Advanced Master's Degree
Clinical Infectious Diseases and Antibiotic Therapy

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Advanced Master's Degree
Clinical Infectious Diseases and Antibiotic Therapy

- Modality: **online**
- Duration: **2 years**
- Certificate: **TECH Global University**
- Credits: **120 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/medicine/advanced-master-degree/advanced-master-degree-clinical-infectious-diseases-antibiotic-therapy

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01

Introduction

Infectious diseases continue to account for a high percentage of deaths worldwide. There is no part of the world where this type of disease can't occur, as has been demonstrated in recent years with the appearance of COVID-19. Therefore, all research efforts should be focused on the development of new drugs that are effective and that will overcome antibiotic resistance. To enhance the training of medical professionals, this comprehensive program has been designed to provide students with the most comprehensive information available on clinical infectious diseases and advances in antibiotic therapy. Undoubtedly a unique study opportunity that can’t be missed.

Research on Clinical Infectious Diseases and Antibiotic Therapy is essential in order to achieve the most effective treatments which will improve the health of patients"

Infectious diseases have a high morbidity rate worldwide. Around 17.3 million people died from infections in 2016, with the most common causes of death being from lower respiratory infections (3.7 million), malaria (2.2 million), tuberculosis (1.3 million), diarhhea (1.3 million) and HIV/AIDS (1.1 million). In addition, the emergence of the recent COVID-19 infection, which became a pandemic in 2020, has created global chaos, with the world's leading research countries scrambling to develop effective vaccines that have been developed in just a few months.

The most important factors to take into consideration in relation to infectious diseases are demographics and human behavior, technological and industrial development, economic development and variations in land use, intercontinental travelling and commerce, climate change, microbiotic adaptation and finally the disappearance or reduction of efficient public health measures. These factors, interacting with each other, have meant that we should not consider any part of the planet reasonably isolated from the rest, nor consider that the appearance, reappearance or dissemination of imported or apparently eradicated infectious diseases in our environment is impossible.

For this reason, studies for the prevention, diagnosis, treatment and follow-up of this type of disease are constantly taking place at an international level, with antimicrobials being the key to achieving the survival of patients. However, the irrational use of these drugs has harmed their results, allowing the emergence of antimicrobial resistances that impair patient recovery. In fact, antimicrobial resistance is currently one of the greatest threats to global public health, and if urgent action is not taken, the so-called "post-antibiotic era" could be reached, where no antimicrobial would have any place in treatment and infections would be fatal. Therefore, although resistance is a natural phenomenon, the irrational use of these drugs is speeding up the process.

With this Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy, TECH wants to offer physicians superior specialist education, different from what they can find in any other university, and of great academic value, by uniting the most relevant specialist knowledge on clinical infectious diseases and the main advances in antibiotic therapy and antibiotic resistance. Undoubtedly, a unique academic program that not only stands out for the quality of its content, but also for its teaching team. It is composed of professionals in the area who have extensive experience in the field, and in teaching, and who are qualified to work with the latest educational technology.

This **Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy** contains the most complete and up-to-date academic course on the university scene. The most important features of the program include:

- The latest technology in e-learning software
- A highly visual teaching system supported by graphic and schematic contents that are easy to assimilate and understand
- The development of practical case studies presented by practising experts
- State-of-the-art interactive video systems
- Teaching supported by telepractice
- Continuous updating and retraining systems
- Self-organized learning which makes the course completely compatible with other commitments
- Practical exercises for self-assessment and learning verification
- Support groups and educational synergies: Questions to the expert, discussion forums and knowledge
- Communication with the teacher and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection
- Supplementary documentation databases are permanently available, even after the program

We offer you a quality specialization with which you can expand your skills in the field of infectious diseases, and that will be very useful in your daily practice"

A high-level scientific program, supported by advanced technological development and the teaching experience of the best professionals"

Our teaching staff is made up of practicing professionals. In this way TECH makes sure to offer the educational update of knowledge that it intends to achieve. A multidisciplinary team of professionals with training and experience in different environments, who will develop the theoretical knowledge in an efficient way, but above all, they will contribute their practical knowledge from their own experience to the course.

The effectiveness of the methodological design of this Advanced Master's Degree enhances the student's understanding of the content. Developed by a multidisciplinary team of *e-learning* experts, it integrates the latest advances in educational technology. In this way, the student will be able to study with a range of comfortable and versatile multimedia tools that will give them the operability they need in their learning.

The design of this program is based on Problem-Based Learning: an approach that approaches learning as a highly practical process. To achieve this remotely, we will use telepractice. With the help of an innovative interactive video system and Learning from an Expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and consolidate learning in a more realistic and permanent way.

Access all the content of this Advanced Master's Degree at any time. All you need is a computer or mobile device with an Internet connection.

With our innovative methodology, you will be able to practice with simulated cases as if you were confronting real situations. In this way you will acquire the confidence you need to carry out your daily work.

02

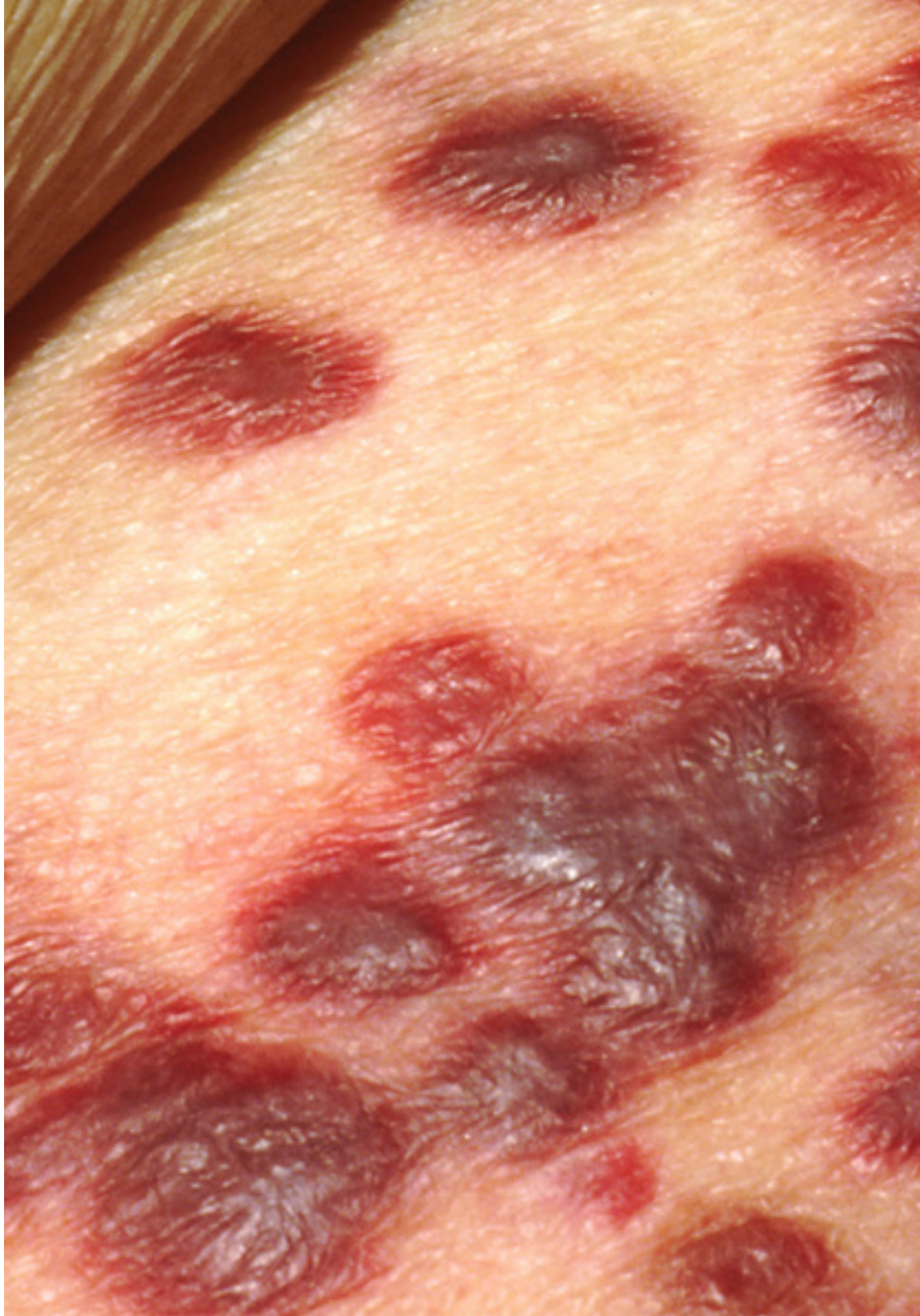
Objectives

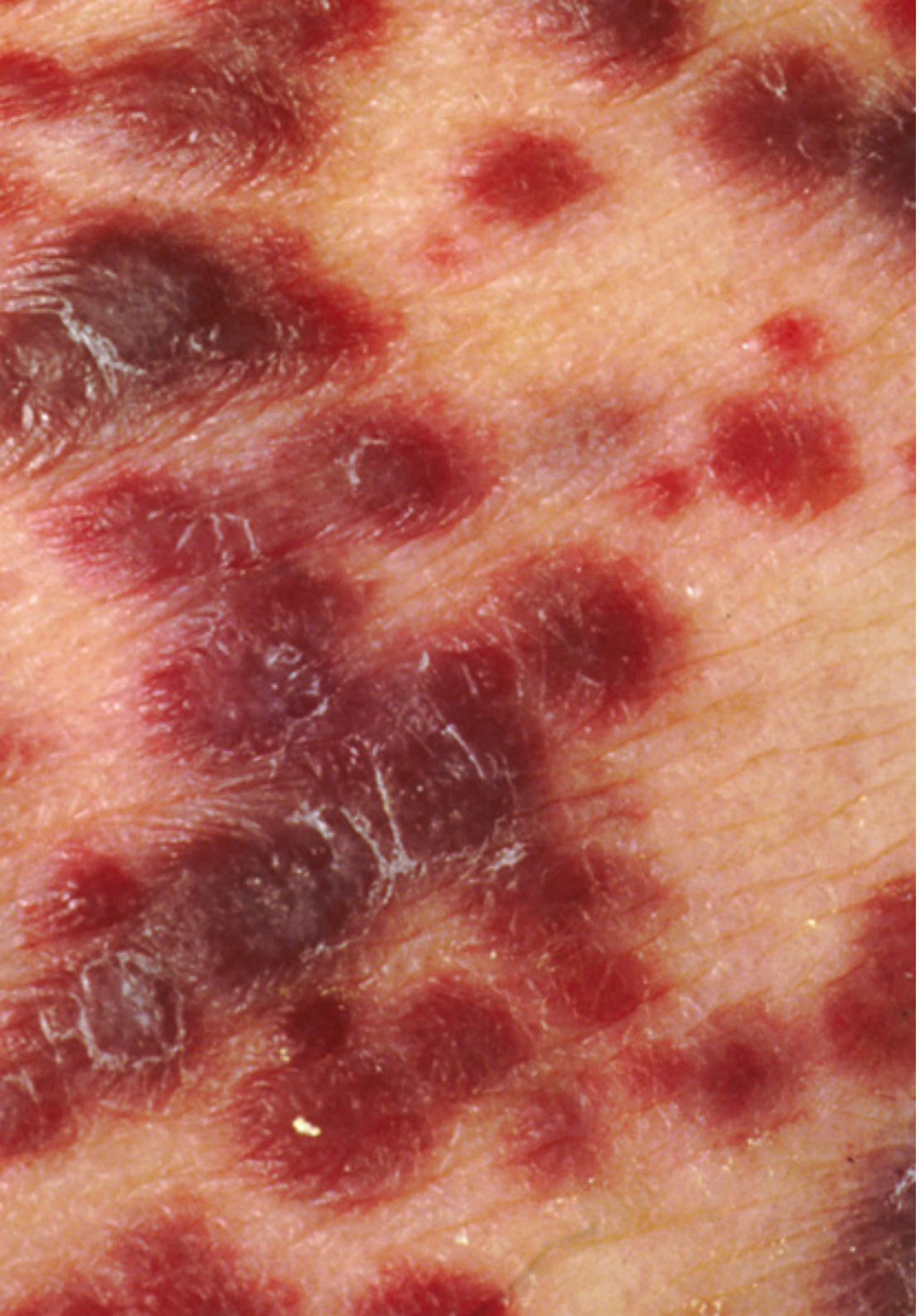
TECH's objective is to prepare highly qualified professionals, who are capable of carrying out their daily work confidently and with guarantees of success, both in their profession as well as in the health of their patients. To this end, it offers the perfect equation: high quality content and a teaching team that is renowned in the sector.

At TECH, we give you the opportunity to obtain a higher qualification in Clinical Infectious Diseases and Antibiotic Therapy thanks to the best teaching program on the market"

General Objectives

- Update or deepen your knowledge and develop your skills for daily clinical practice in healthcare, teaching or research roles in the field of infectious diseases in order to provide individual or group population care that allows for the improvement of health indicators
- Improve the medical care and the overall health of patients with infectious diseases based on integral care, the application of the epidemiological clinical method and the correct use of antimicrobials in correspondence with the most up to date scientific evidence
- Guarantee professional improvement, through up-to-date and in-depth knowledge of the best scientific evidence in antibiotic therapy and antibiotic resistance and for proper use of medication and appropriate treatment of infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies





Specific Objectives

Module 1. Epidemiology, the Clinical Method and Scientific Research in Infectious Diseases

- Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the process of health and infectious illness
- Develop skills to implement prophylactic plans for the prevention of these pathologies
- Assess and interpret the epidemiological characteristics and conditions in the continents where the appearance and development of infectious diseases often occur
- Highlight the development of vaccines for new diseases

Module 2. Microbiological Diagnosis and Other Examinations for Infectious Diseases

- Provide training and practical theoretical improvement that will enable a reliable clinical diagnosis supported by the efficient use of diagnostic methods to indicate an effective integral treatment
- Address the important role of microbiology and the infectologist in the control of infectious diseases
- Explain the pathogenic mechanisms and the most frequent neoplasms associated with infectious agents

Module 3. The Immune System in Infections in the Immunosuppressed Host

- Explain the complex interrelationships between infections and different types of immunosuppression
- Highlight the role of immunity in the most frequent central nervous system infections and their complications

Module 4. General Elements of Infectious Diseases

- Describe the clinical, diagnostic, and therapeutic characteristics of sexually transmitted infections

Module 5. Viral and Antiviral Diseases

- Highlight the role of vector control and the clinical epidemiological study of the arboviruses
- Address in detail and depth the most up-to-date scientific evidence in the vast world of hepatitis
- Support the importance in the control of viral hemorrhagic diseases and the detailed study of the most frequent and deadly diseases for the reduction of global morbimortality
- Gain an in-depth understanding of the most innovative clinical, diagnostic and therapeutic elements of the deadliest respiratory infections

Module 6. Latest Information on Coronavirus Infections

- Gain in-depth knowledge of the study of COVID-19 infection, acquiring the skills for correct patient management
- Understand the peculiarities of this pathology, understanding that there are previous pathologies that can cause more serious effects in patients

Module 7. HIV/AIDS Infection

- Explain the pathophysiological and pathogenic interrelationships between tuberculosis co-infection and HIV/AIDS infection

Module 8. Bacterial Diseases and Antimicrobials

- Emphasize the role of urinary tract infection and the development of chronic kidney disease
- Highlight the role of zoonoses as a major global health problem

Module 9. Mycotic Diseases

- Explain the mycoses with the highest morbidity and mortality rates

Module 10. Parasitic, Tropical and Anti-Parasitic Diseases

- Gain in-depth knowledge of the study of the most important parasitic diseases
- Highlight the importance of morbidity and mortality due to infections in international travelers

Module 11. Nosocomial Infections Associated with Healthcare and Patient Safety

- Describe the main elements that favor occupational accidents and the transmission of pathogens through blood

Module 12. The Role of Infectologists in Health Services

- Emphasize the future challenges in infectology in reducing morbidity and mortality from infectious diseases

Module 13. Introduction to Pharmacology and Treatment

- Describe the most important elements of the absorption, transportation, distribution, metabolism, and excretion of antibiotics
- Gain deeper understanding of drug usage studies within pharmacoepidemiology to facilitate the selection of antimicrobials in daily clinical practice

Module 14. Antimicrobials: General Aspects

- Develop skills to implement prophylactic plans for the prevention of these pathologies
- Explain the pathophysiologic and pathogenic interrelationships between antimicrobial use and the immune response
- Emphasize the role of immunity and new alternatives for the treatment of infections

Module 15. Antivirals
- Know the mechanisms of action of antivirals for the different pathologies of this type that affect human beings

Module 16. Antibiotics I
- Address, in detail and depth, the most up-to-date scientific evidence on the mechanisms of action, adverse effects, dosage, and use of antimicrobials

Module 17. Antibiotics II
- Gain in-depth knowledge of the different types of antibiotic drugs that can be used, taking into account the infectious pathology to be treated

Module 18. Antibiotics III
- Learn about the main advances in the field of antibiotics, focusing on multidrug-resistant bacteria
- Address the crucial issue of super-resistant microbes and their relationship to antimicrobial use based on the most up-to-date concepts

Module 19. Antimycotics
- Understand the mechanisms of action of antimycotics
- Study the hepatic toxicity of systemic antifungal agents

Module 20. Antiparasitics
- Know the most appropriate antiparasitic medication for each disease
- Know the latest recommendations of the World Health Organization regarding the use of antimalarial drugs

Module 21. Antibiotic Resistance
- Describe the main mechanisms of antimicrobial resistance
- Address the most important elements among the resistance mechanisms of superbugs and other germs in a general sense

Module 22. Monitoring and Controlling the Use of Antimicrobials
- Justify the importance of controlling the use of antimicrobials as alternatives to reduce antibiotic resistance
- Highlight the importance of reasoned therapeutics in the rational use of antimicrobials

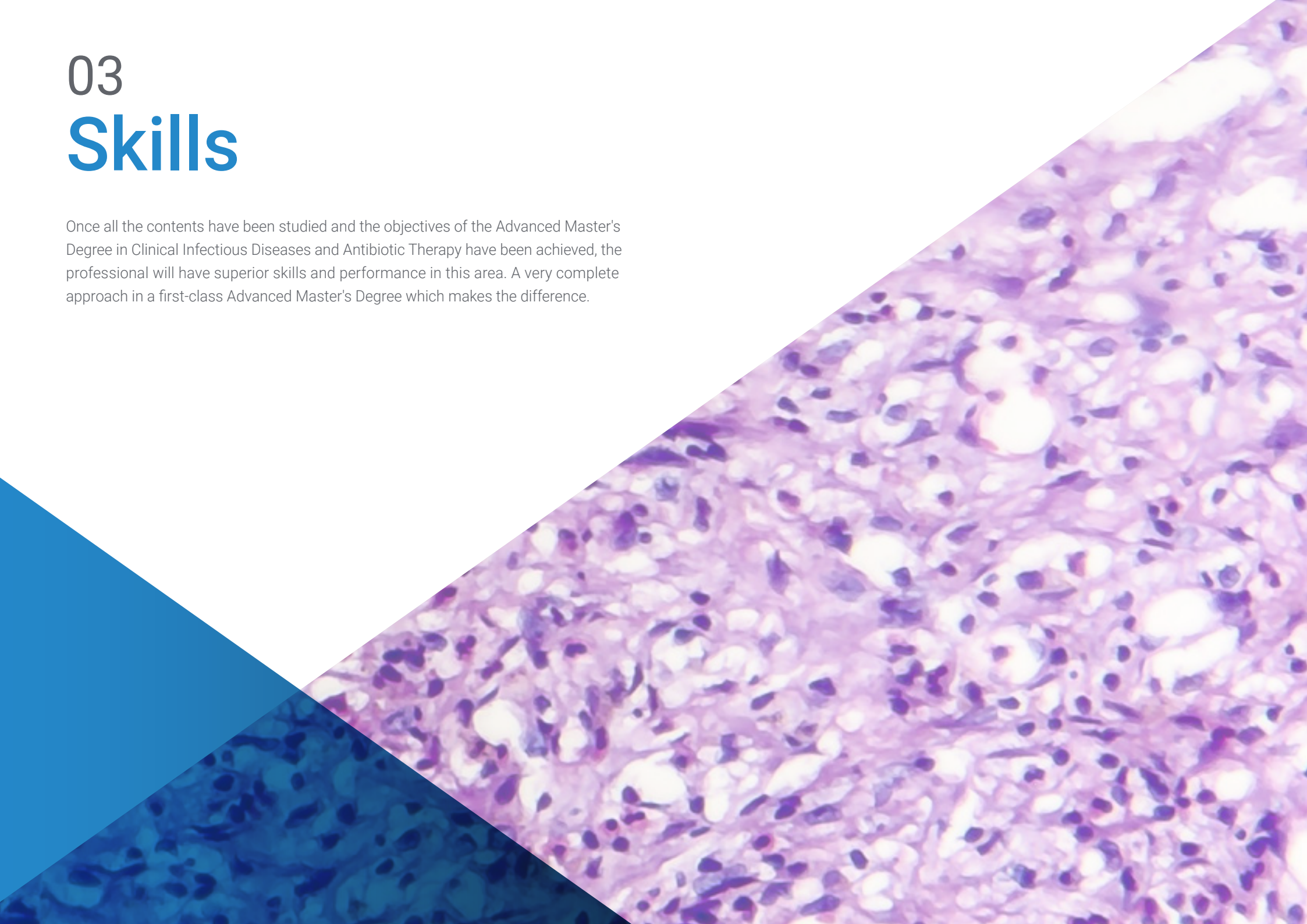
Module 23. Antibiotics and Antimicrobial Treatments of the Future
- Explain the production process of new antibiotics
- Emphasize the development of future antibiotics and other therapeutic modalities for infectious diseases
- Emphasize the future challenges of infectious diseases in the reduction of infectious morbidity and mortality and antimicrobial treatment

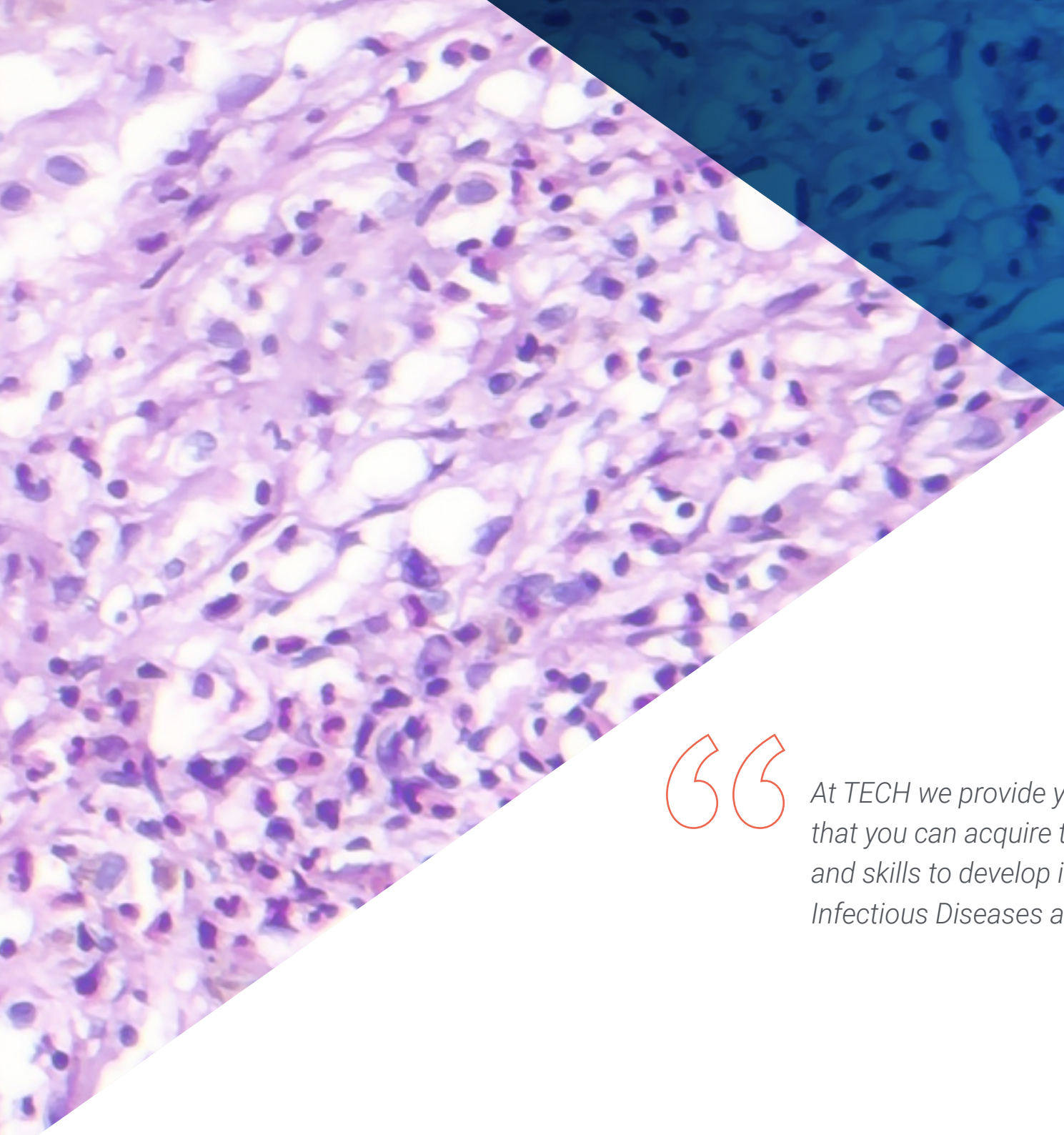
We are the largest online university in the world and we want to help you improve your future"

03

Skills

Once all the contents have been studied and the objectives of the Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy have been achieved, the professional will have superior skills and performance in this area. A very complete approach in a first-class Advanced Master's Degree which makes the difference.

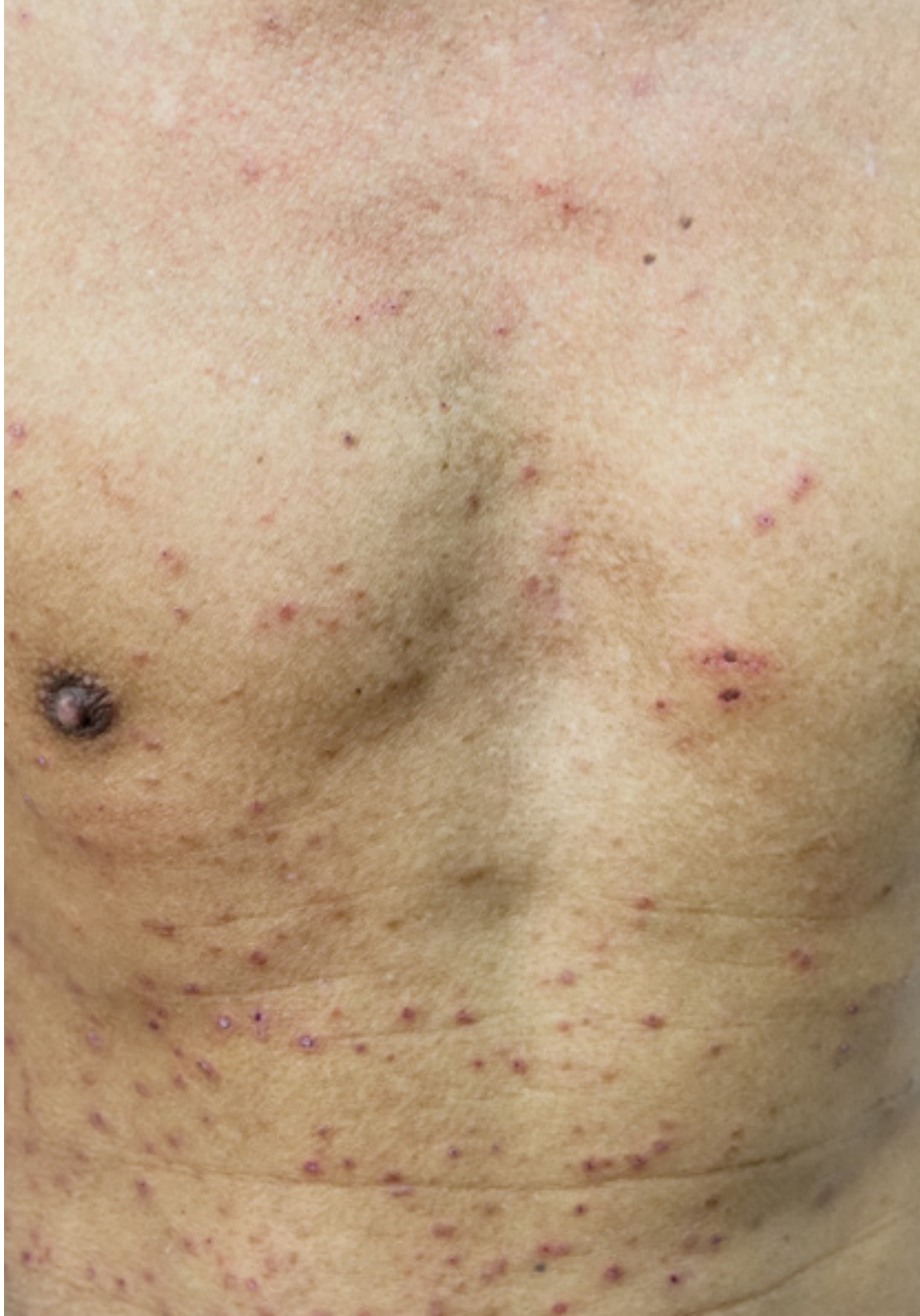




At TECH we provide you with all our tools so that you can acquire the necessary knowledge and skills to develop in the field of Clinical Infectious Diseases and Antibiotic Therapy"

General Skills

- Apply the epidemiological and clinical method in the collective or individual care of patients to resolve the main health problems related to infectious diseases
- Perform a critical reading of the scientific literature on antimicrobial use and antibiotic resistance and at the same time have the tools to communicate their research results
- Collect, process and analyze any scientific information in very diverse clinical and epidemiological contexts, in order to make diagnostic and therapeutic decisions in the field of Clinical Infectious Diseases specifically and healthcare in general
- Develop learning to learn as one of the most important skills for any professional nowadays, who is obliged to constantly train and improve their professional skills due to the dizzying and accelerated process of scientific knowledge production
- Increase its diagnostic and therapeutic capabilities for infectious diseases and the health care of its patients in general, through the in-depth study of the latest scientific, epidemiological, clinical, pathophysiological, diagnostic and therapeutic advances in these diseases
- Perfect the skills to manage, advise or lead multidisciplinary teams that are studying the use of antibiotics and antibiotic resistance in communities or individual patients, as well as scientific research teams
- Develop skills for self-improvement, in addition to being able to provide training and professional improvement activities due to the high level of scientific and professional preparation acquired with this program
- Educate the population in the use of antimicrobials in order to acquire and develop a culture of prevention, based on healthy lifestyle



Specific Skills

- Master the host, antibiotic and germ determinants of antimicrobial prescribing and their impact on morbidity and mortality rates of infectious diseases based on the study of progress achieved and future challenges in the field of antibiotic therapy and antibiotic resistance
- Identify and analyze the latest scientific information on antibiotic resistance in order to design plans and programs to control it
- Apply existing control measures to prevent the transmission of multiresistant germs in real and/or modeled situations
- Identify, in a timely manner, the appearance of resistant germs and the overuse of antibiotics, based on the application of the scientific method of the profession
- Perform a timely diagnosis, based on clinical manifestations, of the most frequent or new infections in order to ensure their correct treatment, rehabilitation and control
- Justify the importance of clinical-therapeutic discussion as an important public health measure for the control of antimicrobial use and antibiotic resistance
- Identify the biological, social, economic, and medical risk factors that determine the incorrect use of antimicrobials
- Master the clinical, epidemiological, diagnostic and therapeutic elements for the main resistant bacterial threat
- Educate the community on the proper use of antibiotics
- Identify the fundamental aspects of pharmacokinetics and pharmacodynamics for the selection of antimicrobial therapeutics
- Halt the progression of antibiotic resistance, based on reasoned treatment and supported by the best scientific evidence
- Correctly use and interpret all microbiological studies and other diagnostic resources in the care of your patients
- Master the most recent elements of antimicrobial utilization studies
- Advise pharmaceutical and biotechnology industry teams in the process of research and production of new antimicrobials and alternative treatments for infectious diseases
- Lead work teams in health institutions, such as pharmacotherapeutic and antimicrobial utilization committees
- Develop normative or referential documents such as clinical practice guidelines or antimicrobial utilization policies with the latest scientific concepts

We want to offer you the best teaching material guided by a team of specialized professionals and we do so following the highest educational quality standards"

04

Course Management

The professionals participating in this Advanced Master's Degree are a multidisciplinary team, backed by their years of medical and teaching experience, and have the necessary educational quality for high-level medical professionals. A unique educational framework that will help progress in the field.

Our teaching team will provide you with the most relevant information on Clinical Infectious Diseases and Antibiotic Therapy"

International Guest Director

Dr. Dominique Franco is a specialist in **liver surgery** and **treatment of hepatocellular carcinoma**, with an extensive background in the field of **regenerative medicine**. Throughout his career, he has focused his research on **cell therapy** for **liver diseases** and **organ bioconstruction**, areas in which he has made innovative contributions. His work focuses on developing new treatment techniques that not only seek to improve the effectiveness of surgical interventions, but also to optimize the quality of life of patients.

He has held leadership roles in several prestigious institutions. **He was Head of the Department of Liver Surgery and Transplantation at the Hôpital Antoine-Béclère**, where he participated in medical milestones such as the first liver transplant performed in Europe. His extensive experience in advanced surgery and transplantation has allowed him to acquire a deep knowledge in the management of complex liver pathologies, becoming a reference in the medical field both nationally and internationally. In addition, he has been **Director Emeritus of Digestive Surgery at the University Paris-Sud,** where he has contributed to the training of new generations of surgeons.

Internationally, he is recognized for his contributions to the development of Regenerative Medicine. In 2014, he founded CellSpace, an association dedicated to promoting **tissue and organ bioengineering** in France, with the aim of bringing together researchers from different disciplines to advance this field.

He has published more than 280 scientific articles in international journals, addressing topics such as Liver Surgery, **hepatocellular carcinoma** and Regenerative Medicine. In addition, he is a member of the U-1193 research unit at Inserm and a consultant at the Institut Pasteur, where he continues his work as a consultant on cutting-edge projects, contributing to expand the **boundaries of medical knowledge in his area of expertise**.

Dr. Franco, Dominique

- Academic Director of the Institut Pasteur, Paris, France
- Vice President Health Cluster for Physician Competitiveness
- Head of the Digestive Surgery Department at Antoine-Béclère Hospital (APHP)
- Director Emeritus of Digestive Surgery at the University Paris-Sud
- Founder of CellSpace
- Member of the research unit U-1193 of Inserm
- President of the French National Academy of Surgery

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

Guest Director

Dr. Díaz Pollán, Beatriz

- Faculty Specialist in Emergency Medicine at La Paz University Hospital. Since 2013
- Official Doctoral Program in Clinical Medicine, Rey Juan Carlos University 2014
- Degree in Medicine and Surgery, Autonomous University of Madrid 1995
- Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University. 2018
- Specialist Degree in Community and Nosocomial Infections from CEU Cardenal Herrera University. 2018
- Specialist Degree in Chronic Infectious Diseases and Imported Infections from CEU Cardenal Herrera University. 2018
- Specialist Degree in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU Cardenal Herrera University. 2018
- Faculty Specialist at San Carlos Clinical Hospital. 2001-2013
- Resident Physician, San Carlos Clinical Hospital 1996-2001

Professors

Dr. Rico, Alicia

- Specialist in the Microbiology and Parasitology Department at La Paz University Hospital. 2020
- Degree in Medicine from the Complutense University Madrid. 1998
- Doctorate Courses at the Complutense University of Madrid
- Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit, La Paz University Hospital, Madrid. Since 2007
- Clinical Teaching Collaborator, Department of Medicine of the UAM. Since 2015

Dr. Loeches Yagüe, María Belén

- Specialist in the area of Infectious Diseases at La Paz General University Hospital, Madrid. Since 2012
- PhD in Medicine, Autonomous University of Madrid 2017
- Degree in Medicine from the Complutense University of Madrid. 1999
- Master's Degree in Theoretical and Practical Learning in Infectious Diseases, Complutense University of Madrid. 2009
- Specialized Training in Microbiology and Infectious Diseases, Gregorio Marañón General University Hospital. 2005-2009
- Professor of Infectious Diseases at the Infanta Sofia University Hospital of Madrid, European University of Madrid. 2013-2015

Dr. Ramos, Juan Carlos

- Doctor at La Paz University Hospital Since 2013
- Official Doctoral Program in Medicine, University of Alcalá. 2006
- Degree in Medicine and Surgery from the Complutense University of Madrid. 1994
- Master's Degree in Infectious Diseases in Intensive Care, Valencia University-Business Foundation 2019
- Author of Several Scientific Publications

Dr. Arribas López, José Ramón

- Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit, La Paz University Hospital. Since 2015
- PhD in Medicine, Autonomous University of Madrid 1993
- Degree in Medicine and Surgery from the Complutense University of Madrid. 1985
- Coordinator of the High Level Isolation Unit, La Paz - Carlos III Hospital
- Member Interministerial Committee for the management of the Ebola crisis
- Head of the AIDS and Infectious Diseases research group at IdiPAZ

Dr. Mora Rillo, Marta

- Specialist in the area of Infectious Diseases at La Paz University Hospital. Since 2008
- PhD in Medicine, Autonomous University of Madrid 2013
- Degree in Medicine and Surgery, Zaragoza University 1999
- Master's Degree in Infectious Diseases in Intensive Care, Valencia University 2018
- Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University. 2017
- Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid. 2014
- Expert in Emerging and High-Risk Virus Pathology, Autonomous University of Madrid. 2019
- Specialist Degree in Tropical Medicine from the Autonomous University Madrid. 2012

05

Structure and Content

The contents of this Advanced Master's Degree have been developed by the different experts on this course, with a clear purpose: to ensure that our students acquire each and every one of the skills required to become true experts in this field. The content of this Advanced Master's Degree will allow you to learn all aspects of the different disciplines involved in this area. A complete and well-structured program that will take you to the highest standards of quality and success.

Our academic program will allow you to aquire the necessary skills for your personal and professional development"

Module 1. Epidemiology, the Clinical Method and Scientific Research in Infectious Diseases

1.1. The Clinical Method in the Diagnostic Process of Infectious Diseases
- 1.1.1. Fundamental Concepts of the Clinical Method: Stages, Principles
- 1.1.2. The Clinical Method and its Usefulness in Infectology
- 1.1.3. Most Common Errors in the Application of the Clinical Method

1.2. Epidemiology in the Study of Infectious Diseases
- 1.2.1. Epidemiology as a Science
- 1.2.2. The Epidemiological Method
- 1.2.3. Epidemiology Tools Applied in the Study of Infectious Diseases

1.3. Clinic Epidemiology and Scientific Evidence-Based Medicine
- 1.3.1. Scientific Evidence and the Clinical Experience
- 1.3.2. The Importance of Evidence-Based Medicine in Diagnosis and Treatment
- 1.3.3. Clinical Epidemiology as a Powerful Weapon of Medical Thinking

1.4. Behavior of Infectious Diseases in the Population
- 1.4.1. Endemic
- 1.4.2. Epidemic
- 1.4.3. Pandemic

1.5. Confronting Epidemic Outbreaks
- 1.5.1. Diagnosis of Epidemic Outbreaks
- 1.5.2. Measures for the Control of Epidemic Outbreaks

1.6. Epidemiological Monitoring
- 1.6.1. Types of Epidemiological Monitoring
- 1.6.2. Designs of an Epidemiological Monitoring System
- 1.6.3. Usefulness and Importance of Epidemiological Monitoring

1.7. International Health Regulations
- 1.7.1. Components of International Health Regulations
- 1.7.2. Diseases Subject to International Sanitary Control
- 1.7.3. Importance of International Health Regulations

1.8. Mandatory Reporting Systems for Infectious Diseases
- 1.8.1. Characteristics of Diseases Subject to Mandatory Reporting
- 1.8.2. Role of the Doctor in Mandatory Reporting Systems for Infectious Diseases

1.9. Vaccines
- 1.9.1. Immunological Basis of Vaccines
- 1.9.2. Development and Production of Vaccines
- 1.9.3. Diseases Preventable with Vaccines
- 1.9.4. Experiences and Results of the Vaccine System in Cuba

1.10. Research Methodology in the Field of Health
- 1.10.1. The importance of Public Health in Research Methodology as a Science
- 1.10.2. Scientific Thought in Healthcare
- 1.10.3. The Scientific Method
- 1.10.4. Stages of Scientific Research

1.11. Information Management and the Use of New Information and Communication Technologies (ICT)
- 1.11.1. The Use of New ICT in the Management of Knowledge for Healthcare Professionals in the Professional Clinical, Teacher and Research Work
- 1.11.2. Information Literacy

1.12. Design of Research Studies for Infectious Diseases
- 1.12.1. Types of Studies in Healthcare and Medical Sciences
- 1.12.2. The Design of Research Applied to Infectious Diseases

1.13. Descriptive and Inferential Statistics
- 1.13.1. Summary Measures for the Different Variables in Scientific Research
- 1.13.2. Central Tendency Measures: Mean, Mode and Median
- 1.13.3. Dispersion Measures: Variants and Standard Deviation
- 1.13.4. Statistical Estimation
- 1.13.5. Population and Sample
- 1.13.6. Tools for Inferential Statistics

1.14. Design and Use of Databases
- 1.14.1. Types of Databases
- 1.14.2. Programs and Statistical Packages for the Management of Databases

1.15. Protocol of Scientific Research
- 1.15.1. Protocol Components of Scientific Research
- 1.15.2. Usefulness of Protocol of Scientific Research

1.16. Clinical Trials and Meta Analysis
- 1.16.1. Types of Clinical Trials
- 1.16.2. The Role of a Clinical Trial in Healthcare Research
- 1.16.3. Meta Analysis: Conceptual Definitions and their Methodological Design
- 1.16.4. Application of Meta-Analyses and their Role in the Medical Sciences

1.17. Critical Reading of Research Results
- 1.17.1. Medical Journals, their Role in the Dissemination of Scientific Information
- 1.17.2. Medical Journals of High-Impact on a Global Level in the Field of Infectology
- 1.17.3. Methodological Tools for Critical Reading of Scientific Literature

1.18. Publication of Scientific Research Results
- 1.18.1. The Scientific Article
- 1.18.2. Types of Scientific Articles
- 1.18.3. Methodology Requirements for the Publication of Scientific Research Results
- 1.18.4. The Process of Scientific Publications in Medical Journals

Module 2. Microbiological Diagnosis and Other Examinations for Infectious Diseases

2.1. Organization, Structure and Functioning of the Microbiology Laboratory
- 2.1.1. Organization and Structure of the Microbiology Laboratory
- 2.1.2. Functioning of a Microbiology Laboratory

2.2. Principles of the Use of Microbiological Examinations in Patients with Infectious Pathologies: The Process of Collecting Specimens
- 2.2.1. The Role of Microbiological Studies in the Diagnosis of Infectious Diseases
- 2.2.2. The Microbiological Sampling Process: Preanalytical, Analytical, and Postanalytical
- 2.2.3. Sampling Requirements for the Main Microbiological Studies used in Daily Clinical Practice: Blood, Urine, Stool, Sputum

2.3. Virological Studies
- 2.3.1. Types of Virus and their General Characteristics
- 2.3.2. General Characteristics of Virological Studies
- 2.3.3. Viral Culture
- 2.3.4. Viral Genome Studies
- 2.3.5. Studies of Antigens and Antibodies Against the Virus

2.4. Bacteriological Studies
- 2.4.1. Classification of Bacteria
- 2.4.2. General Characteristics of Bacteriological Studies
- 2.4.3. Stains for Bacterial Identification
- 2.4.4. The Study of Bacterial Antigens
- 2.4.5. Cultivation Methods: General and Specific
- 2.4.6. Bacteria That Need Special Study Methods

2.5. Mycological Studies
- 2.5.1. Classification
- 2.5.2. Main Mycological Studies

2.6. Parasitic Studies
- 2.6.1. Classification of Parasites
- 2.6.2. Studies for Protozoa
- 2.6.3. Studies for Helminths

2.7. Appropriate Interpretation of Microbiological Studies
- 2.7.1. The Microbiological Clinical Interrelationship for the Interpretation of Microbiological Studies

2.8. Interpreted Reading of the Antibiogram
- 2.8.1. Traditional Interpretation of the Antibiogram With Relation to the Sensitivity and Resistance to Antimicrobials
- 2.8.2. Interpreted Reading of the Antibiogram: Current Paradigm

2.9. Use of Microbial Map of an Institution
- 2.9.1. What is a Microbial Map of an Institution?
- 2.9.2. Clinical Application of the Microbial Map

2.10. Biosafety
- 2.10.1. Conceptual Definitions of Biosafety
- 2.10.2. Importance of Biosafety for Health Services
- 2.10.3. Universal Measures of Precaution
- 2.10.4. Manage the Biological Waste in a Healthcare Institution

2.11. The Clinical Laboratory in the Study of Infectious Diseases
- 2.11.1. Reactants of the Acute Phase
- 2.11.2. Studies of Liver Function, Internal Environment, Coagulation and Renal Function in Sepsis
- 2.11.3. Study of Inflammatory Liquids in the Diagnosis of Infections
- 2.11.4. Biomarkers Usefulness in Clinical Practice

2.12. Imaging Studies for the Diagnosis of Infectious Pathology
- 2.12.1. The Role of Imaging Studies in the Diagnosis of Infectious Diseases
- 2.12.2. The Role of Ultrasound in the Integral Evaluation of a Patient with Sepsis

2.13. The Role of Genetic and Immunological Studies
- 2.13.1. Studies of Genetic Illnesses and their Predisposition of Infectious Diseases
- 2.13.2. Immunological Studies on Immunosuppressed Patients

2.14. Usefulness of Pathological Anatomy Studies
- 2.14.1. Alterations in Cytological Studies According to the Type of the Biological Agent
- 2.14.1. Necropsy and Its Importance in Infectious Mortality

2.15. Assessment of the Severity of Infectious Diseases
- 2.15.1. Prognosis Scales in the Care of Patients with Infectious Pathologies Based on Laboratory Studies and Clinical Elements
- 2.15.2. SOFA Score Usefulness in the Current Day: Components of SOFA, What it Measures Usefulness in the Assessment of a Patient
- 2.15.3. Main Complications in Infectious Diseases

2.16. Worldwide Campaign Against Sepsis
- 2.16.1. Emergence and Evolution
- 2.16.2. Objectives
- 2.16.3. Recommendations and Impact

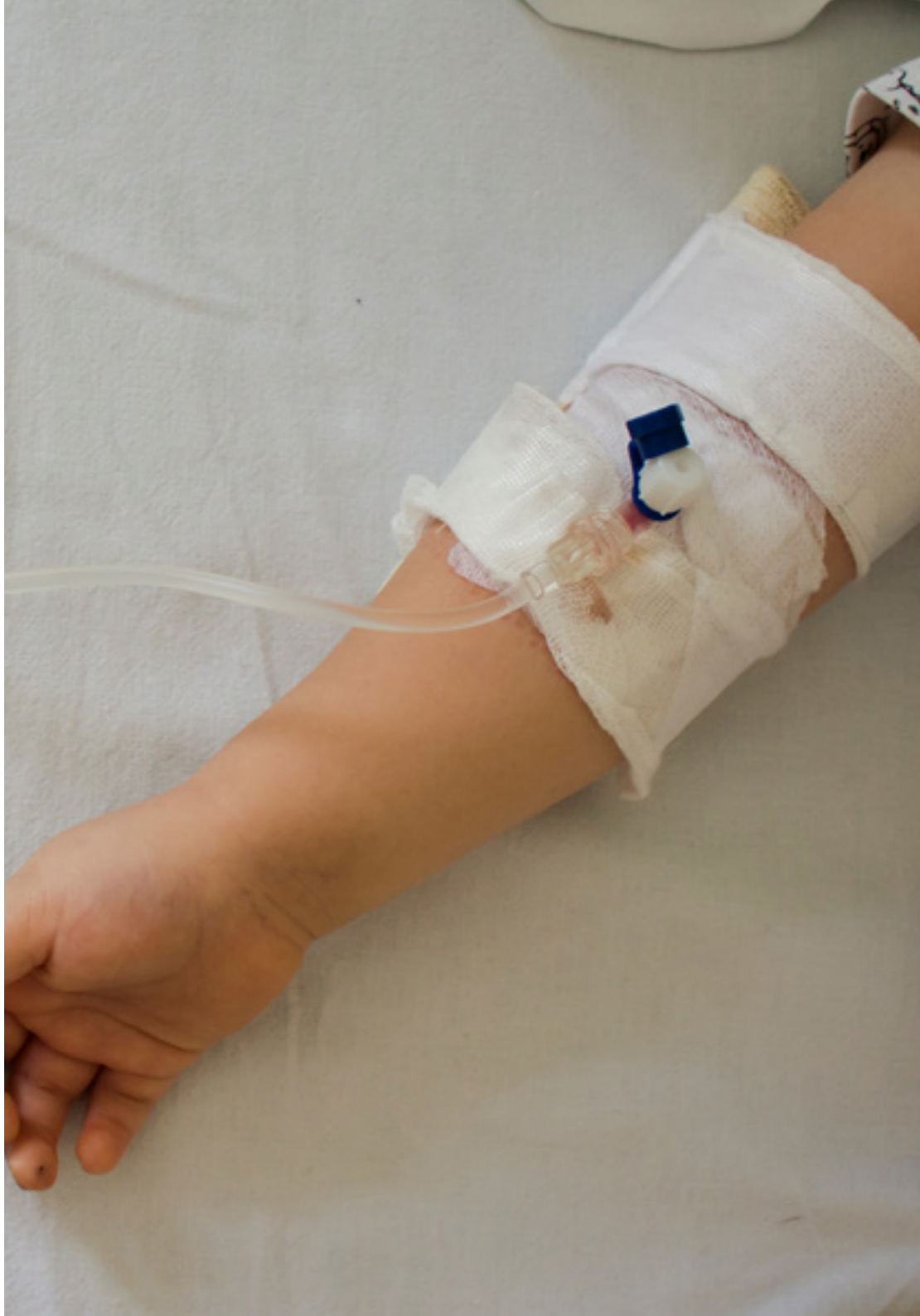
2.17. Bioterrorism
- 2.17.1. Principle Infectious Agents Used in Bioterrorism
- 2.17.2. International Regulations on the Management of Biological Samples

Module 3. The Immune System in Infections in the Immunosuppressed Host

3.1. Structure and Development of the Immune System
- 3.1.1. Composition and Development of the Immune System
- 3.1.2. Immune System Organs
- 3.1.3. Immune System Cells
- 3.1.4. Chemical Mediators in the Immune System

3.2. The Immune Response to Viral and Bacterial Infections
- 3.2.1. Main Cells Implicated in the Immune Response to Viruses and Bacteria
- 3.2.2. Main Chemical Mediators

3.3. The Immune Response to Mycotic and Parasitic Infections
- 3.3.1. Immune Response Against Filamentous and Yeast Fungi
- 3.3.2. Immune Response Against Protozoas
- 3.3.3. Immune Response Against Helminths



3.4. Most Common Clinical Manifestations of Immunosuppression
- 3.4.1. Types of Immunosuppression
- 3.4.2. Clinical Manifestations According to the Infectious Agent
- 3.4.3. Frequent Infections According to the Type of Immunosuppression
- 3.4.4. Common Infections in Immunosuppressed Patients According to the Organ System Affected

3.5. The Fever Syndrome in Neutropenic Patients
- 3.5.1. Most Common Clinical Manifestations
- 3.5.2. Most Diagnosed Infectious Agents
- 3.5.3. Most-Used Complementary Studies in the Integral Evaluation of a Neutropenic Fever Patient
- 3.5.4. Therapeutic Recommendations

3.6. Management of an Immunosuppressed Patient with Sepsis
- 3.6.1. Evaluation of Diagnosis, Prognosis and Treatment According to the Latest International Recommendations Endorsed by Scientific Evidence

3.7. Immunomodulatory and Immunosuppressive Therapy
- 3.7.1. Immunomodulators and their Clinical Use
- 3.7.2. Immunosuppressors and their Relation to Sepsis

Module 4. General Elements of Infectious Diseases

4.1. General and Basic Concepts of the Infectious Health-Illness Process
- 4.1.1. The Stages of the Infectious Process
- 4.1.2. The Systemic Inflammatory Response
- 4.1.3. Sepsis
- 4.1.4. Complications of Sepsis

4.2. Most Common Signs and Symptoms in Patients with Infectious Diseases
- 4.2.1. Local Signs and Symptoms of Sepsis
- 4.2.2. Systemic Signs and Symptoms of Sepsis

4.3. Main Infectious Syndromes
- 4.3.1. Systemic Syndromes
- 4.3.2. Local Syndromes

4.4. Fever of Unknown Origin (FUO)
- 4.4.1. Classis FUO
- 4.4.2. Nosocomial FUO
- 4.4.3. FUO in an Immunosuppressed Patient
- 4.4.4. FUO in HIV Infections

4.5. Fever and Rash
- 4.5.1. Types of Rashes
- 4.5.2. Main Infectious Agents Which Produce Rashes

4.6. Fever and Adenomegaly
- 4.6.1. Characteristics of Infectious Adenomegalies
- 4.6.2. Infections and Localized Adenomegalies
- 4.6.3. Infections and Generalized Adenomegalies

4.7. Sexually Transmitted Infections (STI)
- 4.7.1. Epidemiology of the STI
- 4.7.2. Main Agents in Sexual Transmission
- 4.7.3. Syndromic Approach to STIs

4.8. Septic Shock
- 4.8.1. Epidemiology
- 4.8.2. Pathophysiology
- 4.8.3. Clinical Manifestations and Differential Masks from the Other Types of Shock
- 4.8.4. Diagnosis and Evaluation of the Severity and Complications
- 4.8.5. Therapeutic Behavior

Module 5. Viral and Antiviral Diseases

5.1. Principles of Virology
- 5.1.1. Epidemiology of Viral Infections
- 5.1.2. Fundamental Concepts in the Study of Viruses and their Diseases
- 5.1.3. Main Viruses Which Affect Humans

5.2. Hemorrhagic Viral Diseases
- 5.2.1. Epidemiology
- 5.2.2. Classification
- 5.2.3. African Hemorrhagic Fevers
- 5.2.4. South American Hemorrhagic Fevers
- 5.2.5. Other Hemorrhagic Fevers

5.3. Arbovirus
- 5.3.1. General Concepts and Epidemiology of the Arboviruses
- 5.3.2. Dengue
- 5.3.3. Yellow Fever

5.3.4. Chikungunya
5.3.5. Zika
5.3.6. Other Arboviruses
5.4. Herpetic Diseases
5.4.1. Simple Herpes
5.4.2. Shingles
5.5. Viral Exanthematous Diseases
5.5.1. Rubella
5.5.2. Measles
5.5.3. Chickenpox
5.5.4. Smallpox
5.5.5. Other Exanthematous Diseases
5.6. Viral Hepatitis
5.6.1. Non-Specified Viral Infections
5.6.2. Hepatotropic Viruses
5.6.3. Acute Viral Hepatitis
5.6.4. Chronic Viral Hepatitis
5.7. Infectious Mononucleosis
5.7.1. Epidemiology
5.7.2. Etiological Agent
5.7.3. Pathogenesis
5.7.4. Clinical Picture
5.7.5. Complications
5.7.6. Diagnosis
5.7.7. Treatment
5.8. Human Rabies
5.8.1. Epidemiology
5.8.2. Etiological Agent
5.8.3. Pathogenesis
5.8.4. Clinical Picture
5.8.5. Complications
5.8.6. Diagnosis
5.8.7. Treatment
5.9. Viral Encephalitis
5.9.1. Non-Herpetic Viral Encephalitis
5.9.2. Herpetic Viral Encephalitis
5.9.3. Slow Virus Encephalitis
5.10. Antiviral
5.10.1. General Concepts
5.10.2. Main Definitions Related to Antivirals
5.10.3. Classification
5.10.4. Mechanisms of Action
5.11. Main Antivirals for Herpes Viruses
5.11.1. Mechanisms of Action
5.11.2. Antiviral Spectrum
5.11.3. Pharmacokinetics and Pharmacodynamics
5.11.4. Dose and Presentation
5.12. Main Antivirals for Respiratory Infections
5.12.1. Mechanisms of Action
5.12.2. Antiviral Spectrum
5.12.3. Pharmacokinetics and Pharmacodynamics
5.12.4. Dose and Presentation
5.13. Main Antivirals for Hepatitis
5.13.1. Mechanisms of Action
5.13.2. Antiviral Spectrum
5.13.3. Pharmacokinetics and Pharmacodynamics
5.13.4. Dose and Presentation

Module 6. Latest Information on Coronavirus Infections

6.1. Discovery and Evolution of Coronaviruses
- 6.1.1. Discovery of Coronaviruses
- 6.1.2. Global Trends in Coronavirus Infections

6.2. Main Microbiological characteristics and Members of the Coronavirus Family
- 6.2.1. General Microbiological Characteristics of Coronaviruses
- 6.2.2. Viral Genome
- 6.2.3. Principal Virulence Factors

6.3. Epidemiological Changes in Coronavirus Infections from its Discovery to the Present
- 6.3.1. Morbidity and Mortality of Coronavirus Infections from their Emergence to the Present

6.4. The Immune System and Coronavirus Infections
- 6.4.1. Immunological Mechanisms Involved in the Immune Response to Coronaviruses
- 6.4.2. Cytokine Storm in Coronavirus Infections and Immunopathology
- 6.4.3. Modulation of the Immune System in Coronavirus Infections

6.5. Pathogenesis and Pathophysiology of Coronavirus Infections
- 6.5.1. Pathophysiological and Pathogenic Alterations in Coronavirus Infections
- 6.5.2. Clinical Implications of the Main Pathophysiological Alterations

6.6. Risk Groups and Transmission Mechanisms of Coronaviruses
- 6.6.1. Main Sociodemographic and Epidemiological Characteristics of Risk Groups Affected by Coronavirus
- 6.6.2. Coronavirus Mechanisms of Transmission

6.7. Natural History of Coronavirus Infections
- 6.7.1. Stages of Coronavirus Infection

6.8. Latest Information on Microbiological Diagnosis of Coronavirus Infections
- 6.8.1. Sample Collection and Shipment
- 6.8.2. PCR and Sequencing
- 6.8.3. Serology Testing
- 6.8.4. Virus Isolation

6.9. Current Biosafety Measures in Microbiology Laboratories for Coronavirus Sample Handling
- 6.9.1. Biosafety Measures for Coronavirus Sample Handling

6.10. Up-to-Date Management of Coronavirus Infections
- 6.10.1. Prevention Measures
- 6.10.2. Symptomatic Treatment
- 6.10.3. Antiviral and Antimicrobial Treatment in Coronavirus Infections
- 6.10.4. Treatment of Severe Clinical Forms

6.11. Future Challenges in the Prevention, Diagnosis, and Treatment of Coronavirus
- 6.11.1. Global Challenges for the Development of Prevention, Diagnostic, and Treatment Strategies for Coronavirus Infections

Module 7. HIV/AIDS Infection

7.1. Epidemiology
- 7.1.1. Worldwide Morbidity and by Geographical Region
- 7.1.2. Worldwide Mortality and by Geographical Region
- 7.1.3. Main Vulnerable Groups

7.2. Etiopathogenesis
- 7.2.1. Viral Replication Cycle
- 7.2.2. Immune Response to HIV
- 7.2.3. Sanctuary Sites

7.3. Clinical Classifications of Use
- 7.3.1. Clinical Stages of HIV Infection
- 7.3.2. Clinical and Immunological Classification of HIV Infection

7.4. Clinical Manifestations According to the Stages of the Illness
- 7.4.1. General Clinical Manifestations
- 7.4.2. Clinical Manifestations By Organs and Systems

7.5. Opportunist Illnesses
- 7.5.1. Minor Opportunist Illnesses
- 7.5.2. Major Opportunist Illnesses
- 7.5.3. Primary Prophylaxis of Opportunistic Infections
- 7.5.4. Secondary Prophylaxis of Opportunistic Infections
- 7.5.5. Neoplasms in the Patient with HIV Infection

7.6. Diagnosis in the HIV/AIDS Infection
- 7.6.1. Direct HIV Screening Methods
- 7.6.2. Tests for Antibodies Against HIV

7.7. Antiretroviral Treatment
- 7.7.1. Antiretroviral Treatment Criteria
- 7.7.2. Main Antiretroviral Drugs
- 7.7.3. Monitoring of Antiretroviral Treatment
- 7.7.4. Antiretroviral Treatment Failure

7.8. Integral Care for a Person Living With HIV/AIDS
- 7.8.1. Cuban Model for Integral Care of People Living With HIV
- 7.8.2. Global Experiences and WHO AIDS' Leadership in HIV/AIDS Control

Module 8. Bacterial Diseases and Antimicrobials

8.1. Principles of Bacteriology
- 8.1.1. Fundamental Concepts of Use in Bacteriology
- 8.1.2. Main Gram-Positive Bacteria and their Diseases
- 8.1.3. Main Gram-Negative Bacteria and their Diseases

8.2. Bacterial Skin Infections
- 8.2.1. Folliculitis
- 8.2.2. Furunculosis
- 8.2.3. Anthrax
- 8.2.4. Superficial Abscesses
- 8.2.5. Erysipelas

8.3. Community-Acquired Pneumonia
- 8.3.1. Epidemiology
- 8.3.2. Etiology
- 8.3.3. Clinical Picture
- 8.3.4. Diagnosis
- 8.3.5. Prognosis Scales
- 8.3.6. Treatment

8.4. TB
- 8.4.1. Epidemiology
- 8.4.2. Etiopathogenesis
- 8.4.3. Clinical Manifestations
- 8.4.4. Classification
- 8.4.5. Diagnosis
- 8.4.6. Treatment

8.5. Infections of Urinary Tract and Gynecologic Infections in Women
- 8.5.1. Classification
- 8.5.2. Etiology
- 8.5.3. Clinical Picture
- 8.5.4. Diagnosis
- 8.5.5. Treatment

8.6. Bacterial Meningitis
- 8.6.1. Immunology of the Subarachnoid Space
- 8.6.2. Etiology
- 8.6.3. Clinical Picture and Complications
- 8.6.4. Diagnosis
- 8.6.5. Treatment

8.7. Osteoarticular Infections
- 8.7.1. Septic Arthritis
- 8.7.2. Osteomyelitis
- 8.7.3. Infectious Myositis

8.8. Enteric and Intra-Abdominal Infections
- 8.8.1. Acute Gastroenteritis
- 8.8.2. Acute Enterocolitis
- 8.8.3. Primary Peritonitis
- 8.8.4. Secondary Peritonitis

8.9. Zoonotic Disease
- 8.9.1. Concept
- 8.9.2. Epidemiology
- 8.9.3. Main Zoonotic Diseases
- 8.9.4. Leptospirosis

8.10. Antibacterials
- 8.10.1. General Concepts
- 8.10.2. Classification
- 8.10.3. Mechanisms of Action for Antimicrobials

8.11. Beta-Lactams Betalactams: Penicillins and Betalactamase Inhibitors
- 8.11.1. Structure of the Beta-Lactam Ring
- 8.11.2. Penicillins: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.11.3. Beta-lactamases: Types and Action on Beta-Lactam Antibiotics
- 8.11.4. Main Beta-Lactamase Inhibitors
- 8.11.5. Uses and Therapeutic Indicators
- 8.11.6. Cephalosporins
- 8.11.7. Monobactams
- 8.11.8. Carbapenemics

8.12. Aminoglycosides, Tetracyclines and Glycopeptides
- 8.12.1. Aminoglycosides: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.12.2. Tetracyclines: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.12.3. Glycopeptides: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation

8.13. Lincosamides Rifamycins Antifolates
- 8.13.1. Lincosamines: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.13.2. Rifampicin: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.13.3. Antifolates: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation

8.14. Quinolones, Macrolides and Ketolides
- 8.14.1. Quinolones: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.14.2. Macrolides: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation
- 8.14.3. Ketolides: Classification, Mechanisms of Action, Antimicrobial Spectrum, Pharmacokinetics, Pharmacodynamics, Dosage and Presentation

8.15. New Antibiotics for Gram-Positive Infections (Lipopeptides and Oxazolidinones)
- 8.15.1. Lipopeptides
- 8.15.2. Oxazolidinones

Module 9. Mycotic Diseases

9.1. Introduction to Mycology and Superficial Mycotic Infections
- 9.1.1. General Concepts Used in Mycology
- 9.1.2. Fundamental Characteristics of Pathogenic Fungi
- 9.1.3. Superficial Mycotic Infections Epidermophytosis Tinea Corporis Tinea Capitis

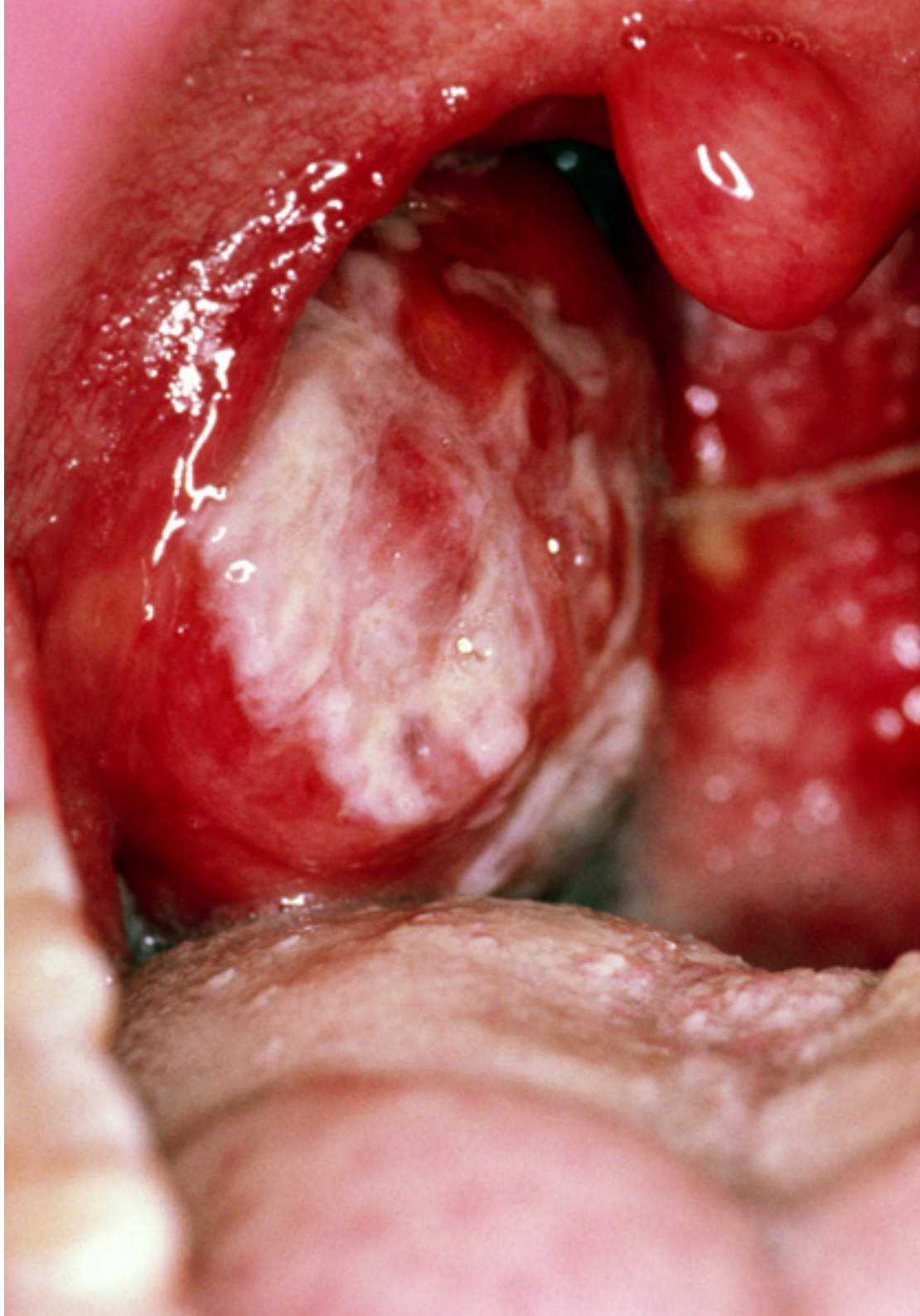
9.2. Deep Mycotic Infections
- 9.2.1. Most Frequent Deep Mycoses
- 9.2.2. Main Clinical Manifestations of Deep Mycosis

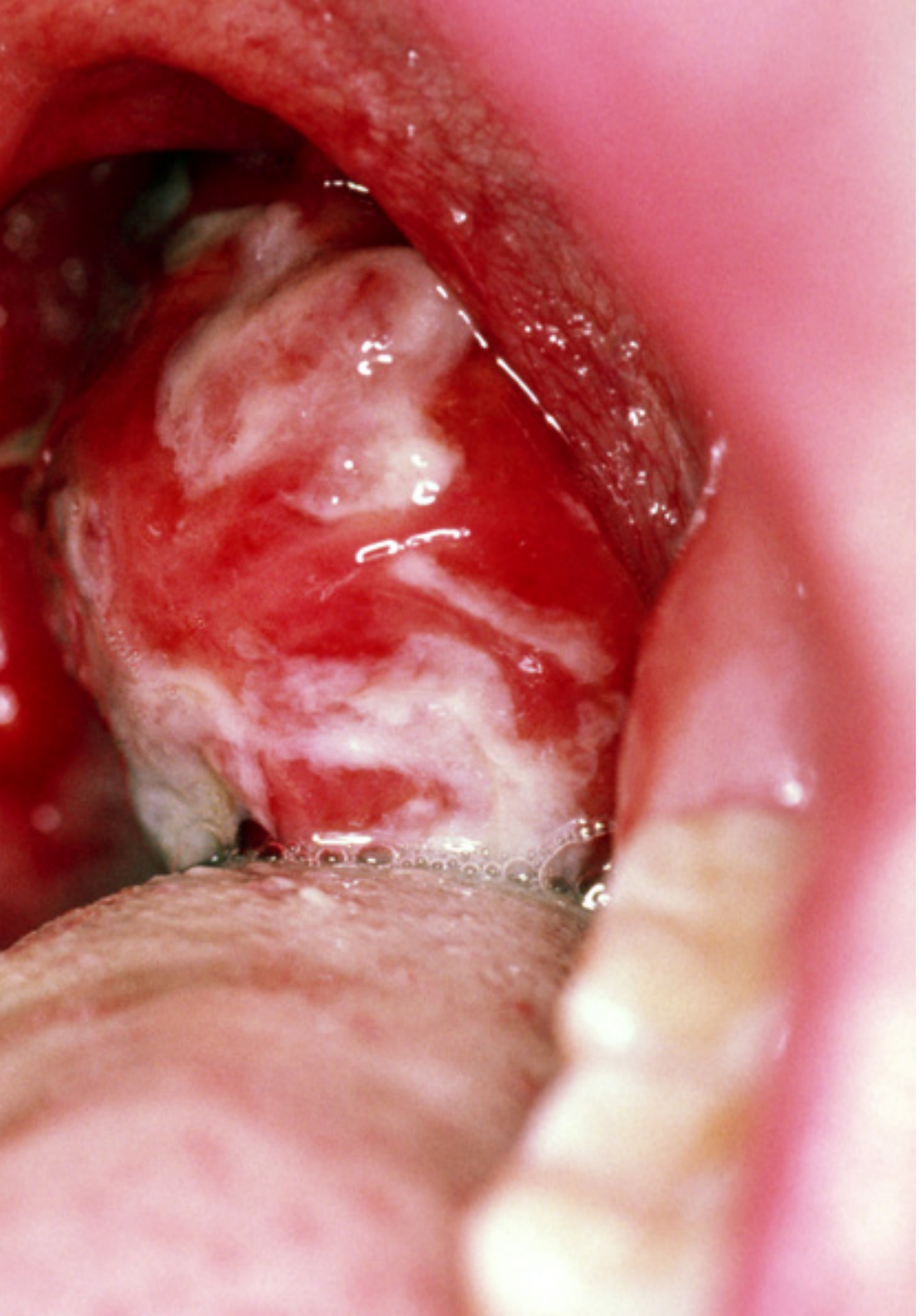
9.3. Cryptococcosis
- 9.3.1. Epidemiology
- 9.3.2. Etiological Agent
- 9.3.3. Pathogenesis
- 9.3.4. Clinical Picture
- 9.3.5. Complications
- 9.3.6. Diagnosis
- 9.3.7. Treatment

9.4. Histoplasmosis
- 9.4.1. Epidemiology
- 9.4.2. Etiological Agent
- 9.4.3. Pathogenesis
- 9.4.4. Clinical Picture
- 9.4.5. Complications
- 9.4.6. Diagnosis
- 9.4.7. Treatment

9.5. Aspergillosis
- 9.5.1. Epidemiology
- 9.5.2. Etiological Agent
- 9.5.3. Pathogenesis
- 9.5.4. Clinical Picture
- 9.5.5. Complications

9.5.6. Diagnosis
9.5.7. Treatment
9.6. Systemic Candidiasis
9.6.1. Epidemiology
9.6.2. Etiological Agent
9.6.3. Pathogenesis
9.6.4. Clinical Picture
9.6.5. Complications
9.6.6. Diagnosis
9.6.7. Treatment
9.7. Coccidioidomycosis
9.7.1. Epidemiology
9.7.2. Etiological Agent
9.7.3. Pathogenesis
9.7.4. Clinical Picture
9.7.5. Complications
9.7.6. Diagnosis
9.7.7. Treatment
9.8. Blastomycosis
9.8.1. Epidemiology
9.8.2. Etiological Agent
9.8.3. Pathogenesis
9.8.4. Clinical Picture
9.8.5. Complications
9.8.6. Diagnosis
9.8.7. Treatment
9.9. Sporotrichosis
9.9.1. Epidemiology
9.9.2. Etiological Agent
9.9.3. Pathogenesis
9.9.4. Clinical Picture
9.9.5. Complications
9.9.6. Diagnosis
9.9.7. Treatment





Module 10. Parasitic, Tropical and Anti-Parasitic Diseases

10.1. Introduction to Parasitology
- 10.1.1. General Concepts Used in Parasitology
- 10.1.2. Epidemiology of the Main Parasitosis and Tropical Diseases
- 10.1.3. Classification of Parasites
- 10.1.4. Tropical Diseases and Fever Syndrome in the Tropics

10.2. Malaria
- 10.2.1. Epidemiology
- 10.2.2. Etiological Agent
- 10.2.3. Pathogenesis
- 10.2.4. Clinical Picture
- 10.2.5. Complications
- 10.2.6. Diagnosis
- 10.2.7. Treatment

10.3. Diseases from Intestinal Protozoas
- 10.3.1. Main Intestinal Protozoa
- 10.3.2. Diagnosis of Intestinal Protozoa
- 10.3.3. Amebiosis and Giardiosis

10.4. Filarial Diseases
- 10.4.1. Epidemiology and the Worldwide Situation
- 10.4.2. Clinical Syndromes
- 10.4.3. Main Filarial Diseases: Wuchereria Bancrofti, Brugia malayi, Brugia timori, Onchocerca volvulus, Loa loa, Mansonella Perstans, Mansonella Streptocerca y Mansonella Ozzardi

10.5. Leishmaniosis
- 10.5.1. Cutaneous Leishmaniasis
- 10.5.2. Deep Leishmaniasis

10.6. Trypanosomiasis
- 10.6.1. African Trypanosomiasis
- 10.6.2. American Trypanosomiasis

10.7. Schistosomiasis
- 10.7.1. Hematobium Schistosomiasis
- 10.7.2. Schitosomiosis Mansoni
- 10.7.3. Schitosomiosis Japonicum
- 10.7.4. Schitosomiosis Intercalatum

10.8. Intestinal Parasitism
- 10.8.1. Epidemiology
- 10.8.2. Ascaridiosis
- 10.8.3. Oxiuriasis
- 10.8.4. Hookworm Disease and Necatoriasis
- 10.8.5. Trichuriasis

10.9. Taeniasis Infections
- 10.9.1. Intestinal Taeniasis
- 10.9.2. Tissue Taeniasis

10.10. Antiparasitics
- 10.10.1. General Concepts
- 10.10.2. Main Definitions Used in the Management of Antiparasitics
- 10.10.3. Classifications: Classifications Used by Chemical Structure, Mechanism of Action or Antiparasitic Action
- 10.10.4. Mechanisms of Action

10.11. Antiprotozoals
- 10.11.1. Classification
- 10.11.2. Mechanisms of Action
- 10.11.3. Antiparasitic Spectrum
- 10.11.4. Pharmacokinetics and Pharmacodynamics
- 10.11.5. Dose and Presentation

10.12. Antiparasitic for Helminths
- 10.12.1. Classification
- 10.12.2. Mechanisms of Action
- 10.12.3. Antiparasitic Spectrum
- 10.12.4. Pharmacokinetics and Pharmacodynamics
- 10.12.5. Dose and Presentation

Module 11. Nosocomial Infections Associated With Healthcare and Patient Safety

11.1. Epidemiology of Nosocomial Infections
- 11.1.1. Operative Site Infection: Definition Epidemiology Most Frequent Germs Therapeutic Behavior
- 11.1.2. Nosocomial Pneumonia and Associated Mechanical Ventilation: General Concepts Epidemiology. Risk Factors. Etiology. Diagnosis. Prevention. Most-Used Antibiotics

11.2. Infection Associated With Non-Tunneled Peripheral and Central Venous Catheters and Urinary Catheters
- 11.2.1. Epidemiology
- 11.2.2. Etiology
- 11.2.3. Risk factors
- 11.2.4. Behavior for its Diagnosis and Treatment

11.3. Clostridium Difficile Infection
- 11.3.1. Epidemiology
- 11.3.2. Risk Factors
- 11.3.3. Clinical Manifestations
- 11.3.4. Diagnosis
- 11.3.5. Treatment

11.4. Global Vision of the Infection in Critical Patients in the ICU
- 11.4.1. Epidemiology
- 11.4.2. Risk factors
- 11.4.3. Etiology
- 11.4.4. Prevention
- 11.4.5. Most-Used Antibiotics

11.5. Infections Associated With Devices Used in Medicine
- 11.5.1. Infections Associated with Biofilm
- 11.5.2. Infections From Devices Used in Orthopedics
- 11.5.3. Infection From Devices Used in Cardiovascular Surgery
- 11.5.4. Infection in Neurosurgery Devices
- 11.5.5. Infections of Implants and Prostheses

11.6. Universal Measures for Nosocomial Infection Control:
- 11.6.1. Main Measures Internationally Recommended for the Control of Nosocomial Infection

11.7. Infections Associated With Healthcare
- 11.7.1. Definition
- 11.7.2. Epidemiology
- 11.7.3. Etiology
- 11.7.4. Antimicrobials Used

Module 12. The Role of Infectologists in Health Services

12.1. Infectology and its Importance in Medical Care Within Any Specialist Field
- 12.1.1. The Universal Nature of Infectious Pathology in Medical Specialties
- 12.1.2. Mastering Antibiotic Treatment

12.2. Skills and Abilities of an Infectologist
- 12.2.1. Skills of an Infectologist
- 12.2.2. Abilities of an Infectologist

12.3. The Role of Infectologists in Health Teams
- 12.3.1. Functions of Infectologists in Health Teams in the Different Levels of the Health System

12.4. Infectious Disease Consultation
- 12.4.1. Functions of an Infectologist's Consultation
- 12.4.2. Pathologies to be Consulted

12.5. Scientific Update of the Infectologist's Medical Knowledge and the Future Challenges of Infectology
- 12.5.1. Self-Training
- 12.5.2. Training and Professional Achievement
- 12.5.3. Future Challenges for Infectology: The Emergence of New Diseases Antimicrobial Resistance. The Development of Vaccines and Antibiotics

Module 13. Introduction to Pharmacology and Treatment

13.1. Utility of Clinical Pharmacology
- 13.1.1. Concept
- 13.1.2. Object of Study
- 13.1.3. Branches of Pharmacology
- 13.1.4. Use of Clinical Pharmacology

13.2. Pharmacokinetics: Certainties and Contradictions in its Practical Use
- 13.2.1. The Dynamics of Absorption, Distribution, Metabolism, and Elimination of Drugs, Especially Antimicrobials

13.3. Pharmacodynamics: Its Use in the Practical Use of New Antimicrobials
- 13.3.1. Molecular Mechanisms of Action of Drugs, Especially Antimicrobials
- 13.3.2. Drug-Drug Interactions of Antibiotics with Other Medications
- 13.3.3. Pharmacokinetics/Pharmacodynamics Models in Antibiotic Use

13.4. Pharmacovigilance
- 13.4.1. Concept
- 13.4.2. Objectives
- 13.4.3. Antibiotic Adverse Reactions

13.5. Pharmacoepidemiology: Update on Antimicrobial Research
- 13.5.1. Concept
- 13.5.2. Objectives
- 13.5.3. Drug Usage Studies

13.6. Clinical Trials
- 13.6.1. Concept
- 13.6.2. Methodology
- 13.6.3. Objectives
- 13.6.4. The Stages of Clinical Trials
- 13.6.5. Uses

13.7. Meta-Analysis
- 13.7.1. Concept
- 13.7.2. Methodology
- 13.7.3. Objectives
- 13.7.4. Uses

13.8. Rational Treatment: From Old to New and Evidence-Based Medicine
- 13.8.1. Stages of Rational Treatment
- 13.8.2. Use and Importance of Rational Treatment

13.9. Clinical Practice Guidelines: New Approaches to Practical Application
- 13.9.1. Creating Clinical Practice Guidelines
- 13.9.2. The Impact of Clinical Practice Guidelines

13.10. Clinical Pharmacology: Advances and Future Perspectives for the Improvement of Antibiotic Treatment
- 13.10.1. Research Activities and Scientific Advances: Is it Pharmacy Fiction?
- 13.10.2. Molecular Pharmacology and its Role in Antibiotic Therapy

Module 14. Antimicrobials: General Aspects

14.1. History and Development of Antimicrobials
- 14.1.1. Emergence and Development of Antimicrobial Treatments
- 14.1.2. Impact on Morbimortality of Infectious Diseases

14.2. Classifications: Practical and Future Use of Each One
- 14.2.1. Chemical Classification
- 14.2.2. Classification by Antimicrobial Action
- 14.2.3. Classification According to their Antimicrobial Spectrum

14.3. Update on the Mechanisms of Action of Antimicrobials
- 14.3.1. Main Antimicrobial Mechanisms of Action

14.4. General and Latest Elements of Antimicrobial Treatments
- 14.4.1. General and Recent Concepts in the Use of Antimicrobials
- 14.4.2. New Developments in the Use of Antimicrobial Combinations
- 14.4.3. Interactions between Antimicrobials

14.5. Antibiotic Prophylaxis: Its Current Role in Surgical Morbidity and Mortality
- 14.5.1. Concept
- 14.5.2. Objectives
- 14.5.3. Types of Antibiotic Prophylaxis
- 14.5.4. Perioperative Antibiotic Prophylaxis

14.6. Phased Antibiotic Treatment: Current Criteria
- 14.6.1. Concept
- 14.6.2. Principles
- 14.6.3. Objectives

14.7. Latest Concepts in the Use of Antibiotics in Renal Failure
- 14.7.1. Renal Excretion of Antibiotics
- 14.7.2. Renal Toxicity of Antibiotics
- 14.7.3. Dose Modification in Renal Failure

14.8. Antibiotics and the Blood-Brain Barrier: Recent Findings
- 14.8.1. The Passage of Antibiotics through the Blood-Brain Barrier
- 14.8.2. Antibiotics in Central Nervous System Infections

14.9. Antibiotics and Liver Failure: Progress and Future Challenges
- 14.9.1. Hepatic Metabolism of Antibiotics
- 14.9.2. Hepatic Toxicity of Antimicrobials
- 14.9.3. Dose Adjustment in Hepatic Insufficiency

14.10. Antibiotic Use in the Immunosuppressed: The New Paradigm
- 14.10.1. Immune Response to Infection
- 14.10.2. Main Opportunistic Germs in the Immunosuppressed
- 14.10.3. Principles for the Choice and Duration of Antibiotic Therapy in the Immunosuppressed

14.11. Antibiotics in Pregnancy and Lactation: The Safety of their Use According to the Latest Scientific Findings
- 14.11.1. The Passage of Antibiotics through the Placenta
- 14.11.2. Antibiotics and Breast Milk
- 14.11.3. Teratogenicity of Antibiotics

Module 15. Antivirals

15.1. General Features of Antivirals
- 15.1.1. Classification
- 15.1.2. Main Indications of Antivirals

15.2. Mechanisms of Action
- 15.2.1. Mechanisms of Action of Antivirals

15.3. Antivirals for Hepatitis: New Recommendations and Future Research Projections
- 15.3.1. Specific Viral Hepatitis
- 15.3.2. Hepatitis B Treatment
- 15.3.3. Hepatitis C Treatment

15.4. Antivirals for Respiratory Infections: Current Scientific Evidence
- 15.4.1. Main Respiratory Viruses
- 15.4.2. Influenza Treatment
- 15.4.3. Other Respiratory System Virus Treatments

15.5. Antivirals for Herpes Viruses: Recent Changes in Management
- 15.5.1. Main Herpes Virus Infections
- 15.5.2. Herpes Simplex Infection Treatment
- 15.5.3. Treatment of Varicella Zoster Virus Infections

15.6. Antiretrovirals for HIV: Certainties and Controversies. Future Challenges
- 15.6.1. Classification of Antiretrovirals
- 15.6.2. Mechanisms of Action of Antiretrovirals
- 15.6.3. Antiretroviral Treatment of HIV Infection
- 15.6.4. Adverse Reactions
- 15.6.5. Antiretroviral Treatment Failure

15.7. Topical Antivirals
- 15.7.1. Main Viral Infections of the Skin and Mucous Membranes
- 15.7.2. Topical Antivirals

15.8. Update on Interferons: their Use in Viral and Non-Infectious Diseases
- 15.8.1. Classification and Action of Interferons
- 15.8.2. Uses of Interferons
- 15.8.3. Adverse Reactions of Interferons

15.9. New Areas of Antiviral Development
- 15.9.1. Antibiotics in Viral Hemorrhagic Diseases
- 15.9.2. Future Prospects for Antiviral Chemotherapy

Module 16. Antibiotics I

16.1. Advances in the Knowledge of the Synthesis and Structure of the Beta-Lactam Ring
- 16.1.1. Structure of the Beta-Lactam Ring
- 16.1.2. Drugs that Act on the Synthesis of the Beta-Lactam Ring

16.2. Penicillins: New Drugs and their Future Role in Anti-Infection Treatments
- 16.2.1. Classification
- 16.2.2. Mechanism of Action
- 16.2.3. Antimicrobial Spectrum
- 16.2.4. Pharmacokinetics and Pharmacodynamics
- 16.2.5. Therapeutic Uses
- 16.2.6. Adverse Effects
- 16.2.7. Presentation and Dosage

16.3. Antistaphylococcal Penicillins: From Old to New and their Practical Implications
- 16.3.1. Classification
- 16.3.2. Mechanism of Action
- 16.3.3. Antimicrobial Spectrum
- 16.3.4. Pharmacokinetics and Pharmacodynamics
- 16.3.5. Therapeutic Uses
- 16.3.6. Adverse Effects
- 16.3.7. Presentation and Dosage

16.4. Antipseudomonal Penicillins: Current Resistance Challenge
- 16.4.1. Classification
- 16.4.2. Mechanism of Action
- 16.4.3. Antimicrobial Spectrum
- 16.4.4. Pharmacokinetics and Pharmacodynamics
- 16.4.5. Therapeutic Uses
- 16.4.6. Adverse Effects
- 16.4.7. Presentation and Dosage

16.5. Cephalosporins: Present and Future
- 16.5.1. Classification
- 16.5.2. Mechanism of Action
- 16.5.3. Antimicrobial Spectrum
- 16.5.4. Pharmacokinetics and Pharmacodynamics
- 16.5.5. Therapeutic Uses
- 16.5.6. Adverse Effects
- 16.5.7. Presentation and Dosage

16.6. Oral Cephalosporins: New Developments in their Outpatient Use
- 16.6.1. Classification
- 16.6.2. Mechanism of Action
- 16.6.3. Antimicrobial Spectrum

16.6.4. Pharmacokinetics and Pharmacodynamics
16.6.5. Therapeutic Uses
16.6.6. Adverse Effects
16.6.7. Presentation and Dosage
16.7. Monobactams
16.7.1. Classification
16.7.2. Mechanism of Action
16.7.3. Antimicrobial Spectrum
16.7.4. Pharmacokinetics and Pharmacodynamics
16.7.5. Therapeutic Uses
16.7.6. Adverse Effects
16.7.7. Presentation and Dosage
16.8. Carbapenetics
16.8.1. Classification
16.8.2. Mechanism of Action
16.8.3. Antimicrobial Spectrum
16.8.4. Pharmacokinetics and Pharmacodynamics
16.8.5. Therapeutic Uses
16.8.6. Adverse Effects
16.8.7. Presentation and Dosage
16.9. Batalactamases: The Recent Discovery of Strains and their Role in Resistance
16.9.1. Classification
16.9.2. Action on Beta-Lactams
16.10. Beta-Lactamase Inhibitors
16.10.1. Classification
16.10.2. Mechanism of Action
16.10.3. Antimicrobial Spectrum
16.10.4. Pharmacokinetics and Pharmacodynamics
16.10.5. Therapeutic Uses
16.10.6. Adverse Effects
16.10.7. Presentation and Dosage

Module 17. Antibiotics II

17.1. Glycopeptides: The New Drugs for Gram Positive Germs
17.1.1. Classification
17.1.2. Mechanism of Action
17.1.3. Antimicrobial Spectrum
17.1.4. Pharmacokinetics and Pharmacodynamics
17.1.5. Therapeutic Uses
17.1.6. Adverse Effects
17.1.7. Presentation and Dosage
17.2. Cyclic Lipopeptides: Recent Advances and its Future Role
17.2.1. Classification
17.2.2. Mechanism of Action
17.2.3. Antimicrobial Spectrum
17.2.4. Pharmacokinetics and Pharmacodynamics
17.2.5. Therapeutic Uses
17.2.6. Adverse Effects
17.2.7. Presentation and Dosage
17.3. Macrolides: their Role as an Immunomodulator in the Respiratory System
17.3.1. Classification
17.3.2. Mechanism of Action
17.3.3. Antimicrobial Spectrum
17.3.4. Pharmacokinetics and Pharmacodynamics
17.3.5. Therapeutic Uses
17.3.6. Adverse Effects
17.3.7. Presentation and Dosage

17.4. Ketolides
- 17.4.1. Classification
- 17.4.2. Mechanism of Action
- 17.4.3. Antimicrobial Spectrum
- 17.4.4. Pharmacokinetics and Pharmacodynamics
- 17.4.5. Therapeutic Uses
- 17.4.6. Adverse Effects
- 17.4.7. Presentation and Dosage

17.5. Tetracyclines: Old and New Indications According to the Most Recent Advances in Emerging Diseases
- 17.5.1. Classification
- 17.5.2. Mechanism of Action
- 17.5.3. Antimicrobial Spectrum
- 17.5.4. Pharmacokinetics and Pharmacodynamics
- 17.5.5. Therapeutic Uses
- 17.5.6. Adverse Effects
- 17.5.7. Presentation and Dosage

17.6. Aminoglycosides: Facts and Realities of their Current and Future Utilization
- 17.6.1. Classification
- 17.6.2. Mechanism of Action
- 17.6.3. Antimicrobial Spectrum
- 17.6.4. Pharmacokinetics and Pharmacodynamics
- 17.6.5. Current Therapeutic Uses and Future Trends
- 17.6.6. Adverse Effects
- 17.6.7. Presentation and Dosage

17.7. Quinolones: All Generations and Practical Use
- 17.7.1. Classification
- 17.7.2. Mechanism of Action
- 17.7.3. Antimicrobial Spectrum
- 17.7.4. Pharmacokinetics and Pharmacodynamics
- 17.7.5. Therapeutic Uses
- 17.7.6. Adverse Effects
- 17.7.7. Presentation and Dosage

17.8. Respiratory Quinolones: Latest Recommendations on their Use
- 17.8.1. Classification
- 17.8.2. Mechanism of Action
- 17.8.3. Antimicrobial Spectrum
- 17.8.4. Pharmacokinetics and Pharmacodynamics
- 17.8.5. Therapeutic Uses
- 17.8.6. Adverse Effects
- 17.8.7. Presentation and Dosage

17.9. Streptogramins
- 17.9.1. Classification
- 17.9.2. Mechanism of Action
- 17.9.3. Antimicrobial Spectrum
- 17.9.4. Pharmacokinetics and Pharmacodynamics
- 17.9.5. Therapeutic Uses
- 17.9.6. Adverse Effects
- 17.9.7. Presentation and Dosage

Module 18. Antibiotics III

18.1. Oxazolinones
- 18.1.1. Classification
- 18.1.2. Mechanism of Action
- 18.1.3. Antimicrobial Spectrum
- 18.1.4. Pharmacokinetics and Pharmacodynamics
- 18.1.5. Therapeutic Uses
- 18.1.6. Adverse Effects
- 18.1.7. Presentation and Dosage

18.2. Sulfas
- 18.2.1. Classification
- 18.2.2. Mechanism of Action
- 18.2.3. Antimicrobial Spectrum
- 18.2.4. Pharmacokinetics and Pharmacodynamics
- 18.2.5. Therapeutic Uses
- 18.2.6. Adverse Effects
- 18.2.7. Presentation and Dosage

18.3. Lincosamides
- 18.3.1. Classification
- 18.3.2. Mechanism of Action
- 18.3.3. Antimicrobial Spectrum
- 18.3.4. Pharmacokinetics and Pharmacodynamics
- 18.3.5. Therapeutic Uses
- 18.3.6. Adverse Effects
- 18.3.7. Presentation and Dosage

18.4. Rifamycin: Practical Use in TB and Other Infections Today
- 18.4.1. Classification
- 18.4.2. Mechanism of Action
- 18.4.3. Antimicrobial Spectrum
- 18.4.4. Pharmacokinetics and Pharmacodynamics
- 18.4.5. Therapeutic Uses
- 18.4.6. Adverse Effects
- 18.4.7. Presentation and Dosage

18.5. Antifolates
- 18.5.1. Classification
- 18.5.2. Mechanism of Action
- 18.5.3. Antimicrobial Spectrum
- 18.5.4. Pharmacokinetics and Pharmacodynamics
- 18.5.5. Therapeutic Uses
- 18.5.6. Adverse Effects
- 18.5.7. Presentation and Dosage

18.6. Antibiotics for Leprosy: Recent Advances
- 18.6.1. Classification
- 18.6.2. Mechanism of Action
- 18.6.3. Antimicrobial Spectrum
- 18.6.4. Pharmacokinetics and Pharmacodynamics
- 18.6.5. Therapeutic Uses
- 18.6.6. Adverse Effects
- 18.6.7. Presentation and Dosage

18.7. Antituberculosis Drugs: Latest Recommendations for their Use
- 18.7.1. Classification
- 18.7.2. Mechanism of Action
- 18.7.3. Antimicrobial Spectrum
- 18.7.4. Pharmacokinetics and Pharmacodynamics
- 18.7.5. Therapeutic Uses
- 18.7.6. Adverse Effects
- 18.7.7. Presentation and Dosage

18.8. Parenteral Antibiotic Use in Outpatients: Latest Recommendations
- 18.8.1. Main Indications for Parenteral Antibiotics in Outpatients
- 18.8.2. Monitoring Outpatients Receiving Parenteral Antibiotic Treatment

18.9. The Latest on Antibiotics for Multidrug Resistant Bacteria
- 18.9.1. Antibiotics for Multidrug-Resistant GramPositive Bacteria
- 18.9.2. Antibiotics for Multidrug-Resistant GramNegative Bacteria

Module 19. Antimycotics

19.1. General Elements
- 19.1.1. Concept
- 19.1.2. Origins and Development

19.2. Classification
- 19.2.1. Classification According to Chemical Structure
- 19.2.2. Classification According to Action: Local and Systemic

19.3. Mechanisms of Action
- 19.3.1. Mechanisms of Action of Antifungal Agents

19.4. Systemic Antifungal Agents: News on their Toxicity and their Present and Future Indications
- 19.4.1. Antimicrobial Spectrum
- 19.4.2. Pharmacokinetics and Pharmacodynamics
- 19.4.3. Therapeutic Uses
- 19.4.4. Adverse Effects
- 19.4.5. Presentation and Dosage

19.5. Amphotericin B: Novel Concepts in its Use
- 19.5.1. Mechanism of Action
- 19.5.2. Antimicrobial Spectrum
- 19.5.3. Pharmacokinetics and Pharmacodynamics
- 19.5.4. Therapeutic Uses
- 19.5.5. Adverse Effects
- 19.5.6. Presentation and Dosage

19.6. Deep Mycosis Treatment: Current Events and Future Perspectives
- 19.6.1. Aspergillosis
- 19.6.2. Coccidioidomycosis
- 19.6.3. Cryptococcosis
- 19.6.4. Histoplasmosis

19.7. Local Antifungals
- 19.7.1. Antimicrobial Spectrum
- 19.7.2. Pharmacokinetics and Pharmacodynamics
- 19.7.3. Therapeutic Uses
- 19.7.4. Adverse Effects
- 19.7.5. Presentation and Dosage

19.8. Treatment of Skin and Mucous Mycosis
- 19.8.1. Tinea Capitis
- 19.8.2. Skin Tinea
- 19.8.3. Onychomycosis

19.9. Liver Toxicity of Systemic Antifungal Agents: Future Challenges
- 19.9.1. Liver Metabolism of Antifungal Agents
- 19.9.2. Hepatotoxicity of Antifungal Agents

Module 20. Antiparasitics

20.1. General Elements
- 20.1.1. Concept
- 20.1.2. Origins and Development

20.2. Classification
- 20.2.1. Classification by Chemical Structure
- 20.2.2. Classification by Action Against Different Parasites

20.3. Mechanisms of Action
- 20.3.1. Action Mechanisms of Antiparasitics

20.4. Antiparasitics for Intestinal Parasitism: New Advances
- 20.4.1. Classification
- 20.4.2. Mechanism of Action
- 20.4.3. Antimicrobial Spectrum
- 20.4.4. Pharmacokinetics and Pharmacodynamics
- 20.4.5. Therapeutic Uses
- 20.4.6. Adverse Effects
- 20.4.7. Presentation and Dosage

20.5. Antimalarials: Latest WHO Recommendations
- 20.5.1. Classification
- 20.5.2. Mechanism of Action
- 20.5.3. Antimicrobial Spectrum
- 20.5.4. Pharmacokinetics and Pharmacodynamics
- 20.5.5. Therapeutic Uses
- 20.5.6. Adverse Effects
- 20.5.7. Presentation and Dosage

20.6. Update on Antiparasitics for Filariasis
- 20.6.1. Classification
- 20.6.2. Mechanism of Action
- 20.6.3. Antimicrobial Spectrum
- 20.6.4. Pharmacokinetics and Pharmacodynamics
- 20.6.5. Therapeutic Uses
- 20.6.6. Adverse Effects
- 20.6.7. Presentation and Dosage

20.7. Latest Advances in Antiparasitics for Trypanosomiasis
- 20.7.1. Classification
- 20.7.2. Mechanism of Action

20.7.3. Antimicrobial Spectrum
20.7.4. Pharmacokinetics and Pharmacodynamics
20.7.5. Therapeutic Uses
20.7.6. Adverse Effects
20.7.7. Presentation and Dosage
20.8. Antiparasitics for Schistosomiasis
20.8.1. Classification
20.8.2. Mechanism of Action
20.8.3. Antimicrobial Spectrum
20.8.4. Pharmacokinetics and Pharmacodynamics
20.8.5. Therapeutic Uses
20.8.6. Adverse Effects
20.8.7. Presentation and Dosage
20.9. Antiparasitics for Leishmaniasis
20.9.1. Classification
20.9.2. Mechanism of Action
20.9.3. Antimicrobial Spectrum
20.9.4. Pharmacokinetics and Pharmacodynamics
20.9.5. Therapeutic Uses
20.9.6. Adverse Effects
20.9.7. Presentation and Dosage
20.10. Treatment of Other Less Common Parasitosis
20.10.1. Dracunculiasis
20.10.2. Hydatid Cyst
20.10.3. Other Tissue Parasites

Module 21. Antibiotic Resistance

21.1. Emergence and Development of Antibiotic Resistance
21.1.1. Concept
21.1.2. Classification
21.1.3. Origins and Development

21.2. Mechanisms of Antibiotic Resistance: An Update
- 21.2.1. Mechanisms of Antimicrobial Resistance
- 21.2.2. New Resistance Mechanisms

21.3. Staphylococcal Resistance: Yesterday, Today, and Tomorrow
- 21.3.1. Evolution of Staphylococcal Resistance
- 21.3.2. Mechanisms of Staphylococcal Resistance

21.4. Resistance of Gram-Positive Germs: Latest Recommendations
- 21.4.1. Evolution and Resistance of GramPositive Germs
- 21.4.2. Resistance Mechanisms of GramPositive Germs

21.5. Resistance of Gram-Negative Germs: Current Clinical Implications
- 21.5.1. Evolution of GramNegative Germ Resistance
- 21.5.2. Resistance Mechanisms of GramNegative Germs

21.6. Virus Resistance
- 21.6.1. Evolution of Virus Resistance
- 21.6.2. Virus Resistance Mechanisms

21.7. Fungal Resistance
- 21.7.1. Evolution of Fungal Resistance
- 21.7.2. Mechanisms of Fungal Resistance

21.8. Parasite Resistance: An Emerging Problem
- 21.8.1. Evolution of Parasite Resistance
- 21.8.2. Mechanisms of Parasite Resistance
- 21.8.3. Resistance to Antimalarials

21.9. New Mechanisms of Antibiotic Resistance and Superbugs
- 21.9.1. Emergence and Progression of Superbugs
- 21.9.2. New Resistance Mechanisms of Superbugs

21.10. Antibiotic Resistance Control Mechanisms and Programs
- 21.10.1. Antibiotic Resistance Control Strategies
- 21.10.2. Global Program and International Experiences in the Control of Antibiotic Resistance

Module 22. Monitoring and Controlling the Use of Antimicrobials

22.1. Antibiotic Treatment Duration in the Treatment of Infections: New Role of Biomarkers
- 22.1.1. Update on the Adequate Duration of the Most Frequent Infections
- 22.1.2. Clinical and Laboratory Parameters to Determine the Duration of Treatment

22.2. Antimicrobial Usage Studies: Most Recent Impacts
- 22.2.1. The Significance of Antimicrobial Usage Studies
- 22.2.2. Results of Greater Impact in Recent Years by Antimicrobial Usage

22.3. Antibiotic Committees in Hospitals: their Role in the Future
- 22.3.1. Structure and Operation
- 22.3.2. Objectives
- 22.3.3. Activities
- 22.3.4. Impacts

22.4. Antimicrobial Use Policies: Current Impact on Antimicrobial Use
- 22.4.1. Concepts
- 22.4.2. Types of Policies
- 22.4.3. Objectives
- 22.4.4. Impacts

22.5. Pharmacotherapeutic Committees: Practical Importance
- 22.5.1. Structure and Function
- 22.5.2. Objectives
- 22.5.3. Activities
- 22.5.4. Impacts

22.6. Infectious Disease Specialists and their Role in the Rational Use of Antimicrobials
- 22.6.1. Functions and Activities of Infectious Disease Specialists to Promote and Encourage the Rational Use of Antimicrobials

22.7. Impact of Training and Professional Development on Antimicrobial Utilization
- 22.7.1. Importance of Training and Professional Development
- 22.7.2. Types
- 22.7.3. Impacts

22.8. Hospital Strategies for Rational Antimicrobial Use: What the Evidence Says
- 22.8.1. Hospital Strategies for the Control of the Rational Use of Antimicrobials
- 22.8.2. Impacts

22.9. Scientific Research for the Future Control and Monitoring of Antibiotic Therapy in Patients with Sepsis
- 22.9.1. Search for New Parameters and Markers for Monitoring and Control of Antibiotic Therapeutics

Module 23. Antibiotics and Antimicrobial Treatments of the Future

23.1. Research, Approval, and Commercialization of New Antibiotics
- 23.1.1. Antimicrobial Research
- 23.1.2. Antimicrobial Approval Process
- 23.1.3. Antimicrobial Marketing and Large Pharmaceutical Companies

23.2. Ongoing Clinical Trials for the Approval of New Antibiotics
- 23.2.1. New Clinical Trials on Antimicrobials

23.3. Old Antibiotics with New Uses
- 23.3.1. The Role of Old Antibiotics with New Uses
- 23.3.2. Antimicrobial Withdrawal
- 23.3.3. Chemical Alterations of Old Antimicrobials

23.4. Treatment Goals and New Ways to Fight Infections: What's New in Research
- 23.4.1. New Treatment Goals
- 23.4.2. New Ways to Treat Sepsis

23.5. Monoclonal Antibodies in Infections: Present and Future
- 23.5.1. Origin and Emergence of Monoclonal Antibodies
- 23.5.2. Classification
- 23.5.3. Clinical Uses
- 23.5.4. Impact Results in Infectious Diseases

23.6. Other Drugs to Regulate and Stimulate Immune Response against Infection
- 23.6.1. Drugs to Regulate and Control the Immune Response

23.7. Futuristic Antibiotics
- 23.7.1. The Future of Antimicrobials
- 23.7.2. Antibiotics of the Future

After completing our Advanced Master's Degree, you will be able to compete in your profession at the highest professional level"

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.

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.

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:

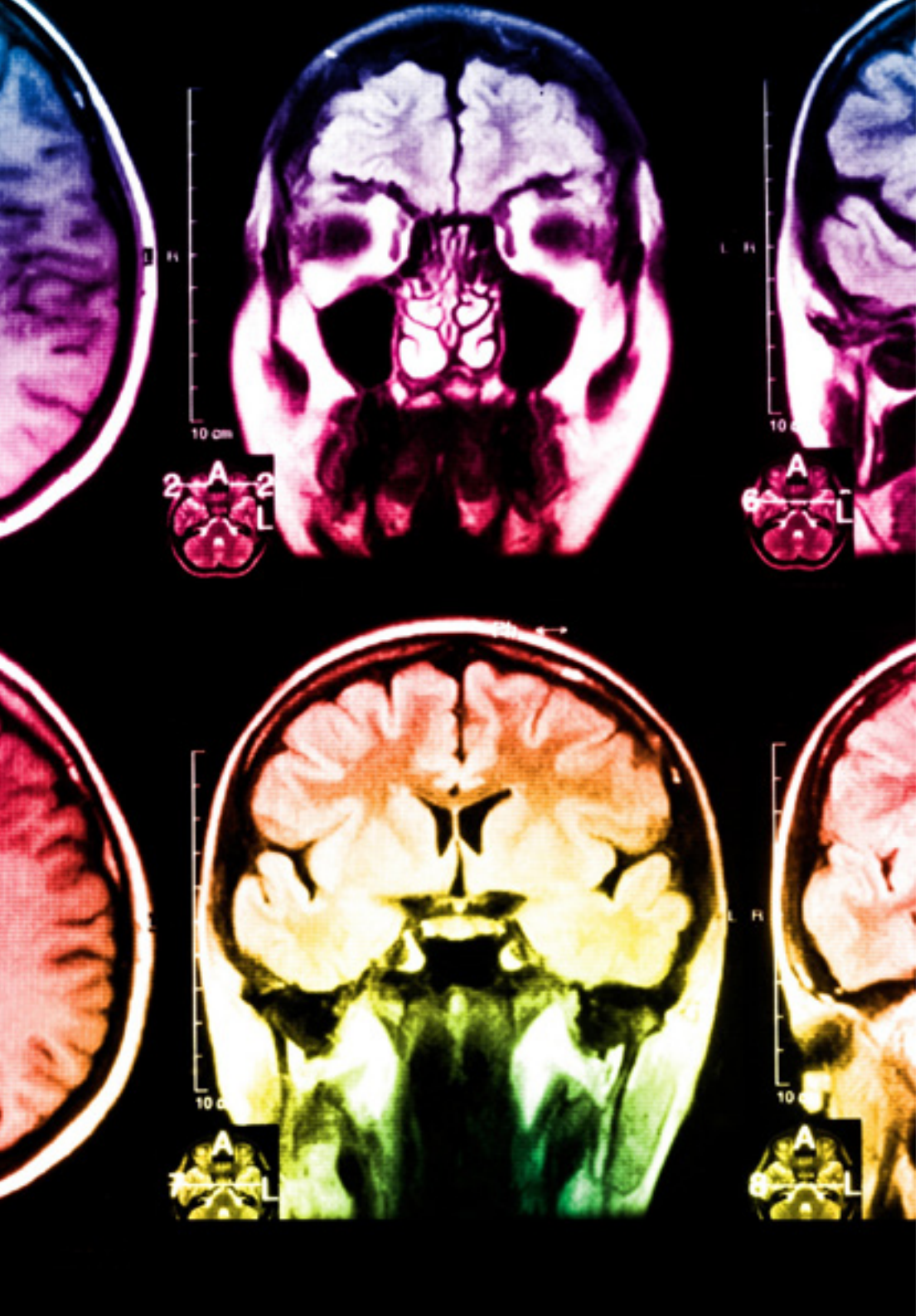
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.

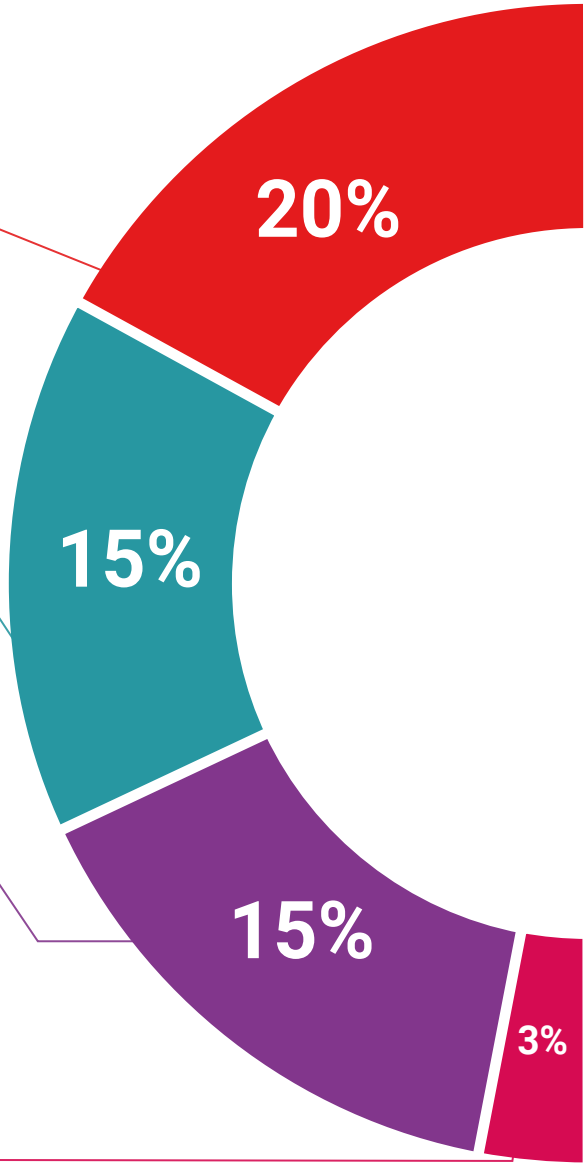
Interactive Summaries

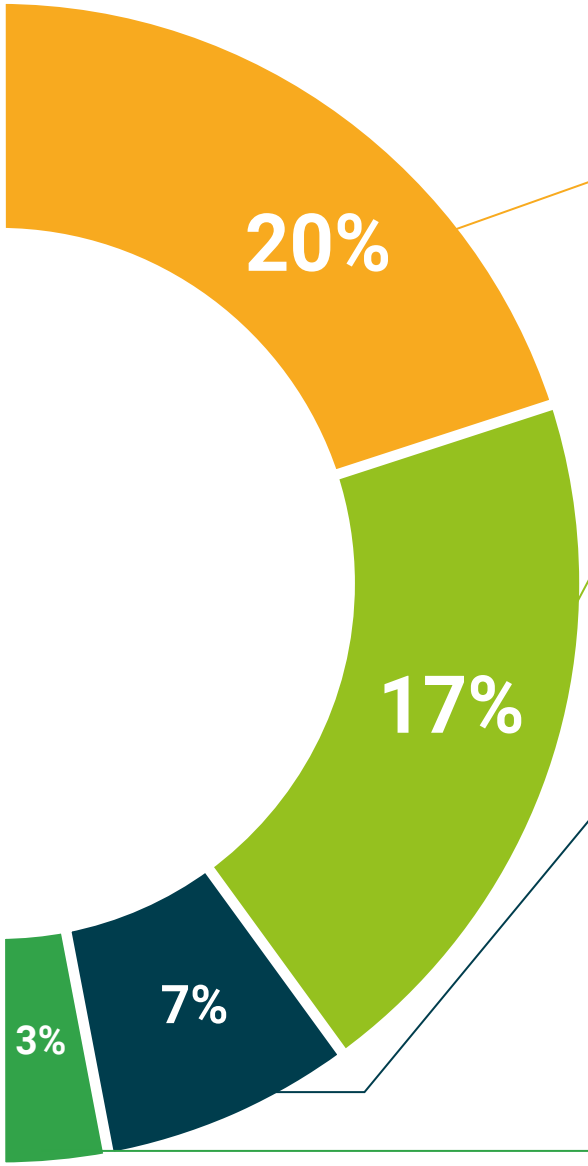
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree diploma issued by TECH Global University.

This Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy is the largest compendium of knowledge in the sector: a degree that will be a highly-valuable qualification for any professional in this field"

This program will allow you to obtain your **Advanced Master's Degree diploma in Clinical Infectious Diseases and Antibiotic Therapy** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy**

Modality: **online**

Duration: **2 years**

Accreditation: **120 ECTS**


tech global university

Mr./Ms. _____ with identification document _____
has successfully passed and obtained the title of:

Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy

This is a program of 3,000 hours of duration equivalent to 120 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Advanced Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Epidemiology, the Clinical Method and Scientific Research in Infectious Diseases	6	CO
1º	Microbiological Diagnosis and Other Examinations for Infectious Diseases	6	CO
1º	The Immune System in Infections in the Immunosuppressed Host	6	CO
1º	General Elements of Infectious Diseases	6	CO
1º	Viral and Antiviral Diseases	6	CO
1º	Latest Information on Coronavirus Infections	6	CO
1º	HIV/AIDS Infection	6	CO
1º	Bacterial Diseases and Antimicrobials	6	CO
1º	Mycotic Diseases	6	CO
1º	Parasitic, Tropical and Anti-Parasitic Diseases	6	CO
1º	Nosocomial Infections Associated with Healthcare and Patient Safety	6	CO

Year	Subject	ECTS	Type
2º	The Role of Infectologists in Health Services	6	CO
2º	Introduction to Pharmacology and Treatment	6	CO
2º	Antimicrobials: General Aspects	6	CO
2º	Antivirals	6	CO
2º	Antibiotics I	6	CO
2º	Antibiotics II	3	CO
2º	Antibiotics III	3	CO
2º	Antimycotics	3	CO
2º	Antiparasitics	3	CO
2º	Antibiotic Resistance	3	CO
2º	Monitoring and Controlling the Use of Antimicrobials	3	CO
2º	Antibiotics and Antimicrobial Treatments of the Future	3	CO

Dr. Pedro Navarro Illana
Rector

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

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Advanced Master's Degree

Clinical Infectious Diseases and Antibiotic Therapy

- Modality: **online**
- Duration: **2 years**
- Certificate: **TECH Global University**
- Credits: **120 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Advanced Master's Degree
Clinical Infectious Diseases and Antibiotic Therapy

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