

Welcome to PHA 2022!

Thank you for attending the PHA 2022 Scientific Sessions. The Scientific Sessions bring together health care professionals from all pulmonary hypertension (PH) disciplines to network, learn about the latest research and discuss best practices for PH treatment and management.

If you aren't a health care professional, you are welcome to attend the Scientific Sessions. However, we ask you to refrain from asking questions during the presentations.

Dear Colleagues,

Welcome and thank you for joining us at the PHA 2022 International PH Conference and Scientific Sessions! The Scientific Sessions Committee is delighted to share a program that includes abstract poster presentations, featured research talks from top-scoring abstracts, and two days of exciting presentations covering clinical and scientific advances. The program starts Thursday night with poster and lightning-round presentations and continues through Saturday afternoon with didactic talks, research updates, two featured debates, and roundtable discussions. This year's program includes talks from leading physician scientists, allied health professionals, and junior investigators for a stimulating mix of perspectives.

This year's Scientific Sessions theme is "Vision for the PHuture: The Evolving Science and Management of PH." The programmed talks begin with updates on medical and research advances since the 2018 Sessions followed by forward-looking talks exploring the future of research in

PH and a debate on initial treatment strategies in PAH. The next block covers an examination of PH throughout the life cycle with a roundtable on issues pertaining to adolescents with PAH and a debate on Potts Shunts vs. Transplant. Saturday, we are pleased for the first time to present a joint session with the Pulmonary Vascular Research Institute (PVRI). This session will include an presentation from the PVRI president and a series of updates on the science and management of non-Group I PH. The Sessions close with talks covering non-medical interventions in PH and a Keynote Address you will not want to miss.

On behalf of the Scientific Sessions Committee, welcome!



Evan Brittain, M.D., M.Sc. Chair, PHA Scientific Sessions Committee

Dear PHriends and Colleagues,

Welcome home! For many of us, the Pulmonary Hypertension Association (PHA) is our professional home – a place where we've bonded intimately with our patients, their caregivers and the community-at-large. It's also a place to network with our colleagues, stay up to date on pulmonary hypertension (PH) management, collaborate on research projects and present our investigative work. Without question, the biennial International PH Conference and Scientific Sessions is PHA's flagship event.

Sadly, due to the COVID-19 pandemic, it's been four long years since we've held this special Conference, which is the largest gathering dedicated to pulmonary hypertension. Despite not being able to meet, our community has endured. PHA is back stronger than ever with new leadership and a relentless dedication to its mission: to extend and improve the lives of those affected by PH. What better place to showcase that spirit than at the International Conference?

This glorious event, "PHA 2022: PHacing the Future Together," will once again bring together some of the greatest minds in PH from across the world, alongside our courageous patients and their dedicated families. The Conference's scientific program, "Vision for the PHuture: The Evolving Science and Management of PH," is more ambitious than ever now that it spans over three days.

Dr. Evan Brittain and the Scientific Sessions Committee have put together an outstanding agenda with something for all health care providers, including didactic lectures, spirited debates, oral abstract presentations and poster viewing sessions. Please take full advantage of the offerings to advance your knowledge and improve your practice!

Thank you for remaining steadfast with your commitment to the PH community these last two years. Your attendance and participation at the International Conference reaffirms your deep commitment. So, on behalf of the Scientific Leadership Council and PHA's Board of Trustees, welcome to Atlanta. Please enjoy this special time with your PHamily!

Murali M. Chakinala, M.D., FCCP

Chair, Scientific Leadership Council Member, PHA Board of Trustees

2022 PHA Scientific Sessions Committee

Evan Brittain, M.D., M.Sc. (Chair) Vanderbilt University Medical Center, Nashville

Teresa De Marco, M.D. University of California-San Francisco

Erin Ely, R.N. Texas Children's Hospital, Houston

Rebecca Greene, Pharm.D., BCCCP Rhode Island Hospital, Providence

Jeff Min, M.D., MSCE University of Pennsylvania, Philadelphia **Regina D. Overton-Barnes,** MSN-FNP East Tennessee Pulmonary Hypertension Center, Johnson City

Kurt W. Prins, M.D., Ph.D. University of Minnesota, Minneapolis

Michael Risbano, M.D. University of Pittsburgh, Pittsburgh

Nidhy Varghese, M.D., FAAP Texas Children's Hospital, Houston

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Schedule at a Glance

| Thursday June 9, 2022 | | |
|-----------------------|--|------------------|
| 3–9 p.m. | Registration Open | Grand Hall Foyer |
| 3–4 p.m. | Industry Sponsored Session (CVS Specialty) | Regency 6 |
| 4–7 p.m. | Poster Hall Session and Lightning Round Presentations | Regency 6 |
| 6:30-9 p.m. | Exhibit Hall Open | Grand Hall West |
| 6:30-7:30 p.m. | Exhibit Hall Opening Reception | Grand Hall West |
| 7:30-9:30 p.m. | PH Professional Network Reception | Regency 5 |

| Friday, June 10 | | | |
|-------------------------------------|--|------------------------|--|
| 7–7 p.m. | Registration Open | Grand Hall Foyer | |
| 7–7:15 a.m. | Scientific Sessions Welcome and Introduction | International Ballroom | |
| What We Have Learned Since PHA 2018 | | | |
| 7:15-7:45 a.m. | Update on Clinical Trials | International Ballroom | |
| 7:45-8:15 a.m. | How Can Registries Improve the Future of PH Care? | International Ballroom | |
| 8:15-8:45 a.m. | Recent Basic Science Advances for Clinicians | International Ballroom | |
| 8:45-9:15 a.m. | Impact of COVID-19 on the Pulmonary Vasculature and PH Care | International Ballroom | |
| 9:15-9:30 a.m. | Research Talk | International Ballroom | |
| 9:30-9:45 a.m. | Research Talk | International Ballroom | |
| 10:30-11:30 a.m. | Industry Sponsored Session: The Echo in PAH: State of the Art in Right Heart Monitoring (PAH Initiative, United Therapeutics Corporation) | Hanover FG | |
| | The Future of Research and Treatment | | |
| 10-10:30 a.m. | The Future of Therapy for PH: New Treatments and Targets | International Ballroom | |
| 10:30–11 a.m. | The Future of Clinical Trials in PH: Novel Trial Designs and Endpoints | International Ballroom | |
| 11–11:30 a.m. | The Future of Research in PH: AI, Network Medicine and Systems Pharmacology | International Ballroom | |

| 11:30–12:30 p.m. | Debate: Initial Treatment Strategy with Triple Combination Therapy | International Ballroom | |
|------------------|--|---|--|
| Noon-1 p.m. | Conference Countdown Lunch | Centennial Ballroom | |
| 1–2 p.m. | Conference Opening General Session | Centennial Ballroom | |
| | PH Throughout the Lifecycle | | |
| 2-2:15 p.m. | Research Talk | International Ballroom | |
| 2:15-2:30 p.m. | Research Talk | International Ballroom | |
| 2:30-3:20 p.m. | Adolescent Issues in PH: Panel Discussion | International Ballroom | |
| 3:20-3:40 p.m. | The Landscape of Genetic Testing in Children and Adults | International Ballroom | |
| 3:40-4 p.m. | Telemedicine Tools: What are They and How to Best Utilize Them for PAH Patients | International Ballroom | |
| 4–5 p.m. | Debate: Potts Shunts vs. Lung Transplant | International Ballroom | |
| 5:30-6:30 p.m. | Industry Sponsored Session: A Time for Hope in PAH: New Science, Potential New Therapies and the Patient's Role in Drug Development (Aerovate Therapeutics) | Hanover FG | |
| 5:30-6:30 p.m. | Industry Sponsored Session: Established Science and a Novel Potential Therapy: Targeting Serotonin for the Treatment of PAH (Altavant Sciences) | International Ballroom | |
| 7–8:30 p.m. | Medical Update Dinner | Centennial Ballroom | |
| 9–11 p.m. | PHA LGBTQIA+ No-host Social | Twenty-Two Storys Restaurant and Bar, Hyatt Regency Atlanta | |

| Saturday, June 11 | | |
|---|---|------------------------|
| 7–7 p.m. | Registration Open | Grand Hall Foyer |
| 8–9 a.m. | Networking with a Medical Professional Breakfast | Centennial Ballroom |
| 8 a.m6 p.m. | Art Gallery Open | Centennial Foyer |
| Global Burden of PH Beyond Group I – PHA and PVRI Joint Session | | |
| 9:30-9:50 a.m. | A Global Perspective on PH | International Ballroom |
| 9:50-10:10 a.m. | Group III with ILD – Diagnosis and Management | International Ballroom |

| 10:10-10:30 a.m. | Early PH: Detection Strategies and Management | International Ballroom |
|------------------|--|---|
| 11–11:20 a.m. | Group II PH: Are we Making Progress? | International Ballroom |
| 11:20-11:40 a.m. | CTEPH – Updates on Diagnosis and Medical Management | International Ballroom |
| 11:40 a.mnoon | CTEPH – BPA and PTE: Who, When and How? | International Ballroom |
| Noon-1 p.m. | Journeys Lunch | Centennial Ballroom |
| 1–2 p.m. | Industry Sponsored Session: Patient and HCP Perspective: A Conversation about Tracking and Self-Advocacy (Janssen) | Regency 5 and 6 |
| Beyond ' | Vasodilators – Non-medical Intervention | ns for PH |
| 2-2:30 p.m. | Role of Exercise, Activity Tracking and Remote Monitoring in PH Care | International Ballroom |
| 2:30-3 p.m. | The Role of Cannabinoids and Dietary Supplements in PH Care | International Ballroom |
| 3–3:30 p.m. | State-of-the-art Mechanical Circulatory Support for PH | International Ballroom |
| 3:30-4 p.m. | Pearls and Pitfalls in Lung Transplantation for PH | International Ballroom |
| 4–4:30 p.m. | Plenary Session: What I've Learned in an Academic Career in PH | International Ballroom |
| 4:45–5:45 p.m. | Industry Sponsored Session: PHocusing on the Future: Precision Medicine, Emerging Treatment Pathways and New Molecules in Development for PAH (GossamerBio) | International Ballroom |
| 6–7 p.m. | Awards Dinner | Centennial Ballroom |
| 7–8:30 p.m. | Fashion Show and Saturday Night Party | Regency 5 and 6 |
| 9–11 p.m. | PHA International Attendee No-host Social | Twenty-Two Storys Restaurant and Bar, Hyatt Regency Atlanta |

| Sunday June 12, 2022 | | |
|----------------------|-------------------|---------------------|
| 9:30-10:30 a.m. | Closing Breakfast | Centennial Ballroom |

Hotel Floor Plans

Ballroom Level

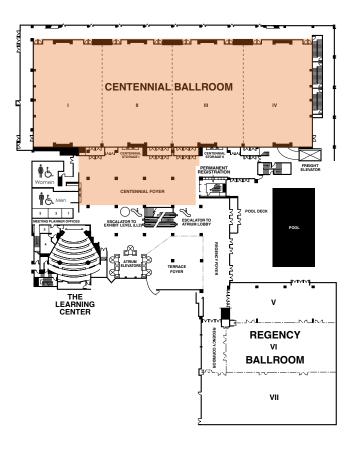
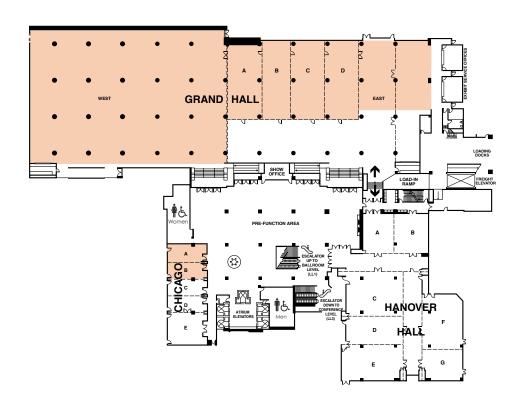
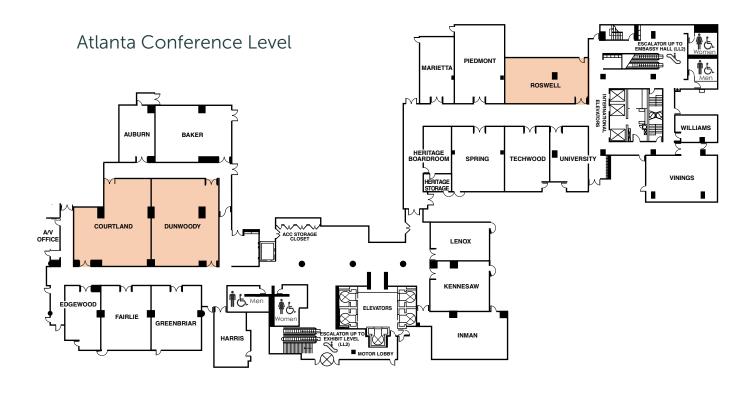
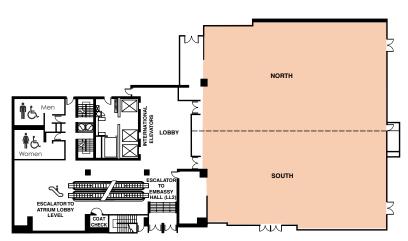


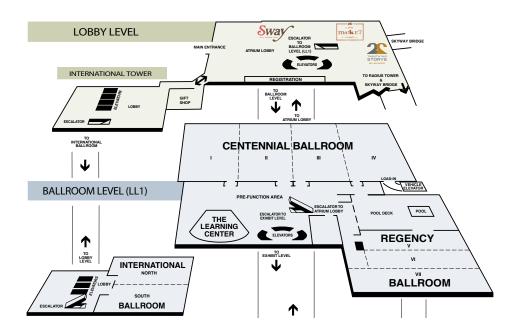
Exhibit level





International Ballroom





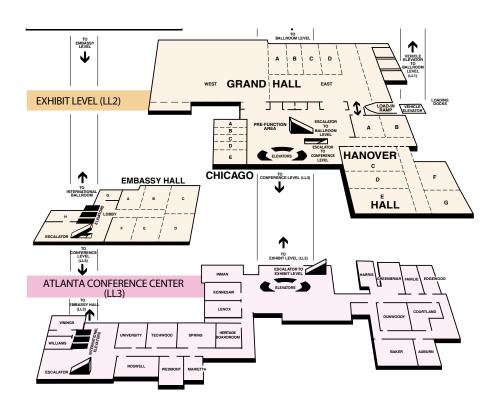
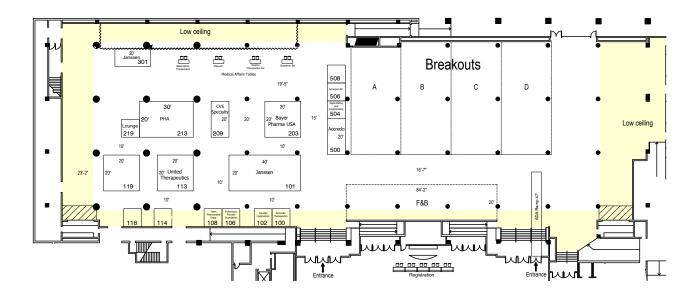


Exhibit Hall



Continuing Education Credit

This continuing education activity is provided through collaboration between the Pulmonary Hypertension Association (PHA) and AffinityCE. This activity provides continuing education credit for physicians, physician assistants, nurses, nurse practitioners and pharmacists. A statement of participation is available to other attendees.

Learning Objectives

At the end of this activity, participants should be able to:

- Discuss current guidelines and recent innovations for the treatment and management of patients with
- Identify the evidence-based criteria and recommendations for diagnosing PH due to left heart disease.
- Review the general approach to risk assessment for PAH.
- Describe a multidisciplinary approach to management of PH and help implement comprehensive care practices into their clinics.
- Discuss continuation of care from acute care settings to outpatient management and empower patients to be involved in and remain at the center of their own care.
- Describe the impact of the COVID-19 pandemic on the delivery of care during the pandemic.
- Define telehealth and how it has evolved over the last two years.
- Explain the role of artificial intelligence methods in research to aid diagnosis, prognosis and identification of potential therapeutic targets relevant to PH.

Disclosures

AffinityCE staff, PHA staff and activity planning and review committees have no relevant financial interests to disclose.

Faculty Disclosures

Disclosures can be viewed online at na.eventscloud.com/website/22931/program and before each presentation.

Mitigation of Relevant Financial Relationships

All relevant financial relationships have been mitigated prior to the launch of this program to participants.

Physicians



This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of AffinityCE and PHA. AffinityCE is accredited by the ACCME to provide continuing medical education for physicians.

AffinityCE designates this live activity for a maximum of 14.5 AMA PRA Category 1 Credits[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Physician Assistants



Nurse Practitioners



Nurses



Pharmacists



This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of AffinityCE and PHA. AffinityCE is accredited by the ACCME to provide continuing medical education for physicians.

AffinityCE designates this live activity for a maximum of 14.5 AMA PRA Category 1 Credits[™]. Physician Assistants should claim only the credit commensurate with the extent of their participation in the activity.

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of AffinityCE and PHA. AffinityCE is accredited by the ACCME to provide continuing medical education for physicians.

AffinityCE designates this live activity for a maximum of 14.5 AMA PRA Category 1 Credits™. Nurse Practitioners should claim only the credit commensurate with the extent of their participation in the activity.

Continuing Nursing Education is provided for this program through the joint providership between PHA and AffinityCE. AffinityCE is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation. This activity provides a maximum of 14.5 contact hours of continuing nursing education credit.

AffinityCE is accredited by the Accreditation Council for Pharmacy Education (ACPE) as a provider of continuing pharmacy education. This knowledge-based activity will provide 14.5 contact hours of continuing education credit. ACPE Universal Activity Numbers are provided for each session. Participant CE records will be electronically communicated to CPE Monitor. The cost to participate is included in the registration cost for the symposium.

Other Professionals

All other health care professionals completing this continuing education activity will be issued a statement of participation indicating the number of continuing education credit hours. This may be used for professional education CE credit. Please consult your accrediting organization or licensing board for their acceptance of this CE activity.

Commercial Support

No commercial support was provided for this activity.

Participation Costs

The cost to participate in these CE sessions is included in the registration cost for PHA 2022 International PH Conference and Scientific Sessions.

CE Inquiries

For all CE policy-related inquiries, please contact AffinityCE at ce@affinityced.com. Send all customer support requests to cds_support+pha@affinityced.com.

How to Earn CE Credit for PHA 2022 International PH Conference and Scientific Sessions

- 1. Sign into the CE Center site pha.cds.pesgce.com and evaluate the content of the activity to earn CE credit. Registration for the Conference does not establish an account in the CE Center or automatically provide continuing education credit.
- 2. If you do not yet have an account, enter an email address and password on the log in/sign up page to begin setting up your account and profile. Select "I Forgot My Password" to reset your account password.
- 3. Verify, correct or add your information.
- 4. Select the activity PHA 2022 International PH Conference and Scientific Sessions.
- 5. Proceed and complete the activity evaluation for each session you attend.
- 6. Upon successful completion of the session evaluations, you can download your CE certificate. Your CE record will also be stored here for later retrieval.
- The website is open for completing your evaluation for 14 days after the event.
- 8. U.S.-based participants claiming pharmacist CE credits will need to supply their date of birth and NABP e-profile ID. Pharmacist CE records will be reported electronically to CPE Monitor.
- 9. After the website has closed, you can come back to the site at any time to download another copy of your certificate, but you will not be able to add any evaluations.

Please send any customer service requests to cds_support+pha@affinityced.com.

PHA Scientific Sessions



Thursday, June 9

Industry Sponsored Session (CVS Specialty)

Thursday, June 9, 3-4 p.m. Regency 6

Join us for an engaging session presented by CVS Specialty on a topic of great interest to the PH community. Patients and health care providers are encouraged to attend. Please visit the conference mobile app or website for session details.

PH Professional Network Reception

Co-sponsored by Accredo, GossamerBio and Janssen

Thursday, June 9, 7:30-9:30 p.m. Regency 5 (Ballroom level)

This reception brings together members of the PH Professional Network (PHPN), nonphysician clinicians, nurses and other allied health professionals who care for patients with PH. Whether to meet new colleagues or to reconnect, this reception is a perfect way to begin your Conference journey. Come and celebrate outstanding members of the community and learn how to get more involved.

Friday, June 10

What We Have Learned Since PHA 2018: Update on Clinical Trials

Speaker: Corey E. Ventetuolo, M.D., M.S., Brown University, Providence, Rhode Island

Friday, June 10, 7:15-7:45 a.m. International Ballroom

The session will review recently completed and ongoing clinical trials in pulmonary vascular disease with a focus on novel treatment paradigms.

Learning objectives:

- 1. Identify emerging therapeutic targets in pulmonary arterial hypertension (PAH).
- 2. Discuss results of a recently completed clinical trial of upfront triple combination therapy for PAH.
- 3. Recognize changing approaches to clinical trial design in PAH.

What We Have Learned Since PHA 2018: How Can Registries Improve the Future of PH Care?

Speaker: Nicholas Kolaitis, M.D., M.A.S., University of California, San Francisco

Friday, June 10, 7:45-8:15 a.m. International Ballroom

This session will cover the history of pulmonary hypertension (PH) registries, what we have learned from the various registries, and how PH registries can be used to drive future knowledge. Learning objectives:

- 1. Review the history of the various PH registries.
- 2. Identify the ways that registries have informed clinical decision making.
- 3. Explain how registries can provide opportunities for hypothesis generation and provide answers to questions.

What We Have Learned Since PHA 2018: Recent Basic Science Advances for Clinicians

Speaker: Kurt Prins M.D., Ph.D., University of Minnesota, Minneapolis

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Advertise in:

PHAssociation.org: Comprehensive resource for anyone affected by PH



Pathlight: PHA's quarterly member magazine





Friday, June 10, 8:15-8:45 a.m. International Ballroom

In this session, we will highlight advances in basic and translational research in PAH. We will discuss new data outlining potential drivers of PAH and how we may target them therapeutically to improve PAH outcomes. Learning objectives:

- 1. Define how DNA damage can alter pulmonary vascular disease.
- 2. State how the microbiome may modulate pulmonary vascular disease.
- 3. Delineate a potential role of the bone marrow in PAH pathogenesis.

What We Have Learned Since PHA 2018: Impact of COVID-19 on **Pulmonary Vasculature and PH Care**

Speaker: John J. Ryan, M.D., M.B., B.Ch., B.A.O., University of Utah, Salt Lake City

Friday, June 10, 8:45-9:15 a.m. International Ballroom

In this session, we will discuss the impact of the COVID-19 pandemic on both the delivery of care during the pandemic and also the effect of the virus on the pulmonary vasculature. Learning objectives:

- 1. Describe the impact of the COVID-19 pandemic on the delivery of care during the pandemic.
- 2. Explain the effect of COVID-19 infection on the pulmonary vasculature.
- 3. Define telehealth and how it has evolved over the last two years.

Research Talk

Friday, June 10, 9:15-9:30 a.m. International Ballroom

The research talks provide an opportunity to listen and engage with authors of selected abstracts who will be presenting on their research.

Research Talk

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The research talks provide an opportunity to listen and engage with authors of selected abstracts who will be presenting on their research.

The Future of Therapy for PH: New **Treatments and Targets**

Speaker: Robert P. Frantz, M.D., Mayo Clinic College of Medicine, Rochester, Minnesota

Friday, June 10, 10–10:30 a.m. International Ballroom

This session will highlight the latest developments in the understanding of pathophysiology of PH pathways and the identified resulting novel agents that target those pathways. The progression from bench, to clinical trial, to bedside will be discussed for exciting new agents, along with a discussion of their potential role in the therapeutic armamentarium. In addition to the discussion of these pharmacologic agents, nonpharmacologic approaches including balloon atrial septostomy and fenestrated atrial septal devices and percutaneous reverse Pott's shunt will be reviewed. A futuristic vision of how the landscape will change in the years ahead will

put this tremendous evolution into exciting perspective.

Learning objectives:

- 1. Understand the mechanism of action of newly identified PH investigational therapies.
- 2. Be aware of the design of the clinical trials studying newly identified agents.
- 3. Know the current level of evidence for investigational PH drugs.
- 4. Be aware of the existence of nonpharmacologic approaches including atrial septostomy and Percutaneous reverse Pott's shunt.

The Future of Clinical Trials in PH: **Novel Trial Designs and Endpoints**

Speaker: Ioana R. Preston, M.D., Tufts Medical Center, Boston

Friday, June 10, 10:30-11 a.m. International Ballroom

PH clinical trial design has evolved from simple placebo-controlled trials. Now, clinical trials include advanced design and endpoints that are critical to clinical trial success and drug approvals. This session will discuss the state of clinical trials in 2022 and the intricacies involved in achieving success.

Learning objectives:

- 1. Review the evolution of trial design in PAH.
- 2. Examine the need for novel endpoints.
- 3. Identify potential collaborative and real-world data trials.
- 4. Identify patient reported outcomes to be incorporated in future trials, as well as patient involvement in their design.

Industry Sponsored Session: The Echo in PAH: State of the Art in Right **Heart Monitoring**

Sponsored by PAH Initiative, United Therapeutics Corporation

Speakers: Anjali Vaidya, M.D., FACC, FASE, FACP, Temple University Hospital and Lewis Katz School of Medicine, Temple University, Philadelphia; John Ryan, M.D., M.B., B.Ch., B.A.O., University of Utah Pulmonary Hypertension Center, Salt Lake City

Friday, June 10, 10:30-11:30 a.m. Hanover FG (Exhibit level)

Data shows that early identification of changes in right heart size and function are time-critical to making treatment decisions before a patient's condition worsens. Join Drs. Ryan and Vaidya to learn about recent advancements in right heart imaging and how it may help inform treatment plans. This session is intended for health care professionals.

The Future of Research in PH: AI, **Network Medicine and Systems** Pharmacology

Speaker: Jane A. Leopold, M.D., Brigham and Women's Hospital, Boston

Friday, June 10, 11-11:30 a.m. International Ballroom

Recent advances in artificial intelligence (AI) and analytical methodologies have created opportunities to refine our approach to interpreting diagnostic tests, identify previously unrecognized similarities and differences among patients, and find new targets for therapy or pre-existing drugs that may be efficacious. The benefits of AI have been recognized most widely in cardiopulmonary imaging where standard

chest x-rays or echocardiography can be used to predict PH or survival in high risk groups. Network medicine leverages big data and utilizes clinical variables or molecular markers to find new links or patterns among these variables. This process identifies groups of patients with similar phenotypes that may benefit from similar interventions. Using the same strategy, systems pharmacology focuses on the links between genes, proteins and/or metabolites to find new drug targets or targets of previously approved medications. Taken together these analytical methodologies form a precision medicine approach to PH.

Learning objectives:

- 1. Explain the role of AI in diagnostics, particularly in imaging studies relevant to PH.
- 2. State how network medicine can be used to identify clusters of individuals with similar and dissimilar disease patterns.
- 3. Explain how molecular networks can be used to identify new targets for already approved drugs (drug repurposing) or for development of new therapeutics.
- 4. Identify new analytical methodologies that will be integrated in the future for a patientspecific and precision medicine approach to PH.

Debate: Initial Treatment Strategy with Triple Combination Therapy

Speakers: R. James White, M.D., Ph.D., University of Rochester (New York) Medical Center; Harrison W. Farber, M.D., Tufts Medical Center, Boston; Hillary M. DuBrock, M.D., MMSc, Mayo Clinic Rochester, Minnesota

Friday, June 10, 11:30 a.m.-12:30 p.m. International Ballroom

While initial (dual) combination oral therapy has improved treatment outcomes, half of the patients in published registries do not achieve treatment goals. Experience and published

data demonstrate that early use of parenteral epoprostenol (EPO) or treprostinil (TRE) can facilitate dramatic treatment benefits. Taking the "pro" side of this important topic, Dr. White will advocate for an aggressive therapy strategy to achieve accepted and emerging treatment goals. For many patients, that strategy means initial or early exposure to parenteral EPO or TRE. While the focus will be on data for risk score reduction and improved right ventricle function, we'll also touch on the patient education and engagement required to facilitate acceptance of this very useful but difficult therapy. Dr. White will also provide rebuttals for opposing arguments presented by Dr. Farber.

Learning objectives:

- 1. State the advantages and limitations of initial dual combination therapy.
- 2. Explain older and emerging data for the early use of parenteral drug.
- 3. Describe strategies for patient education and engagement which support patients in tackling these difficult therapies.
- 4. List the side effect profile of parenteral drugs and the anticipatory guidance that can help patients stay on effective therapy.

Conference Countdown Lunch

Friday, June 10, Noon-1 p.m. Centennial Ballroom (Ballroom level)

Grab a boxed lunch outside the ballroom, then head inside to network with fellow attendees prior to Conference Opening.

Conference Opening

Sponsored by Janssen

Welcome: Colleen Brunetti, adult with PH, PHA Board of Trustees chair; Matt Granato, PHA president and CEO

Emcee: Doug Taylor, adult with PH, PHA Board of Trustees member, PHA conference co-chair Keynote Speaker: Linda Santos-Morgan, adult with PH

Friday, June 10, 1–2 p.m. Centennial Ballroom (Ballroom level)

Join us as we kick off an exciting weekend of learning and connecting with community members: patients, caregivers, families, medical professionals and industry. The opening session keynote speaker, Linda Santos-Morgan, will speak about her experience from PH diagnosis to connecting with PHA, moving across the country to beautiful Savannah, Georgia, and feeling empowered by being an informed patient.

Research Talk

Friday, June 10, 2-2:15 p.m. International Ballroom

The research talks provide an opportunity to listen and engage with authors of selected abstracts who will be presenting on their research.

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PH Throughout the Lifecycle: Adolescent Issues in PH: Panel Discussion

Speakers: Nidhy Varghese, M.D., Texas Children's Hospital-Pediatric Pulmonary Hypertension Program, Houston; Alvin Rocha, M.S.N., R.N., C.P.N., Children's Hospital Los Angeles; Jessica Badlam, M.D., University of Vermont, Burlington; Erin Ely, B.S.N., R.N., C.P.N., Texas Children's Hospital, Houston; and Buffin Ann Renolds, LCSW, Texas Children's Hospital, Houston

Friday, June 10, 2:30-3:20 p.m. International Ballroom

With increased survival of children with PH, many are now facing the unchartered waters of transitioning from pediatric to adult-focused care. Unfortunately, there is little to no guidance for successful transition for young adults with PH, which often leaves the pediatric team and family/ caregiver unprepared and the patient at risk for negative outcomes. In this panel discussion, experts from pediatric and adult care teams will review the need for planned transition, the use of transition tools and care models for success.

Learning objectives:

- 1. Discuss a timeline of education to implement in the pediatric clinic.
- 2. Outline and complete learning goals leading up to transitioning from a pediatric to an adult center.
- 3. Determine the right adult PH center for the pediatric patient.
- 4. Review the process of supporting the caregiver through transition.

PH Throughout the Lifecycle: Landscape of Genetic Testing in **Children and Adults**

Speaker: Eric D. Austin, M.D., M.Sc., Vanderbilt University Medical Center, Nashville

Friday, June 10, 3:20 - 3:40 p.m. International Ballroom

The purpose of this session is to discuss what is known about the inheritance of PAH and advances in the discovery of genetic variations associated with PAH. The session will provide an overview of how PAH can be inherited and how individuals and families can approach the risks of heritable PAH. We will discuss advances in our understanding of the genetics of PAH, and the possibility that a genetic basis of disease may be present in persons who don't have known family members with PH. We will also examine the benefits, risks and limitations of genetic testing while considering approaches to monitor those at risk of PAH. There will be time for questions/ discussion with the audience.

Learning objectives:

- 1. List the forms of PAH strongly associated with rare gene variations (mutations).
- 2. Explain the different types of genes with mutations associated with PAH.
- 3. Review the relationship of genes and genetic testing to PAH care approaches and screening.
- 4. Explain the risk of PAH among relatives of a person with heritable PAH.
- 5. Identify the general approach to genetic testing for a person with PAH.

PH Throughout the Lifecycle: **Telemedicine Tools: What are They** and How to Best Utilize Them for **PAH Patients**

Speaker: Lana Melendres-Groves, M.D., University of New Mexico Health Science Center, Albuquerque

Friday, June 10, 3:40-4 p.m. International Ballroom

This session will discuss how technology has influenced our ability to provide care to PH patients. It will explore the beneficial and negative impacts that virtual patient care may have on patient/provider relationships and the management of PH.

Learning objectives:

- 1. Define telemedicine.
- 2. Review how telemedicine is used to improve patient care.
- 3. Discuss the potential pitfalls of virtual care.
- 4. Explain how telemedicine is changing the face of patient care.

PH Throughout the Lifecycle: **Debate: Potts Shunts vs. Lung Transplant**

Speakers: Erika Berman Rosenzweig, M.D., Columbia University Medical Center/New York Presbyterian Hospital; Ivan Robbins, M.D., Vanderbilt University Medical Center, Nashville; R. Mark Grady, M.D., Washington University, St. Louis; Ernestina Melicoff Portillo, M.D., Texas Children's Hospital, Houston

Friday, June 10, 4-5 p.m. International Ballroom

Although treatment options for PH have increased considerably in the previous decades, lung transplantation generally has been accepted that as the only "cure" for PH. However, the reverse Potts shunt has gained popularity as another intervention for end-stage PH, offering an alternative to transplant. Patients, caregivers and medical professionals are now faced with the difficult choice of lung transplantation or shunt creation. Which is the right one to pursue? In this session, lung transplant experts and reverse Potts shunt experts will engage in a case-based debate on the indications, benefits and complications of their respective interventions. After hearing the

arguments, the audience will be invited to decide on the best intervention for each case. Learning objectives:

- 1. State the indications for end-stage PH interventions: lung transplantation and reverse Potts shunt creation.
- 2. Explain the similarities and differences in surgical risk and associated morbidity.
- 3. Recognize the implications of each intervention on quality of life and ultimate prognosis.
- 4. Review the current survival for lung transplantation and reverse Potts shunt creation.

Industry Sponsored Session: A Time for Hope in PAH: New Science, Potential New Therapies and the Patient's Role in Drug Development Sponsored by Aerovate Therapeutics

Speakers: Ioana Preston, M.D., Tufts Medical Center; Hunter Gillies, MBChB., chief medical officer, Aerovate Therapeutics, Inc., PAH patient

Friday, June 10, 5:30-6:30 p.m. Hanover FG (Exhibit level)

This program is intended for both clinicians and patients attending PHA 2022. A multidisciplinary panel, including a PAH expert, an industry scientist and a PAH patient, will explore this important time in PAH. This session will cover perspectives on new science, potential new therapies, novel approaches to drug development and the patient's role in moving science forward.

Industry Sponsored Session: Established Science and a Novel Potential Therapy: Targeting Serotonin for the Treatment of PAH Sponsored by Altavant Sciences

Speaker: Lana Melendres-Groves, M.D., University of New Mexico, Albuquerque

Friday, June 10, 5:30-6:30 p.m. International Ballroom (Lobby level)

This session is intended for both patients and health care professionals. Scientists and PAH expert will discuss a potential new therapy in development, the ELEVATE 2 study, and the importance of patient participation in research.

Medical Update Dinner

Sponsored by Bayer

Welcome: Anna Hemnes, M.D., PHA Board of Trustees member, PHA Scientific Leadership Council chair-elect, Vanderbilt University Emcee: Murali Chakinala, M.D., FCCP, PHA Board of Trustees member, PHA Scientific Leadership Council chair, Washington University School of Medicine, St. Louis Moment of Remembrance: Mary Felkel, bereaved parent of PH patient, Sally Maddox, Ed.D.

Speaker: Todd Bull, M.D., University of Colorado, PHA Scientific Leadership Council, PHA Research Committee chair Keynote Speaker: Stephen Mathai, M.D., M.H.S., Johns Hopkins Pulmonary Hypertension Program

Friday, June 10, 7-8:30 p.m. Centennial Ballroom (Ballroom level)

We have made remarkable strides in our understanding of PH and available treatments, enabling patients to live longer and have a better quality of life. This year's Medical Update Dinner will feature Dr. Stephen Mathai, an associate professor of medicine and part of the Johns Hopkins Pulmonary Hypertension Program. You'll learn more about the PVDOMICS study, a multi-center study to improve understanding of pulmonary vascular disease through phenomics and the way our physical and biochemical traits change in response to genetic mutation and environmental influences.

Saturday, June 11

Networking with a Medical **Professional Breakfast**

Sponsored by Janssen

Welcome: Kim Jackson, R.N., PHA Board of Trustees, PH Professional Network past chair, University of Kentucky

Emcee: Cheri Abbott, R.N., CCRP, PHA Board of Trustees member, PH Professional Network chair-elect, University of Colorado

Saturday, June 11, 8-9 a.m. Centennial Ballroom (Ballroom level)

Kick-start your Saturday with a special opportunity to interact with PH experts in a casual setting before the day's breakout sessions. Medical professionals specializing in various areas in the PH field will be seated at tables organized by PH topic. This gives patients and caregivers the opportunity to have discussions with PH experts over breakfast.

Art Gallery

Saturday, June 11, 8 a.m. to 6 p.m. Centennial Foyer (Ballroom level)

View the creative talent of our community at the PHA Art Gallery while raising money to sustain our mission to extend and improve the lives of those affected by PH. Gallery tickets will be sold Saturday only! Winners of Saturday's drawing will be announced at the Closing Breakfast and on the Conference mobile app Sunday morning. Drawing winners may pick up their artwork on Sunday, June 12, 10:45 a.m. to 12:30 p.m. at the Art Gallery.

PHA/PVRI Joint Session – Global Burden of PH Beyond Group I: A Global Perspective on PH

Speaker: Werner Seeger, M.D., Justus Liebig University Giessen, Germany

Saturday, June 11, 9:30-9:50 a.m. International Ballroom

PH is a rare disease, especially when considering Group I PH. At the same time, PH as a whole is a major worldwide health threat. The major differences between the various PH groups are obvious, as evident from the distribution of high altitude associated PH, infection (such as schistosomiasis and HIV- and air pollution-linked PH. The Pulmonary Vascular Research Institute (PVRI) aims to collect PH patient data around the globe in a metaregistry called PVRI GoDeep. This metaregistry expands our knowledge about the disease, uses epidemiological differences for better understanding its pathogenesis and fosters better treatment of PH patients in all parts of the world.

Learning objectives:

- 1. Recognize that PH is a worldwide health threat with major regional differences.
- 2. Review the existing data contained in local registries as a valuable source.
- 3. Outline a worldwide strategy to merge these data in a fair concept.
- 4. Explain how PVRI GoDeep strives to approach this goal.

PHA/PVRI Joint Session – Global Burden of PH Beyond Group I: Group III with ILD - Diagnosis and Management

Speaker: Namita Sood, M.D., FCCP, University of California-Davis, Sacramento

Saturday, June 11, 9:50-10:10 a.m. International Ballroom

This session will discuss the epidemiology of PH complicating interstitial lung disease and the

impact it has on survival. We will discuss the limitations of current vasodilator therapies in this setting. We will also examine the INCREASE trial and discuss the use of inhaled Treprostinil in pulmonary hypertension and intersital lung disease (PH-ILD). Finally, we will highlight the current challenges and future directions.

Learning objectives:

- 1. Discuss the epidemiology and survival in PH-
- 2. Review the indications and limitations of vasodilator therapies.
- Discuss the challenges and future directions of PH-ILD.

PHA/PVRI Joint Session - Global Burden of PH Beyond Group I: **Early PH: Detection Strategies and** Management

Speaker: Stephen C. Mathai, M.D., M.H.S., Johns Hopkins University School of Medicine, Baltimore

Saturday, June 11, 10:10-10:30 a.m. International Ballroom

The 6th World Symposium on Pulmonary Hypertension revised the hemodynamic definition of this syndrome by lowering the mean pulmonary artery pressure threshold from greater than or equal to 25 mmHg to greater than 20 mmHg. The impact on clinical practice, including early diagnostic strategies and intervention for patients with early disease, defined as mean pulmonary artery pressures between 21-24 mmHg, has not been well described. Emerging literature on specific populations of patients suggests significant gaps in our understanding of how best to approach early detection and to treat patients who have early disease. In this session, we will review the rationale for modifying the hemodynamic criteria for PH, discuss the impact on early detection strategies and describe recent clinical data on the utility of pulmonary vasodilator therapy in patients with early disease.

Learning objectives:

- 1. Review the new hemodynamic definition of
- 2. Describe the impact of the new definition of PH on early detection strategies.
- 3. Describe the clinical evidence for pulmonary vasodilator therapy in early PH.

PHA/PVRI Joint Session - Global Burden of PH Beyond Group I: Group **II PH: Are We Making Progress?**

Speaker: Thenappan Thenappan, M.D., University of Minnesota, Minneapolis

Saturday, June 11, 11-11:20 a.m. International Ballroom

PH due to left heart disease is the most common cause of PH, and it is associated with increased mortality and morbidity. Despite its high prevalence and poor prognosis, there are currently no effective therapies for this condition. Recently, there has been a better understanding of the pathobiology of PH due to left heart disease, leading to early phase clinical trials. In this session, we will discuss the progress we have made in understanding and managing PH due to left heart disease.

Learning objectives:

- 1. Identify the evidence-based criteria and recommendations for diagnosing PH due to left heart disease.
- 2. Review recent developments in the understanding of the pathobiology of PH due to left heart disease.
- 3. Discuss emerging therapies for PH due to left heart disease.

PHA/PVRI Joint Session – Global Burden of PH Beyond Group I: CTEPH – Updates on Diagnosis and Medical Management

Speaker: Nick H. Kim, M.D., University of California San Diego, La Jolla

Saturday, June 11, 11:20-11:40 a.m. *International Ballroom*

Chronic thromboembolic pulmonary hypertension (CTEPH) is a treatable cause of chronic right heart failure which can present similarly to PAH. The approach to diagnosis and treatment of CTEPH continues to evolve. Awareness of these changes is necessary to provide the optimal care and outcome for patients with CTEPH.

Learning objectives:

- 1. List the diagnostic algorithm for CTEPH.
- 2. Review the three main treatment modalities.
- 3. Define multimodal treatment in CTEPH.

PHA/PVRI Joint Session – Global Burden of PH Beyond Group I: CTEPH – BPA and PTE: Who, When and How?

Speaker: Irene M. Lang, M.D., Medical University of Vienna, Austria

Saturday, June 11, 11:40 – Noon *International Ballroom*

In this session we will discuss the concurrent challenges of a CTEPH team when deciding which initial strategy is most beneficial for patients with CTEPH. We will also discuss the value of pulmonary endarterectomy, balloon pulmonary angioplasty and medical treatments and the importance of a multimodality treatment approach.

Learning objectives:

- 1. Define CTEPH.
- Explain the changes from normal on computed tomography and conventional and angiography.

- 3. Recognize who should get pulmonary endarterectomy.
- 4. Explain who should get balloon pulmonary angioplasty.
- 5. Identify who should get medical treatment.

Journeys Lunch

Welcome: Tony Lahnston, PHA Board of Trustees member, chair-elect, Windemere, Fla.

Panel Host: Betty Lou Wojciechowski, bereaved family member, caregiver, past PHA Board of Trustees member, Southern California

Panelists: Michelle Liu, M.D., M.P.H., FAAOH, parent of a child with PH,

Walter Reed Military Medical Center, Bethesda, MD:

Stephen H. Walker, M.S., CRNP, Children's Hospital of Philadelphia;

Allison Dsouza, B.S.N., R.N., patient with PH; Elizabeth Colglazier, M.S., N.P., University of California-San Francisco, San Mateo;

Kimberly Jackson, R.N., PHA Board of Trustees member, University of Kentucky;

Evalua Mitchell, Adult with PH, PHA Support

Evelyn Mitchell, Adult with PH, PHA Support Group leader, Lexington

Saturday, June 11, Noon–1 p.m. *Centennial Ballroom (Ballroom level)*

A tradition since PHA's first Conference in 1994, the Journeys Lunch highlights the experiences that patients and their care teams share. The Journeys Lunch focuses on the personal and medical journey of being diagnosed with PH, including how patients and their teams determined the most effective treatment plan and found hope for the future. Patient/medical professional pairs will share their stories of building partnerships, breaking down barriers and planning for patients' futures together.

Industry Sponsored Session: Patient and HCP Perspective: A **Conversation about Tracking and Self-Advocacy**

Sponsored by Janssen

Saturday, June 11, 1-2 p.m. Regency 5 and 6 (Ballroom level)

Pulmonary arterial hypertension (PAH) is a complicated disease and affects each patient differently. Your PAH status reflects your unique journey. Janssen invites you to join a PAH health care provider and someone living with PAH to learn about how changes in your PAH status can inform treatment decisions and your overall care plan. Discover how understanding your PAH status helps create a more informed conversation with your healthcare team. Learn about the benefits of and tools for tracking your PAH, the importance of returning to care since COVID-19 and how this all helps you to be a powerful self-advocate.

Beyond Vasodilators - Nonmedical Interventions for PH: Role of Exercise, Activity Tracking and **Remote Monitoring in PH Care**

Speaker: Mary Beth Brown, P.T., Ph.D., University of Washington, Seattle

Saturday, June 11, 2-2:30 p.m. International Ballroom

In this session we will discuss our current understanding of right heart responses to exercise in PH as well as other physiological and functional effects of exercise training in patients with PH. Evidence regarding feasibility and safety of remote monitoring of exercise using wearable health monitoring devices and mobile health programs will also be discussed. Learning objectives:

1. List the right heart-specific responses to exercise in healthy individuals and in

- animal models and patients with PH.
- 2. State the impact of exercise training on functional outcomes in PH and mechanisms involved.
- 3. Explain the current evidence as well as gaps in knowledge surrounding remote monitoring of exercise using wearable health monitoring devices and mobile health programs.

Beyond Vasodilators – Nonmedical Interventions for PH: The Role of Cannabinoids and Dietary Supplements in PH Care

Speaker: Alissa Margraf, PharmD, BCACP, Rhode Island Hospital and Lifespan Corporation, Providence

Saturday, June 11, 2:30-3 p.m. International Ballroom

Despite progress in the treatment for PH, there's room for improvement in functional limitation and survival for patients with this disease. Adjunctive therapies are currently being explored to further improve symptom management and prognosis of PH. This presentation will focus on analysis of the available literature to help determine whether there is a role for cannabidiol (CBD) and additional supplementation in PH care. Learning objectives:

- 1. Review the pathogenesis of PH and well known pathways that contribute to disease progression.
- 2. Discuss proposed mechanisms of action of cannabidiol and its potential therapeutic implications in PH.
- 3. Explain the potential role of certain supplements as adjunctive therapies in PH treatment regimens.

Beyond Vasodilators - Nonmedical Interventions for PH: Stateof-the-art Mechanical Circulatory Support for PH

Speaker: Christian A. Bermudez, M.D., Hospital of the University of Pennsylvania, Philadelphia

Saturday, June 11, 3-3:30 p.m. International Ballroom

In this session Dr. Bermudez will discuss established and emerging options for circulatory support in patients with pulmonary hypertension. The discussion will include identification of appropriate patient populations for each support option, potential complications, and special and challenging cases in which mechanical support may be considered.

Learning objectives:

- 1. Discuss available options of circulatory support in patients with PH and their differences.
- 2. Review the adverse event profile of circulatory support options in the PH population.
- 3. Explain the consideration of their use in specific clinical situations (bridge to recovery, bridge to transplant).
- 4. Discuss challenges and opportunities with the use of circulatory support in PH.

Beyond Vasodilators - Nonmedical Interventions for PH: Pearls and Pitfalls in Lung Transplantation

Speaker: Deborah Jo Levine, M.D., FCCP, University of Texas, San Antonio

Saturday, June 11, 3:30-4 p.m. International Ballroom

This session will discuss the journey of patients with PH to transplant. The session will mainly

describe PAH (Group 1) patients, but also delve into how patients with Group 2, 3 and 4 are affected by transplant. We will also discuss outcomes after transplantation.

Learning objectives:

- 1. Discuss evaluation for transplant for Group 1 patients.
- 2. Discuss issues of PH peri-operatively after transplant.
- 3. Discuss outcomes of patients with PH post transplantation.

Beyond Vasodilators - Nonmedical Interventions for PH: Plenary Session: What I've Learned in an Academic Career in PH

Speaker: John H. Newman, M.D., Vanderbilt University Medical Center, Nashville

Saturday, June 11, 4-4:30 p.m. International Ballroom

Observations from a career in the pulmonary circulation including the changes that have evolved over the years in the treatment and diagnosis of PH.

Learning objectives:

- 1. Identify the changes that have occurred in the diagnosis of PH.
- 2. Explain the changes that have occurred in the treatment of PH.
- 3. List the genetic features of PH.

Industry Sponsored Session: PHocusing on the Future: Precision Medicine, Emerging Treatment Pathways and New Molecules in **Development for PAH**

Sponsored by GossamerBio

Friday, June 10, 4:45-5:45 p.m. International Ballroom (Lobby level)

Reflecting on the past, present and future of therapeutics developed for the treatment of

PAH, this session will lead attendees through the evolution of PAH treatments. The speakers will introduce some investigational drugs in mid-to-late stages of clinical development, including agents designed specifically for the treatment of PAH. Attendees will learn about new treatment pathways in PAH and ongoing research advancing the reality of precision medicine in PAH. Following the presentation, a moderated panel discussion will explore efforts to advance our scientific understanding of PAH and where future PAH therapies may be heading for patients.

Outstanding Member Awards Dinner

Presenters: Doug Taylor, adult with PH, PHA Board of Trustees member, PHA Conference Committee co-chair; Matt Granato, PHA president and CEO

Saturday, June 11, 6-7 p.m. Centennial Ballroom (Ballroom level)

This dinner brings us together to celebrate community members who have raised awareness and given a voice to the PH community through advocacy, philanthropy, peer support, patient care and efforts to advance PH research. Join us in recognizing award winners for Outstanding Physician, Outstanding Allied Health Professional, Outstanding PH Citizen, Outstanding Young PH Citizen, Outstanding Caregiver, Outstanding PHA Support Group Leader and the Julie Hendry Memorial Scholarship Award.

Fashion Show and Saturday Night Party

Sponsored by Accredo. Additional support provided by Aerovate Therapeutics

Hosts: Nicole M. Creech, PHA board member and Doug Taylor, PHA board member

Saturday, June 11, 7–8:30 p.m. Regency 5 and 6

What better way to celebrate all the friendships, connections and triumphs of the weekend, than with a one-of-a-kind party! Come join the party and cheer on fellow PHA 2022 attendees who will proudly flaunt or cleverly conceal the accoutrements of life with PH as part of the Saturday night Fashion Show. Participants will transform oxygen cannulas, mobility devices and medication pumps into symbols of strength and hope.

Immediately following the Fashion Show, you are invited to the first-ever PHA 2022 Saturday Night Party which will feature a DJ, dancing, games and a ton of fun. This exciting, vibrant party is not to be missed!

Sunday, June 12

Closing Brunch

Emcee: Colleen Connor, adult with PH, PHA Board of Trustees member Gavel Passing: Colleen Brunetti, adult with PH, PHA Board of Trustees chair; Tony Lahnston, Bereaved Family member, PHA Board of Trustees chair-elect Keynote Speaker: Stephen Carter-Hicks, adult with PH

Sunday, June 12, 9:30-10:30 a.m. Centennial Ballroom (Ballroom level)

Join Stephen Carter-Hicks as he shares his journey from starring on Broadway to being diagnosed with PH. Hear how he is courageously facing and creating ways to cope with the limitations he was presented with and his determination to live a full and rewarding life.

PH RESOURCES FOR **HEALTH CARE PROVIDERS**







Advances in Pulmonary Hypertension

Advances in Pulmonary Hypertension is PHA's quarterly medical journal, directed by an editorial board of PH experts with the oversight of PHA's Scientific Leadership Council. It aims to help clinical decision-making by informing them of important trends affecting their practice and new findings in peer-reviewed publications. Each article is reviewed and approved by the Editorial Advisory Board.

Read Advances in PH online, and register to receive email alerts at AdvancesinPH.org.

PHA Online University

Continuing medical education credits offered by PH experts are available 24/7 via PHA Online University.

Visit PHA Online University at PHAonlineuniv.org

PHA Medical Education On-Demand

PHA's on-demand CME program provides live medical education in several formats, allowing health care professionals to create CME opportunities that meets their needs.

For PHA Members Only

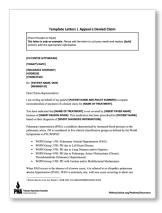


Connect with your PH-treating colleagues across the country. To request access, email medical@PHAssociation.org

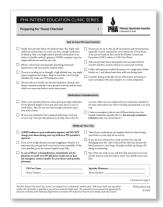
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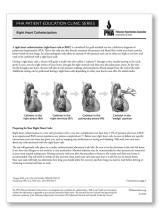
Receive these members-only publications:

- PHocus on PH PHA's e-newsletter for health care professionals with the latest scientific findings and research opportunities.
- Pathlight PHA's quarterly magazine with medical updates and first-person stories from the PH community.









PHA Practice Library: For Your Practice

- MRI for Patients with Continuous Prostacyclin Infusion
- PH Medication Assistance Reference Guide
- Travel Tips and Considerations for Helping Your Patients Plan Ahead for Travel
- Bronchopulmonary Dysplasia and PH
- Prior Authorization and Appealing a Denied Claim
- Template Letter Appeal a Denied Claim
- Template Letter PH Medication Approval

PHA Practice Library: For Your Patients

PH Management

- Sodium, Fluid and Weight Management for PH
- Ell control del sodio, los líquidos y el peso en la hipertensión pulmonar
- Supplemental Oxygen Therapy
- Tratamiento con oxígeno suplementario
- Pulmonary Arterial Hypertension Medications
- Medicamentos para la hipertensión arterial pulmonar
- PH Medications Side Effects and Interactions
- Efectos secundarios e interacciones de los medicamentos para la hipertensión pulmonar
- Oxygen Delivery Devices: At Home
- Portable Oxygen Delivery Devices
- **Medications List**

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Basics of the Circulatory System

Living With PH

- PHA COVID-19 Resources
- PHA Phone and Online Support
- Preparing for Travel Checklist
- Information for EMS and Emergency Department Professionals
- Depression, Anxiety and Pulmonary Hypertension
- Depresión, ansiedad e hipertensión pulmonar
- Postcard on how newly diagnosed patients can obtain "Navigating Pulmonary Hypertension"
- Birth Control Methods

Tests and Diagnostic Procedures

- Echocardiogram
- Escocardiografia
- **Pulmonary Function Tests**
- Pruebas de función pulmonar
- Right Heart Catheterization
- Cateterismo de hemicardio derecho
- 6-Minute Walk Test
- Prueba de caminata de 6 minutos
- Ventilation/Perfusion (V/Q) Lung Scan
- Gammagrafía pulmonar V/Q

PHA Research Grant Award Recipients 2016-2022



Aldrighetti Research Award for Young Investigators

Sponsorship support provided by Janssen Pharmaceuticals Inc.

2020

Vineet Agrawal, M.D.

"TGF-beta Receptor 3 as a Novel Mediator of Endothelial Metabolism in PAH" December 2020–December 2022 Instructor, Division of Cardiovascular Medicine Vanderbilt University Medical Center

2019

Ke Yuan, Ph.D.

"SDF1 Signaling: A Master Regulator of Mural Cell-Dependent Vascular Remodeling in PAH" December 2019-December 2021 Associate Scientific Researcher and Assistant Professor of Pediatrics Harvard Medical School, Boston Children's Hospital Division of Pulmonary Medicine

2018

Zhiyu Dai, Ph.D.

"Role of Endothelial-to-Mesenchymal Transition on Vascular Fibrosis in PAH" December 2018-December 2020 Research Assistant Professor Northwestern University Ann & Robert H. Lurie Children's Hospital of Chicago

2017

Nadine Al-Naamani, M.D., M.S.

"Effect of Obesity on Treatment Response in Pulmonary Arterial Hypertension" December 2017-November 2019 Instructor of Medicine University of Pennsylvania

2016

Olivier Boucherat, Ph.D.

"Forkhead-Box (FOX) Transcription Factors in Pulmonary Arterial Hypertension" December 2016-November 2018 Professor, Pneumology L'Université Laval

PHA/ATS Research Fellowship in **Pulmonary Arterial Hypertension**

2018

Soban Umar, M.D.

"miR-125b as a Novel Therapeutic Target in Pulmonary Hypertension Associated with Pulmonary Assistant Professor-in-Residence

University of California, Los Angeles

2019

Rahul Kumar, Ph.D.

"Crosstalk Between Bone Marrow Compartment and Inflamed Lungs in Hypoxic Pulmonary Hypertension"

Associate Professional Researcher, Pulmonary and Critical Care Medicine

Zuckerberg San Francisco General Hospital and Trauma Center at University of California, San Francisco

Olivier Boucherat, Ph.D.

"Forkhead-box (FOX) Transcription Factors in Pulmonary Arterial Hypertension" Professor, Pneumology L'Université Laval

Nadine Al-Naamani, M.D., M.S.

"Effect of obesity on treatment response in pulmonary arterial hypertension" Instructor of Medicine University of Pennsylvania

2017

Andrew John Sweatt, M.D.

"Deep Immunophenotyping of Pulmonary Arterial Hypertension by Unsupervised Machine Learning" December 2017-November 2019 Instructor of Medicine Stanford University

2016

Farbod Rahaghi, M.D., Ph.D.

"CT Imaging Markers of Pulmonary Arterial and Venous Remodeling in Pulmonary Hypertension" December 2016-November 2018 Instructor, Pulmonary and Critical Care Brigham and Women's Hospital

PHA Robyn J. Barst, M.D. Pediatric PH Research and Mentoring Fund

2019

Jason Boehme, M.D.

"Pulmonary Vascular Smooth Muscle Metabolic Reprogramming in Congenital Heart Disease" Assistant Professor of Pediatrics University of California, San Francisco

2018

Michael L. O'Byrne, M.D., MSCE

"Multidimensional evaluation of health-related quality of life in pediatric pulmonary hypertension" London A. Lotarski Pediatric PH Research & Mentoring

Assistant Professor-CE (Pediatrics) Children's Hospital of Philadelphia

2016

Meghan Bernier, M.D.

"LOX-1: A Therapeutic Target for Pulmonary Hypertension in Lung Endothelium" Christen White Cranford Pediatric PH Research and Mentoring Grant December 2016-November 2017 T32 Research Fellow The Johns Hopkins Hospital

Rachel Hopper, M.D.

"Comprehensive Analysis of Persistent Pulmonary Hypertension in Congenital Diaphragmatic Hernia" December 2016-November 2017 Attending Physician Children's Hospital of Philadelphia

Sheila Krishnan, D.O.

"Hypoxia-Dependent Epigenetic Modifications in the Pulmonary Vasculature" Cordelia's Pediatric PH Research and Mentoring Grant December 2016-November 2017 Pulmonary and Critical Care Fellow Indiana University

PHA Proof of Concept Award

2016

Kazuyo Kegan, Ph.D.

"Illuminating AMPK Function in Crosstalk Between Insulin Resistance and Pulmonary Hypertension" December 2016-November 2017 Assistant Professor Anesthesiology and Critical Care Medicine Johns Hopkins University

PHA/NHLBI Mentored Clinical Scientist (K08)/Mentored Patient-**Oriented Research Career Development (K23) Award**

2016

John Huetsch, M.D.

"The Calpain/CaMKII/NHE Signaling Pathway in PAH" July 2016-June 2021 Instructor of Medicine Johns Hopkins University

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About the Pulmonary Hypertension Association

Headquartered in Silver Spring, Maryland, the Pulmonary Hypertension Association (PHA) is a 501(c)(3) nonprofit organization. PHA envisions a world without PH and is dedicated to improving the lives of all those affected by this deadly disease. Through support, advocacy and awareness, education, quality care and research programs, PHA empowers patients, caregivers, families, health care professionals and researchers worldwide.



CONTINUING EDUCATION

PHA's International PH Conference and Scientific Sessions brings researchers and medical professionals together to learn about the latest in scientific advances and exchange ideas for future research while earning CME/CE and meeting PH patients and caregivers from around the world.

PHA Online University at PHAOnlineUniv.org is the go-to website for health care professionals for relevant information about PH and to earn complimentary CME/ CE.

The PHA Medical Education On-Demand Program allows you to bring a CME program to your health care community.

The PHA PHPN Symposium is an event held once every two years that brings together more than 400 PHtreating health care professionals to learn and earn continuing education; share research among peers; and network with other health care professionals.



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Advances in Pulmonary Hypertension, PHA's quarterly clinical review journal, is available free online at AdvancesinPH. org. Register for a free account and an email will be sent to your inbox when a new issue is posted. An editorial board of globally renowned experts selects a theme for each issue with the aim of informing clinicians of important trends that affect their practices.

Pathlight is PHA's quarterly print magazine for members and donors that provides in-depth information on medical updates, tips on living with PH and stories from the community.

Exchange knowledge and ideas with other PH-treating clinicians on email groups designed especially for PH Clinicians and Researchers and PH Professional Network members.



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8401 Colesville Road, Suite 200 Silver Spring, MD 20910 PHA@PHAssociation.org

PHAssociation.org

