

Professional Master's Degree

Pulmonology





Professional Master's Degree Pulmonology

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/pk/medicine/professional-master-degree/professional-master-degree-pulmonology

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Skills

p. 14

04

Course Management

p. 18

05

Structure and Content

p. 26

06

Methodology

p. 42

07

Certificate

p. 50

01

Introduction

Respiratory diseases are highly prevalent and present a high morbidity and mortality rate in affected patients. They are the primary cause of medical visits in Primary Care, representing 20% of hospital admissions, and are the third leading cause of overall mortality in developed countries. The data offers a global picture of the serious impact they have and highlight the need for specialist physicians who are capable of applying the most innovative techniques to provide the best results for patients. With this program, students will have direct access to the main advances in each of the respiratory diseases, from asthma to COPD, the different infections or the possible complications related to lung transplantation, among others.





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The emergence of COVID-19 has forced specialists to keep up to date on the main respiratory therapies. Enroll on this Professional Master's Degree now and receive the training that will enable you to use the most up-to-date and effective techniques”

Population aging, air pollution and smoking are all factors that lead to an increase in chronic respiratory pathologies, such as Chronic Obstructive Pulmonary Disease (COPD), which have a considerable impact on the population. However, the discovery and widespread use of new treatments has changed the prognosis and evolution of other respiratory diseases, such as Interstitial Lung Disease (ILD), lung cancer and cystic fibrosis, which has opened up a field of research and clinical management that, until recently, was rather limited.

Likewise, the COVID-19 pandemic has forced pulmonologists and other medical specialists to update their knowledge of infectious diseases and has highlighted the usefulness of advanced respiratory therapies such as high-flow oxygen therapy and non-invasive mechanical ventilation for managing respiratory failure.

This Professional Master's Degree in Pulmonology at TECH Technological University aims to provide physicians with an update on the latest scientific evidence available in published guidelines, scientific articles and systematic reviews. As such, the syllabus presented is particularly relevant today, as it includes improvements in diagnostic and therapeutic methods that can change previous paradigms in managing these patients. The syllabus also covers pathophysiological fundamentals and incorporates images that illustrate the latest diagnostic tests. Additionally, the scientific evidence on recently incorporated therapies will be reviewed in depth.

One of the main advantages of this program is that it is taught in a 100% online format, so students will have access to all the contents available in the virtual classroom from the moment they enroll. They will be able to manage their study time independently and, in addition, a self-learning approach will be favored, which will enable them to handle respiratory pathology in an ever-changing era with complete confidence.

This **Professional Master's Degree in Pulmonology** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ◆ Practical cases presented by experts in Pulmonology
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis is placed on innovative methodologies in the approach to pulmonological affections
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



Thanks to your specialized help, patients with pulmonary diseases will be able to improve their quality of life"

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With the latest educational methodology and a first-rate syllabus, you will have the opportunity to update your knowledge to grow professionally and offer more personalized care”

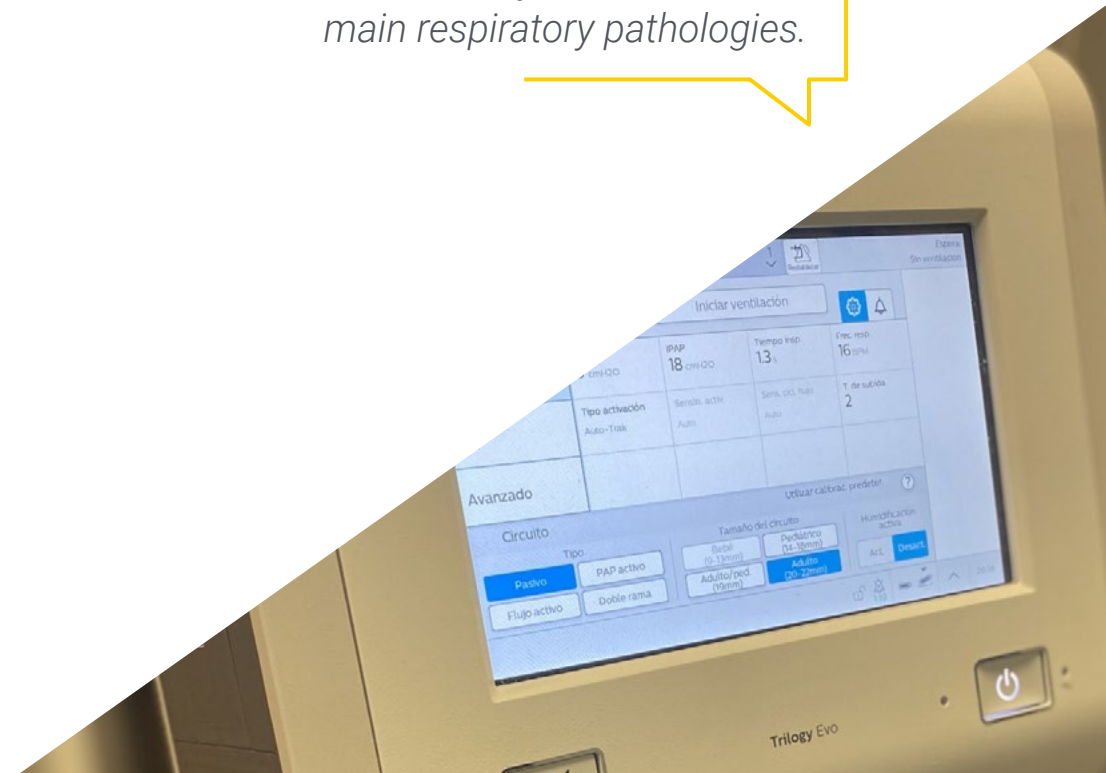
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

A 100% online program, essential to apply the latest techniques in the field of Pulmonology.

Learn to use the latest diagnostic tools for early detection of the main respiratory pathologies.



02 Objectives

Respiratory pathologies can generate serious health problems. Therefore, this Professional Master's Degree has been created with the main objective of offering specialized knowledge to medical specialists. Through a practical approach, they will be able to improve their training to care for patients with respiratory problems and improve their quality of life. For this purpose, students are provided with an up-to-date program with a comprehensive syllabus based on the latest scientific evidence.





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You will learn how to interpret complementary tests used for monitoring asthma patients”



General Objectives

- ◆ Provide an update on the latest scientific evidence available in published guidelines, scientific articles and systematic reviews
- ◆ Address the fundamental aspects in treating pulmonary pathologies
- ◆ Update knowledge of the most frequent pathologies in Pulmonology

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This program will help you easily detect potential complications derived from lung transplantation to address them more quickly”





Specific Objectives

Module 1. Interstitial Pulmonary Diseases

- ◆ Update the most relevant theoretical medical knowledge on ILDs
- ◆ Delve deeper into the specific knowledge of the scientific and technical aspects in the most prevalent ILDs
- ◆ Actively promote the continued training of every professional in order to improve clinical care and practice

Module 2. Chronic Obstructive Pulmonary Disease

- ◆ Develop professional skills aimed at optimizing comprehensive patient-centered care based on the latest available evidence
- ◆ Interpret the most commonly-used complementary tests in the diagnosis and monitoring of COPD patients
- ◆ Know how to manage the main comorbidities associated with COPD
- ◆ Update the maintenance treatment of COPD

Module 3. Asthma

- ◆ Improve asthma control and patient quality of life through knowledge based on the latest scientific evidence available
- ◆ Interpret the most commonly used complementary tests in the diagnosis and monitoring of asthma patients
- ◆ Identify and manage the main comorbidities associated with asthma
- ◆ Update the maintenance treatment for asthma
- ◆ Learn to identify the subgroup of patients with severe uncontrolled asthma
- ◆ Know the different phenotypes and specific asthma treatment recommendations
- ◆ Learn how to manage occupational asthma, pulmonary eosinophilias, and special circumstances such as asthma-pregnancy, exertion-induced asthma, aspirin-exacerbated respiratory disease, etc.

Module 4. Respiratory Infections and Related Diseases

- ◆ Provide specific knowledge about the advances in infectious diseases and new antimicrobials, as well as other therapies and new diagnostic tests used for a satisfactory response to the current challenges in respiratory infections
- ◆ Develop the necessary skills in adequately identifying and treating the main infectious pathologies affecting the respiratory system, being able to perform a better clinical management of the different diseases
- ◆ Review recently published guidelines, scientific articles and systematic reviews, through a critical lens and from the best scientific evidence available

Module 5. Bronchopulmonary Neoplasms

- ◆ Provide a global and multidisciplinary perspective on the approach to lung cancer, including epidemiology, etiology, histology, diagnostic and treatment processes
- ◆ Update multidisciplinary issues important to daily clinical practice in lung cancer patients
- ◆ Delve into the latest, ever-changing advances in both the diagnosis and treatment of lung cancer

Module 6. Pleural and Mediastinal Disease

- ◆ Update knowledge on the different diseases affecting the pleura and mediastinum
- ◆ Delve deeper into the different diagnostic techniques for the study of these pathologies from a practical approach
- ◆ Optimize the therapeutic management of patients with pleural effusion, pneumothorax and mediastinal disease

Module 7. Pulmonary Circulation

- ◆ Gain a deeper understanding of the medical management for the most frequent pathologies affecting the pulmonary vascular tree such as venous thromboembolic disease or pulmonary hypertension
- ◆ Update knowledge of other less frequent pathologies such as pulmonary vasculitis or alveolar hemorrhage

Module 8. Sleep-Related Breathing Disorders

- ◆ Update knowledge on sleep-related breathing disorders
- ◆ Provide guidelines to make the best decisions in patient care based on a clinical summary of the most up-to-date literature
- ◆ Contribute to the specific knowledge of the scientific and technical aspects related to sleep disorders

Module 9. Respiratory Failure: Non-Invasive Mechanical Ventilation High-Flow Oxygen Therapy

- ◆ Understand the pathophysiology and classification of Respiratory Failure and learn the keys to diagnosis for clinical practice
- ◆ Provide knowledge based on the best available evidence on the different treatment options for respiratory failure, including the application and contraindications of both NIV and HFO in acute and chronic respiratory failure
- ◆ Delve deeper into the main ventilatory modalities and asynchronies during NIMV
- ◆ Delve into the main features and clinical benefits of high-flow oxygen therapy



Module 10. Lung Transplantation

- ◆ Know the indications and contraindications for potential Lung Transplantation, as well as the referral criteria to a Lung Transplantation Unit
- ◆ Possess the necessary criteria to include patients on the lung transplantation waiting list
- ◆ Understand how donor selection and lung transplant surgical techniques are performed
- ◆ Know how to detect potential complications derived from lung transplants that may be encountered in consultation or during hospital admission where there is no Lung Transplant Unit
- ◆ Gain a deeper understanding of the use of immuno-suppressive treatments and prophylaxis in Lung Transplant patients, as well as in the complications derived from them
- ◆ Thoroughly understand the possible long term complications in lung transplant patients
- ◆ Know how to determine when an urgent/preferential referral to the Lung Transplant Unit is necessary

03 Skills

The continuous technification and increasing complexity of specific diagnostic tests in Pulmonology, such as bronchoscopy, echo bronchoscopy, thoracic ultrasound, polygraphy and polysomnography in sleep disorders, among others, increasingly force medical specialists to constantly refresh their knowledge. With this program, they will develop the specific skills required to handle all these types of techniques, and apply the most up-to-date and effective treatments for patients.



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Develop specific competencies to treat different respiratory pathologies with the confidence of an experienced professional”



General Skills

- ◆ Identify any pulmonary diseases in a timely manner and apply the most appropriate treatments for each patient according to their needs
- ◆ Adapt to the main advances in this medical area and apply the latest techniques and therapeutics
- ◆ Achieve better results in patient recovery from pulmonary diseases

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You will be able to identify the main respiratory pathologies early thanks to the use of the most current diagnostic techniques”





Specific Skills

- ◆ Identify pulmonary diseases and offer the most appropriate treatment for each person
- ◆ Optimize comprehensive patient-centered care based on the latest available evidence
- ◆ Improve the quality of life of asthma patients through the most effective treatments
- ◆ Apply major advances in therapies for infectious diseases
- ◆ Apply medical and surgical treatments in lung cancer patients
- ◆ Approach the nature of pleural effusion, visualize solid pleural pathology and identify the existence of pneumothoraces
- ◆ Diagnose and treat venous thromboembolic disease and pulmonary hypertension
- ◆ Promptly identify respiratory disorders during sleep
- ◆ Apply conventional oxygen therapy, non-invasive mechanical ventilation and high-flow nasal cannula therapy in patients with respiratory failure
- ◆ Gain in-depth knowledge of all the processes in lung transplantation

04

Course Management

TECH Technological University has selected an active, bona fide team of professionals to teach this Professional Master's Degree. Professionals specialized in Pulmonology who, in addition, have devoted a large part of their professional career to research, and who also hold positions of responsibility in hospitals. Their high level of knowledge in this area and their extensive experience in teaching are both factors that have established them as the best professors around today, as they enjoy a solid reputation in the medical community.





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The teaching team on this program, which comprises specialists in the field of Pulmonology, will provide you with the keys to succeed in the profession”

International Guest Director

Dr. Franck Rahaghi is one of the most prolific international figures in the field of Pneumology. Noted for his leadership in quality and medical care, as well as his commitment to clinical research, he has held several important positions at Cleveland Clinic, Florida. Among them, his roles as Chairman of Quality, Medical Director of the Respiratory Care Department and Director of the Pulmonary Hypertension Clinic are noteworthy.

Thanks to his studies and continuous preparation in this discipline, he has made several contributions in the rehabilitation of patients with various respiratory pathologies. These contributions and permanent academic improvement have allowed him to assume other responsibilities such as the position of Head of the Department of Pulmonary Education and Rehabilitation. In addition, he is a member of the Internal Review Committee, responsible for supervising the correct execution of research and clinical trials (Activated Protein C and IFN gamma-1b) inside and outside the aforementioned health institution.

In his solid preparation, he has established care links with centers of excellence such as the Rockefeller University Hospital in New York, as well as the Internal Medicine programs at the University of Illinois at Chicago and the University of Minnesota. He also studied at the Department of Interventional Pulmonary Pulmonology and Pulmonary Hypertension at the University of California-San Diego. He has also participated in important academic projects as an instructor in Genetic Medicine.

Dr. Rahaghi has authored and co-authored numerous articles published in renowned scientific journals in the medical field. Among the most recent and significant studies he has unveiled are his researches on the impact of COVID-19 on the respiratory health of patients, specifically on its effects in controlling Pulmonary Hypertension.

His other fields of interest include Scleroderma, Sarcoidosis AATD and ILD/IPF. He is also a consulting member of MedEdCenter Incorporated, a non-profit corporation dedicated to providing educational materials focused on pulmonary pathologies. An initiative from where he is committed to promote the education of patients and physicians through new technologies.



Dr. Rahaghi, Franck

- Medical Director, Department of Respiratory Care, Cleveland Clinic Hospital, Florida, USA
- Director of the Pulmonary Hypertension Clinic attached to the
- Cleveland Clinic Hospital, Florida, USA
- Doctor of Medicine, University of San Francisco, San Francisco, USA
- Master's Degree in Health Sciences/Administration at UC Berkeley

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Thanks to TECH you will be able to learn with the best professionals in the world"

Management



Dr. Jara Chinarro, Beatriz

- Acting Chief of the Pulmonology Service Puerta de Hierro University Hospital
- Degree in Medicine and Surgery, Complutense University Madrid
- MIR Pulmonary Specialist
- Specialist in sleep disorders, CEAMS

Co-Direction



Dr. Ussetti Gil, Piedad

- Emeritus Advisor in the Pulmonology Department, Puerta de Hierro University Hospital, Majadahonda
- Degree in Medicine and Surgery, Central University of Barcelona
- Specialist in Pulmonology
- Executive Master's Degree in Healthcare Leadership ESADE
- Honorary Professor in the Medicine Department, Autonomous University of Madrid

Professors

Dr. Aguado Ibáñez, Silvia

- ◆ Attending Physician in the Pulmonology Department Puerto de Hierro University Hospital, Majadahonda
- ◆ Degree in Medicine and Surgery, University of Alcalá de Henares
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, Catholic University of Murcia
- ◆ Master's Degree in EPOC, Catholic University of Murcia
- ◆ International Course on Noninvasive Mechanical Ventilation, Neumomadrid
- ◆ Review journal Archivos de Bronconeumología

Dr. Aguilar Pérez, Myriam

- ◆ Specialist Physician in the Pulmonology Service, Puerta De Hierro University Hospital
- ◆ Completion of doctoral courses in Pneumology, Department of Medicine, Complutense University of Madrid
- ◆ Degree in Medicine and Surgery, Complutense University of Madrid
- ◆ Specialist in Pulmonology

Dr. Churruca Arróspide, María

- ◆ Resident Physician in the Pulmonology Department La Princesa University Hospital, Madrid
- ◆ Member of the Ethical Care Committee (CEAS) La Princesa University Hospital, Madrid
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, Catholic University of Murcia

Dr. Erro Iribarren, Marta

- ◆ Specialist Physician in Pulmonology, Puerta De Hierro University Hospital
- ◆ Degree in Medicine and Surgery from the University of Navarra
- ◆ Specialist in Pulmonology
- ◆ Postgraduate Diploma in Non-invasive Mechanical Ventilation Methodology
- ◆ Postgraduate Course in Control and Treatment of Smoking, San Antonio Catholic University of Murcia

Dr. López García Gallo, Cristina

- ◆ Specialist Doctor in Pulmonology, Puerta De Hierro University Hospital
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- ◆ Master's Degree in Pulmonary Hypertension, Complutense University of Madrid
- ◆ Specialist in Pulmonology
- ◆ Professional Master's Degree in Pleural Pathology, Barcelona University

Dr. Izquierdo Pérez, Ainhoa

- ◆ Specialist Physician in Pulmonology, Puerta De Hierro University Hospital
- ◆ Degree in Medicine, University of Alcalá de Henares
- ◆ Master's Degree in Clinical Medicine UCJC, Camilo José Cela University
- ◆ Master's Degree in EPID, Catholic University of Murcia

Dr. Barrios, Alba Esperanza

- ◆ Specialist Associate Physician in Pulmonology, Torrejón University Hospital
- ◆ Degree in Medicine, University of Alcalá Henares
- ◆ Specialist Physician in Pulmonology, Puerta De Asturias University Hospital
- ◆ Master's Degree in Comprehensive Care of Chronic Obstructive Pulmonary Disease, Complutense University of Madrid

Dr. Malo de Molina, Rosa

- ◆ Specialist Physician in Pulmonology, Puerta De Hierro University Hospital
- ◆ Degree in Medicine, University of Córdoba
- ◆ PhD courses and certificate of advanced studies, Autonomous University of Madrid
- ◆ Professor on the Master's Degree in Airway, Catholic University of Murcia; teaching collaborator at the Faculty of Medicine, Autonomous University of Madrid

Dr. Mínguez Clemente, Patricia

- ◆ Attending Physician in the Pulmonology Service, Puerta De Hierro University Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ PhD courses and certificate of advanced studies (Research Sufficiency): Everolimus in Lung Transplantation
- ◆ Specialization degree in Bronchiectasis, University of Alcalá de Henares
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, San Antonio Catholic University

Dr. Mohamed Choukri, Marwan

- ◆ Specialist Attending Physician, Puerta De Hierro University Hospital
- ◆ Graduate in Medicine and Surgery from the Complutense University of Madrid
- ◆ MIR Specialist, Fundación Jiménez Díaz University Hospital

Dr. Trisán Alonso, Andrea

- ◆ Specialist Physician in the Pulmonology Service, Puerta De Hierro University Hospital, Majadahonda
- ◆ Specialist Physician in Pulmonology, Puerta De Hierro University Hospital, Majadahonda
- ◆ Degree in Medicine, University of Oviedo
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, San Antonio Catholic University of Murcia
- ◆ Postgraduate Diploma in Severe Asthma

Dr. Zambrano Chacón, María de los Ángeles

- ◆ Resident Intern, Pneumology Department, Jiménez Díaz Foundation University Hospital
- ◆ Degree in Medicine, Central University of Venezuela
- ◆ Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University
- ◆ Workshop on Pneumological Emergencies, Jiménez Díaz Foundation

Dr. Quirós Fernández, Sarai

- ◆ Specialist in the Pulmonology Department, Basurto University Hospital
- ◆ Degree in Medicine and Surgery, University of Alcalá
- ◆ Pulmonology Specialist, Guadalajara General University Hospital
- ◆ Postgraduate Diploma in Bronchiectasis
- ◆ Postgraduate Diploma in Clinical Management of Tuberculosis and Other Mycobacteriosis

Dr. Calderón Alcalá, Mariara Antonieta

- ◆ Specialist Physician in the Pulmonology Department, Infanta Leonor University Hospital
- ◆ Degree in Medicine, Central University of Venezuela
- ◆ Master's Degree in Chronic Obstructive Pulmonary Disease, Catholic University of Murcia
- ◆ Postgraduate Diploma in Epidemiology and Public Health, Esneca Business School
- ◆ Postgraduate Diploma in Diffuse Interstitial Pulmonary Interstitial Diseases in Systemic Autoimmune Diseases, Complutense University of Madrid

Dr. Zamarrón de Lucas, Ester

- ◆ Faculty Specialist in Pulmonology Medicine, La Paz University Hospital
- ◆ PhD in Medicine and Surgery, International Honors
- ◆ Master in Attention Integral Chronic Obstructive Pulmonary Disease, Complutense University of Madrid
- ◆ Postgraduate Diploma in the Approach to Pulmonary Hypertension Prostacyclin Treatment, Francisco de Vitoria University
- ◆ Postgraduate Diploma in Emerging and High Risk Virus Pathology, Universidad Autónoma de Madrid

Dr. Mariscal Aguilar, Pablo

- ◆ Resident Intern in Pneumolog La Paz University Hospital
- ◆ Degree in Medicine and Surgery from the University of Granada
- ◆ Member of the Spanish Society of Pulmonology and Thoracic Surgery

Dr. Sanchez-Azofr, Ana

- ◆ Pulmonary Division, Intensive Care and Sleep Medicine Department of Medicine, University of California at San Diego, USA
- ◆ Degree in Medicine, University of Bilbao

Dr. Herrero Huertas, Julia

- ◆ Attending Physician, Sleep and VMNI Service, Jiménez Díaz Foundation Hospital
- ◆ Specialist in Pulmonology
- ◆ Degree in Medicine from the Complutense University of Madrid

Dr. Margallo Iribarnegaray, Juan

- ◆ Specialist Physician in Pulmonology, Marqués de Valdecilla University Hospital
- ◆ Degree in Medicine from the University of Cantabria
- ◆ Specialist in Pulmonology

Dr. Jaureguizar Oriol, Ana

- ◆ Specialist Physician in Pulmonology
- ◆ Assistance Activity at Ramón y Cajal University Hospital
- ◆ Degree in Medicine from the Complutense University of Madrid

Dr. Juan Rigual Bobillo

- ◆ Degree in Medicine, University of Navarra
- ◆ Master's Degree in Clinical Research Methodology in Pulmonary Thromboembolism University of Alcalá
- ◆ Master's Degree in Diffuse Interstitial Lung Disease -DILD Murcia Catholic University
- ◆ Specialist Physician in Pulmonology Ramón y Cajal University Hospital Coordinator of the Diffuse Interstitial Pulmonary Disease (DIPD) Unit
- ◆ Member of the scientific societies Neumomadrid, SEPAR and ERS
- ◆ Member of the ILD working groups of at Neumomadrid, the SEPAR ILD Area and the emerging SEPAR ILD Group (GEEPID)
- ◆ Teaching collaborator for the Master's Degree in Comprehensive Care of Chronic Obstructive Pulmonary Disease, Complutense University of Madrid (Class of 2018/2019)

Dra. Gómez Punter, Rosa Mar

- ◆ Specialist in Pulmonology, La Princesa University Hospital, Valencia
- ◆ Degree in Medicine and Surgery, Faculty of Medicine and Surgery, Valencia
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, San Antonio Catholic University
- ◆ Master's Degree in Smoking, San Antonio Catholic University



**Dra. Alcorta Mesas, África**

- ◆ Specialist in Pulmonology, Infanta Leonor Hospital in Madrid
- ◆ Active member of the COPD, Tobacco and Sleep/Ventilation working groups of the Sociedad Madrileña de Neumología Neumomadrid
- ◆ Degree in Medicine from the Complutense University of Madrid
- ◆ Specialist in Pulmonology, Gregorio Marañón General University Hospital
- ◆ Master's Degree in Clinical Management Units, Catholic University San Antonio
- ◆ Master's Degree in Smoking Control and Treatment, San Antonio Catholic University
- ◆ Master's Degree in Diagnosis and Treatment of Airway Diseases, San Antonio Catholic University
- ◆ Postgraduate Diploma in Methodology applied to Non-invasive Ventilation, International School of NIV
- ◆ Postgraduate Diploma in Smoking, Spanish Society of Pneumology and Thoracic Surgery SEPAR

Dr. Salgado Aranda, Sergio

- ◆ Specialist in Pulmonology, Tajo University Hospital
- ◆ Degree in Medicine, Complutense University of Madrid
- ◆ Master's Degree in Advances in Diagnosis and Treatment of Airway Diseases, San Antonio Catholic University
- ◆ Postgraduate Diploma in Bronchiectasis, Alcalá University
- ◆ Postgraduate Diploma in Contamination and Respiratory Diseases, University San Pablo
- ◆ Professor on the Master's Degree in Thoracic Oncology, CEU University

05

Structure and Content

Pulmonology deals with the study of the physiology and pathology of the respiratory system, as well as the diagnostic tests and preventive and therapeutic measures necessary to manage these diseases. Thanks to this Professional Master's Degree, students will have access to the latest information in the field, which will provide them with the key tools and skills to apply the treatments that provide the best results for patients.





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Access fully updated content on respiratory diseases and discover the latest advances in the field”

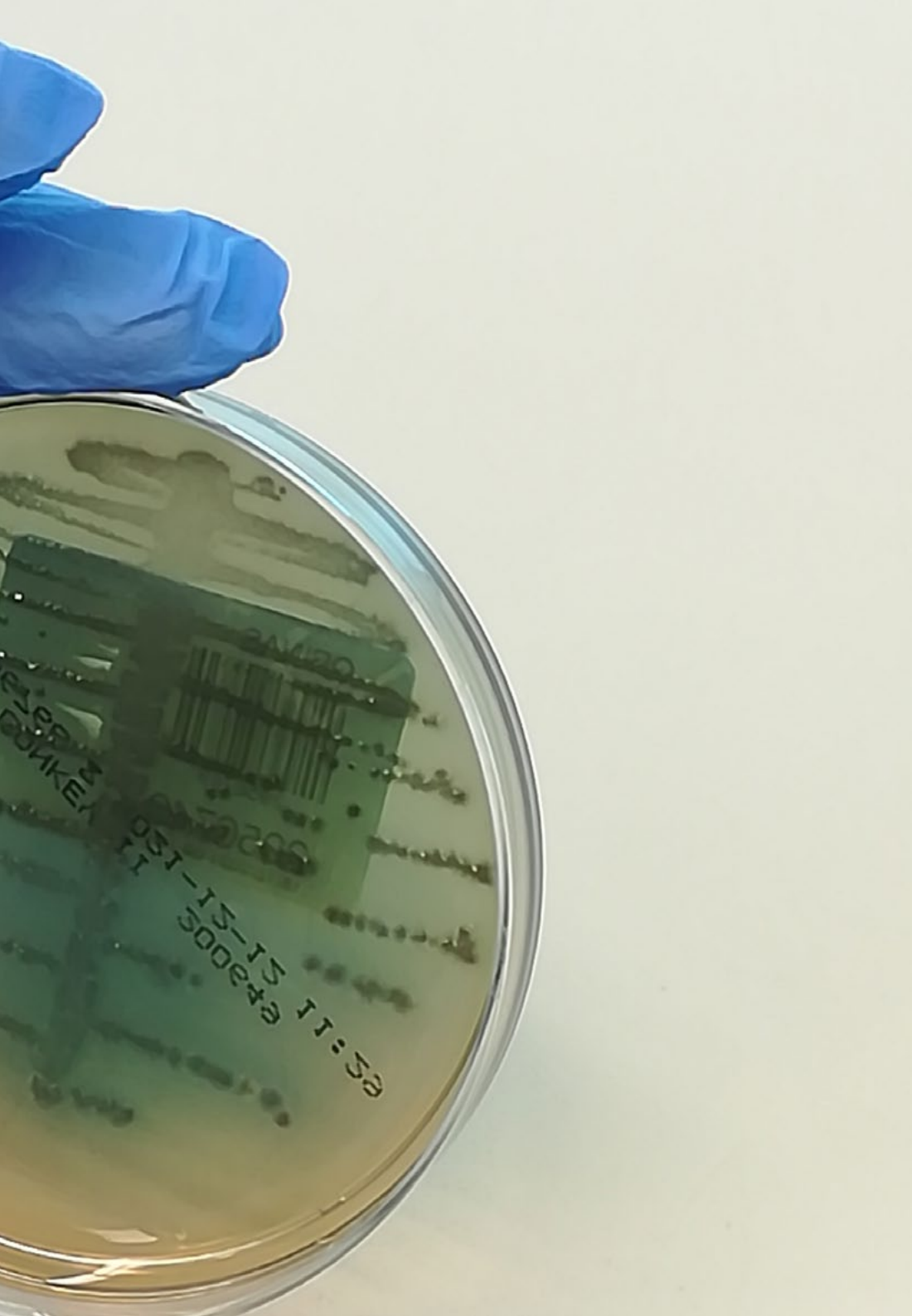
Module 1. Interstitial Pulmonary Diseases

- 1.1. ILDs
 - 1.1.1. ILD Classification and Epidemiology
 - 1.1.2. Diagnostic Approximation
 - 1.1.2.1. Medical History: Physical Exploration
 - 1.1.2.2. Clinical Laboratory and Pulmonary Function Laboratory
 - 1.1.2.3. Radiodiagnosis: Chest X-Ray TACAR Radiological Patterns
 - 1.1.2.4. Invasive Techniques: Bronchoalveolar Lavage (BAL), Transbronchial Biopsy (TBB) and Cryobiopsy Surgical Biopsy Indications and Pathologic Patterns
 - 1.1.2.5. Multidisciplinary Diagnosis
 - 1.1.3. Cellular Aging, Genetics and Biomarkers in ILDs
 - 1.1.3.1. Pathogenesis of Cellular Aging
 - 1.1.3.2. Characteristics, Value, Prognosis and Treatment of Telomeric Disorders
 - 1.1.3.3. Family Pulmonary Fibrosis: Biomarkers Diagnostic, Prognostic and Therapeutic Utility
- 1.2. Idiopathic Pulmonary Fibrosis (IPF)
 - 1.2.1. Epidemiology
 - 1.2.2. Risk factors
 - 1.2.3. Natural History and Prognosis
 - 1.2.4. Diagnostic Approximation
 - 1.2.4.1. Clinical Manifestations Physical Exploration
 - 1.2.4.2. Radiological Criteria
 - 1.2.4.3. Histopathological Criteria
 - 1.2.4.4. Biomarkers Useful in IPF
 - 1.2.5. Treatment
 - 1.2.6. IPF Exacerbation
- 1.3. Idiopathic Non-Specific Interstitial Pneumonia (NSIP) ILD Associated with Systemic Autoimmune Diseases (I): ILD Associated with Rheumatoid Arthritis (ILD-RA) and ILD Associated with Systemic Sclerosis (ILD-SS)
 - 1.3.1. Idiopathic NSIP
 - 1.3.1.1. Histopathological Forms
 - 1.3.1.2. Diagnostic tests
 - 1.3.1.3. Treatment
 - 1.3.1.4. Prognosis
 - 1.3.2. ILD Associated with Systemic Autoimmune Diseases
 - 1.3.2.1. ILD-RA
 - 1.3.2.2. ILD-SS
- 1.4. ILD Associated with Systemic Autoimmune Diseases (II)
 - 1.4.1. Dermato / Polymyositis
 - 1.4.2. Sjögren's Syndrome
 - 1.4.3. Mixed Connective Tissue Disease: Overlap Syndrome
 - 1.4.4. Interstitial Pneumonia with Autoimmune Features (IPAF)
- 1.5. Sarcoidosis
 - 1.5.1. Pathophysiology
 - 1.5.2. Histology
 - 1.5.3. Diagnostic Approximation
 - 1.5.4. Evolution and Prognosis
 - 1.5.5. Treatment
- 1.6. Hypersensitivity Pneumonitis
 - 1.6.1. Etiology
 - 1.6.2. Pathophysiology
 - 1.6.3. Classification: Clinical Forms
 - 1.6.4. Diagnostic Criteria: Differential Diagnosis
 - 1.6.5. Natural History and Prognosis
 - 1.6.6. Treatment

- 1.7. Lung Diseases
 - 1.7.1. Lymphangioleiomyomatosis (LAM)
 - 1.7.1.1. Clinical Manifestations
 - 1.7.1.2. Diagnostic Approximation
 - 1.7.1.3. Treatment
 - 1.7.2. Pulmonary Langerhans Cell Histiocytosis (PLCH)
 - 1.7.2.1. Clinical Manifestations
 - 1.7.2.2. Diagnostic Approximation
 - 1.7.2.3. Treatment
 - 1.7.3. Lymphocytic Interstitial Pneumonia (LIP)
 - 1.7.3.1. Clinical Manifestations
 - 1.7.3.2. Diagnostic Approximation
 - 1.7.3.3. Treatment
 - 1.8. Cryptogenic Organized Pneumonia (COP)
 - 1.8.1. Pathogenesis
 - 1.8.2. Clinical Manifestations
 - 1.8.3. Radiological Patterns
 - 1.8.4. Diagnostic Approximation
 - 1.8.5. Natural History
 - 1.8.6. Treatment
 - 1.9. Occupational Diseases
 - 1.9.1. Asbestos-Related Diseases
 - 1.9.1.1. Varieties of Asbestos: Sources of Exposure
 - 1.9.1.2. Pleural Fibrosis: Clinical Forms and Radiological Diagnosis
 - 1.9.1.3. Asbestosis: Clinical and Radiological Findings, Diagnostic Criteria and Treatment
 - 1.9.2. Silicosis
 - 1.9.3. Coal Pneumoconiosis
 - 1.10. Pulmonary Eosinophilias: Drug-Associated ILDs Other Rare ILDs: Pleuropulmonary Fibroelastosis Alveolar Microlithiasis Alveolar Proteinosis
 - 1.10.1. Acute Eosinophilic Pneumonia
 - 1.10.1.1. Epidemiology and Risk Factors
 - 1.10.1.2. Pathogenesis
 - 1.10.1.3. Clinical, Radiological, Functional and Pathological Diagnosis
 - 1.10.1.4. Treatment
 - 1.10.2. Drug-Associated ILDs
 - 1.10.2.1. Epidemiology
 - 1.10.2.2. Pathogenesis and Risk Factors
 - 1.10.2.3. Diagnostic Approximation
 - 1.10.2.4. Main Causal Agents
 - 1.10.3. Differential Diagnosis of Pulmonary Eosinophilias
 - 1.10.4. Other Rare ILD: Pleuropulmonary Fibroelastosis, Alveolar Microlithiasis and Alveolar Proteinosis: Diagnostic Approach, Evolution and Management
- Module 2. Chronic Obstructive Pulmonary Disease**
- 2.1. Aetiopathogenesis
 - 2.1.1. Epidemiology
 - 2.1.2. Risk factors
 - 2.1.3. Pathogenesis
 - 2.2. EPOC Pathophysiology and Clinical Presentation
 - 2.2.1. Pathophysiology
 - 2.2.2. Clinical Manifestations
 - 2.3. Diagnosis and Characterization
 - 2.3.1. Diagnosis: Anamnesis, Physical Examination, Imaging Tests, Clinical Analyses and Respiratory Functional Examination
 - 2.3.2. Characterization
 - 2.3.2.1. Degree of Pulmonary Obstruction
 - 2.3.2.2. Clinical Types: Emphysema and Chronic Bronchitis
 - 2.3.2.3. Risk of Exacerbation
 - 2.3.2.4. Symptoms

- 2.4. COPD Classification according to COPD Guidelines: (The Spanish COPD Guidelines) and GOLD (Global Initiative for Chronic Obstructive Lung Disease)
 - 2.4.1. GOLD
 - 2.4.1.1. GOLD A
 - 2.4.1.2. GOLD B
 - 2.4.1.3. GOLD C
 - 2.4.1.4. GOLD D
 - 2.4.1.5. Monitoring
 - 2.5. Maintenance Pharmacological Treatment
 - 2.5.1. Treatment Objectives
 - 2.5.2. Drugs
 - 2.5.2.1. Inhaled Treatment
 - 2.5.2.1.1. Bronchodilators
 - 2.5.2.1.2. Inhaled Corticosteroids
 - 2.5.2.2. Oral Treatment
 - 2.5.2.2.1. Theophylline
 - 2.5.2.2.2. Roflumilast
 - 2.5.2.2.3. Azithromycin
 - 2.6. Approach to Smoking in COPD
 - 2.6.1. Epidemiology
 - 2.6.2. The Diagnosis of Tobacco Use in COPD
 - 2.6.3. Non-Pharmaceutical Therapeutic Interventions
 - 2.6.4. Pharmacological Therapeutic Interventions
 - 2.7. Non-Pharmacological Treatment
 - 2.7.1. Oxygen Therapy and NIMV
 - 2.7.2. Vaccines
 - 2.7.3. Nutrition
 - 2.7.4. Palliative Treatment of Dyspnea
 - 2.7.5. Lung Volume Reduction by Bronchoscopy
 - 2.7.6. Surgery: Volume Reduction and Lung Transplantation
 - 2.8. COPD Exacerbation
 - 2.8.1. Etiology and Pathogenesis
 - 2.8.2. Severity Classification
 - 2.8.3. Treatment



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- 2.9. Comorbidities
 - 2.9.1. Prevalence
 - 2.9.2. Impact on Mortality
 - 2.9.3. Screening and Management
 - 2.10. Rehabilitation and Physical Exercise in COPD
 - 2.10.1. Rehabilitation in COPD
 - 2.10.1.1. Benefits
 - 2.10.1.2. Indications
 - 2.10.1.3. Rehabilitation Program Structure
 - 2.10.1.4. Rehabilitation after COPD Exacerbation
 - 2.10.1.5. Special Situations
 - 2.10.2. Physical Activity
 - 2.10.2.1. Measuring
 - 2.10.2.2. Interventions

Module 3. Asthma

- 3.1. Aetiopathogenesis
 - 3.1.1. Epidemiology
 - 3.1.2. Risk factors
 - 3.1.3. Pathogenesis
- 3.2. Diagnosis
 - 3.2.1. Clinical symptoms
 - 3.2.2. Spirometry and Bronchodilator Test
 - 3.2.3. Bronchial Provocation Tests
 - 3.2.4. Fractional Exhaled Nitric Oxide (FeNO) Determination
 - 3.2.5. Induced Sputum
 - 3.2.6. Electronic Nose
 - 3.2.7. Volatile Organic Compounds in Exhaled Air
 - 3.2.8. Diagnostic Algorithm
- 3.3. Control and Severity Classification
 - 3.3.1. Control
 - 3.3.2. Severity
- 3.4. Maintenance Treatment

- 3.4.1. Treatment Objectives
- 3.4.2. Drugs
- 3.4.3. Step Treatment
- 3.4.4. Avoiding Allergens and Environment
- 3.4.5. Education and Written Action Plans
- 3.5. Asthma Exacerbation Treatment
 - 3.5.1. Risk factors
 - 3.5.2. Severity Assessment
 - 3.5.3. Treatment according to Severity
 - 3.5.4. Emergency Discharge Criteria
 - 3.5.5. Hospitalization Criteria
 - 3.5.6. Hospital Discharge Criteria
 - 3.5.7. Outpatient Monitoring after Exacerbation
- 3.6. Severe Uncontrolled Asthma
 - 3.6.1. Epidemiology
 - 3.6.2. Diagnostic Procedure
 - 3.6.3. Severe Asthma Phenotypes
 - 3.6.4. Treatment Algorithm
- 3.7. Occupational Asthma
 - 3.7.1. Causative Agents
 - 3.7.2. Classification
 - 3.7.3. Diagnosis
 - 3.7.4. Treatment
 - 3.7.5. Asthma Aggravated by Work
- 3.8. Nasal Pathology Associated with Asthma
 - 3.8.1. Rhinitis
 - 3.8.1.1. Diagnosis
 - 3.8.1.2. Classification
 - 3.8.1.3. Treatment
 - 3.8.2. Rhinosinusitis and Nasal Polyposis
 - 3.8.2.1. Diagnosis
 - 3.8.2.2. Treatment

- 3.9. Pulmonary Eosinophilias Associated with Asthma
 - 3.9.1. Chronic Eosinophilic Pneumonia
 - 3.9.2. Allergic Bronchopulmonary Aspergillosis
 - 3.9.3. Eosinophilic Granulomatosis with Polyangiitis
- 3.10. Special Situations
 - 3.10.1. Asthma and COPD Overlap (ACO)
 - 3.10.2. Respiratory Disease Exacerbated by Acetylsalicylic Acid
 - 3.10.3. Asthma and Pregnancy
 - 3.10.4. Exercise-Induced Asthma
 - 3.10.5. Pseudoasthmas

Module 4. Respiratory Infections and Related Diseases

- 4.1. Community-Acquired Pneumonia (CAP)
 - 4.1.1. Epidemiology
 - 4.1.2. Risk factors
 - 4.1.3. Comorbidities and Risks in CAP
 - 4.1.4. Etiology
 - 4.1.5. Clinical Manifestations
 - 4.1.6. Diagnosis
 - 4.1.7. Assess the Severity of CAP
 - 4.1.8. Treatment
 - 4.1.9. Clinical Response
 - 4.1.10. Complications
 - 4.1.11. Prevention: Vaccination
- 4.2. Nosocomial Pneumonia (Hospital-Acquired Pneumonia and Ventilator-Associated Pneumonia)
 - 4.2.1. Pathogenesis
 - 4.2.2. Risk factors
 - 4.2.3. Intrahospital Pneumonia
 - 4.2.4. Ventilator-Associated Pneumonia
 - 4.2.5. Etiology
 - 4.2.6. Diagnosis
 - 4.2.7. Treatment
 - 4.2.8. Preventive Measures

- 4.3. Pulmonary Abscess
 - 4.3.1. Pathogenesis
 - 4.3.2. Differences with Necrotizing Pneumonia
 - 4.3.3. Microbiology
 - 4.3.4. Clinical Manifestations
 - 4.3.5. Diagnosis
 - 4.3.6. Differential Diagnosis
 - 4.3.7. Treatment
- 4.4. Coronavirus: COVID-19
 - 4.4.1. The 2019 Pandemic
 - 4.4.2. Epidemiology
 - 4.4.3. Pathogenesis
 - 4.4.4. Clinical Symptoms
 - 4.4.5. Diagnosis
 - 4.4.6. Treatment
 - 4.4.7. Complications
 - 4.4.8. Prevention
 - 4.4.8.1. Hygienic and Social Distancing Measures
 - 4.4.8.2. Vaccines
- 4.5. Non-Cystic Fibrosis Bronchiectasis
 - 4.5.1. Epidemiology and Costs
 - 4.5.2. Pathophysiology
 - 4.5.3. Etiology
 - 4.5.4. Diagnosis
 - 4.5.5. Differential Diagnosis
 - 4.5.6. Microbiology
 - 4.5.7. Severity and Prognostic Factors
 - 4.5.8. Treatment
 - 4.5.9. Monitoring
 - 4.5.10. Consensus Treatment of Inflammatory Breast Cancer (IBC), Chronic Obstructive Pulmonary Disease (COPD) and Bronchiectasis
- 4.6. Cystic fibrosis
 - 4.6.1. Aetiopathogenesis
 - 4.6.2. Epidemiology
 - 4.6.3. Clinical Manifestations
 - 4.6.4. Diagnosis
 - 4.6.5. Quality of Life Associated with Health
 - 4.6.6. Treatment
 - 4.6.6.1. Aggravation
 - 4.6.6.2. Chronic Bronchial Infection
 - 4.6.6.3. Bronchial Inflammation
 - 4.6.6.4. Mucociliary Clearance
 - 4.6.6.5. New Drugs (Conventionally Fractionated Radiation Therapy (CFRT))
 - 4.6.7. Rehabilitation
 - 4.6.8. Nutritional Treatment
 - 4.6.9. Treating Complications
- 4.7. Pulmonary Tuberculosis: Epidemiology, Clinical Practice, Diagnosis, Complications and Prognosis
 - 4.7.1. Epidemiology
 - 4.7.2. Etiology
 - 4.7.3. Pathogenesis and Physiopathology
 - 4.7.4. Clinical Manifestations
 - 4.7.5. Diagnosis: Concept of Infection and Tuberculous Disease
 - 4.7.5.1. Tuberculous Infection
 - 4.7.5.2. Tuberculous Disease
 - 4.7.5.2.1. Clinical-Radiological Diagnosis
 - 4.7.5.2.2. Anatomic-Pathological Diagnosis
 - 4.7.5.2.3. Microbiological Diagnosis
 - 4.7.6. Complications and Prognosis

- 4.8. Pulmonary Tuberculosis: Treatment Chemoprophylaxis
 - 4.8.1. Types of Bacillary Populations
 - 4.8.2. Standard Treatment: Proper Drug Combination Selection
 - 4.8.3. Treatment in Special Situations
 - 4.8.3.1. Immunodeficiencies
 - 4.8.3.2. Pregnancy and Breastfeeding
 - 4.8.3.3. Advanced Chronic Liver Failure
 - 4.8.3.4. Chronic Advanced Kidney Disease
 - 4.8.4. Adverse Effects
 - 4.8.5. Interrupting the Treatment
 - 4.8.6. Resistance
 - 4.8.7. Chemoprophylaxis: Latent Tuberculous Infection Treatment
 - 4.8.8. Therapeutic Regimens for Treating Multidrug-Resistant or Extensively Drug-Resistant Pulmonary TB
- 4.9. Atypical Mycobacteria
 - 4.9.1. Taxonomy and Epidemiology
 - 4.9.2. Pathogenesis and Host Susceptibility
 - 4.9.3. Clinical Forms
 - 4.9.4. Diagnostic Criteria for Atypical Mycobacterial Disease
 - 4.9.5. Treatment
- 4.10. Pulmonary Aspergillosis and Other Mycoses
 - 4.10.1. Pulmonary Aspergillosis
 - 4.10.2. Candidiasis Broncopulmonar
 - 4.10.3. Cryptococcosis
 - 4.10.4. Mucormycosis
 - 4.10.5. Pneumocystis

Module 5. Bronchopulmonary Neoplasms

- 5.1. Epidemiology
 - 5.1.1. Lung Cancer Incidence and Prognosis
 - 5.1.2. Risk Factors: Tobacco, Occupations, Other Carcinogens
 - 5.1.3. Screening
- 5.2. Solitary Pulmonary Nodule
 - 5.2.1. Etiology
 - 5.2.2. Factors Associated with Malignancy
 - 5.2.2.1. Malignancy Estimate
 - 5.2.2.2. Sequential Evaluation: Management Algorithm
- 5.3. Classification
 - 5.3.1. Histological Subtypes
 - 5.3.1.1. Non-Small Cell: Adenocarcinoma, Epidermoid, Large Cell
 - 5.3.1.2. Small Cell
 - 5.3.2. Biomarkers of Diagnostic and Therapeutic Value
- 5.4. Diagnosis
 - 5.4.1. Symptoms and Signs
 - 5.4.1.1. Paraneoplastic Syndromes
 - 5.4.2. Radiodiagnostics
 - 5.4.3. Invasive Diagnostic Methods
- 5.5. Staging
 - 5.5.1. General Aspects
 - 5.5.2. TNM Classification, 8th Edition
- 5.6. Multidisciplinary Evaluation of Therapeutic Approaches
 - 5.6.1. Operability Criteria
 - 5.6.2. Resectability Criteria
 - 5.6.2.1. Resectable
 - 5.6.2.2. Unresectable
 - 5.6.2.3. Potentially Resectable

- 5.7. Treatment in Initial Stages
 - 5.7.1. Surgical Management
 - 5.7.1.1. Lobectomy Plus Lymphadenectomy
 - 5.7.1.2. Pneumonectomy
 - 5.7.1.3. Atypical Resections
 - 5.7.2. Adjuvant
- 5.8. Local Advanced Disease Treatment
 - 5.8.1. Neoadjuvant
 - 5.8.2. Radical Chemoradiotherapy Treatment
- 5.9. Advanced Disease
 - 5.9.1. Oligometastatic Disease
 - 5.9.2. Chemotherapy
 - 5.9.3. Immunotherapy
 - 5.9.4. Targeted Treatments
- 5.10. Support Treatments
 - 5.10.1. Radiotherapy
 - 5.10.2. Airway-Related Complication Management: Dyspnea, Superior Vena Cava Syndrome, Hemoptysis, Endobronchial Resection
 - 5.10.3. Other complications

Module 6. Pleural and Mediastinal Disease

- 6.1. Pleura
 - 6.1.1. Anatomy
 - 6.1.2. Histology
- 6.2. Pleura Physiopathology
 - 6.2.1. Pleural Position
 - 6.2.2. Pleural Fluid Formation
 - 6.2.3. Pleural Fluid Absorption
- 6.3. Definition and Epidemiology of Pleural Diseases
 - 6.3.1. Pleural Effusion
 - 6.3.2. Hemothorax
 - 6.3.3. Chylothorax.
 - 6.3.4. Pneumothorax
 - 6.3.5. Solid Pleural Pathology
- 6.4. Clinical Diagnosis of Pleural Pathology
 - 6.4.1. Symptoms
 - 6.4.2. Physical Exploration
- 6.5. Diagnostic Imaging of Pleural Pathology
 - 6.5.1. Chest X-ray
 - 6.5.2. Chest CT Scan
 - 6.5.3. Thoracic Ultrasound Scan
- 6.6. Invasive Diagnostic Techniques for Pleural Effusion
 - 6.6.1. Diagnostic Thoracentesis
 - 6.6.2. Closed Pleural Biopsy
 - 6.6.3. Medical Thoracoscopy
- 6.7. Solid Pleural Pathology
 - 6.7.1. Pleural Fibrous Tumor
 - 6.7.2. Pleural Pathology Caused by Asbestos
 - 6.7.3. Mesothelioma
 - 6.7.4. Metastatic Cancer
- 6.8. Pleural Effusion Patient Management
 - 6.8.1. Diagnostic Approximation
 - 6.8.2. Etiological Diagnosis
 - 6.8.3. Treatment
- 6.9. Pneumothorax Patient Management
 - 6.9.1. Classification
 - 6.9.2. Diagnosis
 - 6.9.3. Treatment
- 6.10. Mediastinal Diseases
 - 6.10.1. Anatomy
 - 6.10.2. Epidemiology
 - 6.10.3. Mediastinitis
 - 6.10.4. Mediastinal Tumors
 - 6.10.5. Diagnostic Approach to Mediastinal Masses

Module 7. Pulmonary Circulation

- 7.1. Pulmonary Circulation Pathophysiology
 - 7.1.1. Anatomical-Functional Recall
 - 7.1.2. Physiological Changes with Age and Exercise
 - 7.1.3. Pathophysiology
- 7.2. Acute Pulmonary Thromboembolism
 - 7.2.1. Epidemiology and Etiopathogenesis of Acute Pulmonary Thromboembolism
 - 7.2.2. Clinical Presentation and Probability
 - 7.2.3. Diagnosis of Pulmonary Thromboembolism
 - 7.2.4. Prognostic Stratification
- 7.3. Therapeutic Management of Acute Pulmonary Thromboembolism
 - 7.3.1. Treatment of Acute Pulmonary Thromboembolism
 - 7.3.2. Venous Thromboembolic Disease Prophylaxis
 - 7.3.3. Pulmonary Embolism in Special Situations
 - 7.3.3.1. Pulmonary Embolism in Oncology Patients
 - 7.3.3.2. Pulmonary Embolism in Pregnant Women
- 7.4. Pulmonary Arterial Hypertension
 - 7.4.1. Epidemiology
 - 7.4.2. Diagnosis and Clinical Evaluation of Pulmonary Hypertension
- 7.5. Classification and Types of Pulmonary Hypertension
 - 7.5.1. ERS/ESC Rating of Pulmonary Hypertension
 - 7.5.2. Group 1 - Pulmonary Arterial Hypertension
 - 7.5.2.1. Pulmonary Veno-Occlusive Disease / Pulmonary Capillary Hemangiomatosis
 - 7.5.2.2. Persistent Pulmonary Hypertension in Newborns
 - 7.5.3. Group 2 - Pulmonary Hypertension Secondary to Left-Sided Heart Disease
 - 7.5.4. Group 3 - Pulmonary Hypertension Secondary to Pulmonary Diseases
 - 7.5.5. Group 4 - Chronic Thromboembolic Pulmonary Hypertension and Other Pulmonary Artery Obstructions
 - 7.5.6. Group 5 - Unestablished and / or Multifactorial Mechanism Pulmonary Hypertension





- 7.6. Therapeutic Management of Pulmonary Arterial Hypertension
 - 7.6.1. Pulmonary Hypertension (PH) Group 1
 - 7.6.2. Pulmonary Hypertension (PH) Group 2
 - 7.6.3. Pulmonary Hypertension (PH) Group 3
 - 7.6.4. Pulmonary Hypertension (PH) Group 4
 - 7.6.5. Pulmonary Hypertension (PH) Group 5
- 7.7. Hemoptysis
 - 7.7.1. Epidemiology, Etiology
 - 7.7.2. Differential Diagnosis
 - 7.7.3. Diagnostic Management
 - 7.7.4. Treatment
 - 7.7.5. Prognosis
- 7.8. Pulmonary Vasculitis
 - 7.8.1. Epidemiology and Etiopathogenesis
 - 7.8.2. Classification: Specific Vasculitis According to CHCC 2012 Classification
 - 7.8.3. Diagnosis
 - 7.8.4. Treatment
 - 7.8.5. Prophylaxis
 - 7.8.6. Prognosis
- 7.9. Alveolar Hemorrhage
 - 7.9.1. Alveolar Hemorrhage Diagnosis
 - 7.9.1.1. Pathologic Anatomy/Pathogenesis
 - 7.9.1.2. Differential Diagnosis
 - 7.9.2. Treatment
- 7.10. Intrapulmonary *Shunts*
 - 7.10.1. Hepatopulmonary Syndrome
 - 7.10.2. Arteriovenous Fistulae

Module 8. Sleep-Related Breathing Disorders

- 8.1. Physiology and Epidemiology
 - 8.1.1. Sleep Disorders Classification
 - 8.1.2. Obstructive Sleep Apnea (OSA)
 - 8.1.3. Pathophysiology
 - 8.1.4. Epidemiology
 - 8.1.5. OSA as a Public Health Problem
- 8.2. OSA Risk Factors
 - 8.2.1. Age and Sex
 - 8.2.2. Obesity
 - 8.2.3. Menopause
 - 8.2.4. Craniofacial Anatomy and Heredity
 - 8.2.5. Tobacco, Alcohol and Drugs
 - 8.2.6. Supine Position
- 8.3. OSA and Comorbidities
 - 8.3.1. OSA and Respiratory Diseases
 - 8.3.2. AHT and cardiovascular risk
 - 8.3.3. Endocrine Alterations
 - 8.3.4. Neurological Alterations
 - 8.3.5. Cancer
- 8.4. OSA Clinical Manifestations
 - 8.4.1. Symptoms and Signs
 - 8.4.2. Physical Exploration
 - 8.4.3. Complementary Evaluations
 - 8.4.4. Referral Criteria to the Sleep Unit
- 8.5. Diagnosis
 - 8.5.1. Medical History
 - 8.5.2. Polysomnography
 - 8.5.3. Respiratory Polygraphy
 - 8.5.4. Simplified Methods
 - 8.5.5. Other Complementary Tests
- 8.6. Treatment
 - 8.6.1. General Measures
 - 8.6.2. Continuous Positive Airway Pressure (CPAP) Treatment
 - 8.6.3. Other Positive Pressure Modalities: BiPAP and Servoventilator
 - 8.6.4. Different Options to Positive Pressure
- 8.7. OSA in Special Population Groups
 - 8.7.1. Children and Adolescents
 - 8.7.2. The Elderly
 - 8.7.3. Women
 - 8.7.4. OSA and Pregnancy
- 8.8. Central Apnea Syndrome
 - 8.8.1. Clinical Manifestations
 - 8.8.2. Diagnosis
 - 8.8.3. Treatment
- 8.9. Hypoventilation Syndromes
 - 8.9.1. Alveolar Hypoventilation Syndromes Classification
 - 8.9.2. Hypoventilation Obesity Syndrome
 - 8.9.3. Idiopathic Central Alveolar Hypoventilation
 - 8.9.4. Congenital Central Alveolar Hypoventilation Syndrome
 - 8.9.5. Drug or Substance Induced Hypoventilation during Sleep
 - 8.9.6. Medical Disorder Induced Hypoventilation during Sleep
- 8.10. Other Sleep Disorders
 - 8.10.1. Hypersomnias
 - 8.10.2. Parasomnias and Restless Legs Syndrome
 - 8.10.3. Insomnia and Somnolence

Module 9. Respiratory Failure: Non-Invasive Mechanical Ventilation High-Flow Oxygen Therapy

- 9.1. Respiratory Failure
 - 9.1.1. Pathophysiology-Specific (Partial, Global, Postoperative or Hypoperfusion / Shock)
 - 9.1.1.1. Onset-Time-Specific (Acute, Chronic and Accutely Chronic)
 - 9.1.1.2. Alveolar-Arterial Gradient-Specific (Normal or Elevated)
 - 9.1.1.3. Pathophysiological Mechanisms
 - 9.1.2. Oxygen Partial Pressure Decrease
 - 9.1.2.1. Shunt Presence
 - 9.1.2.2. Ventilation/Perfusion Imbalance (V/Q)
 - 9.1.2.3. Alveolar Hypoventilation
 - 9.1.2.4. Difussion Alteration
- 9.2. Diagnosis
 - 9.2.1. Clinical symptoms
 - 9.2.2. Arterial Blood Gas Analysis Interpretation
 - 9.2.3. Pulse Oximetry
 - 9.2.4. Imaging Tests
 - 9.2.5. Others: Respiratory Function Tests, ECG, Blood Analysis, etc.
 - 9.2.6. Respiratory Failure Etiology
 - 9.2.7. Respiratory Failure Treatment
 - 9.2.7.1. General Measures
 - 9.2.7.2. Oxygen Therapy, NIV and HFO (See Subsequent Sections)
- 9.3. Conventional Oxygen Therapy
 - 9.3.1. Acute Oxygen Therapy Indications
 - 9.3.2. Chronic Home Oxygen Therapy Indications
 - 9.3.3. Administrative Systems and Sources
 - 9.3.4. Oxygen Sources
 - 9.3.5. Special Situations: Flying
- 9.4. Non-Invasive Mechanical Ventilation (NIMV)
 - 9.4.1. Physiopathological Effects
 - 9.4.1.1. On the Respiratory System
 - 9.4.1.2. On the Cardiovascular System
 - 9.4.2. Components
 - 9.4.2.1. Interfaces
 - 9.4.2.2. Interphase Complications: Skin Lesions, Leaks, etc.
 - 9.4.2.3. Accessories
 - 9.4.3. Monitoring
- 9.5. Indications and Contraindications for NIMV
 - 9.5.1. Acute Phase
 - 9.5.1.1. Urgent Situations prior to Diagnostic Certainty
 - 9.5.1.2. Acute Hypercapnic Respiratory Failure (Acute COPD, OHS Patient Decompensation, Respiratory Center Depression, etc.)
 - 9.5.1.3. De Novo Hypoxemic ARF / ARDS / Immuno-Compromised
 - 9.5.1.4. Neuromuscular Diseases
 - 9.5.1.5. Postoperative Care
 - 9.5.1.6. *Weaning* and Extubation
 - 9.5.1.7. Patients Ordered Not to Intubate
 - 9.5.2. Chronic Phase
 - 9.5.2.1. COPD
 - 9.5.2.2. Restrictive Diseases (Chest Wall, Diaphragm, Neuromuscular, etc.)
 - 9.5.2.3. Palliative Care
 - 9.5.3. Contraindications
 - 9.5.4. NIMV Failure

- 9.6. Basic Concepts of NIMV
 - 9.6.1. Ventilator Respiratory Parameters
 - 9.6.1.1. Trigger
 - 9.6.1.2. Cycles
 - 9.6.1.3. Slope
 - 9.6.1.4. Inspiratory Positive Airway Pressure (IPAP)
 - 9.6.1.5. Expiratory Positive Airway Pressure (EPAP)
 - 9.6.1.6. Pressure Support
 - 9.6.1.7. Positive End-Expiratory Pressure (PEEP)
 - 9.6.1.8. Inspiration / Expiration (I/E) Ratio
 - 9.6.2. Respiratory Curves Interpretation
- 9.7. Predominant Ventilation Modalities
 - 9.7.1. Pressure Limits
 - 9.7.1.1. Continuous Positive Airway Pressure (CPAP)
 - 9.7.1.2. Bilevel Positive Airway Pressure (BiPAP)
 - 9.7.2. Volume Limits
 - 9.7.3. New Modalities: AVAPS, IVAPS, NAVA, *Autotrack*
- 9.8. Main Asynchronies
 - 9.8.1. Leakage-Induced
 - 9.8.1.1. Self-Cycling
 - 9.8.1.2. Prolonged Inspiration
 - 9.8.2. Ventilator-Induced
 - 9.8.2.1. Short Cycle
 - 9.8.2.2. Double Trigger
 - 9.8.2.3. Ineffective Effort
 - 9.8.3. Patient-Induced
 - 9.8.3.1. AutoPEEP
 - 9.8.3.2. Reverse Trigger
- 9.9. High-Flow Nasal Cannula Therapy (HFNCT)
 - 9.9.1. Components
 - 9.9.2. Clinical Effects and Action Mechanisms
 - 9.9.2.1. Oxygenation Improvement
 - 9.9.2.2. Dead Space Flushing
 - 9.9.2.3. PEEP Effect
 - 9.9.2.4. Decreased Respiratory Work
 - 9.9.2.5. Hemodynamic Effects
 - 9.9.2.6. Comfort
- 9.10. Clinical Applications and Contraindications for Tenofovir Alafenamide (TAF)
 - 9.10.1. Clinical Applications
 - 9.10.1.1. Acute Hypoxemic Respiratory Failure / ARDS / Immunocompromised
 - 9.10.1.2. Hypercapnic Respiratory Failure in COPD
 - 9.10.1.3. Acute Heart Failure and Acute Pulmonary Edema
 - 9.10.1.4. Surgical Setting: Invasive (Fibrobronchoscopy) and Postoperative Procedures
 - 9.10.1.5. Pre-Oxygenation before Intubation and Post-Extubation Respiratory Failure Prevention
 - 9.10.1.6. Palliative Patients
 - 9.10.2. Contraindications
 - 9.10.3. Complications

Module 10. Lung Transplantation

- 10.1. Lung Transplantation
 - 10.1.1. Historical Recollection
 - 10.1.2. Evolution in Recent Years: Demographic Review, Analysis by Pathologies and Survival
- 10.2. Receptor Selection
 - 10.2.1. Absolute Contraindications
 - 10.2.2. Relative Contraindications
 - 10.2.3. Pathology-Related Referral Indications to Lung Transplant Units
 - 10.2.3.1. Common Interstitial Pneumonia / Non-Specific Interstitial Pneumonia
 - 10.2.3.2. Chronic Obstructive Pulmonary Disease
 - 10.2.3.3. Cystic fibrosis
 - 10.2.3.4. Pulmonary Hypertension
 - 10.2.4. Lung Transplant Waiting List Indications by Pathology
 - 10.2.4.1. Common Interstitial Pneumonia / Non-Specific Interstitial Pneumonia
 - 10.2.4.2. Chronic Obstructive Pulmonary Disease
 - 10.2.4.3. Cystic fibrosis
 - 10.2.4.4. Pulmonary Hypertension
- 10.3. Donor Selection
 - 10.3.1. Brain-Dead Donor
 - 10.3.2. Asystole Donor
 - 10.3.3. Exvivo Evaluation System
- 10.4. Surgical Technique
 - 10.4.1. Affected Lung Explant
 - 10.4.2. Bench Surgery
 - 10.4.3. Graft Implant
- 10.5. Cardiorespiratory Assistance
 - 10.5.1. ECMO as a Bridge to Transplantation
 - 10.5.2. Intraoperative ECMO
 - 10.5.3. Postoperative ECMO
- 10.6. Lung Transplantation Complications
 - 10.6.1. Hyperacute Rejection
 - 10.6.2. Primary Graft Dysfunction
 - 10.6.3. Surgical Complications
 - 10.6.4. Perioperative Infections
- 10.7. Postoperative Care
 - 10.7.1. Immunosuppressive Treatment
 - 10.7.2. Infectious Prophylaxis
 - 10.7.3. Monitoring
- 10.8. Late Complications in Lung Transplantation
 - 10.8.1. Acute Cell Rejection (Early and Late)
 - 10.8.2. Chronic Graft Dysfunction: *Chronic Lung Allograft Dysfunction* (CLAD)
 - 10.8.2.1. Types
 - 10.8.2.2. Treatment
 - 10.8.3. Tumours
 - 10.8.3.1. Cutaneous Tumors
 - 10.8.3.2. Post-Transplant Lymphoproliferative Syndrome
 - 10.8.3.3. Solid Tumors
 - 10.8.3.4. Kaposi's Sarcoma
 - 10.8.4. Infections
 - 10.8.5. Other Common Complications
 - 10.8.5.1. Diabetes Mellitus
 - 10.8.5.2. Hyperlipidemia
 - 10.8.5.3. High Blood Pressure
 - 10.8.5.4. Acute and Chronic Kidney Failure
- 10.9. Quality of Life and Survival
 - 10.9.1. Quality of Life Analysis
 - 10.9.2. Survival Data; Evaluation by Subgroups
- 10.10. Retransplantation
 - 10.10.1. Indications and Limitations
 - 10.10.2. Survival and Quality of Life

06

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



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Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

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Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



07 Certificate

The Professional Master's Degree in Pulmonology guarantees, in addition to the most rigorous and updated training, access to a qProfessional Master's Degree issued by TECH Technological University.



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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”

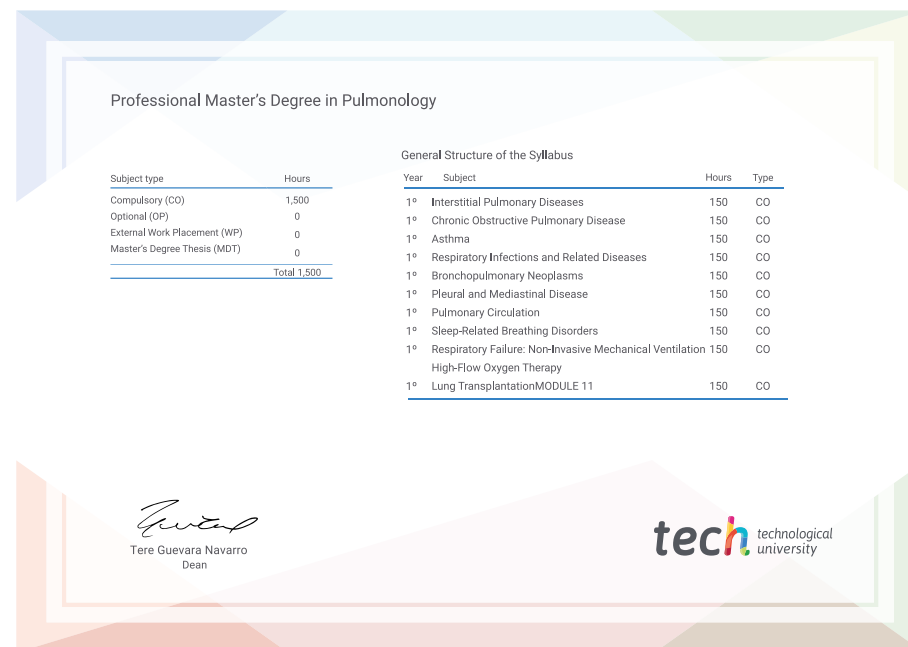
This **Professional Master's Degree in Pulmonology** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and it meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Professional Master's Degree in Pulmonology**

Official N° of hours: **1,500 h.**



*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



Professional Master's Degree

Pulmonology

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Professional Master's Degree

Pulmonology

