

# SAPH2023

THE 16<sup>TH</sup> ANNUAL CONFERENCE OF  
THE SAUDI ASSOCIATION FOR PULMONARY HYPERTENSION

ORGANIZED BY:



16-18 FEBRUARY 2023 | Le Méridien, Al Khobar, KSA

# FINAL PROGRAM

IN COLLABORATION WITH:



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Dear Colleagues,

It gives me great pleasure to welcome you all to the 16th Annual Conference of the Saudi Association for Pulmonary Hypertension (SAPH2023) which will be held in Le Méridien, Al Khobar, KSA from 16-18 February 2023.

SAPH is maintaining the quest for development and progress year after year. SAPH2023 aims to create a platform for regional medical professionals to engage in exchange for knowledge and expertise on the latest and best practice methods in Pulmonary Hypertension.

As a continuation of successful collaboration between the Saudi Association for Pulmonary Hypertension (SAPH) and the Pulmonary Vascular Research Institute (PVRI), it has been proven that it is highly successful and helped in introducing physicians in The Middle East and North African countries to the world experts in the field of Pulmonary Hypertension and to the most advanced developments in understanding and managing Pulmonary Hypertension.

The scientific committee is planning a comprehensive Scientific Program covering all aspects of Pulmonary Vascular Diseases in both Adult & Children, from the basics of Pathobiology and Pathophysiology, Diagnosis, Classification and Management to the most advanced development in Therapies and Interventional Modalities. The program will be covered by the internationally recognized leaders in the field of Pulmonary Hypertension.

We are much appreciative to all our distinguished speakers and chairpersons. My hope is that all those who are practicing physicians will make an effort to attend and benefit from this Conference.

With my best regards,



**Prof. Abdullah M. Aldalaan, MD**

President, Saudi Association for Pulmonary Hypertension (SAPH)  
 Consultant, Pulmonary Medicine  
 Director, Pulmonary Hypertension Program, Lung Health Center  
 King Faisal Specialist Hospital and Research Centre  
 Professor of Medicine, Alfaisal University  
 Riyadh, Saudi Arabia

## About Us

The Saudi Association for Pulmonary Hypertension (SAPH) is a medical and research national group of many medical specialists, who shared a common interest in the field of Pulmonary Vascular Diseases (PVD). The main goal for SAPH is to increase the awareness and the knowledge of pulmonary vascular diseases in the society and between the medical professionals, and to start variety of research projects in the field of pulmonary vascular diseases in the region, in order to improve the understanding, and quantify the size of the problem in this part of the world. SAPH is registered and operates under the Saudi Thoracic Society.

## Objectives

- To investigate the incidence, prevalence, and pathobiology of PVD in underserved areas that, to date, have not been well characterized
- To identify unique characteristics of the illness including its morbidity and mortality
- To establish effective therapies, which will be accessible to the affected patients
- To develop national guidelines for diagnosis & management of PVD
- To provide expertise to areas with healthcare disparities that will address issues related to the education and training of healthcare professionals in the area of PVD
- To focus on improving the treatment of PVD, by promoting basic and clinical research, by educating physicians, and by assisting the development and conduct of clinical trials following the highest standards of clinical research
- To provide consultative services to health agencies and industry regarding advancing the treatment of PVD.
- To promote public awareness through different means including print and electronic media and public seminars

## Objectives

- SAPH has established a national database on patients with PVD to allow a meaningful understanding of the similarities and differences in the spectrum of the illness between different regions in the kingdom and other countries in the world
- SAPH has developed a web-based, multilingual educational materials and guidelines on the management of pulmonary vascular disease accessible to people involved in healthcare delivery
- SAPH has been conducting conferences and workshops on the modern methods to evaluate patients, determine accurate diagnoses, and monitor the efficacy of treatments.
- SAPH International Outreach Program (SIOP) was founded to establish line of communication and collaboration with our colleagues and friends from different international societies, organizations, or institutions who are providing Pulmonary Hypertension Services. International Outreach Program will entail, but not limited to, conducting conferences, symposia, workshops, masterclasses, demonstrations, joint research activities, and visiting professor/ expertise exchange programs.

## ABOUT AL KHOBAR



**Al-Khobar** city is one of the three main cities in the Eastern Province, the others being Dammam and Dhahran. These three cities form a closely joined triangle which has existed for centuries. In the past, Al-Khobar was a small port on the Arabian Gulf, inhabited mainly by fishermen. With the discovery of oil, it was transformed into an industrial port. Along with its industrial port, the city still serves small ships carrying passengers and goods. It is the center of the area's export-import activity and is a transit point for goods that are distributed throughout the Kingdom. It contains branches of all the country's major banks as well as fine hotels, some along its picturesque Corniche. It is developing into an important industrial city, with factories turning out industrial gas, dairy products, carbonated water, tissue paper, and ready-made garments.

### Climate

Al Khobar has a desert climate, with very hot, humid summers and warm dry winters. Its average annual temperature is 33 °C (91 °F) during the day and 22 °C (72 °F) at night. In the coldest month, January, the temperature typically ranges from 12 to 22 °C (54 to 72 °F) during the day to 3 to 18 °C (37 to 64 °F) at night. In the warmest month, June, the typical temperature ranges from 36 to 50 °C (97 to 122 °F) during the day to about 33 °C (91 °F) at night. Generally, the summer / "holiday" season lasts about six months, from May to October. Two months, April and November, are transitional; sometimes the temperature exceeds 48 °C (118 °F), with temperatures ranging from 37–50 °C (99–122 °F) during the day and 24–36 °C (75–97 °F) at night. Large fluctuations in temperature are rare, particularly in the summer months.

### Landmarks

#### King Fahad Causeway

On the southern outskirts of Al-Khobar passes the King Fahad Causeway which links the Kingdom to Bahrain. Inaugurated in 1986 (1407H), the bridge runs for twenty-five kilometers. Equipped with all necessary facilities, the causeway serves to facilitate the flow of traffic between the two countries and to strengthen relations between them.

#### Corniche

The popular recreation place is the Corniche. This street is considered the most beautiful in the city. When walking here, you can see beautiful fountains, decorative pools, and landscape decorations. Near the Corniche Coast,

there are popular restaurants, department stores, and shopping malls. It is just impossible to look over all the local attractions in just one day.

#### Scitech Technology Center

Several years ago, the science museum called the Scitech Technology Center was opened at the resort. It will be interesting to everyone. The museum presents its guests the latest advances in the field of space exploration and incredible discoveries in physics and chemistry. During excursions, the visitors of the museum are offered to carry out interesting experiments. Most of the exhibits are interactive. Also, educational excursions are given here for children.

#### Health Services in Al-Khobar

The city has numerous hospitals, the most prominent being King Fahad University Hospital (500 beds) and the Al-Khobar General Hospital (50 beds). It is also served by private hospitals, government hospitals, and quarantine centers.

#### Religion

Islam is one of the world's great monotheistic religions. The followers of Islam, called Muslims, believe in one God (Allah in Arabic) and that Muhammad is His Prophet. Today, the worldwide community of Muslims, which embraces the people of many races and cultures, numbers nearly one billion. Historically, Saudi Arabia has occupied a special place in the Islamic world as the very heartland of Islam. The Qur'an, the sacred scripture of Islam, was revealed and is universally recited in Arabic.

#### Currency

In Al Khobar, the local currency used is the Saudi Riyal. SAR is the official currency code for the Saudi Riyal.

#### Photography

Shooting public photos and sharing them online is becoming more and more popular in the Middle Eastern kingdom, but many practitioners are unaware that the country's strict cybercrime law could bring down huge fines and even jail time for their snapshots. A photographer should not publish or post a photo online without the permission of the person appearing in the photo. It cites Article 3 of the 2007 cybercrime law, which says that anyone who snaps a cell phone photo that violates someone's privacy rights and then posts the photo to social media should be punished with one year in jail or a fine of up to 500,000 Saudi Riyals (~\$130,000).

## GENERAL INFORMATION



#### Badges:

Name badges must be visible and used at all times, anywhere at the conference venue, and off-site social activities.

#### Badges Color Coding:



#### CME Certification:

This Conference is accredited by The Saudi Commission for Health Specialties (SCFHS) for 11 CMEs. In order to receive the CMEs, it is required to fill in the Evaluation and CME Acquisition Form which will be available at the Registration Desk throughout the conference.

Though Certificate of Attendance hard copies are not accepted by the SCFHS, but if you like to have one, kindly request through our website.

#### Conference Packets:

Conference Packets will be distributed to registered participants at the Registration Desk.

#### Faculty Check in:

There is a dedicated faculty lounge & preview room for faculty's registration and badge collection and is operational at the same time as the registration desks.

#### Food & Beverage:

Coffee breaks and lunch will be open to registered delegates. The hotel also offers a variety of all day dining restaurants to choose from.

#### Automated Teller Machines (ATM):

There is an ATM located in the Hotel Lobby

#### Rules:

Smoking Policy in the Hotel: The entire hotel is non smoking. Mobile Phones- Delegates are kindly requested to keep their mobile phones in the off mode in meeting rooms when scientific sessions are in progress.

#### Parking:

24 hours valet parking is available at the Conference venue.

#### Prayer Room:

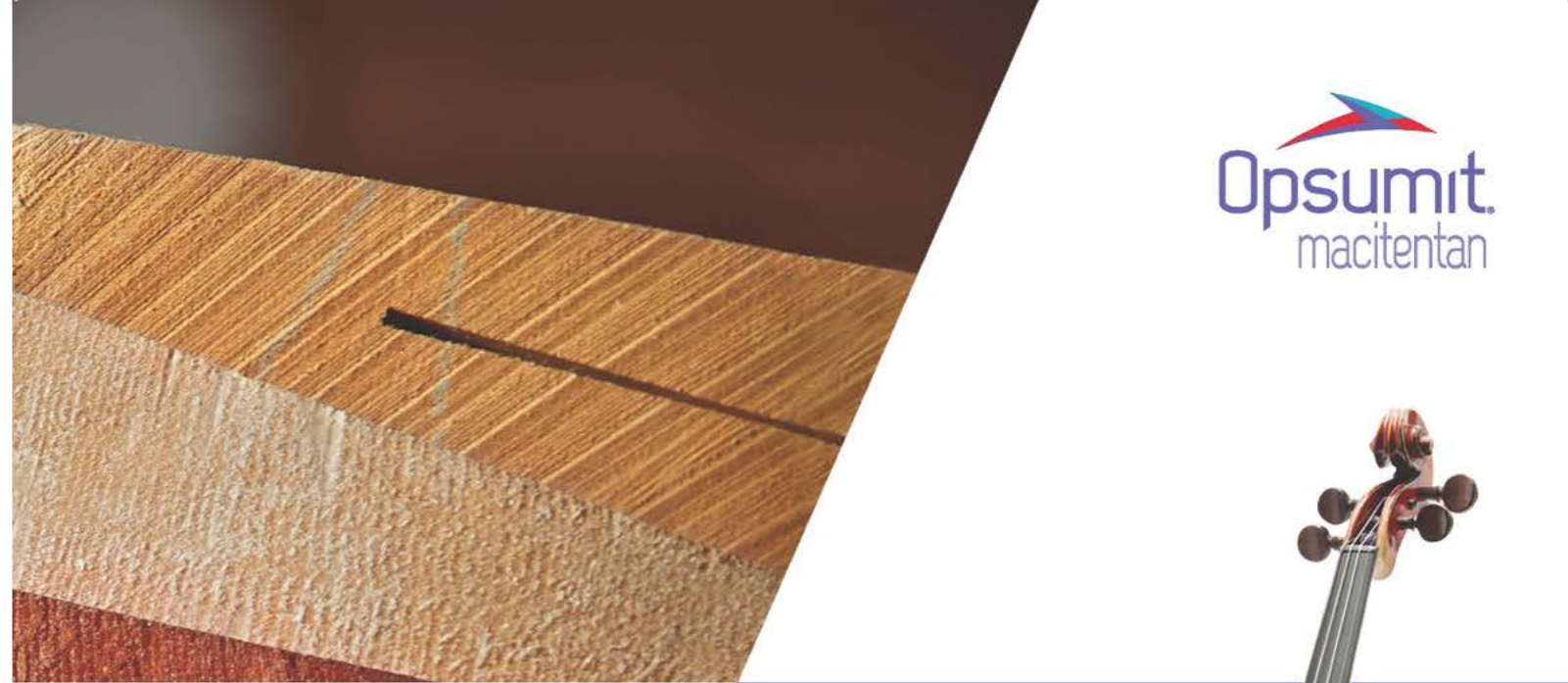
Prayer rooms are available in the Event Centre.

#### Evacuation Assembly Point:

In case of an emergency evacuation procedure please proceed in an orderly fashion to the open area in front of the Events Centre. Please follow the instructions of the Hotel Staff Wardens at all times.



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References:

1. Pulido T et al. *N Engl J Med* 2013; 369(9):809–818.
2. Channick R et al. Poster presented at the 39th International Society for Heart and Lung Transplantation Congress; 3–6 April 2019; Orlando, FL, USA (Poster no. 1235).
3. OPSUMIT SmPCs.



# Saudi Thoracic Society

## الجمعية السعودية لطب وجراحة الصدر

**Saudi Thoracic Society (STS)** is a scientific foundation and a leading resource for improvement of lung health in Saudi Arabia. Its mission is to promote the prevention, diagnosis, and treatment of chest diseases through leadership, education, research, and communication. STS was established in 2002 and it is affiliated with King Saud University in Riyadh.

### The specific aims of the Society are:

Promoting and coordinating activities in the field of respiratory medicine.

Fostering research activities in the field of respiratory medicine.

Organizing and coordinating regular national and regional meetings.

Publishing a newsletter and a journal of international repute.

Publishing and updating clinical practice guidelines in the field of respiratory medicine.

You are invited to become a member of the Joint STS-ERS Membership. You will be a valuable member of our mailing list and it is important to keep you informed on relevant updates, articles, news and announcements.

To Register, kindly visit our website ([www.saudithoracicsociety.org](http://www.saudithoracicsociety.org))

[www.saudithoracicsociety.org](http://www.saudithoracicsociety.org)

### SUBSIDIARIES



## SCIENTIFIC COMMITTEE

**SAPH2023**  
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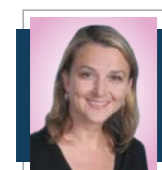
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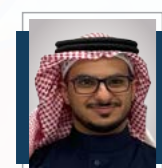
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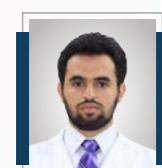
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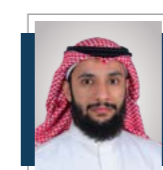
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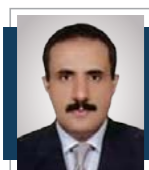
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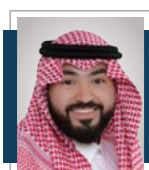
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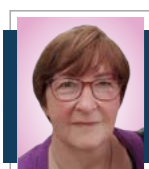
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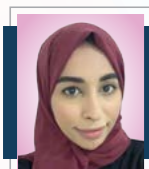
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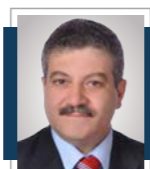
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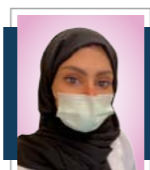
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**BREAKING  
NEWS**

**REPLACE** Study Results



- More patients achieved clinical improvement<sup>1</sup>
- Adempas significantly reduced clinical worsening events and delayed time to clinical worsening<sup>1</sup>
- Adempas helped patients achieve improvements in 6MWD, WHO FC, and NT-proBNP<sup>1</sup>

Adempas® Each tablet contains 0.5 mg, 1 mg, 1.5 mg, 2 mg or 2.5 mg riociguat. Indications: Riociguat is a type of medicine called a guanylate cyclase (sGC)-stimulator. It works by widening the pulmonary arteries (the blood vessels that connect the heart to the lungs), making it easier for the heart to pump blood through the lungs. Adempas® can be used to treat adults with certain forms of pulmonary hypertension, a condition in which these blood vessels become narrowed, making it harder for the heart to pump blood through them and leading to high blood pressure in the vessels. Because the heart must work harder than normal, people with pulmonary hypertension feel tired, dizzy and short of breath. By widening the narrowed arteries, Adempas® leads to an improvement in patients' ability to carry out physical activity. Adempas® is used in either of two types of pulmonary hypertension: chronic thromboembolic pulmonary hypertension (CTEPH). In CTEPH, the blood vessels of the lung are blocked or narrowed with blood clots. Adempas® can be used for patients with CTEPH who cannot be operated on, or after surgery for patients in whom increased blood pressure in the lungs remains or returns. certain types of pulmonary arterial hypertension (PAH). In PAH, the wall of the blood vessels of the lungs are thickened and the vessels become narrowed. Adempas® is only prescribed for certain forms of PAH, i.e. idiopathic PAH (the cause of PAH is unknown), heritable PAH and PAH caused by connective tissue disease. Patients' doctor will check this. Adempas® can be taken alone or together with certain other medicines used to treat PAH. Posology: Treatment should only be started and monitored by a doctor experienced in the treatment of CTEPH or PAH. During the first weeks of treatment patients' doctor will need to measure the blood pressure at regular intervals. Adempas® is available in different strengths and by checking the blood pressure regularly at the beginning of patients' treatment, the doctor will ensure that patients are taking the appropriate dose. Crushed tablets: If patients have difficulty swallowing the whole tablet, patients should talk to their doctor about other ways to take Adempas®. The tablet may be crushed and mixed with water or a soft food such as applesauce immediately before patients take it. Dose: The recommended starting dose is a 1-mg tablet taken 3 times a day for 2 weeks. The tablets should be taken 3 times a day, approximately 8 to 9 hours apart. They can generally be taken with or without food. However, if patients are prone to having low blood pressure (hypotension), patients should not switch from taking Adempas® with food to taking Adempas® without food because it may affect how patients react to this medicine. Patients' doctor will increase the dose every 2 weeks to a maximum of 2.5 mg 3 times a day (maximum daily dose of 7.5 mg) unless patients experience any side effects or very low blood pressure. In this case, Patients' doctor will prescribe Adempas® at the highest dose patients are comfortable on. For some patients lower doses three times a day

might be sufficient, the optimal dose will be selected by the doctor. Special considerations for patients with kidney or liver problems Patients' dose may need to be adjusted. If patients have severe liver problems (Child Pugh C), they should not take Adempas®, 65 years or older If patients are 65 years or older patients' doctor will take extra care in adjusting the dose of Adempas®, because patients may be at greater risk of low blood pressure. Special considerations for patients who smoke patients should tell their doctor if they start or stop smoking during treatment with this medicine. Their dose may be adjusted. Contraindications: If patients are taking certain medicines called PDE-5 inhibitors (e.g. sildenafil, tadalafil, vardenafil). These are medicines used for the treatment of high blood pressure in the arteries of the lungs (PAH) or erectile dysfunction. If patients have severe liver problems (severe hepatic impairment, Child Pugh C), if patients are allergic to riociguat or any of the other ingredients of this medicine, if patients are pregnant, if patients are taking nitrates or nitric oxide donors (such as amyl nitrite) in any form, medicines often used to treat high blood pressure, chest pain or heart disease. This also includes recreational drugs called 'poppers'. If patients have low blood pressure (systolic blood pressure less than 95 mmHg) before starting treatment with this medicine. If patients have increased pressure in your pulmonary circulation associated with scarring of the lungs, of unknown cause (idiopathic pulmonary pneumonia). Warnings and Precautions: patients have recently experienced serious bleeding from the lung, or if patients have undergone treatment to stop coughing up blood (bronchial arterial embolisation), patients take blood-thinning medicines, (anticoagulants) since this may cause bleeding from the lungs. The doctor will regularly monitor patients, patients feel short of breath during treatment with this medicine, this can be caused by a build-up of fluid in the lungs. Patients have problems with their heart or circulation, patients are older than 65 years. Patients' kidneys do not work properly (creatinine clearance < 30 ml/min) or if patients are on dialysis as the use of this medicine is not recommended. patients have moderate liver problems (hepatic impairment, Child Pugh B), patients start or stop smoking during treatment with this medicine, because this may influence the level of riociguat in patients' blood. Patients will receive Adempas® only for special types of pulmonary arterial hypertension (PAH). There is no experience in the use of Adempas® in other types of PAH. Use of Adempas® in other types of PAH is therefore not recommended. Children and adolescents The use of Adempas® in children and adolescents (under 18 years of age) should be avoided. Other medicines and Adempas® Patients should tell their doctor or pharmacist if they are taking, have recently taken or might take any other medicines, in particular, medicines used for: high blood pressure or heart disease (such as nitrates and amyl nitrite) in any form, as patients must not take these medicines together with Adempas®, high blood pressure

in the lung vessels (the pulmonary arteries), as patients must not take certain medicines (sildenafil and tadalafil) together with Adempas®. Other medications for high blood pressure in the lung vessels (PAH), such as bosentan and losartan, can be used with Adempas®, but patients should still tell their doctor. erectile dysfunction (such as sildenafil, tadalafil, vardenafil), as patients must not take these medicines together with Adempas®, fungal infections (such as ketoconazole, itraconazole), HIV infection (such as ritonavir), epilepsy (e.g. phenytoin, carbamazepine, phenobarbital), depression (St. John's Wort), preventing rejection of transplanted organs (cyclosporin), joint and muscular pain (rilmucic acid), cancer (such as erlotinib, gefitinib), stomach disease or heartburn (antacids such as aluminum hydroxide/magnesium hydroxide). These antacid medicines should be taken at least two hours before or one hour after taking Adempas®, nausea, vomiting (feeling or being sick) (such as granisetron). Smoking if patients smoke, it is recommended that they stop, as smoking may reduce the effectiveness of these tablets. Pregnancy and breast-feeding: patients should not take Adempas® during pregnancy. If there is a chance patients could become pregnant, patients should use reliable forms of contraception while they are taking these tablets. patients are also advised to take monthly pregnancy tests. If patients are breast-feeding or planning to breast-feed, patients ask their doctor or pharmacist for advice before taking this medicine because it might harm patients' baby. Driving and using machines Adempas® has moderate influence on the ability to drive and use machines. It may cause side effects (such as dizziness). Side effects: Like all medicines, this medicine can cause side effects although not everybody gets them. The most serious side effects are: coughing up blood (common side effect) acute bleeding from the lungs may result in coughing up blood, cases with fatal outcomes were observed (uncommon side effect). Overall list of possible side effects: Very common: may affect more than 1 in 10 people headache, dizziness, indigestion, swelling of limbs, diarrhea, feeling or being sick. Common: may affect up to 1 in 10 people inflammation in the digestive system, reduction of red blood cells (anaemia) seen as pale skin, weakness or breathlessness, awareness of an irregular, hard, or rapid heartbeat, feeling dizzy or faint when standing up (caused by low blood pressure), coughing up blood, nose bleed, difficulty breathing through patients' nose, pain in the stomach, intestine or abdomen, heartburn, difficulty in swallowing, constipation, bloating. Reporting of side effects: If patients get any side effects, patients should talk to their doctor or pharmacist. This includes any possible side effects not listed in this leaflet. By reporting side effects, patients can help provide more information on the safety of this medicine.

To report any side effect(s):  
The National Pharmacovigilance Centre (NPC): Fax: +966-11-205-7662, SFDA Call Center: 19999 - E-mail: npc.drug@sfd.gov.sa  
Website: <https://ade.sfda.gov.sa>

Please refer to the product package insert leaflet for full prescribing information and data.

Marketing Authorization holder: Bayer AG 51368 Leverkusen, Germany

KSA PIL version: Feb., 2019

References:

1. Hoepfer MM, Al-Hitii H, Benza RL, et al. Switching from phosphodiesterase type 5 inhibitors to riociguat in patients with pulmonary arterial hypertension: The REPLACE study. Poster presented at: ERS 2020

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For Med-Info, Send to: [med-info.me@bayer.com](mailto:med-info.me@bayer.com)

**Adempas**  
riociguat  
Make personal goals possible



# INTERNATIONAL OUTREACH PROGRAM

## PURPOSE:

SAPH International Outreach Program (SIOP) was founded to establish line of communication and collaboration with our colleagues and friends from different international societies, organizations, or institutions who are providing Pulmonary Hypertension Services. International Outreach Program will entail, but not limited to, conducting



Conferences



Symposia



Workshops



Referrals



Masterclasses



Telemedicine



Consultations



Visiting Professor



Onsite  
Demonstrations



Joint Research  
Activities



Expertise  
Exchange Program

*AOP Health is the European pioneer for integrated therapies for rare diseases and in critical care.*

***Needs.  
Science.  
Trust.***

## Comprehensive Multimodality Imaging Findings in PH/ CTEPH

Time: 4:00pm - 5:00pm | Room: AIMawad Ballroom

### Speaker:



**Mnahi Bin Saeedan, MD**  
Cardiothoracic Radiologist,  
King Faisal Specialist Hospital and Research Centre  
*Riyadh, Saudi Arabia*

### Objectives

The goal is to review the imaging findings of pulmonary hypertension with an emphasis on the role of computed tomography (CT) and to recognize the common diseases in each pulmonary hypertension group.

### Structure:

- Presentation listing and showing the lung parenchyma, bronchial arteries, pulmonary arteries, and cardiac findings that can guide radiologists and clinicians to an appropriate diagnosis of different pulmonary hypertension groups.
- Interactive chest CT cases: Participants will access online scrollable CT images of different pulmonary hypertension cases to review them prior to having an open discussion.
- Case-based review: Selected images of different cases will be presented. Each case will have an online multiple choice question to be answered by the participants.
- Participants should bring a laptop, tablet, or smart phone for the interactive activities.

## Right Heart Catheterization; State of the Art Measurements

Time: 5:00pm - 6:00pm | Room: AIMawad Ballroom

### Speaker:



**Abdullah M. Alkhodair, MD, FRCPC**  
Consultant, Interventional Cardiology /  
Pulmonary Hypertension  
Adult Cardiology Program Director, King Fahad Medical City  
*Riyadh, Saudi Arabia*

### Objectives

To familiarize audience with basics of RHC, when to refer your patient, and how to interpret the numbers

### Outline:

In this interactive session, attendees will be updated on:

- Common indications, contraindications, and complications
- The basics of hemodynamics, how it correlates with echocardiogram
- The setup of the correct study
- Some pitfalls that will make results unreliable
- Making sense of the Right Heart Cath numbers
- Interactive Data interpretation



**DAY 1 - THURSDAY, 16 FEBRUARY 2023**

17:00 - 18:45 **Registration**


18:45 - 19:00 **Welcome Notes**

**SESSION 1 : Keynote**

**Objectives:** Highlight the Conference Keynote; as the Prostacyclin is the most Potent and First Targeted Pulmonary Hypertension Therapy. Go Through the PH New Update Over the Last Year 2022.

**Chairs:** Shaya Al Shaya - KSA  Majdy Idrees - KSA 

19:00 - 19:30 Prostacyclins; From First to the Last Therapeutic Option and Backward  
Olivier Sitbon - France 

19:30 - 20:00 PH: Year in Review  
Luke Howard - UK 

20:00 - 20:30 Living with PH  
Interview with Mr. Fahad Al Qahtani (CTEPH Patient) - KSA 

**20:30 DINNER**


END OF 1<sup>st</sup> DAY

**DAY 2 - FRIDAY, 17 FEBRUARY 2023**

07:30 - 08:15 **Registration**


**SESSION 2 : PAH Basic Science**

**Objectives:** Go Through the Depth of PH Basic Science and Studies. Demonstrate Some of the New Developments in the Field.

**Chairs:** Abdullah Aldalaan - KSA  Mai Alzaydi - KSA 

08:20 - 08:40 Organ on Chip; New Developments in Preclinical Studies in PAH  
Beata Wojciak Stothard - UK 

08:40 - 09:00 The PDGF Pathway; A New Target in Pulmonary Arterial Hypertension  
Marc Humbert - France 

09:00 - 09:20 Is it time for Individualizing Treatment Plans?  
Sean Gaine - Ireland 

09:20 - 09:30 Role of KLF6 Signalling in Endothelial Dysfunction in Pulmonary Arterial Hypertension - Rehab Alharbi - KSA 

09:20 - 09:30 Q & A Panel Discussion


**09:30 - 09:45 COFFEE BREAK**


**SESSION 3 : Current PH Guidelines Update**

**Objectives:** Review and Open Discussion of the New Updates in PH Guideline 2022 and its Implications.

**Chairs:** Nasser Al Busaidi - Oman  Hussam Sakijjha - KSA 

09:45 - 10:05 The Bases and Impact of the new PH Hemodynamics Definition and Classification  
Nazzareno Galiè - Italy 

10:05 - 10:25 Risk Stratification; Wisdom Behind the Four Strata!?  
Stephan Rosenkranz - Germany 

10:25 - 10:45 Treatment Algorithm; Changes in New Guidelines  
Marius M. Hoeper - Germany 

10:45 - 11:00 Q & A Panel Discussion

**11:00 - 13:30 LUNCH BREAK**

**DAY 2 - FRIDAY, 17 FEBRUARY 2023**


**SESSION 4 : Clinical PH Current Guidelines**

**Objectives:** Discussing the New Era of Management for PH Groups and Phenotypes.


**Chairs:** Bader J. Alghamdi - *KSA*  Khaldoon Alhumood - *Kuwait* 

13:30 - 13:50 PH-LHD; Update from Current Guidelines  
Jean-Luc Vachiéry - *Belgium* 

13:50 - 14:10 Group III PH; Management Update from Current Guidelines  
Oksana A. Shlobin - *USA* 

14:10 - 14:30 PAH Patients with Comorbidities; The Challenge of Following Treatment Guidelines  
Majdy Idrees - *KSA* 

14:30 - 14:50 Switching or Adding Treatment in the Low Intermediate Risk Patients.  
To Add: 10 Min  
Nazzareno Galiè - *Italy*  

To Switch: 10 min  
Luke Howard - *UK* 

Rebuttal: 5 min Each

14:50 - 15:00 Q & A Panel Discussion

**15:00 - 15:30 COFFEE BREAK**

**6 MINUTES WALKING TEST**

Friday, 17 February 2023 - 13:30pm  
Room: ALDIWAN Meeting Room

**Instructor**



Hessah Alotaibi, BsRC, MPH, RRT, RPFT  
Respiratory Therapist and Senior of  
Pulmonary Function Laboratory  
King Abdulaziz Medical City- Riyadh  
Ministry of National Guard Health Affairs (MNG-HA)  
Riyadh, Saudi Arabia

**Sponsored by:**



**DAY 2 - FRIDAY, 17 FEBRUARY 2023**

**SESSION 5 : PAH Challenging Cases With live sessions**

**Objectives:** Multidisciplinary Approach for Debatable Cases. Review the Challenges in Diagnosis and Interaction between Interested Teams.

**Discussants:**

**Chairs:**

Hani Sabour - *UAE*  Nawal Al Gobaisi - *KSA*  Hatem Qutub - *KSA* 

15:30 - 15:55 Case 1: CHD-PAH Surgical Intervention  
Ahmed Krimly - *Jeddah, KSA*

15:55 - 16:20 Case 2: PVOD- PAH Case, The Whole Treatment Spectrum  
Loui Ezzat - *Riyadh, KSA*

16:20 - 16:45 Case 3: CTD-PAH Challenging Treatment  
Talal Alanazi - *Riyadh, KSA*

16:45 - 17:10 Case 4: Complex Pregnancy Course  
Shaya Al Shaya - *Riyadh, KSA*

17:10 - 17:35 Case 5: Familial PAH with Partial Empty Sella Syndrome  
Nouf Bin Humaid - *Jeddah, KSA*

**20:30 - 22:00 GALA DINNER**

**END OF 2<sup>ND</sup> DAY**





**DAY 3 - SATURDAY, 18 FEBRUARY 2023**


**SESSION 6 : PAH - Miscellaneous**

**Objectives:** Discussing Different angles in PH field; like Screening for High-Risk Groups, ICU Management, Rehabilitation and PH in Pediatrics.

**Chairs:** Ayman Farghaly - *Egypt*  Khalid Al Najashi - *KSA* 

09:00 - 09:20 Timely diagnosis in high risk groups; update on screening for PH  
Ragdah Arif - *KSA* 

09:20 - 09:40 Severe RV Failure; Best ICU Management Protocol for best Outcome  
Hussam Sakijjha - *KSA* 

09:40 - 10:00 Pulmonary Rehabilitation for PH Patients  
Shareefah Basherri - *KSA* 

10:00 - 10:20 Management in Pediatrics PAH; Update from current guidelines  
Damien Bonnet - *France* 

10:20 - 10:30 Q & A Panel Discussion


**10:30 - 10:45 COFFEE BREAK**


**DAY 3 - SATURDAY, 18 FEBRUARY 2023**


**SESSION 7 : CTEPH**

**Objectives:** Dedicated Session for Management Approach in Chronic Thromboembolism with and without Pulmonary Hypertension.

**Chairs:** Badr Alzahrani - *KSA*  Saleh Aldammas - *KSA* 

10:45 - 11:05 CTED Without PH; Treatment Challenge  
Hanan Fan - *KSA* 

11:05 - 11:25 Medical Treatment of CTEPH  
Fayez K. Alahmadi - *KSA* 

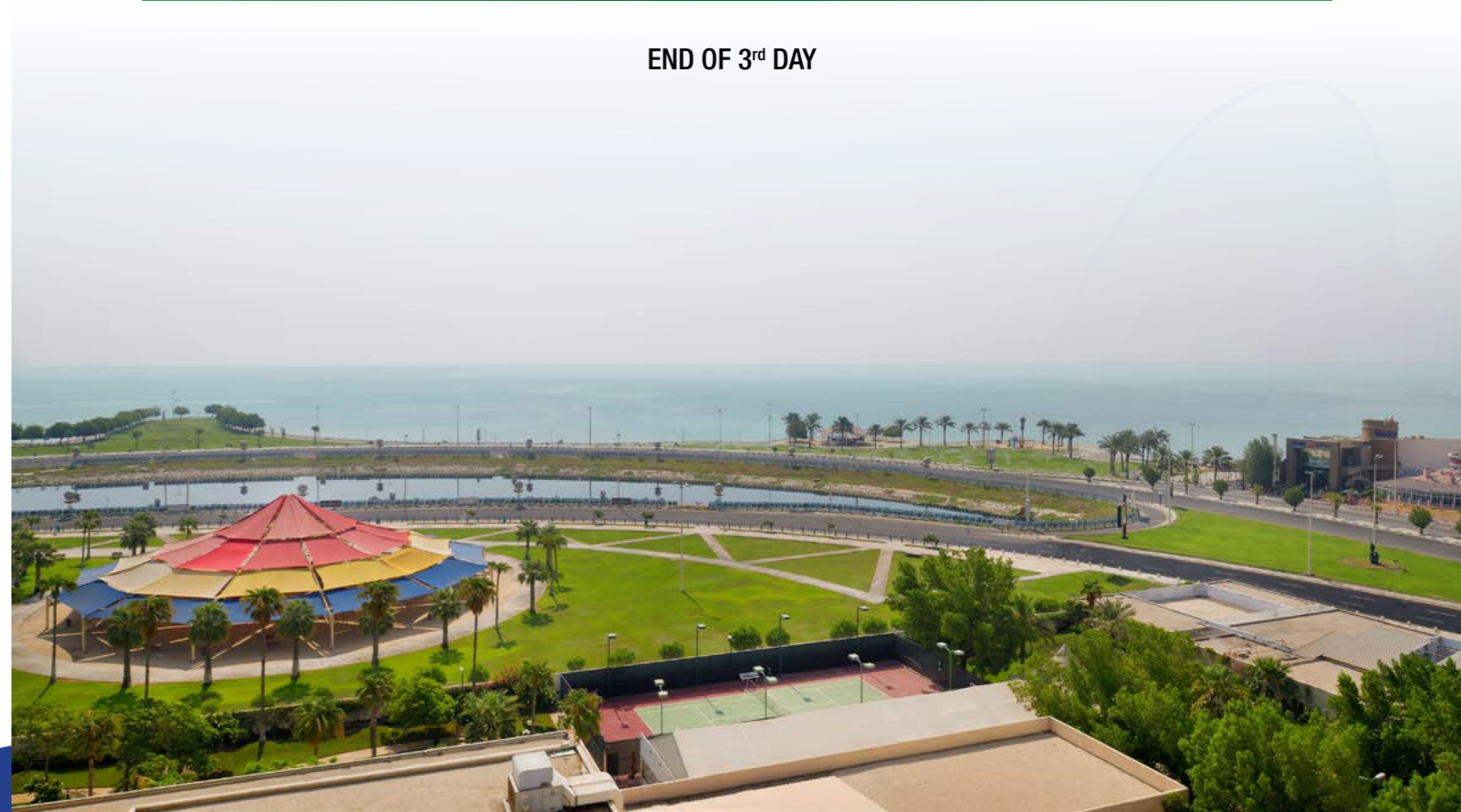
11:25 - 11:45 Complex Approach to CTEPH Management; Medical, BPA, PEA (Sequential vs. Combination, and in What Order) - Irene M. Lang - *Austria* 

11:45 - 11:55 Q & A Panel Discussion

**11:55 CLOSING REMARKS**

**12:00 - LUNCH**

END OF 3<sup>rd</sup> DAY



**6 MINUTES WALKING TEST**

Saturday, 18 February 2023 - 10:45am  
Room: ALDIWAN Meeting Room

**Instructor**



Hessah Alotaibi, BsRC, MPH, RRT, RPFT  
Respiratory Therapist and Senior of  
Pulmonary Function Laboratory  
King Abdulaziz Medical City- Riyadh  
Ministry of National Guard Health Affairs (MNG-HA)  
Riyadh, Saudi Arabia

Sponsored by:



# WORKSHOP

## 6 MINUTES WALKING TEST

Friday, 17 February 2023 (13:30pm) & Saturday, 18 February 2023 (10:45am)

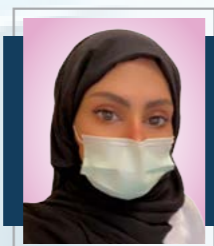
Room: ALDIWAN Meeting Room

The 6MWT is a noninvasive clinical and simple measure of aerobic exercise capacity to reflect and evaluate functional status or fitness and also as a marker for the disease prognosis and severity.

Used commonly for patients with Pulmonary Hypertension.

Also 6MWT used to assess the improvements of the daily activities and interventions adjustments including medications.

### Instructor



**Hessah Alotaibi, BsRC, MPH, RRT, RPFT**  
Respiratory Therapist and Senior of  
Pulmonary Function Laboratory  
King Abdulaziz Medical City- Riyadh  
Ministry of National Guard Health Affairs  
(MNG-HA)  
*Riyadh, Saudi Arabia*

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### TIPS:

- 6MWT test is easy to administered and better tolerated.
- No exercise equipment is needed only simple walk on flat hallway.
- Can be done by all patients but most severely impaired patients.
- Measure the distance patients can quickly walk in period of 6 minutes.
- Evaluate the global and integrated responses of all systems involving during exercise such as pulmonary, cardiovascular, circulation, neuromuscular units and muscle metabolisms.
- Patients can choose their intensity of exercise (rest, stop and slowdown during the test).
- 6MWD is one of the most commonly used parameters in PAH clinical trials as primary endpoint and key secondary endpoint and component of clinical worsening.
- As one of PH assessments, 6MWD influences by factors such as age, sex, height, weight comorbidities, need of oxygen, learning curve and motivations.
- Recent investigation showed that the best absolute- threshold values for 1-year mortality is 165 M and for 1- year, survival is 440M.
- Some studies suggested that SaO<sub>2</sub> and HR measurements by Pulse oximetry might improve prognostic relevance.
- Hypoxemia observed during 6MWT usually associated with worse survival (waiting for confirmation).
- The incremental shuttle-walking test has advantages over the 6MWT in contrast to CPET.

### INDICATIONS OF 6MWT:

- ◆ Measuring the response to medical interventions in patients with moderate to severe lung or heart disease.
- ◆ As one time- measure of functional status of patients with COPD, CF, HF and older patients.
- ◆ Predictor of morbidity and mortality for patients with HF, COPD and primary pulmonary hypertension (PPH).
- ◆ As a pre- post treatment for patients with PH, HF, Lung surgeries or resection and lung transplants.

### 6MWT DOES NOT PROVIDE INFORMATION ABOUT:

- Oxygen peak uptake.
- Diagnosis of the cause of dyspnea.
- Causes of exercise limitations.
- Its only complete information provided by CPET.

**6MWT IS BETTER INDEX OF PATIENTS' ABILITY TO PERFORM DAILY ACTIVITIES.**

### SAFETY ISSUES:

- ◆ The performing location should be a rapid response to emergency and crash cart.
- ◆ Availability of supply such as oxygen, sublingual nitroglycerine, aspirin and albuterol also a phone to call for help.
- ◆ Certified personnel: physicians and trained therapists or pulmonary function technicians should be available during the test.
- ◆ If the patient is on a chronic oxygen therapy it should be given as directed by physician or protocol.

### WHEN TO STOP 6MWT:

- Immediately stop the test if the patient has:
  - » Chest pain
  - » Intolerable dyspnea
  - » Leg cramps
  - » Staggering and diaphoresis
  - » Pale or ashen appearance
- Put the patient on the recovery position sitting or lie in supine position and monitor BP, Pulse rate and O<sub>2</sub> sat.
- Mental confusion or lack of coordination.
- Excessive sweating.
- Oxygen saturation SPO<sub>2</sub> <85% if it's not usual for the patient.
- Oxygen therapy should be given.

### REQUIRED EQUIPMENT FOR 6MWT:

- ◆ Count down timer (stop watch).
- ◆ Laps counter.
- ◆ Pulse oximeter.
- ◆ Sphygmomanometer.
- ◆ Borg scale.
- ◆ Work sheets on a clipboard.
- ◆ 100 ft Flat, hard surface hallway or 30m at least marked every 3 meter and at the beginning point.
- ◆ Two cones to mark the turnaround and the end of the lap.
- ◆ Movable chair, oxygen source and easy access to a phone.

### 6MWT MEASUREMENTS AND TECHNIQUES:

- ◆ Repeated test should be at the same time of the day to minimize intraday variability.
- ◆ No warm up period should perform.
- ◆ Resting time of 10 minutes before the test for patients' base line measurements (oxygen saturation, HR, base Line dyspnea and fatigue, BP) also the first part of the worksheet.
- ◆ Place pulse oximeter to record HR and SPO<sub>2</sub>.
- ◆ The test should start in a location that has unobstructed corridors with distance of at least 30 meters of length that allowed laps to count freely.
- ◆ Patients medications should be noted and the use of bronchodilators before the test that may cause any improvement of dyspnea scale and walked distance specially for COPD patients should be Considered.
- ◆ Direct the patient clearly to the start point and explain the tests by instruct them to walk as far as possible for 6 minutes back and forth.
- ◆ Set the laps counter at zero and the stop watch to six minutes.
- ◆ Allow the patients of stop slow down and sit if needed.
- ◆ During the test patient oxygen therapy should be continued and document any change required during the walking.
- ◆ Recording of HR and SPO<sub>2</sub> during the test every 30 second and pre -post RR can be useful.

### CONTRAINDICATIONS OF 6MWT:

#### Absolute:

- » Unstable angina (last one month).
- » Myocardial infarction (last one month).

#### Relative:

- » Resting HR >120
- » Systolic BP >180 mmHg.
- » Diastolic BP >100 mmHg.

### PATIENT PREPARATION FOR 6MWT:

- Patients clothes should be comfortable.
- Shoes should be appropriate for walking.
- Patient should use his usual walking aid such as can, walker...etc.
- Patients medical regimen should be continued.
- Light food or meals can be accepted before morning or afternoon test.
- No vigorous exercise is allowed within two hours period before the test.

- ◆ Document and monitor the patient for any sign of distress.
- ◆ Ask the patient to not be distracted by anyone or anything and do not talk if it's not need during the test.
- ◆ Use the following standard encouragements during the test using an even tone of voice:
  - » At minute one: 'You are doing well. You have five minutes to go'.
  - » At minute two: 'Keep up the good work. You have four minutes to go'.
  - » At minute three: 'You are doing well. You are halfway done'.
  - » At minute four: 'Keep up the good work. You have only two minutes left'.
  - » At minute Five: 'You are doing well. You have only one minute to go'.
- ◆ Congratulate the patient on a good effort and offer a drink of water and keep him at rest for at least 15 min.

### IF THE SUBJECT STOPS DURING THE SIX MINUTES:

- ◆ Do NOT stop the timer.
- ◆ Allow the subject to sit in a chair if they wish.
- ◆ Measure and record the oxygen saturations and heart rate.
- ◆ Ask patient why they stopped, and record the reason.
- ◆ Record the time the subject stopped (but keep the stop watch running).
- ◆ If the patient stops, give the following instruction "You can lean against the wall if you would like, then continue walking whenever you feel able".
- ◆ If the patient refuses to continue (or you decide that they should not continue), discontinue the walk, and note on the worksheet the distance, the time stopped and the reason for stopping prematurely.

### THE BORG SCALE:

0	None
0,5	Very, very light
1	Very light
2	Light
3	Moderate
4	A little intense
5	Intense
6	
7	Very intense
8	
9	Very, very intense
10	Maximum

### QUALITY ASSURANCE:

- » Technician training and experience are very important to perform a good 6MWT. They should train using the standard protocol and cardiopulmonary resuscitation training.
- » Encouragement should be only the standardized phrases to increase the walked distance.
- » Oxygen therapy should be noted and documented, and the type of oxygen delivery device also should be noted. It's good to be slightly behind the patients not behind them exactly.
- » The type of medication, dose, and timing should be noted.

### REFERENCE:

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4. Savarese G, Paolillo S, Costanzo P, D'Amore C, Cecere M, Losco T, et al. Do changes of 6-minute walk distance predict clinical events in patients with pulmonary arterial hypertension? A meta-analysis of 22 randomized trials. J Am Coll Cardiol 2012;60:1192–1201.
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6. Khirfan G, Naal T, Abuhalmeh B, Newman J, Heresi GA, Dweik RA, et al. Hypoxemia in patients with idiopathic or heritable pulmonary arterial hypertension. PLoS One 2018;13:e0191869.
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**CHD-PAH Surgical Intervention**



**Ahmed Krimly, MD**  
Consultant, Adult Congenital  
Heart Disease and Interventional Cardiology,  
King Faisal Cardiac Center,  
King Abdul Aziz Medical City  
Jeddah, Saudi Arabia

**Introduction:**

58 year old gentleman presented ER with shortness of breath and generalized body swelling. He was just discharged on day ago from another hospital where he was admitted for more than one month because of similar issue.

**PMH:**

Rheumatic mitral stenosis.  
Dilated right heart side with the presence of PFO (TEE 2014)  
LVEF 50%

He was discharged from the other hospital on the following medications: Isosorbide dinitrate 20 mg po bid, Furosemide 40 mg po bid, Spironolactone 50 mg po qd, Metolazone 2.5 mg po every other day and Bisoprolol 10 mg po qd.

**On ER presentation:**

BP 90/44, HR 159 (AF) in respiratory distress.

Raised JVP. Bilateral crackles. Significant lower limb edema. Abdominal exam showed ascites and tender pulsating liver.

Lab work on presentation BNP 2572, Cret 185, normal WBC, HS trop 50, Hb 15.2.

ABG: PH 7.44, PCO 36, Po2 75, HCO3 24.5.

The chest Xray showed cardiomegaly with associated pulmonary congestion and enlargement of bilateral hila. There is mild-to-moderate left pleural effusion.

The patient was managed with epinephrine infusion, IV diuresis and was put on BiPAP.

The echocardiogram showed small LV cavity with LVEF around 45-50%. D shaped septum suggestive of pressure and volume overload. Severely dilated RV with moderate to severe RV systolic dysfunction. Moderate mitral stenosis (MG 7.4 mmHg). Severe TR. Severe pulmonary HTN, RVSP 70 mmHg. Small pericardial effusion.

Within 10 days, he lost 12 L.

Despite his multiple comorbidities, coronary angiography and right heart catheterization were done.

Mean RA 26 mmHg, RV 103/6 mmHg, PA 97/44/64, PCWP 36mmHg, LVEDP 33 mmHg. Aorta 118/71/81.

The O2 saturation showed a significant step up: SVC 59%, RA 82%, PA 78% and aorta 99%. PVR was calculated at 4 WU.

The QP was calculated at 7.8 L/min and the Qs was calculated at 3.7 L/min with QP:QS of 2.1. The coronary angiography was unremarkable.

The angiography showed an anomalous pulmonary venous connection.

This was confirmed by the cardiac CT that showed two right superior pulmonary veins join and drain into the SVC just superior to the cavoatrial junction. Large sinus venosus atrial septal defect.

Because of the high filling pressure and the moderate MS, pulmonary vasodilator was not used in this patient. He is being considered for corrective surgery, tricuspid valve repair and mitral valve replacement.

**Conclusion:** The patient was not accurately diagnosed or managed despite long time of suffering since his case was assumed to be pulmonary hypertension secondary to left heart disease. At the moment, the risk of corrective surgery is high and could be avoided if he was diagnosed earlier. It is important to have a low threshold for right heart catheterization especially if the RV is affected.

**PVOD- PAH Case, The Whole Treatment Spectrum**



**Loui A. Ezzat, MBBS**  
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King Faisal Specialist Hospital and Research  
Centre  
Riyadh, Saudi Arabia

**Introduction:**

Pulmonary veno-occlusive disease (PVOD) is a rare and devastating disease. It is currently considered a subclass of pulmonary arterial hypertension (PAH). Although PVOD and PAH share a common clinical presentation, the natural history and prognosis are more severe in PVOD. Several features including: resting hypoxemia, very low DLCO and pulmonary edema after starting vasodilator therapy should raise the index of suspicion for PVOD. PVOD and PAH also share a similar approach in the initial management, however, due to the frequently reported pulmonary edema with vasodilator therapy early referral for lung transplantation is necessary.

**Case:**

A 30-year male was referred to our hospital with shortness of breath on exertion for the past 2 years. His symptoms were progressive and were associated with epistaxis, hemoptysis and occasional chest pain. His family history is positive for pulmonary hypertension. He is an ex-smoker. His physical examination was significant for an oxygen saturation of 94% on room air, a loud P2, hepatomegaly and mild ascites. He had been diagnosed with pulmonary arterial hypertension based on echocardiographic findings and right heart catheterization prior to referral to our hospital and was already on Sildenafil 20mg TID. His past medical and surgical history were otherwise non-contributory.

Workup in our hospital was consistent with PAH, his echocardiography revealed a normal left ventricular ejection fraction, severely dilated right ventricle, moderate-severe reduced right ventricular function and a right ventricular systolic pressure greater than 60mmHg, a normal left atrium and a severely dilated right atrium. His right heart catheterization confirmed the diagnosis of PAH; his mean pulmonary artery pressure (mPAP): 52mmHg, Pulmonary capillary wedge pressure (PCWP) of 13 and pulmonary vascular resistance (PVR) of 12 WU. CT scan of the chest ruled out pulmonary emboli and revealed dilated pulmonary artery with diffuse bilateral ground glass opacities suggestive of PVOD.

Due to the severity of his illness he was started on Macitentan 10mg daily in addition to Sildenafil 20mg TID. Moreover, given the possibility of PVOD, he was referred to the lung transplant service. Genetic testing later on confirmed the diagnosis of PVOD. His condition had progressed over time and third line therapy was indicated, but soon after starting he had developed shortness of breath. His condition had worsened significantly with time with severe right sided heart failure, he eventually underwent successful bilateral lung transplantation.

**CTD-PAH Challenging Treatment**



**Talal Alanazi, MD**  
Fellow, Pulmonary Medicine Department,  
King Faisal Specialist Hospital and Research Centre  
California, USA

**Introduction:**

Pulmonary arterial hypertension (PAH) is a serious complication of connective tissue disorders (CTD), most commonly in those with systemic sclerosis (SSc) followed by mixed connective tissue disease (MCTD). It shares similar characteristics with other types of PAH and carries higher mortality rate despite the progress achieved with pulmonary hypertension targeted therapies.

**Case:**

A 67 year-old female has been seen in our clinic on February 2021, complaining of progressive exertional dyspnea that started one year prior to presentation, it was defined according to NYHA as class IV. Her exertional dyspnea was associated with orthopnea, chest pain and palpitation, however, no syncope. She also described a history of skin rash and Raynaud's phenomenon. On examination, the patient was on wheelchair, requiring oxygen supplement at rest and there was 2mm discrete red popular telangiectasias on the face.

Her blood test showed Pro-BNP of 780 pg/ ml, she walked 133 meters on 6 minutes walking test. We did investigations for possible pulmonary hypertension, the initial Echo showed normal left ventricular wall thickness and systolic function, the right ventricle showed moderate dilatation with moderate systolic dysfunction and estimated RVSP was more than 60 mmhg. She underwent right heart catheterization which showed



mean pulmonary arterial pressure (mPAP) 43mmgh, pulmonary capillary wedge pressure (PCWP) 10mmgh and pulmonary vascular resistance (PVR) 9.4 Wu and cardiac index of 2.08 L/min/m. There was no evidence of acute or chronic pulmonary embolism neither by VQ scan nor CT pulmonary angiography. Her autoimmune profile was significant only for elevated ANA (1:2560).

Our impression was pulmonary hypertension secondary to undifferentiated connective tissue disease, given the elevated ANA, Raynaud's and telangiectasia. We started her on dual pulmonary hypertension targeted therapy, including Riociguat & Macitentan. Later on, Selexipag was added since she refused the parenteral therapy.

In a follow-up visit in December 2021, She reported worsening of symptoms in terms of shortness of breaths, orthopnea and frequent syncopal attacks. Repeated Echo was suggestive of disease progression, worsening right ventricle dilatation and systolic function with RVSP 85 -90 mmgh. We elected to stop Selexipag and asked for Rheumatology assessment as we believed that immunosuppression therapy may play a role in her management.

The Rheumatologist didn't believe that there is sufficient evidence to initiate immunosuppression therapy, but he prescribed 5 days course of steroid for presumed Knee pseudogout. The patient report marked improvement in her respiratory symptoms and less oxygen requirement after steroid. Based on that, we elected to start a trial of tapering steroid.

On follow-up visit in September 2022, the patient presented to clinic walking without assistance and saturating well on room air at rest. She reported remarkable improvement in her functional capacity (NYHA class II from IV) and requiring oxygen supplement only with exertion. Her 6 minutes walk test improved to 291 meters from 133 meters & Pro-BNP of 145 pg/ ml. Repeat Echo showed overall improvement on right ventricle size and function, with estimated systolic pulmonary pressure of 50 mmgh.

### Complex Pregnancy Course



#### Shaya Ahmed Alshaya, MD

Chairman, Scientific Committee  
Consultant, Pulmonary, Pulmonary Hypertension  
Program Director of C2 Adult Pulmonary Fellowship Program  
Program Director of C2 Internal Medicine Residency Program  
King Fahad Medical City  
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#### A 33 years old lady, married, Not known to have medical issue of follow up

Patient mentioned that she has been having exertional SOB while using stairs since she was a teenager but not investigated. (Not on home oxygen). Currently Pregnant and was involved in a car accident at 17 gestational age. She presented in other hospital-ED to check her pregnancy after minor RTA, During the hospitalization, she was hypoxic with peripheral cyanosis. An extensive workup was done there and reveals severe pulmonary hypertension, MDD round (Pulmonary, Oby, Cardiology, and anesthesia) at that hospital conducted and the final impression for pregnancy termination.

The patient asked for a second opinion, for that she was referred to our institute. Echo revealed Large secundum type atrial septal defect. Diameter measures more than 30mm. Doppler suggests bidirectional interatrial shunt. The right ventricle is severely dilated. The right ventricular systolic function is mild to moderately reduced. The left ventricle is normal in size. The left ventricular ejection fraction is normal. Left ventricular ejection fraction =60% There is moderate to severe tricuspid regurgitation, functional in etiology (secondary to annular dilatation). Mild to moderate pulmonic valvular regurgitation (secondary to pulmonary artery dilation). There is severe pulmonary hypertension. Right ventricular systolic pressure = 100 mmHg. Severe pulmonary artery dilation.

- First RHC: mRA: 1, RV: 118/-7, RVEDP 7, PAWP: 8, PA: 122/40, mPAP:74. Fick CO 4.1, Fick Cardiac Index 2.2, PVR 15.47 WU (1237 DSC).
- Congenital Heart Disease-Pulmonary Artery Hypertension, WHO group 1.
- Sildenafil and Iloprost inhaler added at this stage due to worsening of SOB and O2 requirement
- We decided to deliver her at 32 weeks. Mode of delivery and team involvement has set Pulmonary, Cardiology, ICU, Obs/Gy, Cardiac Anesthesia, Congenital heart disease, NICU and Second RHC showed almost same results.

The MDD reached to: Determine the risk Pt status, Cardiac status and Stand by ECMO, CS planed, go through GA and intubation, agreed for Tubal ligation, Switch to Eop IV, Anesthesia risk and plan. The surgery went well as plan, Shifted to ICU, Wean down Eop therapy, switched to ilioprost, Kept for two weeks in ICU. The Child was fine. She gradually Improved but did not get back to her base line. Discharged back home with Macitentan, Sildenafil, Ilioprost. Overall looks good and still kept on follow up in PH clinic.



#### Summary:

This is to review a young lady with newly Pulmonary hypertension diagnosis during her first pregnancy. It is to demonstrate the antenatal challenges and how to interduce the active PH targeted therapy in a timeline approach by the primary management team. Also, to show how the other interested group like obstetrician and their important actions in follow up and management plan. Then to discuss the active in labor approach of surgical options, anesthesia management and ICU teams approach. Finally, to go through the post-natal period and PH progression.

### Familial Pulmonary Artery Hypertension and Empty Sella syndrome



#### Nouf M. BinHumaid, MBBS

Adult Pulmonary Fellow  
Saudi Board of Internal Medicine  
King Faisal Specialist Hospital and Research Centre  
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#### Introduction:

Empty Sella is a radiological diagnosis referring to the absence or relative absence of the pituitary gland on radiological images which is usually an incidental finding. Less than 10% of patients with empty sella will present with pan-Hypopituitarism. We are presenting a case of familial pulmonary artery hypertension (FPAH), diagnosed as empty sella syndrome with hypopituitarism highlighting the effect of hormonal replacement therapy on the patient hemodynamics.

#### Case Study:

A 25 years old female has been diagnosed at a younger age with Familial Pulmonary artery hypertension with 2 sisters affected who presented with hx of chronic exertional dyspnea (WHO-FC II).

Been recently received the diagnosis of Empty sella syndrome with pan-hypopituitarism (Adrenal insufficiency, Central hypothyroidism, Central hypogonadism, and previous history of growth hormone deficiency).

Genetic test for BMPR2 (Sequencing) showed no pathogenic variant and Molecular genetic analysis of whole exome sequencing showed no clinically relevant variant with significant phenotypic overlap detected.

Other than hormonal panels her initial investigations were unremarkable.

Transthoracic ECHO on (August 2016) showed normal left ventricle morphology and function with LVEF 55%. Right Ventricle showed borderline enlargement with RvD/LVd ratio of 0.84, TAPSE 19 mm. Right ventricular systolic pressure was 47 mmHg (Was 38 mmHg in a previous exam one year back).

The patient received dual-targeted therapy Sildenafil 20 mg .TID and Bosentan 125 mg, BID.

The patient received hormonal replacement therapy with clinical and biochemical improvement after which her right heart catheterization was repeated and showed mPAP : 39mmHg, PCWP : 8mmHg, COP (FICK) 3.23 and COP (Thermodilution: 4.2 L/Min, PVE: 7.4 WU.

A follow-up ECHO showed normal Left ventricular size and function. Normal Right ventricle size and function with a RVSP of 36.4 mmHg. Currently, the patient is maintained on sildenafil 20 mg, TID and Ambrisentan 10 mg, daily in addition to hormonal replacement therapy.

#### Discussion:

Gender-Association differences and the role of sex hormones in the cardiovascular system including pulmonary circulation attracted attention in a different clinical setup. Up to our knowledge, there were no previous case studies reporting familial pulmonary artery hypertriton associated with empty sella syndrome and pan-hypopituitarism where despite proper hormonal replacement therapy and clinical improvement the hemodynamics showed little to no difference.

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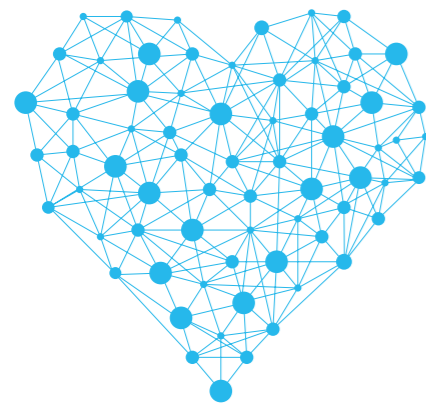
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## FACULTY PROFILE



**Prof. Abdullah M. Aldalaan, MD**  
President, Saudi Association for Pulmonary Hypertension (SAPH)  
Consultant, Pulmonary Medicine  
Director, Pulmonary Hypertension Program,  
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Dr. Abdullah M. Aldalaan graduated from King Saud University in Riyadh. He received his residency training at Duke University Medical Center in North Carolina, USA; and completed his fellowship training in Pulmonary and Critical Care at University of Virginia, USA. He obtained American Board of Internal Medicine, Pulmonary Medicine and Critical Care Medicine. Since then he has been practicing as a Pulmonologist and Intensivists at King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia. He established the Lung Transplant Program in 2003 and the Pulmonary Hypertension Program at King Faisal Specialist Hospital & Research Centre. The Pulmonary Hypertension Program is the main program in the area which provides comprehensive diagnostic and therapeutic protocols for patients with pulmonary hypertension, which includes all available internationally recognized medical interventions in this field.

In addition to his clinical responsibilities, he held administrative positions such as Section Head of Pulmonary Medicine, Department of Medicine; Director Pulmonary Fellowship program, Director of Ambulatory Care Services. His main area of interest is Pulmonary Hypertension. He established and runs the Saudi Pulmonary Hypertension Registry from which the analysis of the clinical characteristics and outcome of PH patients among Saudi Citizens was published; also the first incidence of genetic mutations in Saudi patients with pulmonary hypotension has also been published. Within the Pulmonary Hypertension Program, he also runs a comprehensive CTEPH management program including medical as well as pulmonary endarterectomy treatments. His research interest is focused on Pulmonary Hypertension where he published several papers. He was awarded recognition awards at KFSH&RC for his work and research on Pulmonary Hypertension.



**Prof. Luke Howard, MA, MB, BChir, DPhil, FRCP**  
Consultant Pulmonologist, Hammersmith Hospital,  
Imperial College Healthcare NHS Trust, London  
Honorary Senior Lecturer,  
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Dr. Luke Howard is a consultant respiratory physician who specializes in cardiopulmonary medicine and exercises physiology. He specializes in diseases of the pulmonary circulation, in particular, Pulmonary Hypertension and pulmonary embolism, and through his interest in exercise physiology has specific expertise in unexplained breathlessness. He works in close collaboration with his colleagues in cardiology, rheumatology, and hematology to provide a comprehensive assessment of conditions leading to exercise limitation. He consults for patients and athletes alike and has close links with the GB Rowing Team. He undertook his undergraduate training at the University of Oxford where he also completed his doctorate in altitude physiology and then his clinical training at the University of Cambridge, qualifying in 1996. He trained in London and Cambridge, being appointed to the National Pulmonary Hypertension Service at Hammersmith Hospital in 2006 as a consultant with an honorary senior lecturer position at the National Heart and Lung Institute, Imperial College London. His research interests include iron physiology, cardiopulmonary hemodynamics, exercise physiology, Pulmonary embolism, and remote patient monitoring.



**Nasser Al Busaidi, MBBS, FRCP (UK), FRCPI**  
Senior Consultant Pulmonologist  
Department of Medicine, Royal Hospital  
Sultanate of Oman  
President, Oman Respiratory Society  
*Muscat, Oman*

Dr. Nasser Al Busaidi is a senior consultant in pulmonology at Royal Hospital, Oman, former head of the Department of Respiratory Medicine, chairman of Internal Medicine program; Oman Medical Specifically Board (OMSB), local Advisor for Royal College of Edinburgh in Oman and President of Oman Respiratory Society; Received his MBBS in King Faisal University, KSA, and earned his Master's degree in Pulmonary Hypertension from University of Bologna, Italy. Fellow of Chest College of Physicians of America, and Fellow of Royal College of Physicians of Ireland. He has been very active in international conferences and has a number of published articles to his name, the latest of which was published; titled "Burden of Asthma in Oman".



**Shareefah Basher, MD**  
Pulmonologist Consultant,  
Pulmonary Rehabilitation and Chronic Ventilation  
Prince Sultan Military Medical City  
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Dr. Shareefah Mohammed Basher is a Residency Training Program Director of Medicine at PSMCC and also the Head of Pulmonary Rehabilitation and Chronic Ventilation program at PSMCC, Riyadh, Saudi Arabia. She also worked as an Adjunct Assistant Professor in Alfaisal University, Riyadh. She is an active Member in Saudi thoracic society, quality committee in PSMCC since 2017 and also a Member in American Thoracic Society 2018. She participated as a teacher and examiner in Residency Training Program of Medicine since 2017.

Dr. Shareefah completed her Saudi Fellowship of Adult Pulmonary Medicine (SF-AP) in the time period of January 2013-December 2014 and was awarded by Saudi Commission for Health Specialties (SCFHS), Prince Sultan Military Medical City (PSMCC), Riyadh, Saudi Arabia. She also received Canadian Clinical Fellowship in Adult Pulmonary Rehabilitation and Chronic Ventilation and was awarded by College of Physicians and Surgeons of Ontario (CPSO), University of Toronto, Toronto, Canada.



**Professeur Damien Bonnet**  
Cardiologie Congénitale et Pédiatrique  
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Centre de Référence Maladies Cardiaques Hérititaires  
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Damien Bonnet is Professor of Pediatrics and Cardiology. He is currently the head of the Pediatric and Congenital Cardiology department at University of Paris Cité. He is the director of three National reference center for Rare Diseases: the M3C for complex congenital heart diseases, the Pediatric Pulmotension center for pediatric pulmonary hypertensions, and the Pediatric Cardiogen center for inherited cardiomyopathies and arrhythmias.

His main research topics are pediatric pulmonary hypertensions, therapy of heart failure in children, development and genetics of congenital heart diseases, perinatal management of CHDs and predictors of outcomes. Teaching, performing interventional cath and having clinics in emerging countries is also one of his main involvements. His group has established many collaborations in a large variety of domains including epidemiology, neurodevelopment, therapeutic trials for rare diseases, nomenclature of congenital heart diseases among others.



**Prof. Olivier Sitbon, MD, PhD**  
Professor of Respiratory Medicine,  
Pulmonary Hypertension Reference Center (PulmoTension)  
Department of Respiratory and Intensive Care Medicine  
Bicêtre Hospital, Paris-Saclay University  
Le Kremlin-Bicêtre, France

Olivier Sitbon, MD, PhD, is Professor of Respiratory Medicine at Université Paris-Saclay and a consultant at the French Referral Center for Pulmonary Hypertension (PH), Department of Respiratory and Intensive Care Medicine, Hôpital Bicêtre in Le Kremlin-Bicêtre, France. He also led until this year the team "Medical and surgical therapeutic innovations in pulmonary arterial hypertension (PAH)" of the INSERM Research Unit "Pulmonary Hypertension: Pathophysiology and Innovative Therapies". Professor Sitbon has conducted extensive research in PAH and he is the scientific leader of the French PH Registry. His investigational activities include clinical studies on factors associated with PAH, identification of prognostic factors, studies on risk stratification and treatment goals in PAH, and the development of new strategies for the treatment of PAH.

He co-chaired the working group on "Trials Design & New Therapies for PAH" at the 6th World PH Symposium in 2018. He is a task force member of the next ESC-ERS Guidelines for the diagnosis and treatment of pulmonary hypertension. He has authored more than 370 peer-reviewed articles on PH and related topics in New England Journal of Medicine, Circulation, Journal of the American College of Cardiology, American Journal of Respiratory and Critical Care Medicine, European Respiratory Journal and Chest, amongst other scientific journals.



**Oksana A. Shlobin, MD, FCCP**  
Medical Director, Pulmonary Hypertension Program  
Director of Education, Advanced Lung Disease  
and Transplant Program, Inova Fairfax Hospital  
Associate Professor of Clinical Education  
University of Virginia School of Medicine  
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Dr. Oksana Shlobin is a pulmonologist in Falls Church, Virginia and is affiliated with multiple hospitals in the area, including Inova Loudoun Hospital and Inova Fairfax Hospital. She received her medical degree from Georgetown University School of Medicine and has been in practice for more than 20 years. She was the Medical Director, Pulmonary Hypertension Program at Inova Fairfax Hospital from July 2017 - Present. She served as the Co-Director, Pulmonary Hypertension Program at Inova Health System, Falls Church, VA. She completed her Fellowship in Pulmonary & Critical Care at The Johns Hopkins University School of Medicine. Also, her Residency in internal Medicine was completed from the Harvard Medical School (1999-2002). Her Publications include Management of right heart failure in the critically ill, 2014 and Treatment of sarcoidosis-associated pulmonary hypertension, A two-center experience, 2009.



**Prof. Jean-Luc Vachiéry, MD**  
Clinical Professor of Cardiology,  
Director, Pulmonary Vascular Diseases and  
Heart Failure Clinic,  
Hôpital Erasme – Cliniques  
Universitaires de Bruxelles  
Brussels, Belgium

Jean-Luc Vachiéry is a Clinical Professor of Cardiology and a Director of the Pulmonary Vascular Diseases and Heart Failure Clinic at the Hôpital Erasme - Cliniques Universitaires de Bruxelles, Belgium. He received his board certification in Internal Medicine in 1992 and in Cardiology in 1995. He has authored several articles, book chapter and participated in many collaborative research projects. This led to the creation of a clinical unit dedicated to Patient Management and clinical research in Pulmonary Hypertension and heart failure in 2008. He has co-chaired the Pulmonary Hypertension Council at the International Heart and Lung Society (2002 - 2005), the Working Group on Pulmonary Circulation and Right Ventricular Function at the European Society of Cardiology (2006 - 2008) and the Working Group on Heart Failure at the Belgian Society of Cardiology (2008 - 2008).

He was a Task Force member and section editor of the European Guidelines on Pulmonary Hypertension (2009 and 2015). He is the current chair of the PH Council at the ISHLT (2018 - 2020). He has also been involved in the World Symposium on Pulmonary Hypertension as task force member in 2003, (co-chair of the PH due to heart and lung diseases task force) 2013 and was the co-chair of the Task Force on Pulmonary Hypertension due to left heart diseases for the upcoming World Symposium on Pulmonary Hypertension in 2018. He acts as an expert for several regulatory agencies and Scientific Organizations for matters related to medicines for Pulmonary Hypertension physiology, cardiopulmonary hemodynamics, exercise physiology, Pulmonary embolism, and remote patient monitoring.



**Talal Alanazi, MD**  
Fellow, Pulmonary Medicine Department,  
King Faisal Specialist Hospital and Research Centre  
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Dr. Talal Alanazi is currently the Fellow of Pulmonary Medicine Department King Faisal Specialist Hospital and Research Center, Riyadh, KSA

**WORK EXPERIENCE**

- Pulmonary Rotation MAR 2021 at KFSH&RC Riyadh.
- Chief Resident SEP 2020 - Present
- Deputy Chief Resident SEP 2019 - AUG 2020
- Medical Resident 2017-Present at Internal Medicine Department, North West Armed Forces Hospital, Tabuk, Saudi Arabia

Dr. Talal Alanazi have attended several conferences and symposiums including 2nd National Internal Medicine Conference North West Armed Forces Hospital, Tabuk, Saudi Arabia, FEB 2020 and Annual Updates In Medicine Symposium North West Armed Forces Hospital, Tabuk, Saudi Arabia, FEB 2019. His publications include "Overlapping of organic disorders with irritable bowel syndrome among teachers in Tabuk, Saudi Arabia using Rome III criteria." which was published in American Journal of Clinical and Experimental Medicine on JAN 2017 and also the "Secondary antiphospholipid syndrome on oral anticoagulation presented with subdural hematoma: A case report." Which was published in Australasian Medical Journal on July 2021.



**Prof. Ayman A. H. Farghaly, MD**  
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Dr. Ayman Abdel Hamid Farghaly is currently Professor of Pulmonology at the Military Medical Academy in Cairo, Egypt. He is also the director of PH programme at the Air Forces Specialized Hospital and the International Medical Center in Cairo, Egypt. He has attended several conferences including SAPH past Conferences.



**Abdullah M. Alkhodair, MD, FRCPC**  
Consultant, Interventional Cardiology / Pulmonary Hypertension  
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Dr. Abdullah Alkhodair is a consultant in interventional cardiology, Structural heart diseases and Pulmonary Hypertension and the adult Cardiology program director at King Fahad Medical City, Riyadh, Saudi Arabia. He graduated with honors from King Saud University, Riyadh. He completed his Internal medicine and cardiology training in Canada and holds the American Board of Internal Medicine, and Cardiovascular diseases, and is certified by the Royal College of Physicians and Surgeons of Canada Certificate in internal medicine and Cardiology. He did a fellowship in pulmonary hypertension followed by interventional and structural heart disease fellowship at the University of British Columbia. He has over 15 publications in high impact journals.



**Ragdah Hussain Arif, MD, FRCPC, ABIM**  
Consultant Pulmonologist and  
Pulmonary HTN Consultant  
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Dr. Ragdah Arif is an Internal Medicine and Pulmonary Medicine Consultant, she is also currently the Pulmonary Hypertension Consultant and Assistant Professor at King Abdulaziz University, Jeddah, Saudi Arabia. She is a certified American board of internal medicine (ABIM), fellow of the Royal College of the Physicians of Canada (FRCPC) in Internal Medicine and Pulmonary Medicine. Her recent publication in European Respiratory Journal open access 2021 (The treatment of Pulmonary Hypertension associated with Chronic Obstruction Airway Disease). Dr. Ragdah has presented herself as speaker and chair at several local and International Conferences including Saudi Thoracic Society in Riyadh 2021 And Pulmonary Hypertension Master Class 2021.



**Hanan Fan, MD**  
Consultant Pulmonologist  
Head of Pulmonary Division  
King Fahd Armed Forces Hospital  
*Jeddah, Saudi Arabia*

Dr. Hanan Aladdin Fan is a Consultant Pulmonologist and the Head of Pulmonary division in King Fahd Armed Forces Hospital in Jeddah. She did her postgraduate training both in Internal Medicine program and Pulmonary Medicine program from Saudi Board. She has special interests in Pulmonary Hypertension and has attended Pulmonary Hypertension Master class in Bologna and several conferences. She is a member in Saudi thoracic society.

Dr. Hanan Fan is the founder of the Annual Pulmonary Board Review Course. She was the former director of:

- Regional committee of Pulmonary Saudi Board fellowship program in the Western region.
- Pulmonary fellowship program in KFAFH, Jeddah.
- Medicine residency program in KFAFH, Jeddah.



**Mnahi Bin Saeedan, MD**  
Cardiothoracic Radiologist,  
King Faisal Specialist Hospital and Research Centre  
*Riyadh, Saudi Arabia*

Dr. Mnahi Bin Saeedan is currently a Cardiothoracic radiologist at the King Faisal Specialist Hospital and Research Center (KFSH&RC), Riyadh, Saudi Arabia ( 01/2021-present ). He completed his graduation of Bachelor of Medicine and Bachelor of Surgery (MBBS) from the King Saud University College of Medicine, Riyadh, Saudi Arabia in the period of 09/2004-06/2010.

**Postgraduate Education and Training:**

- Cardiovascular imaging fellow, Cleveland Clinic, Cleveland, Ohio, USA, 12/2019-12/2020
- Thoracic imaging fellow, Cleveland Clinic, Cleveland, Ohio, USA, 12/2018-12/2019
- Cardiothoracic radiology fellow, King Faisal Specialist Hospital and Research Center (KFSH&RC), Riyadh, Saudi Arabia, 10/2017-12/2018.
- Radiology resident at KFSH&RC, Riyadh, Saudi Arabia, 10/2013-09/2017. Saudi Board of Diagnostic Radiology granted by
- Saudi Commission for Health Specialties, 11/2017
- Master of Public Health (MPH) - University of Miami, USA, 08/2012-08/2013
- One year internship with excellent performance in King Saud University hospitals and the affiliated hospitals, Riyadh, 07/2010- 06/2011

**Awards:**

- Resident of the Year, Radiology Residency Program, King Faisal Specialist Hospital and Research Centre, Riyadh, 2015-2016
- Dean's Award for academic performance on medical school (average 4.42/5), 2010



**Prof. Sean Gaine, MB, PhD, FRCPI**  
Consultant, Respiratory Physician  
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Director, National Pulmonary Hypertension Unit  
*Dublin, Ireland*

Prof. Sean Gaine, is Consultant Respiratory Physician at Mater Misericordiae University Hospital in Dublin. He graduated from Trinity College Dublin and completed his residency and fellowship training at the Johns Hopkins Hospital, Baltimore, USA. He subsequently held faculty positions at the Johns Hopkins Hospital, and at the University of Maryland School of Medicine. He established the Pulmonary Hypertension Center at the Johns Hopkins Hospital and subsequently the National Pulmonary Hypertension Unit in Dublin. Professor Gaine was awarded the Samuel P. Asper Award for Achievement in Advancing International Medical Education from the Johns Hopkins Medical and Surgical Association. He previously served on the ERS/ESC Pulmonary Hypertension Guideline Committee. Prof. Gaine served as Chief Medical Officer of the Olympic Council of Ireland and led the medical team at the Olympic Games in Athens, Beijing, London and Rio.



**Prof. Nazzareno Galiè, MD**  
Full Professor of Cardiology Chief of Cardiology,  
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Prof. Nazzareno Galiè heads the Pulmonary Hypertension Centre at the Institute of Cardiology and is Associate Professor of Cardiology at the Medical Faculty of the University of Bologna, Italy. He also teaches at the Postgraduate Medical Schools of Cardiology, Pulmonary Diseases, and Rheumatology at the University of Bologna. He is Director of the International Master Degree in Pulmonary Vascular Diseases of the University of Bologna.

He has authored 107 scientific publications indexed in Pub - Med on heart failure, heart transplantation, and Pulmonary Hypertension. Professor Galiè is a Scholar of the Italian Society of Cardiology, Fellow of the European Society of Cardiology (FESC), and Honorary Fellow of the Royal College of Physicians (FRCP), UK. He is a Past-Chairman of the working group on Pulmonary Circulation of the European Society of Cardiology and of the joint task force of the European Society of Cardiology and the European Respiratory Society for the guidelines on Pulmonary Hypertension.



**Bader J. Alghamdi, MD**

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Section Head of Respiriology and Director of Respiriology Fellowship Training Program Ministry of National Guard  
*Jeddah, Saudi Arabia*

Dr. Alghamdi attended medical school at King Abdulaziz University in Jeddah. Following this, he completed his residency training in Internal Medicine at King Abdulaziz Medical City (KAMC)-Jeddah. Then, he completed his fellowship in pulmonary medicine, pulmonary hypertension and advanced clinical cardiopulmonary exercise testing at Queen's University Kingston-Ontario-Canada. Currently, Dr Alghamdi is a consultant in pulmonary medicine and pulmonary hypertension at KAMC. He is the section Head of respirology and Chairman of joint training program of respirology fellowship in Western Region. He is an Assistant Professor in Internal medicine and pulmonary in King Saud bin Abdulaziz for Health Science (KSAU-HS) Jeddah. He has many publications in a well-respected journals with special interest in pulmonary hypertension and airway diseases.



**Nawal Al Gubaisi, MD, SSC-Med, SF-PD**

Consultant Pulmonologist  
Pulmonary Hypertension Specialist  
The Head of Pulmonary Medicine Unit  
King Fahad Medical Military Complex  
*Dhahran, Saudi Arabia*

Dr. Nawal Al Gubaisi received her Medical Degree from King Faisal University. Following this, she did her postgraduate training both in Internal Medicine Program and Pulmonary Medicine from Saudi Board. Also, she got a HERMES European Diploma in Respiratory Medicine. She did her fellowship from UBC Canada along with training in Right Heart Catheterization. Currently, Dr. Nawal al Gubaisi is the Head of Pulmonary Medicine Unit at King Fahd Medical Military Complex, Dhahran, Saudi Arabia. She is working as a Consultant Pulmonologist and is specialized in Pulmonary Hypertension.



**Prof. Marius M. Hoepfer, MD**

Physician, Intensive Care Unit  
Department of Respiratory Medicine,  
Hannover Medical School  
*Hannover, Germany*

Marius M. Hoepfer, MD, was educated at Hannover Medical School, where he specialised in respiratory medicine and intensive care medicine. In 1992, he received a two-year grant from Germany's National Research Foundation for a post-doc training at the University of Colorado, Denver, USA. After that training had been completed, Professor Hoepfer moved back to Hannover Medical School, where he now holds the position of Senior Physician in the Department of Respiratory Medicine.

He is in charge of the pulmonary hypertension programme and attending physician of the medical intensive care unit. His main scientific interest lies in the field of pulmonary hypertension, where he has published more than 250 papers. In addition, Professor Hoepfer is a member of the editorial board of the American Journal of Respiratory and Critical Care Medicine, as well as an associate editor with Circulation and the European Respiratory Journal, senior editor with the Journal of Heart and Lung Transplantation, pulmonary hypertension section editor for The Journal of the American College of Cardiology (JACC) and Advisory Board member of Lancet Respiratory Medicine.

Prof. Hoepfer has been a task force member at the 3rd World Symposium on Pulmonary Hypertension in Venice (2003), a task force chair at the 4th World Symposium on Pulmonary Hypertension in Dana Point (2008) and at the 5th and 6th World Symposium on Pulmonary Hypertension in Nice (2013 and 2018). He has been an author and section editor of the 2009 European Guidelines for Pulmonary Hypertension. In addition, he is the senior author of the 2015 European Pulmonary Hypertension Guidelines. In 2014, Prof. Hoepfer received the distinguished Lifetime Achievement in Pulmonary Arterial Hypertension Award from the European Respiratory Society.



**Khaldoon A. Alhumood, MD**

Cardiology Consultant  
Ministry of Health  
Director, Advanced Heart Failure and Transplantation Unit, Chest Disease Hospital  
*Kuwait*

Over 20 years acumen of experience, Dr. Khaldoon Alhumood is a specialized heart failure consultant in Kuwait and one of the few in the region. He provides service to the whole country for advanced heart failure medical therapy, Left Ventricular Assist Devices (LVAD) & heart transplantation. Currently he serves as the director of the advanced heart failure program at Chest hospital in Kuwait, MOH. Internal Medicine, General Cardiology, Heart failure, Critical cardiac care, Left ventricular assist devices, and Total Artificial Heart are few amongst his clinical skills. He completed his Bachelor of basic medical science, Bachelor of Medicine and Bachelor of Surgery from Faculty of Medicine, Kuwait University (1990-2000). There are several publications of him including "Optimal use and interpretation of the aldosterone renin ratio to detect aldosterone excess in hypertension" was published in the Journal of human hypertension in 2006.



**Prof. Marc Humbert, MD, PhD**

Université Paris-Saclay  
Director of the Department of Respiratory and Intensive Care Medicine  
French Pulmonary Hypertension Reference Center  
Hôpital Bicêtre, Assistance Publique Hôpitaux de Paris  
Past President, European Respiratory Society  
*Paris, France*

Past President, of the European Respiratory Society, Marc Humbert, MD, PhD, is Professor of Respiratory Medicine, Vice Dean for Research and Director of the Inserm Unit 999 at the Université Paris-Saclay Faculty of Medicine in Le Kremlin-Bicêtre, France. He is the Director of the Department of Respiratory and Intensive Care Medicine, French Pulmonary Hypertension Reference Centre and Severe Asthma Clinic, Hôpital Bicêtre, Assistance Publique Hôpitaux de Paris, France. Marc Humbert was the Chief Editor of the European Respiratory Journal from 2013 to 2017 and he is currently Section Editor in charge of Pulmonary Vascular Medicine. He is a Fellow of the European Respiratory Society (ERS Foundation Fellow) and has received several distinctions including the Cournand Lecture Award, the Rare Disease Award of the Fondation de France, and the ERS Award for Lifetime Achievement in Pulmonary Arterial Hypertension. Since 2017, Marc Humbert is the vice-coordinator of the European Reference Network for rare and low prevalence respiratory diseases (ERN-LUNG). Clarivate Analytics listed Marc Humbert as one of the world's highly cited researchers in the field of Clinical Medicine.



**Prof. Majdy Idrees, MD, FRCPC, FVPRI**

Head, Pulmonary Vascular Unit  
Prince Sultan Military Medical City  
*Riyadh, Saudi Arabia*

Majdy Idrees is an Adjunct Professor of Pulmonary Medicine at the University of British Columbia, Vancouver, Canada and the Former Head of Pulmonary Division and the Director of the Pulmonary Vascular Disease Unit at Prince Sultan Military Medical City (Armed Forces Hospital), Riyadh, Saudi Arabia. He was the first to establish the nucleus of pulmonary vascular diseases/pulmonary hypertension medicine in the Arab Gulf countries and is the founder, and the former head, of the Saudi Association for Pulmonary Hypertension. He received his MBBS degree from King Saud University in Riyadh, Saudi Arabia, and did his postgraduate training in both Internal Medicine and Pulmonary Medicine at the University of British Columbia, Canada from 1992 – 1997. He had his American Board degree in Pulmonary Medicine in 1996, and the Canadian Board in Pulmonary Medicine in 1997.

His major area of research is related to pulmonary hypertension and pulmonary vascular diseases, and also to airways diseases. He has more than 50 publications in peer reviewed journals that include book chapters, original papers, and review articles. He is the primary author of the Saudi Guidelines for the management of Pulmonary Hypertension and a coauthor of the Saudi Guidelines in both Asthma and COPD. He is a manuscript reviewer and co-editor of many medical journals. He was awarded and recognized for his achievements in the field of pulmonary vascular diseases by the Pulmonary Vascular Research Institute, and his name was added to the "Pulmonary Hypertension Committee of Honor" chosen by the Spanish Ministry of Health. He has been invited as a guest speaker in many national and International meetings and gave more than 450 lectures in different fields of pulmonary medicine.

## FACULTY PROFILE



**Prof. Irene M. Lang, MD**  
Clinical Cardiologist  
Professor of Vascular Biology  
Department of Cardiology  
AKH-Vienna, Medical University of Vienna  
Wien, Austria

Irene Marthe Lang is a senior staff member at the Department of Cardiology, and Deputy Chair of the Department, at the Medical University of Vienna, Vienna, Austria. She carried out her medical education and residency at the University of Vienna, before taking on a 5-year postdoctoral research fellowship at the University of California, CA, USA, which included a joint appointment with the Scripps Research Institute, La Jolla, CA. She has been a Professor of Vascular Biology at the Medical University of Vienna since 2004, where she leads a clinical and experimental group in vascular medicine focussing on pulmonary vascular biology and right ventricular function.

She directs an outpatient unit for pulmonary vascular disease at the Medical University of Vienna. She is an active interventional and structural cardiologist, recently very active as balloon pulmonary angioplasty interventionist, and an active researcher. She was nominated by the World Medical Association as a 'Caring Physician of the World' in 2006, 'Teacher of the Year' at MUV in 2013, and is past president of the Austrian Society of Cardiology. In April 2016, she was awarded the Großes Ehrenzeichen der Republik Österreich and an honorary doctorate from the University of Cyril and Methodius in Skopje, Macedonia.

She is part of the International CTEPH Association (ICA) whose objectives are to increase awareness for CTEPH, foster worldwide collaboration between CTEPH centers, serve as platform for surgical centers and facilitate training of emerging CTEPH centers, as well as to advance research and education in CTEPH.



**Ahmed Krimly, MD**  
Consultant, Adult Congenital  
Heart Disease and Interventional Cardiology,  
King Faisal Cardiac Center,  
King Abdul Aziz Medical City  
Jeddah, Saudi Arabia

Dr. Ahmed Krimly is a Consultant Interventional Cardiologist at King Faisal Cardiac Centre at the King Saud Bin Abdulaziz Medical City, Jeddah, Saudi Arabia. He is specialized in Adult, Adult congenital heart disease, Interventional and Obstetric cardiologist. Dr. Krimly was a consultant of Adult, Congenital Heart Disease and Interventional Cardiology in Jeddah, Saudi Arabia since 2013. He is also the Adjunct Assistant Professor of Internal Medicine and Cardiology King Saud bin Abdul Aziz University for Health Sciences in Jeddah, KSA.



**Fayez K. Alahmadi, MD**  
Consultant, Pulmonary Medicine,  
Pulmonary Hypertension and Balloon  
Pulmonary Angioplasty, University of British Columbia, Vancouver, Canada  
National Hospital Organization, Okayama Medical Center, Okayama, Japan  
King Faisal Specialist Hospital and Research Centre  
Riyadh, Saudi Arabia

Dr. Fayez Alahmadi is a consultant, adult pulmonary medicine section at King Faisal Specialist Hospital and Research Centre. He has completed his clinical fellowship training in balloon pulmonary angioplasty at National Hospital Organization Okayama Medical Center in Okayama, Japan and clinical fellowship in pulmonary hypertension at Vancouver General Hospital at the University of British Columbia in Vancouver, Canada. He had received certificates on clinical fellowship in balloon pulmonary angioplasty, Japan 2021, clinical fellowship in pulmonary hypertension, Canada 2020 and Saudi board of respiratory Medicine, 2019.

Dr. Fayez Alahmadi have attended several conferences including SAPH 2021 virtual and presented a presentation about "Idiopathic Pulmonary Arterial Hypertension in Pregnancy" in the 12th annual conference of the Saudi Association for Pulmonary Hypertension (SAPH 2019), Bahrain 2019. He presented a poster "King Faisal Specialist Hospital & Research Centre CTEPH experience" in the European pulmonary hypertension conference, Vienna 2018.

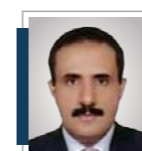
He has completed four research works including "Does community size or commute time affect severity of illness at diagnosis or quality of care in a centralized care model of pulmonary hypertension" which was published at International Journal of Cardiology, March 2021.

## FACULTY PROFILE



**Khalid Al Najashi, MD, MBBS**  
Consultant, Interventional ACHD and  
Pediatric Cardiology  
Prince Sultan Cardiac Center  
Prince Sultan Military Medical City  
Riyadh, Saudi Arabia

Dr. Khaled Al Najashi is a consultant, Interventional ACHD and Pediatric Cardiology at Prince Sultan Cardiac Center in Prince Sultan Military Medical City, Riyadh, Saudi Arabia. He is specialized in Pediatric Cardiology, being the Director of Pediatric Cardiology, he has already attended several complex cases that are referred to PSCC from a hospital in Riyadh area as the PSCC is considered to be a highly specialized cardiac center. He is also an active member of Saudi Association of Pulmonary Hypertension and have attended all Past Conferences.



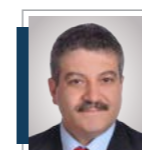
**Saleh Al Dammas, MD**  
Consultant, Pulmonary and Sleep Medicine  
Prince Sultan Military Medical City  
Riyadh, Saudi Arabia

Dr. Saleh Aldammas is currently a Senior Consultant of Internal Medicine at Prince Sultan Military Medical City, Riyadh, Saudi Arabia. He is specialized in Pulmonary, Sleep Medicine, and Lung Transplantation Medicine. Also, he is working as an Associate Professor at Alfaisal Medical School. Dr. Aldammas is an active member of the Saudi Association of Pulmonary Hypertension and has attended all Past Conferences.



**Prof. Hatem O. Qutub, MD, FCCP, FCCM**  
Professor of Pulmonary & Critical Care Medicine  
Al Imam Abdulrahman Bin Faisal University  
Senior Consultant Intensivist, Pulmonologist  
Division Head Pulmonary Medicine,  
Department of Medicine- KFHU  
Al Khobar, Saudi Arabia

Prof. Hatem Qutub is currently the Professor of Pulmonary & Critical Care Medicine at Al Imam Abdulrahman Bin Faisal University, Alkhobar, Saudi Arabia. He is also the Senior Consultant Intensivist, Pulmonologist in the Division Head Pulmonary Medicine at the Department of Medicine- KFHU. He completed his academic degree Fellowship in adult critical care and pulmonary medicine from University of Alberta Admenton, Canada in 1996. He served as the Dean of College of Applied Medical Sciences at King Faisal University, KSA. There are several scientific achievements under Prof. Hatem Qutub including Detection of Legionella from Teaching Hospital Cooling Tower Water of Air Conditioning Systems in Eastern Province of Saudi Arabia which was published in Asian Journal of Medical Sciences 2012. He also completed his research project on Effects of Different Tidal Volumes on Extravascular Lung Water Content during One-Lung Ventilation for Video-Assisted Thoracoscopic Surgery: A Randomized Trial in July 2013. He also contributed as speaker and moderator in several conferences including Past SAPH Conferences.



**Hussam Sakkijha, MD**  
Consultant, Pulmonary,  
Critical Care and Sleep Medicine  
King Fahad Medical City,  
Riyadh, Saudi Arabia

Dr. Sakkijha is a consultant pulmonologist, intensivist and a sleep physician at King Fahad Medical City in Riyadh, Saudi Arabia. He is the Chairman of the Institutional Review Board at King Fahad Medical City. He is the co-chair of CTEPH taskforce in the SAPH and contributed extensively to the PH services in the region. He has many publications in the field and a Co-author of the Saudi Guidelines of the management of PH. He is an active member of Saudi Association of Pulmonary Hypertension and have been attending all the past conferences.



**Prof. Stephan Rosenkranz, MD**  
Interventional Cardiologist,  
Head, Pulmonary Hypertension (PH) Center, University of Cologne  
Head, Cologne Cardiovascular Research Center (CCRC)  
Cologne, Germany

Stephan Rosenkranz, MD, is an interventional cardiologist, and serves as the Head of the Pulmonary Hypertension (PH) Center at the University of Cologne, Germany, and also leads the Cologne Cardiovascular Research Center (CCRC). Professor Rosenkranz graduated from the Justus Liebig University in Giessen, Germany, before becoming a resident physician and research fellow at the University of Cologne. Following his PhD, he undertook a post-doctoral fellowship at Harvard Medical School, USA, before returning to Cologne.

He is currently the Chair of the Working Group "Pulmonary Circulation and Right Ventricular Function" of the European Society of Cardiology. His research interests include

- cardiopulmonary interaction and right ventricular function in left heart disease
- signal transduction and the biological importance of receptor tyrosine kinases and stress signalling in cardiovascular disease.

He has been involved in numerous clinical trials in the fields of atherosclerosis, heart failure and PH, and received numerous scientific awards.



**Hani Sabbour, MD, FACC, FHRS, FASE**  
Consultant Cardiologist  
Cleveland Clinic Abu Dhabi  
Abu Dhabi, UAE

Dr. Hani Sabbour graduated with a Bachelor's Degree in Basic Medical Sciences and Bachelor's Degree in Medicine and Surgery from Kuwait University Faculty of Medicine in 1994 with first class honors and was twice awarded His Highness the Emirs Gold Medal for academic excellence in both degrees. He subsequently went on to train in Internal Medicine and Cardiovascular Disease at SUNY Stony Brook in New York and was elected resident and fellow of the year several times. He then completed his training in Clinical Cardiac Electrophysiology at Massachusetts General Hospital and was appointed Clinical Instructor in Cardiology at Harvard Medical School in 2001 as well as SUNY Stony Brook. He is currently American Board of Internal Medicine Certified in Internal Medicine, Cardiology, Electrophysiology, and Board Certified in Echocardiography and Nuclear Cardiology. He has always been heavily involved in teaching and been on the teaching faculty at Brown University since 2006.

He was recently promoted to Clinical Assistant Professor of Medicine and Cardiology at Brown University Warren Alpert School of Medicine. Dr. Sabbour has been active in research and is currently an active PI in two International multicenter trials in the field of pacing and ICDs and has had several publications in the field. He was also appointed the Internal medicine residency program director at Al Ain Hospital as well as Arab Board Cardiology fellowship site director. He has been in practice in Rhode Island for 11 years and recently moved to the UAE to be on staff as Consultant Cardiologist at SKMC, Al Ain Hospital, and Tawam Hospitals. His main clinical interests are the management of Arrhythmias and Advanced CHF and Pulmonary HTN as well as cardiac imaging.



**Shaya Ahmed Alshaya, MD**  
Chairman, Scientific Committee  
Consultant, Pulmonary, Pulmonary Hypertension  
Program Director of C2 Adult Pulmonary fellowship program  
Program Director of C2 Internal medicine residency program  
King Fahad Medical City  
Riyadh, Saudi Arabia

Dr. Shaya Ahmed Alshaya is currently a consultant pulmonologist and pulmonary hypertension specialist at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. He is the chairperson of the pulmonary hypertension clinical program at the same institute. He is the program director of Riyadh second health cluster, the internal Medicine residency program. He is the program director of Riyadh second health cluster Adult Pulmonary Fellowship program as well, both following Saudi counsel for health Specialists (SCFHS), Riyadh, Saudi Arabia. He received his MBBS from King Saud University, Riyadh, Saudi Arabia. He completed his training in the Internal medicine residency program and Adult Pulmonary Fellowship at KFMC, Riyadh, Saudi Arabia. He completed the clinical fellowship in Pulmonary Hypertension at the University of British Columbia, Vancouver, Canada.



**Loui A. Ezzat, MBBS**  
Fellow, Pulmonary Medicine  
King Faisal Specialist Hospital and Research Centre  
Riyadh, Saudi Arabia

Dr. Loui Ezzat is currently a fellow of pulmonary medicine at King Faisal Specialist Hospital & Research Center, Riyadh, Saudi Arabia. He had completed his residency in internal medicine in King Faisal Specialist Hospital as well. Dr. Ezzat is now appointed as chief fellow of the department of medicine. During residency he was appointed as deputy chief resident and chief intern. He was awarded as best senior resident in the department of medicine in the year 2020-2021. Dr. Ezzat is involved in multiple research projects. He had presented a poster presentation in European Respiratory Society, September 2021. He was also awarded with a research grant in 2019 "AlRajhi Laureate Grant 2019".



**Beata Wojciak-Stothard, PhD**  
Associate Professor, Vascular Biology PVRI Fellow  
Deputy Head of Vascular Sciences  
National Heart and Lung Institute (NHLI)  
Imperial College London  
London, UK

Dr. Beata Wojciak-Stothard is an Associate Professor in Vascular Biology. Following completion of her PhD in 1992 at the Jagiellonian University, Cracow, Poland, Dr. Wojciak-Stothard held post-doctoral positions at both Glasgow University and University College London. Between 2000 and 2009, she carried out independent research at University College London funded by the British Heart Foundation, holding the positions of British Heart Foundation Intermediate Research Fellow, Senior Research Fellow, and Honorary Lecturer.

In September 2009, Dr. Wojciak-Stothard joined the Department of Experimental Medicine and Toxicology, Imperial College London and is now based in the state-of-the-art laboratories of the ICTEM Building on Imperial College's Hammersmith Hospital Campus. Her scientific contributions include characterization of the role of Rho GTPases in endothelial responses to hypoxia, inflammatory mediators and shear stress.

She was first to identify RhoB as a regulator of hypoxia-induced vasoconstriction in PH and show that farnesyltransferase inhibitors can target RhoB and are effective in treatment of PH. Dr. Wojciak-Stothard is an author of 68 publications including 5 book chapters and 7 review articles. Her work has been highly influential in the field: for example, the mean number of citations for her top ten papers is nearly 400.

She is a Fellow of the Pulmonary Vascular Research Institute, a member of European Vascular Biology Organization (EVBO) and of the London Vascular Biology Forum Committee. Her current studies are funded by the British Heart Foundation and Organ-On-a-Chip UK Network.



**Hessah Alotaibi, BsRC, MPH, RRT, RPFT**  
Respiratory Therapist and Senior of  
Pulmonary Function Laboratory  
King Abdulaziz Medical City- Riyadh  
Ministry of National Guard Health Affairs (MNG-HA)  
Riyadh, Saudi Arabia

Dr. Hessah Alotaibi is currently a Respiratory Therapist and Senior of Pulmonary Function Laboratory at King Abdulaziz Medical City- Riyadh and Ministry of National Guard Health Affairs (MNG-HA), Riyadh, Saudi Arabia. She completed her education at the Kansas City Medical Center; USA. She is also a Registered Respiratory Therapist and Registered Pulmonary Function technologist by NBRC.

She have received several certificates including Certificate of Attending course of Clinical Pulmonary Physiology 101 PGC conducted by American collage of Chest Physicians in Dubai at Gulf Thoracic Congress 16- 19 of March 2011 and Certificates of Attending and participating in Bronchial Asthma Awareness Day in NGCSC 2009 until 2018.

Dr. Hessah was awarded second for (The Prevalence of Uncontrolled Asthma among Saudi Children of National Guard Hospital in Riyadh and their Parents' Preference for seeking asthma management Strategies) study in Dubai Gulf Thoracic Congress in 2014. She is active in Teaching and Participating in Respiratory Therapy Program of College of applied medical Sciences, King Saud University every semester for 6 years. She have also participated in two international studies by Dr. Mohammed AIGHbain, Dr. Hajar AlHayyan in respiratory medications trials 2021.



**Badr Alzahrani, MD, FACC**

Consultant Interventional Cardiology  
American Board of Internal medicine,  
Cardiology and Interventional Cardiology,  
Prince Sultan Cardiac Center  
Riyadh, Saudi Arabia

Dr. Badr Alzahrani is a Consultant Interventional Cardiology at the Prince Sultan Cardiac Center, Riyadh, Saudi Arabia. He is certified for American Board of Internal medicine and specialized in both Cardiology and Interventional Cardiology. He has attended several conferences.



**Mai Alzaydi, PhD**

Researcher in Mitochondrial and Vascular Biology  
General Manager, Bioengineering Institute  
King Abdulaziz City for Science and Technology (KACST)  
Riyadh, Saudi Arabia

Dr. Mai Alzaydi is an Assistant Research Professor in the National Centre for Biotechnology at KACST. Her research interests focus on identifying signaling mediators linked to pathophysiology of cardiovascular and mitochondrial diseases using data from proteomic, genomic and metabolomics screening of patient samples across Saudi population. In addition, carrying out deep investigations upon utilizing nano-scale materials to develop novel therapeutic strategies and personalized medicines for cardiovascular and mitochondrial diseases. She graduated with a master's degree (MSc) in Bionanotechnology from the University of Sheffield, UK. During her master's, she worked on three-dimensional (3D) cell growth on cell-instructive materials, a completely novel 3D system was synthesised in the lab of Prof Battaglia by applying different nano-scaled block-co-polymer surfactants to polystyrene foams. Following completion of her MSc, she joined KACST and was selected to be part of the Nanotechnology research group. She was invited by Prof. Adah Almutairi to visit her laboratory at the University of California San Diego (UCSD) (June-July, 2013) for intensive individual hands-on training in nanoparticle formulation methods including electrospray and emulsion evaporation. She joined the Advance Training Program (ATP) in Nanomedicine and became a member of the Centre of Excellence in Nanomedicine (UCSD-KACST). She completed a research internship offered by Prof. Adah Almutairi for the period from May to October, 2014. During the internship, she worked on examining the phenotypes of neural progenitor cells cultured within 3D gradient hydrogels designed to orient neurite growth and migration. Working with very talented researchers enabled her to sharpen her technical and interpersonal skills. Dr. Alzaydi received her PhD from one of the top ranking universities, Imperial College London. The novel findings during her PhD studies regarding the role of chloride intracellular channels (CLICs) in the regulation of energy metabolism are of key importance in pulmonary arterial hypertension (PAH) and cancer. She is a board member of the Saudi Association for Pulmonary Hypertension (SAPH) and a member of the European Vascular Biology Organization (EVBO).



**Nouf M. BinHumaid, MBBS**

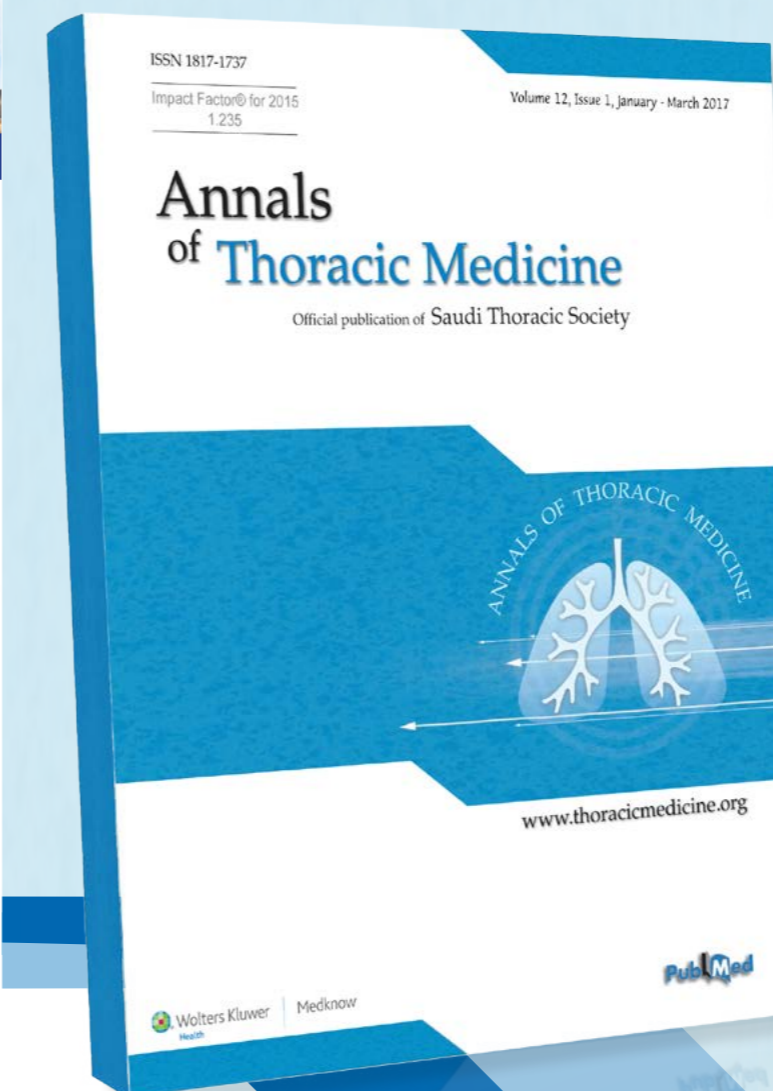
Adult Pulmonary Fellow  
Saudi Board of Internal Medicine  
King Faisal Specialist Hospital and Research Centre  
Jeddah, Saudi Arabia

Dr. Nouf BinHumaid is an Adult Pulmonary Medicine Fellow at the King Faisal Specialist Hospital and Research center (KFSH&RC), Jeddah. She completed her residency program and training of The Saudi board of internal medicine in Jeddah, KSA. She achieved her Bachelor's degree from the faculty of medicine in Medicine and Surgery, King Abdulaziz University, Jeddah, Saudi Arabia.

Recent Courses she attended:

- 2022 - Chronic Thromboembolic Pulmonary Hypertension Masterclass, Prince Sultan Medical City / King Fahd Medical City in Association with The Saudi Thoracic Society & The Saudi Association of Pulmonary Hypertension.
- 2021 - Comprehensive Internal Medicine Review Course King Faisal Specialist Hospital and Research center (KFSH&RC), Jeddah, Saudi Arabia
- 2020 - COVID-19 Crash Critical Care Course Recent Presentations:
- Multilight Prevalence, Variability, and Diagnostic Misclassification of Obstructive Sleep Apnea trial, Pulmonary Journal Club, King Abdelaziz University Hospital, Jeddah, Saudi Arabia.
- Elexacaftor–Tezacaftor–Ivacaftor for Cystic Fibrosis with a Single Phe508del Allele Trail, Pulmonary Journal Club, King Faisal Specialist Hospital and Research center (KFSH&RC), Jeddah, Saudi Arabia.
- Case Discussion, Jeddah Chest Club, Jeddah, Saudi Arabia

Dr. Nouf have also received several honors & awards including Resident of the year Award, Residency training program, Internal medicine department from KFSH&RC-Jeddah and Certified of appreciation for valuable participation and support during the COVID-19 pandemic, General management of Jeddah hospital, KFSH&RC-Jeddah.



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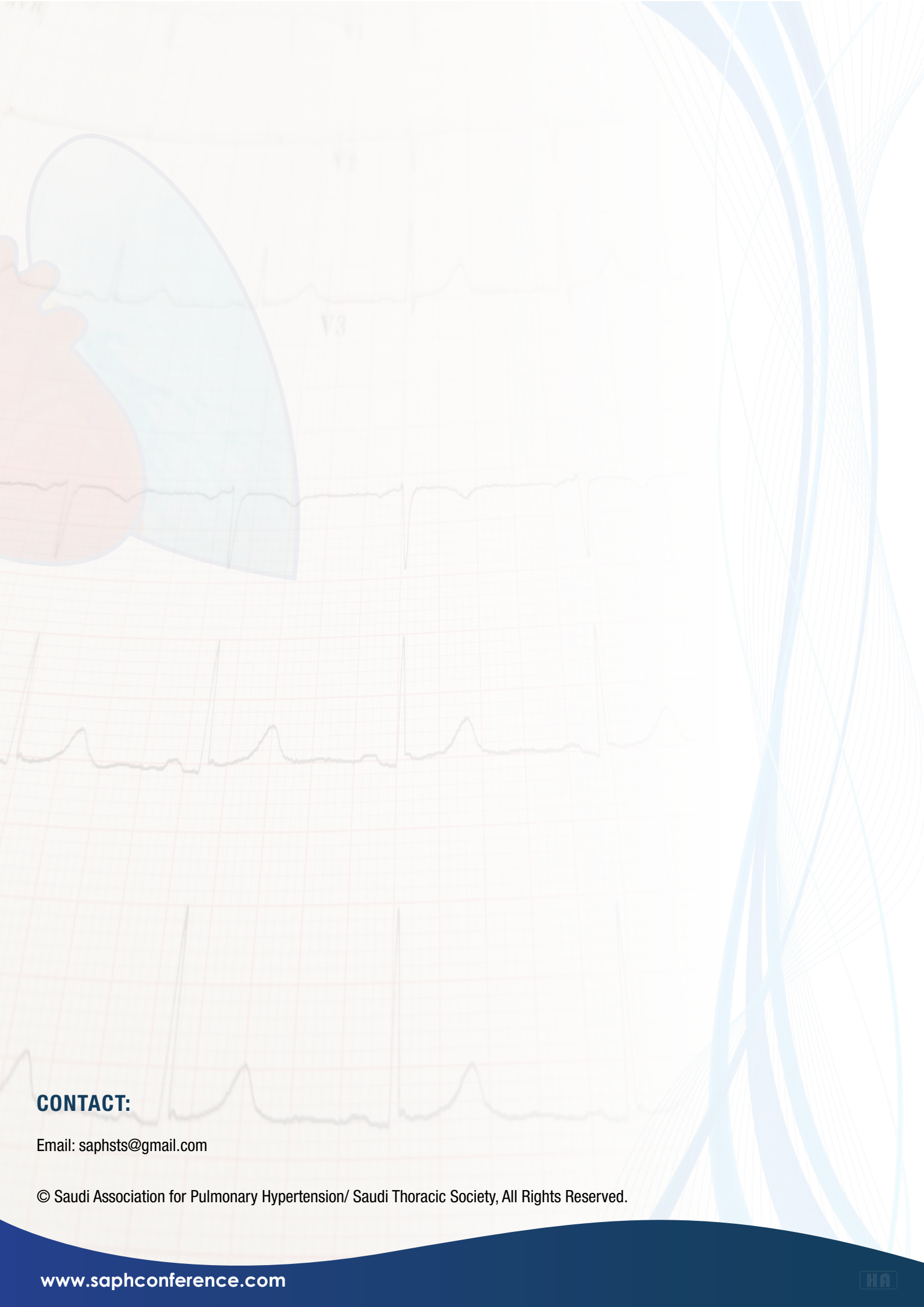
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