock Grant Review: Primary Reviewer (Grant 1)**
Speaker To Be Announced

2:15 **Mock Study Section: Secondary Reviewer (Grant 1)**
T.J. Iwashyna, MD, PhD, Ann Arbor, MI

2:25 **Mock Study Section: Primary Reviewer (Grant 2)**
M.B. Drummond, MHS, MD, ATSF, Chapel Hill, NC

2:35 **Mock Study Section: Secondary Reviewer (Grant 2)**
K.A. Riekert, PhD, Baltimore, MD

2:45 *Break*

2:55 **Post-Grant Review: What Happens Next**
M. Eakin, PhD, Baltimore, MD

3:10 **Moderator: Panel Discussion**
J. Bruzzese, PhD, NewYork, NY

3:50 **Wrap-Up**

CLINICAL

POSTGRADUATE COURSE

PG5 THORACIC IMAGING FOR PULMONARY MEDICINE AND CRITICAL CARE PRACTITIONERS

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Clinical Problems; Allergy, Immunology and Inflammation; Critical Care; Pulmonary Circulation; Pulmonary Infections and Tuberculosis; Thoracic Oncology

8:00 a.m. - 4:00 p.m.

Target Audience
Pulmonologists, critical care physicians, thoracic surgeons, advanced practice providers, residents, fellows, respiratory therapists, and students

Objectives
At the conclusion of this session, the participant will be able to:

- formulate a differential diagnosis of respiratory diseases based on diagnostic imaging findings;
- improve strategies for the evaluation of solitary pulmonary nodules and for staging lung cancer;
- state the value of a multidisciplinary approach to diagnosis and management of patients with diffuse lung disease in light of new and upcoming recommendations on diagnosis of idiopathic pulmonary fibrosis.

This course will review major aspects of thoracic imaging with presentations targeted towards practitioners in the fields of pulmonary and critical care medicine. Dedicated thoracic radiologists will give case-based reviews focusing on the practical aspects of chest imaging. Presentations will be image rich and focus on key imaging findings, differential diagnoses, and potential pitfalls. Topics will cover a broad range of chest disease and will be relevant to trainees, generalists, and specialists, alike. At the conclusion of the course, learners will have increased knowledge about thoracic imaging and be able to apply this knowledge to their respective practices.

Chairing: J.P. Kanne, MD, Madison, WI
C.C. Wu, MD, Houston, TX

8:00 **Large Airways Diseases**
S. Rossi, MD, Buenos Aires, Argentina

8:30 **Small Airways Diseases**
T.S. Henry, MD, San Francisco, CA

9:00 **Pleural Disease**
C.C. Wu, MD, Houston, TX

9:30 *Break*

9:45 **Solitary Pulmonary Nodule**
J. Mammarappallil, MD, PhD, Durham, NC

10:15 **Lung Cancer Screening**
M.D. Martin, MD, Madison, WI

10:45 **Pulmonary Infections**
L.H. Ketai, MD, Albuquerque, NM

11:15 **Acute Lung Injury**
K. Batra, MD, Dallas, TX

11:45 *LUNCH*

12:45 **Pulmonary Hypertension**
M.D. Martin, MD, Madison, WI

1:15 *Break*

1:30 **Multidisciplinary Approach to Diffuse Lung Diseases**
K.K. Brown, MD, Denver, CO
S. Hobbs, MD, Lexington, KY
S.D. Groshong, MD, PhD, Denver, CO

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POSTGRADUATE COURSE

PG6 INTERSTITIAL LUNG DISEASE: CURRENT TRENDS IN DIAGNOSIS AND MANAGEMENT

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Clinical Problems; Allergy, Immunology and d Inflammation; Behavioral Science and Health Services Research; Clinical Problems; Environmental, Occupational and Population Health; Nursing; Pulmonary Rehabilitation

8:00 a.m. - 4:00 p.m.

Target Audience
Clinicians, nurses, other allied health staff, researchers, investigators in basic and clinic science pertinent to interstitial lung disease, and sponsors for research

Objectives
At the conclusion of this session, the participant will be able to:

- accurately diagnose patients with specific forms of interstitial lung disease;
- discuss recent clinical trials in the area of idiopathic pulmonary fibrosis in particular with their patients as well as biomarkers and preclinical interstitial lung abnormalities with patients;
- gain competence in their ability to provide evidence based care to patients with ILD via comprehensive management strategies.

This course will provide an introduction and update on diagnosis and management of the heterogeneous group of interstitial lung diseases (ILDs) of unknown etiology as well ILD in the setting of connective tissue diseases, vasculitis, and environmental exposures. Idiopathic pulmonary fibrosis (IPF), lymphatic disorders, and granulomatous ILD (hypersensitivity pneumonitis and sarcoidosis) are among the diseases that will be discussed. Genetic factors, precision medicine for diagnosis and treatment as well as newer concepts in the pathogenesis of IPF and novel treatment strategies to modulate pulmonary fibrosis will be discussed. Attendees will be updated on evolving enhanced knowledge in the clinical management of patients with ILD. The importance of making an accurate diagnosis will be demonstrated by live interactions with a panel of experts from multiple disciplines confronted with 3-4 cases unknown to them. This will illustrate multidisciplinary diagnosis (MDD) in action. Additional talks will focus on the symptom managementfor patients with pulmonary fibrosis, preclinical ILD and emerging biomarkers.

Chairing: G. Raghu, MD, Seattle, WA
L. Richeldi, MD, PhD, Rome, Italy
B. Collins, MD, Seattle, WA

8:00 **Introduction**
G. Raghu, MD, Seattle, WA

8:10 **ILD Overview**
B. Collins, MD, Kirkland, WA

8:30 **Approach to Diagnosis of IPF, Focus on Recent Recommendations**
G. Raghu, MD, Seattle, WA

8:50 **Imaging: Clues to Diagnosis and New Tools for Assessing Extent of ILD**
S.L.F. Walsh, MD, PhD, London, United Kingdom

9:10 **Histopathology: Differentiating Idiopathic Interstitial Pneumonias from Other Interstitial Pneumonias and Granulomatous ILD**
K.D. Jones, MD, San Francisco, CA

9:30 **Preclinical Interstitial Lung Abnormalities: Can Progression Be Prevented?**
A. Podolanczuk, MD, New York, NY

9:50 *Break*

10:00 **Hypersensitivity Pneumonitis: What and Where Is the Antigen; Strategies for Diagnosis and Treatment?**
M. Vasakova, MD, PhD, Prague, Czech Republic

10:20 **Connective Tissue Disease ILD: Role of Serology in Diagnosis and Role of Immune Modulating Agents for Treatment**
A. Fischer, MD, Denver, CO

10:40 **Lymphatics in ILD and Beyond**
M. Itkin, MD, Philadelphia, United States

11:00 **Multidisciplinary Discussions for an Accurate Diagnosis**
L.A. Ho, MD, Seattle, WA

12:30 *LUNCH*

1:30 **Lessons from ILD Registries**
K.R. Flaherty, MD, Ann Arbor, MI

1:50 **Biomarkers in ILD: What Do They Mean and Are They Clinically Relevant?**
E.S. White, MD, MS, ATSF, Ann Arbor, MI

2:10 **Sarcoidosis: Getting to the Heart of the Matter**
M.A. Judson, MD, Albany, NY

2:30 **Genetics of Interstitial Lung Disease: IPF and Beyond, What to Tell Your Patients and Their Family Members**
N. Kaminski, MD, ATSF, New Haven, CT

2:50 *Break*

3:00 **Reducing Symptoms and Improving Quality of Life for Patients with Fibrotic Lung Disease**
K.O. Lindell, PhD, RN, ATSF, Pittsburgh, PA

3:20 **Stem Cell Therapy for Fibrotic Lung Disease: Still a Concept While Patients Can Receive "Stem Cell Treatment" Elsewhere?**
M.K. Glassberg Csete, MD, Miami, FL

3:40 **Idiopathic Pulmonary Fibrosis: Landscape of Current and Novel Treatment in the Horizon**
L. Richeldi, MD, PhD, Rome, Italy

CLINICAL

POSTGRADUATE COURSE

PG7 ADVANCING CARE OF SICKLE CELL LUNG DISEASE: A PRACTICAL GUIDE TO PATIENT MANAGEMENT

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pediatrics; Clinical Problems; Pulmonary Circulation; Sleep and Respiratory Neurobiology

8:00 a.m. - 4:00 p.m.

Target Audience
Pediatric and adult pulmonary fellows, clinicians and researchers interested in an up-to-date review of the pulmonary complications of sickle cell disease across the lifespan, highlighting evaluation and management of these conditions

Objectives
At the conclusion of this session, the participant will be able to:

- evaluate and manage cardiopulmonary abnormalities in patients with SCD across the lifespan to improve patient health and quality of life;

- understand the clinical burden of pulmonary complications of SCD and approaches to management of those complications in low-resource settings;
- employ strategies to implement comprehensive pulmonary care programs for adult and pediatric patients with SCD.

Pulmonary disease is among the most common causes of accelerated mortality in individuals with sickle cell disease (SCD). This course provides an overview of the pathophysiology and clinical spectrum of cardiopulmonary complications of SCD across the lifespan. Course faculty, international experts in sickle cell lung disease, will present a state of the art review of acute and chronic pulmonary complications of SCD that addresses underlying pathophysiology and considerations for management in low-resource areas. The format includes lectures with audience participation via the Audience Response System, question and answer periods, case discussions, and a panel discussion on establishing a multidisciplinary sickle cell pulmonary program.

Chairing: R.T. Cohen, MD, MPH, Boston, MA
A.P. Ruhl, MD, MHS, Bethesda, MD
S.C. Sadreameli, MD, MHS, Baltimore, MD
E.S. Klings, MD, Boston, MA

8:00 **Introduction**
R.T. Cohen, MD, MPH, Boston, MA

8:10 **Sickle Cell Disease 101 for the Pulmonologist**
A. Campbell, MD, Washington, DC

8:35 **Acute Chest Syndrome Management and New Directions**
A.P. Ruhl, MD, MHS, Bethesda, MD

9:00 **Transgenic Mouse Models to Study Sickle Cell Lung Disease**
S. Ofori-Acquah, PhD, Pittsbuurgh, PA

9:25 **Cases from the Clinic: Understanding Pulmonary Function in SCD**
R.T. Cohen, MD, MPH, Boston, MA

9:50 **Question and Answer Period #1**

10:00 *Break*

10:10 **All That Wheezes Is Not Asthma in SCD**
A. Greenough, MD, London, United Kingdom

10:35 **Impact of the Indoor and Outdoor Environment on Pulmonary Outcomes in SCD**
S.C. Sadreameli, MD, MHS, Baltimore, MD

11:00 **Difficult Cases Discussion 1**
A.P. Ruhl, MD, MHS, Bethesda, MD

11:30 **Question and Answer Period #2**

11:40 *LUNCH*

12:20 **Venous Thromboembolism in SCD**
E.S. Klings, MD, Boston, MA

12:45 **How I Manage Dyspnea and Hypoxia in SCD**
R.F. Machado, MD, Indianapolis, IN

1:10 **Why Sleep and Sleep Disordered Breathing Matter in SCD**
C.L. Rosen, MD, Cleveland, OH

1:35 **Question and Answer Period #3**

1:45 *Break*

1:55 **Real World Screening, Evaluation, and Management of Pulmonary Hypertension (PH) in SCD**
A.A. Desai, MD, Indianapolis, IN

2:20 **Cases from Jamaica: A Pulmonologist's Approach to SCD in Low-Resource Settings**
J.M. Knight-Madden, MD, Mona, Kingston, Jamaica

2:45 **Difficult Cases Discussion 2**
E.S. Klings, MD, Boston, MA

3:15 **How I Set Up a Multidisciplinary SCD Pulmonary Clinic**
E.S. Klings, MD, Boston, MA
R.T. Cohen, MD, MPH, Boston, MA

3:35 **Panel Discussion on Multidisciplinary Sickle Cell Pulmonary Clinics**
E.S. Klings, MD, Boston, MA
R.T. Cohen, MD, MPH, Boston, MA

3:50 **Questions and Answers and Closing Remarks**
A.P. Ruhl, MD, MHS, Bethesda, MD

CLINICAL

POSTGRADUATE COURSE

PG8 PROCEEDINGS FROM THE WORLD SYMPOSIUM 2018: WHAT DO WE NEED TO KNOW MOVING FORWARD?

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pulmonary Circulation; Pulmonary Circulation

8:00 a.m. - 4:00 p.m.

Target Audience

Residents, fellows, pulmonologists, nurse practitioners, physician assistants, cardiologists, early career professionals, nurses

Objectives

At the conclusion of this session, the participant will be able to:

- diagnose different types of pulmonary hypertension, able to differentiate all groups of pulmonary hypertension and prevent misdiagnosis;
- gain new strategies to manage the care of pulmonary hypertension, will know how to manage group 2, 3, 4 and 5 pulmonary hypertension;
- integrate new treatment options in discussing pulmonary hypertension with patient, and review newer treatment options for other groups of Pulmonary Hypertension (ie group 2,3 and 4).

In this session, the audience will learn about the importance of recognizing the different types of pulmonary hypertension and the impact this distinction has on the management of the disease. Speakers will present relevant information from the updated pulmonary hypertension proceedings, published in December 2018.

Chairing: T. Lahm, MD, Indianapolis, IN
V. De Jesus Perez, MD, ATSF, Palo Alto, CA
M. Humbert, MD, PhD, Bicetre, France
S. Sahay, MD, Houston, TX

8:00 **Introduction**
T. Lahm, MD, Indianapolis, IN

8:10 **Newer World Symposium Guidelines 2018 on Treatment and Diagnosis of PAH**
M. Humbert, MD, PhD, Bicetre, France

8:40 **Bench to Bedside: Pathogenesis of Different Types of PH**
M. Rabinovitch, MD, Stanford, CA

9:10 **Idiopathic PAH: How You Rule Out Other Conditions?**
A.R. Tonelli, MD, Cleveland, OH

9:40 **Heritable PAH: Is Genetic Testing Necessary**
M. Aldred, PhD, Indianapolis, IN

10:10 *Break*

10:20 **PVOD: Why I Know So Little About It?**
D. Montani, MD, PhD, Le Kremlin Bicêtre, France

10:50 **CHD PAH: Differences Between Types of CHD**
V. De Jesus Perez, MD, ATSF, Palo Alto, CA

11:20 **CTD PAH: How to Differentiate Group I from III PH**
K.M. Chin, MD, Dallas, TX

11:50 *LUNCH*

12:50 **Group 2 PH: How to Prevent Misdiagnosis?**
T. Thenappan, MD, Minneapolis, MN

1:10 **Group 3 PH: Why the Degree of Precapillary PH Varies?**
H.R. Cajigas, MD, Chicago, IL

1:30 **How COPD PH Is Different from ILD-PH**
R. Raj, MD, Palo Alto, CA

1:50 **Treatment of PAH: Updates from the Proceedings**
I.R. Preston, MD, Boston, MA

2:10 *Break*

2:20 **PoPH: The Necessary Components for Its Diagnosis**
S. Sahay, MD, Houston, TX

2:40 **CTEPH: Risk Factors and Basic Mechanisms of CTEPH: Lesson Learnt from the Proceedings**
I.M. Lang, PhD, Vienna, Austria

3:10 **CTPEH: Particularities in Its Diagnosis**
G.A. Heresi, MD, Cleveland, OH

3:40 **How to Identify Rare Types of PH?**
S. Harari, MD, ATSF, Milan, Italy

CLINICAL

POSTGRADUATE COURSE

PG9 FUNCTIONAL ASSESSMENTS IN LUNG DISEASE: STRENGTH, ACTIVITY AND CARDIOPULMONARY EXERCISE TESTING WITH CASE CONFERENCE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pulmonary Rehabilitation; Respiratory Structure and Function

8:00 a.m. - 4:00 p.m.

Target Audience

Current and future directors of cardiopulmonary exercise testing labs or pulmonary rehabilitation programs, attending physicians, exercise physiologists, respiratory therapists, trainees, fellows, and other interested health care providers

Objectives

At the conclusion of this session, the participant will be able to:

- understand the physiologic principles underlying cardiopulmonary function, muscle function and physical activity in cardiopulmonary diseases;
- apply and put into practice assessments of cardiopulmonary function, limb and respiratory muscle function and physical activity in cardiopulmonary diseases;
- interpret assessments of cardiopulmonary function, muscle function and physical activity in cardiopulmonary diseases, and use this information to inform diagnosis, prognosis and target therapy.

Dyspnea on exertion and exercise intolerance are major complaints of patients with chronic lung disease. This session will cover three patient assessments that are not tested by resting pulmonary function testing: cardiopulmonary exercise testing (CPET); muscle strength; physical activity and function. The session will combine didactic lectures, a live CPET demonstration and case-based small group discussion. The session is distinct and complementary to the PG course on pulmonary function: delegates are encouraged to attend both to maximize learning opportunities. We will use a team approach to facilitate group discussions, including content experts and CPET/pulmonary rehabilitation medical directors from around the world.

Chairing: H.B. Rossiter, PhD, Torrance, CA
D.A. Kaminsky, MD, Burlington, VT
F. Maltais, MD, Quebec, Canada

8:00 **Limb Muscle Strength and Endurance**
F. Maltais, MD, Quebec City, Canada

8:30 **Respiratory Muscle Strength and Endurance**
W. Sheel, PhD, Vancouver, Canada

9:00 **Which Field Test Is Right for You? 6 Minute Walk Test**
N.S. Cox, PhD, PT, Melbourne, Australia

9:30 *Break*

9:45 **Which Field Test Is Right for You? Incremental Shuttle Walk Test**
S.J. Singh, PhD, Leicester, United Kingdom

10:15 **Physical Activity**
T. Troosters, PT, PhD, Leuven, Belgium

10:45 **Tests of Physical Function**
W. Man, MD, PhD, Harefield, United Kingdom

11:15 **Preparing the Cardiopulmonary Exercise Test**
J. Porszasz, MD, PhD, Torrance, CA

11:45 *LUNCH*

12:15 **Demonstration: Cardiopulmonary Exercise Test**
E. Nadreau, MSc, Quebec City, Canada

1:00 **Demonstration: Cardiopulmonary Exercise Test Q&A**
W.W. Stringer, MD, Torrance, CA

1:15 **Normal Values**
H.B. Rossiter, PhD, Torrance, CA

1:45 *Break*

2:00 **Data Overload: Displaying and Examining the Results**
R. Casaburi, MD, PhD, Torrance, CA

2:30 **Integrated Interpretation of the Cardiopulmonary Exercise Test**
D.A. Kaminsky, MD, Burlington, VT

3:00 **Make the Case: Cardiopulmonary Exercise Testing**
H.B. Rossiter, PhD, Torrance, CA
D.D. Marciniuk, MD, Saskatoon, Canada
M. Kokoszynska, MD, Burlington, VT
J.S. Fritz, MD, Philadelphia, PA
D.A. Kaminsky, MD, Burlington, VT
F. Maltais, MD, Quebec, Canada
J. Porszasz, MD, PhD, Torrance, CA
E. Nadreau, MS, Quebec City, Canada
R. Casaburi, MD, PhD, Torrance, CA
W.W. Stringer, MD, Torrance, CA

BASIC • CLINICAL

POSTGRADUATE COURSE

PG10 RESPIRATORY PHYSIOLOGY INTERACTIVE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Respiratory Structure and Function; Critical Care; Pulmonary Circulation

8:00 a.m. - 4:00 p.m.

Target Audience
Practicing physicians, advanced practice providers and resident-to-fellow level trainees whose primary clinical focus is pulmonary and critical care medicine

Objectives
At the conclusion of this session, the participant will be able to:

- describe the core principles of respiratory mechanics and apply them in patient care scenarios;
- delineate the core principles of gas exchange, blood gas transport and control of breathing and apply them to diagnose the causes of hypoxemia, hyper- and hypocarbia and impaired oxygen delivery;
- predict changes in key physiologic parameters in response to stresses such as exercise or exposure to hypobaric hypoxia.

Employing principles of active learning and case-based problem solving, this post-graduate seminar will review core principles of respiratory physiology including respiratory mechanics, gas exchange, blood gas transport, control of breathing, the pulmonary circulation and exercise physiology. To enhance learner engagement and knowledge retention, the seminar will utilize a variant of the flipped classroom model in which content is covered using a combination of mini-lectures and interactive activities in small groups throughout the day rather than simply a set of didactic lectures. Learners will build and reinforce knowledge they can use in the care of their patients and their work educating learners about these concepts.

Chairing: A. Luks, MD, Seattle, WA
B. Coruh, MD, Seattle, WA

8:00 **Introduction**
B. Coruh, MD, Seattle, WA

8:10 **Respiratory Mechanics**
K. Hibbert, MD, Boston, MA

8:25 **Small Group Learning**

9:05 **How We Handle Oxygen**
J.T. Poston, MD, Chicago, IL

9:20 **Small Group Learning**

10:00 *Break*

10:15 **How We Handle Carbon Dioxide**
A. Luks, MD, Seattle, WA

10:30 **Small Group Learning**

11:10 **Why Is This Patient Hypoxemic**
J. Petersson, MD, PhD, Stockholm, Sweden

11:25 **Small Group Learning**

12:05 *LUNCH*

1:00 **How We Move Blood Through the Lungs**
B.A. Cockrill, MD, Boston, MA

1:15 **Small Group Learning**

1:55 **How We Control Breathing**
P.G. Carvalho, MD, Boise, ID

2:10 **Small Group Learning**

2:50 *Break*

3:05 **How We Exercise**
R.W. Glenny, MD, Seattle, WA

3:20 **Small Group Learning**

BASIC • CLINICAL • TRANSLATIONAL

POSTGRADUATE COURSE

PG11 CARDIOMETABOLIC OUTCOMES OF OBSTRUCTIVE SLEEP APNEA TREATMENT: FROM EVIDENCE INTO PRACTICE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assembly on Sleep and Respiratory Neurobiology

8:00 a.m. - 4:00 p.m.

Target Audience
Sleep physicians, pulmonary physicians, cardiology physicians, pulmonary, critical care, cardiology and sleep fellows, nurses and all allied health professionals taking care of OSA patients, OSA researchers, graduate and postgraduate students

Objectives
At the conclusion of this session, the participant will be able to:

- describe the pathophysiological effects of OSA on the metabolic and cardiovascular system including autonomic, inflammatory and oxidative stress mechanisms;
- better understand the cardiovascular complications of OSA and the epidemiological evidence that links OSA with various metabolic and CVD outcomes;
- describe the effects of treatment for OSA on metabolic and cardiovascular outcomes based on evidence from the clinical trials as well as the management of OSA with regard to primary and secondary cardiovascular prevention models.

Obstructive sleep apnea (OSA) is a common disorder associated with increased risk for metabolic disorders and cardiovascular diseases (CVD). The first line treatment of OSA is continuous positive airway pressure (CPAP), which reduces daytime sleepiness and improves quality of life in symptomatic patients. However, the majority of individuals with OSA do not report symptoms, and adherence to CPAP is poor. This course will examine: 1) the pathophysiological effects of OSA on metabolic disorders and CVD, 2) the evidence linking OSA to metabolic disorders and CVD, 3) the implementation of the results of the clinical trials into practice in this area. Each talk will start with one or two cases with questions on management, and the attendees will be asked to press the right choice on the display. All questions will be answered again and discussed at one of the final sessions before the course evaluation.

Chairing: S.S. Redline, MD, MPH, Boston, MA
S. Javaheri, MD, Cincinnati, OH

8:00 **Introduction**
S. Javaheri, MD, Cincinnati, OH

8:10 **Associations Between OSA and Cardiovascular Risk Factors Across Populations**
S.S. Redline, MD, MPH, Boston, MA

8:40 **Cardiovascular Mechanisms in OSA and Response to Treatment**
B. Prasad, MD, Chicago, IL

9:10 **Oxidative Stress, Inflammation in OSA and Response to Treatment**
S. Ryan, MD, PhD, Dublin, Ireland

9:40 **Interactions Between OSA, Obesity, Metabolic Syndrome, Hyperlipidemia, and Response to Treatment**
S. Pamidi, MD, Montreal, Canada

10:10 *Break*

10:30 **Association Between OSA and Diabetes Mellitus, and Response to Treatment**
E. Tasali, MD, Chicago, IL

11:00 **Association Between OSA and Hypertension, and Response to Treatment**
J. Pepin, MD, PhD, Grenoble, France

11:30 **Association Between OSA and Cardiac Failure, and Response to Treatment**
S. Javaheri, MD, Cincinnati, OH

12:00 *LUNCH*

1:00 **Association Between OSA and Cardiac Arrhythmia, and Response to Treatment**
R. Mehra, MD, Cleveland, OH

1:30 **Association Between OSA and Coronary Artery Disease, and Response to Treatment**
Y. Peker, MD, PhD, Istanbul, Turkey

2:00 **Association Between OSA and Stroke, and Response to Treatment**
K. Yaggi, MD, New Haven, CT

2:30 *Break*

2:50 **Lessons from the SAVE Trial: Future Perspectives**
R.D. McEvoy, MD, Adelaide, Australia

3:20 **Interactive Panel Discussion: Applying the Literature to Clinical Cases**
L.F. Drager, MD, Sao Paulo, Brazil

3:50 **Summary and Course Evaluation**
S.S. Redline, MD, MPH, Boston, MA

BASIC • CLINICAL

POSTGRADUATE COURSE

PG12 STATE OF THE ART: LUNG CANCER 2019

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Thoracic Oncology; Behavioral Science and Health Services Research; Clinical Problems; Tobacco Action Committee

8:00 a.m. - 4:00 p.m.

Target Audience
Providers who take care of patients with lung cancer including pulmonologists, interventional pulmonologists and radiologists, medical and radiation oncologists, fellows-in-training, thoracic surgeons, and physician extenders

Objectives
At the conclusion of this session, the participant will be able to:

- learn how to access and implement web-based resources for lung cancer risk assessment and pulmonary nodule evaluation. Optimize utilization of procedure(s) for lung cancer diagnosis, staging and tissue procurement;
- apply the new 8th Edition of the TNM Classification for Lung Cancer including the approach to multiple lesions and differentiating between separate primaries and multifocal adenocarcinoma;
- improve and update knowledge of new lung cancer treatments and adverse cardiopulmonary

complications associated with new therapies. Apply this knowledge to enhancing diagnostic interventions that will support personalized lung cancer treatment.

This comprehensive up-to-date course, coupled with interactive tumor boards, will review the advances in the development of more effective methods for detection, diagnosis and treatment of lung cancer. Tobacco treatment strategies, patient selection and implementation of lung cancer screening, the 8th edition of the TNM staging system, application of biomarkers in clinical practice, new diagnostic and therapeutic bronchoscopic interventions, new surgical and non-surgical strategies for Stage I NSCLC, advances in the role of immunotherapy across all types and stages of lung cancer, management of oligometastatic disease and recognition and management of toxicities due to immunotherapy will be reviewed.

Chairing: M.P. Rivera, MD, ATSF, Chapel Hill, NC
D.J. Feller-Kopman, MD, Baltimore, MD

8:00 **Introduction**
M.P. Rivera, MD, ATSF, Chapel Hill, NC

8:05 **Biology of Nicotine Addiction: Implication for Tobacco Treatment Strategies**
E.R. Neptune, MD, Baltimore, MD

8:30 **Lung Cancer Screening: Challenges in Patient Selection and Implementation**
J. Iaccarino, MD, MSc, Boston, MA

8:55 **Biomarkers in Lung Cancer: Are They Ready for Prime Time**
P.P. Massion, MD, Nashville, TN

9:20 **Lung Cancer Staging 8th Edition: Special Considerations**
L.T. Tanoue, MD, New Haven, CT

9:45 *Break*

9:55 **Minimally Invasive Surgery for NSCLC: VATS or RATS**
T.A. D'Amico, MD, Durham, NC

10:20 **Alternative Treatment for Lung Cancer: Thermal Ablation**
R.D. Suh, MD, Los Angeles, CA

10:45 **Alternative Treatment for Lung Cancer: SBRT**
A. Weiner, MD, Chapel Hill, NC

11:10 **Tumor Board**
M.P. Rivera, MD, ATSF, Chapel Hill, NC

11:50 *LUNCH*

12:40 **Diagnostic Bronchoscopic Tools Available to the Pulmonolgoist**
A.V. Gonzalez, MD, MSc, Montreal, Canada

1:05 **Therapeutic Bronchoscopic Techniques Available to the Pulmonologist**
F. Maldonado, MD, Nashville, TN

1:30 **The Expanding Role of Immunotherapy in the Treatment of Lung Cancer**
M.P. Rivera, MD, ATSF, Chapel Hill, NC

1:55 **Treatment of Oligometastatic Disease: Pushing the Envelope to Improve Outcomes**
Speaker To Be Announced

2:20 *Break*

2:30 **Pulmonary and Cardiac Complications of Immunotherapy**
J.D. Possick, MD, New Haven, CT

2:55 **Management of Malignant Pleural Effusions: ATS Guidelines**
D.J. Feller-Kopman, MD, Baltimore, MD

3:20 **Tumor Board**
D.J. Feller-Kopman, MD, Baltimore, MD

ATS 2019
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Saturday, May 18

CLINICAL

POSTGRADUATE COURSE

PG1B CRITICAL CARE ULTRASOUND AND ECHOCARDIOGRAPHY II

This is part 2 of a two-part course which includes PG1A on Friday, May 17.

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

See PG1A for course fees.

Assembly on Critical Care

8:00 a.m. - 4:00 p.m.

Target Audience
Providers of critical care or emergency medicine

Objectives
At the conclusion of this session, the participant will be able to:

- apply ultrasound at bedside to assess critically ill patients;
- apply ultrasound to guide common ICU procedures;
- able to diagnose alternate etiologies of shock in thecritically ill patient.

This is a 2 day post-graduate course that consists of didactic lectures and hands-on stations. The focus is primarily bedside transthoracic echocardiography, with some diagnostic ultrasound. The topics include basic and intermediate critical care echocardiography (including hemodynamic measures), assessment of fluid status, procedural guidance for vascular access and thoracentesis, venography. The hands-on stations will include both healthy models and laptops that can demonstrate abnormal pathology. If there is sufficient interest, a track will be offered for pediatric intensivists as well, with pediatric intensivists teaching hands-on skills.

Chairing: M.J. Lanspa, MD, MSCR, ATSF, Salt Lake City, UT
X. Monnet, MD, PhD, Le Kremlin-Bic, France

8:00 **Vascular Ultrasound: DVT Evaluation**
L. Rapoport, MD, Santa Clara, CA

8:25 **Vascular Access**
M.J. Lanspa, MD, MSCR, ATSF, Salt Lake City, UT

8:45 **Tamponade**
G.B. Allen, MD, Burlington, VT

9:15 **Using Ultrasound to Assess Intravascular Volume and Fluid Responsiveness**
X. Monnet, MD, PhD, Le Kremlin-Bic, France

9:45 **Ultrasound for Diuresis and Dialysis**
E.L. Hirshberg, MD, ATSF, Murray, UT

10:15 *Break*

10:30 **Practical Skills Session: Hands-On Stations III**

Volume Status
X. Monnet, MD, PhD, Le Kremlin-Bic, France
J. Kasal, MD, Saint Louis, MO
E. Teo, MD, Atlanta, GA
S. Nikravan, MD, Seattle, WA
S. Cha, MD, Baltimore, MD

Tamponade Evaluation
V.A. Dinh, MD, Loma Linda, CA
G.B. Allen, MD, Burlington VT
A. Leibowitz, MD, Boston, MA
P.K. Mohabir, MD, Stanford, CA
S. Price, MBBS, London, United Kingdom

Vascular Ultrasound
A. Sarwhal, MBBS, Winston-Salem, NC
Z. Shaman, MD, Cleveland, OH
L. Grecu, MD, Durham, NC
L. Rapoport, MD, Santa Clara, CA
D. Pradhan, MD, New York, NY

12:00 *LUNCH*

12:30 **Lunch and Clinical Cases II**
E. Teo, MD, Atlanta, GA

12:45 **Abdominal Ultrasonography**
V.A. Dinh, MD, Loma Linda, CA

1:15 **Goal Directed Management of Shock Using Echocardiography**
J. Kasal, MD, Saint Louis, MO

1:45 **Incorporating Echocardiography into CPR**
S. Cha, MD, Baltimore, MD

2:15 *Break*

2:30 **Practical Skills Session: Hands-On Session IV**

Echo in Shock and CPR
L. Rapoport, MD, Santa Clara, CA
S. Price, MBBS, London, United Kingdom
S. Cha, MD, Baltimore, MD
D. Pradhan, New York, NY
L. Grecu, MD, Durham, NC

Abdominal Ultrasound
A. Sarwhal, MBBS, Winston-Salem, NC
Z. Shaman, MD, Cleveland, OH
V.A. Dinh, MD, Loma Linda, CA
G.B. Allen, MD, Burlington VT
P.K. Mohabir, MD, Stanford, CA

Ask the Expert
A. Leibowitz, MD, Boston, MA
J. Kasal, MD, Saint Louis, MO
X. Monnet, MD, PhD, Le Kremlin-Bic, France
S. Nikravan, MD, Seattle, WA
E. Teo, MD, Atlanta, GA

CLINICAL

POSTGRADUATE COURSE

PG13 BRONCH DAY 2019: A COMPREHENSIVE, HANDS-ON GUIDE TO BASIC BRONCHOSCOPY, EBUS, AND NAVIGATIONAL BRONCHOSCOPY

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $475 In-Training Member: $300
Non-Member: $550 In-Training Non-Member: $400

Registrants must bring a laptop to the course to view the course material.

Assemblies on Clinical Problems; Critical Care; Pediatrics; Thoracic Oncology

8:00 a.m. - 4:00 p.m.

Target Audience
Adult and pediatric pulmonologists and intensivists, thoracic surgeons, physicians-in-training, allied health professionals, and anesthesiologists interested in improving their skills in diagnostic and therapeutic flexible bronchoscopy and EBUS

Objectives
At the conclusion of this session, the participant will be able to:

- diagnose and manage adults and children with benign and malignant respiratory diseases;
- improve knowledge of basic flexible bronchoscopy and strengthen procedural skills;
- understand the indications for linear and radial endobronchial ultrasound and the skills necessary to perform these procedures.

This course is designed to provide a comprehensive introduction to diagnostic and therapeutic flexible bronchoscopy. Participants will acquire the knowledge and skills to improve their proficiency in basic bronchoscopic techniques and be introduced to more advanced diagnostic bronchoscopy including linear and radial endobronchial ultrasound, navigational bronchoscopy, endobronchial valve placement for bronchopleural fistula, and the use of endobronchial blockers and cryoprobes in the setting of hemoptysis. A series of didactic lectures will be followed by intensive, hands-on training, through the use of physical and virtual reality simulators which will help participants strengthen their procedural skills. Audience Response System will be used during lectures.

Chairing: C.L. Channick, MD, Los Angeles, CA
S.S. Oh, DO, Santa Monica, CA
C. Argento, MD, Chicago, IL
S. Shojaee, MD, CHDA, Richmond, VA

8:00 **Course Introduction**
C. Channick, MD, Los Angeles, CA

8:05 **Optimizing Basic Bronchoscopy Skills: Bronchoalveolar Lavage, Brushings, and Biopsies**
S.S. Oh, DO, Santa Monica, CA

8:30 **Setting Up a Bronchoscopy Suite**
S. Shojaee, MD, CHDA, Richmond, VA

8:55 **Performing Flexible Bronchoscopy in High-Risk Patients: How to Maximize Outcomes**
C. Argento, MD, Chicago, IL

9:20 **The Role of Flexible Bronchscopy in the Management of Hemoptysis**
C.R. Lamb, MD, Burlington, MA

9:45 *Break*

9:55 **Pediatric Flexible Bronchoscopy for Adult and Pediatric Bronchoscopists**
C. Spencer, MD, New York, NY

10:20 **The Fundamentals of Linear EBUS: Overview of the Basic Technique and the Data**
C.L. Channick, MD, Los Angeles, CA

10:45 **Introduction to Navigational Bronchoscopy: Review of the Evidence**
G.C. Michaud, MD, New York, NY

11:10 *LUNCH*

12:05 **Practical Skills Session: Bronchoscopy with Biopsy and Needle Aspiration of Endobronchial Lesion**
M. Barry, MD, Boston, MA
S. Sethi, MD, Cleveland, OH

12:29 **Practical Skills Session: Management of the Difficult Airway**
A. Vicencio, MD, New York, NY
I. Susanto, MD, Santa Monica, CA

12:53 **Practical Skills Session: Bronchoscopic Management of Hemoptysis**
C. Keyes, MD, MPH, Boston, MA
P. Lee, MBBS, MD, Singapore, Singapore

1:17 **Practical Skills Session: Techniques for Foreign Body Removal Using Flexible Bronchoscopy**
J.L. Bessich, MD, New York, NY
K. Van Nostrand, MD, Atlanta, GA

1:41 **Practical Skills Session: Navigational Bronchoscopy-Radial Endobronchial Ultrasound**
L. Frye, MD, Chicago, IL
A.V. Gonzalez, MD, MSc, Montreal, Canada

2:05 *Break*

2:20 **Practical Skills Session: Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration**
G.C. Michaud, MD, New York, NY
S. Shadchehr, DO, Burlington, MA

2:44 **Practical Skills Station: Endobronchial Ultrasound Anatomy**
C. Argento, MD, Chicago, IL
E. Volker, MD, MSPH, Denver, CO

3:08 **Practical Skills Session: Electromagnetic Navigational Bronchoscopy**
C.R. Lamb, MD, Burlington, MA
K. Czarnecka-Kujawa, MD, BS(Hons), Toronto, Canada

3:32 **Practical Skills Session: Endobronchial Valve Placement**
S. Shojaee, MD, CHDA, Richmond, VA
V.K. Holden, MD, Baltimore, MD

3:56 **Practical Skills Session: Endobronchial Brushings and Biopsies in the Pediatric Patient**
C. Spencer, MD, New York, NY

3:57 **Practical Skills Session: Transbronchial Biopsies in the Pediatric Patient**
S.B. Goldfarb, MD, Philadelphia, PA

BASIC • CLINICAL • TRANSLATIONAL

POSTGRADUATE COURSE

PG14 ASTHMA STATE OF THE ART 2019

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Allergy, Immunology and Inflammation; Clinical Problems; Pediatrics

8:00 a.m. - 4:00 p.m.

Target Audience
Pulmonary and allergy physicians, physicians in training, and advanced practice providers who are focused on care of patients with asthma. Clinical, translational, and basic science researchers involved in studies of asthma pathogenesis and therapy

Objectives
At the conclusion of this session, the participant will be able to:

- improve knowledge on asthma pathophysiology as it applies to management;
- apply asthma endotypes to clinical practice;
- develop new strategies to manage difficult asthma cases.

This session will provide a comprehensive review of the latest knowledge on asthma pathogenesis, clinical science and therapy. Compared to the 2018 postgraduate course, practical management considerations in asthma will be emphasized. We propose to have a journal club small group breakout.

Chairing: P. Akuthota, MD, La Jolla, CA
M. Kraft, MD, ATSF, Tucson, AZ
B.D. Medoff, MD, Boston, MA

8:00 **Introduction**
M. Kraft, MD, ATSF, Tucson, AZ

8:05 **How to Incorporate Biologics into Your Practice**
M. Kraft, MD, ATSF, Tucson, AZ

8:35 **Asthma Susceptibility in Children**
F.D. Martinez, MD, Tucson, AZ

9:05 **Epithelial Cell-Innate Immune Cell Interaction**
B. Lambrecht, MD, PhD, Ghent, Belgium

9:35 **Innate-Adaptive T-Cell Interactions**
J.L. Cho, MD, Iowa City, IA

10:05 *Break*

10:20 **Structural Cells in Asthma**
J.L. Ingram, PhD, Durham, NC

10:50 **Special Considerations in Severe Asthma**
M. Wechsler, MD, MSc, Denver, CO

11:20 **Asthma Exacerbations - Mechanisms and Treatment**
L.C. Denlinger, MD, PhD, Madison, WI

11:50 *LUNCH*

12:50 **Obesity and Asthma**
N. Lugogo, MD, Ann Arbor, MI

1:20 **Clinical Controversies in Asthma**
S.B. Khatri, MD, MS, Cleveland, OH

2:05 *Break*

2:20 **Applying Asthma Endotypes to Real-World Practice**
S.E. Wenzel, MD, ATSF, Pittsburgh, PA

2:50 **Difficult Cases I - Adult**
P. Akuthota, MD, La Jolla, CA

3:25 **Difficult Cases II - Pediatric**
K.R. Ross, MD, MS, Cleveland, OH

CLINICAL

POSTGRADUATE COURSE

PG15 A CLINICIAN'S GUIDE TO LUNG TRANSPLANTATION

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Clinical Problems; Allergy, Immunology and Inflammation; Pulmonary Infections and Tuberculosis

8:00 a.m. - 4:00 p.m.

Target Audience
Providers who care for patients who have had or may require lung transplantation, this includes transplant and non-transplant focused professionals;providers who are not at a transplant center but who care for patients before and after transplant

Objectives
At the conclusion of this session, the participant will be able to:

- more appropriately refer potential candidates for lung transplantation;
- become familiar with the short and long-term outcomes,as well as care and management of lung transplant recipients;
- become familiar with current efforts to increase organ donation and utilization.

This session will be a comprehensive review of lung transplantation covering: candidate selection; organ donation and allocation; immunosuppressive medications and management; long and short term outcomes; infections; and pulmonary and non-pulmonary complications. It will include review lectures; case-based presentations; and panel discussions. The goal is to provide a broad foundation for learners seeking greater familiarity and enhanced expertise in this area.

Chairing: J.D. Edelman, MD, Seattle, WA
S.M. Bhorade, MD, Chicago, IL
A.R. Glanville, MD, MBBS, Sydney, Australia
G.M. Verleden, MD, PhD, Leuven, Belgium

8:00 **Introduction**
J.D. Edelman, MD, Seattle, WA

8:15 **Guidelines for Lung Transplant Referral and Selection**
A.R. Glanville, MD, MBBS, Sydney, Australia

8:50 **Lung Donation and Allocation (US)**
E.D. Lease, MD, Seattle, WA

9:10 **Lung Donation and Allocation (Europe)**
G.M. Verleden, MD, PhD, Leuven, Belgium

9:30 **Organ Donation and Allocation Panel Discussion**

9:40 **Organ Procurement and Preservation**
P. Sanchez, MD,PhD, Pittsburgh, PA

10:10 *Break*

10:25 **Pushing the Candidate Envelope**
R.M. Kotloff, MD, Cleveland, OH

10:55 **Ethical Paradigms and Challenges in Lung Transplantation**
E.R. Garrity, MD, MBA, Chicago, IL

11:25 **Disease Specific Implications Before and After Transplant**
S. Kapnadak, MD, Seattle, WA

11:55 *LUNCH*

12:45 **Pediatric Lung Transplantation**
S.C. Sweet, MD, PhD, St. Louis, MO

1:10 **Immunosuppression: State of the Art**
S.M. Bhorade, MD, Chicago, IL

1:35 **Infections in Lung Transplant Recipent**
S. Husain, MD, MS, Toronto, Canada

2:00 **Cellular Rejection, Humoral Rejection, Allo- and Auto-Antibodies**
D.J. Levine, MD, San Antonio, TX

2:30 *Break*

2:45 **Complications: Chronic Lung Allograft Dysfunction**
G.M. Verleden, MD, PhD, Leuven, Belgium

3:10 **Quality of Life and Functional Status Before and After Lung Transplantation**
B.M. Hoffman, PhD, Durham, NC

3:35 **Medical Challenges Faced by Lung Transplant Recipients**
J.D. Edelman, MD, Seattle, WA

CLINICAL

POSTGRADUATE COURSE

PG16 INTERSTITIAL LUNG DISEASE: DELIVERING OPTIMAL, PATIENT CENTERED CARE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Clinical Problems; Allergy,Immunology and Inflammation; Behavioral Science and Health Services Research; Nursing; Pulmonary Circulation; Pulmonary Rehabilitation

8:00 a.m. - 4:00 p.m.

Target Audience
This session should be broadly relevant to those who provide clinical care for patients with ILD including pulmonary fellows, general pulmonologists, ILD specialists, and advanced care nurses.

Objectives
At the conclusion of this session, the participant will be able to:

- apply a consistent, effective strategy to ILD/IPF diagnosis
- understand the range of therapeutics available for ILD and how and when to prescribe them
- integrate a holistic and interdisciplinary approach to ILD patient care

This session will provide a practical approach to the diagnosis and management of patients with ILD. It will bring the most recent recommendations and guidelines into a usable strategy that will facilitate the care of patients with ILD. This will be accomplished through didactics, simulated MDD and panel discussion of difficult cases—providing a range of learning methods to reach the largest number of learners.

Chairing: S.K. Danoff, MD, PhD, Baltimore, MD
M. Kreider, MD, Philadelphia, PA

8:00 **Introduction**
M. Kreider, MD, Philadelphia, PA

8:15 **Radiologic Assessment in ILD Diagnosis**
S. Hobbs, MD, Lexington, KY

8:45 **Pathology: Who Should Get a Biopsy**
J. Morisset, MD, Montreal, Canada

9:15 **IPF vs Not IPF: Role of Clinical Assessment**
M. Porteous, MD, Philadelphia, PA

10:00 *Break*

10:15 **Speed MDD: Pulling It All Together**
L.P. Hariri, BS, MD, PhD, Boston, MA
S. Hobbs, MD, Lexington, KY
K.B. Highland, MD, Cleveland, OH
D.E. Antin-Ozerkis, MD, New Haven, CT
L.D. Morrison, MD, Durham, NC

11:30 *LUNCH*

12:00 **IPF Therapies: Who and Which One**
L. Richeldi, MD, PhD, Rome, Italy

12:30 **Therapies for Connective Tissue Disease Associated ILD**
K. Highland, MD, Cleveland, OH

1:00 **Symptom Management in ILD**
S.K. Danoff, MD, PhD, Baltimore, MD

1:30 **Following Patients with ILD After Diagnosis**
M. Kreider, MD, Philadelphia, PA

2:00 **Controversies in Therapy - NAC, PH, GERD, Stem Cells**
J. Oldham, MD, MS, Sacramento, CA

2:45 *Break*

3:00 **Tough Cases: What Would You Do?**
V. Cottin, PhD, MD, Bron, France
L. Richeldi, MD, PhD, Rome, Italy
L.D. Morrison, MD, Durham, NC
J. Morisset, MD, Montreal, Canada
D.E. Antin-Ozerkis, MD, New Haven, CT
J. Oldham, MD, MS, Sacramento, CA

CLINICAL

POSTGRADUATE COURSE

PG17 A PHYSIOLOGIC APPROACH TO MANAGEMENT OF SHOCK

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $400 In-Training Member: $250
Non-Member: $475 In-Training Non-Member: $350

Registrants must bring a laptop to the course to view the course material.

Assemblies on Critical Care; Clinical Problems; Pediatrics; Respiratory Structure and Function

8:00 a.m. - 4:00 p.m.

Target Audience
All clinicians who treat patients with shock and hemodynamic instability. In addition, basic scientists with an interest in the physiologic basis of clinical practice.

Objectives
At the conclusion of this session, the participant will be able to:

- apply basic principles to the bedside assessment of patients in shock;
- rationally develop a strategy for treatment of refractory shock;
- understand the principles and appropriate uses of mechanical circulatory support.

This course will use a combination of didactic lectures and small group discussions to teach a 'first-principles' approach to the management of shock. The goal of the course is to enable participants to practice 'bedside physiology' and thereby individualize management for all types of shock. Topics include meaningful blood pressure targets in shock, assessment of fluid responsiveness and choice of inotropes/vasopressors, physiology of right heart failure, mechanical support for cardiogenic shock, and management of refractory vasodilatory shock. We will explore controversies in the physiologic literature concerning these issues and critically examine common clinical practice in light of physiologic principles.

Chairing: C.C. Hardin, MD, PhD, ATSF, Boston, MA
K. Hibbert, MD, Boston, MA

8:00 **Meaningful Clinical Targets in Patients with Shock**
S.A. Magder, MD, Montreal, Canada

9:00 **Fluid Resuscitation and Predictors of Fluid Responsiveness**
B. Coruh, MD, Seattle, WA

9:40 *Break*

10:00 **Choice of Vasopressors**
A.J. Goodwin, MD, MSCR, Charleston, SC

10:40 **Physiology of Right Heart Failure**
R.N. Channick, MD, Los Angeles, CA

11:20 *LUNCH*

12:20 **Mechanical Support for Cardiogenic Shock**
G.D. Lewis, MD, Boston, MA

1:00 **Management of Refractory Vasodilatory Shock**
J.L. Cho, MD, Iowa City, IA

1:40 *Break*

2:00 **Cases in Shock**
K. Hibbert, MD, Boston, MA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

POSTGRADUATE COURSE

PG18 TEACHING AND RESEARCHING IN RESOURCE CONSTRAINED SETTINGS: A GUIDE TO GLOBAL PULMONARY CRITICAL CARE MEDICINE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Environmental, Occupational and Population Health; Critical Care

8:00 a.m. - 4:00 p.m.

Target Audience
Clinicians, researchers, educators, trainees and allied health personnel

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about research gaps, training needs, and clinical problems relevant to work in resource-limited settings;
- develop strategies to identify funding sources, obtain human subjects approval, navigate infrastructure challenges, and form successful partnerships for

clinical, training, or research work in low and middle income countries (LMICs);

- apply principles of work in resource-limited settings to attendee's own topic area of interest.

Work in resource constrained settings is of increasing interest among pulmonary and critical care practitioners, trainees, and researchers, but most institutions lack formal training programs for care delivery, medical education, and research in resource limited settings. In addition, the 2015 ATS Audit indicates that 40% of participants at the international conference were from outside of North America and over 20% of participants were from low- and middle-income countries (LMICs). Work in these settings poses unique challenges including poor infrastructure, limited resources, and inadequate training. Strategies for successful work with in-country collaborators may differ based on the local context and goals of each project. The purpose of this course is to provide pragmatic approaches for global pulmonary and critical health research, clinical care, and capacity building using a variety of perspectives across different topic areas from successful faculty affiliated with different institutions and countries.

Chairing: P.S. Lai, MD, MPH, Boston, MA
E.D. Riviello, MD, MPH, Boston, MA
C. North, MD, Boston, MA
W. Siika, MD, Nairobi, Kenya

8:00 **Opening Remarks**
P.S. Lai, MPH, MD, Boston, MA

8:05 **Let's Start from the Very Beginning: The Nuts and Bolts of Developing an Academic Career in Global Health**
C. North, MD, Boston, MA
W. Siika, MD, Nairobi, Kenya

8:45 **Critical Care 1: Finding and Crunching the Numbers: Global Epidemiology Research that Includes the Whole Globe**
N. Adhikari, MD, MS, Toronto, Canada

9:20 **Critical Care 2: Doing and Studying Critical Care in Resource Constrained Settings: Research as a Means to Multiple Ends**
E.D. Riviello, MD, MPH, Boston, MA

9:55 *Break*

10:10 **Critical Care 3: Can You Flip a Coin? Randomized Controlled Trials in Intensive Care**
B. Andrews, MD, Nashville, TN

10:45 **HIV-Related Chronic Lung Disease: The Changing Face of the HIV Epidemic**
L. Huang, MD, ATSF, San Francisco, CA

11:20 **Ask Me Anything (AMA). A Working Lunch**

12:10 **Doing the Science Together: Building Regional Collaborations to Study Non-Communicable Lung Diseases**
K.J. Mortimer, PhD, Liverpool, United Kingdom

12:45 **Environmental Health 1: When Things Break: Exposure Assessment on a Small Budget in Resource-Limited Settings**
P.S. Lai, MPH, MD, Boston, MA

1:20 **Environmental Health 2: Intervening on a Large Scale: Community-Based Trials in Air Pollution**
W. Checkley, MD, PhD, Baltimore, MD

1:55 *Break*

2:10 **Environmental Health 3: From Trainee to Faculty: Successful Independent Careers in LMICs**
B. Kirenga, MBChB, MMed, Kampala, Uganda

2:45 **Training 1: Developing Human Resources: How to Create a Pulmonary Fellowship in a Resource Poor Setting**
N.W. Schluger, MD, New York, NY

3:20 **Training 2: Developing Human Resources: Short Courses for Long Term Impact**
R. Haniffa, PhD, Colombo, Sri Lanka

3:55 **Closing Remarks**
E.D. Riviello, MD, MPH, Boston, MA

BASIC • CLINICAL • TRANSLATIONAL

POSTGRADUATE COURSE

PG19 RESPIRATORY PHYSIOLOGY OVER THE LIFESPAN: WHEN IT'S RIGHT AND WHEN IT'S NOT

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pediatrics; Clinical Problems; Critical Care; Pulmonary Circulation; Respiratory Cell and Molecular Biology; Respiratory Structure and Function; Sleep and Respiratory Neurobiology

8:00 a.m. - 4:00 p.m.

Target Audience

Fellows in training as well as established physicians in the practice of pediatric pulmonology, critical care or neonatal medicine who are interested in reviewing basic physiology principles as they apply to clinical care

Objectives

At the conclusion of this session, the participant will be able to:

- apply several basic respiratory principles to the diagnosis and management of common pediatric respiratory disorders;
- learn how physiologic measurements can be used to change interventions and enhance outcomes;
- improve the quality of life/health status of patients by recognizing age-related differences in function and approaches to treatment.

This course will consist of a series of paired lectures covering several topics in pediatric respiratory physiology with an additional emphasis on maturational changes of various aspects of the respiratory system. When possible, the first talk will present normal physiology and how the issue being discussed changes with age. The companion talk will relate associated pathophysiology and also discuss how maturation alters the diseases discussed. An interactive format, using questions from the speakers and audience responses will be used to enhance audience participation, and to allow the participant to understand key concepts or to identify areas requiring additional study.

Chairing: H.B. Panitch, MD, Philadelphia, PA
J.L. Allen, MD, Philadelphia, PA

8:00 **The History of Developmental Physiology**
G. Kurland, MD, ATSF, Pittsburgh, PA

8:35 **Maturational Changes in the Apparatus of Breathing**
T.G. Keens, MD, Los Angeles, CA

9:10 **Abnormalities of the Chest Wall in Infants and Adolescents**
G.J. Redding, MD, Seattle, WA

9:45 *Break*

9:55 **Airways and Airway Smooth Muscle**
H.B. Panitch, MD, Philadelphia, PA

10:30 **Wheezing Across the Ages**
W.J. Morgan, MD, Tucson, AZ

11:05 **Forced Flows from Infants to Adolescents**
J.L. Allen, MD, Philadelphia, PA

11:40 *LUNCH*

12:20 **Respiratory Outcomes of Prematurity**
C.L. Ren, MD, MBA, ATSF, Indianapolis, IN

12:55 **Control of Breathing from Birth to Adulthood**
J.L. Carroll, MD, Little Rock, AR

1:30 **Obstructive Apnea Across the Ages**
C.M. Cielo, DO, Philadelphia, PA

2:05 *Break*

2:15 **The Pulmonary Circulation in Transition**
S. Lakshinrusimha, MD, Sacramento, CA

2:50 **Pulmonary Hypertension in Infants and Children**
R.K. Hopper, MD, Palo Alto, CA

3:25 **Exercise in Children and Adolescents**
D.M. Orenstein, MD, Pittsburgh, PA

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POSTGRADUATE COURSE

PG20 OPTIMIZING MANAGEMENT OF THE PATIENT WITH SEVERE BRONCHOPULMONARY DYSPLASIA

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pediatrics; Clinical Problems; Critical Care; Pulmonary Circulation; Respiratory Cell and Molecular Biology

8:00 a.m. - 4:00 p.m.

Target Audience

Neonatal, critical care and pulmonary fellows in training, neonatologists, pediatric pulmonologists, pediatric critical care specialists, respiratory therapists, neonatal, pulmonary and critical care nurses and nurse practitioners, ethicists

Objectives

At the conclusion of this session, the participant will be able to:

- apply evidence based approaches to prevent the development of and manage the child with sBPD;
- gain new strategies, recognize and diagnose complications of sBPD;
- develop multidisciplinary teams and integrated strategies to enhance the effectiveness of care of the child with sBPD.

The course will consist of a series of lectures covering topics related to the preterm infant who develops severe bronchopulmonary dysplasia (sBPD). Lectures will review evidence for optimal in hospital through post-hospital management of these infants at both an individual patient-based and system based level. Topics will span from advances in basic science that provide mechanistic insights into sBPD development, to clinical management of infants with sBPD including issues related to mechanical ventilation of infants with established sBPD. A primary focus of the session will be a comprehensive discussion of real-world approaches for the development of multidisciplinary systems based teams to optimize in hospital and post hospital outcomes for infants with sBPD and their families.

Chairing: T.E. Tipple, MD, Birmingham, AL
S.A. McGrath-Morrow, MD, Baltimore, MD
L.M. Rhein, MD, MPH, Worcester, MA

8:00 **What's New in the Pathogenesis of BPD?**
K. Lingappan, MD, PhD, MS, Houston, TX

8:30 **Update on Evidence for Treatments and Approaches to Prevent BPD**
L.M. Rhein, MD, MPH, Boston, MA

9:00 **Diagnostic Considerations: When Is It Not BPD?**
E. Shepherd, MD, Columbus, OH

9:20 **Advanced Imaging Modalities in the Assessment of BPD**
J.C. Woods, PhD, Cincinnati, OH

9:50 *Break*

10:00 **Approach to Nutrition and Feeding Issues in Babies with sBPD**
C. Martin, MD, Boston, MA

10:30 **Diagnosis and Management of Airway and Vascular Complications of sBPD**
E. Hysinger, MD, Cincinnati, OH

11:10 **Diagnosis and Management of sBPD Related Pulmonary Hypertension**
P.M. Mourani, MD, Aurora, CO

11:40 **Evidence Based Approaches to Mechanical Ventilation in the Child with sBPD**
M. Keszler, MD, Providence, RI

12:10 *LUNCH*

1:00 **In-Hospital Interdisciplinary Care of the Infant with sBPD: Who, Where, and When?**
S. Yallapragada, MD, Dallas, TX

1:40 **Post-Hospital Management of Infants with sBPD**
A.M. Canakis, MD, Montreal, Canada

2:20 **Roles for Palliative Care in the Management of the Infant with sBPD**
A. Singh, MD, Greenville, SC

2:40 *Break*

2:50 **Very Long-Term Follow-Up and Outcomes of Children with sBPD**
A.D. Greenough, MD, London, United Kingdom

3:10 **The Parental Perspective: Life as a Parent of a Child with sBPD**
R.C. Savani, MBChB, Dallas, TX

3:30 **Panel Discussion and Wrap-Up**
P.E. Moore, MD, ATSF, Nashville, TN

BASIC • TRANSLATIONAL

POSTGRADUATE COURSE

PG21 LUNG INNATE IMMUNITY: ON THE FRONTLINES OF HOST DEFENSE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350	In-Training Member: $200
Non-Member: $425	In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Pulmonary Infections and Tuberculosis; Allergy, Immunology and Inflammation; Respiratory Cell and Molecular Biology

8:00 a.m. - 4:00 p.m.

Target Audience
Investigators and providers of lung health, postdoctoral fellows, fellows-in-training, and students with interest in understanding the scientific basis for disease susceptibility to lung infections.

Objectives
At the conclusion of this session, the participant will be able to:

- Apply new findings and information regarding normal host responses to microbial infections in the lung.
- Learn new findings about novel strategies and approaches to the management of lung infections.
- Improve the life and health status of patients with lung infections.

The course will provide state of the art presentations by experts in the field, updating current knowledge and cutting-edge research in the area of lung innate immunity and host defense. Presentations will draw from variety of disciplines, and content will provide insights into current understanding of critical components and interactions of lung protective mechanisms, elucidating mechanisms of host susceptibility to serious lung infections, and will promote discussions to develop novel strategies to treat lung infections.

Chairing: H. Koziel, MD, Boston, MA
J.P. Mizgerd, ScD, ATSF, Boston, MA

8:00 **Sensing and Signaling Infection Through Innate Immunity Receptors**
J. Imler, PhD, Strasbourg, France

8:30 **Cytosolic Immune Receptors and the Inflammasome**
T. Kanneganti, PhD, Memphis, TN

9:00 **New Insights into Macrophage Trafficking and Innate Function**
D. Dockrell, MD, PhD, Edinburgh, United Kingdom

9:30 **Bacterial Adaptation to Innate Immune Defenses in the Airways**
A.S. Prince, MD, New York, NY

10:00 *Break*

10:15 **Lung Dendritic Cells in Viral Infections**
M. Gill, PhD, Dallas, TX

10:45 **Eosinophils as Host Defense Cells**
A.E. Samarasinghe, PhD, Memphis, TN

11:15 **Innate Lympoid Cells in Viral Lung Infections**
D.C. Newcomb, PhD, Nashville, TN

11:45 *LUNCH*

12:45 **Lung Immunity Learns from Experience: Influence of Antecedent Infection**
J.P. Mizgerd, ScD, ATSF, Boston, MA

1:15 **Antrimicrobial Immunity and Chronic Lung Disease**
C. Dela Cruz, MD, PhD, ATSF, New Haven, CT

1:45 **Airway Microbiome and Innate Immunity**
R.P. Dickson, MD, Ann Arbor, MI

2:15 *Break*

2:30 **Neutrophil Recruitment, Activation, and Homeostasis in Pneumonia**
H.R. Luo, PhD, Boston, MA

3:00 **Visualizing Integrated Immune Responses in the Lung**
J. Bhattacharya, MD, PhD, New York, NY

3:30 **Harvesting Innate Immune Function to Protect Patients from Pneumonia**
S.E. Evans, MD, Houston, TX

BASIC • CLINICAL • TRANSLATIONAL

POSTGRADUATE COURSE

PG22 ALL THINGS NTM: A ROAD MAP TO THE DIAGNOSIS AND MANAGEMENT OF NONTUBERCULOUS MYCOBACTERIA

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assembly on Pulmonary Infections and Tuberculosis

8:00 a.m. - 4:00 p.m.

Target Audience
Pulmonary and critical care physicians, pulmonary fellows, infectious disease fellows, internal medicine residents, medical students, pulmonary and infectious disease nurse practitioners, physician assistants, internal medicine providers

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings and apply the latest in epidemiologic trends and diagnostic modalities in patients with suspected NTM lung disease;
- apply and learn the latest in research in the management of NTM lung infections;
- reinforce guideline based therapy for newly diagnosed and refractory NTM lung disease as well as discuss tools to improve adherence to medical therapy through an interactive case-based panel discussion.

The course will provide an overview and update on the latest in nontuberculous mycobacterial (NTM) lung disease. It will discuss recent epidemiologic trends, radiology, microbiology, diagnosis and management of NTM lung disease in different populations. It will discuss the latest in research (including results from the National Bronchiectasis NTM Research Registry, epidemiologic research and recent clinical trials). It will also involve an interactive case-based panel discussion discussing common and difficult real-world NTM patient scenarios. Finally, the course will include an FDA perspective on drug development and areas of needed research.

Chairing: S.H. Kasperbauer, MD, Denver, CO
A. Basavaraj, MD, New York, NY
K.N. Olivier, MD, MPH, Bethesda, MD

8:00 **Epidemiology of NTM**
R. Prevots, PhD, MA, Bethesda, MD

8:30 **Environmental Sources of NTM**
R. Thomson, MBBS, PhD, Brisbane, Australia

9:00 **Host Vulnerability**
A.E. O'Donnell, MD, Washington, DC

9:30 *Break*

9:40 **The Management of Pulmonary MAC**
D.E. Griffith, MD, Tyler, TX

10:10 **The Management of Pulmonary M. Abscessus Complex**
S.H. Kasperbauer, MD, Denver, CO

10:40 **Treatment of Less Commonly Encountered NTM**
K.N. Olivier, MD, MPH, Bethesda, MD

11:10 **Management of Drug Resistant NTM Infections**
J. Philley, MD, Tyler, TX

11:40 **Non-Pharmacologic Therapies and Airway Clearance**
A. Basavaraj, MD, New York, NY

12:10 *LUNCH*

12:50 **NTM Cases in the Community**
K.A. Cohen, MD, Baltimore, MD

1:20 **Cystic Fibrosis Related NTM Infection**
A. Floto, MD, PhD, Cambridge, United Kingdom

1:50 **Surgical Approach to the Management of NTM Infections**
J.D. Mitchell, MD, Aurora, CO

2:20 **What's New in NTM Treatment and Where Should We Focus Our Research Efforts?**
C.L. Daley, MD, Denver, CO

2:50 *Break*

3:00 **Drug Development, the FDA Perspective**
P. Kim, MD, Silver Spring, MD

3:30 **Difficult to Manage NTM Cases**
M. Holt, MBBS, BSc, Brisbane, Australia

BASIC • TRANSLATIONAL

POSTGRADUATE COURSE

PG23 HIGH-CONTENT SINGLE-CELL TECHNIQUES TO STUDY LUNG IN HEALTH AND DISEASE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation

8:00 a.m. - 4:00 p.m.

Target Audience
Basic and clinical researchers, postdocs, graduate students, clinical fellows

Objectives
At the conclusion of this session, the participant will be able to:

- learn about the available high content single-cell technologies and their applicability to study human lung in health and disease;
- learn about the bioinformatics and computational tools and resources available for analysis of high-content single-cell data in the context of the lung biology and disease;
- design high content single-cell studies in human subjects.

This postgraduate course will provide an introduction to the high content single cell techniques in the context of the lung development, aging, and disease. We will focus on single-cell RNA-seq (including CITE-seq and single nucleus RNA-seq), single-cell ATAC-seq and high content imaging (such as PLISH and MERFISH) and corresponding bioiformatics tools.

Chairing: S. Herold, MD, PhD, Giessen, Germany
M.C. Nawijn, PhD, Groningen, Netherlands
A. Misharin, MD, PhD, Chicago, IL

8:00 **Welcome**
S. Herold, MD, PhD, Giessen, Germany

8:05 **Overview of the Single Cell scRNA-seq Methods**
H.B. Schiller, PhD, Neuherberg, Germany

8:40 **Computational Tools for Single Cell Transcriptomic Analysis**
P. Reyfman, MD, Chicago, IL

9:15 **Single-Cell Profiling of the Open Chromatin via HTS-seq**
T.A. Duong, MD, San Diego, CA

9:50 *Break*

10:00 **Single-Nucleus RNA-seq to Study Archived Lung Samples**
A. Misharin, MD, PhD, Chicago, IL

10:35 **Cell Atlas of the Human Lung V1.0**
M.C. Nawijn, PhD, Groningen, Netherlands

11:10 **Single Cell Proteomics in the Lung**
C. Ansong, PhD, Richland, WA

11:45 *LUNCH*

12:40 **Analysis of High-Dimensional Cytometry Data**
A. Belkina, MD, PhD, Boston, MA

1:15 **Spatial Transcriptomics to Understand Lung Development and Disease**
T. Desai, MD, MPH, Stanford, CA

1:50 **Integrative Analysis of the Spatial and High-Throughput Single-Cell Transcriptomics**
V. Svensson, PhD, Pasadena, CA

2:25 *Break*

2:40 **Light Sheet Fluorescence Microscopy to Study Cellular Organization in the Lung**
D. Shepherd, PhD, Aurora, CO

3:20 **High-Content Automated Single Cell Imaging Analysis Using CellProfiler**
T. Becker, PhD, Cambridge, MA

3:55 **Concluding Remarks**
M.C. Nawijn, PhD, Groningen, Netherlands

CLINICAL

POSTGRADUATE COURSE

PG24 PULMONARY FUNCTION TESTING IN THE REAL WORLD: 2019 UPDATES ON THE ART AND SCIENCE OF PFT

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Respiratory Structure and Function; Clinical Problems

8:00 a.m. - 4:00 p.m.

Target Audience

Physicians, current/future PFT lab directors, respiratory therapists, trainees/fellows, and other interested healthcare providers. Basic knowledge of pulmonary physiology and PFT interpretation is desirable but not required

Objectives

At the conclusion of this session, the participant will be able to:

- gain further understanding of the principles and practice of pulmonary function diagnostic tests;
- develop greater confidence interpreting pulmonary function test results in clinical practice;
- identify strategies to approach the interpretation of pulmonary function test results in complex patients.

This course will focus on “real world” updates in lung function testing, combining guidelines from the new technical standards published in the past two years with hands-on experience in small group settings focusing on the performance, interpretation, and reporting of pulmonary function testing (PFT). We will combine didactic lectures with case-based instruction, small group discussions, and hands-on demonstration of spirometry, and we will offer participants the opportunity to submit their own complex cases for review by an expert team of clinicians and physiologists. We will use a multidisciplinary team approach to facilitating case discussions including content experts, clinicians, respiratory therapists, and pulmonary function laboratory medical directors from around the world.

Chairing: C. Oropez, MD, MHS, Tucson, AZ
R. Clay, MD, Clackamas, OR
D.A. Kaminsky, MD, Burlington, VT

8:00 **Introduction**
R. Clay, MD, Clackamas, OR

8:05 **Welcome to the Real World: Spirometry in 2019**
B.H. Culver, MD, Seattle, WA

8:35 **Lung Volumes in Reality: Methods for Measurement, Interpretation, and Reporting**
B. Borg, CRFS, Melbourne, Australia

9:05 **Keeping It Real: Practical Considerations for DLCO Measurement, Reporting, and Interpretation**
C. Oropez, MD, MHS, Tucson, AZ

9:35 **Real Life Considerations for Pediatric Pulmonary Function Testing**
D.J. Weiner, MD, ATSF, Pittsburgh, PA

10:05 *Break*

10:20 **Putting It All Together: Interpretation of Real World PFTs**
P.D. Scanlon, MD, Rochester, MN

10:50 **Make the Case: Pulmonary Function Interpretation in the Real World**
T. DeCato, MD, Spokane, WA

11:35 **Hands-On: Pulmonary Function Testing in the Real World**
G.L. Ruppel, RRT, RPFT, MEd, St. Louis, MO

12:20 *LUNCH*

12:50 **Forced Oscillation Technique: What You Really Need to Know**
D.A. Kaminsky, MD, Burlington, VT

1:20 **Overcoming the Challenge: How to Apply New Guidelines for Direct and Indirect Bronchial Challenge Testing in Real-Life Practice**
T.S. Hallstrand, MD, MPH, ATSF, Seattle, WA

2:05 **PFT Troubleshooting in the Real World**
C.D. Mottram, RPFT, RRT, Rochester, MN

2:45 *Break*

3:00 **Make the Case: Real World Cases for PFT Expert Panel**
P.D. Scanlon, MD, Rochester, MN
M. Rosenfeld, MD, Seattle, WA
N.R. MacIntyre, MD, Durham, NC
C.G. Irin, PhD, ATSF, Burlington, VT

CLINICAL

POSTGRADUATE COURSE

PG25 VENTILATORY COMPLICATIONS OF HEART FAILURE

Pre-registration and additional fees required. Continental breakfast and box lunch included. Attendance is limited.

Member: $350 In-Training Member: $200
Non-Member: $425 In-Training Non-Member: $300

Registrants must bring a laptop to the course to view the course material.

Assemblies on Sleep and Respiratory Neurobiology; Critical Care; Respiratory Structure and Function

8:00 a.m. - 4:00 p.m.

Target Audience
Clinicians, scientists and nurses involved in the management of acute pulmonary edema and chronic heart failure. Will include those with interest in non invasive ventilation support, lung function testing and sleep laboratories.

Objectives
At the conclusion of this session, the participant will be able to:

- increase understanding of the changes in lung function (at rest, on exercise and during sleep);
- increase the understanding of modern heart failure treatments and to explore the controversial areas of oxygen and positive airway pressure;
- share the knowledge between critical care, physiology and sleep in terms of physiological understanding, pitfalls in treatment and effects of positive airway pressure.

This course will focus on the ventilatory abnormalities related to heart failure in the acute setting (pulmonary edema), chronic setting (lung function, exercise physiology, polysomnography) and the impact of standard heart failure treatments (medications, devices and transplantation) and positive airway pressure

Chairing: M.T. Naughton, MD, ATSF, Prahran, Australia
G. Lorenzi-Filho, MD, Sao Paulo, Brazil

8:00 **Heart Failure Etiology and Pathophysiology**
J. Floras, MD, DPhil, Toronto, Canada

8:35 **Role of Positive Airway in Acute Pulmonary Edema**
L.J. Brochard, MD, Toronto, Canada

9:05 **Lung Function in Heart Failure**
K. Kee, MBBS, Prahran, Australia

9:25 **Role of Rostral Fluid Shift in Sleep and Heart Failure**
S. Redolfi, MD, PhD, Paris, France

9:45 *Break*

10:00 **Mechanisms of Hyperventilation in Heart Failure**
M.T. Naughton, MD, ATSF, Prahran, Australia

10:25 **Cardiopulmonary Exercise Testing in Heart Failure**
G. Lorenzi-Filho, MD, Sao Paulo, Brazil

10:50 **Periodicity with Breathing in Heart Failure: Why?**
S.A. Sands, BSc, PhD, Cambridge, MA

11:15 **Cheyne-Stokes Respiration in Heart Failure: Good or Bad?**
M.S. Badr, MD, Detroit, MI

11:40 *LUNCH*

12:35 **Heart Failure with Obstructive Sleep Apnea-Evidence for PAP Therapy**
M. Arzt, MD, Regensburg, Germany

1:10 **Oxygen Therapy in Heart Disease: Who Should We Target?**
R.W. Beasley, MD, Wellington, New Zealand

1:45 **Adaptive Servo Controlled Ventilation in Chronic Heart Failure: Can Lessons Learnt Predict the Future?**
D. Bradley, MD, Toronto, Canada

2:20 *Break*

2:35 **Periodic Breathing in Heart Failure: To Pace or Oxygenate?**
S. Javaheri, MD, Cincinnati, OH

3:00 **Case Discussions**
M.T. Naughton, MD, ATSF, Prahran, Australia
M.S. Badr, MD, Detroit, MI

4:30 p.m. - 5:30 p.m.

OPENING CEREMONY

The American Thoracic Society invites you to attend the Opening Ceremony for the 2019 International Conference. The Ceremony will feature distinguished physician, educator, and medical scientist **Mary E. Klotman, MD**, chair of the Department of Medicine at Duke University. Dr. Klotman will discuss the importance of collaborative teams and mentors to career development; their roles today and tomorrow.

Also during the Opening Ceremony will be an address by ATS President **Polly Parsons, MD**, **ATSF**, and the presentation of several Respiratory Health Awards:

Public Service Award: **Dona J. Upson, MD, MA, Albuquerque, NM**

World Lung Health Award: **Peter D. Sly, MBBS, MD, ATSF, South Brisbane, Australia**

Jo Rae Wright Award for Outstanding Science: **Yvonne J. Huang, MD, Ann Arbor, MI**

5:30 p.m. - 6:30 p.m.

THE NETWORKING EXCHANGE FOR EARLY CAREER PROFESSIONALS

The Networking Exchange for Early Career Professionals is an annual networking event for early career professionals and first time conference attendees. This one hour event is intended to provide a relaxed atmosphere where attendees can network with peers, ATS leaders, program directors, associate program directors and division directors, as well as other prominent thought leaders. Cocktails and appetizers will be provided.

The Membership Committee, Training Committee, and the Members in Transition and Training Committee (MITT) jointly host the Networking Exchange for Early Career Professionals.

Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for submission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee.

dallas tx

ATS 2019

Where today's science meets tomorrow's care™

INTERNATIONAL CONFERENCE

Sunday Morning, May 19

PEDIATRIC CLINICAL CORE CURRICULUM

PCC1 PEDIATRIC CLINICAL CORE CURRICULUM

6:45 a.m. - 7:45 a.m.

Target Audience
Pediatric pulmonary and critical care physicians who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pediatric pulmonology;
- evaluate their understanding of key skills and content areas in pediatric pulmonology as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The Pediatric Core Curriculum symposia promote lifelong learning and the enhancement of the clinical judgment and skills essential for practicing pediatrician. The symposia will address topics that have been identified by an ATS pediatric working group, which is comprised of members of the ATS Education Committee and the International Conference Committee, who have identified important areas within pediatric medicine (including severe asthma, ILD, BPD, pulmonary hypertension and pulmonary manifestations of pulmonary disease). Attendees will increase their medical knowledge as a result of attending this symposium, and this will be measured by a comparison of pre-test vs. post-test results on the corresponding maintenance of certification module. The ATS Pediatric Core Curriculum will focus on a 3-year content cycle of key medical content in the area of pediatric medicine.

Chairing: A. Horani, MD, St. Louis, MO

6:45 Control of Breathing Disorders in Children
E.S. Katz, MD, Boston, MA

7:15 Management of Obstructive Sleep Apnea in Children
J.E. Maclean, BSc(Hons), MD, PhD, Edmonton, Canada

BASIC • CLINICAL • TRANSLATIONAL

KEYNOTE SERIES

The Keynote Series focuses on topics thought to be timely and of high relevance to the pulmonary, critical care, and sleep medicine community.

Sessions are presented each morning during the Conference.
Below are the topics for Sunday, May 19

K1 WHEN EXPERTS DISAGREE: THE ART OF MEDICAL DECISION MAKING

8:00 a.m.-8:45 a.m.

Speakers: Jerome E. Groopman, MD, Boston, MA
Pamela I. Hartzband, MD, Boston, MA

K2 IMPLEMENTATION SCIENCE: HOW CAN IT SUPPORT HEALTH RESEARCH?

8:00 a.m.-8:45 a.m.

Speaker: Anne Sales, PhD, RN, MSN, Ann Arbor, MI

CLINICAL

YEAR IN REVIEW

A1 CLINICAL YEAR IN REVIEW 1

9:15 a.m. - 11:15 a.m.

Target Audience
Providers including physicians, nurses, respiratory therapists, nurse practitioners, physician assistants; trainees including residents and fellows; clinical researchers

Objectives
At the conclusion of this session, the participant will be able to:

- apply new clinical research knowledge to clinical practice;
- learn new findings about key conditions in pulmonary, critical care and sleep;
- gain new strategies to manage the care of common conditions in pulmonary, critical care, and sleep.

The annual Clinical Year in Review symposia provides concise summaries of the most impactful clinical research publications related to specific clinical topics. Speakers are asked to conduct a literature review of the prior year's scientific publications and develop a written summary of the top 20 articles and highlight 5 of the most important and influential publications on their topic in written format and during their talks at the International Conference Clinical Year in Review sessions.

Chairing: V.E. Ortega, MD, PhD, ATSF, Winston Salem, NC
J.S. Lee, MD, Aurora, CO
P.A. Kritek, MD, Seattle, WA

9:15 Sepsis and Septic Shock
C.W. Seymour, MD, MSc, Pittsburgh, PA

9:45 Health Disparities
N. Thakur, MD, MPH, San Francisco, CA

10:15 COPD
N.N. Hansel, MD, MPH, Baltimore, MD

10:45 Interventional Pulmonology
M.R. Bowling, MD, Greenville, NC

BASIC • CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

A2 THE NEW ENGLAND JOURNAL OF MEDICINE AND JAMA. DISCUSSION ON THE EDGE: REPORTS OF RECENTLY PUBLISHED PULMONARY RESEARCH

9:15 a.m. - 11:15 a.m.

This session will provide a forum for attendees to interact with the authors and editors about papers published in the New England Journal of Medicine and JAMA and. Papers presented will be recent publications, selected by the editors, to be of significant importance to the field of pulmonary medicine. Attendees will have the opportunity to hear presentations directly from the author and address questions to both the authors and editors. The discussion is intended to provide a unique insight into these papers, the selection process, and how the research applies directly to the field of pulmonary medicine.

Speakers and Talks to be Announced.

CLINICAL • TRANSLATIONAL

CLINICAL TOPICS IN PULMONARY MEDICINE

A3 WHEN THERE IS NO RIGHT ANSWER: A PRO/CON DEBATE ON CONTROVERSIES IN ILD

Assemblies on Clinical Problems; Behavioral Science and Health Services Research

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians and researchers with a focus on interstitial lung disease, trainees.

Objectives
At the conclusion of this session, the participant will be able to:

- more appropriately refer patients with scleroderma, IPF, and rapidly progressive ILD for appropriate, evidence-based therapies;

- adopt a patient-centered approach when discussing risks and benefits of therapies in patients with ILD, especially the use of anti-fibrotics in the frail and/or elderly;
- highlight controversy surrounding the implementation of IPAF clinical criteria and the need for a single framework with which to evaluate patients with autoimmune features and ILD.

The evaluation and management of interstitial lung disease is an evolving topic where clinicians are often left without a clear "right" answer. We will use the popular pro/con debate format to engage the audience in four areas of current controversy in the field including whether patients with scleroderma should undergo lung transplantation, if elderly patients with idiopathic pulmonary fibrosis (IPF) should be treated with anti-fibrotic therapy, whether patients with rapidly progressive interstitial lung disease should be treated with extracorporeal membrane oxygenation (ECMO), and whether interstitial pneumonia with autoimmune features (IPAF) is a distinct clinical entity and should be treated as such.

Chairing: S.M. Bhorade, MD, Chicago, IL
R. Jablonski, MD, Chicago, IL

9:15 **PRO: Lung Transplant Is a Viable Treatment Option for Scleroderma**
M.M. Crespo, MD, Philadelphia, PA

9:27 **CON: Other Options Should Be Explored for Management of Scleroderma Lung Disease**
R. Jablonski, MD, Chicago, IL

9:39 **Rebuttal**
M.M. Crespo, MD, Philadelphia, PA

9:45 **PRO: All Patients with IPF Should Receive Anti-Fibrotic Therapy**
T.M. Maher, MD, MSc, PhD, London, United Kingdom

9:57 **CON: All Patients with IPF Should Not Receive Anti-Fibrotic Therapy**
S.D. Nathan, MD, Falls Church, VA

10:09 **Rebuttal**
T.M. Maher, MD, MSc, PhD, London, United Kingdom

10:15 **PRO: Patients With Rapidly Progressive ILD Should Be Offered ECMO**
D. Brodie, MD, New York, NY

10:27 **CON: Patients With Rapidly Progressive ILD Should Not Be Offered ECMO**
J. M. Walter, MD, Chicago, IL

10:39 **Rebuttal**
D. Brodie, MD, New York, NY

10:45 **PRO: An IPAF Designation Provides Useful Prognostic Information to the Evaluation of Idiopathic Interstitial Pneumonia**
M.E. Strek, MD, ATSF, Chicago, IL

10:57 **CON: The IPAF Criteria Need to Be Refined Prior to Widespread Implementation**
A.U. Wells, MD, London, United Kingdom

11:09 **Rebuttal**
M.E. Strek, MD, ATSF, Chicago, IL

BEHAVIORAL • CLINICAL

CRITICAL CARE TRACK

A4 DO I HAVE TO? RE-EVALUATING COMMON PRACTICES IN THE ICU

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing

9:15 a.m. - 11:15 a.m.

Target Audience
Critical care clinicians (fellows, attending physicians, NPs/PAs/CRNAs, nurses, allied health professionals), critical care researchers, ICU administrators

Objectives
At the conclusion of this session, the participant will be able to:

- identify practices which may be commonplace, yet without clear reason;
- understand the data (for, against, or absent) in relation to these commonplace practices;
- understand why changing practice in the ICU setting is hard and how we may move towards better achieving desired change.

Much of what we do in the ICU is done because, well, "that's just the way we do things." Over time, well-accepted standards of care have, when studied, been found to be of no benefit (e.g., pulmonary artery catheters) and/or potential harm (e.g., sedation to coma) to patients. There remain, however, many things we do every day which, upon closer inspection, have little basis for being the mainstay of practice. In this session, we will delve into the data (or lack thereof) underpinning several of these routine practices, and we will consider what may happen if (gasp), we stopped doing them.

Chairing: H.B. Gershengorn, MD, ATSF, Miami, FL
M. Hua, MD, MSci, New York, NY
K. Hibbert, MD, Boston, MA

9:15 **Why It's Necessary to Challenge Practice That Has Become Dogma**
H.B. Gershengorn, MD, ATSF, Miami, FL

9:25 **Do I Have to Use a Central Line to Deliver Vasopressors?**
J. Cardenas-Garcia, MD, Ann Arbor, MI

9:40 **Do I Have to Limit the Number of Visitors in the ICU?**
S. Beesley, MD, Salt Lake City, UT

9:55 **Do I Have to Use Stylets for Intubation in the ICU?**
M. Hua, MD, MSci, New York, NY

10:10 **Do I Have to Withhold IV Contrast from CT Scans for Critically Ill Patients?**
K. Kashani, MD, MSc, Rochester, MN

10:25 **Do I Have to Obtain Imaging Studies for Altered Mental Status in the ICU?**
H. Wunsch, MSc, MD, Toronto, Canada

10:40 **Do I Have to Keep All My Patients on Supplemental Oxygen?**
M. Girardis, MD, Modena, Italy

10:55 **Why It's Difficult to Change Practice That Has Become Dogma**
G.D. Rubenfeld, MD, MSc, Toronto, Canada

11:05 **Questions and Answers**
K. Hibbert, MD, Boston, MA

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BASIC SCIENCE CORE

A5 CELL FATE DETERMINATION IN THE LUNG IN HEALTH AND DISEASE: LOCATION AND NEIGHBORS MATTER

Assemblies on Allergy, Immunology and Inflammation; Critical Care; Environmental, Occupational and Population Health; Pediatrics; Pulmonary Infections and Tuberculosis; Respiratory Cell and Molecular Biology; Respiratory Structure and Function; Thoracic Oncology

9:15 a.m. - 11:15 a.m.

Target Audience
Providers of lung health; those serving patients with COPD, ILD, pulmonary vascular disease; those with clinical and research responsibilities; those needing instruction in areas of medicine outside of their specialty.

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about the different types of stem and progenitor cell types in the lung and how these participate in development and in repair after injury;
- integrate this knowledge related to the evolving field of regenerative medicine and stem cell therapy;
- review the scientific and medical literature and expert opinion of members of the Science Core of the ATS.

This symposium aims to provide new insights into the interactions between the signaling pathways determining the fate of resident and itinerant progenitor cells in the lung and how signals from the microenvironments in the vascular, epithelial, and mesenchymal compartments shape cell fate. The origins and plasticity of alveolar type I and type II cells will be explored. The session will also focus on the parallels between developmental pathways by which progenitor cells evolve into fully differentiated cells that constitute functional lung and the pathways responsible for repair and remodeling of the injured lung in health and in conditions such as pulmonary fibrosis, pulmonary infections, ARDS, LAM, and COPD as well as key areas of research and treatment relevant to these diseases.

Chairing: G.P. Downey, MD, Denver, CO
B.D. Levy, MD, ATSF, Boston, MA
K. Asano, MD, Kanagawa, Japan
E.R. Neptune, MD, Baltimore, MD
G. Westergren Thorsson, PhD, Lund, Sweden

9:15 **Introduction to Development, Fate and Plasticity of Cells in the Lung**
Z. Borok, MD, ATSF, Los Angeles, CA

9:32 **Applications of Functional Lung Epithelial Cells Derived from Human Pluripotent Stem Cells**
S. Gotoh, MD, PhD, Kyoto, Japan

9:49 **One Cell at a Time: Dissecting Cellular and Molecular Heterogeneity of the Human Tracheal Airway Through Single Cell Transcriptomics**
M.A. Seibold, PhD, Denver, CO

10:06 **The Vascular Niche Regulates Lung Regeneration and Fibrosis**
B. Ding, PhD, New York, NY

10:23 **Mechanisms of Alveolar Epithelial Proliferation and Differentiation After Lung Injury**
R. Zemans, MD, Ann Arbor, MI

10:40 **Lung Tissue Mimetic Hydrogels and Genome Engineering for Lymphangioleiomyomatosis (LAM) Modeling and Drug Development**
W. Stanford, PhD, Ottawa, Canada

10:57 **Specialized Facultative Progenitor of the Alveolar Epithelium**
W. Zacharias, MD, PhD, Cincinnati, OH

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A6 PAP FOR ALL OR PAP FOR FEW: CONTROVERSIES IN MANAGEMENT OF SLEEP-DISORDERED BREATHING

Assembly on Sleep and Respiratory Neurobiology

9:15 a.m. - 11:15 a.m.

Target Audience
Pulmonary and critical care physicians, sleep physicians, fellows in training, physician extenders, respiratory therapists

Objectives
At the conclusion of this session, the participant will be able to:

- become aware of controversy as it relates to managing asymptomatic patients with OSA and CVD and be able to apply new knowledge competence and implement practice changes as appropriate for treatment of these patients;
- gain improved ability to determine the best mode of PAP therapy (CPAP or NIV) in OHS given patient characteristics and selected outcomes;
- recognize the various reasons why clinical trials in cardiovascular disease have led to negative outcomes and what changes in trial design the sleep field should aim for in the future.

The goal of this scientific symposium is to debate controversial in clinical trials related to the treatment of sleep-disordered breathing using a pro/con format. Historically, these pro/con debates have been lively, well-attended, and allow discussion of a broad range of topics within a single symposium. We include topics in which recent studies have informed clinical care, but where management decisions are still not entirely clear and guidelines are not in place incorporating new data. Experts from around the globe have been recruited for this symposium. Specifically, we will debate the following topics: 1) whether treatment of OSA leads to any improvement in cardiovascular outcomes, 2) What are potential reasons for negative PAP trials in heart failure, and what future therapies and designs should be considered in this population, and 3) whether obesity hypoventilation syndrome should be treated with CPAP or NIV and the impact of these treatment modalities on cardiovascular outcomes. Finally, Dr. Robert Wise, who has extensive trial experience and involvement in landmark trials in Pulmonary and Critical Care, will offer a unique and instructive “outside perspective” on what direction SDB trials should take in the future.

Chairing: S. Pamidi, MD, Montreal, Canada
N.A. Shah, MD, MPH, MSci, New York, NY
S.R. Patel, MD, Pittsburgh, PA
B. Mokhlesi, MD, MSc, Chicago, IL

9:15 **Introduction**
B. Mokhlesi, MD, MSc, Chicago, IL

9:20 **PRO: Moderate to Severe OSA Should Be Treated to Improve Cardiovascular Outcomes**
S.S. Redline, MD, Boston, MA

9:35 **CON: Moderate to Severe OSA Should NOT Be Treated to Improve Cardiovascular Outcomes**
R.D. McEvoy, MD, MBBS, Adelaide, Australia

9:50 **PRO: Treatment of Ambulatory Patients with Obesity Hypoventilation Syndrome (OHS) Should Start with CPAP**
A.J. Piper, MEd, PhD, Camperdown, Australia

10:05 **CON: Treatment of Ambulatory Patients with OHS Should Start with Noninvasive Ventilation (NIV)**
P.B. Murphy, MBBS, PhD, London, United Kingdom

10:20 **PRO: PAP Therapy Should Be Used in Patients with Central Sleep Apnea and Heart Failure**
M.T. Naughton, MD, ATSF, Prahran, Australia

10:35 **CON: PAP Therapy Should NOT Be Used in Patients with Central Sleep Apnea and Heart Failure**
A. Malhotra, MD, ATSF, La Jolla, CA

10:50 **Clinical Trials in Sleep-Disordered Breathing: An Outsider's Perspective**
R.A. Wise, MD, Baltimore, MD

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A7 BREAKING THE PARADIGM: EARLY ORIGINS OF COPD

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation; Clinical Problems; Environmental, Occupational and Population Health; Pediatrics

9:15 a.m. - 11:15 a.m.

Target Audience
Patients; health care providers; pulmonary specialists; basic and translational scientists

Objectives
At the conclusion of this session, the participant will be able to:

- define and understand the term "early COPD";
- identify the subjects at risk of developing COPD and thus targeting the early stages of the disease;
- gain an overview of the current knowledge of the biological mechanisms underlying early COPD.

The term "early COPD" is being used to indicate the presence of initial manifestations of COPD, such as airflow obstruction, in younger individuals. Recent evidence points toward other causes of early decline of lung function beyond cigarette smoking. This session will discuss the specific clinical and pathologic hallmarks of early COPD.

Chairing: F.D. Martinez, MD, Tucson, AZ
D.D. Sin, MD, Vancouver, Canada
F. Polverino, MD, PhD, Tucson, AZ

9:15 **Does Early COPD Start at Birth? COPD Beyond Cigarette Smoke**
F.D. Martinez, MD, Tucson, AZ

9:35 **Bronchopulmonary Dysplasia: An Emerging Culprit in Early COPD**
S.A. McGrath-Morrow, MD, Baltimore, MD

9:55 **Pathobiology of Early COPD: An Incomplete Puzzle**
F. Polverino, MD, PhD, Tucson, AZ

10:15 **Genomics of Early COPD: Where Do We Stand?**
M.R. Faner, PhD, BSc, Barcelona, Spain

10:35 **Early COPD and Late Mild COPD: Differences and Similarities**
S. Dharmage, MD, Melbourne, Australia

10:55 **Microbiome and Host Response in Early COPD**
J. Hurst, MD, London, United Kingdom

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

A8 CROSSING THE BORDER: MILDLY INCREASED PULMONARY ARTERY PRESSURE AND THE NEW DEFINITION OF PULMONARY HYPERTENSION

Assembly on Pulmonary Circulation

9:15 a.m. - 11:15 a.m.

Target Audience
All ATS attendees who are involved in patient care or research involving pulmonary hypertension

Objectives
At the conclusion of this session, the participant will be able to:

- understand the normal limits of pulmonary artery pressure and rationale for thresholds used to diagnose pulmonary hypertension;
- gain new findings about the epidemiology and natural history of mildly increased pulmonary artery pressure, both in the general population and specific patient subgroups;
- improve the ability to diagnose and manage patients with mildly increased pulmonary artery pressures who fit the new definition of pulmonary hypertension.

Emerging data indicates that having a mild increase in pulmonary artery pressure (below the threshold for diagnosis of pulmonary hypertension [PH]) is associated with a worse prognosis compared to individuals with a normal mean pulmonary artery pressure (mPAP), both in the general population and specific patient groups. Based on this data, the 2019 World Symposium on Pulmonary Hypertension recommended lowering the cut-off for PH diagnosis to a mPAP20mmHg. In this session, we will discuss this important new patient population who will now be defined as having PH, including epidemiology, natural history, and controversies regarding the changing definition and treatment decisions.

Chairing: M.R. Lammi, MD, MSCR, New Orleans, LA
E. Brittain, MD, Nashville, TN
G. Kovacs, MD, Graz, Austria

9:15 Normal Limits of Pulmonary Artery Pressure and the Evolving Definition of Pulmonary Hypertension
N.S. Hill, MD, Boston, MA

9:35 Epidemiology and Natural History of Patients with Mild Increases in Pulmonary Artery Pressure
B.A. Maron, MD, Boston, MA

9:55 Case Study: Mildly Increased Pulmonary Artery Pressure in Scleroderma
M.R. Lammi, MD, MSCR, New Orleans, LA

10:15 Case Study: Mildly Increased Pulmonary Artery Pressure in Sickle Cell Disease
E.S. Klings, MD, Boston, MA

10:35 Should Patients with Mildly Increased Pulmonary Artery Pressure Be Diagnosed with and Treated for Pulmonary Hypertension? Yes
E. Brittain, MD, Nashville, TN

10:50 Should Patients with Mildly Increased Pulmonary Artery Pressure Be Diagnosed with and Treated for Pulmonary Hypertension? No
G. Kovacs, MD, Graz, Austria

11:05 Should Patients with Mildly Increased Pulmonary Artery Pressure Be Diagnosed With and Treated for Pulmonary Hypertension? Open Discussion
M.R. Lammi, MD, MSCR, New Orleans, LA

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A9 NOVEL BIOMARKERS FOR THE DIAGNOSIS, PHENOTYPING, AND MANAGEMENT OF PEDIATRIC LUNG DISEASES

Assemblies on Pediatrics; Allergy, Immunology and Inflammation; Clinical Problems

9:15 a.m. - 11:15 a.m.

Target Audience
This session will appeal to primary care providers, nurses,

trainees, and subspecialists who care for children with lung diseases, as well as scientists conducting pediatric pulmonary research

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings on novel biomarkers of pediatric pulmonary diseases such as viral acute respiratory infections, pulmonary vascular diseases, primary ciliary dyskinesia, asthma, and rare lung diseases;
- review the clinical implications of these findings and how they could impact personalized pediatric pulmonary medicine;
- explore future directions for research aimed at biomarker discovery for pediatric pulmonary diseases.

Our understanding of the pathophysiology of pediatric pulmonary diseases has advanced exponentially over the past several years. This, together with marked improvements in laboratory techniques, omics approaches, and data analysis methods, has led to the discovery of novel measurements that can aid in the diagnosis, phenotyping, and management of childhood respiratory illnesses. In this session, we will discuss the latest developments and clinical implications of biomarkers of pediatric pulmonary conditions such as viral acute respiratory infections, pulmonary vascular disease, primary ciliary dyskinesia, asthma, and rare lung diseases, and explore future directions in the field.

Chairing: C. Rosas-Salazar, MD, MPH, Nashville, TN
E. Forno, MD, MPH, ATSF, Pittsburgh, PA

9:15 **Introduction**
C. Rosas-Salazar, MD, MPH, Nashville, TN

9:20 **Predicting Short- and Long-Term Outcomes of Viral Acute Respiratory Infections in Infancy**
C. Rosas-Salazar, MD, MPH, Nashville, TN

9:43 **Biomarker Discovery for Pediatric Pulmonary Vascular Diseases**
S.H. Abman, MD, Aurora, CO

10:06 **Improving the Diagnosis of Primary Ciliary Dyskinesia**
S.D. Davis, MD, ATSF, Chapel Hill, NC

10:29 **Epigenetics and Transcriptomics in the Prediction and Phenotyping of Childhood Asthma**
E. Forno, MD, MPH, ATSF, Pittsburgh, PA

10:52 **Emerging Biomarkers of Pediatric Rare Lung Diseases**
L.R. Young, MD, ATSF, Nashville, TN

BASIC • BEHAVIORAL
CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A10 TREATING ASTHMA IN PATIENTS WITH OBESITY: THE NEED FOR A NEW APPROACH

Assemblies on Respiratory Structure and Function; Allergy, Immunology and Inflammation; Behavioral Science and Health Services Research; Clinical Problems; Environmental, Occupational and Population Health; Sleep and Respiratory Neurobiology

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians taking care of obese patients, translational investigators working in basic science, epidemiology and behavioral science

Objectives
At the conclusion of this session, the participant will be able to:

- understand the effects of obesity on respiratory physiology and immune function;
- develop a rationale approach to treating obese patients with asthma;
- explain how comorbidities complicate treatment of asthma in obesity.

Obesity is a major risk factor for asthma, and nearly 60% of patients with severe asthma are obese. Obese patients do not respond as well to standard therapies; this represents a major challenge to clinicians and a public health crisis. This session will discuss the pathophysiology of the different phenotypes of obese asthma, and how this affects treatment responses. The

role of medications, life-style interventions,and co-morbidities will be discussed, along with a discussion of future therapies being developed to address this challenging new patient population.

Chairing: A.E. Dixon, MD, ATSF, Burlington, VT
D. Rastogi, MBBS, MS, Bronx, NY

9:15 **Asthma and Obesity in 2019**
D. Rastogi, MBBS, MS, Bronx, NY

9:20 **Pathophysiology of Phenotype in the Asthma of Obesity**
J.H.T. Bates, PhD, DSc, ATSF, Burlington, VT

9:35 **The Interrelation Between Asthma and Sleep-Disordered Breathing**
M. Teodorescu, MD, MS, Madison, WI

9:50 **Obesity Oxidative Stress and Asthma**
F. Holguin, MD, MPH, Aurora, CO

10:05 **Dietary Interventions for Obese Asthma**
L.G. Wood, PhD, New Lambton Hts, Australia

10:20 **Lifestyle Interventions for Asthma and Obesity**
S.M. Nyenhuis, MD, Chicago, IL

10:35 **Depression, Anxiety and Obese Asthma**
K. Lavoie, PhD, MA, BA(Hons), Montreal, Canada

10:50 **Controlling Obese Asthma: How Far Should We Go with Medications?**
A.E. Dixon, MD, ATSF, Burlington, VT

CLINICAL

SCIENTIFIC SYMPOSIUM

A11 CRITICAL CARE 2.0: INTEGRATING BIG DATA, CLINICAL TRIALS, AND IMPLEMENTATION SCIENCE TO CREATE A LEARNING ICU SYSTEM

Assemblies on Behavioral Science and Health Services Research; Critical Care

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians, researchers, hospital leaders, quality improvement leaders

Objectives
At the conclusion of this session, the participant will be able to:

- understand the rationale and framework of the Learning Health System;
- describe how the Learning Health System impacts both the design and conduct of quality improvement, healthcare operations, and research;
- identify strategies to address potential barriers of the Learning Health System related to ethics, funding, and implementation.

Optimal critical care involves delivering the right treatment to the right patient at the right time for the right price. The Learning Health System (LHS) framework describes a solution that leverages high quality evidence, internal data and informatics, and systematic implementation to improve outcomes and value. In this session, leading experts will review the principles of the LHS and describe how it can foster the delivery of high quality acute and critical care. In particular, this session will focus on critical care:an area marked by high morbidity and mortality as well as documented gaps and delays in the implementation of evidence based care.

Chairing: V. Liu, MD, MS, Oakland, CA
M.W. Semler, MD, MSc, Nashville, TN
A.J. Walkey, MD, MSc, Boston, MA

9:15 **What is a Learning Hospital System?**
K.R. Courtright, BA, MS, MD, Philadelphia, PA

9:35 **A Lab in the Wild I: Embedded RCTs**
P. Young, MBChB, BSc (Hons), PhD, Wellington, New Zealand

9:55 **A Lab in the Wild II: Quasi-Experimental Designs**
A.J. Walkey, MD, MSc, Boston, MA

10:15 **Helping the World Breathe: Implementing Evidence-Based Critical Care Globally**
N. Adhikari, MD, MS, Toronto, Canada

10:35 **The Ethics of Continuous Learning: How Does It Impact Research?**
R. Faden, PhD, MPH, Baltimore, MD

10:55 Improving Value: Cost Savings with the Learning Health System
G.R. Bernard, MD, Nashville, TN

BEHAVIORAL • CLINICAL

PUBLIC ADVISORY ROUNTABLE SYMPOSIUM

A12 CAREGIVER BURDEN: BIDIRECTIONAL IMPACT OF PULMONARY, CRITICAL CARE, AND SLEEP DISORDERS ON THE ENTIRE FAMILY

Public Advisory Roundtable; Assemblies on; Behavioral Science and Health Services Research; Clinical Problems; Critical Care; Pulmonary Circulation; Sleep and Respiratory Neurobiology

9:15 a.m. - 11:15 a.m.

Target Audience
Physicians, clinical investigators, registered nurses, advanced practice nurses, nurse practitioners, patients, caregivers

Objectives
At the conclusion of this session, the participant will be able to:

- understand the signs and symptoms of caregiver burden in caregivers and healthcare professionals;
- understand the consequences of caregiver burden on patients and their caregivers;
- identify potential interventions to alleviate the deleterious effects of caregiver burden.

Approximately one in four American adults have multiple chronic conditions. As people live longer and acute illnesses become chronic conditions, the need for formal and informal caregiving has grown tremendously. Approximately 43.5 million American caregivers provided unpaid care to an adult or child. The international burden is even greater. Adults over the age of 80-who have a high likelihood of physical and cognitive impairments and great need of caregiving services represent the fastest growing population of older adults. As a result, the need for caregiving is only expected to increase as our society ages. It isn't only older adults who may need caregiving services, 7% of children have multiple chronic conditions that could require caregiving services. This symposium will discuss the emerging issues and consequences of caregiver burden, and will review potential interventions that may reduce the problem.

Chairing: M. Moss, MD, ATSF, Aurora, CO
K. Connolly, BS, Danvers, MA

9:15 PAR Awards Presentation
K. Connolly, BS, Danvers, MA

9:25 A Patient's Perspective
Speaker To Be Announced

9:35 Caregiver Burden: What Is It and Why Is It Important
B.A. Graney, MD, Aurora, CO

9:55 Helpful and Unhelpful Behaviors of Caregivers in Supporting Disease Management
K.J. Haines, PhD, BHS, Melbourne, Australia

10:15 Caregiver Burden in Health Care Professionals
M. Mealer, PhD, Denver, CO

10:35 How to Alleviate Caregiver Burden: Potential Interventions
M.S. Herridge, MD, Toronto, Canada

10:55 The Future of Caregiver Burden Research
K. Huss, PhD, Bethesda, MD

CLINICAL

SCIENTIFIC SYMPOSIUM

A13 STATE OF THE ART TREATMENT OF TOBACCO DEPENDENCE

Tobacco Action Committee; Assemblies on Behavioral Science and Health Services Research; Thoracic Oncology

9:15 a.m. - 11:15 a.m.

Target Audience
Interprofessional (physicians, nurses, allied health, in training) clinicians who care for patients with tobacco dependence and/or treat their tobacco related disease.

Researchers with an interest in tobacco dependence biology and treatment

Objectives

At the conclusion of this session, the participant will be able to:

- learn evidence based recommendations for pharamacotherapy treatment for tobacco dependence;
- discuss potential barriers to tobacco dependence treatment including e-cigarettes and flavorings;
- acquire new strategies and tools to integrate tobacco dependence treatment into novel care setting to target health disparities.

Tobacco dependence is the leading cause of lung disease in the U.S. and internationally and has significant disparities without most vulnerable populations at greatest risk. Our understanding of the most effective strategies for treatment of tobacco dependence has improved in recent years. This session seeks to improve the treatment of tobacco dependence by providing evidence-based recommendations for interventions that have been proven to improve clinical outcomes as well as discuss potential barriers to treatment including electronic cigarettes and flavorings. The session will also include novel methods for integrating tobacco dependence treatment into different care settings to reduce known disparities.

Chairing: M. Eakin, PhD, Baltimore, MD
H. Kathuria, MD, ATSF, Boston, MA
H.J. Farber, MD, MSPH, ATSF, Houston, TX

9:15 Pharmacological Treatment of Tobacco Dependence
F.T. Leone, MD, MS, ATSF, Philadelphia, PA

9:35 They Did Not Stop Tobacco After 6 Weeks! The Evidence Behind Extended Treatment of Tobacco Dependence
D.P. Sachs, MD, Palo Alto, CA

9:55 Menthol Makes it Smooth: The Use of Flavorings to Promote Tobacco Use
E.R. Neptune, MD, Baltimore, MD

10:10 More of a Foe Than Friend: The Role of E-Cigarettes in Tobacco Dependence Treatment
I. Jaspers, PhD, Chapel Hill, NC

10:30 Tobacco Dependence Treatment for the Marginalized Populations
S. Pakhale, MD, MSCE, Ottawa, Canada

10:45 Do It for the Kids? Treating Parents for Tobacco Dependence in Pediatric Settings
T.J. Moraes, MD, Toronto, Canada

11:00 Teachable Moment: Integrating Tobacco Dependence Treatment into the Inpatient Setting
H. Kathuria, MD, ATSF, Boston, MA

9:15 a.m. - 11:15 a.m

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

Sunday Mid-day, May 19

11:45 a.m. - 1:15 p.m.

ATS DIVERSITY FORUM

The annual ATS Diversity Forum focuses on diversity within the fields of pulmonary, critical care, and sleep medicine and research. Our speaker will be Marc Nivet, EVP of Institutional Advancement, University of Texas Southwestern Medical Center, Dallas, who will address career and diversity issues followed by a question and answer period.

The Minority Trainee Development Scholarships (MTDS), which recognize trainees who are members of underrepresented minority groups, will also be presented at this forum. MTDS recipients are selected for the quality of the science in their submitted abstract, among other criteria. At this Forum we will also recognize the recipient of the 2019 ATS Fellowship in Health Equality.

All conference attendees, including past MTDS recipients, are invited to attend this forum which provides an opportunity for discussion and networking. Attendees will find inspiration and valuable career insights.

The Diversity Forum is organized and presented by the ATS Membership Committee and will be hosted by its chair Janet Lee, MD. The scholarships will be presented by Yolanda Mageto, MD. The Minority Trainee Development Scholarships are supported by the American Thoracic Society.

R Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for admission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee. A plated lunch will be served.

CLINICAL

WORKSHOP

WS1 TEACHING IN THE ICU PEARLS AND PITFALLS

R Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemblies on Critical Care; Behavioral Science and Health Services Research

11:45 a.m. - 1:15 p.m.

Target Audience
Fellows and trainees

Objectives
At the conclusion of this session, the participant will be able to:

- integrate adult learning principles to future teaching sessions;
- apply strategies to give an effective large group lecture;
- implement effective approaches to teaching during bedside rounds in the intensive care unit.

During this session, participants will be divided into small groups of eight to ten members. The session will consist of three parts: a presentation of strategies from adult learning theory, a role-play scenario of a large group lecture followed by a small group debrief of the strengths and weaknesses, and a role-play scenario of a bedside rounds teaching session followed by a small group debrief of the strengths and weaknesses.

Chairing: M. Sharp, MD, MHS, Baltimore, MD
S. Doyle, DO, MBA, Columbus, OH
G. Winter, MD, Cleveland, OH
P.H. Lenz, MD, MEd, Cincinnati, OH

11:45 Introduction
M. Sharp, MD, MHS, Baltimore, MD

11:50 Adult Learning Theory
G. Winter, MD, Cleveland, OH

12:00 Large Group Lecture Role Play
M.M.K.S. Khan, MD, MBBS, Cincinnati, OH

12:10 Role Play Small Group Debrief
D. Djondo, MD, Maywood, IL

12:25 Large Group Debrief
M. Sharp, MD, MHS, Baltimore, MD

12:33 Bedside Teaching Role Play
R. Holden, MD, Atlanta, GA

12:43 Bedside Rounds Small Group Debrief
S. Doyle, DO, MBA, Columbus, OH

12:58 Large Group Debrief
M. Sharp, MD, MHS, Baltimore, MD

1:08 Conclusion
M. Sharp, MD, MHS, Baltimore, MD

BASIC • BEHAVIORAL
CLINICAL • TRANSLATIONAL

WORKSHOP

WS2 ENHANCING GRANTSMANSHIP: UNDERSTANDING THE GRANT REVIEW PROCESS

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assembly on Respiratory Structure and Function

11:45 a.m. - 1:15 p.m.

Target Audience
Any researcher interested in learning how grant proposals are evaluated

Objectives
At the conclusion of this session, the participant will be able to:

- learn about the NIH grant processing and review process and discover common pitfalls that lead to an unsuccessful application, and how to avoid those common mistakes;
- learn time management strategies for grant submissions. How to organize, plan and write your ideas;
- gain knowledge of critical scoring components of a successful grant proposal. How grants are evaluated, and what is the "formula" of successful applications.

Writing a strong, compelling and successful research grant and/or fellowship application is key for a successful career, especially for early stage Ph.Ds and clinical-scientists. Grant applications need to excel in innovation, significance and have a clear approach, but few early career professionals know what reviewers are looking for and how their proposals will be judged. Our workshop will feature highly experienced and internationally recognized investigators who will review, discuss and score two volunteered grant applications (NIH and international). After this mock study session, the workshop will conclude with a Q & A section for audience participation. The workshop aims to highlight the unseen dynamics of the review process and is modeled on previously successful grantsmanship workshops organized by the RSF in 2012 and 2014.

Chairing: T.P. Cremona, MSc, PhD, Boston, MA
D.I. Kasahara, PhD, Boston, MA
J. Jaffar, BS, PhD, ATSF, Melbourne, Australia

11:45 Introduction
D.I. Kasahara, PhD, Boston, MA

11:50 NIH Grant Mechanisms: How a Proposal is Processed
Speaker To Be Announced

12:00 The International Perspective
J.K. Burgess, PhD, Groningen, Netherlands

12:15 Mock Study Section #1
G.C. Sieck, PhD, Rochester, MN
Speaker To Be Announced

12:45 Mock Study Section #2
Y.S. Prakash, MD, PhD, Rochester, MN
Speaker To Be Announced

ADULT CLINICAL CORE CURRICULUM

CC1 PULMONARY CLINICAL CORE CURRICULUM I

11:45 a.m. - 1:15 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine, as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: G.W. Garrison, MD, Burlington, VT
J.L. Cho, MD, Iowa City, IA

11:45 Emerging Therapies for COPD
T.Y. Beiko, MD, Charleston, SC

12:15 Preventing Readmission for COPD Exacerbations
N.J. Greening, MBBS, PhD, Leicester, United Kingdom

12:45 The Use of New Biologic Agents in Asthma
N. Lugogo, MD, Ann Arbor, MI

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

L1 EXPOSOMICS AND RESPONSOMICS IN ENVIRONMENTAL PULMONARY HEALTH

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians, clinician scientists, basic research scientists, fellows and residents

Objectives
At the conclusion of this session, the participant will be able to:

- expand their knowledge on the environmental impacts on pulmonary health;
- gain new knowledge on the state of science in metabolomics technologies;
- understand Metabolomics profiles from body fluids and exhaled breath condensate and novel biomarkers evaluation.

Humans are exposed to multiple environmental agents simultaneously, this recognition led to developing a conceptual framework of “exposome” to define totality of environmental exposures throughout the life from conception. Exposomics assess the external and internal exposome through targeted and untargeted analyses. To gain comprehensive understanding on the impacts of exposure to environmental agents at the cellular level, i.e., Responsomics needs integration of diverse omics technologies- metabolomics, adductomics, genomics and epigenomics, etc. The research program supported by NIEHS over the past few years in these programs is providing a wholistic understanding that might have been not realized by following a set of targeted analysis or tools or exposure to one agent at a time. In this presentation, the concept of Exposome will be introduced and this will be followed by presentations that are utilizing metabolomics approaches to gain understanding in environmental pulmonary health - new players involved in the inflammatory response in adult asthmatics and risk prediction for lung cancer in current and prior smokers; and novel markers in the exhaled

breath to detecting risk of new-onset asthma from air pollution exposures.

Chairing: S.S. Nadadur, PhD, Research Triangle Park, NC
D. Balshaw, PhD, Durham, NC

12:15 Introduction
S.S. Nadadur, PhD, Research Triangle Park, NC

12:20 The Exposome
D. Balshaw, PhD, Durham, NC

12:37 Applications of Metabolomics in Respiratory Health
S. Sumner, PhD, Chapel Hill, NC

12:54 CawNO and CANO as Novel Exhaled Breath Markers for Detecting Respiratory Effects of Air Pollution Exposure
S.P. Eckel, PhD, Los Angeles, CA

PATIENT CENTERED OUTCOME RESEARCH INSTITUTE

L2 PCORI: EVIDENCE TO ACTION NETWORKS: UPDATE OF PATIENT CENTERED OUTCOME RESEARCH RESULTS

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians (physicians, nurses, fellows, residents), researchers, administrators and policymakers: anyone involved in delivery of care and the science of patient-centered research

Objectives
At the conclusion of this session, the participant will be able to:

- understand the role of the Patient-Centered Outcomes Research Institute in funding comparative effectiveness research ;
- understand collaborative activities taking place through the Transitional Care and Asthma Evidence to Action Networks;
- learn about research results and interventions that improve patient health outcomes.

A PCORI official will introduce summaries of PCORI funded PCOR (patient-centered outcome research) projects in pulmonary, critical care and sleep disorders. PCORI officials will update attendees on the unique evidence to action network activities in asthma and transition of care and discuss the potential implications of the results of the funded studies on research and practice. PCORI funded researcher will give researcher perspective for their experience. The purpose of the session will be to raise awareness of PCORI activities and results relevant to patient-centered care for patients with pulmonary, critical care, and sleep disorders.

Chairing: A. Anise, MHS, Washington, DC
K. Sumino, MD, MPH, Saint Louis, MO

12:15 Addressing Asthma Disparities: Research Results and Potential Impact from the Asthma Evidence to Action Network
A. Anise, MHS, Washington, DC

12:30 Researcher Perspective on Collaboration in the Asthma Evidence to Action Network
K. Sumino, MD, MPH, Saint Louis, MO

12:45 Transitional Care Evidence to Action Network: Approaches, Accomplishments, Opportunities in Transitional Care Research
C. Parry, PhD, MSW, Washington, DC

1:00 Panel Discussion
A. Anise, MHS, Washington, DC

U.S. FOOD AND DRUG ADMINISTRATION

L3 GENERIC DRUG DEVELOPMENT FOR RESPIRATORY PRODUCTS: U.S. FOOD AND DRUG ADMINISTRATION UPDATE

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians in practice, researchers, pharmaceutical industry representatives, international drug regulators

Objectives
At the conclusion of this session, the participant will be able to:

- recognize key aspects of the generic drug regulatory approval process, and how the Office of Generic Drugs (OGD) evaluates bioequivalence for complex inhaled generic drug products, using a weight-of-evidence approach;
- describe product-specific recommendations and guidances for generic drug products recently posted by the Office of Generic Drugs (OGD), with a focus on how these can inform complex orally inhaled and nasal generic drug development;
- articulate how emerging technologies and innovative approaches are being utilized for FDA-funded research, FDA guidance development, and regulatory decision making.

This session will describe respiratory product development of generic drugs within the US, focusing on paths forward to bring safe and effective generic respiratory products to the American public. A general overview will summarize the generic drug approval process, including demonstration of bioequivalence and therapeutic equivalence. Discussion of recent generic product approvals and posted regulatory guidance will provide the audience a greater understanding of the generic approval process, and how the use of emerging technologies and outcomes of research projects contribute to scientific understanding for these complex orally inhaled and nasal drug products to inform regulatory actions.

Chairing: K.A. Witzmann, MD, Silver Spring, MD

12:15 Introduction
K.A. Witzmann, MD, Silver Spring, MD

12:18 Overview of FDA Generic Inhaled Drug Approval Process
M. Luke, MD, PhD, Silver Spring, MD

12:35 Update for Generic Orally Inhaled and Nasal Drug Products
K.A. Witzmann, MD, Silver Spring, MD

12:52 Emerging Concepts and New Technologies for Bioequivalence of Orally Inhaled and Nasal Drug Products
D.S. Conti, PhD, Silver Spring, MD

1:09 Questions and Answers
K.A. Witzmann, MD, New Hampshire Ave, MD

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

L4 NASA REMOTE SENSING SATELLITE OBSERVATIONS: APPLICATIONS FOR RESPIRATORY HEALTH

12:15 p.m. - 1:15 p.m.

Target Audience
Air quality researchers, pulmonary physicians, researchers and clinicians

Objectives
At the conclusion of this session, the participant will be able to:

- provide an overview of the NASA Health and Air Quality Program relating to public health applications that are of interest to pulmonary clinicians and researchers;
- inform clinicians and researchers about ongoing NASA projects related to performance lung and cardiac disease;
- provide update informations at a local, state, national and international levels on Air Quality and its effect on health outcomes.

Satellite earth observations present a unique vantage point of the earth's environment from space, which offers a wealth of health applications for researchers. The session shows results of the remote sensing observations of earth and health applications. This session will detail ongoing projects within NASA and specifically related to incorporating satellite remote sensing for studying city air pollution burden of disease, emissions control, and using chemical data assimilations to improve air quality and their relationship to diseases such as asthma, and other environmentally induced lung and cardiac diseases.

Chairing: S. Estes, MS, Huntsville, AL
J. Haynes, MS, BS, Washington, DC

12:15 NASA's Public Health and Air Quality Program Helping Us Understand Satellite Remote Sensing and How it Can Improve Health Outcomes
J. Haynes, MS, BS, Washington, DC

12:27 Improving the Representation of Physical Atmosphere in Air Quality Decision Support Systems Used for Emissions Control Strategy Development
A.P. Biazar, PhD, Huntsville, AL

12:39 Using Satellite Derived PM 2.5 Exposure Estimates to Assess Neighborhood-Scale Health Impacts
Speaker to be Announced

12:51 Chemical Data Assimilation and Analog-Based Uncertainty Quantification to Improve Decision-Making in Public Health and Air Quality
R. Kumar, PhD, Boulder, CO

DIVISION OF LUNG DISEASES, NHLBI/NIH

L5 RESULTS FROM NHLBI-FUNDED GENOMIC RESEARCH IN ALPHA-1 ANTITRYPSIN DEFICIENCY AND SARCOIDOSIS (GRADS) PROGRAM

12:15 p.m. - 1:15 p.m.

Target Audience
Physician scientists and health providers interested in Sarcoidosis including researchers, clinicians, nurses and educators. Students, Postdoc fellows, junior faculty who would like to hear advances in rare lung disease research like sarcoidosis

Objectives
At the conclusion of this session, the participant will be able to:

- apply new technologies (transcriptomics and metagenomic analyses) to investigate the pathogenic mechanisms of AATD and sarcoidosis;
- understand the pathogenesis of sarcoidosis and the role of Microbiome;
- understand clinical phenotyping of Sarcoidosis to understand and improve outcomes.

This session will present a brief overview of the GRADS Study, a description of the phenotypes in sarcoidosis, the proposed definitions of disease burden, and the apparent influence of the microbiome. It will also include updates on the data analyses of the RNA transcriptome of sarcoidosis patients, proposed environmental risk factors, and the association of clinical variables with specific microbiota. The session will conclude with discussions on suggested directions for the future of sarcoidosis research.

Chairing: L.J. Vuga, MD, MPH, PhD, Bethesda, MD
E.D. Crouser, MD, Columbus, OH

12:15 Bal Trancriptome in Sarcoidosis
N. Kaminski, MD, ATSF, New Haven, CT

12:29 Genetics and Environment in Sarcoidosis: Lessons From Grads
L.A. Maier, MSPH, MD, Denver, CO

12:43 Microbiome Discovery in Grads
A.M. Morris, MD, MS, Pittsburgh, PA

12:57 Insights From the Grads Study
K.C. Patterson, MD, Falmer, United Kingdom

1:11 Discussion

DIVISION OF LUNG DISEASES, NHLBI/NIH

L6 PREVENTION AND EARLY TREATMENT OF ACUTE LUNG INJURY (PETAL) CLINICAL TRIALS NETWORK

12:15 p.m. - 1:15 p.m.

Target Audience
Practicing critical care and emergency medicine clinicians and clinical researchers would benefit from this session. This includes fellows, students, nurses, and other medical professionals

Objectives
At the conclusion of this session, the participant will be able to:

- understand the goals and structure of the PETAL network;
- understand the questions being addressed in PETAL and the design/conducts of the trials;
- learn new findings and results of PETAL trials.

This session will provide an update on the NHLBI Prevention and Early Treatment of Acute Lung Injury (PETAL) clinical trials network. The session will describe the structure and goals of the PETAL network and an overview of progress in ongoing trials and results to date.

Chairing: L. Reineck, MD, Bethesda, MD
R.G. Brower, MD, Baltimore, MD

12:15 PETAL Overveiw
R.G. Brower, MD, Baltimore, MD

12:25 Neuromuscular Blockade in Severe ARDS (ROSE) Trial Results
M. Moss, MD, ATSF, Aurora, CO

12:35 Vitamin D (VIOLET) Trial Results
A. Ginde, MD, MPH, Aurora, CO

12:45 Update on the CLOVERS Trial
N. Shapiro, MD, MPH, Boston, MA

12:55 Introducing the COROLLA Trial
T.W. Rice, MD, MSc, Nashville, TN

1:05 Extending PETAL's Science Through Ancillary Studies
C.T.L. Hough, MD, MSc, Seattle, WA

DIVISION OF LUNG DISEASES, NHLBI/NIH

L7 ACCESS AND ANALYZE MASSIVE CLINICAL, IMAGE, AND GENOMICS DATA IN THE CLOUD

12:15 p.m. - 1:15 p.m.

Target Audience
Scientists, physicians, fellows, and students who are interested in analyzing clinical, image, and genomic data

Objectives
At the conclusion of this session, the participant will be able to:

- learn a new computing system that can integrate large volumes of datasets from clinical studies;
- learn how to use the new computing system to analyze big data for scientific discovery research;
- learn how the new computing system can be used to apply artificial intelligence to extract biomedical information from chest CT image.

The goal of this session is to demonstrate that regular users can easily browse and analyze large volumes of clinical, image, and genomic datasets using a set of tools developed in a public cloud computing system and supported by NHLBI's new data science project, Data STAGE (Storage, Toolspace, Access and analytics for biG data Empowerment). The data from lung disease studies, especially COPDGene, will be used for the demonstration. COPDGene is a longitudinal cohort study for COPD in 10,000 smokers. COPDGene clinical measurements, chest CT, and whole genome sequencing data will be available in this cloud system.

Chairing: W. Gan, PhD, Bethesda, MD
E.K. Silverman, MD, PhD, Boston, MA

12:15 Data STAGE-NHLBI's New Project Supporting Large Scale Data Analysis for Everyone
W. Gan, PhD, Bethesda, MD

12:22 Helium's STAGE Infrastructure in Support of Imaging, Clinical and Genomic Data and Analytics
A. Krishnamurthy, PhD, Chapel Hill, NC

12:35 Creating FAIR Computational Tools for the Nationally-Scaled Conduct of Biomedical Research
P. Avillach, MD, PhD, Boston, MA

12:48 Using STAGE To Advance Big Data Research in COPDGene
E.K. Silverman, MD, PhD, Boston, MA

1:01 Deep Learning Imaging Research in COPDGene on the STAGE
R. San Jose Estepar, PhD, Boston, MA

DIVISION OF LUNG DISEASES, NHLBI/NIH

L8 MOLECULAR IMAGING OF THE LUNG (PHASE 2)

12:15 p.m. - 1:15 p.m.

Target Audience
Providers of lung health, fellows and other trainees, and basic researchers interested in lung biology and pulmonary imaging

Objectives
At the conclusion of this session, the participant will be able to:

- learn new advances in molecular imaging of the lung;
- understand how molecular imaging technology will improve early detection and monitoring of lung diseases;
- understand the development and testing ofmolecular probes for pulmonary imaging.

Molecular Imaging of the Lung (Phase 2) is an NHLBI-sponsored program that supports the development of novel imaging reagents and technologies that target pathways or cells involved in the pathobiology of pulmonary diseases. Speakers supported by this program will highlight recent advances in molecular imaging of the lungs, including the development, validation, and testing in human subjects of molecular probes targeting specific cell types and molecules involved in lung diseases.

Chairing: T.S. Blackwell, MD, Nashville, TN
S. Lin, PhD, Bethesda, MD

12:15 Folate Imaging to Assess Inflammation in COPD
T.S. Blackwell, MD, Nashville, TN

12:25 Bugs, Drugs and the Local Milieu: New Tools for Precision Medicine
S.K. Jain, MD, Baltimore, MD

12:35 Can CCR2 PET Phenotype Patients with Pulmonary Fibrosis?
S.L. Brody, MD, ATSF, Saint Louis, MO

12:45 Collagen-Targeted Molecular Imaging: Initial Experience in IPF Patients
S. Montesi, MD, Boston, MA

12:55 Molecular Imaging of Angiogenic Signaling in PAH
P.B. Yu, MD, PhD, Boston, MA

1:05 In Vivo Imaging of Apoptosis and Disease Severity in COPD
J.M. D'Armiento, MD, PhD, New York, NY

MEET THE PROFESSOR SEMINARS

Registration Fee: $70.00 (includes box lunch.) Attendance is limited. Pre-registration is required.

12:15 p.m. - 1:15 p.m.

MP401 THE INFLUENCE OF SEX HORMONES ON ALLERGIC DISEASE AND ASTHMA
D.C. Newcomb, PhD, Nashville, TN

MP402 BRONCHIECTASIS: CASE BASED CONTROVERSIES IN CLINICAL CARE
A.E. O'Donnell, MD, Washington, DC

MP403 NEW FLEISCHNER SOCIETY GUIDELINES FOR PULMONARY NODULES
A.C. Mehta, MBBS, ATSF, Cleveland, OH

MP404 IMMUNE CHECKPOINT INHIBITOR PNEUMONITIS: CASES, QUESTIONS AND CONTROVERSIES
P. Camus, MD, Dijon, France

MP405 STATISTICAL CHALLENGES IN THE ANALYSIS OF PULMONARY DATA: REAL WORLD EXAMPLES FROM THE DUKE CLINICAL RESEARCH INSTITUTE
M. Neely, PhD, Durham, NC

MP406 LUNG TRANSPLANTATION FOR IPF
N. Patel, MD, Penn Valley, PA

MP407 DIAGNOSIS AND TREATMENT OF RAPIDLY PROGRESSIVE INTERSTITIAL LUNG DISEASE
S.M. Bhorade, MD, Chicago, IL

MP408 CANNABIS 2019: PROMISES AND PERILS OF THE GREEN CROSS
E.L. Burnham, MD, Denver, CO

MP409 FROM PAP TO APP: NUTS AND BOLTS OF PEDIATRIC CPAP
S. Bhargava, MD, Palo Alto, CA

MP410 ENDEMIC MYCOSES OF NORTH AMERICA AND BEYOND
C.A. Hage, MD, ATSF, Indianapolis, IN

MP411 IDENTIFYING MIMICS OF IDIOPATHIC PULMONARY FIBROSIS: HOW AND WHY
S. Dua, MD, New York, NY

MP412 ADVANCED SLEEP LAB TITRATION PROTOCOLS FOR CHRONIC HYPOVENTILATION SYNDROMES
W. Lee, MD, Dallas, TX

MP413 PULMONARY COMPLICATIONS OF CANCER IMMUNOTHERAPY
T. Peikert, MD, Rochester, MN

MEDICAL EDUCATION SEMINAR

ME1 HARNESSING THE POWER OF SOCIAL MEDIA AND FREE OPEN ACCESS MEDICAL EDUCATION (#FOAMED): AN INTERACTIVE WORKSHOP FOR MEDICAL EDUCATORS

Registration Fee: $70 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assembly on Behavioral Science and Health Services Research

12:15 p.m. - 1:15 p.m.

Target Audience
Medical educators, program administrators, trainees, early career physicians, nurses, allied professionals

Objectives
At the conclusion of this session, the participant will be able to:

- compare and learn about effective use of tools to critically appraise the quality of medical education social media resources;
- identify ways to ensure privacy and safety when incorporating social media into medical education;
- develop strategies to translate social media participation into academic scholarship.

Social media resources (websites/blogs/podcasts) for medical knowledge have increased significantly, expanding from less than 20 in 2006 to approximately 356 in 2016. Social media provides a tremendous tool for educational innovation but is fraught with concerns regarding quality and privacy. The goal of this session is to provide medical educators with practical strategies to safely and effectively leverage social media to advance education at their home institution. The faulty will focus particularly on how to critically evaluate social media resources as well as strategies for translating social media participation into scholarship/academic advancement. Small group exercises and a live twitter feed will be used throughout to facilitate discussion.

Chairing: V. Kaul, MD, Elmhurst, NY

Speakers: H.A. Memon, MD, Cincinnati, OH
J.M. Walter, MD, Chicago, IL
N. Kaminski, MD, ATSF, New Haven, CT
C.L. Carroll, MD, ATSF, Hartford, CT
M.A. Stiegler, MD, Research Triangle Park, NC

ATS 2019
Where today's science meets tomorrow's care™
INTERNATIONAL CONFERENCE

Sunday Afternoon, May 19

1:15 p.m. - 2:15 p.m

VISIT THE EXHIBIT HALL

Take this opportunity between sessions to visit the Exhibit Hall to gain practical knowledge to advance care and research. Exhibitors will be on hand to provide information on pharmaceutical products, medical equipment, publications and research services.

CLINICAL • TRANSLATIONAL

YEAR IN REVIEW

A81 PEDIATRIC YEAR IN REVIEW

Assembly on Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
Providers of lung health for children; clinical researchers who study pediatric lung health problems

Objectives
At the conclusion of this session, the participant will be able to:

- gain new findings about scientific developments in the field of pediatric pulmonology that have clinical relevance.

The Pediatric Year in Review focuses on 4 topics in Pediatrics where there have been significant advances over the past year. The discussants will use recent publications to provide an update and perspective on scientific developments that have clinical relevance in Pediatrics.

Chairing: S.D.M. Dell, MD, ATSF, Toronto, Canada
S.A. McGrath-Morrow, MD, Baltimore, MD

2:15 **Update in Cystic Fibrosis Management**
M.E. Egan, MD, New Haven, CT

2:45 **Update in the Management of Aerodigestive Problems in the Pulmonary Clinic**
E. Hysinger, MD, Cincinnati, OH

3:15 **Update in the Management of Sleep Disordered Breathing in Children**
I. Narang, MD, Toronto, Canada

3:45 **Update on PCD and Non-CF Bronchiectasis**
A.J. Shapiro, MD, Montreal, Canada

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

A82 CYSTIC FIBROSIS: HETEROGENEITY IN A MONOGENIC DISEASE

Assemblies on Clinical Problems; Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
Providers of cystic fibrosis; those with cystic fibrosis research interests

Objectives
At the conclusion of this session, the participant will be able to:

- identify modifiable and non-modifiable reasons for heterogeneity in CF disease severity, prognosis, and treatment-related outcomes;
- gain new strategies to manage the care of women and minorities with cystic fibrosis and improve their quality of life;
- integrate new treatment options in discussing current and future CFTR modulators with CF patients.

Although the proximal cause of cystic fibrosis has been identified as autosomal recessive mutations in the Cystic

Fibrosis Transmembrane Conductance Regulator (CFTR) gene, there is substantial heterogeneity in disease severity, the rate of health decline, and treatment-related outcomes. For lung function alone, twin studies have shown that 50% of the variability is due to non-CFTR genes, while the other 50% is due to environmental factors, emphasizing the need to address both sources. This session will look at the influence of socioeconomic status, geopoliticial environment, specific CFTR genotypes (and the availability of CFTR modulators), and gender on these outcomes.

Chairing: M. Sala, MD, Chicago, IL
J.L. Taylor-Cousar, MD, MSc, ATSF, Denver, CO
M. Jain, MD, Chicago, IL

2:15 **Heterogeneity in Cystic Fibrosis: Introduction**
M. Sala, MD, Chicago, IL

2:20 **Socioeconomic Factors in Cystic Fibrosis Management and Prognosis**
S.A. McColley, MD, Chicago, IL

2:40 **The Influence of Gender in Cystic Fibrosis**
R. Jain, MD, MSci, Dallas, TX

3:00 **Access in Cystic Fibrosis: Comparisons Between Nations**
S.Z. Nasr, MD, Ann Arbor, MI

3:20 **CFTR Modulators and the Personalization of Cystic Fibrosis Therapy**
M. Jain, MD, Chicago, IL

3:40 **International Differences in Cystic Fibrosis Outcomes**
A. Stephenson, MD, PhD, Toronto, Canada

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

A83 GREAT CASES: CLINICAL, RADIOLOGIC, AND PATHOLOGIC CORRELATIONS BY MASTER PHYSICIANS

Council of Chapter Representatives

2:15 p.m. - 4:15 p.m.

Target Audience
Clinicians in the fields of pulmonary and critical care medicine, pediatric pulmonology, sleep medicine, thoracic surgery, and infectious disease

Objectives
At the conclusion of this session, the participant will be able to:

- integrate the clinical presentation, radiologic and pathologic findings for 7 challenging cases;
- understand the clinical reasoning used to determine differential diagnosis by master clinicians using a multidisciplinary approach;
- describe the associated pathology and radiology of the cases.

Learners will have the opportunity to observe master clinicians approach challenging clinical problems by working through 7 unknown cases selected from the abstract pool. Collaboration with a master radiologist reviewing the films and a master pathologist reviewing pathology slides will demonstrate the multidisciplinary approach to difficult cases. The audience will participate though interactive questions that are tallied electronically. Additional discussion by presenters and master panelists will enhance the educational experience.

Chairing: J. Sunderram, MD, ATSF, New Brunswick, NJ
A.C. Wang, MD, La Jolla, CA

2:15 **Radiologic Findings**
A.G. Wilcox, MD, Los Angeles, CA

2:35 **Pathologic Findings**
J.L. Myers, MD, Ann Arbor, MI

2:55 **Master Clinicians**
S.I. Rounds, MD, Providence, RI
M.I. Schwarz, MD, Aurora, CO
P.C. Stillwell, MD, Aurora, CO

BASIC • CLINICAL

CRITICAL CARE TRACK

A84 JAMA AND THE NEW ENGLAND JOURNAL OF MEDICINE. DISCUSSION ON THE EDGE: REPORTS OF RECENTLY PUBLISHED CRITICAL CARE RESEARCH

2:15 p.m. - 4:15 p.m.

This session will provide a forum for attendees to interact with the authors and editors about papers published in JAMA and the New England Journal of Medicine. Papers presented will be recent publications, selected by the editors, to be of significant importance to the field of critical care medicine. Attendees will have the opportunity to hear presentations directly from the author and address questions to both the authors and editors. The discussion is intended to provide a unique insight into these papers, the selection process, and how the research applies directly to the field of critical care medicine.

Speakers And Talks To Be Announced

BASIC • CLINICAL • TRANSLATIONAL

BASIC SCIENCE CORE

A85 LIVING AND DYING BY LIPIDS: RESOLVING INFLAMMATION AND TEMPTING CELL FATE

Assemblies on Allergy, Immunology and Inflammation; Respiratory Cell and Molecular Biology; Respiratory Structure and Function

2:15 p.m. - 4:15 p.m.

Target Audience
Basic scientists, physiologists, allergists, pulmonologists, translational researchers, fellows and residents, and graduate trainees interested in lung pathophysiology

Objectives
At the conclusion of this session, the participant will be able to:

- apply new understanding of the nature of lipid mediators as pro-inflammatory and pro-resolving factors for inflammation and tissue repair in the lung;
- improve understanding of biological processes affected by lipid mediators, including ferroptosis, and how these determine cell function and fate in response to inhaled chemical stressors;
- appreciate how new findings are being positioned to promote research direction and therapeutic strategies that target lipid mediator effects of cell fate, and inflammation and it's resolution.

Inflammation and its resolution are active processes. Multiple complex pathways regulate the coordinated response of structural and immune cells after exposure to inhaled irritants, allergens and microbes. Initiation of acute inflammation is associated with oxidative stress leading to lipid peroxidation, changes in metabolic activity, and biosynthesis of pro-inflammatory and resolving-eicosanoids. Though acute inflammation is vital for host protection, return to health relies on endogenous, active resolution programs that restore host tissues to a non-inflamed state. Failure of active resolution permits persistence of inflammation that can lead to chronic disease. This session highlights emerging mechanisms that determine the fate of cells faced with environmental insult and oxidative stress; and how this is a determinant of inflammation and its resolution. Speakers will focus on pro-resolving lipid mediators, how their dysregulation results in chronic airway inflammation, and emerging opportunities to target lipid mediators to treat lung disorders.

Chairing: P.J. Sime, MD, Rochester, NY
C. Wheelock, PhD, Stockholm, Sweden
R.S. Kelly, MPH, PhD, Boston, MA

2:15 **Ferroptosis: Death by Lipid Peroxidation**
M.Conrad, PhD, Neuherberg, Germany

2:41 **Endothelial Barrier-Enhancing and Anti-Inflammatory Effects of Oxidized Phospholipids**
K.G. Birukov, PhD, MD, Baltimore, MD

2:59 **Targeting Oxidized Phosphatidylcholine to Prevent and Reverse Airway Inflammation, Hyperresponsiveness and Remodeling**
A.J. Halayko, BS(Hons), MSc, PhD, ATSF, Winnipeg, Canada

3:17 **PGD2 Receptor 2 Antagonism Reduces Airway Smooth Muscle Mass in Asthma: Mechanistic Insights**
C.E. Brightling, BSc(Hons), MBBS, PhD, Leicester, United Kingdom

3:35 **The Ceramide/Sphingosine-1-Phosphate Rheostat: Surviving Toxic Insult in the Lung**
I. Petrache, MD, ATSF, Denver, CO

3:53 **Towards Targeting Pro-Resolution Pathways of Airway Inflammation in Asthma and COPD**
B.D. Levy, MD, ATSF, Boston, MA

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A86 MECHANOPHARMACOLOGY OF AIRWAY AND AIRWAY SMOOTH MUSCLE

Assembly on Respiratory Structure and Function

2:15 p.m. - 4:15 p.m.

Target Audience
Basic scientists and clinicians interested in lung function and airway diseases

Objectives
At the conclusion of this session, the participant will be able to:

- appreciate the influence of mechanical forces on pharmacological responses of lung tissue;
- gain new findings about the synergistic effect of bronchodilators have on airways in combination with mechanical perturbation and agents that modify airway stiffness;
- improve understanding on pharmacology of tissues and organs which are constantly under the influence of mechanical forces.

Traditional pharmacological studies do not take into account the effects of mechanical movement on the drug-receptor interaction. Airways in a living lung are constantly under the influence of cyclic stress and strain due to breathing. Increasingly it has been shown that a dynamic mechanical environment has a significant impact of airway and airway smooth muscle behavior, and that the traditional "static" pharmacology offers very limited understanding on how airways respond to bronchoconstrictor and bronchodilator stimulation. In this session the audience will be introduced to a new branch of science-mechanopharmacology, and learn how mechanical forces modulate airway properties and drug targets for altering the properties.

Chairing: C. Seow, PhD, ATSF, Vancouver, Canada
P.B. Noble, PhD, Perth, Australia

2:15 **Therapeutic Implications of Increased Airway Stiffness in Obstructive Disease**
P.B. Noble, PhD, Perth, Australia

2:35 **Synergistic Effect of Bronchodilators on Airway Smooth Muscle in the Presence of Rho-Kinase Inhibitor and Mechanical Perturbation**
L. Wang, PhD, Vancouver, Canada

2:55 **Mechanical Activation of TGFbeta in Contracted and Cyclically Stretched Airways**
B.S. Brook, PhD, DrPH, Nottingham, United Kingdom

3:15 **The Duration Between Deep Inspirations on the Rate of Airway Renarrowing**
Y. Bossé, PhD, Québec, Canada

3:35 **TGFbeta Signalling: Complexity Creates Opportunities for Safer Drug Targeting**
A. Stewart, PhD, Melbourne, Australia

3:55 **Traction Force Screening for Bronchodilator Drug Discovery**
R. Krishnan, PhD, MS, Boston, MA

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A87 KNOWLEDGE GAPS AND PATHWAYS FORWARD IN RV FAILURE RESEARCH: RECOMMENDATIONS FROM AN OFFICIAL ATS RESEARCH STATEMENT ON RV FAILURE

Assemblies on Pulmonary Circulation; Clinical Problems; Critical Care; Pediatrics; Respiratory Cell and Molecular Biology

2:15 p.m. - 4:15 p.m.

Target Audience
Researchers, critical care physicians, pulmonologists, cardiologists, emergency medicine physicians, anesthesiologists, cardiovascular surgeons, pediatricians, nurses, respiratory therapists, students, residents, fellows, grad students, postdocs

Objectives
At the conclusion of this session, the participant will be able to:

- understand the mechanisms underlying adaptive versus maladaptive RV adaptation to pulmonary vascular load including role of fibrosis, angiogenesis, metabolic shifts;
- understand the role of plasma and/or imaging biomarkers (by echocardiography and cardiac MRI) that could be used to accurately evaluate RV function, perfusion, and RV-PA coupling and as end-points in clinical trials;
- identify potential novel therapies aimed at targeting RV myocardial contractility (e.g. calcium-sensitizing agents targeting sarcoplasmic reticulum and/or sarcomere function).

This symposium will discuss key recommendations from an Official ATS Research Statement generated by a working group of 20 international experts from the Assemblies on Pulmonary Circulation and Critical Care. The document has been accepted for publication and will be published in the AJRCCM in the Summer or early Fall of 2018. This symposium will summarize the document and highlight the major knowledge gaps and research priorities to be addressed in the next five years in the areas of epidemiology, pathophysiology, phenotyping, diagnosis, risk stratification and treatment of acute and chronic RV failure. The recommendations will serve as a roadmap for junior and senior investigators interested in cardiopulmonary research.

Chairing: T. Lahm, MD, Indianapolis, IN
P.M. Hassoun, MD, Baltimore, MD
I.S. Douglas, MD, Denver, CO

2:15 Introduction
T. Lahm, MD, Indianapolis, IN

2:20 Epidemiology and Phenotypes of RV Failure: What Have We Learned in the Last 10 Years and What Do We Need to Learn in the Next 5 Years?
Speaker To Be Announced

2:40 Pathogenesis of RV Failure: What Do We Know and What Do We Need to Know?
H.J. Bogaard, MD, PhD, Amsterdam, Netherlands

3:00 Diagnosis and Risk Stratification of RV Failure: How Can We Get to Where We Need to Be?
Speaker To Be Announced

3:20 Treatment of RV Failure: Are We Closer to Developing RV-Targeted Therapies?
A. Hemnes, MD, ATSF, Nashville, TN

3:40 Acute RV Failure in the ICU: A Distinct Phenotype that Warrants Further Study?
A. Vieillard-Baron, MD, PhD, Boulogne, France

4:00 Discussion

CLINICAL

SCIENTIFIC SYMPOSIUM

A88 RETHINKING OXYGEN: GETTING THE RIGHT OXYGEN TO THE RIGHT PATIENT

Assemblies on Nursing; Behavioral Science and Health Services Research; Pulmonary Rehabilitation

2:15 p.m. - 4:15 p.m.

Target Audience
This symposium will benefit health care professionals who care for adults who use supplemental oxygen therapy.

Objectives
At the conclusion of this session, the participant will be able to:

- identify unmet needs and barriers to oxygen delivery in patients with COPD, ILD, and rare lung diseases, including young people who require supplemental oxygen;
- understand impact of oxygen delivery on the quality of life in patients with lung disease and their caregivers;
- identify the role of advocacy for rare lung disease and the implications for policy change for our patients who use supplemental oxygen therapy.

Pulmonary clinicians and patients report barriers in providing and receiving optimal home supplemental oxygen services including inadequate supply, unacceptable portable options, equipment malfunction, absence of quality measures, and lack of evidence-based practice guidelines. Limited evidence exists to describe or quantify these problems and to address these unmet needs. This session will provide information on the variation of oxygen use in patients with COPD and ILD, impact of oxygen on quality of life for patients and caregivers, existing evidence for our practice today, importance of advocacy for patients with rare lung diseases and young adults requiring oxygen, and the role of policy in best helping our patients.

Chairing: K.O. Lindell, PhD, RN, ATSF, Pittsburgh, PA
S.S. Jacobs, RN, MS, Stanford, CA

2:15 Introduction and Opening Remarks
S.S. Jacobs, RN, MS, Stanford, CA

2:25 Oxygen for COPD: Knowns and Unknowns
J.A. Krishnan, MD, PhD, ATSF, Chicago, IL

2:45 Oxygen and ILD
C.J. Ryerson, MD, Vancouver, Canada

3:05 Quality of Life for Oxygen Users and their Caregivers
J.J. Swigris, DO, MS, Denver, CO

3:20 Impact of Supplemental Oxygen in Patients with Interstitial Lung Disease: Findings of the Mixed Method AmbOx Trial
M. Farquhar, PhD, RN, Norwich, United Kingdom

3:35 Advocacy in Rare Lung Disease: When Oxygen is Not Optional
S. Sherman, BS, MHA, Cincinnati, OH

3:50 Implications for Policy
G. Ewart, MHS, Washington, DC

4:05 Conclusion: Moving Forward
K.O. Lindell, PhD, RN, ATSF, Pittsburgh, PA

CLINICAL

SCIENTIFIC SYMPOSIUM

A89 COMMUNITY-ACQUIRED PNEUMONIA 2019: AN INTERACTIVE SESSION

Assemblies on Pulmonary Infections and Tuberculosis; Clinical Problems; Critical Care

2:15 p.m. - 4:15 p.m.

Target Audience
Clinicians, researchers, and administrative physicians, nurses, advanced practice clinicians, pharmacists, and respiratory therapists who provide care for patients with pneumonia

Objectives
At the conclusion of this session, the participant will be able to:

- learn 2019 best treatment of patients with community-acquired pneumonia;
- have new strategies to manage the care of pneumonia patients, replacing HCAP logic with more effective measures for identifying patients at risk for antibiotic resistant pathogens;
- understand the issues regarding adjunctive corticosteroid therapy of severe pneumonia with patients, since the committee will be more conservative in its recommendations than recent literature.

Much has changed regarding treatment of community-acquired pneumonia since the last IDSA/ATS guidelines were published in 2007. The symposium speakers are experts in pneumonia, and will discuss the use of adjunctive steroids, empiric antibiotics, site of care determination, use of cultures

and molecular diagnostics including procalcitonin, and identifying patients at risk for antibiotic resistant pathogens. Controversies in treating patients with community-acquired pneumonia will be addressed. Speakers will also discuss methods for local implementation of recommended processes of care, including computerized clinical decision support.

Chairing: M.S. Niederman, MD, New York, NY
E.M. Mortensen, MD, Farmington, CT

2:15 **Introduction**
J. Metlay, MD, PhD, Boston, MA

2:30 **Site of Care**
N.C. Dean, MD, Murray, UT

2:45 **Identifying the Pathogen: Cultures, Molecular Methods, and Biomarkers**
K.A. Crothers, MD, Seattle, WA

3:05 **Empiric Antibiotic Selection**
M.L. Metersky, MD, Farmington, CT

3:20 **Selecting Patients for Empiric Broad Spectrum Antibiotics**
M.I. Restrepo, MD, MSc, PhD, San Antonio, TX

3:45 **Antibiotic Deescalation and Duration of Therapy**
A. Anzueto, MD, ATSF, San Antonio, TX

4:00 **Adjunctive Steroids for Patients with CAP**
G.W. Waterer, MBBS, MBA, PhD, Perth, Australia

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A90 ICU-ACQUIRED WEAKNESS: A RAPID-FIRE DISCUSSION OF EMERGING ISSUES AND NEW INSIGHTS

Assemblies on Critical Care; Respiratory Structure and Function

2:15 p.m. - 4:15 p.m.

Target Audience
Adult and pediatric critical care clinicians and researchers

Objectives
At the conclusion of this session, the participant will be able to:

- recognize potentially modifiable mechanisms of muscle weakness in critical illness;
- appreciate the respective contributions of limb and diaphragm weakness and post-extubation swallowing dysfunction to clinical outcomes of critical illness both within and beyond the ICU;
- describe evidence-based and emerging strategies for preventing and treating limb and diaphragm weakness in critically ill patients

This session will provide a state of the art overview of emerging mechanistic and clinical insights related to ICU-acquired weakness affecting the limb muscles, respiratory muscles, and pharyngeal muscles. The session incorporates 9 rapid fire presentations highlighting a broad range of key issues. The focus of the session will progress from mechanisms of injury to outcomes and finally to emerging interventions, followed by a 25-minute panel Q&A discussion.

Chairing: E.C. Goligher, MD, PhD, Toronto, Canada
M. Kho, PT, PhD, Hamilton, Canada
C.T. Hough, MD, MSc, Seattle, WA

2:15 **Pathophysiology of Muscle Fatigue, Injury, and Weakness: A Primer**
W.D. Reid, PhD, Toronto, Canada

2:25 **Diaphragm Muscle Weakness in the ICU: Inevitable or Avoidable?**
L.J. Brochard, MD, Toronto, Canada

2:35 **Limb Muscle Weakness in the ICU: Inevitable or Avoidable?**
C.T. Hough, MD, MSc, Seattle, WA

2:45 **Diaphragm Weakness vs. Limb Muscle Weakness: Same Disease? Same Outcome?**
M. Dres, MD, PhD, Paris, France

2:55 **Beyond the ICU: Impact of ICU-Acquired Weakness on ICU Survivorship**
D.M. Needham, MD, PhD, Baltimore, MD

3:05 **Emerging Insights on Post-Extubation Swallowing Dysfunction**
M. Brodsky, PhD, Baltimore, MD

3:15 **Diaphragm-Protective Ventilation: The Next Frontier?**
E.C. Goligher, MD, PhD, Toronto, Canada

3:25 **Emerging Strategies for Limb Muscle Rehabilitation in the ICU**
M. Kho, PT, PhD, Hamilton, Canada

3:35 **Emerging Strategies for Diaphragm Muscle Rehabilitation in the ICU**
B. Bissett, PT, Canberra, Australia

3:45 **Panel Q&A Discussion**
E.C. Goligher, MD, PhD, Toronto, Canada

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A91 WHAT YOU CAN'T SEE MIGHT HURT YOU: THE INTERPLAY BETWEEN THE MICROBIOME AND IMMUNITY IN LUNG DISEASE

Assemblies on Allergy, Immunology and Inflammation; Environmental, Occupational and Population Health; Pulmonary Infections and Tuberculosis; Respiratory Cell and Molecular Biology; Sleep and Respiratory Neurobiology

2:15 p.m. - 4:15 p.m.

Target Audience
Medical practitioners, basic scientists, trainees involved in acute and chronic lung injury research and treatment, including IPF, pulmonary infections, ARDS, and lung cancer

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings on the interactions of innate immunity and the microbiome in lung disease;
- begin to understand how interactions between the microbiome and immunity can be used to influence patient outcomes in precision medicine approaches to lung disease;
- learn the newest findings on genetic and genomic determinants of lung disease susceptibility and progression.

There is strong research support that acute and chronic lung diseases such as asthma, COPD, and IPF are a result of maladaptive gene-by-environment interactions. Immune genes are leading factors for asthma, ARDS and IPF susceptibility and progression. Furthermore, the microbiome is now understood to play a role in lung biology. However, research has tended to investigate microbiome and immunity separately, and only recently has the interaction of the two been appreciated. This symposium will integrate recent findings on microbiome and immunity research, and highlight how microbiome-immune interactions lead to lung disease development and progression, with an emphasis on impact on lung diseases across multiple assemblies (asthma, sleep apnea, IPF, etc.)

Chairing: S. Garantziotis, MD, Research Triangle Park, NC
B.B. Moore, PhD, ATSF, Ann Arbor, MI
C. Dela Cruz, MD, PhD, ATSF, New Haven, CT

2:15 **The Lung Microbiome in Healthy Mice: Interactions with Environment, Exposures, and Immunity**
R.P. Dickson, MD, Ann Arbor, MI

2:35 **Multi-System View of Microbiome-Immune Interactions in Adult Asthma**
Y.J. Huang, MD, Ann Arbor, MI

2:55 **Host-Microbiome Interactions in Interstitial Lung Disease**
P.L. Molyneaux, MRCP(UK), MBBS, BS(Hons), London, United Kingdom

3:15 **Could the Microbiome Protect From Pulmonary Fibrosis?**
S. Garantziotis, MD, Research Triangle Park, NC

3:35 **Lung Microbiota, Host Inflammation and Immune Surveillance in Lung Cancer**
L.N. Segal, MD, New York, NY

3:55 **The Lower Respiratory Tract Microbiome and Chronic Lung Allograft Dysfunction After Transplant**
J.E. McGinniss, MD, Philadelphia, PA

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

A92 HEALTH IMPACTS OF MARIJUANA: STATE OF THE SCIENCE AND FUTURE DIRECTIONS

Assemblies on Environmental, Occupational and Population Health; Clinical Problems

2:15 p.m. - 4:15 p.m

Target Audience
Providers of lung health and those needing instruction in areas of medicine outside of their specialty who may encounter patients or others using cannabis, or who would have questions about cannabis use for their medical problems.

Objectives
At the conclusion of this session, the participant will be able to:

- understand the health impacts of marijuana use particularly as they apply to the lung and its host defense;
- apply this knowledge in communications with his/her patients who admit to using or contemplate using marijuana for either recreational or medicinal purposes;
- understand the addictive potential of marijuana regarding the risk of acquiring marijuana dependence.

Most states in the U.S. have legalized marijuana use for medicinal and/or recreational use, suggesting that the prevalence of marijuana use, (currently ~22 million users each month), will rise, making an understanding of the health effects of marijuana increasingly important. This session will include presentations pertaining to the effects of marijuana on the lung and immune system from a translational and clinical perspective, the impact of marijuana on the brain with a focus on the cannabis dependence syndrome, potential therapeutic applications, and legal and health policy issues.

Chairing: D.P. Tashkin, MD, ATSF, Los Angeles, CA
E.L. Burnham, MD, Denver, CO

2:15 Introduction
E.L. Burnham, MD, Denver, CO

2:25 Pulmonary Effects of Marijuana Smoking
D.P. Tashkin, MD, ATSF, Los Angeles, CA

2:43 Potential Immune Consequences of Marijuana
M.D. Roth, MD, Los Angeles, CA

3:01 Marijuana and Sleep
G.L. Kenney, MPH, PhD, Aurora, CO

3:19 Marijuana Dependence: Impacts of Marijuana on the Brain
K. Hutchison, PhD, Denver, CO

3:37 Potential Therapeutic Applications of Marijuana and Cannabinoids
M. Ware, MBBS, MRCP (UK), Denver, CO

3:55 Parallels in Legislative Changes in Tobacco and Marijuana
E.R. Neptune, MD, Baltimore, MD

2:15 p.m. - 4:15 p.m.

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

4:30 p.m. - 5:45 p.m.

RESPIRATORY HEALTH AWARDS PRESENTATION OF THE AMBERSON LECTURE, TRUDEAU MEDAL AND DISTINGUISHED ACHIEVEMENT AWARDS

Amberson Lecture

The Amberson Lecturer is an individual with a career of major lifetime contributions to clinical or basic pulmonary research and/or clinical practice. The Lecture is given in honor of James Burns Amberson, an international authority on chest disease and tuberculosis.
Lecturer: **Jahar Bhattacharya, MD, DPhil, New York, NY**

Trudeau Medal

The Trudeau Medalist is an individual with lifelong major contributions to prevention, diagnosis and treatment of lung disease through leadership in research, education, or clinical care. This award was established in 1926 and is given in honor of Edward Livingston Trudeau, a founder and the first president of the American Lung Association.
Awardee: **Jacob I. Sznajder, MD, Chicago, IL**

Distinguished Achievement Award

The Distinguished Achievement Award is given to individuals who have made outstanding contributions to fighting respiratory disease through research, education, patient care, or advocacy.
Awardees: **John Hansen-Flaschen, MD, ATSF, Philadelphia, PA**
Meir Kryger, MD, New Haven, CT

ASSEMBLY MEMBERSHIP MEETINGS

The fourteen Assemblies are the primary groups of the American Thoracic Society. Each Assembly holds an annual Membership Meeting at the International Conference. All Assembly members and other interested individuals are invited to attend. The Assembly Membership Meetings will be held on Monday, May 20th, 4:30 p.m. -7:00 p.m., with the exception of the Assemblies on Behavioral Science and Health Services Research and Pediatrics (see below.)

The Assembly Membership Meetings provide an update on the Assembly's activities via the Assembly's Leadership and provide Assembly members the chance to have input on future directions, information on how to get involved and networking opportunities. Voting results for the Assembly's future leaders will also be announced.

5:30 p.m. - 7:30 p.m.

PEDIATRICS

Chairing: Stephanie D. Davis, MD, ATSF, Chapel Hill, NC

6:30 p.m. - 8:30 p.m.

BEHAVIORAL SCIENCE AND HEALTH SERVICES RESEARCH

Chairing: J. Daryl Thornton, MD, MPH, ATSF, Cleveland, OH

6:30 p.m. - 8:30 p.m.

SECTION ON GENETICS AND GENOMICS MEMBERSHIP MEETING

The Section meetings are open to all ATS members and other interested individuals. Items to be discussed include the Section's current projects and future directions.

Chairing: Michael H. Cho, MPH, MD, Duxbury, MA
Anthony N. Gerber, MD, PhD, Denver, CO

7:30 p.m.-10:30 p.m.

ASSEMBLY ON PEDIATRICS FOUNDERS DINNER

The Pediatric Assembly will hold a dinner immediately following the Assembly Membership Meeting. Assembly members and non-members, students and fellows are invited to join us for an evening of networking, great company, and camaraderie. This is a wonderful opportunity to introduce young members and trainees to Assembly leaders, to connect with old friends and to set up new interactions and collaborations.

Pre-registration and an additional fee are required. Seating is limited.
Please register through online general registration by clicking the Register Now button above.

Fellow - $82.00
Member - $102.00
Non-Member - $112.00

Monday Morning, May 20

PEDIATRIC CLINICAL CORE CURRICULUM

PCC2 PEDIATRIC CLINICAL CORE CURRICULUM

6:45 a.m. - 7:45 a.m.

Target Audience
Pediatric pulmonary and critical care physicians who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pediatric pulmonology;
- evaluate their understanding of key skills and content areas in pediatric pulmonology as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The Pediatric Core Curriculum symposia promote lifelong learning and the enhancement of the clinical judgment and skills essential for practicing pediatrician. The symposia will address topics that have been identified by an ATS pediatric working group, which is comprised of members of the ATS Education Committee and the International Conference Committee, who have identified important areas within pediatric medicine (including severe asthma, ILD, BPD, pulmonary hypertension and pulmonary manifestations of pulmonary disease). Attendees will increase their medical knowledge as a result of attending this symposium, and this will be measured by a comparison of pre-test vs. post-test results on the corresponding maintenance of certification module. The ATS Pediatric Core Curriculum will focus on a 3-year content cycle of key medical content in the area of pediatric medicine.

Chairing: P.E. Moore, MD, ATSF, Nashville, TN

6:45 **Approach to Respiratory Viral Illness in Children**
T.C. Lewis, MD, MPH, Ann Arbor, MI

7:15 **Management of Complicated Pneumonia and Empyema in Children**
C.R. Esther, MD, PhD, Chapel Hill, NC

SUNRISE SEMINARS

Registration Fee: $50.00 (includes continental breakfast.) Attendance is limited. Pre-registration is required.

6:45 a.m. - 7:45 a.m

SS101 SEVERE ASTHMA: BREAKING DOWN THE BASICS OF ADVANCED ASTHMA THERAPIES
A.J. Oberle, MD, Durham, NC

SS102 TARGETED THERAPEUTICS IN CYSTIC FIBROSIS
G. Hong, MD, MHS, Philadelphia, PA

SS103 STATE OF THE ART AND FUTURE "OMIC" APPROACHES TO DETECT LUNG TRANSPLANT REJECTION
S. Agbor, MD, PhD, Bethesda, MD

SS104 DIFFUSE CYSTIC LUNG DISEASE: EVALUATION AND MANAGEMENT
L.A. Ho, MD, Seattle, WA

SS105 ILD DIAGNOSIS: SURGICAL LUNG BIOPSY, CRYOBIOPSY, AND EMERGING CUTTING-EDGE OPTICAL IMAGING TECHNIQUES
R.S. Knipe, MD, Boston, MA
C. Keyes, MD, MPH, Boston, MA
L.P. Hariri, MD, PhD, Boston, MA

SS106 DIAGNOSIS AND MANAGEMENT OF MASSIVE HEMOPTYSIS
G.Z. Cheng, MD, PhD, Durham, NC
J. Cardenas-Garcia, MD, Ann Arbor, MI

SS107 THE CHANGING LANDSCAPE OF ONCOLOGIC CRITICAL CARE
L. Munshi, MD, MSc, Toronto, Canada
C. McEvoy, MD, St Louis, MO
R.S. Stephens, MD, Baltimore, MD
C. Gutierrez, MD, Houston, TX

SS108 2020 VISION: UPDATE ON THE INTERNATIONAL CLASSIFICATION OF PNEUMOCONIOSIS AND DIGITAL CHEST IMAGING
R. Zulfikar, MBBS, MD, Morgantown, WV
E.L. Petsonk, MD, Morgantown, WV

SS109 BEST LAID PLANS: IMPROVING CLINICAL TRIAL QUALITY THROUGH INTERVENTION FIDELITY MONITORING
J. Tate, PhD, RN, Columbus, OH

SS110 THE BUGS THAT SHAPE US: UNDERSTANDING EVIDENCE ON THE EARLY-LIFE RESPIRATORY MICROBIOME
C. Rosas-Salazar, MD, MPH, Nashville, TN

SS111 PULMONARY HYPERTENSION IN THE ICU: A STEPWISE APPROACH
K. El-Kersh, MD, Louisville, KY

SS112 MACROLIDE-RESISTANT MYCOBACTERIUM AVIUM COMPLEX PULMONARY DISEASE: CURRENT CONCEPTS
M. Holt, MBBS, BSc, Denver, CO

SS113 METHODS IN CHARACTERIZING MUCOUS CELL METAPLASIA
J.D. Dickinson, MD, PhD, Omaha, NE

SS114 CARDIAC DISEASE AND BETA RECEPTORS IN COPD
J. Budde, MD, MPH, Long Island City, NY

SS115 EVALUATION AND MANAGEMENT OF SLEEP-DISORDERED BREATHING IN PREGNANCY
S. Pamidi, MD, Montreal, Canada

SS116 LUNG CANCER CHEMOPREVENTION: FROM BENCH TO BEDSIDE
M. Tennis, PhD, Aurora, CO

SS117 E-CIGARETTES: EPIDEMIOLOGY, TOXICOLOGY, AND WHY THEY SHOULD NOT BE RECOMMENDED FOR SMOKING CESSATION
F. Moazed, MD, San Francisco, CA

FACULTY DEVELOPMENT SEMINAR

FD1 FACULTY PROMOTION AND TENURE: UNRAVELING THE "FACULTY HANDBOOK"

Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for admission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee.

6:45am - 7:45 a.m.

Target Audience
Early and mid-career clinical and/or research faculty, clinical and postdoctoral fellows in academic pulmonary, critical care and/or sleep medicine, PhD candidates

Objectives
- understand the general process by which promotion and tenure are achieved in academic institutions;
- identify strategies and practical ideas to formulate a road map for their professional academic career advancement by leveraging their institutions and societal resources;
- interact with experts within various academic tracks to gain insight and knowledge in devising a concrete plan to meet milestones for academic advancement within their institutions.

Faculty handbooks for promotion and tenure are available for most academic institutions. However, they rarely provide practical guidance or a well-defined road map for early and mid-career professionals to steer them on the path towards academic advancement. This

seminar provides concrete strategies and advice to effectively navigate early and mid-career timelines and how to set clear guidelines for achievable goals towards promotion and tenure. A faculty panel with experience in the promotion and tenure process will provide practical tips for academic career advancement. This will occur first in a moderator-led question and answer session which will be followed by career track-based small group interactive discussions.

Chairing: S. Dua, MD, New York, NY

Speakers: S.A. McColley, MD, Chicago, IL
E. Herzog, MD, PhD, New Haven, CT
I. Petrache, MD, ATSF, Denver, CO

BASIC • CLINICAL • TRANSLATIONAL

KEYNOTE SERIES

The Keynote Series focuses on topics thought to be timely and of high relevance to the pulmonary, critical care, and sleep medicine community.

Sessions are presented each morning during the Conference.
Below are the topics for Monday, May 20

K3 DATA SHARING IN THE CONTEXT OF CLINICAL TRIALS

8:00 a.m.-8:45 a.m.

Speaker: Jeffrey M. Drazen, MD, Boston, MA

K4 UNRAVELLING THE MYSTERY OF BREATHLESSNESS IN COPD

8:00 a.m.-8:45 a.m.

Speaker: Denis E.O' Donnell, MD, Kingston, Canada

CLINICAL

YEAR IN REVIEW

B1 CLINICAL YEAR IN REVIEW 2

9:15 a.m. - 11:15 a.m.

Target Audience
Providers including physicians, nurses, respiratory therapists, nurse practitioners, physician assistants; trainees including residents and fellows; clinical researchers

Objectives
At the conclusion of this session, the participant will be able to:

- apply new clinical research knowledge to clinical practice;
- learn new findings about key conditions in pulmonary, critical care and sleep;
- have new strategies to manage the care of common conditions in pulmonary, critical care, and sleep

The annual Clinical Year in Review symposia provides concise summaries of the most impactful clinical research publications related to specific clinical topics. Speakers are asked to conduct a literature review of the prior year's scientific publications and develop a written summary of the top 20 articles and highlight 5 of the most important and influential publications on their topic in written format and during their talks at the International Conference Clinical Year in Review sessions.

Chairing: V.E. Ortega, MD, PhD, ATSF, Winston Salem, NC
J.S. Lee, MD, Aurora, CO
P.A. Kritek, MD, Seattle, WA

9:15 Sarcoidosis
J.C. Grutters, MD, Nieuwegein , Netherlands

9:45 Mycobacterial Infections
D.J. Horne, MD, MPH, Seattle, WA

10:15 Asthma
N. Lugogo, MD, Ann Arbor, MI

10:45 ARDS
M.S. Herridge, MD, Toronto, Canada

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

B2 ENDOBRONCHIAL VALVE TREATMENT IN PATIENTS WITH ADVANCED EMPHYSEMA: IT'S TIME HAS COME

Assemblies on Clinical Problems; Nursing; Pulmonary Rehabilitation; Respiratory Structure and Function

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians and researchers who are involved with the care and research of patients with COPD who have emphysema

Objectives
At the conclusion of this session, the participant will be able to:

- understand the pathophysiology and its consequences of severe hyperinflation on morbidity and mortality in patients with severe emphysema;
- gain understanding of the principles of endobronchial valve placement, proper selection of patient candidates, and performance of procedure;
- understand the adverse events that can result from endobronchial valve treatment and how to proactively mitigate against those complications.

Multiple studies have been recently reported on the utility of endobronchial valve treatment in patients with heterogeneous and homogeneous disease to improve outcomes in patients with advanced emphysema and severe hyperinflation. This session will focus on these recent studies and provide the audience with information regarding patient selection, placement of endobronchial valve therapy, expected short and long-term outcomes as well as management of adverse events. Leading international investigators and practitioners with extensive experience in endobronchial valve placement will present at the session.

Chairing: G.J. Criner, MD, ATSF, Philadelphia, PA
D. Gompelmann, MD, Heidelberg, Germany
F.J. Herth, MD, Heidelberg, Germany

9:15 **Introduction**
G.J. Criner, MD, ATSF, Philadelphia, PA

9:16 **Consequences of Severe Hyperinflation in Patients with Advanced Emphysema**
B.R. Celli, MD, Boston, MA

9:31 **Lessons Learned from Lung Reduction Surgery**
W. Weder, MD, Zurich, Switzerland

9:46 **Selection of Patients for Endobronchial Valve Therapy**
F.J. Herth, MD, Heidelberg, Germany

10:01 **Outcomes of Endobronchial Valve Therapy in Patients with Heterogenous Emphysema**
G.J. Criner, MD, ATSF, Philadelphia, PA

10:15 **Outcomes of Endobronchial Valve Therapy in Patients with Advanced Homogeneous Emphysema**
A. Valipour, MD, Vienna, Austria

10:30 **Outcome of Lung Reduction with Endobronchial Valve Treatment in Patients with AATD**
D.K. Hogarth, MD, Chicago, IL

10:45 **EBV for Airleaks**
D.-J. Slebos, PhD, MD, Gromingen, Netherlands

11:00 **Complications of EBV Placement**
D. Gompelmann, MD, Heidelberg, Germany

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

B3 FELLOWS CASE CONFERENCE

Assemblies on Allergy, Immunology and Inflammation; Clinical Problems; Pulmonary Circulation; Pulmonary Infections and Tuberculosis; Members In Transition and Training Committee; Training Committee

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians, nurses, fellows, residents, and researchers looking to broaden their clinical acumen to facilitate clinical and translational research.

Objectives
At the conclusion of this session, the participant will be able to:

- recognize clinical, radiographic, and pathologic findings of rare diseases;
- gain insight into clinical decision making skills demonstrated by master clinicians, radiologists and pathologists which will improve the quality of learners' practice and potentially improve quality of care for the learner's patients;
- develop strategies to evaluate patients with commonsymptoms that include uncommon/rare diseases in thedifferential diagnosis when appropriate.

This session will consist of 6 unique cases presented and discussed by fellows with a panel of 3 clinical experts to moderate the discussion and provide commentary. An expert radiologist and expert pathologist will provide guidance on imaging and path. The cases will provide new insights into disease pathogenesis, diagnosis, and/or treatment. Selected cases will include clear clinical teaching points with review of associated pathology and radiology as appropriate. Finally, the discussion will highlight medical decision making important for both physicians-in-training and seasoned clinicians.

Chairing: L.E. Crotty Alexander, MD, ATSF, San Diego, CA

Expert Clinicians: M.I. Schwarz, MD, Denver, CO
A.H. Limper, MD, Rochester, MN
A.E. Dixon, MD, ATSF, Burlington, VT

Cases To Be Announced

CLINICAL • TRANSLATIONAL

CRITICAL CARE TRACK

B4 KEEPING MY CRITICALLY ILL PATIENT COMFORTABLE, AWAKE, ENGAGED, AND MOVING

Assemblies on Critical Care; Nursing; Pediatrics

9:15 a.m. - 11:15 a.m.

Target Audience
Nurses, physicians, pharmacists, therapists, and social workers who provide care in the intensive care unit (ICU), inpatient providers caring for patients transferred from the ICU

Objectives
At the conclusion of this session, the participant will be able to:

- understand current best practices and novel modalities for managing pain and agitation in patients with critical illness;
- understand current evidence surrounding delirium treatment and present gaps in knowledge surrounding clinical trials of early mobility;
- understand applications of the ABCDEF bundle in adult and pediatric patients with critical illness and strategies for effective implementation of the bundle for adults with critical illness.

For many years, deep sedation, amnesia, and bed rest were thought to be necessary and compassionate components of critical care. More than 15 years of research has challenged these practices, and informed the 2013 Pain, Agitation, and Delirium (PAD) guideline recommendations. 2019 brings and update of these guidelines. The update of these guidelines will include a new section on immobility. Because these issues affect nearly all critically ill patients (both adult and pediatric-and by extension, their families) at some point during their ICU stay, the appropriate management of pain, agitation, anxiety, delirium and immobility and providing support to patients' families are important topics for ICU clinicians. The emphasis on, and implementation of pain management, light or minimal sedation, delirium treatment, early mobility, and family engagement, has raised many questions and challenges for both clinicians and researchers. This session will use an interdisciplinary panel of speakers to address key knowledge gaps on the topics of pain management, sedation, delirium treatment, immobility, and family engagement/support.

Chairing: N.E. Brummel, MD, MSci, Nashville, TN
S. Mehta, MD, Toronto, Canada
R. Bakhru, MD, Winston-Salem, NC

9:15 **Insects on the Walls and Ceiling**
N. Andrews, MFA, Bar Harbor, ME

9:30 **Beyond Opioids: Multimodal Pain Management in the ICU**
J. Devlin, PharmD, Boston, MA

9:45 **The Best Sedation is No Sedation and No Restraints**
S. Mehta, MD, Toronto, Canada

10:00 **Delirium Treatment in 2019: Should We Just Say "No" to Drugs?**
T.D. Girard, MD, MSci, Pittsburgh, PA

10:15 **Known Knowns and Known Unknowns in Early Mobility**
N.E. Brummel, MD, MSci, Nashville, TN

10:30 **Supporting and Engaging Families: Strategies That Work**
D.B. White, MD, Pittsburgh, PA

10:45 **Just Little Adults?**
H. Smith, MD, MSci, Nashville, TN

11:00 **Bringing it All Together: Implementing the ABCDEF Bundle in the Real World**
M.A. Barnes-Daly, RN, BSN, CCRN, DC, Sacramento, CA

BASIC • CLINICAL • TRANSLATIONAL

BASIC SCIENCE CORE

B5 TILL DEATH DO US PART: CELL FATE AND OBSTRUCTIVE LUNG DISEASE

Assemblies on Respiratory Structure and Function; Allergy, Immunology and Inflammation; Clinical Problems; Respiratory Cell and Molecular Biology

9:15 a.m. - 11:15 a.m.

Target Audience
This session will benefit all providers of lung health including trainees. Individuals with a research focus on mechanisms of programmed cell death as it relates to obstructive lung disease should find the session of particular interest

Objectives

At the conclusion of this session, the participant will be able to:

- learn new findings about programmed cell death and physiologic homeostasis in the lung;
- apply knowledge about programmed cell death to understand the role it plays in obstructive lung disease;
- learn new findings about how mechanisms of cell death may be novel targets for treatment of obstructive lung disease.

The death and removal of inflammatory cells is a normal mechanism of maintaining homeostasis in the lung. The session will focus on the role of programmed cell death in obstructive lung diseases such as asthma and COPD. Common mechanisms of cell death including apoptosis, autophagy and regulation by cellular signaling will be discussed. The learner will understand that interruption of these normal processes can lead to enhanced inflammation. The session will also highlight how targeting the mechanisms of cell death may play a role in the treatment of obstructive lung diseases.

Chairing: G.S. Skloot, MD, ATSF, New York, NY
R.A. Panettieri, MD, New Brunswick, NJ
I. Petrache, MD, ATSF, Denver, CO

9:15 A Time to Live and a Time to Die
A.M.K. Choi, MD, New York, NY

9:45 Mechanisms of Cell Death in Asthma: Can Cells Live Too Long?
C.A. Singer, PhD, Reno, NV

10:15 Programmed Cell Death in COPD: So Many Ways to Die
I. Petrache, MD, ATSF, Denver, CO

10:45 Translating Death to Life: Opportunities for Precision Therapeutics in Airways Diseases
R.A. Panettieri, MD, New Brunswick, NJ

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B6 BORN TOO SOON: THE EFFECTS OF PREMATURITY ON THE NEONATAL/DEVELOPING LUNG

Assemblies on Pediatrics; Respiratory Cell and Molecular Biology

9:15 a.m. - 11:15 a.m.

Target Audience

Neonatologists, pediatric pulmonologists, basic researchers of lung development, pediatric pharmacists, neonatal and pediatric pulmonology fellows

Objectives

At the conclusion of this session, the participant will be able to:

- understand the current thinking about the pathophysiology of bronchopulmonary dysplasia;
- integrate the roles of the disciplines of neonatology and pulmonology in improving our understanding and care of babies with BPD;
- identify future targets for additional research to increase our understanding of the developing lung.

The Prematurity and Respiratory Outcomes Program (PROP) enrolled 835 preterm infants born less than 29 weeks gestation. Newborns were followed from birth until one year corrected gestational age. Scientific outcomes from these studies remains ongoing. This session will provide an update on current research findings and unpublished results. The studies focus on biomarkers for bronchopulmonary dysplasia (BPD) and later sequellae such as late onset pulmonary hypertension and pulmonary function abnormalities.

Chairing: P.E. Moore, MD, ATSF, Nashville, TN
A. Hamvas, MD, Chicago, IL

9:15 Introduction and the Effect of Race on BPD and Respiratory Outcomes
R.M. Ryan, MD, ATSF, Charleston, SC

9:30 **Lessons from the Heart: Clinical and Biochemical Markers of Chronic Pulmonary Hypertension in Formerly Premature Infants**
E.D. Austin, MD, MSc, Nashville, TN

9:50 **What to Do About All That RAGE: The Inflammation Story Continues**
J. Benjamin, MD, MPH, Nashville, TN

10:10 **Neonatal Immunology: T-Cell CD31 Expression is a Biomarker for BPD**
G.S. Pryhuber, MD, Rochester, NY

10:30 **Respiratory Medications in the NICU and Beyond**
J. Greenberg, MD, Cincinnati, OH

10:50 **Physiologic Outcomes of ELGANs at 1 Year of Age**
J.A. Voynow, MD, Richmond, VA

11:10 **Where Do We Go From Here?**
P.E. Moore, MD, ATSF, Nashville, TN

BASIC • BEHAVIORAL
CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B7 GLOBAL PERSPECTIVES ON CLIMATE CHANGE: IMPACT ON SUSCEPTIBLE POPULATIONS AND LOW-INCOME COUNTRIES

Assemblies on Environmental, Occupational and Population Health; Allergy, Immunology and Inflammation; Behavioral Science and Health Services Research; Nursing; Pediatrics; Pulmonary Infections and Tuberculosis

9:15 a.m. - 11:15 a.m.

Target Audience
Scientists, clinicians (pulmonology, cardiology, pediatrics, gerontology), public health/global health practitioners, and trainees interested in environmental impact of health

Objectives
At the conclusion of this session, the participant will be able to:

- understand the recent evidence on the degree of global climate change, and worldwide actions to stop it;
- gain the knowledge about the health impacts of climate change, particularly among vulnerable populations including the elderly and children;
- encourage ATS members and others to become involved and respond to the health challenges posed by climate change through influencing policy makers.

Climate change impacts individuals around the world especially when adaptation to climate change is a matter of survival for low and middle-income countries. Vulnerability to climate change is not the same for different countries and communities. The main objectives of this symposium are to present a global perspective on the health effects of global climate change. The degree of climate change worldwide changes according to vulnerability of geographic locations such as Arctic, Antarctic, Africa, Middle East, Mediterranean, Asia and Island States. This session will present recent developments in our understanding of the health effects of climate change among vulnerable countries and individuals. Leading scientists will address mechanisms, vulnerability and risk factors of climate change.

Chairing: J.R. Balmes, MD, ATSF, San Francisco, CA
M.B. Rice, MD, MPH, Boston, MA
H. Bayram, MD, PhD, ATSF, Istanbul, Turkey

9:15 **Climate Change: How Bad Is It? Is There Sufficient Action to Mitigate Its Effects?**
W. Abdalati, PhD, Boulder, CO

9:30 **An Overview of Health Impacts of Climate Change**
M. Akpinar-Elci, MD, MPH, ATSF, Norfork, VA

9:45 **Lung Health in an Era of Climate Change and Dust Storms**
M. Mirsaeidi, MD, Miami, FL

10:00 **Does Age Matter in Climate Change?**
I. Annesi-Maesano, MD, PhD, DSc, Paris, France

10:15 **Is the Worst for the Poorest?: Vulnerable Regions and Countries**
H. Bayram, MD, PhD, ATSF, Istanbul, Turkey

10:30 **Does It Really Matter for Developed World?**
K.E. Pinkerton, PhD, Davis, CA

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

B8 ENSURING BROAD DISSEMINATION AND EQUITABLE ACCESS TO LUNG CANCER SCREENING: CHALLENGES AND OPPORTUNITIES

Assemblies on Thoracic Oncology; Behavioral Science and Health Services Research; Nursing

9:15 a.m. - 11:15 a.m.

Target Audience
clinicians, patients, policy makers, patient advocacy groups, researchers interested in lung cancer screening and reducing disparities in lung health

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about barriers to equitable access to lung cancer screening;
- more appropriately identify and refer candidates for lung cancer screening;
- gain new strategies to overcome disparities in access to lung cancer screening.

Annual lung cancer screening with low dose CT is one of the few public health interventions proven to reduce lung cancer mortality, yet it is markedly underutilized, with national screening rates under 5% among eligible individuals. There is particular concern that socioeconomically disadvantaged individuals, including those in inner cities as well as rural areas, are at risk for further disparities in lung cancer outcomes if screening is not disseminated broadly. This session will explore barriers faced by patients, clinicians, and systems trying to increase access to and reach of lung cancer screening, and successful strategies implemented to overcome these barriers.

Chairing: R.S. Wiener, MD, MPH, Boston, MA
M.P. Rivera, MD, ATSF, Chapel Hill, NC
J.P. Wisnivesky, DrPH, MD, New York, NY

9:15 **Overview: Why Are so Few Eligible Individuals Screened?**
R.S. Wiener, MD, MPH, Boston, MA

9:20 **Promoting Quality but Limiting Access? Impact of Policy Coverage Decisions**
M.S. Kale, MD, MPH, New York, NY

9:40 **Lightening the Load: Helping PCPs Identify Eligible Patients and Facilitate Shared Decision-Making**
T. Caverly, MD, MPH, Ann Arbor, MI

10:00 **Overcoming Patient-Level Barriers: Addressing Stigma Experienced by Smokers**
L. Carter-Harris, PhD, APRN, ANP-C, New York, NY

10:20 **Public Health Outreach: Kentucky's Terminate Lung Cancer Campaign**
R. Cardarelli, DO, MPH, Lexington, KY

10:40 **Integrating and Coordinating Health Care in Inner City Communities**
R.A. Winn, PhD, Chicago, IL

11:00 **Working Together to Turn the Tide**
R.A. Smith, PhD, Atlanta, GA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B9 ADDICTING A NEW GENERATION: JUULING, VAPING, HEAT NOT BURN, FLAVORINGS, AND THE EVIDENCE FOR WHY WE SHOULD BE VERY CONCERNED

Assemblies on Behavioral Science and Health Services Research; Clinical Problems; Environmental, Occupational and Population Health; Pediatrics; Respiratory Cell and Molecular Biology; Thoracic Oncology

9:15 a.m. - 11:15 a.m.

Target Audience
Health care providers and trainees, public policy advocates and decision makers, tobacco and e-cigarette researchers.

Objectives
At the conclusion of this session, the participant will be able to:

- describe how to assess harm reduction and different elements that need to go into a harm reduction claim;
- counsel patients and educate the general public about the substantial harms of electronic nicotine delivery systems;
- describe and effectively advocate for evidenced based public policy initiatives that can protect young people from new tobacco products, including electronic nicotine delivery systems.

New tobacco products are coming on the market with implied claims of reduced harm, however many of these claims do not seem to have any more solid of an evidence base as the false claims of reduced harm for low tar and nicotine cigarettes. This session will review principles of assessing claims of harm reduction, the evidence on how these new tobacco products harm users, addicts non-users, and servers as an entry to use of other tobacco products by young people. Evidence based public policy recommendations will be discussed.

Chairing: E.R. Neptune, MD, Baltimore, MD
D.J. Upson, MD, MA, Albuquerque, NM
S. Pakhale, MD, MSCE, Ottawa, Canada

9:15 **Verities and Balderdash About Harm Reduction and the New ATS Policy to Support a Comprehensive Evidence-Based Approach**
F.T. Leone, MD, MS, ATSF, Philadelphia, PA

9:35 **New and Emerging Tobacco Products: What Are the Harms? Juul/Vapes/E-Cigs/Heat Not Burn**
I. Jaspers, PhD, Chapel Hill, NC

9:55 **Electronic Nicotine Delivery Systems (E-Cigarettes) Are Addicting a New Generation: Why We Should Worry**
H.J. Farber, MD, MSPH, ATSF, Houston, TX

10:14 **New Tobacco Products and Tobacco Control in Latin America**
G.E. Zabert, MD, Neuquén, Argentina

10:34 **Disparities in Tobacco and Nicotine Promotion and Addiction: How Can Marginalized Populations Be Protected?**
S. Pakhale, MD, MSCE, Ottawa, Canada

10:53 **A Patient's Perspective**
Speaker To Be Announced

10:59 **FDA Policy Initiatives to Protect Youth From Nicotine and Tobacco: Where Do We Stand?**
M. Zeller, JD, Silver Spring, MD

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B10 HUMAN LUNG CELL ATLAS: BEYOND SINGLE CELL RNA-SEQUENCING

Assemblies on Allergy, Immunology and Inflammation; Respiratory Cell and Molecular Biology; Section of Genetics and Genomics

9:15 a.m. - 11:15 a.m.

Target Audience
Basic scientists, translational scientists

Objectives
At the conclusion of this session, the participant will be able to:

- understand the conceptual approach of the human cell atlas, and its implications for lung health and disease;
- gain knowledge of the cellular heterogeneity during lung development and in lung disease;
- appreciate the power of single nuclear sequencing for retrospective clinical studies and spatial analyses.

The human lung is a highly structured organ that contains at least 40 discrete cell types that contribute to its physiology and functions. To understand the lung and its diseases, we need to know the cells and their interactions that form this vital organ. Recent advances in single cell biology and spatial transcriptomics offer

an unprecedented insight into the cellular and molecular architecture of the lung, the cell lineages that form its core structure and their interactions in health and disease. In this symposium, we will host a series of speakers that will provide a comprehensive overview of recent progress in charting an atlas of human lung cells, and its applications in understanding lung development, biomarker discovery and disease pathogenesis, as well as the cellular response to environmental insults.

Chairing: G.H. Koppelman, MD, PhD, Groningen, Netherlands
K.A. Steiling, MSc, MD, Boston, MA
C.P. Hersh, MD, MPH, ATSF, Boston, MA

9:15 **Introduction to Single Cell Sequencing of the Lung**
G.H. Koppelman, MD, PhD, Groningen, Netherlands

9:23 **The Human Lung Cell Atlas: Charting Cellular Heterogeneity and Plasticity in Lung**
J. Rajagopal, MD, Boston, MA

9:39 **Single Cell Transcriptomics in ARDS**
R. Zemans, MD, Ann Arbor, MI

9:55 **Airway Epithelial Cell Heterogeneity Along the Respiratory Tract: Location, Location, Location**
P. Barbry, PhD, Valbonne, France

10:11 **Single-Nuclear Sequencing of Human Lung Tissue: Empowering Spatial Analyses and Retrospective Analyses**
A. Misharin, MD, PhD, Chicago, IL

10:27 **Unique Cell States and Interactions in Asthma: Applying the Human Lung Cell Atlas to Understand Disease Pathogenesis**
M.C. Nawijn, PhD, Groningen, Netherlands

10:43 **Epigenetics of the Human Lung Cell Atlas: Single-Cell ATAC-Seq of Human Lung Tissue**
T.E.A. Duong, MD, San Diego, CA

10:59 **Cigarette Smoking Induces Unique Cell States in Bronchial Epithelial Cells**
A. Spira, MD, Boston, MA

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B11 LUNG-OMICS: TO BOLDLY GO...

Assemblies on Pulmonary Circulation; Allergy, Immunology and Inflammation; Environmental, Occupational and Population Health; Nursing; Respiratory Cell and Molecular Biology; Section on Genetics and Genomics

9:15 a.m. - 11:15 a.m.

Target Audience
Physicians, nurses and researchers from any field who are interested in learning about state of the art omics approaches.

Objectives
At the conclusion of this session, the participant will be able to:

- understand the different approaches used to interpret coding versus non-coding DNA variants and their functional relevance to disease;
- learn how network analysis can be used to identify critical regulators in complex molecular interactions, and integrate clinical variables to develop risk stratification models for patients;
- describe how ancestry and population structure impact the interpretation of genomic research and translation into the clinic.

New omics technologies are providing unparalleled insight into the causes of lung disease and the potential to personalize therapy to specific endophenotypes, but they also present challenges for interpretation and clinical translation. This symposium showcases how omics approaches such as whole genome sequencing, epigenetics, proteomics and network analysis are being applied in lung diseases, with examples from pulmonary hypertension and asthma. The focus is on broad concepts more than specific pathways. We highlight the importance of considering ancestry in genomic studies to address health disparities, understand complex gene-environment interactions, and ensure that advances in precision medicine will benefit all populations.

Chairing: M. Aldred, PhD, Indianapolis, IN
K. Yuan, PhD, Palo Alto, CA
S. Gräf, PhD, Cambridge, United Kingdom

9:15 **Introduction**
M. Aldred, PhD, Indianapolis, IN

9:25 **Whole Genome Sequencing: Challenges of Interpreting the Non-Coding Space**
S. Gräf, PhD, Cambridge, United Kingdom

9:47 **Network Biology of the Regulatory Space**
S.S. Pullamsetti, PhD, Bad Nauheim Hessen, Germany

10:09 **Network Biology of Non-Coding RNAs**
S.Y. Chan, MD, PhD, Pittsburgh, PA

10:31 **Network Analysis in the Lab and the Clinic**
B.A. Maron, MD, Boston, MA

10:53 **Translation to the Clinic: The Importance of Ancestry**
E.G. Burchard, MD, MPH, San Francisco, CA

BEHAVIORAL

SCIENTIFIC SYMPOSIUM

B12 HOT TOPICS IN MEDICAL EDUCATION: WHAT'S NEW IN '19

Education Committee; Members In Transition and Training Committee; Membership Committee; Section on Medical Education

9:15 a.m. - 11:15 a.m.

Target Audience
Physicians, nurses, respiratory therapists and pharmacists who teach students, residents, fellows and/or peers would benefit from this session. Medical trainees, including students, residents and fellows would also value this session

Objectives
At the conclusion of this session, the participant will be able to:

- Identify the importance and benefit of implementing active learning techniques, including use of asynchronous learning strategies to engage the modern learner.
- Describe how social media can be used as an effective teaching tool in medical education and identify the pros and cons of free open access education.
- Describe best practices for teaching about social determinants of health in order to improve both the learner and the patient experience.

Education, a core skill of all effective health care providers, has rapidly changed over the years. Given work hours changes, shifts in undergraduate medical curricula, increased demands on physicians due to documentation and EHR challenges, new educational techniques are required to keep up with the modern learner. Adult learning theories have changed the way we deliver content and our current fast paced, immediate gratification society has changed the way learners interact with content. This symposium will leave participants with tangible strategies to teach modern learners, use social media for teaching and teach some of the non-traditional topics, such as social determinants of health. Medical education research is a rapidly growing field and this Hot Topics symposium will provide participants with the most up to date research and best practices on how to effectively teach in 2019.

Chairing: M.M. Hayes, MD, Boston, MA
R. Adamson, MBBS, ATSF, Seattle, WA
G.W. Garrison, MD, Burlington, VT
D.M. Boyer, MD, Boston, MA

9:15 **Setting the Stage**
M.M. Hayes, MD, Boston, MA

9:20 **Activating Active Learning: Tools to Teach the Modern Learner**
K.M. Burkart, MD, MSc, ATSF, New York, NY

9:40 **How to Maximize Teaching Time: The Use of Asynchronous Learning**
D. Pradhan, MD, New York, NY

10:00 **Best Practices for Teaching About Social Determinants of Health**
A. Luks, MD, Seattle, WA

10:20 **Active Learning Break: Think Pair Share**
D.M. Boyer, MD, Boston, MA

10:25 Free Open Access Medical (FOAM) Education: Does It Help or Hurt?
N. Seam, MD, ATSF, Bethesda, MD

10:45 Are You Competent to Assess Competency in 2019?
B. Coruh, MD, Seattle, WA

11:05 Putting It All Together
R. Adamson, MBBS, ATSF, Seattle, WA

BASIC • BEHAVIORAL
CLINICAL • TRANSLATIONAL

ATS PRESIDENT'S SYMPOSIUM

B13 50 YEARS OF PROGRESS IN PULMONARY SCIENCE

9:15 a.m. - 11:15 a.m.

Target Audience
All research investigators, providers, and lay members with an interest in the history of lung research and examples of notable progress in the field

Objectives
At the conclusion of this session, the participant will be able to:

- know the origins of the NHLBI Division of Lung Diseases and how grant programs have facilitated lung biology and disease research;
- understand several of the main advances in pulmonary and critical care medicine over the last half century;
- describe future scientific directions being pursued by new investigators that may inform ongoing research and stimulate new collaborations.

This session will include live and video presentations commemorating the 50th Anniversary of the Division of Lung Diseases (DLD) at the NIH National Heart Lung and Blood Institute. Speakers will highlight important scientific advances in pulmonary health and disease and illustrate DLD's role in facilitating lung biology and disease research.

Chairing: P.E. Parsons, MD, ATSF, Burlington, VT
G. Gibbons, MD, Bethesda, MD

9:15 Introduction
G. Gibbons, MD, Bethesda, MD

9:20 Video Presentation: The NHLBI Perspective Featuring Claude Lenfant, MD
G. Gibbons, MD, Bethesda, MD

9:35 Respiratory Distress Syndrome
J.A. Whitsett, MD, Cincinnati, OH

9:55 COPD
M.K. Han, MD, MS, Ann Arbor, MI

10:15 Asthma
J.M. Drazen, MD, Boston, MA

10:35 Acute Lung Injury/ARDS
C.S. Calfee, MD, San Francisco, CA

11:00 Future Directions in Lung Research

Introduction:
P.E. Parsons, MD, ATSF, Burlington, VT

Previously Recorded Presentations by Research Investigators

Lung Stem Cells Featuring Tien Peng, MD

Cystic Fibrosis Airway Featuring Susan Birket, PharmD, PhD

Pulmonary Vascular Disease Featuring Bradley Maron, MD

Models of Lung Injury Featuring Hasina Outtz Reed, MD, PhD

Lung Development Featuring Denise Al Alam, PhD

9:15 a.m. - 11:15 a.m

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

Monday Mid-day, May 20

11:45 a.m. - 1:15 p.m.

ATS WOMEN'S FORUM

The annual ATS Women's Forum recognizes the achievements and supports the advancement of women in pulmonary, critical care, and sleep medicine and research. Our speaker(s), to be named soon, will discuss issues that are relevant to female medical professionals followed by a question and answer period.

In addition, the 2019 Elizabeth A. Rich, MD Award, which honors the memory and work of Elizabeth A. Rich, MD, will be presented to a female ATS member. The awardee will be a woman who has made significant achievements in the practice or science of pulmonary, critical care, or sleep medicine; demonstrated leadership in her field; and has shown dedicated mentorship of junior colleagues. The award recipient will also address the audience.

The forum provides a valuable opportunity for women to meet new colleagues and ATS leaders. Men are also welcome to attend the forum. Attendees will find value in the inspirational messages and career insights the speakers share as well as vibrant networking opportunities.

The forum is organized and presented by the ATS Membership Committee, and will be hosted by Janet Lee, MD, chair of the committee.

Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for admission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee. A plated lunch will be served.

CLINICAL

WORKSHOP

WS3 DEMYSTIFYING PEDIATRIC EXERCISE TESTING INTERPRETATION

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemblies on Pediatrics; Clinical Problems; Pulmonary Rehabilitation

11:45 a.m. - 1:15 p.m.

Target Audience
Pediatric pulmonology trainees and clinicians

Objectives
At the conclusion of this session, the participant will be able to:

- recognize the technical elements of a successfully completed maximal progressive exercise test;
- identify the factors leading to exercise limitation;
- analyze the results of a maximal progressive exercise test and apply the results to patient management.

Exercise testing is useful for defining functional capacity, understanding symptoms, identifying limitations to exercise capacity, assessing responses to therapeutic interventions, and prognosis. The overall aim of this workshop is to improve the competence in interpreting pediatric progressive exercise testing.

Chairing: L.C. Lands, MD, PhD, ATSF, Montreal, Canada
S.R. Boas, MD, Glenview, IL

11:45 **The Response of the Healthy Child to Progressive Exercise and the Assessment of Test Quality and Outcome Measures**
L.C. Lands, MD, PhD, ATSF, Montreal, Canada

12:15 **How Exercise Responses Are Affected by Chronic Disease and the Detection of the Factors Limiting Exercise Ability**
S.R. Boas, MD, Glenview, IL

12:45 **An Interactive Session Reviewing and Interpreting Three Characteristic Exercise Tests**
L.C. Lands, MD, PhD, ATSF, Montreal, Canada

BEHAVIORAL • CLINICAL • TRANSLATIONAL

WORKSHOP

WS4 PROMOTING WELLNESS IN HEALTH CARE TEAMS: A PRACTICAL APPROACH

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemblies on Behavioral Science and Health Services Research; Nursing; Pediatrics; Section on Medical Education

11:45 a.m. - 1:15 p.m.

Target Audience
Students, trainees, nurses, physicians, other allied health professionals and healthcare system administrators as well as those who focus on clinical work, education, research and/or administration

Objectives
At the conclusion of this session, the participant will be able to:

- describe institutional and individual factors contributing to burnout;
- implement at least one strategy to mitigate an institutional driver of burnout;
- implement at least one strategy to increase personal resiliency.

During this workshop, we will describe the framework of burnout factors and well being factors at the institutional and personal levels. We will review studies that have been shown to reduce burnout. Tools from change management, implementation science and business case development will be used to demonstrate how the strategies from these studies can be transformed into achievable goals. We will facilitate collaborative group discussions during which attendees will develop personal action plans. Attendees will leave with practical strategies to improve wellness, both to address system issues contributing to burnout at their home institutions and to enhance their personal resilience.

Chairing: K. Doo, MD, New York, NY
R. Adamson, MBBS, ATSF, Seattle, WA
A. Patel, MD, MPH, Chicago, IL
N.S. McAndrew, PhD, RN, ACNS-BC, CCRN, Milwaukee, WI

11:45 Introduction
R. Adamson, MBBS, ATSF, Seattle, WA

11:50 Strategies to Address Institutional Factors Contributing to Burnout
A. Patel, MD, MPH, Chicago, IL

12:05 Group Discussion

12:30 Individual Factors Contributing to Burnout
K. Doo, MD, New York, NY

12:37 Strategies to Address Individual Factors Contributing to Burnout
N.S. McAndrew, PhD, RN, ACNS-BC, CCRN, Milwaukee, WI

12:45 Group discussion

1:10 Summary
R. Adamson, MBBS, ATSF, Seattle, WA

ADULT CLINICAL CORE CURRICULUM

CC2 SLEEP MEDICINE CLINICAL CORE CURRICULUM I

11:45 a.m. - 1:15 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine,

as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;

- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: S.M. Jamil, MD, ATSF, La Jolla, CA
M. Lipford, MD, Rochester, MN

11:45 **Sleep in COPD/Asthma**
R.L. Owens, MD, La Jolla, CA

12:15 **Sleep in Heart Failure**
O. Mesarwi, MD, La Jolla, CA

12:45 **Obesity Hypoventilation Syndrome**
B. Mokhlesi, MD, MS, Chicago, IL

CENTERS FOR DISEASE CONTROL AND PREVENTION

L11 THE CDC CCARE INITIATIVE: REDUCING ASTHMA BURDEN THROUGH METRICS, TOOLS, AND INNOVATION

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians who treat asthma patients, persons interested in the public health burden and epidemiology of asthma, or persons interested in technology and disease management

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about metrics CDC will use to determine change in asthma-related ED visits and hospitalizations;
- gain a better understanding of public health-healthcare tools and collaborations designed to achieve reduced asthma burden on a large scale;
- learn about new tools and technologies CDC will use to promote improved asthma control and reduced ED visits and hospitalizations.

CDC's National Asthma Control Program (NACP) designed an initiative (Controlling Childhood Asthma, Reducing Emergencies, or CCARE) to prevent half a million pediatric hospitalizations and emergency room visits in five years. The NACP proposes to achieve the CCARE goal in part by promoting public health healthcare collaboration across sectors and linkages between programs and clinicians and evidence-based interventions (e.g., guidelines-based medical management, smoking cessation, asthma self-management education, home visits, and asthma-friendly policies). Our presentation discusses targets and metrics to track progress, new tools that promote multi-sector involvement, and technological innovations that CDC and others are using to achieve their goal.

Chairing: J. Malilay, PhD, MPH, Atlanta, GA

12:15 **Introduction to the CDC CCARE Asthma Initiative**
J. Malilay, PhD, MPH, Atlanta, GA

12:30 **Metrics to Measure Asthma Morbidity: Where Are We Today?**
K.D. Sircar, PhD, MPH, Atlanta, GA

12:45 **Tools to Reduce Asthma Morbidity**
S.F. Beavers, MD, Atlanta, GA

1:00 **Technology for CCARE**
A. Meyers, MEd, Atlanta, GA

VETERANS HEALTH ADMINISTRATION

L12 MILLION VETERAN PROGRAM: OPPORTUNITIES FOR STUDY OF GENETIC CONTRIBUTIONS TO RESPIRATORY DISEASES

12:15 p.m. - 1:15 p.m.

Target Audience
Pulmonary investigators and research trainees in or outside of the VA with interests in genetic contributions to disease and genomic medicine and/or in large-scale multi-element patient data sets for use in patient-centered outcomes research.

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about the Million Veteran Program as a source of clinical and genomics data from large numbers of Veterans for use in research studies that may improve the health status of Veterans and non-Veterans with respiratory disorders;
- learn more about use of algorithms to identify accurately Veterans with specific respiratory diseases in the VA's Corporate Data Warehouse and develop validated phenotypes for use in research initiatives such as MVP;
- learn more about the ways in which correlating clinical and genomics data in MVP may be used to characterize subgroups of Veterans with lung cancer.

In the VA's Million Veteran Program (MVP), data from surveys, electronic medical records (EMR), and genomic studies have been obtained from over 650,000 Veterans. The goal is to improve understanding of genetic influences on cause, prevention and treatment of specific diseases. Safeguards to protect patient identities have been used throughout. This session will describe information for pulmonary investigators on applying for research support from the VA for studies related to MVP, on development of algorithms to identify patients with specific lung diseases from the VA EMR, and on results from MVP correlating clinical findings and genomic data in lung cancer.

Chairing: J.K. Brown, MD, San Francisco, CA
E. Garshick, MD, West Roxbury, MA
M. Moy, MD, MSc, Boston, MA

12:15 Million Veteran Program: What You Need To Know
S. Muralidhar, PhD, Washington, DC

12:45 Pulmonary Phenotyping Using the VA Electronic Medical Record
E.S. Wan, MD, MPH, Boston, MA

1:00 Early and Late Stage Lung Cancer: Correlating Clinical Data and Genomics in MVP
A. Zimolzak, MD, MMSc, Houston, TX

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

L13 UPDATE ON CLASSIFICATION OF CHEST RADIOGRAPHS AND THE B READER PROGRAM

12:15 p.m. - 1:15 p.m.

Target Audience
Providers of clinical, research, administrative and legal services to individuals with suspected or known dust-induced lung disease (pneumoniosis) or with exposures putting them at risk for pneumoconiosis.

Objectives
At the conclusion of this session, the participant will be able to:

- recognize what an ILO classification is, when it needs to be obtained, and the meaning of classification results;
- learn what a B Reader is, why B Readers are important, and how to become a B Reader;
- learn about new study materials to prepare for the B Reader Certification Examination and the availability of a chest digital image repository containing chest images potentially useful for teaching and research.

The International Labour Organization (ILO) maintains an international system for classifying chest radiographs for the presence and severity of changes associated with dust-induced interstitial lung disease (pneumoconiosis). This session will describe the ILO classification system and current efforts to update it. It will also provide an update on the National Institute for Occupational Safety and Health (NIOSH) B Reader Program, which provides opportunities to learn about the ILO classification system and certification testing to document the ability to use it. Attendees will also learn about updates to B Reader training materials and the B Reader certification examination.

Chairing: D.N. Weissman, MD, ATSF, Morgantown, WV

12:15 Chair Introduction
D.N. Weissman, MD, ATSF, Morgantown, WV

12:18 International Effort to Update the ILO Classification System
C.N. Halldin, PhD, Morgantown, WV

12:37 Overview of the NIOSH B Reader Certification Program
A.S. Laney, PhD, Morgantown, WV

12:56 Developing an Updated B Reader Training Syllabus and Certification Examination
R.A. Cohen, MD, Chicago, IL

NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NIH

L14 ASTHMA PREDICTION: NEW FINDINGS FROM COHORTS

12:15 p.m. - 1:15 p.m.

Target Audience
Providers of asthma and/or pediatric care, Researchers in asthma or public health

Objectives
At the conclusion of this session, the participant will be able to:

- Learn about a new asthma risk score developed from birth cohorts.
- Improve understanding of how the gut microbiome influences the risk of asthma
- Learn new findings of how the risks for asthma are different or similar for urban and rural children.

This session will present the latest research on risk factors that help determine whether a child will develop asthma.

Chairing: H. Kim, MD, Detroit, MI
J. Biagini Myers, PhD, Cincinnati, OH

12:15 The Interplay Between Maternal Factors and the Infant Gut Microbiota: Influence on the Risk for Allergic Asthma
C.C. Johnson, PhD, MPH, Detroit, MI

12:34 Risk Factors for Respiratory Infections and Asthma Phenotypes in Rural and Urban Birth Cohorts
J.E. Gern, MD, Madison, WI

12:53 Personalized Asthma Risk Score from CCAAPS and the Isle of Wight
J. Biagini Myers, PhD, Cincinnati, OH

U.S. FOOD AND DRUG ADMINISTRATION

L15 PULMONARY UPDATE FROM THE U.S. FOOD AND DRUG ADMINISTRATION

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians in practice, researchers, pharmaceutical industry representatives, international regulators

Objectives
At the conclusion of this session, the participant will be able to:

- understand the recent regulatory framework and approvals in the past year;
- understand the current risk/benefit framework of several prominent safety reviews over the following year;
- understand the regulatory considerations in reviewing eosinophil targeted therapies.

The most recent regulatory FDA actions, including recent approvals for pulmonary diseases will be discussed. Safety issues, including the Agency's decisions regarding the completed LABA safety studies, as well as other prominent safety issues will be discussed. Finally, the current regulatory considerations for eosinophil targeted drug therapies will be discussed.

Chairing: B. Karimi-Shah, MD, Silver Spring, MD

12:15 Introduction
B. Karimi-Shah, MD, Silver Spring, MD

12:20 Pulmonary Update from the FDA
S. Seymour, MD, Silver Spring, MD

12:35 Important Safety Issues: Update from the FDA
R. Lim, MD, Silver Spring, MD

12:50 Regulatory Considerations for Eosinophil Targeted Drug Therapies
R. Busch, MD, MMSc, Silver Spring, MD

1:10 Question and Answer Period
B. Karimi-Shah, MD, Silver Spring, MD

DIVISION OF LUNG DISEASES, NHLBI/NIH

L16 THE COPD NATIONAL ACTION PLAN: 2019 UPDATE

12:15 p.m. - 1:15 p.m.

Target Audience
COPD patients, COPD advocates, Pulmonologists, Industry representatives, Health Care providers, Payors

Objectives
At the conclusion of this session, the participant will be able to:

- Increase awareness and knowledge about the COPD national Action Plan
- Alert the audience on the CNAP and ways to contribute to its implementation
- Improve on disease management

The COPD National Action Plan, the first blue print for the Nation to be used as a guideline to tackle the disease, was launched during the 2017 ATS International Conference. This session will update ATS 2019 attendees on the progress made and future perspectives as related to the audience by three government agencies (NHLBI/NIH, CDC & HRSA) and two advocacy groups (ALA & COPD Foundation), all of which were among the instrumental contributors to the development of the plan.

Chairing: A. Punturieri, MD, PhD, Bethesda, MD

12:15 NHLBI Update on the COPD National Action Plan
A. Punturieri, MD, PhD, Bethesda, MD

12:20 CDC Update on the COPD National Action Plan
J.B. Croft, PhD, Atlanta, GA

12:32 ALA Update on the COPD National Action Plan
D.P. Brown, BS, MS, CHES, Washington, DC

12:44 HRSA update on the COPD National Action Plan
P. Moore, MD, Rockville, MD

12:56 COPD Foundation Update on the COPD National Action Plan
J.L. Sullivan, MPH, Washington, DC

DIVISION OF LUNG DISEASES, NHLBI/NIH

L17 NHLBI MACS/WIHS COMBINED COHORT: A RESOURCE FOR APPLIED RESEARCH ON HIV-RELATED PULMONARY COMPLICATIONS

12:15 p.m. - 1:15 p.m.

Target Audience
Providers of lung health, medical fellows in training, and clinical and basic researchers on lung biology, HIV researchers and clinicians, virologists, immunologists, microbial pathogenesis, and infectious disease doctors and scientists.

Objectives
At the conclusion of this session, the participant will be able to:

- gain knowledge about the new combined cohorts and data available to perform HIV research;

- learn about future opportunities and collaborations in HIV pulmonary research;
- learn about advances in HIV-related pulmonary research and apply new knowledge to own research.

This session will give an overview of the Multicenter AIDS Cohort Study (MACS) and Women's Interagency HIV Study (WIHS), two very large comprehensive cohorts studies that are now under the direction and management of the National Heart, Lung and Blood Institute. Both previously independent studies have been combined in one comprehensive study and will provide an avenue to investigate questions at the forefront of HIV co-morbidities research, and continue to provide a wealth of data that can be leveraged to investigate the progression of HIV-associated disease in women, gay and bisexual men. The combined cohort will be composed of over 6,000 participants, including new enrolled subjects from centers across the US. This session will outline specifically the value of the combined resource from the perspective of the investigators, and how it can be used for the advancement of understanding and treatment of HIV-driven pulmonary complications in PLWH.

Chairing: K.M. Kunisaki, MD, MSCR, Minneapolis, MN
E. Caler, PhD, Bethesda, MD

12:15 Leveraging MACS and WIHS for Mechanistic Studies
A.M. Morris, MD, MS, Pittsburgh, PA

12:27 Published Results Regarding Respiratory Disease in the MACS and WIHS Cohorts
K.M. Kunisaki, MD, MSCR, Minneapolis, MN

12:51 Potential for Analyses of Lung Function Across Macs/WIHS Cohorts
M.B. Drummond, MHS, MD, ATSF, Chapel Hill, NC

1:03 Lessons Learned and Future Opportunities for Cardiometabolic Research in the Combined MACS/WIHS Cohort
P. Tien, MD, San Francisco, CA

DIVISION OF LUNG DISEASES, NHLBI/NIH

L18 RESIDENT DUTY HOURS, PATIENT SAFETY, AND RESIDENT SLEEP: RESULTS OF THE ROSTER AND ICOMPARE TRIALS

12:15 p.m. - 1:15 p.m.

Target Audience
Sleep clinicians and researchers, clinicians involved in graduate medical education, and clinical researchers would benefit from this session. This includes students, residents, fellows, and other medical professionals.

Objectives
At the conclusion of this session, the participant will be able to:

- understand questions being addressed by ROSTERS and iCOMPARE, and the study designs;
- learn and understand how resident duty hours affect resident sleep;
- understand how resident duty hours affect patient outcomes.

This session will discuss two NHLBI-funded trials examining the effect of resident duty hours on patient safety and resident sleep. The Multi-center Clinical Trial of Limiting Resident Work Hours on ICU Patient Safety (ROSTERS) examines the effect of two different resident work hour schedules on patient safety, resident safety, resident performance, and resident sleep in the pediatric intensive care unit setting. The Individualized Comparative Effectiveness of Models Optimizing Patient Safety and Resident Education (iCOMPARE) trial examines the effect of two internal medicine resident duty hour standards on patient safety, resident education and resident sleep. Study results will be presented.

Chairing: L. Reineck, MD, Bethesda, MD
M. Twery, PhD, Bethesda, MD

12:15 Overview of Rosters and iCOMPARE Trials
L. Reineck, MD, Bethesda, MD

12:25 ROSTERS Overview, Design and Outcomes
C. Czeisler, PhD, MD, Boston, MA

12:45 iCOMPARE Overview, Design and Outcomes
L. Bellini, MD, Philadelphia, PA

1:05 Question and Answer

U.S. FOOD AND DRUG ADMINISTRATION

L19 NICOTINE AND THE FDA PERSPECTIVE: REGULATION, SCIENCE, PATIENT EDUCATION, AND CLINICAL PRACTICE

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians trying to help adult smokers quit and those trying to educate youth and others about nicotine and tobacco products, smoking cessation counselors trying to motivate current smokers to quit

Objectives
At the conclusion of this session, the participant will be able to:

- improve understanding of FDA policies related to nicotine;
- better advise patients of the addictiveness of nicotine and the dangers of newer tobacco products;
- refer patients for smoking cessation counseling and treatments earlier and more consistently.

We will focus on nicotine from the FDA perspective; specifically, the science of nicotine and how this affects FDA policy and regulation. We will describe FDA's "The Real Cost" and "The Fresh Empire" campaigns which focused on helping youth understand the dangers of tobacco use including addiction to nicotine and provide data on the campaigns' effectiveness. We will describe FDA's new campaign designed to help motivate current smokers to quit and conclude with a discussion of the applicability of the information to clinical practice. Eliminating use of tobacco products in the United States requires a multifaceted approach and team effort.

Chairing: P. Callahan-Lyon, MD, Silver Spring, MD

12:15 Nicotine: FDA Policy and Regulation
M. Zeller, JD, Silver Spring, MD

12:35 Nicotine: The Science Behind the Products and the Policies
P. Callahan-Lyon, MD, Silver Spring, MD

12:55 FDA's Public Education Campaigns to Prevent Initiation and Encourage Cessation
K. Crosby, BA, Silver Spring, MD

MEET THE PROFESSOR SEMINARS

Registration Fee: $70.00 (includes box lunch.)
Attendance is limited. Pre-registration is required.

12:15 p.m. - 1:15 p.m.

MP501 PRIMARY IMMUNODEFICIENCY AND PULMONARY DISEASE
A. Dosanjh, MD, San Diego, CA

MP502 IMPROVING QUALITY OF LIFE AND SURVIVAL IN NEUROMUSCULAR RESPIRATORY FAILURE
K.A. Provost, DO, PhD, Buffalo, NY

MP503 REAL WORLD CHALLENGES IN THE DIAGNOSIS OF IPF
A.M. Nambiar, MD, MSCR, San Antonio, TX

MP504 PEAK INSPIRATORY FLOW RATE TO AID IN SELECTION OF APPROPRIATE INHALER DEVICE
D.A. Mahler, MD, Hanover, NH

MP505 EXTRACORPOREAL MEMBRANE OXYGENATION: PHYSIOLOGICAL CURIOSITIES
N.S. Sharma, MD, Tampa, FL
C. Agerstrand, MD, New York, NY

MP506 GENETICS IN MODERN DAY PULMONARY PRACTICE
T.B. Kinane, MBChB, MD, Boston, MA

MP507 PULMONARY EMBOLISM: HOW DO I MANAGE THIS CASE?
V.F. Tapson, MD, West Hollywood, CA
T. Dahhan, MD, MSEd, Durham, NC

MP508 DIAGNOSTICS AND THERAPEUTIC INTERVENTIONS IN LATENT TB INFECTION IN SPECIAL SETTINGS
P. Escalante, MD, MSc, Rochester, MN

MP509 PULMONARY REHABILITATION STANDARDS AND QUALITY
M. Steiner, MBBS, MD, Leicester, United Kingdom

MP510 BATTLE OF THE BIOLOGICS: UNDERSTANDING TARGETED THERAPY FOR SEVERE ASTHMA
G.S. Skloot, MD, ATSF, New York, NY

MP511 PEDIATRIC SLEEP DISORDERS FOR PULMONOLOGISTS
N. Simakajornboon, MD, Cincinnati, OH

MP512 LUNG CANCER SCREENING: WHAT IS SHARED DECISION MAKING AND WHEN DOES IT MATTER?
D.A. Arenberg, MD, Ann Arbor, MI

MEDICAL EDUCATION SEMINAR

ME2 DESIGNING AN EFFECTIVE SIMULATION CURRICULUM

Registration Fee: $70 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assembly on Behavioral Science and Health Services Research

12:15 p.m. - 1:15 p.m.

Target Audience
This session is targeted to health professionals interested in designing and implementing simulation curricula. This will be of specific interest to medical educators.

Objectives
At the conclusion of this session, the participant will be able to:

- design specific learning objectives and measurable outcomes for a simulation scenario.
- identify the advantages and limitations of high- and low-fidelity simulation.
- identify three steps for providing effective feedback to trainees after a simulation.

Simulation is a method used in health care education to replace or amplify real patient experiences with scenarios designed to replicate real health encounters. It has been increasingly used in medical education and training. As simulation resources become more available, it is important to recognize key aspects of creating and leading an effective simulation education program. Three educators will actively guide and engage participants through strategic topics for building such a program, including “determining learning objectives and measurable outcomes,” “scenario building,” and “strategies for debriefing and feedback.” The session will be a mix of didactics and facilitated small group discussion.

Chairing: G. Winter, MD, Cleveland, OH

Speakers: R.M. Shah, MD, Chattanooga, TN
N.G. Shah, MD, Baltimore, MD

dallas tx

ATS 2019
Where today's science meets tomorrow's care™
INTERNATIONAL CONFERENCE

Monday Afternoon, May 20

1:15 p.m. - 2:15 p.m.

VISIT THE EXHIBIT HALL

Take this opportunity between sessions to visit the Exhibit Hall to gain practical knowledge to advance care and research. Exhibitors will be on hand to provide information on pharmaceutical products, medical equipment, publications and research services.

2:15 p.m. - 4:15 p.m.

PRESENTATION OF THE RECOGNITION AWARDS FOR SCIENTIFIC ACCOMPLISHMENTS

As part of the ATS Respiratory Health Awards, the Recognition Awards for Scientific Accomplishments is given to individuals for outstanding scientific contributions in basic or clinical research to the understanding, prevention and treatment of lung disease. Those considered for the award are recognized for either scientific contributions throughout their careers or for major contributions at a particular point in their careers.

Chairing: A.J. Halayko, PhD, ATSF, Winnipeg, Canada
M. Moss, MD, ATSF, Aurora, CO

Awardees: Joanna Floros, PhD, ATSF, Hershey, PA
Nicholas W. Lukacs, PhD, Ann Arbor, MI
Prabir Ray, PhD, Pittsburgh, PA
Theodore J. Standiford, MD, Ann Arbor, MI

ADULT CLINICAL CORE CURRICULUM

CC3 PULMONARY CLINICAL CORE CURRICULUM II

2:15 p.m. - 4:15 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine, as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: C.L. Channick, MD, Los Angeles, CA
T.J. Huie, MD, Denver, CO

2:15 **The Evaluation and Management of Adult Bronchiolitis**
S. Callahan, MD, Salt Lake City, UT

2:45 **Updates in Bronchiectasis**
P.J. McShane, MD, Chicago, IL

3:15 **Approach to Eosinophilic Lung Disease**
P. Akuthota, MD, La Jolla, CA

3:45 **Lung Transplant in Patients with Obstructive Lung Disease**
L. Frye, MD, Chicago, IL

BEHAVIORAL • CLINICAL

YEAR IN REVIEW

B81 NURSING YEAR IN REVIEW: PATIENT AND FAMILY ENGAGEMENT

Assembly on Nursing

2:15 p.m. - 4:15 p.m.

Target Audience
Clinicians and researchers interested in integrating or enhancing patient and family engagement in their practice or research

Objectives
At the conclusion of this session, the participant will be able to:

- describe new findings of outcomes related to patient and family engagement in select areas of practice and research;
- describe barriers to patient and family engagement;
- identify methods and have new strategies to enhance patient and family engagement.

Speakers in select topic areas will present the state of current research related to patient and family engagement. Focused areas of practice and research will include critical care, asthma, COPD, pediatrics, and sleep. Specifically each presentation will be a synthesis and integration of results across studies with a summary of the state of the science in the area, discussion of implications for research and clinical practice, and identification of gaps. The symposium will conclude with a panel discussion of implications for clinical practice and research to enhance/support patient and family engagement.

Chairing: J.L. Guttormson, PhD, Milwaukee, WI
A.M. Russell, MScN, London, United Kingdom

2:15 **Patient and Family Engagement in Critical Care**
B.D. Hetland, PhD, RN, Omaha, NE

2:40 **Patient and Family Engagement in Sleep**
N.S. Redeker, PhD, RN, West Haven, CT

3:05 **Patient and Family Engagement in COPD**
M.C. Kapella, PhD, ATSF, Chicago, IL

3:30 **Patient and Family Engagement in Asthma**
W.M. Gibson-Scipio, APRN, BC, PhD, ATSF, Detroit, MI

3:55 **Panel Discussion: Implications for Practice and Research**
J.L. Guttormson, PhD, Milwaukee, WI

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

B82 PRO/CON: THE CONUNDRUM OF MANAGING ACUTE PULMONARY EMBOLISM

Assemblies on Clinical Problems; Critical Care; Pulmonary Circulation

2:15 p.m. - 4:15 p.m.

Target Audience
Pulmonary critical care physicians, cardiologists, interventional radiologists, early career professionals, hospital administrators, nurses, physician extenders

Objectives
At the conclusion of this session, the participant will be able to:

- compare, contrast and analyze various evidence based treatment approached for PE management and have insight into multi disciplinary approach and personalized PE care;
- identify gaps in current literature, quality improvement and research initiatives to improve, guide and streamline individual practices;
- learn new findings about topic areas not adequately addressed in current ACCP, AHA and ESC

guidelines and can begin integrating this evidence into the management of their PE patients.

This scientific symposium will focus on controversial topics in management of acute pulmonary embolism. It will compare and contrast where ACCP, AHA and ESC guidelines differ in their management of acute PE. It will provide audience how patient with acute PE is approached differently by clinicians with from different medical specialty. The session will conclude with a panel discussion focused on the future direction of the comprehensive multidisciplinary PE management. We will also use ARS throughout session.

Chairing: P. Rali, MD, Philadelphia, PA
V.F. Tapson, MD, West Hollywood, CA
R.N. Channick, MD, Boston, MA

2:15 **PRO: Catheter Directed Thrombolysis Should Be Standard of Care for Submassive PE**
G. Piazza, MD, Boston, MA

2:23 **CON: Catheter Directed Thrombolysis Should Not Be standard of Care for Submassive PE**
V.F. Tapson, MD, West Hollywood, CA

2:31 **Rebuttal: Catheter Directed Thrombolysis Should Be Standard of Care for Submassive PE**
G. Piazza, MD, Boston, MA

2:35 **Rebuttal: Catheter Directed Thrombolysis Should Not Be Standard of Care for Submassive PE**
V.F. Tapson, MD, West Hollywood, CA

2:39 **Question and Answer Session: Catheter Directed Thrombolysis for Submassive PE**
P. Rali, MD, Philadelphia, PA

2:45 **PRO: Systemic Thrombolysis for Submassive PE Improves Outcome**
D. Jimenez, MD, PhD, Madrid, Spain

2:53 **CON: Systemic Thrombolysis Has No Role in Submassive PE**
B.N. Rivera-Lebron, MD, MS, Pittsburgh, PA

3:01 **Rebuttal: Systemic Thrombolysis for Submassive PE Improves Outcome**
D. Jimenez, MD, PhD, Madrid, Spain

3:05 **Rebuttal: Systemic Thrombolysis Has No Role in Submassive PE**
B.N. Rivera-Lebron, MD, MS, Pittsburgh, PA

3:09 **Question and Answer Session: Systemic Thrombolysis for Submassive PE**
P. Rali, MD, Philadelphia, PA

3:15 **PRO: Push Dose Thrombolysis Saves Lives in Massive PE with Cardiopulmonary Collapse**
P. Rali, MD, Philadelphia, PA

3:23 **CON: There Are Better Ways to Handle Massive PE Patient with Hemodynamic Collapse**
B. Keeling, MD, Atlanta, GA

3:31 **Rebuttal: Push Dose Thrombolysis Saves Lives in Massive PE with Cardiopulmonary Collapse?**
P. Rali, MD, Philadelphia, PA

3:35 **Rebuttal: There Are Better Ways to Handle Massive PE Patient with Hemodynamic Collapse**
B. Keeling, MD, Atlanta, GA

3:39 **Question and Answer Session: Hemoynamically Unstable Massive PE Management**
P. Rali, MD, Philadelphia, PA

3:45 **PRO: IVC Filter is Dead in PE Management**
S. Naydenov, MD, St. Louis, MO

3:53 **CON: IVC Filter is Critically Ill But Not Dead in PE Management**
L.K. Moores, MD, Bethesda, MD

4:01 **Rebuttal: IVC Filter is Dead in PE Management**
S. Naydenov, MD, St. Louis, MO

4:05 **Rebuttal: IVC Filter is Critically Ill But Not Dead in PE Management**
L.K. Moores, MD, Bethesda, MD

4:09 **Question and Answer Session: Role of IVC Filter in PE Management**
P. Rali, MD, Philadelphia, PA

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

B83 MANAGEMENT OF NEUROMUSCULAR RESPIRATORY FAILURE SYNDROMES: NIPPV FOR DAY, NIGHT AND THE SOCCER FIELD

Assemblies on Sleep and Respiratory Neurobiology; Clinical Problems; Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
Adult and pediatric pulmonary and sleep physicians and mid-level providers working with patients with neuromuscular respiratory failure, nurses and respiratory therapists

Objectives
At the conclusion of this session, the participant will be able to:

- recognize clinical, PFT and PSG findings of respiratory muscle weakness in neuromuscular disease in pediatric and adult population;
- identify and define the stages of neuromuscular respiratory failure and the stepwise implementation of assistive devices of respiration and airway clearance;
- learn options for (1) optimizing home-based NIPPV (2) when to extubate neuromuscular patients who fail conventional spontaneous breathing trials/sprints and (3) when/if tracheostomy should be employed.

Patients with pediatric neuromuscular disorders (muscular dystrophies, spinal muscular atrophy, metabolic myopathies) are surviving longer, and are requiring adult pulmonary providers to effectively transition care. The adult onset neuromuscular disorders are also increasing in prevalence (amyotrophic lateral sclerosis) and survival with advancing technologies in airway clearance and non-invasive ventilation (NIV). The session will address identification of and stage of neuromuscular respiratory failure, implementation of stage specific respiratory assistive devices to maximize patient independence, quality of life and survival, home monitoring and returning these patients to non-invasive ventilation after periods of invasive mechanical ventilation. We will also discuss the hot button issues of if/when tracheostomy and oxygen supplementation fit into the treatment paradigm, and how overnight polysomnography may be helpful in optimizing NIV.

Chairing: K.A. Provost, DO, PhD, Buffalo, NY
N. Simakajornboon, MD, Cincinnati, OH
M. Cao, DO, Redwood City, CA
H. Sawnani, MD, Cincinnati, OH

2:15 **Neuromuscular Respiratory Failure Syndromes: Recognition is Half the Battle**
H. Sawnani, MD, Cincinnati, OH

2:33 **Mechanisms of Hypoxemia and Hypoventilation in Neuromuscular Respiratory Failure**
G. Perez, MD, Washington, DC

2:51 **Implementation of NIPPV and Airway Clearance Devices by Disease Stage**
K.A. Provost, DO, PhD, Buffalo, NY

3:09 **Sleep Disordered Breathing in Neuromuscular Respiratory Failure: The Role of the Overnight PSG, Overnight Transcutaneous CO2 and Oxygen Testing**
M. Cao, DO, Redwood City, CA

3:27 **Them's Fighting Words: Hot Button Issues of Extubating the "Un-Extubatable" Patient, Tracheostomy Considerations and Oxygen Supplementation**
D. Zielinski, MD, Montreal, Canada

3:45 **Daytime Use of NIPPV: Sip and Beyond**
L.F. Wolfe, MD, Chicago, IL

4:03 **Panel Question and Answer with all the Speakers**

BEHAVIORAL • CLINICAL

CRITICAL CARE TRACK

B84 CAN'T STOP OR WON'T STOP: THE ROLE OF CLINICAL INERTIA IN CRITICAL CARE MEDICINE

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing

2:15 p.m. - 4:15 p.m.

Target Audience
Critical care clinicians, trainees, clinical researchers

Objectives
At the conclusion of this session, the participant will be able to:

- understand how clinical inertia evolves in critical illness;
- recognize the ethical and emotional considerations related to clinical inertia;
- identify tools to address clinical inertia in routine clinical practice and be able to apply them.

Consider the following case: Day 0: elective surgery; Day 1: cardiac arrest; Day 3: ARDS; Day 4: renal replacement therapy; Day 17: tracheostomy; Day 18: feeding tube; Day 21: discharge to LTAC. We've all taken care of such patients, where one event leads to the next, and continuing to simply add more treatments becomes easier than considering alternate pathways, and a downhill spiral ensues. To advance patient-centered care, we must identify key moments in a patient's course to stop and re-consider the trajectory of care and the patient's goals. This session will examine the concept of clinical inertia and role it plays in our care of critically ill patients-from ICU admission decisions, through hospitalization, and beyond. Leading experts will discuss the longitudinal evolution of critical illness, the role of clinical inertia in clinical decision making, tools to recognize clinical inertia, and strategies to address the consequences of clinical inertia.

Chairing: E.M. Viglianti, MD, MPH, MSc, Ann Arbor, MI
J.M. Kruser, MD MS, Chicago, IL
S.S. Carson, MD, Chapel Hill, NC

2:15 **The Marathon No One Prepares You For: The Perspective of a Caregiver**
E.M. Viglianti, MD, MPH, Ann Arbor, MI

2:30 **Why Don't We Stop? Clinical Momentum and Decision Making in the ICU**
J.M. Kruser, MD MS, Chicago, IL

2:45 **Withholding vs Withdrawing: Is There a Difference?**
G.D. Rubenfeld, MD, MSc, Toronto, Canada

3:00 **Nudging Clinical Inertia: Living Wills and Advanced Directives**
J. Hart, MD, MS, Philadelphia, PA

3:15 **2 Weeks in ...Will This Patient Ever Leave the ICU?**
E.M. Viglianti, MD, MPH, MSc, Ann Arbor, MI

3:30 **How Should We Incorporate Palliative Care in the ICU?**
S.S. Carson, MD, Chapel Hill, NC

3:45 **Reflecting on the Other End**
J.A. McPeake, RN, PhD, Glasgow, United Kingdom

4:00 **Is It All About the Patient: What Do We Know and What Can We Learn About Caregiver Burden After Critical Illness**
M.S. Herridge, MD, MPH, MSc, Toronto, Canada

BASIC • CLINICAL • TRANSLATIONAL

BASIC SCIENCE CORE

B85 THEY'VE GOT THE BEAT: CILIA IN DEVELOPMENT AND DISEASE

Assemblies on Respiratory Cell and Molecular Biology; Pediatrics; Respiratory Structure and Function

2:15 p.m. - 4:15 p.m.

Target Audience
Basic scientists, clinicians, students and postdoctoral trainees, and providers working in pediatric, neonatal, or adult lung disease who are interested in understanding how cilia impact lung development and a spectrum of lung diseases

Objectives
At the conclusion of this session, the participant will be able to:

- provide the latest updates in the genetic and transcriptional control of cilia fate decisions in airway ciliogenesis;
- improve knowledge of the cellular signaling mechanisms regulating ciliogenesis in health and disease;

- improve understanding of the association of airway ciliopathies and other diseases.

Ciliary function has critical implications for lung development and impaired mucociliary clearance is a fundamental feature of many inherited and acquired respiratory diseases including PCD, asthma, chronic bronchitis, and CF. In order to improve diagnosis and develop effective treatments, there is a critical need to understand the cellular signaling components that govern cell fate decisions and functional maturation. This session will provide the latest information on the cellular, molecular, and genetic mechanisms that govern cell fate decisions and ciliary function, with application to a spectrum of lung diseases in adults and children.

Chairing: A.L. Ryan, PhD, Los Angeles, CA
E.K. Vladar, PhD, Aurora, CO
S.L. Brody, MD, ATSF, Saint Louis, MO

2:15 **Introduction to Motile Cilia in Health and Disease**
S.L. Brody, MD, ATSF, Saint Louis, MO

2:35 **Ciliated Cell Fate Decisions and Multiciliogenesis**
E.K. Vladar, PhD, Aurora, CO

2:55 **Identification of Cilia-Specific Gene Signatures and SNPs Driving Lung Disease**
M.A. Seibold, PhD, Denver, CO

3:15 **Identification of Novel Mutations Driving Primary Ciliary Dyskinesia**
H. Omran, MD, Muenster, Germany

3:35 **Alcohol Induced Ciliary Dysfunction: An Oxidant-Driven Acquired Ciliopathy**
J.H. Sisson, MD, Omaha, NE

3:55 **Cilia Dysfunction in Patients with Congenital Heart Disease**
C. Lo, PhD, Pittsburgh, PA

CLINICAL

SCIENTIFIC SYMPOSIUM

B86 PULMONARY REHABILITATION IN NON-COPD CHRONIC RESPIRATORY CONDITIONS

Assemblies on Pulmonary Rehabilitation; Clinical Problems; Nursing

2:15 p.m. - 4:15 p.m.

Target Audience

Doctors, nurses, allied health professionals, researchers involved in the care of people with non-COPD chronic respiratory disease

Objectives

At the conclusion of this session, the participant will be able to:

- understand the role of pulmonary rehabilitation in the management Interstitial Lung Disease, asthma, pulmonary arterial hypertension and lung transplantation;
- more appropriately refer patients with Interstitial Lung Disease, asthma, pulmonary arterial hypertension and lung transplantation to pulmonary rehabilitation;
- understand the educational needs of people with non-COPD chronic respiratory disease.

The evidence for pulmonary rehabilitation in some of the most common non-COPD chronic respiratory diseases as well as strategies to enable the tailoring of the education component of pulmonary rehabilitation for these diseases will be presented at this scientific symposium.

Chairing: C. Nolan, PT, BSc, MSc, PhD, London, United Kingdom
R. Goldstein, MD, Toronto, Canada

2:15 **Pulmonary Rehabilitation for Interstitial Lung Disease: Where We Are Now and Where We Are Going**
A.E. Holland, PhD, Melbourne, Australia

2:35 **Pulmonary Hypertension: To Do PR or Not to Do PR?**
C.L. Rochester, MD, New Haven, CT

2:55 **Is There a Role for Pulmonary Rehabilitation in the Management of Lung Transplantation?**
D. Langer, PhD, PT, Leuven, Belgium

3:15 **Pulmonary Rehabilitation in the Management of Asthma**
R.H. Crouch, DPT, MS, PT, Chapel Hill, NC

3:35 **Tailoring Education in Pulmonary Rehabilitation for Non-COPD Respiratory Disease**
S.C. Lareau, RN, MS, ATSF, Aurora, CO

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B87 CROSSTALK BETWEEN AIRWAY EPITHELIUM AND TYPE 2 IMMUNITY IN ASTHMA

Assembly on Allergy, Immunology and Inflammation

2:15 p.m. - 4:15 p.m.

Target Audience
Pulmonary physicians and scientists

Objectives
At the conclusion of this session, the participant will be able to:

- define the pathways whereby the airway epithelium senses and responds to aeroallergens in asthma;
- define the mechanisms driving pathologic type 2 immunity in asthma;
- identify areas of uncertainty in type 2 high asthma biology.

This Scientific Symposium will cover the biologic mechanisms regulating type 2 inflammation in asthma. Experts in the field will present our current state of knowledge on type 2 high asthma, focusing on pathologic crosstalk between the airway epithelium and the immune system. The objective of this symposium is to define the outstanding questions in type 2 high asthma and propose potential new therapeutic approaches.

Chairing: R.A. Rahimi, MD, PhD, Boston, MA
D.C. Newcomb, PhD, Nashville, TN
J.V. Fahy, MD, San Francisco, CA

2:15 **Regulation of Allergic Immunity in Early Life**
C. Lloyd, PhD, London, United Kingdom

2:35 **Sex Steroids in the Regulation of Allergic Asthma**
D.C. Newcomb, PhD, Nashville, TN

2:55 **Spontaneous Protein Crystallization in Asthma as a New Drug Target**
B. Lambrecht, MD, PhD, Ghent, Belgium

3:15 **Focal Type 2 Airway Niches in Asthma**
J.V. Fahy, MD, San Francisco, CA

3:35 **Trafficking and Function of Lung-Resident and Circulating Memory Th2 Cells in Allergic Asthma**
R.A. Rahimi, MD, PhD, Boston, MA

3:55 **Lung Dendritic Cells and the Resident Memory Response in Allergic Asthma**
A.I. Sperling, PhD, ATSF, Chicago, IL

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

B88 MIGRANT AND REFUGEE MEDICINE: IMPLICATIONS FOR PULMONARY AND CRITICAL CARE CLINICIANS

Assembly on Behavioral Science and Health Services Research

2:15 p.m. - 4:15 p.m.

Target Audience
All pulmonary care professionals who treat migrant/refugee patients;clinicians interested in migrant and refugee issues both domestically and internationally; providers working in the field of migrant and refugee health

Objectives
At the conclusion of this session, the participant will be able to:

- understand the global migrant crisis and the unique health challenges faced by the migrant and refugee populations;
- understand the cultural, legal and political implications of providing clinical care for refugees and migrants;
- develop an understanding of the clinician's role in the larger national and international debates on immigration.

This session provides an evidence based, interprofessional lens into topics related to migrant and refugee health. It highlights the clinical, political and medicolegal aspects of the migrant and refugee crisis both locally and globally. By attending this session, pulmonary, critical care and sleep professionals will learn how to provide culturally sensitive, multidisciplinary, patient-centered care to this ever growing vulnerable patient population.

Chairing: A. Papali, MD,CM, Charlotte, NC
M. Eakin, PhD, Baltimore, MD

2:15 **Respiratory Health Implications of the Global Migrant Crisis**
D.J. Upson, MD, MA, Albuquerque, NM

2:35 **Providing Medical Care to Displaced Populations: A Pulmonologist's Perspective**
A. Elahi, MD, Charlotte, NC

2:55 **"I Am Alone in This World": Impact of Trauma in Refugees**
M. Eakin, PhD, Baltimore, MD

3:15 **Occupational Health and Safety of Immigrant Workers**
M.B. Schenker, MD, MPH, Davis, CA

3:35 **Migrant Health: What Is the Role of PAHO and the WHO?**
F.B. Posada, MD,DrPH, Washington, DC

3:55 **The New Mexico Approach to Border Migrant Health**
L. Gallagher, JD, Sante Fe, NM

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

B89 CHALLENGES IN CONDUCTING AND INTERPRETING ARDS AND SEPSIS RANDOMIZED CLINICAL TRIALS

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing; Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
Adult and pediatric critical care clinicians and trialists, nurses, research coordinators

Objectives
At the conclusion of this session, the participant will be able to:

- identify challenges in conducting and interpreting randomized controlled trials among a critically ill population;
- review current literature and future directions for innovative strategies for overcoming the challenges in conducting and interpreting randomized controlled trials among a critically ill population;
- understand the patient and surrogate perspectives of participating in randomized controlled trials while critically ill.

This session will present the challenges of conducting randomized controlled trials in critical care. Specifically challenges of recruitment, retention and generalizability and how they may contribute to the paucity of proven efficacious interventions in the ICU. By using recent examples of critical care trials, this session will also appeal to clinicians who seek greater insight on interpreting and applying literature to their patients. We will explore established and emerging research addressing strategies to overcome challenges in ICU randomized controlled trials.

Chairing: D. Krutsinger, MD, Philadelphia, PA
R.D. Stapleton, MD, PhD, ATSF, Burlington, VT
M.N. Gong, MS, MD, Bronx, NY

2:15 **My Story: What Is It like to Be in an ICU Trial?**
E. Rubin, JD, Northbrook, IL

2:27 **Perspectives of Surrogate Decision Makers and a Nudge Towards Participation in Critical Care Trials**
D. Krutsinger, MD, Philadelphia, PA

2:45 **Retention in Longitudinal Critical Care Trials**
V. Dinglas, MPH, Baltimore, MD

3:03 **Lessons Learned From Special Issues in Pediatric Critical Care Trials**
M.A.Q. Curley, PhD, RN, Philadelphia, PA

3:21 **Personalized Medicine or Big Tent? Issues of Generalizability**
H.C. Prescott, MD, MSci, Ann Arbor, MI

3:39 **The Power of Clinical Trial Networks and How You Can Be Involved**
K. Burns, MD, MSCR, Toronto, Canada

3:57 **Evolution of Modern Critical Care Trials: From the Past to Future**
C.W. Seymour, MD, MSc, Pittsburgh, PA

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

B90 BIG TOBACCO: LAWYERS, GUNS AND MONEY

Assemblies on Thoracic Oncology; Behavioral Science and Health Services Research

2:15 p.m. - 4:15 p.m.

Target Audience
Physicians both in training and in practice, Nurses, DNP, ARNP RN, Health Science administrators, Health policy leaders. Health services researches and population health researchers

Objectives
At the conclusion of this session, the participant will be able to:

- gain new findings regarding the tobacco settlement between tobacco companies and the states and its impact more than a decade later;
- understand and gain new findings about the role investment, financing and advertising play in tobacco and potential advocacy roles to check this influence;
- gain new findings regarding tobacco policy and the shift to E and vapor

Tobacco related diseases are at the core of the ATS mission. Clinical care is the majority focus of clinicians and the ATS membership. Advocacy and policy work surrounding tobacco is critical to the ATS mission, the ATS community of clinicians, administrators and researchers and most importantly patients. This session aims to explore the much talked about tobacco settlement, the influence of finance and investing as well as the role of advertising. It is critical to learn and engage in the greater policy debate around the tobacco message.

Chairing: J.A. Gorden, MD, Seattle, WA
N.T. Tanner, MD, MSCR, Charleston, SC
D.A. Arenberg, MD, Ann Arbor, MI

2:15 **Introduction**
N.T. Tanner, MD, MSCR, Charleston, SC

2:18 **Tobacco Settlement: What Was It and Where Did It Go**
Speaker To Be Announced

2:41 **E Cigarette and Vape Pen Science: Technology Solution or Problem**
K.M. Cummings, PhD, MPH, Charleston, SC

3:04 **Tobacco Policy: Stick and Match to E's and Vapes Are We Witnessing the Greatest Bate and Switch**
D.A. Arenberg, MD, Ann Arbor, MI

3:27 **The Argument for Divestment in Tobacco: Starve the Fever**
Speaker To Be Announced

3:50 **Hearts and Minds: Tobacco Advertising**
Speaker To Be Announced

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B91 HAVE A BIGGER IMPACT! EFFECTIVE STRATEGIES TO UTILIZE YOUR PROFESSIONAL EXPERTISE TO ADVOCATE FOR YOUR PATIENTS AND YOUR COMMUNITIES

Assemblies on Environmental, Occupational and Population Health; Behavioral Science and Health Services Research; Nursing; Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
All individuals who are interested in learning how to advocate for their individual patients, communities and populations at large, to improve to the availability and quality of healthcare

Objectives
At the conclusion of this session, the participant will be able to:

- learn the types of advocacy approaches that have been effective in advancing respiratory health for individual patients, communities and larger populations;
- develop communication skills to effectively advocate through multiple media formats including editorials, broadcast, social media, and public speaking engagements;
- learn from examples of successful advocacy programs and understand a framework through which advocacy can implement change.

This session will describe effective strategies to advance the respiratory health of patients, communities and populations.The Vice President of ATS will first introduce advocacy from the ATS perspective. Two public relations and media experts will then discuss effective communication strategies to disseminate health information and advocate for respiratory health issues through media. Subsequent speakers from the nonprofit sector, patient-advocacy groups, legal aid, and academics will highlight the health professional's role in advocacy within the clinical environment, as well as through community partnerships, research and health policy.

Chairing: D. Harris, MD, Charlottesville, VA
M.B. Rice, MD, MPH, Boston, MA
C.A. Redlich, MD, MPH, New Haven, CT
S.J. Crowder, PhD, RN, ATSF, Fishers, IN

2:15 **Understanding The Importance of Advocacy for Respiratory Health**
J.C. Celedon, DrPH, MD, ATSF, Pittsburgh, PA

2:25 **Using the Media to Increase Your Impact**
L. Kryzwick, ., New York, NY

2:50 **Developing Engaging Health Messages**
M. Mackert, PhD, Austin, TX

3:15 **Advocacy to Impact Public Policy and Legislation at the National and Local Level**
G. Ewart, MHS, Washington, DC

3:25 **Legal Advocacy to Improve Lung Health**
M. Lieberman, JD, Charlottesville, VA

3:35 **Lung Doctors, Lawyers, and Labor: Advocating So That Workers Might Breathe**
R.A. Cohen, MD, Chicago, IL

3:47 **Patient Interview**
Speaker To Be Announced

3:55 **Patient-Centered Advocacy: The Allergy and Asthma Network**
T. Winders, MBA, Vienna, VA

4:05 **Advocacy Through Community Partnerships: The Not One More Life Story**
L.M. Graham, MD, Atlanta, GA

BASIC • BEHAVIORAL
CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

B92 ATS FAMILY OF JOURNALS IN 2019

Publications Policy Committee

2:15 p.m. - 4:15 p.m.

Target Audience
This session is of benefit to both junior and senior clinicians and researchers, including basic researchers. The session will cover all 3 journals of the ATS and will be of interest to all ATS Assemblies and conference attendees.

Objectives
At the conclusion of this session, the participant will be able to:

- discuss the impact and benefits to the research and clinical community of the ATS having a Family of Journals;
- describe common issues in manuscripts submitted to journals, including journal impact factors and metrics, reporting of clinical trials and reporting results of observational studies;
- increase the participation of early career researchers in peer review and editorial activities.

In this session we will address the role of the ATS Journal family and how this can benefit the scientific and clinical community.We will also address some interesting issues in publication and review key papers published on topics across the Blue, White and Red journals.

Chairing: B.D. Levy, MD, ATSF, Boston, MA
F.J. Martinez, MD, MS, New York, NY
G.C. Donaldson, PhD, BSc(Hons), London, United Kingdom

2:15 **Benefits of the ATS Family of Journals**
J.A. Wedzicha, MD, PhD, ATSF, London, United Kingdom

2:30 **Journal Impact Factors and Metrics**
P.T. Schumacker, PhD, ATSF, Chicago, IL

2:45 **COPD Across ATS Journals**
M.K. Han, MD, MS, Ann Arbor, MI

3:00 **Airway Biology in the ATS Journal Family**
L. Donnelly, BSc(Hons), PhD, London, United Kingdom

3:15 **Critical Care Across ATS Journals**
L.J. Brochard, MD, Toronto, Canada

3:30 **How to Successfully Write Manuscripts on Clinical Trials?**
K.F. Rabe, MD, PhD, Grosshansdorf, Germany

3:45 **Causal Inference and Reporting of Results in Observational Studies**
D.J. Lederer, MD, MS, New York, NY

4:00 **Involving Early Career Researchers in Journal Peer Review**
J. Allinson, MRCP(UK), London, United Kingdom

2:15 p.m. - 4:15 p.m.

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

4:30 p.m. - 7:00 p.m

ASSEMBLY MEMBERSHIP MEETINGS

The fourteen Assemblies are the primary groups of the American Thoracic Society. Each Assembly holds an annual Membership Meeting at the International Conference. All Assembly members and other interested individuals are invited to attend.

The Assembly Membership Meetings provide an update on the Assembly's activities via the Assembly's Leadership and provide Assembly members the chance to have input on future directions, information on how to get involved and networking opportunities. Voting results for the Assembly's future leaders will also be announced.

The Assemblies on Behavioral Science and Health Services Research and Pediatrics meetings are held on Sunday, May 19th.

ALLERGY, IMMUNOLOGY AND INFLAMMATION
Chairing: Bethany B. Moore, PhD, ATSF, Ann Arbor, MI

BEHAVIORAL SCIENCE AND HEALTH SERVICES RESEARCH
Chairing: J. Daryl Thornton, MD, MPH, ATSF, Cleveland, OH
This meeting will be held on Sunday, May 19th.

CLINICAL PROBLEMS
Chairing: Mei Lan K. Han, MD, MS, Ann Arbor, MI

CRITICAL CARE
Chairing: John Kress, MD, Chicago, IL

ENVIRONMENTAL OCCUPATIONAL AND POPULATION HEALTH
Chairing: Howard M. Kipen, MD, MPH, Piscataway, NJ

NURSING
Chairing: L.inda Chlan, PhD, RN, ATSF, Lakeville, MN

PEDIATRICS
Chairing: Stephane D. Davis, MD, ATSF, Chapel Hill, NC
This meeting will be held on Sunday, May 19th.

PULMONARY CIRCULATION
Chairing: Karen A. Fagan, MD, Spanish Fort, AL

PULMONARY INFECTIONS AND TUBERCULOSIS
Chairing: Kristina A. Crothers, MD, Seattle, WA

PULMONARY REHABILITATION
Chairing: Richard Casaburi, MD, Rancho Palos Verdes, CA

RESPIRATORY CELL AND MOLECULAR BIOLOGY
Chairing: Melanie Koenigshoff, MD, PhD, ATSF, Aurora, CO

RESPIRATORY STRUCTURE AND FUNCTION
Chairing: Gwen S. Skloot, MD, ATSF, New York, NY

SLEEP AND RESPIRATORY NEUROBIOLOGY
Chairing: Sanjay R. Patel, MD, Pittsburgh, PA

THORACIC ONCOLOGY
Chairing: M. Patricia Rivera, MD, ATSF, Chapel Hill, NC

7:00 p.m. - 10:00 p.m.

ASSEMBLY DINNER/RECEPTION

Assembly members and non-members, students and fellows are invited to join us for an evening of networking, great company, and camaraderie. This is a wonderful opportunity to introduce young members and trainees to Assembly leaders, to connect with old friends and to set up new interactions and collaborations.

Pre-registration and an additional fee are required. Seating is limited.
Please register through online general registration by clicking the Register Now button above.

The following Assemblies will hold a dinner or reception immediately following the Assembly Membership Meetings.

Assembly on Pediatrics
Founders Dinner
Sunday, May 19
7:30 p.m.-10:30 p.m.
Fellow - $82.00
Member - $102.00
Non-Member - $112.00

Assembly on Sleep and
Respiratory Neurobiology Reception
Monday, May 20
7:00 p.m.-10:00 p.m.
Fellow - $24.00
Member - $44.00
Non-Member - $54.00

Tuesday Morning, May 21

PEDIATRIC CLINICAL CORE CURRICULUM

PCC3 PEDIATRIC CLINICAL CORE CURRICULUM

6:45 a.m. - 7:45 a.m.

Target Audience
Pediatric pulmonary and critical care physicians who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pediatric pulmonology;
- evaluate their understanding of key skills and content areas in pediatric pulmonology as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The Pediatric Core Curriculum symposia promote lifelong learning and the enhancement of the clinical judgment and skills essential for practicing pediatrician. The symposia will address topics that have been identified by an ATS pediatric working group, which is comprised of members of the ATS Education Committee and the International Conference Committee, who have identified important areas within pediatric medicine (including severe asthma, ILD, BPD, pulmonary hypertension and pulmonary manifestations of pulmonary disease). Attendees will increase their medical knowledge as a result of attending this symposium, and this will be measured by a comparison of pre-test vs. post-test results on the corresponding maintenance of certification module. The ATS Pediatric Core Curriculum will focus on a 3-year content cycle of key medical content in the area of pediatric medicine.

Chairing: D.M. Boyer, MD, Boston, MA

6:45 Pulmonary Vascular Malformations in Children
D. Benscoter, DO, Cincinnati, OH

7:15 Pulmonary Lymphatic Disease in Children
A.I. Quizon, MD, San Diego, CA

SUNRISE SEMINARS

Registration Fee: $50.00 (includes continental breakfast.) Attendance is limited. Pre-registration is required.

6:45 a.m. - 7:45 a.m.

SS201 BIG DATA APPROACHES TO ACHIEVE PRECISION MEDICINE IN SEPSIS AND ARDS
P.A. Verhoef, PhD, MD, Chicago, IL

SS202 NUDGES, IRRATIONALITY, AND CHOICE ARCHITECTURE: DECISION SCIENCE IN CLINICAL CARE
J. Hart, MD, MS, Philadelphia, PA

SS203 HIGH RISK PULMONARY SARCOIDOSIS: EVALUATION, MANAGEMENT AND FUTURE DIRECTIONS
R. Gupta, MD, MBBS, Philadelphia, PA
W.E. James, MD, Charleston, SC

SS204 ILD AND THE ANTI-SYNTHETASE SYNDROME: FROM CLINICAL PEARLS TO PITFALLS
R. Hallowell, MD, Boston, MA

SS205 PULMONARY MANIFESTATIONS OF INFLAMMATORY BOWEL DISEASE
D.C. Gomez Manjarres, MD, Gainesville, FL

SS206 THE ROLE OF CHEST CT IN THE EVALUATION AND MANAGEMENT OF COPD
W.W. Labaki, MD, Ann Arbor, MI

SS207 TRACHEOSTOMY FROM ICU TO DECANNULATION
R. Krochmal, MD, Washington, DC
K. Van Nostrand, MD, Atlanta, GA

SS208 EVALUATION AND MANAGEMENT OF LUNG TRANSPLANT AIRWAY COMPLICATIONS
M. Weir, MBChB, Philadelphia, PA

SS209 PROVIDING CARE IN HIGH-RISK PATHOGEN AND MASS CASUALTY INCIDENTS: ORGANIZATIONAL AND ETHICAL CONSIDERATIONS
G.L. Anesi, MD, MSCE, MBE, Philadelphia, PA

SS210 DIAGNOSING AND MANAGING OCCUPATIONAL ASTHMA: CLASSIC AND NOVEL THREATS
D. Croft, MD, MPH, Rochester, NY

SS211 DIAGNOSING PRIMARY CILIARY DYSKINESIA: APPLYING RESEARCH TO EVERYDAY CLINICAL PRACTICE AND BEYOND
M.G. O'Connor, MD, Nashville, TN

SS212 HIDING IN PLAIN SIGHT: ETIOLOGIES OF PULMONARY HYPERTENSION YOU MAY BE MISSING
H.W. Farber, MD, Boston, MA
N. Ruopp, MD, Boston, MA
N. Schoenberg, MD, Boston, MA

SS213 BRONCHOALVEOLAR LAVAGE IN THE IMMUNOCOMPROMISED HOST: MOVING BEYOND TRADITIONAL DIAGNOSTIC METHODS FOR FUNGAL INFECTION
O. Epelbaum, MD, ATSF, Valhalla, NY

SS214 REACHING THE HARD TO REACH PATIENTS
S. Roark, MD, Denver, CO

SS215 THE USE OF CARDIOPULMONARY EXERCISE TESTING IN PULMONARY VASCULAR DISEASE
T. DeCato, MD, Spokane, WA
M.J. Hegewald, MD, Salt Lake City, UT

SS216 EVALUATION OF RESPIRATORY FUNCTION AND SLEEP IN NEUROMUSCULAR DISORDERS: WHY, WHEN, HOW
R. Amin, MD, Montreal, Canada

SS217 THE ROLE OF THE PULMONOLOGIST IN THE DIAGNOSIS AND STAGING OF LUNG CANCER
M. Triplette, MD, MPH, Seattle, WA

FACULTY DEVELOPMENT SEMINAR

FD2 USING DIGITAL SCHOLARSHIP STRATEGICALLY FOR CAREER ADVANCEMENT

Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for admission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee.

6:45am - 7:45 a.m.

Target Audience
Early and mid-career clinical and/or research faculty, clinical and postdoctoral fellows, medical & graduate students, residents, nurses, and allied health professionals involved in or seeking careers in pulmonary, critical care and/or sleep medicine.

Objectives
At the conclusion of this session, the participant will be able to:

- learn about various digital scholarship opportunities, including the philosophy, reach, content curation mechanics, impact potential and pitfalls specifically in terms of applicability to academic promotion;
- identify strategies to monitor impact and effectively describing their digital scholarship using a standard framework;
- engage in a hands-on exercise to create a digital scholarship portfolio.

The last decade has seen a rapid growth in the amount, type, reach and dissemination methods for digital scholarship. As institutions across the nation are

taking a lead and formalizing criteria for digital scholarship, the clinicians, researchers and educators of current times are in a unique position to capitalize on these opportunities and in turn strategically use them for career advancement. The speakers, each with vast experience in various aspects of digital media use in medicine, will discuss the numerous opportunities, how to build a successful digital scholarship portfolio and tools to measure the impact of one's digital scholarship.

Chairing: V. Kaul, MD, Elmhurst, NY

Speakers: N.H. Stewart, DO, Omaha, NE
M.A. Stiegler, MD, Research Triangle Park, NC
C.L. Carroll, MD, ATSF, Hartford, CT

BASIC • CLINICAL • TRANSLATIONAL

KEYNOTE SERIES

The Keynote Series focuses on topics thought to be timely and of high relevance to the pulmonary, critical care, and sleep medicine community.

Sessions are presented each morning during the Conference.
Below are the topics for Tuesday, May 21

K5 DEVELOPING THE EVIDENCE FOR VALUE BASED CARE IN PULMONARY MEDICINE

8:00 a.m.-8:45 a.m.

Speaker: Robert M. Califf, MD, Durham, NC

K6 ENHANCING DIVERSITY AND INCLUSION IN ACADEMIC MEDICINE

8:00 a.m.-8:45 a.m.

Speaker: David S. Wilkes, MD, Charlottesville, VA

CLINICAL

YEAR IN REVIEW

C1 CLINICAL YEAR IN REVIEW 3

9:15 a.m. - 11:15 a.m.

Target Audience
Providers including physicians, nurses, respiratory therapists, nurse practitioners, physician assistants; trainees including residents and fellows; clinical researchers

Objectives
At the conclusion of this session, the participant will be able to:

- apply new clinical research knowledge to clinical practice;
- learn new findings about key conditions in pulmonary, critical care and sleep;
- have new strategies to manage the care of common conditions in pulmonary, critical care, and sleep

The annual Clinical Year in Review symposia provides concise summaries of the most impactful clinical research publications related to specific clinical topics. Speakers are asked to conduct a literature review of the prior year's scientific publications and develop a written summary of the top 20 articles and highlight 5 of the most important and influential publications on their topic in written format and during their talks at the International Conference Clinical Year in Review sessions.

Chairing: V.E. Ortega, MD, PhD, ATSF, Winston Salem, NC
J.S. Lee, MD, Aurora, CO
P.A. Kritek, MD, Seattle, WA

9:15 General Critical Care
R.M. Baron, MD, Boston, MA

9:45 ICU Rehabilitation
D.C. Files, MD, Winston-Salem, NC

10:15 ILD
J.S. Lee, MD, Aurora, CO

10:45 Tobacco Dependence
E.R. Neptune, MD, Baltimore, MD

BEHAVIORAL • CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

C2 CLOSING THE EVIDENCE GAP IN LUNG DISEASE WITH REAL WORLD DATA

Assemblies on Clinical Problems; Behavioral Science and Health Services Research

9:15 a.m. - 11:15 a.m.

Target Audience
Broad audience of clinicians, researchers and administrators interested in learning about the landscape of real world evidence

Objectives
At the conclusion of this session, the participant will be able to:

- identify sources of real world data, the key stakeholders in this discussion, and the operational and technical resources needed for successful use;
- understand the practical applications of real world data in clinical research, including the specific study design and methodologic issues unique to its use;
- work collaboratively within and across his/her health care system to apply the concepts of real world data and real world evidence in order to advance clinical research.

This session will provide a general overview of the landscape of real world data, highlight several clinical studies that are currently using real world data to advance our understanding of lung disease using both observational and interventional study designs, provide a framework for understanding the major challenges to routine integration of real world data into clinical research, and finally discuss opportunities to promote broad use of real world data through regulatory, legislative and cultural changes.

Chairing: E.D. Farrand, MD, San Francisco, CA
G.R. Bernard, MD, Nashville, TN
H.R. Collard, MD, San Francisco, CA

9:15 Real World Data and Clinical Research: What, Why, When and How?
E.D. Farrand, MD, San Francisco, CA

9:30 **Questions**

9:35 **Exploring the New Realms of Computational Health and Big Data Management in Medicine**
K.F. Sarmiento, MD, MPH, San Francisco, CA

9:55 **Questions**

10:00 **The Power of Observational Cohorts: How Real World Cohorts Can Inform the Future of Clinical Care**
A.S. Go, MD, Oakland, CA

10:20 **Questions**

10:25 **Interventional Applications of Real World Data: The Emergence of Pragmatic Clinical Trials**
M.W. Semler, MD, MSc, Nashville, TN

10:45 **Questions**

10:50 **Where Do We Go From Here? Health Policy and the Advancement of Real World Data**
R. Califf, MD, Durham, NC

11:10 **Questions**

CLINICAL • TRANSLATIONAL

CLINICAL TOPICS IN PULMONARY MEDICINE

C3 EVIDENCE IN ASTHMA COPD OVERLAP: CLINICAL AND MOLECULAR STUDIES TO ADVANCE TREATMENT

Assemblies on Clinical Problems; Allergy, Immunology and Inflammation

9:15 a.m. - 11:15 a.m.

Target Audience
Individuals involved in care of patients with COPD and basic, clinical, and translational researchers focused on COPD

Objectives
At the conclusion of this session, the participant will be able to:

- gain new findings about eosinophilic COPD and evidence for differential treatment responses in this subtype;
- learn new findings about the allergic subtype of COPD and evidence for the importance of environmental triggers in this population;
- understand and learn new findings about the role of Th2 inflammation in COPD and implications for treatment strategies and drug development.

Despite studies showing that individuals with asthma COPD overlap (ACO) have higher risks for adverse outcomes compared to those with asthma or COPD alone, the group with ACO has been difficult to characterize, and definitions of ACO have not been validated in any systematic manner. Regardless, studies have made substantial progress in better characterizing the role of eosinophils, Th2 inflammation and allergic disease in individuals with COPD, therefore providing potentially important insights into ACO. This session will discuss important new clinical, genetic, and translational studies relevant to asthma and COPD with the ultimate goal of advancing strategies to treat this high-risk group.

Chairing: S. Christenson, MD, MS, San Francisco, CA
N. Putcha, MD, Baltimore, MD
M. Van Den Berge, PhD, Groningen, Netherlands

9:15 **Eosinophilic COPD: Phenotyping and Treatment Regimens**
C.E. Brightling, BSc(Hons), MBBS, PhD, Leicester, United Kingdom

9:35 **Allergic COPD: Don't Forget the Environment**
N. Putcha, MD, Baltimore, MD

9:50 **Findings from Genetic Studies of Asthma and COPD: Clues for Asthma COPD Overlap?**
C.P. Hersh, MD, MPH, ATSF, Boston, MA

10:05 **The Type 2 Paradigm and Beyond**
S. Christenson, MD, MS, San Francisco, CA

10:20 **The Severe Asthma Molecular Phenotype as a Mimic of COPD**
S.E. Wenzel, MD, ATSF, Pittsburgh, PA

10:40 **The Role of Mucin Gels in Asthma COPD Overlap**
R.C. Boucher, MD, Chapel Hill, NC

11:00 The Genomics of Inhaled Corticosteroid Response
A. Faiz, PhD, Groningen, Netherlands

BEHAVIORAL • CLINICAL

CRITICAL CARE TRACK

C4 WHEN THE SUN SETS: NIGHTTIME IN THE ICU

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing

9:15 a.m. - 11:15 a.m.

Target Audience
Critical care clinicians (physicians, nurses, and other interprofessional team members), trainees who work in the ICU, and ICU administrators

Objectives
At the conclusion of this session, the participant will be able to:

- characterize the differences of clinicians, patients, and families in the ICU overnight vs during the daytime;
- understand the impact of overnight ICU staffing patterns on the experience of clinicians, patients, and families;
- understand pharmacologic and non-pharmacologic strategies which may be effective in improving the experience of patients in the ICU overnight.

In this session, we will explore the different world of the ICU at night from multiple stakeholders' (physicians, nurses, patients, families) perspectives. Our aims are to elucidate unique challenges faced overnight and to explore potential and/or proven interventions (e.g., changing staffing, using technology, altering the ICU environment, considering pharmacologic therapies) to address these issues. Coming out of this session, learners will understand (1) how and why the ICU is different at night compared to during the day and (2) what is known about how best to optimize care delivery "when the sun sets" to provide the highest quality patient care.

Chairing: H.B. Gershengorn, MD, ATSF, Miami, FL
M. Hua, MD, MSci, New York, NY
S.J. Hsieh, MD, MS, New York, NY

9:15 Why Nighttime Isn't Just Daytime Without the Sun
S.J. Hsieh, MD, MS, New York, NY

9:25 Up-Staffing: Intensivists Onsite Overnight
M.P. Kerlin, MD, MS, Philadelphia, PA

9:39 Night vs Day: The Nursing Perspective
N.S. McAndrew, PhD, RN, ACNS-BC, CCRN, Milwaukee, WI

9:53 Technology to the Rescue: Telemedicine
T.G. Buchman, MD, Atlanta, GA

10:07 Forget About the Clock: Just Do It Overnight
H.B. Gershengorn, MD, ATSF, Miami, FL

10:21 I Need My Rest: Why Nighttime Isn't Sleep Time for Patients in the ICU
M.A. Pisani, MD, MPH, New Haven, CT

10:35 Improving the Overnight Experience of ICU Patients: Changing the Environment
B.B. Kamdar, MD, MBA, MHS, MS, La Jolla, CA

10:49 Improving the Overnight Experience of ICU Patients: Letting Visitors In
R. Rosa, MD, MSc, PhD, Porto Alegre, Brazil

11:03 Question and Answer Period
M. Hua, MD, MSci, New York, NY

TRANSLATIONAL

BASIC SCIENCE CORE

C5 DISCOVERING THE ROLE OF STEM CELL FATE IN LUNG INJURY AND FIBROSIS

Assemblies on Allergy, Immunology and Inflammation; Respiratory Cell and Molecular Biology

9:15 a.m. - 11:15 a.m.

Target Audience
Providers of lung health and those with clinical and research responsibilities

Objectives
At the conclusion of this session, the participant will be able to:

- determine the role of mesenchymal stem cells in lung injury and fibrosis;
- discuss the molecular mechanisms by which mesenchymal stem cells interact with lung resident cells upon lung tissue injury and repair;
- discuss clinical data on mesenchymal stem cells as a potential therapeutic target in acute respiratory distress syndrome (ARDS) and idiopathic pulmonary fibrosis.

Recent high impact basic science and clinical papers show the critical role of mesenchymal stem cells in the pathogenesis of acute lung injury and pulmonary fibrosis. Mesenchymal stem cells are emerging as an activator of cellular function to repair damaged lung tissue. The goal of this symposium is to highlight recent exciting data that describes how resident cells and the microenvironment interact with mesenchymal stems to modulate lung injury and fibrosis. Targeting these pathways has the potential to lead to a novel therapeutic approach to treat acute lung tissue injury and fibrosis.

Chairing: R.G. Scheraga, MD, Cleveland, OH
B.D. Southern, MD, Cleveland, OH
B.R. Stripp, PhD, Los Angeles, CA

9:15 Mitophagy and Mesenchymal Stem Cell Survival
L.A. Ortiz, MD, Pittsburgh, PA

9:35 Mesenchymal Stem Cells Modulate Innate Immune Cell Function in Acute Lung Injury
A. Krasnodembskaya, PhD, Belfast, United Kingdom

9:55 Allogeneic Human Mesenchymal Stem Cells for the Treatment of Acute Lung Injury/ARDS
M.A. Matthay, MD, San Francisco, CA

10:15 Fibroblast Cell Origin in Idiopathic Pulmonary Fibrosis
C.A. Henke, MD, Minneapolis, MN

10:35 Role of Pericytes in Pulmonary Fibrosis
L.M. Schnapp, MD, ATSF, Charleston, SC
C. Hung, MD, Seattle, WA

10:55 Stem Cell Therapy for Patients with Idiopathic Pulmonary Fibrosis (IPF)
M.K. Glassberg, MD, Miami, FL

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C6 THE FORGOTTEN CELL: RED BLOOD CELLS AS MODULATORS OF IMMUNITY

Assemblies on Allergy, Immunology and Inflammation; Critical Care; Respiratory Cell and Molecular Biology

9:15 a.m. - 11:15 a.m.

Target Audience
Basic and translational scientists

Objectives
At the conclusion of this session, the participant will be able to:

- obtain a basic understanding of the immunomodulatory capability of RBCs. Completion of this objective may lead to further research in this rich but understudied field which has relevance to all inflammatory disease states;
- understand the role of cell free hemoglobin in both sterile and pathogen induced inflammation;
- obtain an understanding of the role of immature RBCs in neonatal host defense.

This symposium will provide attendees with a basic understanding of the role of RBCs and their byproducts in regulating the innate immune response and inflammation during sterile and pathogen mediated inflammation. Given the vast number of erythrocytes in circulation and their extraordinary potential to influence immune function, research into the immunologic function of RBCs may yield unique insights into the mechanisms of immune regulation during critical illness.

Chairing: N.S. Mangalmurti, MD, Philadelphia, PA
M.T. Gladwin, MD, Pittsburgh, PA

9:15 Heightened RBC Disposal Impairs Host Immunity During K. Pneumoniae Sepsis
J. Lee, MD, ATSF, Pittsburgh, PA

9:40 **Hemolysis as a Mechanism for Human Disease: From Sickle Cell Disease to Precision Transfusion Medicine**
M.T. Gladwin, MD, Pittsburgh, PA

10:00 **Cell Free Hemoglobin as a Mediator of Acute Lung Injury**
J.A. Bastarache, MD, Nashville, TN

10:25 **Nucleic Acid Binding: How RBCs Modulate Immune Responses**
N.S. Mangalmurti, MD, Philadelphia, PA

10:50 **Immunomodulatory Roles of CD71+ Erythroid Cells (Immature Red Blood Cells) in Health and Disease**
S. Elahi, PhD, Edmonton, Canada

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C7 WHAT PULMONOLOGISTS NEED TO KNOW ABOUT CANCER IMMUNOTHERAPY

Assemblies on Thoracic Oncology; Allergy, Immunology and Inflammation; Clinical Problems

9:15 a.m. - 11:15 a.m.

Target Audience
Pulmonary providers: practicing and in-training physicians, NP and PA in either private and academic settings who care for patients undergoing cancer immunotherapy or see patients with pulmonary complications of cancer. immunotherapy.

Objectives
At the conclusion of this session, the participant will be able to:

- understand the immunological mechanism of immune checkpoint inhibitor therapy;
- recognize and diagnosis pulmonary complications of immune checkpoint inhibitors;
- appropriately manage patients with iAE of immune checkpoint inhibitors to balance the risks (decreased anti-tumor immunity) and benefits (need for therapeutic immunosuppression).

Cancer immunotherapy and immuno-oncology are rapidly expanding fields in Medicine. Immune checkpoint inhibitors targeting CTLA4 and PD1/PDL1 are now FDA approved for a number of cancers including first and second line therapy of metastatic NSCLC (IV) and Stage III (NSCLC) as well as an increasing number of other malignancies. This represents the fastest expanding therapy in oncology. Pulmonary providers are increasingly involved with many aspects of cancer immunotherapy. This mainly includee assessment of predictive biomarkers such as (PD-L1) and the management of an increasing number of pulmonary complications of these agents which occur in 5 to up the 29% of these patients. Understanding the mechanisms of immune checkpoint inhibitors and the appropriate recognition, diagnosis and management of these potentially life threatening complications are crucial to patient outcomes. This multi-disciplinary session will provide attendees with the skills to do this in their daily practice in a case based fashion.

Chairing: C.R. Sears, MD, Indianapolis, IN
M.P. Rivera, MD, ATSF, Chapel Hill, NC

9:15 **Immune Checkpoint Inhibitors for Cancer Therapy**
Speaker To Be Announced

9:45 **Effectiveness and Immune Related Adverse Events of Immune Checkpoint Inhibitor Therapy in Lung Cancer**
Speaker To Be Announced

10:15 **Diagnosis and Treatment of Immune Checkpoint Inhibitor Related Pneumonitis**
J.D. Possick, MD, New Haven, CT

10:35 **Imaging Findings of Immune Checkpoint Inhibitor Related Pneumonitis**
Speaker To Be Announced

10:55 **Multidisciplinary Case Discussion**
T. Peikert, MD, Rochester, MN

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C8 BRONCHIECTASIS: MOVING BEYOND THE VICIOUS CYCLE

Assembly on Pulmonary Infections and Tuberculosis

9:15 a.m. - 11:15 a.m.

Target Audience
Pulmonologists, Post-graduate trainees, Advanced Practitioners, Respiratory Therapists

Objectives
At the conclusion of this session, the participant will be able to:

- Learn about potential biomarkers for disease severity in bronchiectasis
- Understand recent development in the study of the lung microbiome
- Discuss strategies for future studies in bronchiectasis: phenotyping study populations, drugs in the pipeline

Cole's vicious cycle of infection, inflammation, and airway damage has traditionally been the accepted model of bronchiectasis pathophysiology. This session will highlight recent research that has uncovered more detailed mechanisms that underlie this simple paradigm. Discovery of genetic variants in the bronchiectasis patient is providing perspective as to how a patient may be vulnerable to the vicious cycle. Biomarkers have been proposed to measure inflammation and infection. Data from research into the bronchiectasis microbiome and mycobiome is challenging the validity of the traditional use and application of sputum cultures. Efforts to better phenotype the heterogeneous bronchiectasis population are underway. Priorities for future drug trials will be discussed.

Chairing: P.J. McShane, MD, Chicago, IL
K.L. Winthrop, MD, MPH, Portland, OR
A.E. O'Donnell, MD, Washington, DC

9:15 Inflammation in Bronchiectasis
J.D. Chalmers, MD, PhD, Dundee, United Kingdom

9:35 Microbiome and Mycobiome
K.L. Winthrop, MD, MPH, Portland, OR

9:55 Genetics in Bronchiectasis and NTM
K.N. Olivier, MD, MPH, Bethesda, MD

10:15 Phenotyping Bronchiectasis
G. Tino, MD, ATSF, Philadelphia, PA

10:35 Update in the National Bronchiectasis and Research Registry and Strategies for Future Clinical Trials
A.E. O'Donnell, MD, Washington, DC

CLINICAL

SCIENTIFIC SYMPOSIUM

C9 DIFFICULT TO TREAT ASTHMA IN THE PEDIATRIC POPULATION

Assemblies on Pediatrics; Allergy, Immunology and Inflammation

9:15 a.m. - 11:15 a.m.

Target Audience
Pediatricians, pediatric pulmonologists, pediatric intensivists, adult asthma specialists

Objectives
At the conclusion of this session, the participant will be able to:

- distinguish severe treatment refractory asthma from difficult to treat asthma;
- have new strategies to manage the care of children with difficult to treat asthma;
- learn new findings about the evaluation and treatment options for difficult to treat asthma.

This session will cover various aspects of difficult to treat asthma including cutting edge therapeutics. This session will be of interest to clinicians who care for children with asthma, as well as researchers in this field. This session will address the following topics: asthma comorbidities, medication adherence, biologic

therapies, and the use of bronchoscopy in children with asthma.

Chairing: H. Hoch, MD, Aurora, CO
S.J. Szefler, MD, Aurora, CO
M. Kattan, MD, New York, NY

9:15 Introduction
S.J. Szefler, MD, Aurora, CO

9:20 Bronchoscopy in the Diagnosis and Management of Asthma
A. Vicencio, MD, New York, NY

9:50 Immune Dysfunction in Children with Obese Asthma
D. Rastogi, MBBS, MS, Bronx, NY

10:20 The Role of Medication Adherence in Difficult to Treat Asthma in Children
H. Hoch, MD, Aurora, CO

10:45 The Use of Biologic Therapies in Childhood Asthma
S. Lovinsky-Desir, MD, New York, NY

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

C10 LIFESPAN WEIGHT MANAGEMENT OF SLEEP DISORDERS: REAL, FEASIBLE OR JUST THEORY?

Assembly on Sleep and Respiratory Neurobiology

9:15 a.m. - 11:15 a.m.

Target Audience
Pulmonologists, respiratory therapists, clinical and basic researchers, primary care practitioners, and other health professionals who are interested in treating patients with sleep apnea and obesity

Objectives
At the conclusion of this session, the participant will be able to:

- understand the challenges in pursuing a successful long-term weight management in the pandemic obesity;
- recognize the role of weight management in OSA, from kids to humans;
- understand the potential role of sleep extension in reversing weight gain and metabolic dysfunction in sleep-deprived patients.

This proposal is intending to be a comprehensive major symposium discussing the evidence of lifestyle interventions, anti-obesity drugs and bariatric surgery on obstructive sleep apnea (OSA) and obesity hypoventilation syndrome. Distinct talks will address the evidence in kids, adolescents and adults. Moreover, this session will have the opportunity to discuss recent evidence on the potential role of sleep extension on weight and metabolic outcomes in sleep-deprived patients.

Chairing: B.A. Edwards, PhD, Melbourne, Australia
L. Kheirandish-Gozal, MD, MSc, ATSF, Columbia, MO
B. Mokhlesi, MD, MSc, Chicago, IL
L.F. Drager, MD, Sao Paulo, Brazil

9:15 Challenges in the Long-Term Weight Management in the Pandemic Obesity: Is There Light at the End of the Tunnel?
J.-P. Despres, PhD, Quebec, Canada

9:35 Weight Loss Strategies in Kids and Adolescents and the Impact on OSA: From Lifestyle Intervention to Bariatric Surgery
N. Simakajornboon, MD, Cincinnati, OH

9:55 What Is the Real Impact of Lifestyle Intervention and Anti-Obesity Drugs on OSA Severity and Intermediary Outcomes in Adults?
M.T. Naughton, MD, ATSF, Prahran, Australia

10:15 Efficacy and Safety of Bariatric Interventions in Adults with OSA and Obesity Hypoventilation Syndrome
S.R. Patel, MD, Pittsburgh, PA

10:35 Sleep Extension: Can We Improve Weight and Metabolic Profile in Sleep-Deprived Patients?
E. Tasali, MD, Chicago, IL

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C11 FUTURE DIRECTIONS IN PAH RESEARCH: A PRO/CON DEBATE

Assembly on Pulmonary Circulation

9:15 a.m. - 11:15 a.m.

Target Audience
Basic, translational and clinical researchers, clinicians (adult and pediatrics) interested in pulmonary vascular disease and right heart failure

Objectives
At the conclusion of this session, the participant will be able to:

- critically evaluate whether the right ventricle should be a therapeutic target in PAH or whether our research should rather focus on reversing the pulmonary vascular disease
- summarize the pros and cons of animal models in PAH
- learn about the importance of genetics in PAH- will be able to more appropriately discuss the values as well as the false promises of precision medicine in PAH

This session will debate the future focus of research in pulmonary arterial hypertension (PAH). By employing a pro/con debate style, this session will critically evaluate opposing views of the most promising research directions with the ultimate goal to reach a consensus how best to improve pulmonary vascular disease and and right heart failure.

Chairing: E.F. Spiekerkoetter, MD, Palo Alto, CA
S.S. Pullamsetti, PhD, Bad Nauheim Hessen, Germany
W. Kuebler, MD, Berlin, Germany

9:15 **PRO: The RV Should Be a Therapeutic Target in PAH**
F. De Man, PhD, Amsterdam, Netherlands

9:30 **CON: The RV Should NOT Be a Therapeutic Target in PAH**
P.M. Hassoun, MD, Baltimore, MD

9:45 **PRO: The Discovery of Novel PAH Disease Genes Will Help Us Understand AND Treat PAH**
W. Chung, MD, PhD, New York, NY

10:00 **CON: The Discovery of Novel PAH Disease Genes Will NOT Help Us Understand AND Treat PAH**
M. Humbert, MD, PhD, Bicetre, France

10:15 **PRO: PH Animal Models Are Still Crucial for Understanding PH Development, Identifying Novel Treatment Targets and Testing Potential Therapies**
A. Hemnes, MD, ATSF, Nashville, TN

10:30 **CON: PH Animal Models Are NOT Crucial for Understanding PH Development, Identifying Novel Treatment Targets and Testing Potential Therapies**
M. Hoeper, MD, Hannover, Germany

10:45 **PRO: Precision Medicine is Needed to Tailor the Correct PAH Therapy for the Correct Patient**
J. Leopold, MD, Boston, MA

11:00 **CON: Precision Medicine is NOT Needed to Find Beneficial Therapies for PAH Patients - I Am a Lumper Not a Splitter**
S.M. Kawut, MD, MS, Philadelphia, PA

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C12 MACROPHAGES: LINEAGE, DIVERSITY, AND LUNG DISEASE

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation; Environmental, Occupational and Population Health; Pulmonary Infections and Tuberculosis

9:15 a.m. - 11:15 a.m.

Target Audience
Basic and translational researchers, trainees interested in understanding the latest approaches and roles of macrophages in development and disease

Objectives
At the conclusion of this session, the participant will be able to:

- understand the concept of macrophage lineage tracing;
- understand how the microenvironment determines function and phenotype in lung macrophages;
- define the contributions of alveolar macrophages to a spectrum of lung diseases.

This session will focus on lung macrophage diversity and lineage in the context of a spectrum of lung diseases including acute lung injury, asthma, cystic fibrosis, pulmonary alveolar proteinosis, and infections.

Chairing: W.J. Janssen, MD, Denver, CO
E. Plosa, MD, Nashville, TN
A. Misharin, MD, PhD, Chicago, IL
S.M. Cloonan, PhD, New York, NY

9:15 Development and Function of Tissue Resident Macrophages
Speaker To Be Announced

9:35 Macrophages: Efferocytosis in Viral Illness and Asthma
T. Hussell, PhD, Manchester, United Kingdom

9:55 Macrophage Reprogramming in Acute Lung Injury
K. Mould, MD, MPH, Denver, CO

10:10 Macrophage-Mediated Inflammation in Cystic Fibrosis
K.B. Hisert, MD, PhD, Seattle, WA

10:25 Lung Macrophage Metabolism and Ontogeny upon Mycobacterium Tuberculosis Infection
D.G. Russell, PhD, Ithaca, NY

10:40 Genetic Variation and Lung Macrophage Phenotypes
E. Sajti, MD, PhD, San Diego, CA

11:00 Macrophages and the Biologic Response to Ozone and Environmental Pollutants
R.M. Tighe, MD, Durham, NC

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C13 CLIMATE CHANGE AND RESPIRATORY HEALTH: WIDENING U.S. DISPARITIES

Assemblies on Behavioral Science and Health Services Research; Environmental, Occupational and Population Health; Environmental Health Policy Committee; Health Equality and Diversity Committee

9:15 a.m. - 11:15 a.m.

Target Audience
Pulmonary and critical care physicians, sleep physicians, fellows in training, physician extenders, respiratory therapists, public health and health policy professionals and health service researchers

Objectives
At the conclusion of this session, the participant will be able to:

- gain a greater understanding of vulnerable US populations and communities at risk for climate change;
- gain enhanced ability to assess risk, implement risk-reduction interventions and evaluate the effectiveness of risk-reduction efforts;
- gain knowledge of current policy that facilitates or impedes respiratory health of our patients, our communities and our planet.

Climate change produces alterations to the natural and built environments that will increase respiratory disease burden. In this session we will provide an overview of the climate change events that can impact respiratory health with a focus on vulnerable communities in the United States (e.g., racial/ethnic minorities, children, elderly, poor). We will use chronic obstructive pulmonary disease, asthma, and respiratory infectious diseases as examples in which to examine the threats to human health if these risks are not lessened and demonstrate how strategies and US-based policies could potential lessen these effects. An enhanced understanding of vulnerability is needed to identify the potentially differential impact of climate change on

subpopulations, and the social factors that may foster adaptation or alter risk.

Chairing: M.R. George, PhD, RN, New York, NY
N. Thakur, MD, MPH, San Francisco, CA
F. Holguin, MD, MPH, Aurora, CO
M.B. Rice, MD, MPH, Boston, MA

9:15 **Introduction: Why Climate Change Matters for Respiratory Health Disparities**
M.R. George, PhD, RN, New York, NY

9:22 **A Patient's Perspective: How Hurricane Harvey Impacted My Health**
Speaker to be Announced

9:35 **Long-Term Effects of Hurricane Sandy on Indoor Heat and Air Pollution on Pediatric Asthma in Vulnerable U.S. Populations**
M. Perzanowski, PhD, New York, NY

9:55 **Effects of Climate Change on COPD Morbidity in Vulnerable U.S. Populations**
M.C. McCormack, MHS, MD, Baltimore, MD

10:15 **Potential Rise of Hantavirus Pulmonary Syndrome in Native American Populations in the Face of Climate Change**
A. De St. Maurice, MD, MPH, Los Angeles, CA

10:35 **Policies That Protect Vulnerable Populations The Role of the EPA in the Current Climate**
D.L. Costa, DSc, Research Triangle Park, NC

10:55 **Panel Discussion**

9:15 a.m. - 11:15 a.m

Oral And Poster Presentations Of Scientific Research And Case Reports Abstract Sessions Will Be Published In The Final Program.

Tuesday Mid-day, May 21

11:45 a.m. – 1:15 p.m

ATS PLENARY SESSION

The ATS Plenary Session will feature a keynote talk by acclaimed photojournalist **Ed Kashi** who will speak on the Role of Photojournalism in Promoting World Health. The Plenary Session will also feature the introduction of the ATS slate of officers for 2018-2019, the presentation of several Respiratory Health Awards, and remarks from ATS President **Polly Parsons, MD, ATSF** and ATS President-Elect **James Beck, MD, ATSF**

The following awards will be presented:
Outstanding Educator:
Richard M. Schwartzstein, MD, Boston, MA

Research Innovation and Translation Achievement Award**:**
Marcus Y. Chen, MD, Bethesda, MD
Han Wen, PhD, Bethesda, MD

Outstanding Clinician:
Awardee To Be Announced

BEHAVIORAL • CLINICAL

WORKSHOP

WS5 DESIGNING A COMPREHENSIVE CRITICAL CARE ULTRASOUND CURRICULUM

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemblies on Critical Care; Behavioral Science and Health Services Research

11:45 a.m. - 1:15 p.m.

Target Audience
All providers involved in teaching trainees critical care ultrasound including Ultrasound key faculty, program directors and APDs, and fellows in training

Objectives
At the conclusion of this session, the participant will be able to:

- recognize the need for a comprehensive critical care ultrasound curriculum in a fellowship training program;
- create a comprehensive critical care ultrasound curriculum that is specifically tailored to your unique fellowship program
- devise practical approaches to combat barriers to implementation of specific curricular elements of a critical care ultrasound curriculum

ACCP/SRLF guidelines define competency in critical care ultrasonography to guide training. However, only 42% of Critical Care training programs have a formal curriculum for their trainees (2014 study), with similar results in a 2017 APCCMPD survey. Participants of this workshop will work together to devise practical approaches to designing and implementing a comprehensive ultrasound curriculum specific to their individual fellowship needs. Topics will include resources for addressing ultrasound knowledge including novel teaching methods for adult learners, methods for improving image acquisition and image interpretation skills, faculty development as a necessary part of a successful curriculum, and competency assessment/quality assurance.

Chairing: D. Pradhan, MD, New York, NY
G.W. Garrison, MD, Burlington, VT

11:45 Session Introduction
G.W. Garrison, MD, Burlington, VT

11:50 Faculty Development and Educational Resources in Critical Care Ultrasound
D. Pradhan, MD, New York, NY

12:15 Competency Assessment in Critical Care Ultrasound
S. Millington, MD, Ottawa, Canada

12:40 Quality Assurance in Critical Care Ultrasound
M. Narasimhan, DO, New Hyde Park, NY

1:05 Session Wrap-Up
G.W. Garrison, MD, Burlington, VT

BEHAVIORAL

WORKSHOP

WS6 HEALTH POLICY ADVOCACY 101: EFFECTIVELY INFORM YOUR ELECTED OFFICIALS

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemby on Nursing; Health Policy Committee

11:45 a.m. - 1:15 p.m.

Target Audience
Beneficial to all international conference attendees with an interest in advocacy

Objectives
At the conclusion of this session, the participant will be able to:

- prepare for and effectively communicate advocacy requests during a meeting with a legislative representative;
- prepare for and effectively provide answers during an interview on a health policy topic;
- deliver targeted health policy advocacy messages using social media.

This session is intended to provide an introduction to federal and state advocacy. Using a mix of didactic lectures and small group role playing, attendees will learn how to prepare for and participate in legislative visits, craft a letter to the editor on an important advocacy issue, deliver targeted advocacy messages using social media and prepare for and participate in media interviews. We envision attendees being seated at round tables (10-12 people each) with each table having 1-2 facilitators volunteers solicited from the Health Policy Committee, PAR, CCR and prior Hill Day attendees. Materials for the small group role playing will be developed in advance (from prior Hill Day materials) and circulated along with instructions to registrants prior to the meeting.

Chairing: S.C. Sweet, MD, PhD, Saint Louis, MO
D.J. Upson, MD, MA, Albuquerque, NM

11:45 Overview of Effective Federal Advocacy
G. Ewart, MHS, Washington, DC

11:55 Getting the Most out of a Congressional Visit
N. Moore, MA, Washington, DC

12:05 Role Playing: Congressional Visit

12:25 Feedback / Q&A

12:30 Engaging the Media on Statue and Local Issues: Physician's Perspective
D.J. Upson, MD, MA, Albuquerque, NM

12:40 Engaging the Media on Statue and Local Issues: Communications Professional Perspective
D. Morris, MSW, New York, NY

12:50 Role Playing: Media Engagement

1:10 Feedback / Q&A / Wrap Up

MEET THE PROFESSOR SEMINARS

Registration Fee: $70.00 (includes box lunch.)
Attendance is limited. Pre-registration is required.

12:15 p.m. - 1:15 p.m.

MP601 INHALATION OF RECOMBINANT HUMAN GRANULOCYTE-COLONY STIMULATING FACTOR AND AUTOIMMUNE PULMONARY ALVEOLAR PROTEINOSIS
R. Tazawa, MD, PhD, Niigata, Japan

MP602 CYSTIC LUNG DISEASE: UNCOMMON DISORDERS COMMONLY MISDIAGNOSED
R.M. Kotloff, MD, Cleveland, OH

MP603 MASTERING THE MAZE OF PAP AND NIV COVERAGE CRITERIA
P.C. Gay, MD, Rochester, MN

MP604 COUGH, WHEEZE, AND DYSPNEA: WHAT IS IT IF NOT ASTHMA?
M.M. Weinberger, MD, Encinitas, CA

MP605 ACUTE EXACERBATION OF IDIOPATHIC PULMONARY FIBROSIS
T. Kishaba, MD, ATSF, Okinawa, Japan

MP606 NEUROLOGIC DISASTERS IN THE ICU
T.P. Bleck, MD, ATSF, Chicago, IL

MP607 AIR POLLUTION AND MUCO-CILIARY DEFENSE: ROLE OF CILIARY ACTIVITY
H. Bayram, MD, PhD, ATSF, Istanbul, Turkey

MP608 NAVIGATING THE CHALLENGES OF HOME OXYGEN THERAPY FOR COMPLEX SLEEP RELATED RESPIRATORY DISORDERS AND RESPIRATORY FAILURE SYNDROMES
M. Cao, DO, Redwood City, CA

MP609 PULMONARY COMPLICATIONS AND MANAGEMENT OF CHILDHOOD CANCER
S.B. Goldfarb, MD, Philadelphia, PA

MP610 iCPET: FROM STARTING A PROGRAM TO INTERPRETING STUDIES
M.G. Risbano, MD, MA, Pittsburgh, PA

MP611 THE MANAGEMENT OF PATIENTS WITH SEVERE COMMUNITY-ACQUIRED PNEUMONIA
C. Feldman, MD, DSc, PhD, ATSF, Johannesburg, South Africa

MP612 FORCED EXPIRATION FOR THE MATHEMATICALLY INCLINED
J. Solway, MD, Chicago, IL

MP613 CONGESTIVE HEART FAILURE AND SLEEP DISORDERED BREATHING
M.T. Naughton, MD, ATSF, Prahran, Australia

MEDICAL EDUCATION SEMINAR

ME3 OPTIMIZING LEARNER-CENTERED EDUCATION IN THE AMBULATORY CLINIC

Registration Fee: $70 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assembly on Behavioral Science and Health Services Research

12:15 p.m. - 1:15 p.m.

Target Audience
Clinical faculty who work in an ambulatory setting and work with physician trainees and those with a formal role in pulmonary fellowship trainee education

Objectives
At the conclusion of this session, the participant will be able to:

- Identify barriers to and targeted methods for improving ambulatory education at the participants' home institution
- Define previously described methods for efficient and effective precepting in the outpatient setting
- Recognize opportunities and resources for implementation of structured ambulatory teaching within the clinic setting

Optimizing ambulatory education is paramount in today's fellowship training programs, particularly given the mismatch between limited exposure of trainees to outpatient pulmonology during the course of training and the substantial role of ambulatory medicine in pulmonary practice. Yet, time pressures, visit complexity, and variability in trainee experience can impede learning in a setting otherwise ripe with educational opportunities. This interactive workshop aims to enhance learner-centered ambulatory education by providing a framework for effective precepting in the ambulatory clinic. Participants will learn active precepting techniques, practice implementation of these strategies, and learn techniques for overcoming barriers to effective and efficient precepting.

Chairing: S.M. Kassutto, MD, Philadelphia, PA

Speakers: J.K. Heath, MD, MSCE, Philadelphia, PA
D.C. Chu, MD, Hershey, PA
C. Clancy, MD, Philadelphia, PA

Tuesday Afternoon, May 21

1:15 p.m. - 2:15 p.m.

VISIT THE EXHIBIT HALL

Take this opportunity between sessions to visit the Exhibit Hall to gain practical knowledge to advance care and research. Exhibitors will be on hand to provide information on pharmaceutical products, medical equipment, publications and research services.

ADULT CLINICAL CORE CURRICULUM

CC4 SLEEP MEDICINE CLINICAL CORE CURRICULUM II

2:15 p.m. - 4:15 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine, as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: S.M. Jamil, MD, ATSF, La Jolla, CA
J.A. Cooksey, MD, Chicago, IL

2:15 **Circadian Disorders: Advanced, Delayed, Non-24**
C.A. Goldstein, MD, MS, Ann Arbor, MI

2:45 **Circadian Disorders: Shift Work, Jet Lag**
R. Auger, MD, Rochester, MN

3:15 **Sleep in High-Risk Populations**
K.A. Dudley, MD, MPH, Cambridge, MA

3:45 **Update on Pediatric Sleep**
M. Chen, MD, Seattle, WA

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

C82 CHALLENGES IN THE LONG-TERM CLINICAL MANAGEMENT OF SARCOIDOSIS

Assemblies on Clinical Problems; Allergy, Immunology and Inflammation

2:15 p.m. - 4:15 p.m.

Target Audience
Providers who see patients with sarcoidosis and other interstitial lung diseases

Objectives
At the conclusion of this session, the participant will be able to:

- appropriately utilise long term surveillance assessments for sarcoidosis;
- become better equipped to utilise non-steroidal treatments in the long-term management of sarcoidosis;
- improve the quality of life of patients with sarcoidosis by focusing on the common but non-organ-specific symptoms of fatigue, depression and pain.

Most clinicians feel comfortable initiating systemic corticosteroids in newly diagnosed patients with symptomatic or organ-threatening sarcoidosis. Yet, most feel ill equipped for long-term clinical management. This includes how to communicate the long-term treatment and screening roadmap to patients. This symposium will address key areas of long-term management, including guidance on how to recognise and treat recurrent disease, how and when to add corticosteroid-sparing immunosuppressive therapies, and how to assess for and manage systemic symptoms, such as fatigue, which are common and often debilitating in sarcoidosis.

Chairing: A.S. Morgenthau, MD, New York, NY
W.P. Drake, MD, Nashville, TN

2:15 **Introduction to Sarcoidosis Pathogenesis**
E.S. Chen, MD, Baltimore, MD

2:35 **Disease Recurrence and Exacerbations**
K.C. Patterson, MD, Falmer, United Kingdom

2:55 **Beyond Steroids: What to Use and How They Work**
J. Porter, MD, London, United Kingdom

3:15 **Fighting Fatigue and Other Systemic Symptoms in Sarcoidosis**
M. Gering-Voortman, MD, Maastricht, Netherlands

3:35 **Screening for Silent Disease: How Far Do We Have to Go**
M.A. Judson, MD, Albany, NY

3:55 **The Road to Eternity: How to Explain a Chronic Disease to Patients**
M.S. Balter, MD, Toronto, Canada

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

C83 PEDIATRIC CLINICAL CHEST ROUNDS

Assembly on Pediatrics

2:15 p.m. - 4:15 p.m.

Target Audience
Pediatric pulmonary clinicians, including physicians, NPs, nurses, and other health professionals interested in the diagnosis and management of challenging pediatric cases

Objectives
At the conclusion of this session, the participant will be able to:

- generate a broad differential diagnosis for challenging cases in pediatric pulmonary medicine;
- apply current diagnostic testing to the management of challenging cases in pediatric pulmonary medicine;
- discuss state of the art management of challenging pediatric pulmonary cases.

Pediatric Clinical Chest Rounds focuses on the diagnosis and management of 4 challenging clinical cases selected from the case reports submitted to the Pediatric Assembly. Each case is presented by a trainee (usually a pediatric pulmonary fellow) and discussion is led by an expert in the field.

Chairing: J. Needleman, MD, Brooklyn, NY
A.G. Filbrun, MD, MS, Ann Arbor, MI
A.R. O'Hagan, MD, Louisville, KY

Cases To Be Announced

CLINICAL

CRITICAL CARE TRACK

C84 CLINICAL TRIALS IN THE CRITICALLY ILL: ECMO AS A CAUTIONARY TALE

Assemblies on Critical Care; Clinical Problems; Nursing

2:15 p.m. - 4:15 p.m.

Target Audience
Adult and pediatric critical care clinicians and researchers

Objectives
At the conclusion of this session, the participant will be able to:

- incorporate lessons and perceptions from survivors of ARDS;
- learn about the challenges of designing clinical trials of complex interventions in the critically ill, and learn novel strategies for future evaluations of these interventions;
- gain new strategies for the evidence-based management of patients with severe ARDS.

This session will provide an overview of the challenges in conducting clinical trials in critically ill patients, using recent trials on VV ECMO in severe ARDS as an example. The session incorporates 10 brief presentations highlighting key issues and insights related to clinical trial design, implications for clinical practice, and future ICU research followed by a panel Q&A discussion.

Chairing: E. Fan, MD, PhD, Toronto, Canada
C.T.L. Hough, MD, MSc, Seattle, WA

2:15 **Patient Perspective on ECMO for Severe ARDS**
E. Rubin, JD, Northbrook, IL

2:20 **VV ECMO: Ready for Primetime!**
A. Combes, MD, PhD, Paris, France

2:30 **VV ECMO for ARDS: Not So Sure ...**
M.N. Gong, MS, MD, Bronx, NY

2:40 **How Should We Interpret "Negative Trials" in 2019?**
A.J. Walkey, MD, MSc, Boston, MA

2:50 **How Do We Prepare Clinicians To Deliver ECMO?**
J.H. Badulak, MD, MSc, Seattle, WA

3:00 **How Should We Design the Next ECMO Trial?**
E. Fan, MD, PhD, Toronto, Canada

3:10 **What Are the Right Outcomes to Study in ECMO Trials?**
C.T.L. Hough, MD, MSc, Seattle, WA

3:20 **Is There a Role for Precision Medicine?**
C.S. Calfee, MD, San Francisco, CA

3:30 **What's in the Pipeline for Extracorporeal Support in ARDS**
D. Brodie, MD, New York, NY

3:40 **OK, So What Now?**
S.S. Carson, MD, Chapel Hill, NC

3:55 **Panel Q&A**
C.T.L. Hough, MD, MSc, Seattle, WA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C85 SCIENTIFIC BREAKTHROUGHS

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation; Respiratory Structure and Function

2:15 p.m. - 4:15 p.m.

Target Audience
Basic and translational scientists, physicians, and trainees

Objectives
At the conclusion of this session, the participant will be able to:

- describe the latest scientific advances in basic and translational science;
- utilize novel techniques and approaches to the study of lung development and disease;
- apply knowledge from basic and translational research towards development of novel therapeutic strategies.

This session will focus on recent high impact discoveries and novel approaches to study of lung development and diseases. This session will span basic biology to cutting edge therapeutics. Presentations from experts in the field will be complemented by abstract presentations related to the topic being discussed.

Chairing: L.R. Young, MD, ATSF, Nashville, TN
E.R. Neptune, MD, Baltimore, MD

2:15 **Introduction to Scientific Breakthroughs Session**
L.R. Young, MD, ATSF, Nashville, TN

2:16 **Advances in Human Lung Stem Cell Organoids**
T. Desai, MD, MPH, Stanford, CA

2:39 **The Driving FORCE in Alveolar Regeneration and Diseases**
N. Tang, PhD, Beijing, China

3:03 **New Concepts in Surfactant Homeostasis**
B.C. Trapnell, MD, Cincinnati, OH

3:27 **Reducing Protein Oxidation Reverses Lung Fibrosis in Multiple Pre-Clinical Models**
Y.M.W. Janssen-Heininger, PhD, Burlington, VT

3:51 **Neutrophil Exosomes Are Novel Pathogenic Entities in COPD**
A. Gaggar, MD, PhD, Birmingham, ALT

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C86 LUNGMAP-ING CELL LINEAGES IN HUMAN DEVELOPMENT AND DISEASE

Assemblies on Pediatrics; Respiratory Cell and Molecular Biology

2:15 p.m. - 4:15 p.m.

Target Audience
Researchers, investigators in basic and clinical science, clinical and research fellows in pulmonology training, clinical and research scientists interested in human lung development and disease; junior professionals

Objectives
At the conclusion of this session, the participant will be able to:

- understand the latest advances in our knowledge of human lung development;
- identify innovative approaches for defining the molecular and functional attributes of human lung cells;
- better understand the different cell types in the developing human lung.

Most of our knowledge of lung development and cell lineage hierarchy is derived from animal models. Therefore, there exists an important gap of knowledge in our understanding of cell lineages and cell fates in human lung development, and how they may relate to lung disease. In order to address these knowledge gaps, the LungMap Consortium has begun to create a molecular and cellular atlas of the developing mouse and human lung. This session will provide an overview of several novel aspects of human lung development, uncovered by the application of innovative technologies by experts in the field, with a focus on cell lineage and cell fate.

Chairing: D. Al Alam, PhD, MS, Los Angeles, CA
T.J. Mariani, PhD, Rochester, NY
A.T. Perl, PhD, Cincinnati, OH
N. Ambalavanan, MD, Birmingham, AL

2:15 **Human Lung Development and Congenital Lung Abnormalities**
G. Deutsch, MD, Seattle, WA

2:40 **Epigenetic Regulation of Cell Lineages in Human Lung Development**
J.S. Hagood, MD, Chapel Hill, NC

3:05 **Transcriptomic Lineage Mapping of the Developing Human Lung**
M. Guo, PhD, Cincinnati, OH

3:25 **Multi-Omic Characterization of the Lung During Development**
C. Ansong, PhD, Richland, WA

3:50 **Immune Cell Development in Children, Measured in Lung, Spleen and Blood**
G.S. Pryhuber, MD, Rochester, NY

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C87 PHYSIOLOGICALLY-GUIDED MECHANICAL VENTILATION

Assemblies on Respiratory Structure and Function; Critical Care

2:15 p.m. - 4:15 p.m.

Target Audience
Providers involved in administering mechanical ventilation to critically ill patients. Basic and translational scientists studying mechanisms of ventilator-induced lung injury.

Objectives
At the conclusion of this session, the participant will be able to:

- articulate the principle mechanisms of ventilator -induced lung injury;
- describe the key shortcomings of the current approaches to ventilator management of ARDS patients;
- list 2-4 novel approaches that are currently being investigated for the assessment of individual patient status during mechanical ventilation.

This symposium will cover various approaches in which mechanical ventilation can be delivered in a manner that is optimal for a given patient based on an understanding of that patient's unique physiological status and the manner in which the stresses and strains of mechanical ventilation can worsen existing lung injury.

Chairing: D.W. Kaczka, MD, PhD, Iowa City, IA
C.E. Perlman, PhD, Hoboken, NJ
J.H.T. Bates, PhD, DSc, ATSF, Burlington, VT

2:15 Linking Mechanical Ventilation to the Development of Lung Injury
J.H.T. Bates, PhD, DSc, ATSF, Burlington, VT

2:35 Maintaining Low Surface Tension to Minimize Ventilation Injury
C.E. Perlman, PhD, Hoboken, NJ

2:55 What You See and What You Get: PET/CT Insights on Mechanical Ventilation
M.F. Vidal Melo, MD, PhD, Boston, MA

3:15 Identifying Targets to Guide Mechanical Ventilation: The Injury Cost Function
B.J. Smith, PhD, Aurora, CO

3:35 Evolution of Lung Injury Using Quantitative CT Imaging
M. Cereda, MD, Philadelphia, PA

3:55 Optimzing Ventilation in the Heterogeneous Lung: An Engineering Perspective
D.W. Kaczka, MD, PhD, Iowa City, IA

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C88 COMPLEMENT AS A NOVEL TARGET TO MITIGATE LUNG DISEASE

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation; Pulmonary Infections and Tuberculosis; Thoracic Oncology

2:15 p.m. - 4:15 p.m.

Target Audience
Students, fellows, and basic/translational scientists of all career levels (physician-scientists, PhD scientists) and those focusing on the immunology of lung diseases, such as asthma, COPD, pulmonary fibrosis, lung transplantation and pneumonia

Objectives
At the conclusion of this session, the participant will be able to:

- understand the emerging mechanisms by which key complement proteins modify lung inflammation, with the goal of mitigating diseases such as asthma, pulmonary fibrosis and transplant rejection;
- define the relative contribution of complement proteins in driving cell lineage and fate in both immune and non-immune cells, especially stem cells;
- critically evaluate cutting-edge technologies being currently used to investigate the role of complement in lung inflammation to be able to broadly apply these to mitigating disease.

The complement system has been associated with various lung diseases; however, the extent and the relative contribution from hepatic versus extra-hepatic sources remains ill-defined. Through this session, we will integrate emerging concepts in how complement affects fundamental biological processes, identify model systems and therapies to evaluate how it modulates lung inflammation and answer key questions such as: are complement proteins still predominantly

proinflammatory? Do their effects differ in acute lung injury versus chronic lung fibrosis?

Chairing: H.S. Kulkarni, MD, MSc, ATSF, Saint Louis, MO
R. Vittal, PhD, Ann Arbor, MI
J. Kohl, MD, Lubeck, Germany

2:15 **Introduction: A New Role for Complement in the Lung - More than Just Pro-Inflammatory Proteins?**
H.S. Kulkarni, MD, MSc, ATSF, Saint Louis, MO

2:25 **Using Complement Regulatory Proteins as Novel Therapeutic Molecules to Combat Pulmonary Fibrosis**
R. Vittal, PhD, Ann Arbor, MI

2:45 **Inhibiting Complement Receptors to Improve Donor Utilization and Outcomes Post-Lung Transplantation**
C. Atkinson, PhD, Charleston, SC

3:05 **Novel Reporter Models as Tools to Delineate the Role of Complement in Pulmonary Tolerance and Allergic Asthma**
J. Kohl, MD, Lubeck, Germany

3:25 **Exploiting Targeted Complement Modulation for Multi-Modal Anticancer Immunotherapies**
R. Pio, PhD, Pamplona, Spain

3:45 **Complement Resistance and Host Susceptibility to MDR K. Pneumoniae Infection**
J. Lee, MD, ATSF, Pittsburgh, PA

4:05 **Panel Discussion (Question and Answers)**

TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C89 TRANSLATIONAL DEVELOPMENTS IN TB: TOWARDS IMPROVING PREVENTION AND MANAGEMENT STRATEGIES

Assemblies on Pulmonary Infections and Tuberculosis; Allergy, Immunology and Inflammation; Clinical Problems

2:15 p.m. - 4:15 p.m.

Target Audience
Clinicians and physician scientists caring for patients with latent tuberculosis infection (LTBI) and active tuberculosis (TB), and/or working in the field of tuberculosis would benefit the most

Objectives
At the conclusion of this session, the participant will be able to:

- learn new concepts from translational studies and human host defense mechanisms against TB to be better able to diagnose and manage the various forms of TB infections in low and high TB endemic settings;
- learn new findings and translational data from TB vaccine research development and trials to be better prepared for future implementation of optimal preventive strategies to improve TB control in low and high TB endemic areas;
- learn new diagnostic and therapeutic strategies, including promising technologies to optimally manage patients at risk of TB infection in the U.S. and resource limited settings.

This session will present new and emerging data from recent basic and translational studies in TB to update our ATS membership with evolving concepts in TB pathogenesis and novel technologies and strategies for optimal prevention, diagnosis and management of latent TB infection and TB disease.

Chairing: P. Escalante, MD, MSc, Rochester, MN
J.M. Keane, MD, Dublin, Ireland

2:15 **Human Host Responses in TB: Recent Lessons From the Translational World**
J.M. Keane, MD, Dublin, Ireland

2:35 **Evolving Concepts and Interventions in Host Response Against TB: From Host Resistance to Host Tolerance**
M. Divangahi, PhD, Montreal, Canada

2:55 **Enhancing Conventional and Non-Conventional Adaptive Responses in TB: Are We Close to Improve BCG Vaccination Response?**
D.M. Lewinsohn, MD, PhD, Portland, OR

3:15 **Novel TB Vaccines: Correlates of Protection and Lessons From Clinical Trials**
M. Ruhwald, MD, PhD, Copenhagen, Denmark

3:35 **Lessons from the Field: TB Infection State Profiling and Biomarker-Based TB Prevention Strategies**
T.J. Scriba, PhD, Cape Town, South Africa

3:55 **Update in Diagnostics and Therapeutic Interventions in Latent TB Infection in Low TB Endemic Areas**
P. Escalante, MD, MSc, Rochester, MN

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C90 BENCH TO BEDSIDE: HOW DIETARY N3-PUFAS MODULATE THE PULMONARY RESPONSE TO ENVIRONMENTAL EXPOSURES

Assemblies on Environmental, Occupational and Population Health; Allergy, Immunology and Inflammation; Respiratory Cell and Molecular Biology

2:15 p.m. - 4:15 p.m.

Target Audience
Basic and clinical researchers and clinicians interested in learning about emerging literature indicating a pivotal role for diet and n-3 PUFAs in environmental lung diseases

Objectives
At the conclusion of this session, the participant will be able to:

- understand the potential for diet and n-3 PUFAs as a therapeutic option against the adverse health outcomes from environmental exposures;
- understand the underlying mechanisms by which n-3 PUFAs may mitigate the effects of environmental exposures on relevant pulmonary health outcomes;
- compare and contrast the findings in basic, translational, and clinical studies related to the effects of n-3 PUFA intake on pulmonary response to environmental exposures.

Environmental exposures (both ambient and occupational) contribute to the onset and exacerbation of lung diseases. Defining novel therapeutic strategies to limit the adverse health effects of environmental exposures is critical. Diet is increasingly recognized as an important factor in immune health. Within diet, n-3 polyunsaturated fatty acids (PUFAs) are a critical nutrient that has demonstrated immunomodulatory properties in inflammatory diseases such as obesity, cardiovascular diseases, and arthritis. A novel paradigm has been proposed linking n-3 PUFA intake and reductions in environmental lung diseases. This session will introduce novel mechanisms wherein diet, with a focus on n-3 PUFAs, can mitigate effects of environmental respiratory exposures.

Chairing: K.M. Gowdy, BS, MS, PhD, Greenville, NC
J.G. Wagner, MBA, PhD, East Lansing, MI
E. Brigham, MD, MHS, Baltimore, MD

2:15 **Fatty Acid Intake in the United States**
C. Hanson, PhD, Omaha, NE

2:35 **Silica-Triggered Lupus Flares, Pulmonary Powerhouses of Autoimmunity, and Dietary Lipid Interventions for Prevention and Treatment**
J.R. Harkema, DVM, PhD, ATSF, East Lansing, MI

2:55 **Dietary N-3 PUFAs Modulates Ozone Induced Pulmonary Immunity**
K.M. Gowdy, BS, MS, PhD, Greenville, NC

3:15 **Dust and Diet: Environmental Factors Impacting Lung Health**
T.M. Nordgren, PhD, Riverside, CA

3:35 **Supplementation with n-3 PUFAs Ameliorate Adverse Cardiovascular Health Effects of Air Pollution Exposure in Human Volunteers**
J.M. Samet, MPH, PhD, Chapel Hill, NC

3:55 **Dietary Influences on the Response to Particulate Matter Exposure: Asthma and COPD**
N.N. Hansel, MD, MPH, Baltimore, MD

BEHAVIORAL • CLINICAL

SCIENTIFIC SYMPOSIUM

C91 IMPROVING CARE QUALITY WHILE REDUCING COST: IS HIGH VALUE CARE FOR COPD ACHIEVABLE?

Assemblies on Behavioral Science and Health Services Research; Clinical Problems; Nursing

2:15 p.m. - 4:15 p.m.

Target Audience
Inter-professional providers of care for patients with lung disease including those interested in learning about emerging evidence for effective strategies to provide high value care for patients with COPD

Objectives
At the conclusion of this session, the participant will be able to:

- distinguish value based care from cost effectiveness;
- identify high value interventions that could be implemented in their institutions;
- learn about the diverse stakeholder perspectives in value-based care.

COPD is a frequent target of calls to improve the value of health care. Yet, improving value requires meeting the often-opposing goals of increasing quality while reducing costs. In this session, experts will discuss the evidence surrounding several areas to improve the value of care provided during COPD-related hospitalizations. Specifically, we will discuss recent science addressing the value implications of 1)where we provide care for acute exacerbations, 2) how we pay for it, and 3)how we protect patients from readmissions after discharge.

Chairing: V.G. Press, MD, MPH, Chicago, IL
A.J. Admon, MD, MPH, Ann Arbor, MI
L. Myers, MD, Boston, MA

2:15 **Introduction: Is High Value Care for COPD Achievable?**
A.J. Admon, MD, MPH, Ann Arbor, MI

2:30 **Thinking Outside the Hospital: The Role of Hospital-at-Home in Reducing Costs of COPD Care**
C. Echevarria, MD, Newcastle, United Kingdom

2:45 **Achieving Value by Delivering NIV for COPD Outside of the ICU**
L. Myers, MD, Boston, MA

3:00 **NIV and How It Can Help the Patient with COPD**
D. Hart, PhD, Auckland, New Zealand

3:15 **Bundled Payments and COPD: An Early Adopter Experience**
S.P. Bhatt, MD, Birmingham, AL

3:30 **An Evolving Bundled Payment for Care Improvement (BPCI) COPD Initiative: Next Steps After Round One**
V.G. Press, MD, MPH, Chicago, IL

3:45 **Organizational Drivers of COPD Readmissions**
S. Rinne, MD, PhD, Boston, MA

4:00 **Impact of the Hospital Readmissions Reduction Program on COPD Readmissions**
L.C. Feemster, MSc, MD, Seattle, WA

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

C92 ATS CLINICAL PRACTICE GUIDELINES: CLINICAL PRACTICE ON THE CUTTING EDGE

Assemblies on Clinical Problems; Pediatrics; Pulmonary Infections and Tuberculosis; Sleep and Respiratory Neurobiology; Thoracic Oncology; Documents Development and Implementation Committee; Education Committee; Quality Improvement and Implementation Committee

2:15 p.m. - 4:15 p.m.

Target Audience
Physicians, nurses, respiratory therapists, and others who care for adults with interstitial lung disease, malignant pleural effusions, Obesity, OSA, fungal infections and pediatric patients who need supplemental oxygen

Objectives
At the conclusion of this session, the participant will be able to:

- understand how evidence is used to inform diagnostic and treatment recommendations;
- apply clinical recommendations from recently published guidelines in clinical practice, improving patient outcomes;
- obtain new strategies to managing IPF, Malignant Pleural Effusions, Obesity in OSA, Fungal Infections and pediatric Supplemental Oxygen.

This session is proposed as the fifth annual scientific symposium highlighting ATS clinical practice guidelines, as originally requested by the ATS Executive Committee several years ago to highlight recently approved or published ATS evidence-based clinical practice guidelines. This year's symposium will highlight guidelines and statements on Idiopathic Pulmonary Fibrosis, Malignant Pleural Effusions, Obesity in OSA, Fungal Infections and pediatric Supplemental Oxygen. Speakers will describe the clinical recommendations formulated by the guideline panels, discuss the rationale for each, and critically review the evidence supporting each recommendation. Speakers will also describe how the guidelines provide the foundation for improving care. Speakers include the chairs of the panels that developed the guidelines.

Chairing: R.A. Dweik, MD, ATSF, Cleveland, OH
C.C. Thomson, MPH, MD, ATSF, Cambridge, MA
B. Patel, MD, Houston, TX

2:15 **Welcome**
R.A. Dweik, MD, ATSF, Cleveland, OH

2:20 **Grading Strength of Recommendations and Quality of Evidence**
K.C. Wilson, MD, ATSF, Boston, MA

2:30 **Management of Malignant Pleural Effusions**
D.J. Feller-Kopman, MD, Baltimore, MD

2:50 **Management of Obesity for OSA**
S.R. Patel, MD, Pittsburgh, PA

3:10 **Diagnosis of Fungal Infections**
A.H. Limper, MD, Rochester, MN

3:30 **Pediatric Supplemental Oxygen**
D. Hayes, MD, MS, MEd, ATSF, Columbus, OH

3:50 **Diagnosis of Idiopathic Pulmonary Fibrosis**
G. Raghu, MD, Seattle, WA

4:10 **Closing Remarks**
B. Patel, MD, Houston, TX

2:15 p.m. - 4:15 p.m.

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

4:30 p.m.-6:30 p.m.

SECTION MEMBERSHIP MEETINGS

The Section meetings are open to all ATS members and other interested individuals. Items to be discussed include the Sections' current projects and future directions.

MEDICAL EDUCATION

Chairing: Henry Fessler, MD, Baltimore, MD
W. Graham Carlos, MD, MSCR, ATSF, Indianapolis, IN

TERRORISM AND INHALATION DISASTERS

Chairing: Sven Jordt, PhD, Chapel Hill, NC
Erik Svendsen, PhD, Atlanta, GA

Wednesday Morning, May 22

PEDIATRIC CLINICAL CORE CURRICULUM

PCC4 PEDIATRIC CLINICAL CORE CURRICULUM

6:45 a.m. - 7:45 a.m.

Target Audience
Pediatric pulmonary and critical care physicians who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pediatric pulmonology;
- evaluate their understanding of key skills and content areas in pediatric pulmonology as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The Pediatric Core Curriculum symposia promote lifelong learning and the enhancement of the clinical judgment and skills essential for practicing pediatrician. The symposia will address topics that have been identified by an ATS pediatric working group, which is comprised of members of the ATS Education Committee and the International Conference Committee, who have identified important areas within pediatric medicine (including severe asthma, ILD, BPD, pulmonary hypertension and pulmonary manifestations of pulmonary disease). Attendees will increase their medical knowledge as a result of attending this symposium, and this will be measured by a comparison of pre-test vs. post-test results on the corresponding maintenance of certification module. The ATS Pediatric Core Curriculum will focus on a 3-year content cycle of key medical content in the area of pediatric medicine.

Chairing: J.R. Rettig, MD, Boston, MA

6:45 **Pulmonary Complications of Hematopoetic Cell Transplant**
E. Melicoff-Portillo, MD, Houston, TX

7:15 **Pulmonary Complications of Solid Organ Transplant**
J. Blatter, MD, MPH, Saint Louis, MO

SUNRISE SEMINARS

Registration Fee: $50.00 (includes continental breakfast.) Attendance is limited. Pre-registration is required.

6:45 a.m. - 7:45 a.m.

SS301 MINDFULNESS FOR OPTIMIZING HEALTH CARE PROFESSIONAL WELL-BEING: REDUCING BURNOUT
N.C. Liang, MD, San Diego, CA

SS302 DIAGNOSIS AND MANAGEMENT OF THE ADULT PATIENT WITH BRONCHIECTASIS
E.C. Dasenbrook, MD, MHS, Cleveland, OH

SS303 HOW REAL WORLD DATA IS TRANSFORMING CLINICAL RESEARCH
E.D. Farrand, MD, San Francisco, CA

SS304 PROJECT ECHO: EXTENDING BEST MEDICAL PRACTICES FOR IDIOPATHIC PULMONARY FIBROSIS TO UNDERSERVED COMMUNITIES
M. Otaola, MD, Buenos Aires, Argentina

SS305 THE ROLE OF SEX AND GENDER IN LUNG DISEASE
J.J. Beros, MD, Philadelphia, PA

SS306 HYPERSENSITIVITY PNEUMONITIS FOR THE CLINICIAN
A. Pande, MD, Cleveland, OH

SS307 MANAGEMENT OF RESPIRATORY FAILURE IN ALS AND OTHER NEUROMUSCULAR DISEASEP. Choi, MD, Ann Arbor, MI

SS308 CHALLENGING CASES IN CRITICAL CARE ULTRASOUND
D. Pradhan, MD, New York, NY

SS309 NASAL HIGH FLOW IN THE ICU
M. Allison, MD, Baltimore, MD

SS310 CARBON MONOXIDE POISONING: UNDERLYING MECHANISMS, CURRENT MANAGEMENT AND FUTURE DIRECTIONS
J.J. Rose, MD, MBA, Pittsburgh, PA

SS311 ANTI-INFLAMMATORIES IN LUNG DISEASE: WHAT WORKS WHERE
L. Yonker, MD, Boston, MA

SS312 CARING FOR ADOLESCENTS AND ADULTS BORN PREMATURE: LATE CARDIOPULMONARY MANIFESTATIONS
K. Goss, MD, Madison, WI

SS313 RECOMMENDATIONS FOR THE DESIGN AND ANALYSIS OF HUMAN LUNG MICROBIOME STUDIES
A. Pragman, MD, PhD, Minneapolis, MN

SS314 ENGINEERING 3D MODELS OF HUMAN PULMONARY DISEASE
C.M. Magin, PhD, Aurora, CO

SS315 APPROACH TO DEVELOPMENTAL LUNG ANOMALIES IN ADULTS
S.V. Cherian, MBBS, MD, Houston, TX
R.M. Estrada-Y-Martin, MD, Houston, TX

SS316 CIRCADIAN MISALIGNMENT IN THE ICU
M.P. Knauert, PhD, MD, New Haven, CT

SS317 LUNG CANCER HETEROGENEITY AND ITS CLINICAL APPLICATIONS
J. Akulian, MD, MPH, Chapel Hill, NC

FACULTY DEVELOPMENT SEMINAR

FD3 NEGOTIATING FOR YOUR FUTURE: SKILLS AND STRATEGIES FOR SUCCESS

Registration is required to obtain an audience count. Tickets will not be issued; however, conference badges are required for admission. Space is limited and admittance is on a first-come, first-served basis. There is no additional fee.

6:45am - 7:45 a.m.

Target Audience
Early and mid-career clinical or research faculty, subspecialty clinical and postdoctoral fellows, medical and graduate students, residents, nurses, and allied health professionals involved in pulmonary, critical care and/or sleep medicine.

Objectives
At the conclusion of this session, the participant will be able to:

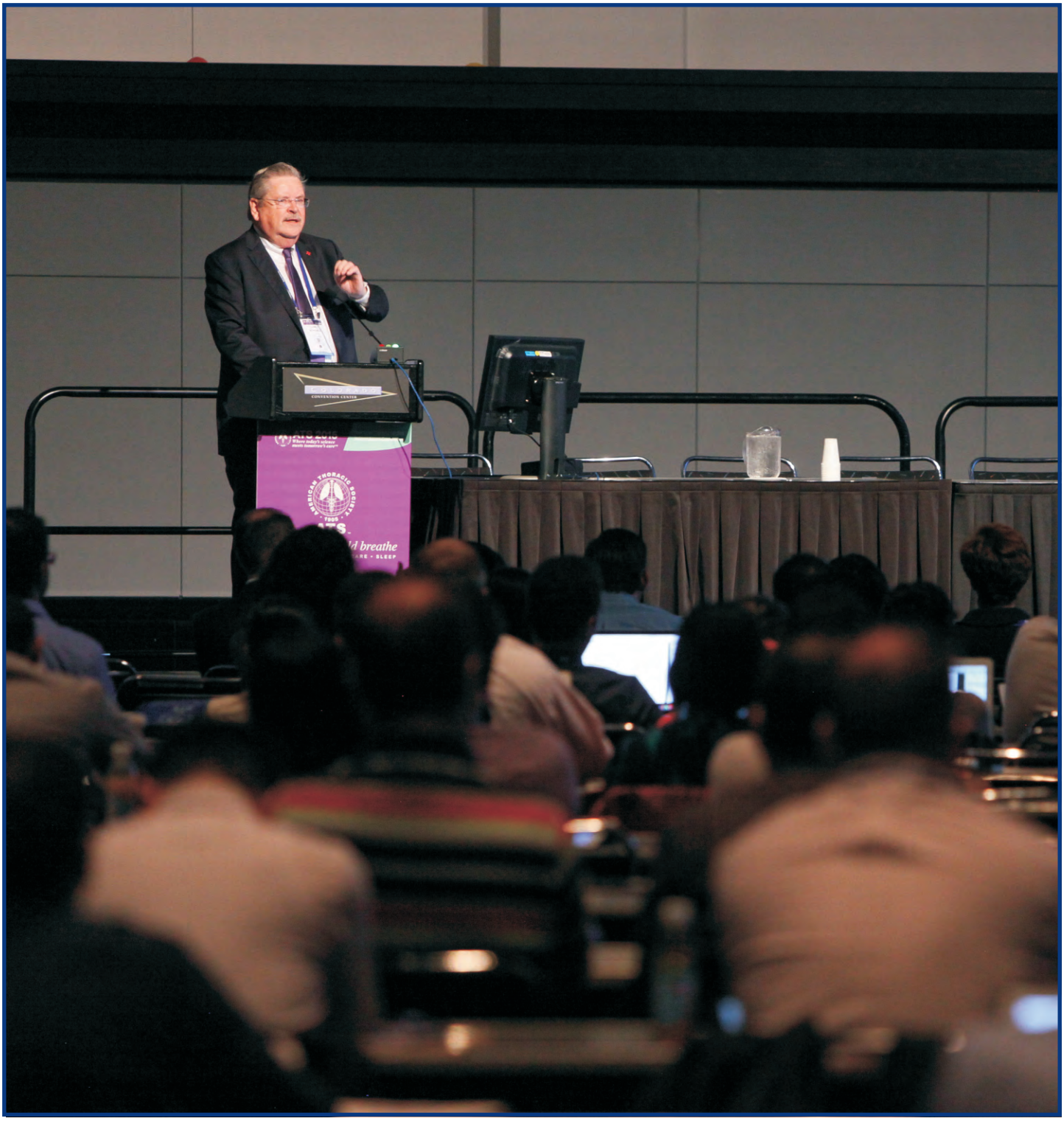
- describe the resources to use in preparing for and during negotiations to advance his/her career;
- discuss how to accurately identify his/her goals prior to engaging in negotiations;
- learn about the concept of principled negotiation focused on basic interests, mutually satisfying options, and fair standards to arrive at an outcome that is amicable to both parties involved in a negotiation.

Often early career faculty are burdened with challenging and competing expectations without having adequate resources to succeed, leading to disenfranchisement and burnout. However, negotiating for resources that are needed for one's success can be complex, especially for early career faculty, due to limited negotiation skills and minimal experience negotiating. In addition, the critical questions of "what to ask for" and "how much to ask" are significant challenges to effective negotiations for trainees and early career faculty. Furthermore, it can be difficult to obtain objective guidance on negotiating one's position because mentors and current and potential future

employers are stakeholders in these arbitrations and may be inherently conflicted. This session will provide attendee's strategies to employ when negotiating, and insight into available resources for future career development.

Chairing: N. Sharma, MD, Tampa, FL

Speakers: M.M. Budev, DO, MPH, Cleveland, OH
V.B. Antony, MD, Birmingham, AL
J.L. Denson, MD, MS, New Orleans, LA
S.B. Liggett, MD, Tampa, FL



BASIC • CLINICAL • TRANSLATIONAL

KEYNOTE SERIES

The Keynote Series focuses on topics thought to be timely and of high relevance to the pulmonary, critical care, and sleep medicine community.

Sessions are presented each morning during the Conference.
Below is the topic for Wednesday, May 22

K7 WHAT SHOULD PULMONOLOGISTS KNOW ABOUT ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING?

8:00 a.m.-8:45 a.m.

Speaker: Michael D. Howell, MD, MPH, Mountainview, CA

CLINICAL

YEAR IN REVIEW

D1 CLINICAL YEAR IN REVIEW 4

9:15 a.m. - 11:15 a.m.

Target Audience
Providers including physicians, nurses, respiratory therapists, nurse practitioners, physician assistants; trainees including residents and fellows; clinical researchers

Objectives
At the conclusion of this session, the participant will be able to:

- apply new clinical research knowledge to clinical practice;
- learn new findings about key conditions in pulmonary, critical care and sleep;
- have new strategies to manage the care of common conditions in pulmonary, critical care, and sleep

The annual Clinical Year in Review symposia provides concise summaries of the most impactful clinical research publications related to specific clinical topics. Speakers are asked to conduct a literature review of the prior year's scientific publications and develop a written summary of the top 20 articles and highlight 5 of the most important and influential publications on their topic in written format and during their talks at the International Conference Clinical Year in Review sessions.

Chairing: V.E. Ortega, MD, PhD, ATSF, Winston Salem, NC
J.S. Lee, MD, Aurora, CO
P.A. Kritek, MD, Seattle, WA

9:15 Lung Cancer
S. Janes, PhD, London, United Kingdom

9:45 Palliative Medicine
R. Aslakson, MD, PhD, Stanford, CA

10:15 Pulmonary Hypertension
V. De Jesus Perez, MD, ATSF, Palo Alto, CA

10:45 Medical Education
P.H. Lenz, MD, MEd, Cincinnati, OH

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

D2 STATE OF THE ART PLEURAL DISEASE MANAGEMENT: CLINICAL TRIALS CHANGING CARE PRACTICE

Assembly on Clinical Problems

9:15 a.m. - 11:15 a.m.

Target Audience
Clinicians and allied health professionals with clinical and/or research responsibilities in respiratory diseases; chest physicians, interventional pulmonologists, oncologists, nurses, thoracic surgeons, internists, GPs, emergency physicians.

Objectives
At the conclusion of this session, the participant will be able to:

- review the latest clinical trial evidence on best management of malignant pleural effusions, especially regarding the use of indwelling pleural catheters vs/plus pleurodesis; highlighting recently practice changing trials in the field;
- understand and review the latest clinical trial evidence on best management of pleural infection, especially intrapleural therapy with tPA DNase, and the ongoing work on their best delivery regimes;
- understand the latest research finding spontaneous pneumothorax management.

The last two years have seen many multicentered pleural disease trials completed with major impact on clinical care. These studies have been published in high impact journals: including trials on malignant effusions (especially IPC-PLUS in NEJM 2018; AMPLE-1 in JAMA 2017 and TIME-1 and -2 trials both in JAMA), mesothelioma (SMART trial in Lancet Oncol 2017; MAPPs and Meso-VATS in Lancet) etc. Several large trials eg the AMPLE-2 (under revision), PLEASE, PSP (pneumothorax), TAPPS etc have completed enrollment and will report results in 2018/early 2019. The proposed session will update the audience of the latest exciting advances from RCTs that impact care. In addition, large prognostic series for pleural infection

(PILOT) and malignancies (LENT, PROMISE) can inform clinicians in practice. This has prompted a recent review of pleural diseases in NEJM 2018.

Chairing: C. Broaddus, MD, San Francisco, CA
H. Davies, MBChB, Cardiff, United Kingdom

9:15 **Practice Changing Clinical Trials in Pneumothorax**
E. Ball, MBBS, Hobart, Australia

9:40 **State of the Art Management of Pleural Infection**
D.J. Feller-Kopman, MD, Baltimore, MD

10:05 **Management of Tuberculous Pleural Effusions**
C.F.N. Koegelenberg, MD, PhD, Cape Town, South Africa

10:25 **Practice Changing Clinical Trials in Malignant Pleural Effusions**
Y.C.G. Lee, MBChB, PhD, Perth, Australia

10:50 **State of the Art Prognostic Tools for Pleural Infection and Malignancies**
I. Psallidas, MD, PhD, Oxford, United Kingdom

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

D3 RURALITY IN COPD: DEFINING THE PROBLEM AND DEPLOYING NOVEL CARE DELIVERY APPROACHES

Assemblies on Clinical Problems; Environmental, Occupational and Population Health

9:15 a.m. - 11:15 a.m.

Target Audience
Healthcare professionals of all backgrounds caring for patients with COPD or practicing in a rural environment

Objectives
At the conclusion of this session, the participant will be able to:

- improve diagnosis of COPD in rural patients through understanding of specific epidemiological and environmental risk factors;
- improve the care of rural COPD patients by identifying barriers to healthcare delivery in this population;
- consider innovative care delivery techniques when discussing treatment options with rural COPD patients.

Chronic obstructive pulmonary disease (COPD) leads to more respiratory symptoms, healthcare utilization, and mortality among rural patients compared to their urban counterparts. Unique environmental exposures and poorer access to care all contribute to the negative impact of rural residence on COPD. The interaction of rurality and COPD is of growing interest, but key gaps in knowledge exist. This session will explore the rural COPD disparity by expanding the learners understanding of aspects of rural COPD research as well as novel clinical interventions that improve the care of rural COPD patients.

Chairing: M.C. McCormack, MHS, MD, Baltimore, MD
A. Lambert, MD, MHS, Spokane, WA
R.M. Burkes, MD, Chapel Hill, NC

9:15 **Welcome and Introduction**
M.C. McCormack, MHS, MD, Baltimore, MD

9:20 **Rural Disparities in COPD: Where Are We Now?**
J. Croft, PhD, Atlanta, GA

9:40 **The Relationship Between COPD Risk and Rural Exposures**
L.M. Paulin, MD, Lebanon, NH

10:00 **The Role of Health Care Access in Rural COPD**
M.B. Drummond, MHS, MD, ATSF, Chapel Hill, NC

10:20 **Community Paramedicine as a Novel Care Delivery Model**
M. Merrell, PhD, Columbia, SC

10:40 **Delivering Pulmonary Rehabilitation to Rural Communities**
D. Doyle, MD, Dawes, WV

11:00 **Question and Answer Discussion**
M.C. McCormack, MHS, MD, Baltimore, MD

BEHAVIORAL • CLINICAL • TRANSLATIONAL

CRITICAL CARE TRACK

D4 BIG DATA AND CLINICAL TRIALS: FRIENDS, FOES, OR FRENEMIES?

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing; Pediatrics

9:15 a.m. - 11:15 a.m.

Target Audience
All healthcare workers caring for critically ill patients. The topics are targeted towards a multidisciplinary audience

Objectives
At the conclusion of this session, the participant will be able to:

- provide an update to attendees about latest innovations in big data analytics;
- enable clinicians to objectively assess research scenario where big data methods can be applied to answer research questions and situations where their application may not be ideal;
- provide healthcare workers with insights into how to perform bigger and smarter clinical trails. Additionally, there will be working illustrations of how to maximize electronic health records for research puropses.

Critical care is one of the most challenging environments to conduct clinical trials. Consequently, many trials have resulted in negative results or failed to adequately answer important research questions. In this symposium, we ask whether emerging methods in “Big Data” can be leveraged to address some of the challenges facing critical care researchers. We explore how Big Data methodologies can be incorporated into trial design to facilitate efficient, timely, and effective patient recruitment. We will explore whether current methods that use traditional structured clinical data to silo patients for trials is a hindrance and how we extract more information from the data that we collect from ICU patients.

Chairing: M.M. Churpek, MD, MPH, PhD, ATSF, Chicago, IL
P. Sinha, BSc(Hons), MBBCh, PhD, San Francisco, CA
M.N. Gong, MS, MD, Bronx, NY

9:15 **Big Data: The Real Deal or the Emperor’s New Clothes?**
M.M. Churpek, MD, MPH, PhD, ATSF, Chicago, IL

9:30 **Using Big Data When Clinical Trials Are Unethical or Challenging: The Case of Sepsis**
V. Liu, MD, MS, Oakland, CA

9:45 **We Still Need Clinical Trials: An Epidemiologist’s Perspective**
T.J. Iwashyna, MD, PhD, Ann Arbor, MI

10:00 **Are “Bigger Trials” the Answer? The ANZICS Experience**
P. Young, MBChB, BSc (Hons), PhD, Wellington, New Zealand

10:15 **“Smarter” Not Just “Bigger” Data: Lessons from Oncology in Adaptive Trial Design and Applications to Critical Care**
C.S. Calfee, MD, San Francisco, CA

10:30 **Clinical Trials of the Future: Utilizing EHR to Facilitate RCTs of Critical Care Fluid Management**
M.W. Semler, MD, MSc, Nashville, TN

10:45 **Using Big Data for Early Identification of Syndromes for Clinical Trial Enrollment**
M.N. Gong, MS, MD, Bronx, NY

11:00 **ARDS: From Subphenotype Discovery to Enriched Clinical Trials**
P. Sinha, BSc(Hons), MBBCh, PhD, San Francisco, CA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D5 SLEEPING WITH THE ENEMY: EXPLORING THE IMPACT OF SLEEP DISORDERED BREATHING ON CANCER

Assemblies on Sleep and Respiratory Neurobiology; Thoracic Oncology

9:15 a.m. - 11:15 a.m.

Target Audience
Respiratory, primary care and internal medicine specialists, nurses, sleep technicians and investigators who are interested in sleep apnea and/or cancer research, diagnosis and management

Objectives
At the conclusion of this session, the participant will be able to:

- improve critical analysis of the available basic, translational and clinical information regarding the association of OSA with different types of cancer;
- gain new findings about epidemiological and clinical studies and the potential mechanisms involved in the association with OSA and cancer.

Obstructive Sleep apnea (OSA) is associated with higher cancer incidence, tumour aggressiveness and cancer mortality. Basic, translational and clinical studies demonstrate the impact of intermittent hypoxia (IH) and sleep fragmentation (SF) on tumor incidence and progression. Sleep disturbance seem to confer a higher risk to develop some type of cancers. Recently several studies have focused on investigating whether sleep disordered breathing affect overall cancer outcomes. This session will focus on the epidemiology, IH and SF mediated pathophysiological pathways that contribute to cancer biology, immunological mechanisms, tumor microenvironment, and the role of circulating exosomes in both cancer and OSA.

Chairing: L. Kheirandish-Gozal, MD, MSc, ATSF, Columbia, MO
M. Sanchez De La Torre, PhD, Lleida, Spain
B. Prasad, MD, Chicago, IL

9:15 Immune Deregulation in OSA as a Booster of Cancer Incidence, Tumor Aggressiveness and Cancer Mortality
I. Almendros, PhD, Barcelona, Spain

9:45 A Message in a Bottle: Exosomes and Tumor Malignancy in OSA
D. Gozal, MD, MBA, ATSF, Columbia, MO

10:15 OSA and Types of Cancer: An Epidemiological Overview
J.-L. Pepin, MD, PhD, Grenoble, France

10:45 Future Perspectives in Lung Cancer: Do We Need to Take Sleep into Account?
R.A. Winn, PhD, Chicago, IL

CLINICAL

SCIENTIFIC SYMPOSIUM

D6 SITES FOR PULMONARY REHABILITATION: WHERE CAN AND SHOULD IT BE PERFORMED?

Assemblies on Pulmonary Rehabilitation; Clinical Problems; Nursing; Pulmonary Rehabilitation

9:15 a.m. - 11:15 a.m.

Target Audience
Physicians, nurses, respiratory therapists, physical therapists, occupational therapists, psychologists, and others who provide pulmonary rehab services

Objectives
At the conclusion of this session, the participant will be able to:

- list three types of program settings for the provision of pulmonary rehabilitation services;
- list three advantages for a home based pulmonary rehabilitation program;
- develop a pulmonary rehabilitation program within a long term acute care or skilled nursing facility.

This session will discuss the various types of settings used for pulmonary rehabilitation including outpatient, home, long term acute care, and research settings. Comparisons

of each will be made with implications for the provision of such services for an individualized patient

Chairing: B.W. Carlin, MD, Sewickley, PA

9:15 **Pulmonary Rehabilitation: The "Traditional Setting"**
B.W. Carlin, MD, Sewickley, PA

9:35 **Pulmonary Rehabilitation and Research Settings**
M.A. Spruit, PT, PhD, Horn, Netherlands

9:55 **Pulmonary Rehabilitation in the Home Setting**
R.S. Goldstein, MD, Toronto, Canada

10:15 **Telehealth and Rehabilitation: Where Do We Stand?**
A.E. Holland, PhD, Melbourne, Australia

10:35 **Pulmonary Rehabiiltation in the Long Term Acute Care Setting**
S. Hammerman, MD, Mechanicsburg, PA

10:55 **Question and Answer Period**

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D7 EXOSOMES: WEAPONS OF MASS DESTRUCTION

Assemblies on Respiratory Cell and Molecular Biology; Allergy, Immunology and Inflammation; Pediatrics; Pulmonary Circulation; Sleep and Respiratory Neurobiology

9:15 a.m. - 11:15 a.m.

Target Audience
Basic, clinical and translational researchers involved in understanding exosome mediated immune regulation and lung vascular injury

Objectives
At the conclusion of this session, the participant will be able to:

- describe the role of exsosomes/EVs in immune regulation;
- understand the role of exosomes in mediating vascular injury and cellular crosstalk;
- discuss the application of exosomes/EVs in understanding the pathogenesis of lung diseases including ARDS/ALI, vascular lung diseases, lung cancer, IPF and COPD.

Immune regulation and vascular injury play critical roles in multiple lung diseases Exosomes/exosomal vesicles (EVs) are small membrane-coated structures that are released from cells upon activation or during apoptosis. In pathological states, such as atherosclerosis, sepsis, acute lung injury, acute coronary syndrome, diabetes or immune disorders, elevated circulating levels of EVs have been detected. However, the role and sources of these extracellular vesicles in host pathogen response, immune regulation and cell fate in the lung remains incompletely understood. This symposium will serve to provide a comprehensive review of our current knowledge of exosomes/EVs in immune regulation and lung vascular injury, with applications to a broad spectrum of lung diseases including asthma, COPD, pulmonary vascular diseases, obstructive sleep apnea, pulmonary fibrosis, lung cancer, and infection.

Chairing: A. Sarkar, PhD, Columbus, OH
L.A. Ortiz, MD, Pittsburgh, PA
J.R. Klinger, MD, Providence, RI

9:15 **Introduction to Extracellular Vesicles in Vascular Injury and Pulmonary Medicine**
L.A. Ortiz, MD, Pittsburgh, PA

9:30 **Therapeutic Role of EVs**
Speaker To Be Announced

9:35 **EVs as Mediators of HIV Mediated Pulmonary Vascular Injury**
N.K. Dhillon, PhD, Kansas City, KS

9:55 **EVs and Death of Endothelium in Sepsis Mediated Acute Lung Injury**
A. Sarkar, PhD, Columbus, OH

10:15 **Airway Exosomes and T helper Responses in Asthma**
J. Deshane, PhD, Birmingham, AL

10:35 **The Dichotomy of the Innate Immune Responses to Exosomes: Implications for Cancer**
O. Volpert, PhD, Houston, TX

10:55 Circulating Exosomes in Sleep Apnea: Immune (De) Regulators?
D. Gozal, MD, MBA, ATSF, Columbia, MO

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D8 ENVIRONMENTAL EXPOSURES, THE HUMAN MICROBIOME, AND LUNG DISEASE

Assembly on Environmental, Occupational and Population Health

9:15 a.m. - 11:15 a.m.

Target Audience
Trainees, clinicians, researchers, allied health personnel

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings about the interaction between environmental exposures, the microbiome, and lung disease;
- understand principles of microbial ecology research using sequencing of microbial genes;
- obtain new skills to interpret literature on the microbiome and lung disease.

There has been intense interest in how the human microbiome leads to, protects against, or modulates the development of lung disease. We are just beginning to understand the interactions between environmental exposures and the human microbiome, with the realization that while exposures may modify the human microbiome, the human microbiome can also modulate the effect of potentially harmful environmental exposures on health. Because of the broad effect of environmental exposures on the human microbiome during early life when the human microbiome is established, further work in this area may have broad implications for development of chronic lung disease. This symposium will highlight recent research focused on microbes, the environment, and lung disease.

Chairing: T.D. LeVan, PhD, Omaha, NE
P.S. Lai, MPH, MD, Boston, MA
E. Von Mutius, MD, MS, Muenchen, Germany

9:15 Historical Perspective of the Human Microbiome
T.D. LeVan, PhD, Omaha, NE

9:25 The Impact of Diet on Immunity and Respiratory Diseases
P. Hansbro, PhD, Newcastle, Australia

9:45 Ecological Networking of Lung Infections and Targeted Antibiotic Treatment: A Cystic Fibrosis Framework
F. Rohwer, PhD, San Diego, CA

10:05 Effect of Air Pollution on the Human Microbiome and Lung Disease
R.P. Dickson, MD, Ann Arbor, MI

10:25 The Home Microbiome, Gut Microbiome, and Asthma Susceptibility
E. Von Mutius, MD, MS, Muenchen, Germany

10:45 Workplace Animal Exposures and the Human Microbiome
P.S. Lai, MPH, MD, Boston, MA

11:05 Panel discussion

TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D9 HOST DIRECTED THERAPY FOR TUBERCULOSIS: THEORY AND CURRENT EVIDENCE

Assembly on Pulmonary Infections and Tuberculosis

9:15 a.m. - 11:15 a.m.

Target Audience
Physicians, immunologists, TB researchers, and global health specialists

Objectives
At the conclusion of this session, the participant will be able to:

- introduce the rationale of host directed therapy to researchers and cliniciansChange affected: to stimulate further basic and clinical research in HDT for TB;
- understand the epidemiological and experimental evidence supporting the use of specific HDT agents Change affected: to stimulate observational and laboratory studies on the use of well-established HDT agents;
- explore applications of HDT for TB, such as MDR-TB treatment shortening, and to encourage broader application of HDT for TB, to prevent TB in exposed persons.

This symposium will review the theory and evidence supporting host directed therapy to shorten therapy in drug resistant TB, reduce tissue destruction, and possibly prevent infection, reinfection, or reactivation of infection. The latter application may have a role in protecting healthcare workers exposed to drug resistant TB and for those providing palliative care for drug resistant treatment failures. Remarkably, several widely used, FDA approved agents, such as metformin and statins appear highly active in modifying TB pathogenesis. Future directions toward precision medicine will be discussed.

Chairing: R. Hafner, MD, Bethesda, MD
E.A. Nardell, MD, Boston, MA

9:15 **Current and Future Host Directed Therapies: Toward Precision Medicine**
R. Hafner, MD, Bethesda, MD

9:35 **Role of the Macrophage and Innate Immunity in HDT**
J.M. Keane, MD, Dublin, Ireland

9:55 **Statins: Good for the Heart and Good for TB?**
P.C. Karakousis, MD, Baltimore, MD

10:15 **Metabolic Targeting with Metormin as Host-Directed Therapy for Tuberculosis**
B. Podell, DVM. PhD, DACVP, Fort Collins, CO

10:35 **Can HDT Prevent TB Infection, Reinfection, and Progression?**
E.A. Nardell, MD, Boston, MA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D10 BUILDING BLOCKS OF IMPLEMENTATION: HOW TO IMPLEMENT ICU EVIDENCE-BASED CARE

Assemblies on Behavioral Science and Health Services Research; Critical Care; Nursing; Quality Improvement and Implementation Committee

9:15 a.m. - 11:15 a.m.

Target Audience
Nurses, physicians, allied health professionals, junior physicians

Objectives
At the conclusion of this session, the participant will be able to:

- define steps in implementation of evidence based care;
- identify how to determine barriers to a particular care practice;
- increase awareness of importance of evaluation in implementation of evidence based care in the ICU.

Translating evidence based care into clinical practice is hard. Extending the scientific symposium in ATS 2017 that introduced participants to implementation science, this session will provide practical steps that ICU clinicians can use to implement evidence based practices (EBP) in community and academic settings, with or without research expertise. ICU clinicians and researchers alike are clamoring for guidance on the how to of implementation and this session will provide foundational knowledge using case based examples of the 5 key steps of implementation.

Chairing: D.K. Costa, PhD, RN, Ann Arbor, MI
C.H. Weiss, MD, MS, Skokie, IL
M.N. Gong, MS, MD, Bronx, NY

9:15 **Overview of 5 Steps of Implementation**
L.C. Feemster, MSc, MD, Seattle, WA

9:30 **Evidence-Based Ventilatory Management: What to Implement?**
C.H. Weiss, MD, MS, Skokie, IL

9:45 **In Their Own Words: Assessing Qualitative Barriers to Early Mobilization**
M. Eakin, PhD, Baltimore, MD

10:00 **At Scale: Assessing Barriers to Minimal Sedation**
S. Mehta, MD, Toronto, Canada

10:15 **Easy as ABCDE? Tailoring the Implementation**
D.K. Costa, PhD, RN, Ann Arbor, MI

10:30 **Just Do It! Implementing an ICU Safety Checklist**
J. Stevens, MD, MS, Boston, MA

10:45 **Evaluation Is the Key to Success**
C.T.L. Hough, MD, MSc, Seattle, WA

11:00 **Question and Answer**
M.N. Gong, MS, MD, Bronx, NY

9:15 a.m. - 11:15 a.m

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

Wednesday Mid-day, May 22

BASIC • BEHAVIORAL
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WORKSHOP

WS7 CRISPR: BREAKING BAD FOR THE GOOD OF ADVANCING SCIENCE

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assemblies on Respiratory Structure and Function; Allergy, Immunology and Inflammation; Behavioral Science and Health Services Research; Clinical Problems; Critical Care; Environmental, Occupational and Population Health; Nursing; Pediatrics; Pulmonary Circulation; Pulmonary Infections and Tuberculosis; Pulmonary Rehabilitation; Respiratory Cell and Molecular Biology; Sleep and Respiratory Neurobiology; Thoracic Oncology

11:45 a.m. - 1:15 p.m.

Target Audience
Faculty, staff, postdoctoral/clinical fellows, and graduate students interested in either starting or advancing their work in the field of CRISPR/Cas9 molecular biology

Objectives
At the conclusion of this session, the participant will be able to:

- learn the applications and the various means of delivery of CRISPR/Cas9 gene editing presently being utilized in, but not limited to, the respiratory field;

- learn how this technique is continually being modified and perfected for different contexts;
- understand the advantages and limitations of the ever evolving gene editing technique of CRISPR/Cas9.

Leading scientists primarily from the field of respiratory gene editing will provide a comprehensive overview of their work utilizing CRISPR/Cas9 gene editing with a focus on methods, applications and implications of this novel technique. Limitations and future directions will be discussed by the speaker panel.

Chairing: S. Siddiqui, PhD, Frisco, TX
M.J. O'Sullivan, PhD, BS, Boston, MA

11:45 **High Efficiency Gene Editing of Primary Airway Epithelial Cells Using Viral and RNP CRISPR-Cas9 Methods**
M.A. Seibold, PhD, Denver, CO

12:00 **Establishing a Primary Epithelial Cell Model Using Non-Lentiviral Delivery of CRISPR/Cas9**
S. Siddiqui, PhD, Frisco, TX

12:15 **Utilizing CRISPR/Cas9 to Insert Modifications to Model Rare Lung Diseases**
A.L. Ryan, PhD, Los Angeles, CA

12:30 **High Throughput CRISPR-Based Analyses of Gene Function**
D.J. Erle, MD, San Francisco, CA

12:45 **CRISPR Screening in Airway Smooth Muscle Cells**
Q. Lu, PhD, Boston, MA

1:00 **In Vivo Delivery of Cas9 RNP and Donor DNA with Gold Nanoparticles**
N. Murthy, PhD, Berkeley, CA

CLINICAL

WORKSHOP

WS8 PREDICTIVE MODELING IN CRITICAL CARE: PRINCIPLES AND PRACTICE

Registration Fee: $75 (includes box lunch)
Attendance is limited. Pre-registration is required.

Assembly on Critical Care

11:45 a.m. - 1:15 p.m.

Target Audience
Clinicians and researchers practicing acute or critical care interested in utilizing predictive modeling tools for improved patient care

Objectives
At the conclusion of this session, the participant will be able to:

- identify common pitfalls in applying machine learning and predictive modeling in critical care;
- describe best practices for moving predictive models from computing environments into clinical practice;
- evaluate learning opportunities for advancing individual and group skills in machine learning and data science.

Health care is undergoing a profound change driven by emerging applications of advanced analytic techniques to clinical care and research. In particular, rapid expansions in the availability of large-scale data, machine learning and data science methods, and powerful computational platforms are making predictive modeling available at the point of care. This session will give participants an overview of key issues salient to predictive model development and deployment in critical care today.

Chairing: V. Liu, MD, MS, Oakland, CA
M.M. Churpek, MD, MPH, PhD, ATSF, Chicago, IL

11:45 **Top 10 List: Things I Wish Someone Had Told Me About Clinical Predictive Modeling**
M.M. Churpek, MD, MPH, PhD, ATSF, Chicago, IL

12:05 **In Silico to In Vivo: Moving Predictive Models into Real-World Settings**
V. Liu, MD, MS, Oakland, CA

12:25 **Building a Data Science Team**
K.S. Mathews, MD, MPH, New York, NY

12:45 **Panel Discussion**
V. Liu, MD, MS, Oakland, CA

ADULT CLINICAL CORE CURRICULUM

CC5 CRITICAL CARE CLINICAL CORE CURRICULUM I

11:45 a.m. - 1:15 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine, as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;
- support clinicians who are engaged in maintenance of certification activities by providing updates on subjects included in recertification requirements.

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: M.M. Hayes, MD, Boston, MA
B. Coruh, MD, Seattle, WA
S. Pasnick, MD, Santa Fe, NM

11:45 Sodium Disorders
B. Butcher, MD, Pittsburgh, PA

12:15 Continuous Renal Replacement Therapy
J.H. William, MD, Boston, MA

12:45 Toxicology
J.H. Badulak, MD, Seattle, WA

AMERICAN LUNG ASSOCIATION AIRWAYS CLINICAL RESEARCH CENTERS

L21 TARGETING OBESE ASTHMA WITHIN THE ALA-ACRC NETWORK

12:15 p.m. - 1:15 p.m.

Target Audience
Physicians, clinical scientists, nurses, paraprofessionals, educators, health care providers

Objectives
At the conclusion of this session, the participant will be able to:

- show data on the effect of obesity on airway physiology in asthma, and discuss implications this might have for treatment;
- present data on the genetics linking obesity and asthma;
- discuss the effects of obesity on the risk of respiratory tract infection and to discuss ongoing treatment trials for obese asthma within the network.

The obesity epidemic is having a major effect on the type of asthma commonly encountered in clinical practice. This session will highlight recent and ongoing studies within the ALA-ACRC Network that provide mechanistic insights into the relationship between obesity and asthma, and ongoing treatment trials that are being performed to target poorly controlled asthma in this patient population.

Chairing: W.C. Bailey, MD, Birmingham, AL

12:15 Effects of Obesity on Airway Physiology in Asthma
U. Peters, MSc, PhD, Burlington, VT

12:25 The Opening Index as a Marker of Airway Closure in Children with Asthma
E.L. McGuire, MD, Durham, NC

12:35 Risk of Respiratory Tract Infections in Obese Patients with Asthma
M. Tang, MD, Durham, NC

12:45 Genetics of Obesity and Asthma
J. Lang, MPH, MD, Durham, NC

12:55 ALA-ACRC Trials in Progress for Obese Patients with Poorly Controlled Asthma
A.E. Dixon, MD, ATSF, Burlington, VT

1:05 Discussion/Questions and Answers
R.A. Wise, MD, Baltimore, MD

NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NIH

L22 ASTHMA PHENOTYPES' RISK FACTORS AND ROLE OF RESPIRATORY VIRUSES AND BACTERIA IN EXACERBATIONS: LESSONS FROM THE NIAID, NIH INNERCITY ASTHMA CONSORTIUM

12:15 p.m. - 1:15 p.m.

Target Audience
Clinicians, researchers, health care administrators, public health specialists, asthma educators

Objectives
At the conclusion of this session, the participant will be able to:

- learn new findings on how phenotypes evolve between 7 and 10 years of age and the implication for asthma;
- learn the risk factors associated with phenotypes;
- understand the pathways through which respiratory viruses and bacteria influence asthma exacerbations.

Data through 10 years of age from the Inner City Asthma Consortium (ICAC) URECA birth cohort will provide insight into the distinct risk factors for asthma phenotypes and the impact these phenotypes on asthma development and persistence. A one year follow-up of 6 to 17 year old asthmatics provides the data necessary to evaluate the pathways through which respiratory viruses and bacteria influence asthma exacerbations.

Chairing: P.J. Gergen, MD, MPH, Rockville, MD

12:15 Distinct Risk Factors for Asthma Phenotypes in Urban Children
J.E. Gern, MD, Madison, WI

12:45 What Are the Pathways to Asthma Exacerbations with Respiratory Viruses and Bacteria?
M.C. Altman, MD, Seattle, WA

VARIOUS ORGANIZATIONS

L23 RESEARCH FUNDING OPPORTUNITIES

12:15 p.m. - 1:15 p.m.

Target Audience
Any ATS members who are conducting research and seeking research funding

Objectives
At the conclusion of this session, the participant will be able to:

- describe the research priorities of each funding agency represented on the panel;
- identify specific criteria and mechanisms of funding from each agency on the panel;
- identify a funding agency that is most closely aligned with the attendee's research interest/program of research.

This session will introduce programs and research grant opportunities offered from various funding agencies. Speakers will present current research priorities and mechanisms of research funding available from each agency. Opportunity will be provided for audience questions of the panel of speakers.

Chairing: J.L. Guttormson, PhD, Milwaukee, WI
A.M. Russell, MScN, London, United Kingdom

12:15 ATS Foundation
E.M. Nebel, MA, New York, NY

12:27 American Lung Association
D.P. Brown, BS, MS, CHES, Washington, DC

12:39 National Institute of Nursing Research
K. Huss, PhD, Bethesda, MD

12:51 National Heart, Lung, and Blood Institute
L. Reineck, MD, Bethesda, MD

1:03 Panel Discussion
J.L. Guttormson, PhD, RN, Milwaukee, WI

DIVISION OF LUNG DISEASES, NHLBI/NIH

L24 COMMUNITY BASED INTERVENTIONS IN NHLBI'S ASTHMA EMPOWERMENT COLLABORATIONS TO REDUCE CHILDHOOD ASTHMA DISPARITIES

12:15 p.m. - 1:15 p.m.

Target Audience
Care providers for children with asthma, investigators interested in community based research and investigators interested in how to implement evidence-based interventions in the community

Objectives
At the conclusion of this session, the participant will be able to:

- understand how to integrate asthma care from multiple providers;
- learn about adapting an intervention to meet the needs of a community;
- understand how the use of nontraditional health care workers promote asthma care.

In 2017, NHLBI funded cooperative agreements to conduct clinical trials in the Asthma Empowerment Collaborations to Reduce Childhood Asthma Disparities program. Four asthma care implementation programs were funded to provide and assess multilevel (medical care, home, family, and environment) interventions tailored to the needs of the specific communities in which they are delivered. The evidence based interventions in the 4 independent clinical trials will be discussed, focusing on the considerations to implement the interventions in specific contexts. The types of interventions that will be discussed include school based programs, the use of community health workers, and home based evaluations.

Chairing: M.M. Freemer, MD, MPH, Bethesda, MD

12:15 School Based Asthma Interventions in the Asthma Empowerment Program
A.A. Lowe, BS, Tucson, AZ

12:30 Community Health Workers and Pediatric Asthma Care in the Asthma Empowerment Program
T. Bryant-Stephens, MD, Philadelphia, PA

12:45 Use of Home Visits/Evaluations in Asthma Care in the Asthma Empowerment Program
R.S. Everhart, PhD, Richmond, VA

1:00 Panel Discussion

DIVISION OF LUNG DISEASES, NHLBI/NIH

L25 CLINICAL FINDINGS FROM THE NHLBI PVDOMICS PROGRAM IN PATIENTS WITH PULMONARY HYPERTENSION

12:15 p.m. - 1:15 p.m.

Target Audience
Health providers, trainees, and researchers

Objectives
At the conclusion of this session, the participant will be able to:

- learn about sleep characterization in PH;
- learn about new radiomics, genomics, and proteomics findings in PH;
- learn about new clinical phenotypes clustering in PH.

Pulmonary hypertension (PH) currently has no cure, thus PH research remains a high priority for NHLBI. The currently accepted classification of PH is challenging to apply clinically in the age of precision medicine. In 2014, NHLBI launched a major multi-center clinical study of PH named: Redefining Pulmonary Hypertension through Pulmonary Vascular Disease Phenomics (PVDOMICS). This program includes one Data Coordinating Center (DCC) and six U.S. clinical centers that are conducting an observational study in patients with all types of PH. The overall goal of the PVDOMICS network is to perform comprehensive phenotyping across WHO groups as well as intermediate phenotypes in order to reconstruct

the traditional classification and define new meaningful subclassifications. Currently, since the start of enrollment in 2017, there have been over 750 participants with a goal of 1500 by the fall of 2019. This session will describe the clinical results from the study in approximately the first 1000 subjects.

Chairing: L. Xiao, MD, PhD, Bethesda, MD
N.S. Hill, MD, Boston, MA

12:15 Sleep Disordered Breathing Across Pulmonary Hypertension WHO Groups: Novel Findings from the PVDOMICS Study
R. Mehra, MD, Cleveland, OH

12:30 Radiomics in Pulmonary Hypertension: What Have We Learned from PVDOMICS?
J. Lempel, MD, Cleveland, OH

12:45 Cluster Analysis of Pulmonary Hypertension Patients in PVDOMICS Using Extensive Multi-Layered Clinical Phenotypes
J. Barnard, PhD, Cleveland, OH

1:00 Novel Proteomics and Genomics Findings in Pulmonary Hypertension Patients from PVDOMICS Study
M. Aldred, PhD, Indianapolis, IN

DIVISION OF LUNG DISEASES, NHLBI/NIH

L26 THE MOLECULAR ATLAS OF LUNG DEVELOPMENT (LUNGMAP)

12:15 p.m. - 1:15 p.m.

Target Audience
Providers of lung health, medical fellows in training, and basic and clinical researchers interested in lung biology, developmental biology, chronic lung disease pathogenesis, pediatrics, bioinformatics, and systems biology

Objectives
At the conclusion of this session, the participant will be able to:

- learn the newest datasets of LungMAP that could inform lung research;
- learn the innovative technologies for molecular profiling, imaging, and data analysis of the developing lung;
- learn how to access and use the LungMAP resources.

Molecular Atlas of Lung Development (LungMAP) is an NHLBI-sponsored program. The overall goal of this program is to build an open-access reference resource by creating a comprehensive molecular atlas of the late-stage developing lung with data and reagents available to the research community. Speakers will show how the approach/systems biology /bioinformatics can be used to inform clinical medicine-discovery of biomarkers and processes in development that are recapitulated in disease/repair. The session will also elucidate how understanding alveolar cells and intracellular communication forms the lung and informs the processes altered in disease.

Chairing: R. Clark, PhD, Durham, NC
S. Lin, PhD, Bethesda, MD

12:15 LungMAP.net: A Public Online Resource for Lung Development Research and Education
R. Clark, PhD, Durham, NC

12:25 Adaptation of Pulmonary Cells to Air Breathing at Birth at Single Cell Level
J.A. Whitsett, MD, Cincinnati, OH

12:35 A Multi Scale View of Lung Alveolar and Airway Development from Anatomy to Cells to Molecules
D. Warburton, MD, ATSF, Los Angeles, CA

12:45 Epigenetics in Normal Lung Development
J.S. Hagood, MD, Chapel Hill, NC

12:55 Multi-Scale Omics and Imaging Characterization of the Lung During Development on Behalf of PNNL/TACC Team
G. Clair, PhD, Richland, WA

1:05 Sharing the BRINDL LungMAP Biorepository
G.S. Pryhuber, MD, Rochester, NY

Wednesday Afternoon, May 22

ADULT CLINICAL CORE CURRICULUM

CC6 CRITICAL CARE CLINICAL CORE CURRICULUM II

1:30 p.m. - 3:30 p.m.

Target Audience
Practicing internists, subspecialists, registered nurses and advanced practice nurses in pulmonary, critical care, and sleep medicine who work in a clinical setting and are currently engaged in maintenance of certification

Objectives
At the conclusion of this session, the participant will be able to:

- remain current with medical knowledge relevant to their practice in pulmonary, critical care, and sleep medicine;
- evaluate their understanding of key skills and content areas in pulmonary, critical care and sleep medicine, as well as receive feedback on their comprehension of a result of a pre-test/post-test comparison;

The ATS Clinical Core Curriculum Symposia focus on a 3-year content cycle of key medical content in the areas of Pulmonary, Critical Care, and Sleep Medicine. The topics are also aligned with corresponding MOC Medical Knowledge modules. This symposium is intended to assist clinicians with staying current with the growth of information relevant to their medical practice, as well as provide an opportunity to evaluate individual knowledge and skills while earning MOC Medical Knowledge points.

Chairing: M.M. Hayes, MD, Boston, MA
B. Coruh, MD, Seattle, WA
S. Pasnick, MD, Santa Fe, NM

1:30 **Sedation, Analgesia, and Delirium**
N.R. Nadig, MD, Charleston, SC

2:00 **Exacerbations of Obstructive Lung Disease**
T.J. Scialla, MD, Durham, NC

2:30 **Management of Mechanical Ventilation 2019**
N. Qadir, MD, Los Angeles, CA

3:00 **Neuromuscular Respiratory Failure**
D.C. Files, MD, Winston-Salem, NC

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

D82 AUTOIMMUNE ASSOCIATED ILD: A CASE BASED APPROACH TO DIAGNOSIS AND TREATMENT

Assembly on Clinical Problems

1:30 p.m. - 3:30 p.m.

Target Audience
Community pulmonologists and academic physicians with varying levels of interest and expertise in ILD

Objectives
At the conclusion of this session, the participant will be able to:

- understand the significance of positive autoimmune serologies and the utility of obtaining a lung biopsy in the context of different ILD patterns;
- utilize alternative diagnostic and therapeutic approaches to ILD patients within their local practice, thus improving outcomes for challenging cases;
- identify and manage comorbidities associated with ILD. This will ultimately improve outcomes of their local patient population.

This session will facilitate an interactive and multidisciplinary discussion about challenging topics

related to the diagnosis and management of autoimmune ILD: Interpretation of serologies and physical findings; The utility of a surgical biopsy; choosing an appropriate therapeutic agent; and managing comorbidities that accompany ILD. For each topic, a multiple-choice question will be presented with electronic polling of the audience and an expert panel comprised of pulmonologists, a radiologist, pathologist, and rheumatologist. An expert will then present formally on each topic, and the audience will be polled again to determine if the discussion has changed their responses.

Chairing: R. Hallowell, MD, Boston, MA
S.K. Danoff, MD, PhD, Baltimore, MD
L.L. Silhan, MD, Dallas, TX

1:30 **Introduction**
R. Hallowell, MD, Boston, MA

1:33 **Case Presentation Part 1**
R. Hallowell, MD, Boston, MA

1:35 **Audience Question #1**
R. Hallowell, MD, Boston, MA

1:36 **How to Approach My ILD Patient With a Positive Autoimmune Serology?**
R. Vij, MD, Chicago, IL

1:56 **Case Presentation Part 2**
L.L. Silhan, MD, Dallas, TX

1:58 **Expert CT Scan Interpretation in This Patient With ILD**
S. Hobbs, MD, Lexington, KY

2:08 **Audience Question #2**
L.L. Silhan, MD, Dallas, TX

2:09 **Lung Biopsy in CTD-ILD: A Crazy Idea or Sometimes Worth the Risk?**
V. Cottin, PhD, MD, Lyon, France

2:29 **Pathologic Findings in CTD-ILD**
P. Vanderlaan, MD, PhD, Boston, MA

2:39 **Case Presentation Part 3**
Speaker To Be Announced

2:41 **Audience Question #3**
Speaker To Be Announced

2:42 **How Do I Choose an Immunosuppressive Regimen in My Patient With CTD-ILD?**
K.B. Highland, MD, Cleveland, OH

3:02 **Case Presentation Part 4**
S.K. Danoff, MD, PhD, Baltimore, MD

3:04 **Audience Question #4**
S.K. Danoff, MD, PhD, Baltimore, MD

3:05 **Managing Comorbidities in Patients with ILD**
J. Oldham, MD, MS, Sacramento, CA

3:25 **Brief Conclusions and Questions From the Audience**
R. Hallowell, MD, Boston, MA

CLINICAL

CLINICAL TOPICS IN PULMONARY MEDICINE

D83 NEW ADVANCES IN THE BRONCHOSCOPIC DIAGNOSIS AND TREATMENT OF LUNG CANCER

Assemblies on Clinical Problems; Nursing; Respiratory Structure and Function; Thoracic Oncology;

1:30 p.m. - 3:30 p.m.

Target Audience
Clinicians, researchers, fellows in training, nurses and therapists who care for patients with lung cancer or solitary pulmonary nodules

Objectives
At the conclusion of this session, the participant will be able to:

- become aware of the new bronchoscopic techniques that are capable of diagnosing and assessing staging of lung cancer;
- gain understanding of new bronchoscopic techniques that may have potential to treat early-stage lung cancer;
- understand the importance of comorbid lung diseases in the diagnosis and management of patients that present with solitary pulmonary nodules that may be lung cancer.

The last decade has seen an explosion of new technology dedicated to the bronchoscopic diagnosis and treatment of solitary pulmonary nodules that are concerning for lung cancer. This session will be composed of international experts who will discuss new bronchoscopic approaches to the diagnosis and management of solitary pulmonary nodules and the management of solitary pulmonary nodules that are diagnosed as lung cancer and may be amenable to bronchoscopic treatment.

Chairing: G.J. Criner, MD, ATSF, Philadelphia, PA
M. Phillips, MD, Perth, Australia
F.J. Herth, MD, Heidelberg, Germany

1:30 Introduction
G.J. Criner, MD, ATSF, Philadelphia, PA

1:31 Use of Robotic Bronchoscopy to Diagnosis Solitary Pulmonary Nodules
D.I. Fielding, MD, Brisbane, Australia

1:46 Use of the Ultraslim Bronchoscope to Diagnose Peripheral Pulmonary Nodule
G.C. Michaud, MD, New York, NY

2:01 Bronchoscopic Transparenchymal Access of a Peripheral Pulmonary Nodule
G.J. Criner, MD, ATSF, Philadelphia, PA

2:15 Cryobiopsy of Small Peripheral Nodules
J. Hetzel, MD, Tuebingen, Germany

2:30 Optimization of TBNA EBUS Yield During Flexible Bronchoscopy
M. Machuzak, MD, Cleveland, OH

2:45 Use of Elastography to Assess Intrathoracic Lymph Nodes
M. Weir, MBChB, Philadelphia, PA

3:00 Vapor Ablation of Peripheral Lung Nodules to Bronchoscopically Treat Lung Cancer
A. Valipour, MD, Vienna, Austria

3:15 RFA/Microwave Modalities to Treat Solitary Pulmonary Nodules Due to Lung Cancer
F.J. Herth, MD, Heidelberg, Germany

CLINICAL

CRITICAL CARE TRACK

D84 REDEFINING ICU SURVIVORSHIP: PREVENTION, RECOVERY AND REINTEGRATION

Assemblies on Critical Care; Behavioral Science and Health Services Research; Nursing; Pulmonary Rehabilitation

1:30 p.m. - 3:30 p.m.

Target Audience
Interprofessional (physicians, nurses, allied health) critical care clinicians and researchers

Objectives
At the conclusion of this session, the participant will be able to:

- understand the evidence base for interventions aimed at preventing adverse outcomes within the ICU, enhancing recovery post-ICU and supporting community re-integration;
- learn new knowledge of the challenges of ICU survivorship beyond own area of clinical practice and professional group;
- acquire new strategies and tools to develop and test innovations in ICU survivorship to improve patient and caregiver outcomes.

This symposium will focus specifically on the field of devising and testing interventions to improve outcomes and reduce the burden of ICU survivorships. These interventions that can be employed across the arc of care from the ICU, to prevent adverse outcomes, through to post hospital, to support recovery and community reintegration. The state-of-the art for newer innovative interventions will be summarised, practical steps for implementing evidence-based interventions and sign-posting of future research directions provided. This symposium will focus on the positive aspects of survivorship and how we can better work as a team to improve patient and family outcomes during and following critical illness.

Chairing: K.J. Haines, PhD, BHS, Melbourne, Australia
J. McPeake, PhD, RN, Glasgow, United Kingdom
C.M. Sevin, MD, Nashville, TN

1:30 **Introduction**
K.J. Haines, PhD, BHS, Melbourne, Australia

1:32 **Preventing Adverse ICU Outcomes: What Can We Do in the ICU?**
C.T.L. Hough, MD, MSc, Seattle, WA

1:52 **Targeting the Psychological Recovery of Patients and Families in the ICU**
M. Hosey, PhD, Baltimore, MD

2:12 **Finding Meaning and Purpose in Survivorship Following Critical Illness**
R. Gervasio, ., Nashville, TN

2:30 **Enhancing Physical Recovery Following Critical Illness**
P.E. Morris, MD, Lexington, KY

2:50 **Reintegrating Survivors: Family, Work, and Community**
J. McPeake, RN, PhD, Glasgow, United Kingdom

3:10 **International Collaboration for ICU Survivorship: Research, Implementation, and Practice**
M.E. Mikkelsen, MSCE, MD, Philadelphia, PA

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D85 UNFOLDING CIRCADIAN CLOCKS AND ER STRESS IN LUNG DISEASES

Assemblies on Respiratory Structure and Function; Allergy, Immunology and Inflammation; Clinical Problems; Environmental, Occupational and Population Health; Respiratory Cell and Molecular Biology; Sleep and Respiratory Neurobiology

1:30 p.m. - 3:30 p.m.

Target Audience
Basic and clinical researchers who are interested in learning role of circadian rhythm and ER stress in several pathologies of the lung and to establish projects in this area of lung biology

Objectives
At the conclusion of this session, the participant will be able to:

- learn how circadian rhythm and ER stress play are culprits in pathogenesis of chronic lung disease.

Circadian clocks have been conserved throughout evolution to allow anticipation of physiology and behaviour of the organisms to the environmental changes. As a consequence, most aspects of animal metabolism are under the control of this molecular clock. The endoplasmic reticulum (ER) is a sophisticated luminal network in which protein synthesis, maturation, folding, and transport take place. The unfolded protein response (UPR) is a stress-activated signalling pathway that regulates cell proliferation, metabolism and survival. The circadian clock coordinates metabolism and signal transduction with light/dark cycles. Accumulation of non-functional and potentially cytotoxic, misfolded proteins disease is believed to contribute to lung cell apoptosis, inflammation, and autophagy. Because of its fundamental role as a quality control system in protein metabolism, the UPR is of potential importance in the pathogenesis of many lung diseases such as asthma, COPD and IPF. Both sleep disruption and ER stress are emerging as a common culprit in the pathogenesis of chronic lung diseases which is a result of common environmental stressors or infections leading to the perturbation of the metabolic pathway in the body.

Chairing: P. Sharma, PhD, MPH, Ultimo, Australia
S.S. Sohal, PhD, Launceston, Australia
R.C. Chambers, PhD, London, United Kingdom

1:30 **Introduction**
P. Sharma, PhD, MPH, Ultimo, Australia

1:35 **Regulation of Lung Inflammation by Circadian Clocks**
D. Ray, MBChB, PhD, Oxford, United Kingdom

2:05 **The Autophagy-Inflammation-Cell Death Axis in Lung Disease**
A.M.K. Choi, MD, New York, NY

2:35 **Exosomes and ER Stress as Mediators of Sleep Apnea Morbidity**
D. Gozal, MD, MBA, ATSF, Columbia, MO

3:03 **Oxidative Stress and Aging in Lung Disease: Revealing New Pathways for Treatment**
P.J. Barnes, MD, DSc, ATSF, London, United Kingdom

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D86 METABOLISM AS A LINK BETWEEN LUNG CANCER AND ITS MICROENVIRONMENT

Assemblies on Thoracic Oncology; Respiratory Cell and Molecular Biology

1:30 p.m. - 3:30 p.m.

Target Audience
Basic scientists and clinicians interested in new research on how metabolism is altered in lung cancer

Objectives
At the conclusion of this session, the participant will be able to:

- gain new findings about alterations in metabolism in lung cancer and the tumor microenvironment;
- obtain a better understanding about new therapies that target metabolic alterations in lung cancer;
- obtain a better understanding of molecular interactions between lung cancers and their microenvironment that may promote or hinder tumor growth.

The development and growth of lung cancers are dependent on complex interactions between cancer cells and the surrounding microenvironment, which includes stromal, inflammatory, and vascular cells. Much work has focused on cytokine and chemokine signaling between these cells. It is becoming clear that metabolic alterations that occur during malignant transformation serve as potent signals as well. These alterations have the potential to serve as diagnostic and therapeutic targets. This session will explore metabolic signaling in the tumor microenvironment.

Chairing: E. Ostrin, MD, PhD, Houston, TX
R. Savai, PhD, Bad Nauheim, Germany
S.J. Moghaddam, MD, Houston, TX

1:30 **Metabolic Heterogeneity and Liabilities in Lung Cancer**
R.J. Deberardinis, MD, PhD, Dallas, TX

1:50 **Cystine and Glutamate Transport and Metabolic Reprogramming in Lung Tumor Development**
P.P. Massion, MD, Nashville, TN

2:10 **Metabolic Changes in Tumor Cells and Tumor-Associated Macrophages: A Mutual Relationship**
R. Savai, PhD, Bad Nauheim, Germany

2:30 **Implications of Cigarette Smoke Induced Metabolic Alterations in Lung Cancer Progression**
F. Kheradmand, MD, Houston, TX

2:50 **Aberrant Tryptophan Catabolism Marked by High Kynureninase Expression Contributes to Immunomodulation and Poor Outcome in Lung Adenocarcinoma**
E. Ostrin, MD, PhD, Houston, TX

3:10 **Targeting Cytokine Networks as an Immunotherapeutic Modality for Lung Cancer**
S.J. Moghaddam, MD, Houston, TX

CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D87 BEYOND THE RIGHT HEART CATHETERIZATION: QUANTITATIVE METHODS FOR INTERROGATING THE PULMONARY CIRCULATION

Assemblies on Pulmonary Circulation; Clinical Problems; Critical Care; Respiratory Structure and Function

1:30 p.m. - 3:30 p.m.

Target Audience
Clinicians, basic scientists, translational researchers, fellows, residents and graduate trainees seeking to learn novel insights into pulmonary hypertension and cutting edge approaches to quantitative assessment of the of pulmonary circulation

Objectives
At the conclusion of this session, the participant will be able to:

- understand the role of innovative CT, MRI and PET techniques in the clinical classification, prognostication and therapeutic monitoring of patients with pulmonary hypertension;
- describe the emerging role of imaging in the study of pathophysiology of pulmonary hypertension;
- learn about novel noninvasive diagnostic techniques that inform emerging therapeutic strategies and research endeavors in pulmonary hypertension.

Current challenges in pulmonary hypertension include diagnosis, prognosis, identification of treatment responsive subtypes and understanding physiologic response to therapy. Quantitative methods using imaging to characterize pulmonary vascular disease are increasingly becoming available to clinicians and researchers. In this symposium, we review a range of established and emerging methods of quantification of the structure and function of the pulmonary circulation, spanning from the parenchyma to the right ventricle. The audience will learn about the latest clinically available techniques as well as emerging methods that show promise.

Chairing: K.R. Stenmark, MD, Aurora, CO
P. Kohli, MD, Boston, MA
F.N. Rahaghi, MD, PhD, Boston, MA

1:30 **Forecasting Right Ventricular Dysfunction in Pulmonary Hypertension Using Cardiac MRI**
A. Vonk Noordegraaf, MD, PhD, Amsterdam, Netherlands

1:50 **Imaging and RV/PA Coupling in Pulmonary Hypertension**
R.R. Vanderpool, PhD, Tucson, AZ

2:10 **The Role of CT and MRI in Clinical Assessment of Pulmonary Hypertension**
D. Kiely, MD, Sheffield, United Kingdom

2:30 **Emerging Utility of Pulmonary Artery Flow Measures in Pulmonary Hypertension**
A.J. Barker, PhD, Denver, CO

2:50 **Imaging of the Parenchymal Pulmonary Vasculature**
F.N. Rahaghi, MD, PhD, Boston, MA

3:10 **Regional Perfusion Patterns in Pulmonary Vascular Disease**
P. Kohli, MD, Boston, MA

BASIC • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D88 NEW-TROPHILS: AN OLD CELL WITH NEW TRICKS IN LUNG DISEASE

Assemblies on Allergy, Immunology and Inflammation; Clinical Problems; Respiratory Cell and Molecular Biology; Respiratory Structure and Function

1:30 p.m. - 3:30 p.m.

Target Audience
Pulmonologists, immunologists, critical care physicians, pulmonary fellows, infectious disease physicians

Objectives
At the conclusion of this session, the participant will be able to:

- gain new findings related to neutrophil biology including new signaling pathways and cellular fates;
- apply new neutrophil findings to pathology observed in lung disease;
- identify new therapeutic approaches targeting PMN biology in the treatment consideration of patients with lung disease.

As our immunologic understanding of chronic lung disease evolves, the neutrophil response has become an area of increased focus. Although many of these pathway have been delineated, it is clear that novel mechanisms of PMN-mediated inflammation and tissue injury are operative in these disorders. This session will highlight some of these pathways and potential therapeutic approaches to target these pathways in chronic lung disease.

Chairing: A. Gaggar, MD, PhD, Birmingham, AL
T.S. Blackwell, MD, Nashville, TN
C.M. Doerschuk, MD, Chapel Hill, NC

1:30 **Introduction**
C.M. Doerschuk, MD, Chapel Hill, NC

1:40 **Prolyl Hydroxylase 2 Regulates a Critical Balance in Neutrophil Function**
S.R. Walmsley, MRCP(UK), BM BCH, MD, PhD, Edinburgh, United Kingdom

2:00 **Neutrophil Reprogramming as a Key Trigger for Progressive Lung Damage**
R. Tirouvanziam, PhD, Atlanta, GA

2:20 **Leukotriene A4 Hydrolase: A Janus Enzyme Critical in Neutrophil Influx**
R. Snelgrove, PhD, MA, BSc, London, United Kingdom

2:40 **Neutrophil Exosomes Mediate Matrix Remodeling in Chronic Lung Disease**
D. Russell, MD, Birmingham, AL

3:00 **Bacterial-Driven Neutrophil Recruitment Drives Airway Remodeling**
B.W. Richmond, MD, PhD, Nashville, TN

3:20 **Putting It All Together...**
A. Gaggar, MD, PhD, Birmingham, AL

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D89 CONTROVERSIES IN PEDIATRIC PULMONOLOGY

Assemblies on Pediatrics; Allergy, Immunology and Inflammation; Clinical Problems; Respiratory Structure and Function

1:30 p.m. - 3:30 p.m.

Target Audience
Pediatric pulmonologists; allergists; emergency medicine practitioners; nurses; respiratory therapists; pharmacists

Objectives
At the conclusion of this session, the participant will be able to:

- assess the medical and financial benefits of different methods of administration of inhaled medications;
- assess the strength of the association between obesity and asthma, and determine the best strategies for their prevention and treatment;
- asses the benefits and risks of one of the most commonly used drugs (diuretics) in prematurely born infants with acute and chronic lung disease.

Despite the increasing emphasis on "Evidence Based Medicine" there are still many controversies surrounding the diagnosis and/or management of common conditions encountered in clinical practice. The session presents three controversies surrounding common conditions in pediatrics, pulmonology and neonatology. Discussions will cover obesity and asthma; methods of administration of inhaled bronchodilators and steroids (metered dose inhalers with valved holding chambers vs. nebulizers) and the benefits (and risks) of giving diuretics to prematurely born infants.

Chairing: A.C. Koumbourlis, MD, MPH, ATSF, Washington, DC
S.D.M. Dell, MD, ATSF, Toronto, Canada

1:30 **Introduction**
A.C. Koumbourlis, MD, MPH, ATSF, Washington, DC

1:33 **PRO: MDIs Should Be the Main/Only Method for the Administration of Bronchodilators**
J.A. Castro-Rodriguez, MD, PhD, Santiago, Chile

1:51 **CON: MDIs Should Be the Main/Only Method for the Administration of Bronchodilators**
H.J. Farber, MD, MSPH, ATSF, Houston, TX

2:09 **PRO: Obesity and Asthma - A Causal Relationship**
D. Rastogi, MBBS, MS, Bronx, NY

2:27 **CON: Obesity and Asthma - A Causal Relationship**
Speaker To Be Announced

2:45 **PRO: Diuretics Should Not Be Given to Prematurely Born Infants**
Speaker To Be Announced

3:03 **CON: Diuretics Should Not Be Given to Prematurely Born Infants**
R.H. Steinhorn, MD, Washington, DC

3:21 **Questions and Discussion**
S.D.M. Dell, MD, ATSF, Toronto, Canada

BEHAVIORAL • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D90 IMPROVING (LUNG) HEALTH IN PEOPLE LIVING WITH HIV

Assemblies on Pulmonary Infections and Tuberculosis; Clinical Problems; Environmental, Occupational and Population Health; Pediatrics; Thoracic Oncology

1:30 p.m. - 3:30 p.m.

Target Audience
Clinicians, allied health professionals and academicians involved in the research and care of people living with HIV

Objectives
At the conclusion of this session, the participant will be able to:

- advance clinician's knowledge about pulmonary diseases in people living with HIV including screening, diagnosis, management, and prevention strategies;
- facilitate and integrate newly acquired knowledge into clinical practice by personalizing and improving management of people living with HIV with different pulmonary conditions;
- offer new strategies to manage the respiratory health of children, adolescents and adults living with HIV.

Antiretroviral therapy has transformed the lives of many people living with HIV. Whilst acute opportunistic infections are less common, bacterial pneumonia and tuberculosis are still an issue, and non-communicable chronic respiratory disease such as COPD and lung cancer is an increasing concern. Smoking rates are exceedingly high and cessation is difficult in people living with HIV. Low and middle income countries face specific challenges in healthcare provision. This includes impact of the local environment (as a result of biomass exposure and high levels of pollution). This session will explore the challenge of maintaining long-term lung and general health in HIV, through the perspective of clinical and translational medicine in adults and children, epidemiology and behavioral science.

Chairing: M.C.I. Lipman, MD, London, United Kingdom
T.Y. Beiko, MD, Charleston, SC
E. Attia, MD, MPH, Seattle, WA

1:30 **Anti-Infective Interventions to Improve Lung Health in HIV**
K.M. Kunisaki, MD, MSCR, Minneapolis, MN

1:50 **Managing Non-Communicable Respiratory Disease: COPD and ILD**
M.B. Drummond, MHS, MD, ATSF, Chapel Hill, NC

2:10 **Prevention and Management of Lung Cancer**
M. Triplette, MD, MPH, Seattle, WA

2:30 **Children and Adolescents with HIV: What Does the Future Hold?**
R. Ferrand, PhD, Harare, Zimbabwe

2:50 **HIV and Lung Disease in Low and Middle Income Countries**
C. North, MD, Boston, MA

3:10 **Translational Insights from the HIV Lung: Why it Matters in Non-HIV Lung Disease**
A.M. Morris, MD, MS, Pittsburgh, PA

BASIC • CLINICAL • TRANSLATIONAL

SCIENTIFIC SYMPOSIUM

D91 USING THE BASIC BIOLOGY OF IPF TO DESIGN NEW THERAPIES

Assemblies on Respiratory Cell and Molecular Biology; Clinical Problems

1:30 p.m. - 3:30 p.m.

Target Audience
Basic and translational scientists, clinical researchers, and clinicians interested in the mechanisms that underlie lung fibrosis and the bench to bedside development of emerging therapies for idiopathic pulmonary fibrosis

Objectives

At the conclusion of this session, the participant will be able to:

- recognize the mechanisms by which epithelial cells, fibroblasts and macrophages contribute to the complex pathobiology of lung fibrosis;
- understand how basic science discovery and mechanistic biology directly informs the development of feasible therapeutic strategies for the future treatment of IPF;
- learn about emerging pre-clinical and clinical studies targeting specific biologic mechanisms in IPF.

This session will highlight the bench to bedside development of emerging therapeutic strategies for idiopathic pulmonary fibrosis (IPF). Each speaker will discuss how discoveries of fundamental biologic mechanisms in the laboratory have identified novel, feasible and specific targets for current and future clinical trials.

Chairing: J.C. Horowitz, MD, ATSF, Ann Arbor, MI
T.M. Maher, MD, MSc, PhD, London, United Kingdom
E.F. Redente, PhD, Denver, CO

1:30 **Targeting TGF Beta Activation by Epithelial and Fibroblast Integrins**
D. Sheppard, MD, San Francisco, CA

1:54 **License to Kill (Myofibroblasts): Targeting Apoptosis Pathways to Reverse Lung Fibrosis**
D. Lagares, PhD, MSc, Charlestown, MA

2:18 **Targeting Occult Viral Infection and Immune Dysregulation in IPF**
J. Kropski, MD, Nashville, TN

2:42 **Targeting Innate Immunity in IPF**
E. Herzog, MD, PhD, New Haven, CT

3:06 **From Redox Biochemistry to a Phase II Clinical Trial in IPF**
V.J. Thannickal, MD, Birmingham, AL

1:30 p.m. - 3:30 p.m.

Oral And Poster Presentations Of Scientific Research And Case Reports. Abstract Sessions Will Be Published In The Final Program.

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