

# Professional Master's Degree

## Clinical Infectious Diseases and Antibiotic Therapy





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

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

Website: [www.techtute.com/us/medicine/professional-master-degree/master-clinical-infectious-diseases-antibiotic-therapy](http://www.techtute.com/us/medicine/professional-master-degree/master-clinical-infectious-diseases-antibiotic-therapy)

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# 01

# Introduction

Infectious diseases remain the leading cause of mortality and disability (loss of productive life years) in the world. This has become even more exacerbated with the COVID-19 pandemic, which has claimed more than 5 million lives worldwide. The fight against disease will have two simultaneous fronts: infectious diseases and chronic non-communicable diseases.



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*With the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy, you have the opportunity to update your knowledge in a comfortable way and without sacrificing maximum scientific rigor, to incorporate the latest advances in the approach to infectious pathology in your daily medical practice"*

Since its inception, the COVID-19 pandemic has caused more than 5 million deaths worldwide. But this is not the only infectious disease affecting the planet, as in Spain alone, in 2020 more than 80,000 people died from these pathologies, according to data from the National Institute of Statistics. 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 the appearance, reappearance or dissemination of imported or apparently eradicated infectious diseases in our environment to be impossible.

The complex international epidemiological situation so far this century, exemplified by the deliberate release of *Bacillus anthracis* spores as a bioweapon to cause pulmonary anthrax in victims who inhaled them, the emergence of West Nile virus as a pathogen in the United States, the SARS epidemic, 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 Chikungunya and more recently Zika. Together with 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, all of which highlight the unprecedented need to perfect the process of specialization and improvement of human capital in order to increase the competence and performance of all the personnel necessary to face the challenges involved in controlling and dealing with biological, hospital and public health emergencies that guarantee the quality and safety of health care for the population in any part of the world.

The Clinical Infectious Diseases and Antibiotic Therapy program is designed to increase the scientific preparation of health personnel related to the prevention and correct and timely treatment of infectious diseases, with a predominantly vocational focus, which favors the acquisition and development of knowledge and skills that will determine an improvement in the quality of medical 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 Therapy** contains the most complete and up-to-date scientific program on the market". The most important features include:

- ◆ More than 75 clinical cases presented by experts in Clinical Infectious Diseases and Antibiotic Therapy
- ◆ 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
- ◆ New developments in Clinical Infectious Diseases and Antibiotic Therapy
- ◆ 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 work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Update your knowledge through the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy"*

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*This Professional Master's Degree may be the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Clinical Infectious Diseases and Antibiotic Therapy, you will obtain a degree from TECH Technological University"*

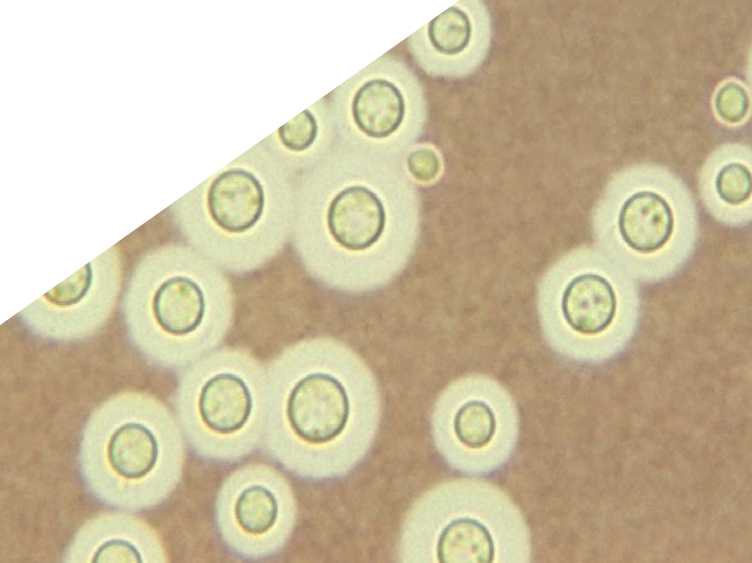
Its teaching staff is made up of prestigious and renowned Cuban professionals with a long career in health care, teaching and research, who have worked in many countries on several continents, developing professional and teaching experience that they deliver in an extraordinary way in this Professional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

The methodological design of this Professional Master's Degree has been developed by a multidisciplinary team of *e-learning* experts. It integrates the latest advances in educational technology for the creation of numerous multimedia educational tools that allow the professional, based primarily on the problem-based learning method, to address real problems in their daily clinical practice. This will allow them to advance by acquiring knowledge and developing skills that will impact their future professional work.

It should be noted that in this Professional Master's Degree, each of the contents generated, as well as the videos, self-evaluations, clinical cases and exams have been thoroughly reviewed, up-to-date, and integrated by the team of experts that make up the faculty. This is to ensure that the learning process is orderly and instructive in order to achieve the program's objectives.

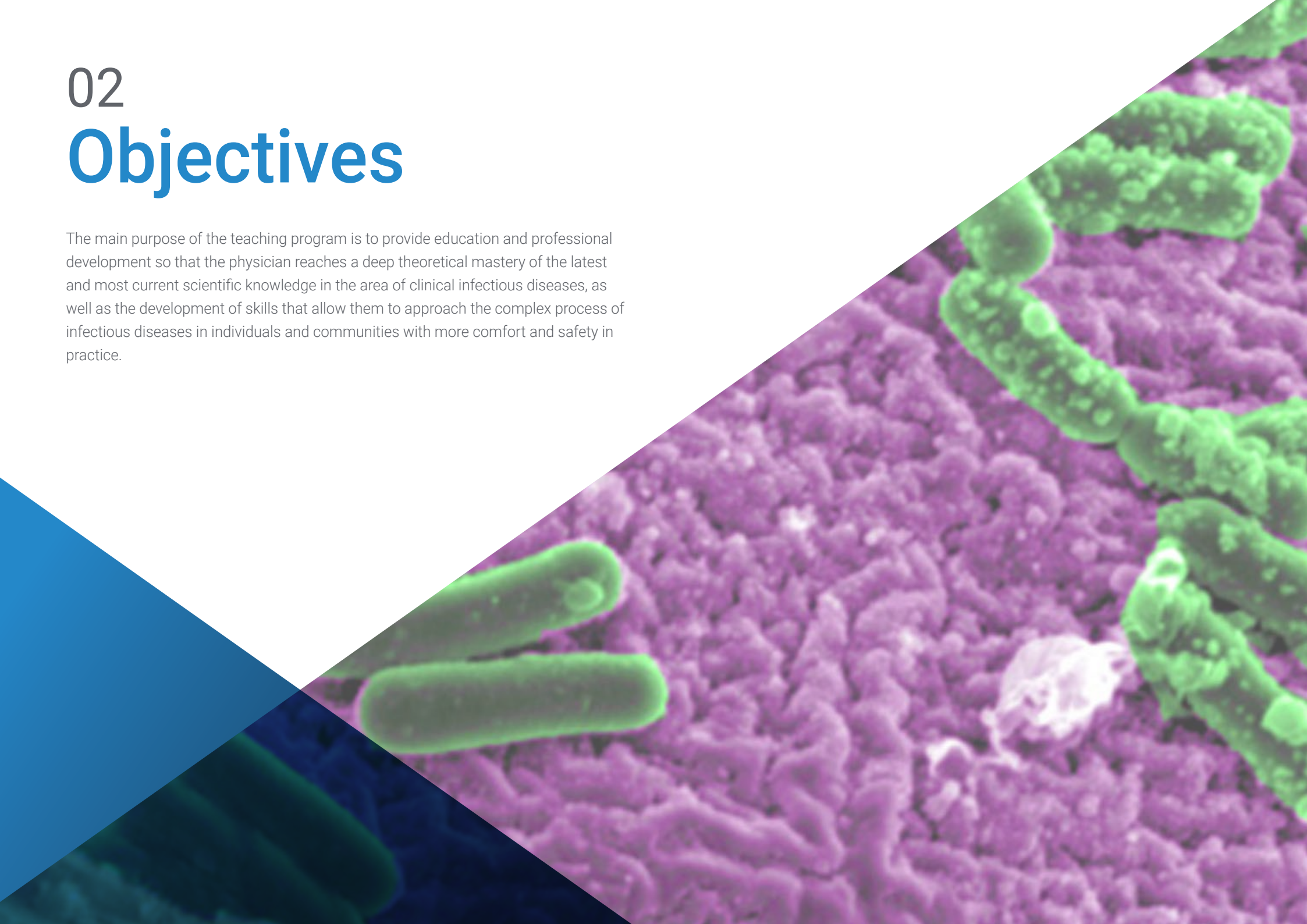
*This program, having been updated as of April 2020, is the best in the educational panorama in Clinical Infectious Diseases and Antibiotic Therapy.*

*Get to know all the latest information on COVID-19 Don't miss the opportunity and get up to date on advances in the treatment of the infections to incorporate them into your daily medical practice.*



# 02 Objectives

The main purpose of the teaching program is to provide education and professional development so that the physician reaches a deep theoretical mastery of the latest and most current scientific knowledge in the area of clinical infectious diseases, as well as the development of skills that allow them to approach the complex process of infectious diseases in individuals and communities with more comfort and safety in practice.





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*This program will provide you with a sense of confidence in your medical practice, which will help you grow personally and professionally”*



## General Objectives

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- 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



*Take the opportunity and take the step to get up to date on the latest developments in Clinical Infectious Diseases and Antibiotic Therapy"*





## Specific Objectives

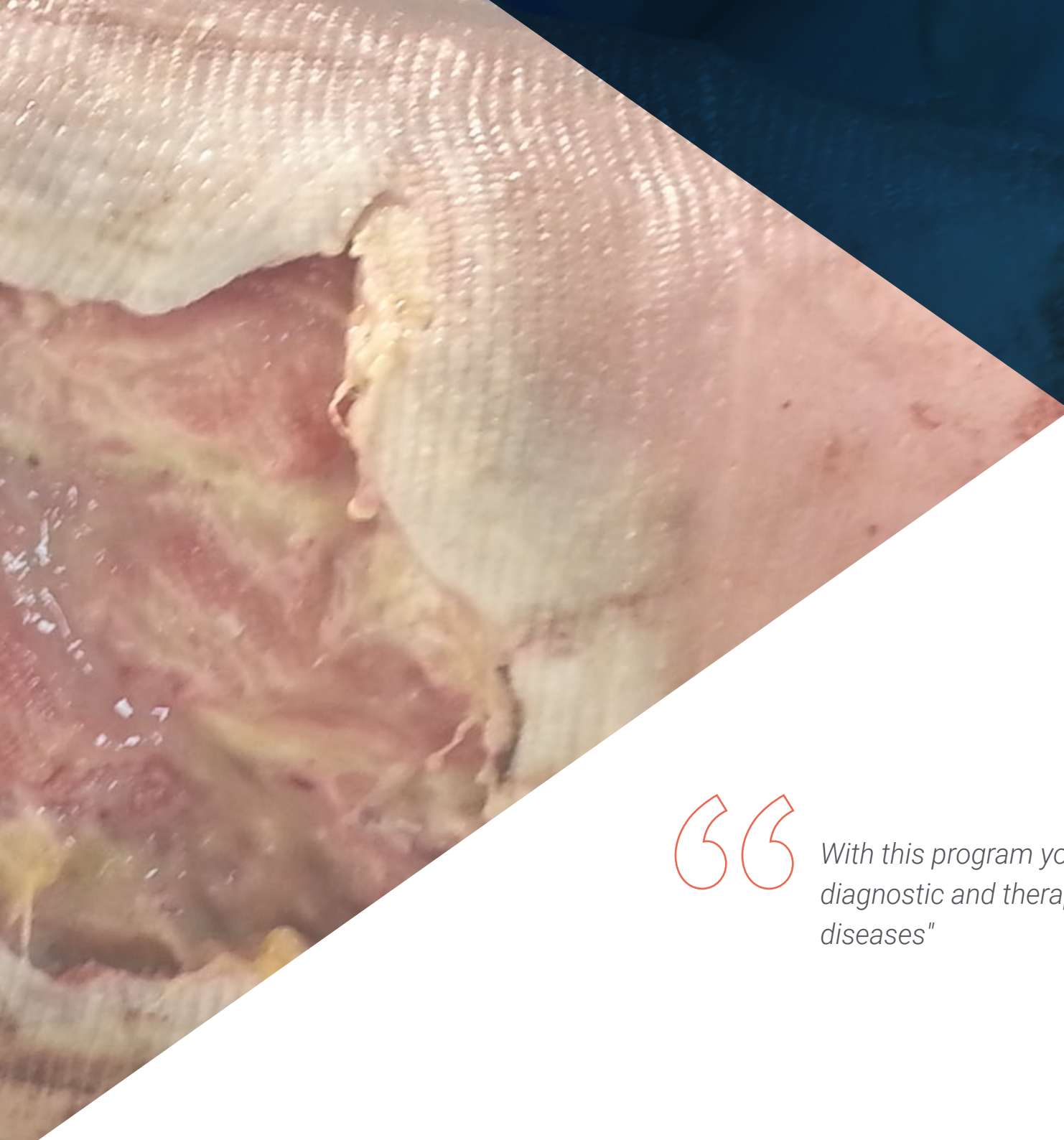
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- ♦ Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the process of health-infectious diseases
- ♦ Provide training and practical-theoretical improvements that enable a reliable clinical diagnosis, supported by the efficient use of diagnostic methods to indicate an effective integral therapy
- ♦ Develop skills to implement prophylactic plans for the prevention of these diseases
- ♦ Assess and interpret the epidemiological characteristics and conditions in the continents where the appearance and development of infectious diseases often occur
- ♦ Explain the complex interrelationships between infections and different types of immunosuppression.
- ♦ 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
- ♦ To highlight the importance of morbidity and mortality from infections in the international traveller.
- ♦ Explain the pathogenic mechanisms and the most frequent neoplasms associated with infectious agents
- ♦ Study the current pathophysiological elements between non-transmissible chronic diseases and infections
- ♦ To deepen the study of the latest clinical, diagnostic and therapeutic elements of the most lethal respiratory infections
- ♦ Emphasize the role of urinary tract infection and the development of chronic kidney disease
- ♦ Describe the clinical, diagnostic and treatment features of sexually transmitted infections
- ♦ Identify the main germs involved in foodborne infections and their clinical significance
- ♦ Address in detail and depth the most up-to-date scientific evidence in the vast world of hepatitis
- ♦ Explain the pathophysiological and pathogenic interrelationships between tuberculosis co-infection and HIV/AIDS infection
- ♦ 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
- ♦ Highlight the role of vector control and the clinical epidemiological study of arbovirosis
- ♦ Highlight the role of immunity in central nervous system infections and their complications
- ♦ Highlight the role of Zoonoses as a major global health problem
- ♦ Explain the mycoses with the highest morbidity and mortality rates
- ♦ Delve deeper into the study of the most important parasitic diseases
- ♦ Raise the crucial issue of super-resistant microbes and their relationship to the use of antimicrobials.
- ♦ Highlighting the development of vaccines for new diseases
- ♦ Emphasize the development of future antibiotics and other therapeutic modalities for infectious diseases
- ♦ Explain the clinical, diagnostic and treatment elements of rare or uncommon infectious diseases
- ♦ Emphasize the future challenges of infectious diseases in reducing infectious morbidity and mortality

# 03 Skills

Once all the contents have been studied and the objectives of the Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy have been achieved, the health professional will have developed superior competence and performance, supporting their daily medical practice in the most important scientific advances of the time, with a multidisciplinary and integrative approach to the main causes of infectious morbidity and mortality worldwide, which will make them a leading expert in this field.





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*With this program you will be able to master new diagnostic and therapeutic procedures in infectious diseases”*



## Basic Skills

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- ♦ 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 science
- ♦ 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



## General Skills

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- ♦ Enhance their diagnostic and therapeutic capabilities for infectious diseases and overall patient care
- ♦ 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



*Become a professional in the field of Occupational Health by increasing your knowledge in this field”*



## Specific Skills

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- ♦ Apply existing control measures to prevent the transmission of these diseases between countries, in real and/or simulated
- ♦ Apply the Epidemiological Surveillance System for the Public Health of Communities, starting with its integration into health initiatives
- ♦ 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 an important 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 symptoms and signs most frequently associated with infectious diseases.
- ♦ Master the main infectious syndromes
- ♦ Master the most current elements of the role of the immune system in the response to 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 arbovirolosis, HIV/AIDS infection, parasitosis, TB and hemorrhagic diseases
- ♦ Educate the community in the prevention of the infection- disease process
- ♦ Identify the fundamental aspects of the pathogenesis and the main clinical features of the diseases studied
- ♦ Mastering the most important pharmacological elements of antimicrobials
- ♦ Halt the progression of antibiotic resistance, based on reasoned treatment 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 framework, competences, 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 current scientific knowledge of clinical infectious diseases and antimicrobial therapeutics, to ensure education and professional development to improve the daily clinical practice of professionals who care for patients or populations with infectious diseases.







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*This Professional Master's Degree in Clinical Infectious Diseases and Antibiotic Therapy 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 and Principles
  - 1.1.2. The Clinical Method and its Usefulness in Infectious Diseases
  - 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 to Control of Epidemic Outbreaks
- 1.6. Epidemiological Monitoring
  - 1.6.1. Types of Epidemiological Monitoring
  - 1.6.2. Epidemiological Monitoring Systems Design
  - 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. 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. Scientific Research Protocol
  - 1.15.1. Components of Scientific Research Protocol
  - 1.15.2. Usefulness of Scientific Research Protocol
- 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 Scientific Research
  - 1.17.1. Medical Journals and their Role in the Dissemination of Scientific Information
  - 1.17.2. Medical Journals of High-Impact on a Global Level in the Field of Infectious Diseases
  - 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 Stages.
  - 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 Viruses 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. 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 Antibigram
  - 2.8.1. Traditional Interpretation of the Antibigram in Relation to the Sensitivity and Resistance to Antimicrobials
  - 2.8.2. Interpreted Reading of the Antibigram: 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. Managing Biological Waste in a Healthcare Institution

- 2.11. The Clinical Laboratory in the Study of Infectious Diseases
  - 2.11.1. Acute Phase Reactants
  - 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. Ultrasound and its Role in the Comprehensive Evaluation of the 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. Utility of Anatomic Pathology 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 STIs
  - 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. Herpes Simplex
  - 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. 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. Update 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. Opportunistic Infections

- 7.5.1. Minor Opportunistic Infections
- 7.5.2. Major Opportunistic Infections
- 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. Antibacterial Agents
  - 8.10.1. General Concepts
  - 8.10.2. Classification
  - 8.10.3. Antimicrobial Mechanisms of Action
- 8.11. Beta-Lactams 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 Indicators
  - 8.11.6. Cephalosporins
  - 8.11.7. Monobactams
  - 8.11.8. Carbapenems
- 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. Lincosamides: 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 Epidermatophytosis, 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 Protozoas
  - 10.3.1. Main Intestinal Protozoa
  - 10.3.2. Diagnosis of Intestinal Protozoa
  - 10.3.3. Amebioasis and Giardiasis
- 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 and Mansonella Ozzardi
- 10.5. Leishmaniasis
  - 10.5.1. Cutaneous Leishmaniasis
  - 10.5.2. Leishmaniasis Disease
- 10.6. Trypanosomiasis
  - 10.6.1. African Trypanosomiasis
  - 10.6.2. American Trypanosomiasis:
- 10.7. Schistosomiasis
  - 10.7.1. Schistosoma Haematobium
  - 10.7.2. Schistosoma Mansoni
  - 10.7.3. Schistosoma Japonicum
  - 10.7.4. Schistosoma Intercalatum
- 10.8. Intestinal Parasitism
  - 10.8.1. Epidemiology
  - 10.8.2. Ascariidiosis
  - 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 II
  - 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, and Therapeutic Approach.
  - 11.1.2. Nosocomial Pneumonia Associated with Mechanical Ventilation: General Concepts, Epidemiology, Risk Factors, Aetiology, Diagnosis, Prevention and Most Commonly 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 of Cardiovascular Surgical Devices
- 11.5.4. Infection in Neurosurgical Devices
- 11.5.5. Infections of Implants and Prostheses
- 11.6. Universal Measures for Nosocomial Infection Control
  - 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. Global Program for Antimicrobial Resistance Control and Novel Antibiotic Research
  - 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. Pharmacotherapeutic 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 Infectious Diseases: The Emergence of New Diseases, Antimicrobial Resistance and the Development of Vaccines and Antibiotics.

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.



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

## At TECH we use the Case Method

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

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



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



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

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

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



## Relearning Methodology

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

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

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



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

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

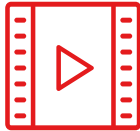
*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

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

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



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



#### Study Material

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

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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

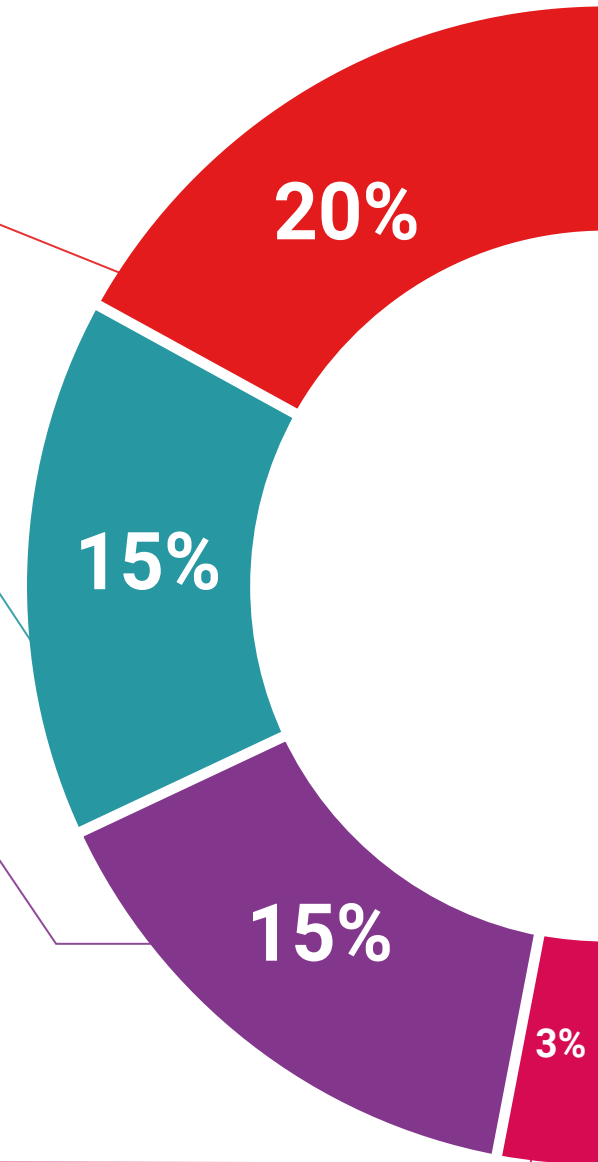
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

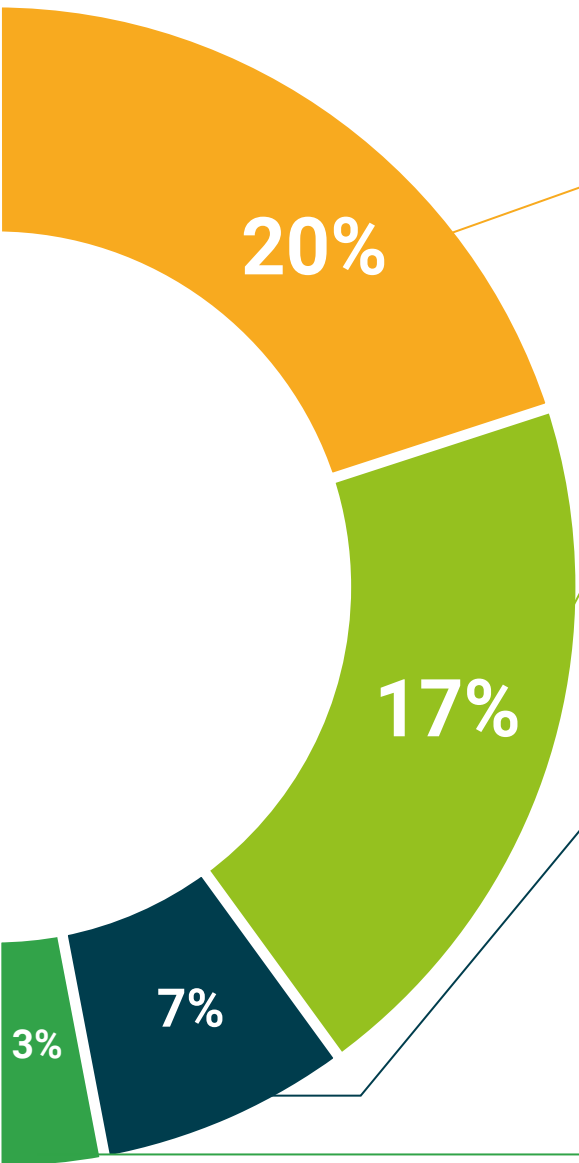
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

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





#### Expert-Led Case Studies and Case Analysis

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



# 06 Certificate

The Professional 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 issued by TECH Technological University.



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

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

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

The diploma 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 Therapy**

Official N° of Hours: **1,500 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma 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 Therapy

- » 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 Therapy

