# Professional Master's Degree

## Clinical Infectious Diseases and Antibiotic Therapeutics

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# Professional Master's Degree
## Clinical Infectious Diseases and Antibiotic Therapeutics

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

Website: **www.techtitute.com/in/pharmacy/professional-master-degree/master-clinical-infectious-diseases-antibiotic-therapeutics**

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01

# Introduction

Today, infectious diseases continue to be the leading cause of mortality and disability (loss of productive life years) in the world, and this is of concern to many professional groups, especially pharmacists, who are responsible for dispensing and creating the right drugs for treating these types of pathologies. In 2016, of the total 56.4 million deaths worldwide, 33% were due to infectious diseases, 30% to cardiovascular diseases and 10% to cancer. Being fully aware of this, TECH presents this program that aims to empower you to be able to fight infectious diseases from a complete and informed perspective.

*With the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics, you have the opportunity to expand your knowledge comfortably and without sacrificing scientific accuracy, in order to incorporate the latest advances in the approach to infectious diseases into your daily medical practice"*

The complex international epidemiological situation so far this century, highlights the unprecedented need to improve the process of training and development of human capital, in order to increase the competence and performance of all pharmaceutical personnel required to meet the challenges involved in controlling and dealing with biological, hospital and public health emergencies, and that guarantee the quality and safety of health care for the population in any part of the world. This has been exemplified by the deliberate release of *Bacillus anthracis* spores as a weapon of bioterrorism to cause pulmonary anthrax in victims who inhaled them, the emergence of West Nile virus as a pathogen in the United States, the epidemic of Severe Acute Respiratory Syndrome (SARS), the zoonotic spread of monkeypox in the United States, the threat of pandemic influenza, the Ebola epidemic in Africa, the emergence of yellow fever cases in Angola, coupled with the re-emergence of dengue and cholera, the emergence of new arboviruses in the Americas region, such as Chikingunya and more recently Zika, as well as morbidity from other endemic infectious diseases, such as HIV/AIDS, leptospirosis, tuberculosis, community-acquired pneumonia and the increase in antibiotic resistance with the development of multidrug-resistant bacteria.

The program in Clinical Infectious Diseases and Antibiotic Therapeutics is aimed at increasing the scientific education of pharmacy personnel related to research and issuing of the correct and timely treatment for infectious diseases. The program has a predominantly vocational focus, which favors the acquisition and development of knowledge and skills that will determine an improvement in the quality of pharmaceutical care of patients with infectious diseases, resulting in better morbidity and mortality rates for these pathologies in the population.

This **Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of case studies presented by experts in Clinical Infectious Diseases and Antibiotic Therapeutics
- 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
- The latest developments in Clinical Infectious Diseases and Antibiotic Therapeutics
- Practical exercises where the self-assessment process can be carried out to improve learning
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course.
- 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

*Seize the moment and gain up-to-date knowledge on the management of infections and become a renowned pharmacist"*

*This program is the best investment you can make in a specialization for two reasons: you will obtain a Professional Master's Degree from the largest digital university in the world, TECH, and you will acquire the best and most up-to-date training in Clinical Infectious Diseases and Antibiotic Therapeutics"*

Its teaching staff is made up of prestigious and renowned professionals with a long career in health care, teaching and research, who have worked in many countries on several continents, developing professional and teaching experience that they deliver in an extraordinary way in this program.

The methodological design is developed by a multidisciplinary team of experts in e-Learning, who integrate the latest advances in educational technology for the creation of numerous multimedia educational tools that allow the professional to face real problems in their daily clinical practice, which will allow the acquisition of knowledge and the development of skills that will impact their future professional work.

It should be noted that each of the contents generated, as well as the videos, self-tests, clinical cases and modular exams have been thoroughly reviewed, updated and integrated by the professors and the team of experts that make up the working group, in order to facilitate the learning process in an educational and phased manner to achieve the objectives of the program.

*This up-to-date program is the best on the educational landscape in infectious diseases and pharmaceuticals.*

*Learn about the latest scientific evidence on infectious diseases at the pharmaceutical level.*

02

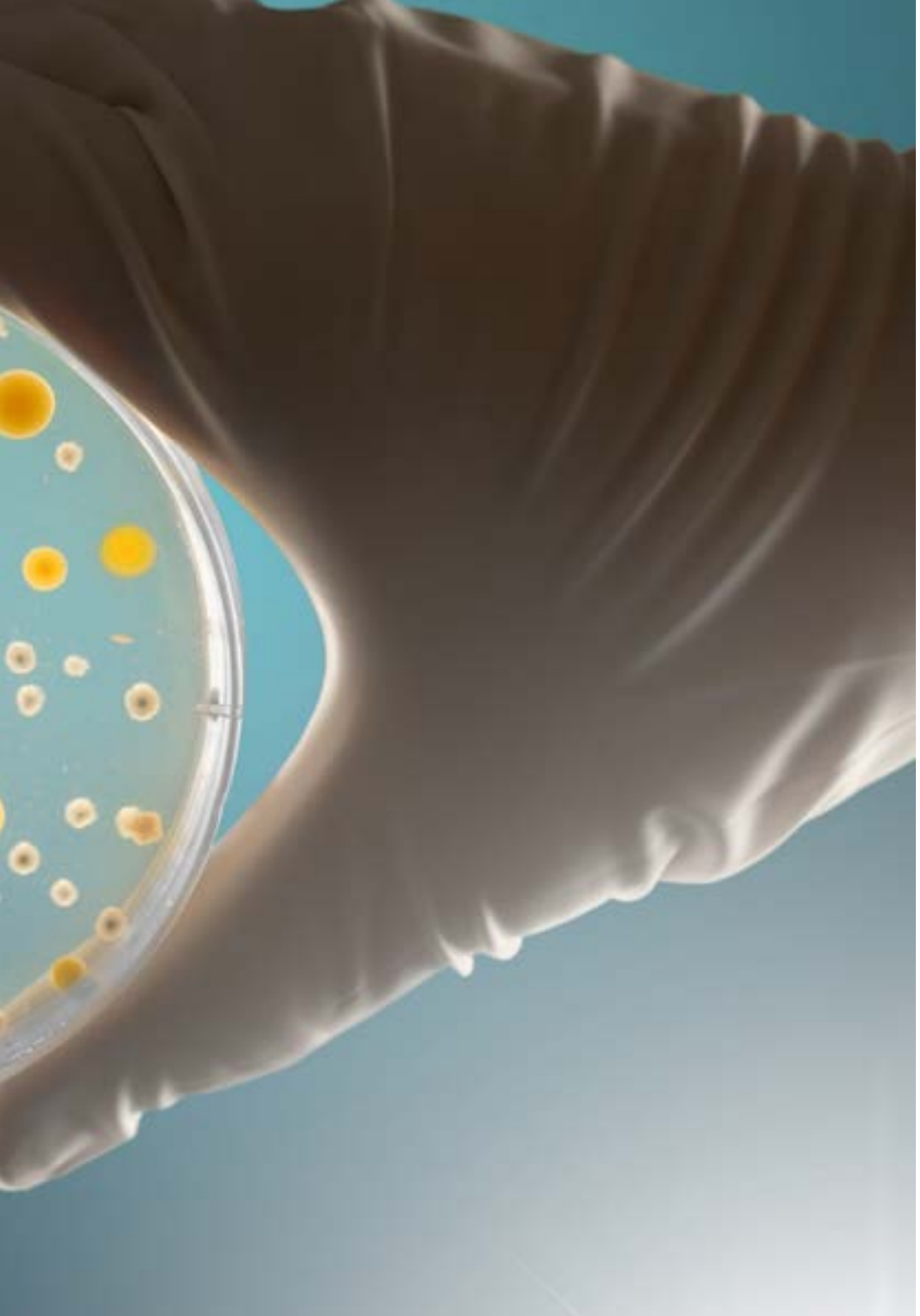
# Objectives

The fundamental purpose of the teaching program is to educate and improve the pharmacist's knowledge in order to achieve a deep theoretical mastery of the most current scientific knowledge in the area of clinical infectious diseases. It also aims to develop skills that will allow them to deal more comfortably and confidently with the complex process of health and infectious diseases in individuals and communities.

*This program was created with one goal in mind: to provide pharmacists with the tools to work with infectious diseases with greater guarantees of success"*

## 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 attention 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





## Specific Objectives

### Module 1. Clinical 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-infectious diseases
- Provide theoretical and practical education to enable a certain clinical diagnosis to be made, supported by the efficient use of diagnostic methods to indicate an effective integral therapy

### Module 2. Microbiological Diagnosis and Other Examinations for Infectious Diseases

- Study, in depth, the latest clinical, diagnostic and therapeutic elements of the most lethal respiratory infections
- Explain the clinical, diagnostic and treatment elements of rare or uncommon infectious diseases

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

- Emphasise the role of urinary tract infection and the development of chronic kidney disease
- Describe the clinical, diagnostic and treatment features of sexually transmitted infections

### Module 4. General Elements of Infectious Diseases

- Develop skills to implement prophylactic plans for the prevention of these diseases
- Assess and interpret the epidemiological characteristics and conditions of the continents that favour the emergence and development of infectious diseases
- Explain the complex interrelationships between infections and different types of immunosuppression
- Describe the main elements that favour occupational accidents and the transmission of blood-borne pathogens

### Module 5. Viral and Antiviral Diseases

- To substantiate the importance of the control of viral haemorrhagic diseases and the detailed study of the most frequent and deadly diseases for the reduction of morbidity and mortality worldwide
- Study the current pathophysiological elements between non-transmissible chronic diseases and infections
- Address in detail and depth the most up-to-date scientific evidence in the vast world of hepatitis

### Module 6. Latest Information on Coronavirus Infections

- Understand the discovery and evolution of coronavirus
- Approach coronavirus infections and their implication on the immune system
- Understand current biosafety issues in microbiology laboratories for handling coronavirus samples

### Module 7. HIVIDS Infection

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

### Module 8. Bacterial Diseases and Antimicrobials

- Address the important role of microbiology and the infectologist in the control of infectious diseases
- Describe the main elements that favour occupational accidents and the transmission of blood-borne pathogens
- Highlight the importance of morbidity and mortality from infections in international travelers

### Module 9. Fungal Diseases

- Explain the mycoses with the highest morbidity and mortality rates
- Explain the pathogenic mechanisms and the most frequent neoplasms associated with infectious agents

### Module 10. Parasitic and Tropical Diseases

- Delve deeper into the study of the most important parasitic diseases
- Highlight the importance of morbidity and mortality from infections in international travelers

### Module 11. Nosocomial Infections Associated With Healthcare and Patient Safety

- Identify the main germs involved in foodborne infections and their clinical significance
- Highlight the role of immunity in central nervous system infections and their complications
- Highlight the role of Zoonoses as a major global health problem

### Module 12. Antimicrobial Resistance

- Raise the crucial issue of super-resistant microbes and their relationship to the use of antimicrobials

### Module 13. The Correct Use of Antimicrobials

- Highlight the development of vaccines for new diseases
- Emphasise the development of future antibiotics and other therapeutic modalities for infectious diseases
- Highlight the role of vector control and the clinical epidemiological study of arbovirosis

### Module 14. The Role of Infectologists in Health Services

- Address the important role of microbiology and the infectologist in the control of infectious diseases
- Emphasise the future challenges of infectious diseases in reducing infectious morbidity and mortality

*Improve your daily practice by taking advantage of the knowledge offered by the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy"*

03

# Skills

Once all the contents have been studied and the objectives of the Professional Master's Degree in Clinical Infectious Diseases and Advanced Antibiotic Therapy have been achieved, the health professional will have acquired superior competence and performance, supporting their daily professional practice in the most important scientific advances of the time, with a multidisciplinary and integrated approach to the main causes of infectious morbidity and mortality worldwide, which will make them an obligatory reference in their field of action. This will not only make them a better pharmacist, but one who is better prepared to face the current challenges of the profession with greater guarantees of success.

*With this program you will master the new diagnostic and therapeutic procedures in Clinical Infectious Diseases and Antibiotic Therapeutics from a pharmaceutical point of view"*

## General Skills

- Apply epidemiological and clinical methods in collective or individual care to solve the main health problems related to infectious diseases
- Master the methodology of scientific information and statistical data processing to lead research projects in the health sciences
- Perform a critical reading of the scientific literature on these diseases and at the same time have the tools to communicate research results
- Collect, process, and analyse in very diverse clinical and epidemiological contexts, any scientific information for diagnostic and therapeutic decision-making in the field of clinical infectious diseases specifically and health 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 his or her professional skills due to the dizzying and accelerated process of scientific knowledge production

*Improve your patients' care by taking advantage of the knowledge offered by the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy"*

## Specific Skills

- Improve their diagnostic skills and therapeutics for infectious diseases and the health care of their patients in general
- Acquire skills to manage, advise or lead multidisciplinary teams for the study of infectious diseases 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 field infectious diseases in order to acquire and develop a culture of prevention in the population, based on healthy styles and ways of life
- Apply existing control measures to prevent the transmission of these diseases between countries, in real and/or simulated
- Apply the Epidemiological Monitoring System for the Public Health of Communities, based on its integration into health actions
- Evaluate the epidemiological aspects related to chronic diseases that will allow them to implement actions for their control in the community, in real and/or simulated conditions
- Identify, in a timely manner, the appearance of new diseases or the rise of emerging or re-emerging diseases, based on the application of the scientific method of the profession

- Timely diagnosis of the most frequent or new infections based on clinical manifestations for their correct treatment, rehabilitation, and control
- Justify the importance of vaccination as a public health measure for the control of communicable diseases
- Identify the occupational, social, and environmental risk factors that favor the development of these diseases in the community
- Identify the signs and symptoms most frequently associated with infectious diseases
- Master the main infectious diseases
- Master the current elements of the role of the immune system in response to the different types of microbes
- Identify the main opportunistic infections in patients with different types and degrees of immunosuppression
- Apply prevention and control measures to reduce morbidity and mortality in chronic diseases
- Master the clinical, epidemiological, diagnostic, and therapeutic elements for the main epidemiological threats in the world population such as Arbovirosis, HIV/AIDS infection, parasitosis, TB, and hemorrhagic diseases
- Educate the community in the prevention of the process of infection-disease
- Identify the fundamental aspects of the pathogenesis and the main clinical features of the diseases studied
- Master the most important pharmacological elements of antimicrobials
- Halt the progression of antibiotic resistance, based on reasoned therapeutics and supported by the best scientific evidence
- Apply the epidemiological and clinical approach to the study of infectious disease outbreaks
- Develop skills to provide care for international travelers, based on the mastery of the main risks and diseases in this vulnerable group
- Correctly use and interpret all microbiological studies and other diagnostic resources in the care of their patients
- Master the field of action, competencies, skills and functions of an infectologist in a health service of any medical institution
- Develop skills for database management, scientific information and the development of research projects

04

# Structure and Content

The teaching program has been created by a group of professors and medical professionals from various medical specialties, with extensive medical, research and teaching experience in several countries in Africa, Central and South America, interested in integrating the latest and most up-to-date scientific knowledge of clinical infectious diseases and antimicrobial therapeutics, to ensure training and professional development to improve the daily clinical practice of professionals who care for patients or populations with infectious diseases.

*This Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics contains the most complete and up-to-date scientific program on the market"*

## **Module 1.** Clinical 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 Applies 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 Systems
- 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 Vaccination
- 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 of Fungi
- 2.5.2. Main Mycological Studies

2.6. Parasitological 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. Biosecurity
- 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
2.14.2. 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. Zoster Herpes

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. Antivirals
- 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.** HIVIDS 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 (CAP)
- 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
- 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. Betalactams: Penicillin 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 Indicatorsw
- 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. Lincosamines, 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.** Fungal 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 and Tropical 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 Protozoa
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. Leishmaniasis
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. Trichuriosis

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

10.10. Antiparasitics II
- 10.10.1. General Concepts
- 10.10.2. Main Definitions Used in the Management of Antiparasitics
- 10.10.3. 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
- 11.6.1. Main Measures Internationally Recommended 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.** Antimicrobial Resistance

12.1. Epidemiology. From Molecular to Socioeconomic
- 12.1.1. Analysis of Molecular Evolution, Genetics, Clinical Manifestation, Epidemiology and Socioeconomics of the Resistance to Antibiotics
- 12.1.2. Mortality Due to Super Bacteria
- 12.1.3. Most Lethal Super Bacteria

12.2. Mechanisms of Antimicrobial Resistance
- 12.2.1. Genetic Mechanisms
- 12.2.2. Acquired Mechanisms

12.3. MRSA and GISA
- 12.3.1. Epidemiology
- 12.3.2. Resistance Mechanisms
- 12.3.3. Alternative Treatments

12.4. Resistant Enterobacteria
- 12.4.1. Epidemiology
- 12.4.2. Resistance Mechanisms
- 12.4.3. Alternative Treatments

12.5. Resistant Pneumococcus
- 12.5.1. Epidemiology
- 12.5.2. Resistance Mechanisms
- 12.5.3. Alternative Treatments

12.6. Viral Resistance
- 12.6.1. Epidemiology
- 12.6.2. Resistance Mechanisms
- 12.6.3. Alternative Treatments

12.7. Mycotic and Parasitic Resistance
- 12.7.1. Epidemiology
- 12.7.2. Resistance Mechanisms
- 12.7.3. Alternative Treatments

12.8. Worldwide Program for the Control of Antimicrobial Resistance and Research into New Antibiotics
- 12.8.1. Objectives and Action of the Worldwide Program for the Control of Antimicrobial Resistance
- 12.8.2. Research into New Antibiotics for Multiresistant Germs
- 12.8.3. Emergence of Other Forms of Treatment for Infection Control

## **Module 13.** The Correct Use of Antimicrobials

13.1. Basic Principles in the Selection and Use of Antimicrobials
- 13.1.1. Elements of an Antimicrobial
- 13.1.2. Elements of a Germ
- 13.1.3. Elements of the Host

13.2. Use of Antimicrobials in Special Situations in the Host
- 13.2.1. Use in Kidney Failure
- 13.2.2. Use in Pregnancy
- 13.2.3. Use in Liver Failure

13.3. The Role of Policies and Rational Use of Antibiotics Programs and Their Impact on the Antimicrobial Resistance and The Cost of Medical Care
- 13.3.1. Situation of Programs and Policies for the Rational Use of Antibiotics
- 13.3.2. Impact of Programs and Policies in the Use of Antibiotics
- 13.3.3. Use of Clinical Practice Guides

13.4. Pharmotherapeutic Committees as Tools for the Control and Evaluation of the Use of Antibiotics
- 13.4.1. Structure
- 13.4.2. Objectives
- 13.4.3. Functions
- 13.4.4. Impact Results

13.5. Antibiotic Prophylaxis in Surgery
- 13.5.1. Classification of Surgical Interventions
- 13.5.2. Uses of Antibiotic Prophylaxis According to the Type of Surgical Intervention
- 13.5.3. Most Commonly Used Schemes of Antibiotic Prophylaxis in Surgery

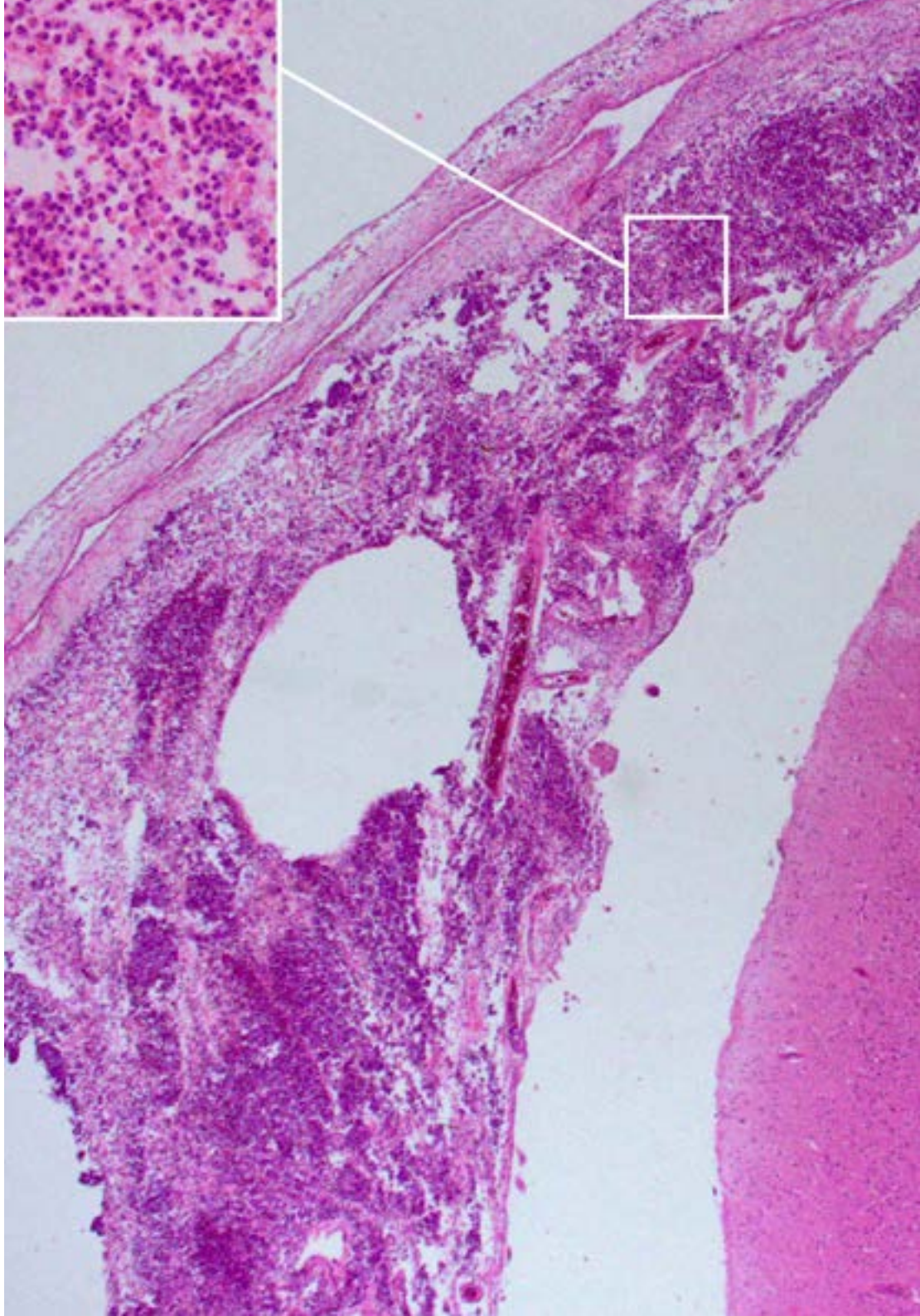
13.6. Reasoned Therapeutics in the Use of Antibiotics
- 13.6.1. Stages of Reasoned Therapeutics
- 13.6.2. Importance of Reasoned Therapeutics

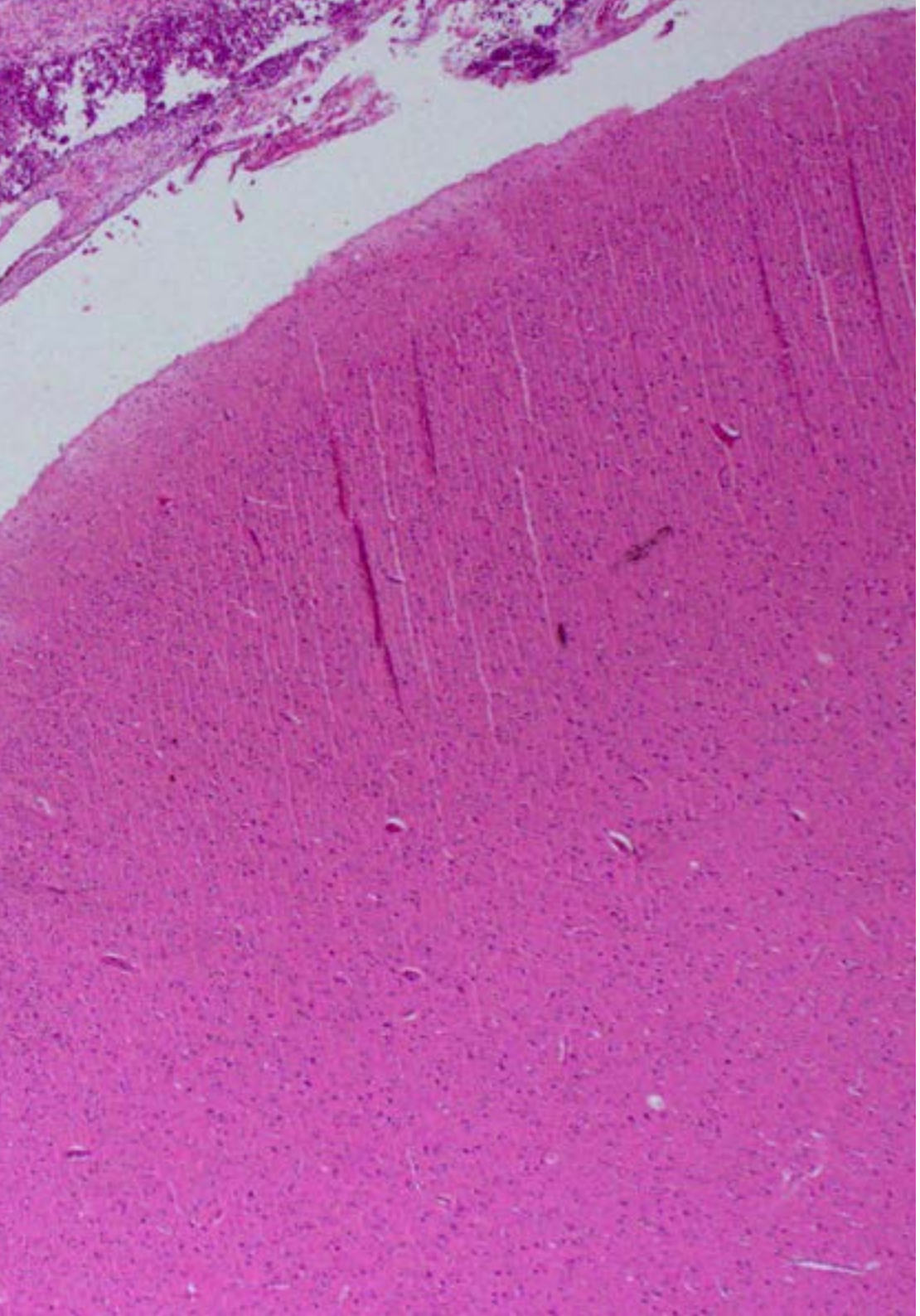
13.7. The Worldwide Experience in the Control of the Use of Antibiotics
- 13.7.1. Main Worldwide Experiences in the Control of the Use of Antibiotics

## **Module 14.** The Role of Infectologists in Health Services

14.1. Infectology and its Importance in Medical Care Within Any Specialist Field
- 14.1.1. The Universal Nature of Infectious Pathology in Medical Specialties
- 14.1.2. Mastering Antibiotic Treatment

14.2. Skills and Abilities of an Infectologist
- 14.2.1. Skills of an Infectologist







14.2.2. Abilities of an Infectologist

14.3. The Role of Infectologists in Health Teams

14.3.1. Functions of Infectologists in Health Teams in the Different Levels of the Health System

14.4. Infectious Disease Consultation

14.4.1. Functions of an Infectologist's Consultation

14.4.2. Pathologies to be Consulted

14.5. Scientific Update of the Infectologist's Medical Knowledge and the Future Challenges of Infectology

14.5.1. Self-Training

14.5.2. Training and Professional Achievement

14.5.3. Future Challenges for Infectology: The Emergence of New Diseases Antimicrobial Resistance The Development of Vaccines and Antibiotics

*Update your knowledge through this program in Clinical Infectious Diseases and Antibiotic Therapeutics"*

05

# 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 be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly 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, attempting to recreate the actual conditions in a pharmacist'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:**

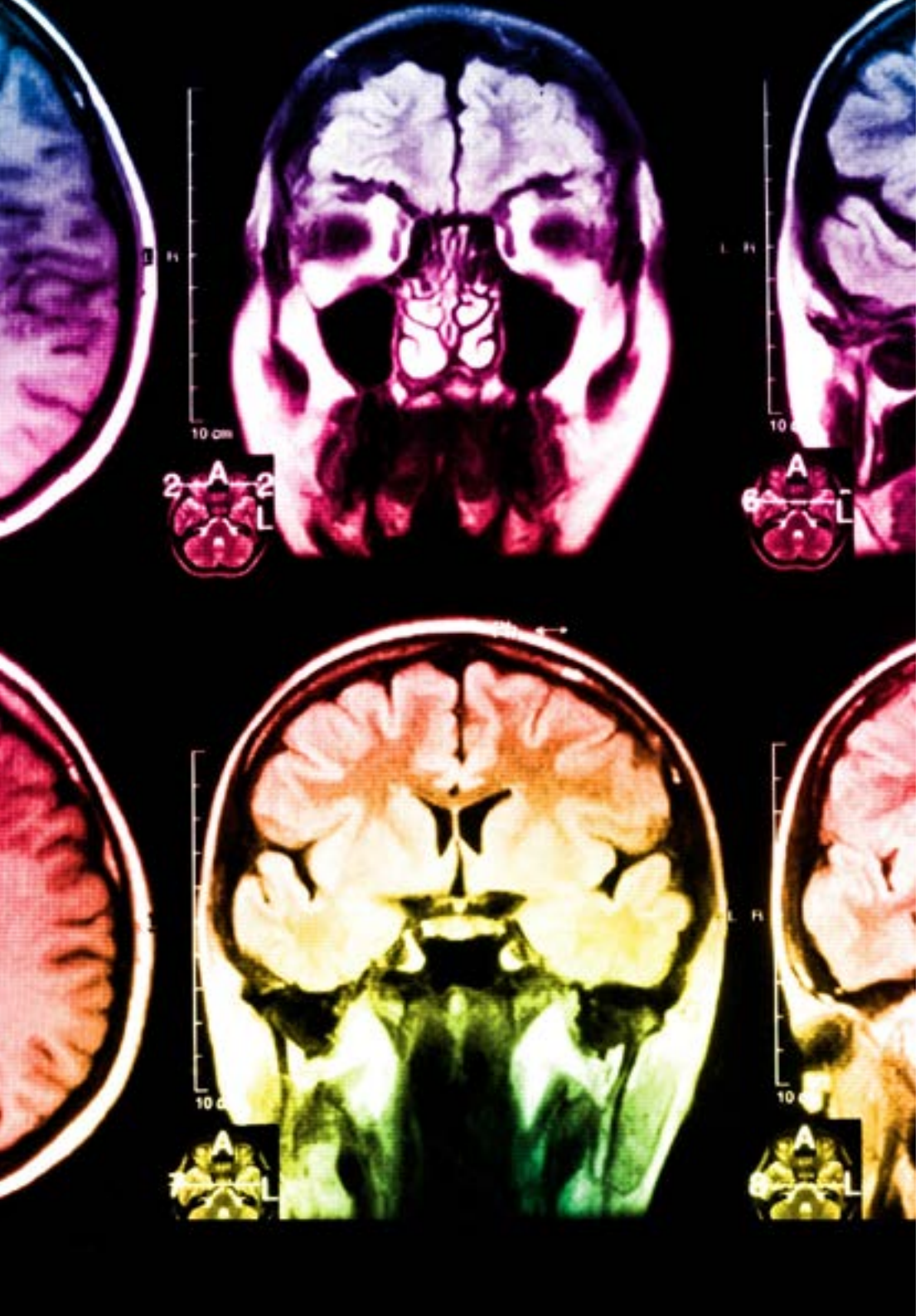
1. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts 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.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.

*Pharmacists will learn through real cases and by solving 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 115,000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic profile and an average age of 43.5 years.

*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 created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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.

### Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.

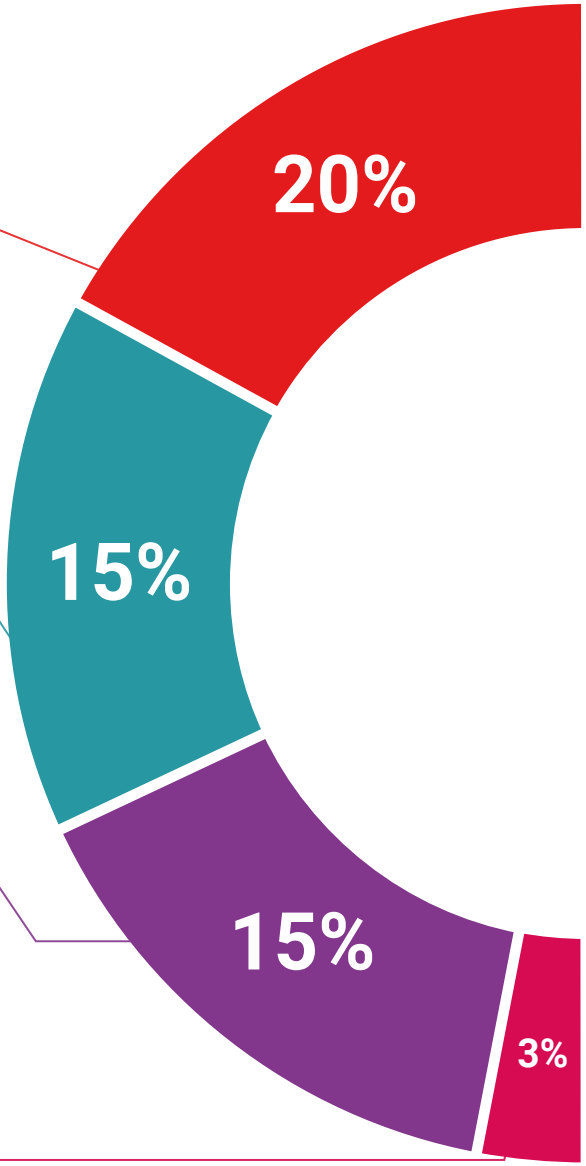
### Interactive Summaries

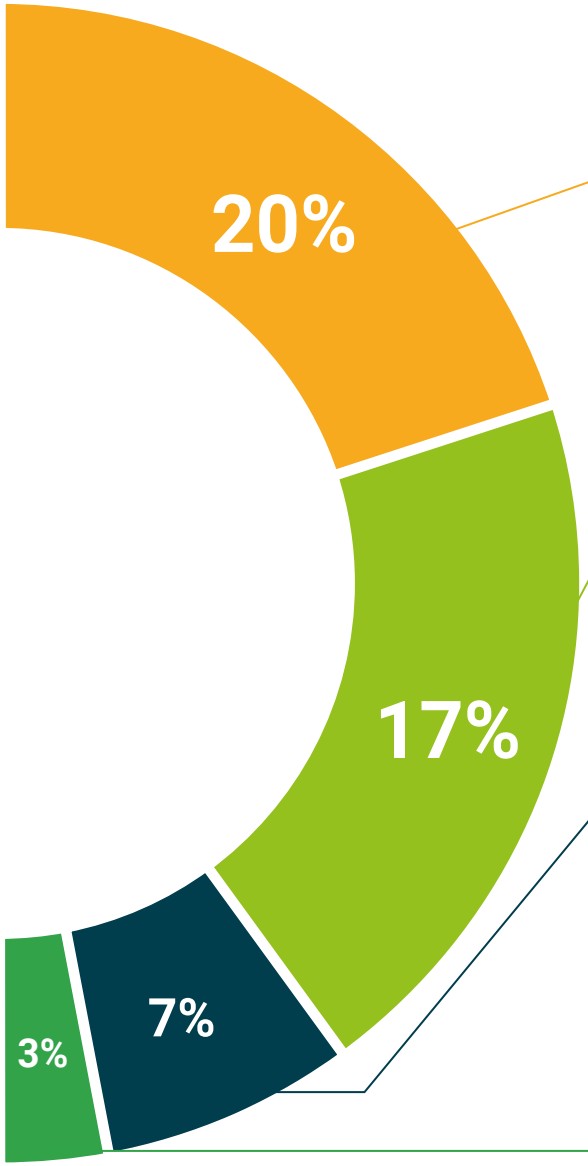
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system 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, we will present you with real case developments in which the expert will guide you through 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.

06

# Certificate

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

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

This **Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics** 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** diploma 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 meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics**

Official Nº of hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Clinical Infectious Diseases and Antibiotic Therapeutics

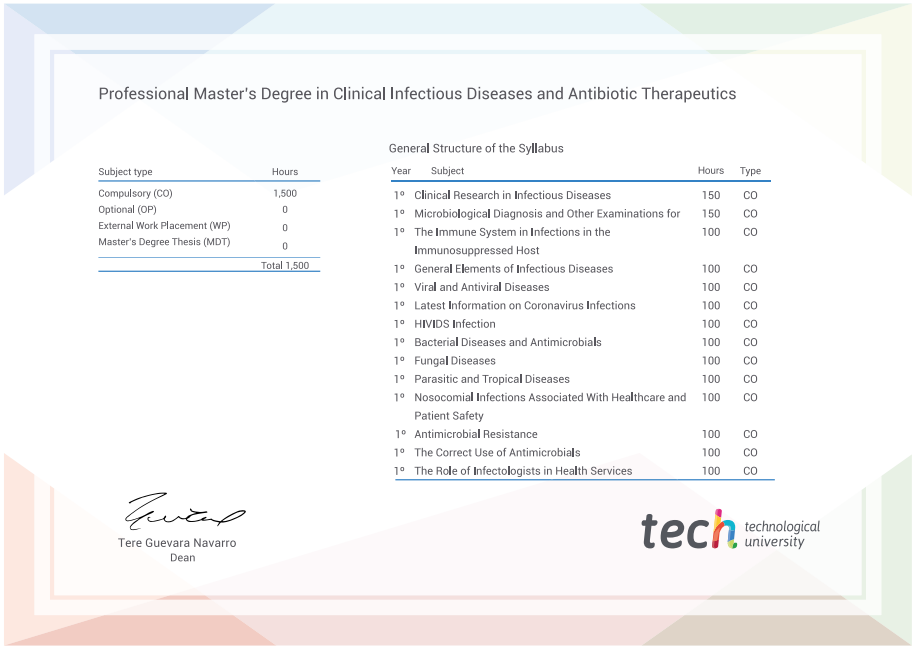
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

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


Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapeutics

| Subject type | Hours |
|---|---|
| Compulsory (CO) | 1,500 |
| Optional (OP) | 0 |
| External Work Placement (WP) | 0 |
| Master's Degree Thesis (MDT) | 0 |
| | Total 1,500 |

General Structure of the Syllabus

| Year | Subject | Hours | Type |
|---|---|---|---|
| 1º | Clinical Research in Infectious Diseases | 150 | CO |
| 1º | Microbiological Diagnosis and Other Examinations for | 150 | CO |
| 1º | The Immune System in Infections in the Immunosuppressed Host | 100 | CO |
| 1º | General Elements of Infectious Diseases | 100 | CO |
| 1º | Viral and Antiviral Diseases | 100 | CO |
| 1º | Latest Information on Coronavirus Infections | 100 | CO |
| 1º | HIVIDS Infection | 100 | CO |
| 1º | Bacterial Diseases and Antimicrobials | 100 | CO |
| 1º | Fungal Diseases | 100 | CO |
| 1º | Parasitic and Tropical Diseases | 100 | CO |
| 1º | Nosocomial Infections Associated With Healthcare and Patient Safety | 100 | CO |
| 1º | Antimicrobial Resistance | 100 | CO |
| 1º | The Correct Use of Antimicrobials | 100 | CO |
| 1º | The Role of Infectologists in Health Services | 100 | CO |

Tere Guevara Navarro
Dean

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*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.

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# Professional Master's Degree
## Clinical Infectious Diseases and Antibiotic Therapeutics

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

# Professional Master's Degree

## Clinical Infectious Diseases and Antibiotic Therapeutics

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