

# Master's Degree

## Pediatric Infectious Diseases





## Master's Degree Pediatric Infectious Diseases

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/pharmacy/master-degree/master-pediatric-infectious-diseases](http://www.techtute.com/us/pharmacy/master-degree/master-pediatric-infectious-diseases)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Skills

---

*p. 14*

04

Course Management

---

*p. 18*

05

Structure and Content

---

*p. 24*

06

Methodology

---

*p. 34*

07

Certificate

---

*p. 42*

# 01

# Introduction

Professional pharmacists will be able to specialize in Pediatric Infectious Diseases with this intensive program designed by and for them. Students will be provided with the most advanced educational resources and the most innovative knowledge by professionals with years of experience in the sector.

The pharmacist needs extensive knowledge to act safely, mastering the ways of intervention with antibacterial, antiviral or antifungal drugs.





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*A high-performance program that  
will give you a significant boost in the  
practice of your profession"*

This Master's Degree offers the student the possibility of updating knowledge using the latest educational technology. It offers a global vision of Pediatric Infectious Diseases, while focusing on the most important and innovative aspects. This program arises as a response to an important need in the field of Infectious Diseases. Today, this need responds, among other things, to the emergence of certain diseases that are unknown or have little practice (zika, chikungunya, hemorrhagic fevers, among others), and with others that have fallen into oblivion or are unknown to less experienced pharmacists such as diphtheria, measles, pertussis (whooping cough), or flaccid paralysis associated with poliovirus vaccines.

At the therapeutic level, the emergence of resistance (BLEES, MRSA, carbapenem-resistant enterobacteria, etc.), often caused by the unwise and rational use of drugs, creates problems for the clinician when it comes to initial empirical treatment in certain situations.

On the other hand, parents who refuse vaccines, children from low-income backgrounds, infections in transplant recipients, children with devices, fevers without focus in well-vaccinated children are increasingly common situations that the pharmacist has to deal with.

All this means that, in order to attend to these patients with the maximum guarantee, the pharmacist must continuously keep up to date, even if they are not a specialist, since the percentage of visits or interconsultations related to infection is very high. If we add to this the increasing amount of information provided by parents, sometimes not always contrasted, professional updating becomes essential to be able to provide adequate information according to the current scientific evidence at all times.

With this specialization you will have the opportunity to study a program that brings together the most advanced and in-depth knowledge in the field, where a group of highly regarded professors with extensive international experience provides you with the most complete and up-to-date information on the latest advances and techniques in Pediatric Infectious Diseases.

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

- ♦ The development of practical cases presented by experts in Pediatric Infectious Diseases
- ♦ 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
- ♦ Latest development in Pediatric Infectious Diseases
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ A special emphasis on innovative methodologies in Pediatric Infectious Diseases
- ♦ 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



*This Master's Degree in Pediatric Infectious Diseases will help you keep up to date in order to provide complete and quality care"*

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*This Master's Degree is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Pediatric Infectious Diseases, you will obtain a qualification from TECH Global University"*

It includes, in its teaching staff, expert professionals who bring to this program the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide an immersive learning experience designed to prepare for real-life situations.

The design of this program focuses on Problem-Based Learning, through which the pharmacist must try to solve the different professional practice situations that arise. To do so, the specialist will be assisted by an innovative interactive video system developed by recognized experts in the field of Pediatric Infectious Diseases and with great experience.

*Increase your decision-making confidence by updating your knowledge through this Master's Degree.*

*Take the opportunity to learn about the latest advances in this field and apply it to your daily practice.*



# 02 Objectives

The objective of this Master's Degree is to accompany and encourage them in a process of professional growth that will allow them to reach another level of performance, with the most interesting and up-to-date knowledge of the moment in a preparation focused intensively on practice.



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*A complete and efficient update that will propel you to another level of intervention”*



### General Objective

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- ♦ Update the knowledge of the pharmacist who cares for children, through the latest advances in the field of Pediatric Infectious Diseases, in order to increase the quality of care and achieve the best outcome for the patient



*Take the step to get up to date  
on the latest developments in  
Pediatric Infectious Diseases"*





## Specific Objectives

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### Module 1. Current Overview in Infectious Diseases

- Describe the current epidemiology with the changes that have occurred in the last decade
- Identify the epidemiological situation of bacterial meningitis
- Explain the epidemiology of tuberculosis in our environment and the resistance to treatment
- Describe the microbiome, its relationship to health and disease
- Explain the role of fever associated with infection and antipyretic therapeutics
- Describe the alterations of the immune system that contribute to vulnerability to infection

### Module 2. The Laboratory in the Diagnosis of Infectious Diseases

- Explain the new methods used in blood culture and manage the sample processing technique
- Define the fundamentals, indications, limitations and cost-effectiveness of rapid virus identification methods and their use in daily practice
- Discern on the application of IGRAS
- Analyze the proper interpretation of an antibiogram
- Identify the limitations of serology
- Describe genetic methods for the diagnosis of infection

### Module 3. Infection in the Neonatal Period

- Identify risk factors, microorganisms and prevention of infection in neonatology
- Identify congenital infections
- Describe the current situation of vertically transmitted infections
- Practice the algorithms for action against infection in the neonatal period
- Identify early and late neonatal sepsis
- Address the diagnostic and therapeutic management of the main community-acquired infections in patients older than 30 days

### Module 4. Eye, Skin, Soft Tissue and Skeletal System Infections

- Analyze the different complementary explorations to be used cost-effectively in community-acquired infections
- Describe the clinical manifestations of diseases affecting the skin and soft tissues
- Develop a correct strategy in the differential diagnosis of diseases with exanthema

### Module 5. ENT and Respiratory Infections

- Identify complications of diseases such as community-acquired pneumonia or pyelonephritis
- Describe the appropriate management of tuberculosis: infection, disease and contact study
- Acquire current knowledge of Mycoplasma pathology

### Module 6. Gastrointestinal and Urinary Tract Infections and STDs

- Define the procedure for exploratory and preventive actions for renal or urinary malformations, as well as Vesicoureteral reflux in urinary tract infections
- Describe the management of severe sepsis and code sepsis

### Module 7. Febrile Syndromes and Exanthems

- Identify the updated diagnostic criteria for viral hepatitis and its current treatment

**Module 8. Nosocomial Infections**

- ♦ Discern the use of antibacterial treatments in surgical pathology
- ♦ Differentiate between viral and bacterial respiratory infections by clinical, epidemiological and complementary examinations
- ♦ Addressing hospital-acquired infection with outbreak control and the topicality of multidrug-resistant bacteria

**Module 9. HIV Infection in Pediatrics and Adolescence**

- ♦ Diagnose complications of viral diseases
- ♦ Develop a strategy to deal with suspected infection(s) with associated primary immunodeficiency
- ♦ Describe how to deal with vertically transmitted or adolescent HIV infection Describe the use of antiretroviral drugs, determination of resistance and side effects

**Module 10. Systemic, Cardiovascular and Nervous System Infections**

- ♦ Describe the management of central nervous system infections and the differential diagnosis with autoimmune encephalitis

**Module 11. Infections Associated with Social Changes or Deficits**

- ♦ Develop better skills and working methods related to immunosuppressed patients
- ♦ Describe how to deal with immunosuppressed, hemato-oncologic, transplanted, neutropenic, cystic fibrosis, asplenic or major burns patients
- ♦ Determine the infectological performance of children from low-income countries, sub-Saharan, refugees, affected by poverty



**Module 12. Infection in the Patient at Risk**

- ♦ Explain the practical management of parasitic diseases
- ♦ Define the responsibility of the clinician in prescribing antibiotic treatment and its consequences

**Module 13. Treatment in Pediatric Infectious Diseases**

- ♦ Identify the main groups of antibacterials, antivirals and antifungals with their innovations and the judicious and rational way of drug choice
- ♦ Describe the optimal and rational use of antibacterials against multidrug-resistant bacteria

**Module 14. Preventive Measures**

- ♦ Describe the current use of vaccines, doses, intervals, side effects, responses to anti-vaccine movements
- ♦ Describe the indications for antibiotic prophylaxis and post-exposure prophylaxis

**Module 15. Public Health Infectious Disease Control and Research**

- ♦ Define the situations in which a contact study is indispensable
- ♦ Explain the ethical implications and repercussions in the research of antibacterial, antiviral, antifungal drugs or vaccines

# 03 Skills

After passing the assessments of the Master's Degree in Pediatric Infectious Diseases, professionals will have acquired the necessary skills for a quality and up-to-date practice based on the latest scientific evidence.



A close-up photograph of a baby's face, focusing on the eye and nose. The skin around the eye and on the forehead shows a red, bumpy rash, likely a viral infection. The background is split into green and white diagonal sections.

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*With this program, you will be able to master  
the new diagnostic and therapeutic procedures  
in Pediatric Infectious Diseases"*



## General Skills

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- ♦ Understand the knowledge in such a way that they are able to generate issues or questions that are susceptible to investigation
- ♦ Knowing how to apply knowledge with the ability to solve problem cases in daily practice situations
- ♦ Acquire the ability to communicate their diagnostic and therapeutic conclusions clearly and unambiguously to families
- ♦ Acquire the ability to clearly and concisely convey their knowledge in clinical sessions or discussions with colleagues
- ♦ Acquire the ability to continue training autonomously
- ♦ Develop skills in their specialization to recognize the need for teamwork with microbiologists, pharmacologists, imaging or public health professionals
- ♦ Define the need for continuing education both collectively and autonomously in the field of epidemiology, laboratory diagnosis or therapeutics
- ♦ Define the ability to organize a self-critical work system and a system for updating their knowledge
- ♦ Develop critical thinking and research skills
- ♦ Easily adapting to changes in diagnostic, treatment and prevention issues





## Specific Skills

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- ♦ Evaluate, implement and formulate clinical guidelines and protocols for infectious diseases or therapeutics
- ♦ Identify the main signs and symptoms of local and imported infectious diseases in the normal and immunocompromised host
- ♦ Identify the current epidemiology of pediatric infectious diseases, with changes, emergencies and variations for various reasons
- ♦ Identify the role of the microbiota in order to be able to establish hypotheses, diagnoses and appropriate therapeutic schemes
- ♦ Explain the situation of immunosuppression, as well as the infections that help in its diagnosis, the associated infections and how to reach the diagnosis
- ♦ Determine at each moment the most appropriate laboratory test for each diagnosis with knowledge of the process, the chronology and its interpretation
- ♦ Correct application of the results of antibiograms and sensitivity studies
- ♦ Identify infectious risk situations during the perinatal period and apply antimicrobials appropriately for this period of life
- ♦ Identify the main infectious syndromes in primary care with correct explanation to family members of the different steps to follow and the evolution of the processes
- ♦ Easily elucidate the need for hospitalization as well as outpatient treatment
- ♦ Easily establish differential diagnoses and application of scientifically proven algorithms for action
- ♦ Develop competencies for the management of infectious emergencies such as sepsis, meningitis, respiratory distress in the first months of life
- ♦ Identify nosocomial infection, the microorganisms in their environment and apply control measures
- ♦ Define the management of patients at risk due to transplants, oncology, underlying diseases or febrile neutropenia
- ♦ Safely deal with adolescent infectious problems such as HIV, sexually transmitted infections and explain the different action plans
- ♦ Identify the infectious problems of internationally adopted children, refugees, immigrants, travelers, and children with social deficits and plan the action to be taken
- ♦ Safe handling of antibiotics, antiviral and antifungal drugs Gain knowledge about how to establish combinations
- ♦ Apply antibiotic therapy judiciously and rationally in order to avoid or reduce multi-resistances
- ♦ Describe the pharmacodynamic and pharmacokinetic basis of antibiotic therapy and apply it in practice
- ♦ Determine the therapeutic of choice for multiresistances
- ♦ Apply the different prevention strategies (behavioral, vaccination, antibiotic, passive immunoprophylaxis)
- ♦ Identify vaccine side effects and know how to communicate their possibilities in a rational way
- ♦ Identify the need for mandatory reporting of certain diseases, those susceptible to contact studies, those susceptible to isolation, etc.
- ♦ Manage scientific databases for carrying out reviews and bibliographic searches of scientific studies
- ♦ Conduct a critical study on topics of scientific interest in Infectious Diseases
- ♦ Describe how to communicate the results of a research study after having analyzed, evaluated and synthesized the data

04

# Course Management

The program includes in its teaching staff reference specialists in Pediatric Infectious Diseases, Pediatrics, Microbiology and other related fields, who bring to this program the experience of their work. Additionally other recognized specialists participate in its design and preparation which means that the program is developed in an interdisciplinary manner.



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*Learn from reference professionals, the latest advances in procedures in the field of Pediatric Infectious Diseases”.*

## Guest Director



### Dr. Hernández-Sampelayo Matos, Teresa

- ♦ Head of Pediatrics Service and ACES Cajal Hospital Gregorio Marañón General University Hospital
- ♦ Head of the Pediatric Infectious Diseases Section at the Gregorio Marañón General University Hospital
- ♦ Accreditation by ANECA as a contract professor Doctor of the National Agency for Quality Assessment and Accreditation
- ♦ Emergency Pediatrics at the Autonomous University of Madrid. Medicine
- ♦ Pediatric Gastroenterology, Autonomous University of Madrid. Medicine
- ♦ Neonatology Autonomous University of Madrid. Medicine
- ♦ Project on Determination of free cytokine profile in plasma and specific response against Mycobacterium tuberculosis. Utility as biomarkers in children with active tuberculous disease and latent tuberculous infection
- ♦ Pediatric Antifungal Optimization Program at Astllas Pharma Europe Ltd

## Management



### Dr. Otero Reigada, María del Carmen

- ♦ Former chief clinician in infectious diseases and infants, La Fe, Valencia University Hospital
- ♦ Pediatric Infectious Diseases Specialist
- ♦ Specialist in Clinical Microbiology
- ♦ Currently pediatrician and pediatric infectologist, at Valencia Hospital

## Professors

### Dr. Aguilera Alonso, David

- ♦ Attending Physician in Pediatrics and Specific Areas / Pediatric Infectious Diseases Unit at the Gregorio Marañón General University Hospital
- ♦ Degree in Medicine and Surgery, University of Valencia
- ♦ Master's Degree in Pediatric Infectious Diseases Complutense University of Madrid
- ♦ Master's Degree on HIV infection Rey Juan Carlos University
- ♦ University Expert in Basic Pediatric Infectious Diseases Rey Juan Carlos University

### Dr. Calle Miguel, Laura

- ♦ Health Service of the Principality of Asturias, Health Area V, Pediatric Specialist Physician
- ♦ Master's Degree in Research in Medicine at the University of Oviedo
- ♦ Degree in Medicine and Surgery, University of Oviedo
- ♦ Doctor of Medicine. Pediatric Diseases, University of Oviedo
- ♦ Specialist in Pediatrics and Specific Areas of Gijón, Principality of Asturias, Spain

### Dr. Argilés Aparicio, Bienvenida

- ♦ MIR Specialist in Pediatrics and its Specialized Areas at La Fe University Hospital, Valencia

### Dr. Bosch Moragas, María.

- ♦ MIR Specialist in Pediatrics and its specific areas at La Fe University Hospital, Valencia. CAP st Anadreu, Barcelona

### Dr. Cantón Lacasa, Emilia

- ♦ Research Center (Microbiology Laboratory), La Fe University Hospital, Valencia

### Dr. Cambra Sirera, José Isidro

- ♦ Head of Section, Pediatrics Unit, Lluís Alcanyís Hospital, Xàtiva

### Dr. Hernanz Lobo, Alicia

- ♦ Assistant Pediatric Physician at the Gregorio Marañón General University Hospital. Graduated in Medicine, Complutense University of Madrid (UCM) in 2012
- ♦ Specialist in Pediatrics and its Specific Areas, having Training as a resident intern at the Gregorio Marañón General University Hospital
- ♦ Master's Degree in Pediatric Infectious Diseases Complutense University of Madrid
- ♦ Degree and Master's Degree in Medicine Complutense University of Madrid
- ♦ Official Doctoral Program in Health Sciences Research Complutense , University of Madrid

### Ms. Manzanares Casteleiro, Ángela

- ♦ Doctor, Autonomous University of Madrid. Completion of the Pediatrics specialty in May 2020
- ♦ Currently working up to 12/31/2020 in the Pediatric Infectious Diseases Section, 12 de Octubre University Hospital and the Pediatric Clinical Research Unit, 12 de Octubre Hospital
- ♦ Studying since October 2020 the Master's Degree in Pediatric Infectious Diseases at the Complutense University of Madrid with clinical practice at the Gregorio Marañón Hospital
- ♦ Researcher at the Foundation for investigation. Research at the 12 de Octubre University Hospital
- ♦ Resident Medical Intern, 12 de Octubre University Hospital, Madrid

### Dr. Canyete Nieto, Adela

- ♦ Head of Pediatric Oncology Unit, La Fe Polytechnic and University Hospital (Valencia)

**Dr. Couselo Jerez, Miguel**

- ♦ Doctor of Medicine
- ♦ Specialist in Pediatric Surgery
- ♦ Pediatric Surgery Service, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Cortell Aznar, Isidoro**

- ♦ Specialist in Pediatric Pulmonology, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Dasí Carpio, María Ángeles**

- ♦ Head of Hematology Unit, La Fe Polytechnic and University Hospital (Valencia)
- ♦ Professor at the Universitat de València

**Dr. Fonseca Martín, Rosa**

- ♦ Specialist in Pediatric Surgery
- ♦ Pediatric Surgery Service, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Gobernado Serrano, Miguel**

- ♦ Specialist in Clinical Microbiology, attached to the University and Polytechnic Hospital of La Fe, Valencia

**Dr. González Granda, Damiana**

- ♦ Microbiology Unit of, Xàtiva Hospital, Valencia Spain

**Dr. Ibáñez Martínez, Elisa**

- ♦ Specialist in Clinical Microbiology and Parasitology, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Izquierdo Macián, Isabel**

- ♦ Head of the Neonatology Unit of the Child Disease Area, La Fe Polytechnic and University Hospital (Valencia)

**Dr. Martínez Morel, Héctor**

- ♦ Area Specialist Physician (FEA) in Preventive Medicine and Public Health, La Fe Polytechnic and University Hospital (Valencia)

**Dr. Meyer García, María Carmen**

- ♦ Area Specialist Physician (FEA) in Preventive Medicine and Public Health, La Fe Polytechnic and University Hospital (Valencia)

**Dr. Modesto i Alarcón, Vicente**

- ♦ Head of Section of Pediatric ICU and Resuscitation, La Fe Polytechnic and University Hospital (Valencia)

**Dr. Mollar Maseres, Juan**

- ♦ Doctor of Medicine. Head of Section of Preventive Medicine, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Monte Boquet, Emilio**

- ♦ Head of Department Pharmacy Unit, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Monteagudo Montesinos, Emilio**

- ♦ Head of the Pediatrics Department, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Negre Policarpo, Sergio**

- ♦ PhD in Medicine and Surgery from the University of Valencia
- ♦ Head of the Pediatric Gastroenterology and Nutrition Section at the Quironsalud Hospital



**Dr. Oltra Benavent, Manuel**

- ♦ Pediatric Specialist Physician in Pediatrics and its Specialized Areas, Francesc de Borja Hospital. Gandía Health Department

**Dr. Ortí Martín, Ana**

- ♦ Specialist in Pediatrics and its Specific Areas, Centro de Salud Padre Jofré, Valencia

**Dr. Peiró Molina, Esteban**

- ♦ Specialist Physician
- ♦ Pediatric Cardiology Section, La Fe University and Polytechnic Hospital (Valencia)

**Dr. Rincón Lopez, Elena María**

- ♦ Assistant Physician, Pediatric Infectious Diseases Section, Gregorio Marañón General University Hospital, Madrid
- ♦ Master's Degree in Pediatric Infectious Diseases at the Complutense University of Madrid

**Dr. Rodríguez, Héctor**

- ♦ Specialist in Pediatrics and its Specific Areas, Centro de Salud at Manises Hospital, Valencia

**Ms. Sastre Cantón, Macrina**

- ♦ Vaccine Research Area
- ♦ Foundation for the Promotion of Health and Biomedical Research of the Valencian Community (FISABIO)

05

# Structure and Content

A compendium of knowledge created to give pharmacists the opportunity to catch up or incorporate the most advanced knowledge in Pediatric Infectious Diseases on the current scene. With the confidence and solvency of the largest in-Spanish online university in the world.





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*A comprehensive teaching program, structured in well-developed teaching units, oriented towards efficient and swift learning that is compatible with your personal and professional life"*

## Module 1. Current Overview in Infectious Diseases

- 1.1. Update on Epidemiological and Public Health Aspects
  - 1.1.1. Current Status of the Epidemiology of Vaccine-Preventable Diseases in the World
- 1.2. Current Epidemiology of Relevant Infectious Pathologies in our Environment
  - 1.2.1. Current Epidemiology of Bacterial Meningitis
  - 1.2.2. Current Epidemiology of Poliomyelitis and Flaccid Paralysis due to Non-Poliovirus and Live Attenuated Virus Vaccine
  - 1.2.3. Epidemiology of Tuberculosis and its Resistance in High-Income Countries
  - 1.2.4. Epidemiology of Sexually Transmitted Infections in Adolescents
- 1.3. Transmission Mechanisms in Pediatrics
  - 1.3.1. Dynamics and Transmission Mechanisms of the Most Common Agents in Pediatrics Today (Includes Intrafamily Transmission)
  - 1.3.2. Seasonality of Infection in Pediatrics Outbreak Management
    - 1.3.2.1. Temporal Epidemiological Parameters in the Most Common Infections in the Community, Common Point Sources, Continuous, Propagative and Mixed exposure
- 1.4. Microbiota, Defensive and Immunomodulatory Function
  - 1.4.1. Composition of the Intestinal Flora, Modification with Age
  - 1.4.2. Defensive and Immunomodulatory Role of the Microbiota
- 1.5. Fever and Inflammatory Response
  - 1.5.1. Update on the Role of Fever in Infection and Antipyretic Therapeutics
  - 1.5.2. Inflammatory Response and Systemic Inflammatory Response Syndrome
- 1.6. Infections in the Immunocompromised Patient
- 1.7. Image Interpretation of Infectious Diseases in the Pediatric Age
  - 1.7.1. Interpretation of Ultrasound Images Applied to Infectious Pathology
  - 1.7.2. Interpretation of TC Applied to Infectious Pathology
  - 1.7.3. MRI Interpretation Applied to Infectious Pathology



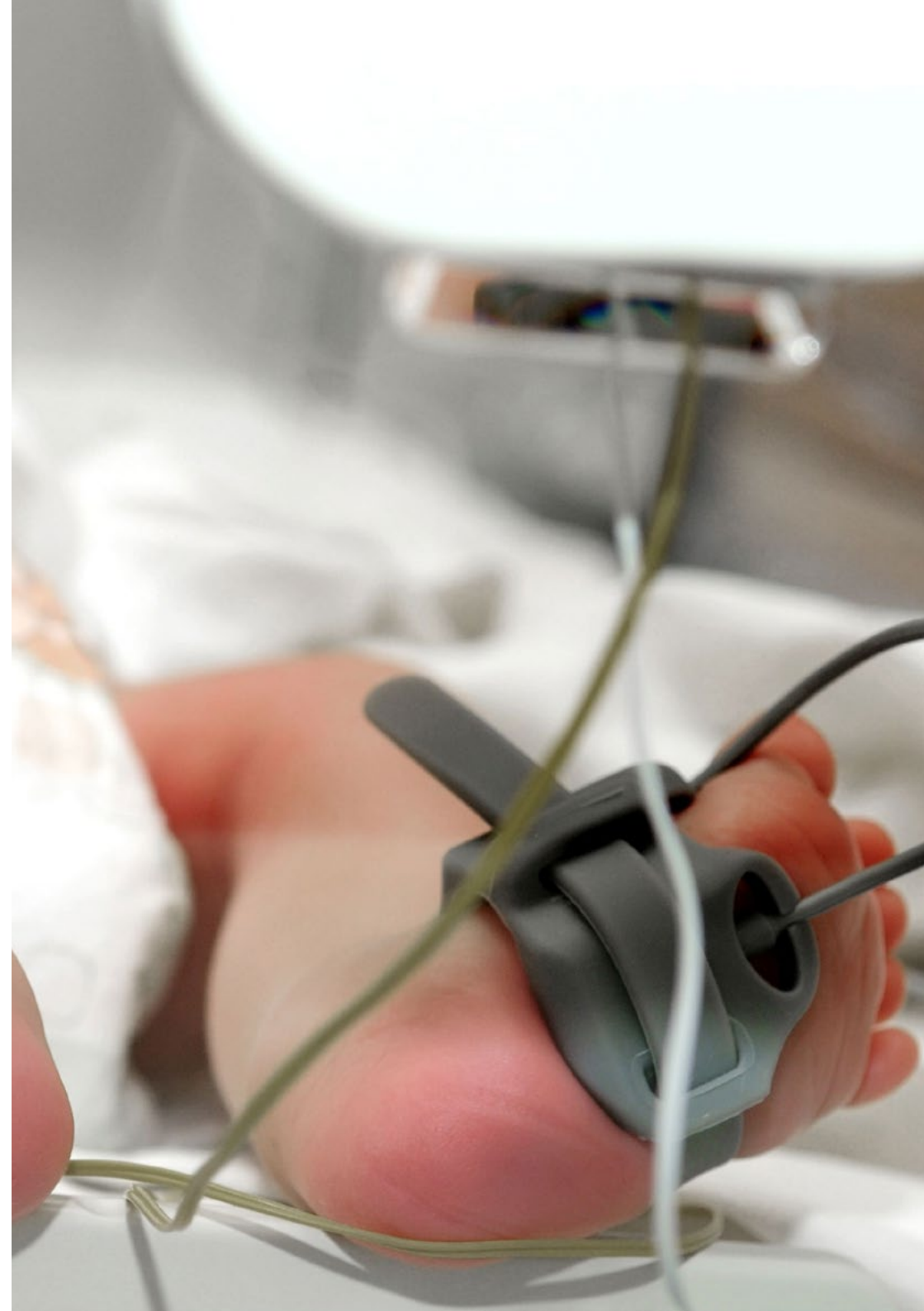


## Module 2. The Laboratory in the Diagnosis of Infectious Diseases

- 2.1. Sample Collection
  - 2.1.1. Urine culture
  - 2.1.2. Stool Culture
  - 2.1.3. Graham's Test
  - 2.1.4. Blood Cultures
  - 2.1.5. Catheters
  - 2.1.6. Ocular System
  - 2.1.7. Upper Respiratory Tract
  - 2.1.8. Lower Respiratory Tract
  - 2.1.9. Cerebrospinal Fluid
  - 2.1.10. Skin and Soft Tissues
  - 2.1.11. Osteoarticular Infections
  - 2.1.12. Bone Marrow
- 2.2. Current Application of Rapid Infection Diagnosis Methods in Primary and Specialized Care
  - 2.2.1. Antigen Detection
  - 2.2.2. Direct Sample Staining
  - 2.2.3. Urgent Serology
  - 2.2.4. Molecular Biology Techniques
  - 2.2.5. Accelerating Antimicrobial Susceptibility Testing
  - 2.2.6. Current Proteomic Techniques for the Diagnosis of Infectious Diseases
  - 2.2.7. Shared Microbiologist-Clinician Decisions in Diagnosis and Treatment of Infectious Diseases
- 2.3. Antibigrams
  - 2.3.1. Interpretation of Antibigrams Practical Guide
  - 2.3.2. Clinical Significance of Bacterial Resistance
- 2.4. Interpretation of the Microbiological Report of Respiratory Specimens
- 2.5. Interpretation of the Microbiological Report of Specimens from the Genitourinary Tract and Gastrointestinal Tract
- 2.6. Interpretation of the Microbiological Blood Culture Report
- 2.7. Interpretation of Cerebrospinal Fluid Microbiology Report
- 2.8. Interpretation of the Microbiological Report in Osteoarticular Infection
- 2.9. Interpretation of the Microbiological Report of Skin and Soft Tissue Samples

### Module 3. Infection in the Neonatal Period

- 3.1. Neonatal Infection
  - 3.1.1. Current Obstetric Factors Conditioning Neonatal Infection
  - 3.1.2. Causative Agents
- 3.2. Antibiotherapy in Pregnancy
  - 3.2.1. Current Role of Antibiotherapy During Pregnancy
  - 3.2.2. Current Prophylaxis of Group B Streptococcus Infection
- 3.3. Emerging Congenital Infections
  - 3.3.1. Chagas Disease
  - 3.3.2. Zika
- 3.4. Classical Neonatal Infections and Current Epidemiologic Changes
  - 3.4.1. Herpes Virus Infections
  - 3.4.2. Rubella
  - 3.4.3. Cytomegalovirus
  - 3.4.4. The Son of a Mother with Tuberculosis
  - 3.4.5. Update on Necrotizing Enterocolitis
- 3.5. Vertical Infection
  - 3.5.1. Update on Vertical Infection by Hepatitis B Virus and its Detection
- 3.6. Neonatal Sepsis
  - 3.6.1. Early Sepsis
  - 3.6.2. Late Onset Sepsis
- 3.7. Infections in the Neonatal Intensive Care Unit
  - 3.7.1. Current Algorithm of Action for Fever in Children under 30 Days of Age
  - 3.7.2. Neonatal Fungal Infection
- 3.8. Laboratory Studies in Neonatology Units
  - 3.8.1. Etiological Identification
  - 3.8.2. Inflammatory Markers
  - 3.8.3. Multiorgan Markers



#### Module 4. Eye, Skin, Soft Tissue and Skeletal System Infections

- 4.1. Bacterial or Viral Conjunctivitis
- 4.2. Dacryocystitis
- 4.3. Endophthalmitis
- 4.4. Preseptal and Postseptal Orbital Cellulitis
- 4.5. Bacterial Skin Infections
- 4.6. Viral Skin Infections
- 4.7. Parasitic Skin Infections
- 4.8. Dermatophyte Skin Infections
- 4.9. Candida and Malassezia Skin Infections
- 4.10. Involvement of Methicillin-Resistant Staphylococcus Aureus (MRSA) in Pediatric Skin and Soft Tissue Infections in our Environment
- 4.11. Adenitis
- 4.12. Lymphangitis
- 4.13. Necrotizing Fasciitis
- 4.14. Bite Infections
  - 4.14.1. Bites in Urban Environment
  - 4.14.2. Bites in Rural Environment
- 4.15. Osteomyelitis and Arthritis
- 4.16. Myositis and Pyomyositis
- 4.17. Spondylodiscitis

#### Module 5. ENT and Respiratory Infections

- 5.1. Pharyngotonsillitis
- 5.2. Peritonsillar Regional Abscesses and Lemierre's Syndrome
  - 5.2.1. Abscesses in Peritonsillar Region
  - 5.2.2. Mastoiditis
- 5.3. Otitis and Mastoiditis
- 5.4. Sinusitis
- 5.5. Update on Diphtheria
- 5.6. Oral Mucosa Infections Odontogenic Infections
- 5.7. Common Cold
- 5.8. Influenza in Pediatrics

- 5.9. Pertussis Syndrome
- 5.10. Update on Bronchiolitis Treatment
- 5.11. Community-Acquired Pneumonia (CAP)
  - 5.11.1. Etiological Agents by Age
  - 5.11.2. Diagnosis
  - 5.11.3. Severity Factors
  - 5.11.4. Treatment
- 5.12. Pleural Empyema
- 5.13. Tuberculosis
  - 5.13.1. Current Guidelines
  - 5.13.2. Infections
  - 5.13.3. Disease
  - 5.13.4. Diagnosis
  - 5.13.5. Treatment

#### Module 6. Gastrointestinal and Urinary Tract Infections and STDs

- 6.1. Acute Gastroenteritis
  - 6.1.1. Current Management
- 6.2. Traveler's Diarrhea in Children
- 6.3. Current Role of Parasites in Diarrheal Syndromes in our Environment
- 6.4. Update on Hepatitis A and E
- 6.5. Hepatitis B y Hepatitis C
  - 6.5.1. Current Treatment Options
  - 6.5.2. Risk Factors for Disease Progression
- 6.6. Update on Clostridium Difficile in Pediatrics
- 6.7. Acute Appendicitis in Children
  - 6.7.1. Need or Not of Antibiotic Treatment
- 6.8. Urinary Infection
  - 6.8.1. Current Treatment Management
  - 6.8.2. Complementary Evaluations
  - 6.8.3. Prophylaxis
  - 6.8.4. Role of Vesicoureteral Reflux

- 6.9. Epidemiology, Clinical Manifestations, Diagnosis and Treatment of the Most Common Sexually Transmitted Infections
  - 6.9.1. Syphilis
  - 6.9.2. Gonorrhea
  - 6.9.3. Papillomavirus
  - 6.9.4. Chlamydia Trachomatis
  - 6.9.5. Herpes Virus 1 and 2
- 6.10. Perirectal Abscesses

### Module 7. Febrile Syndromes and Exanthems

- 7.1. Fever Without a Focus in Children Less than 3 Months Old
  - 7.1.1. Algorithm of Action
  - 7.1.2. Fever of Unknown Origin in Pediatrics
- 7.2. Recurrent and Periodic Fever
  - 7.2.1. Differential Diagnosis
- 7.3. Leishmaniasis
- 7.4. Exanthematous Diseases and Differential Diagnosis
- 7.5. Mycoplasma Pneumoniae Non-Pulmonary Pathology

### Module 8. Nosocomial Infections.

- 8.1. Healthcare Associated Infections (HAIs) in Pediatrics
- 8.2. Device-Associated Infections
  - 8.2.1. Infections Associated with Intravascular Devices
  - 8.2.2. Ventilator-Associated Infections
- 8.3. Infection of Surgical Wounds Current Management

### Module 9. HIV Infection in Pediatrics and Adolescence

- 9.1. Vertical Transmission
  - 9.1.1. Current Situation of Vertical Transmission in our Environment
  - 9.1.2. Prevention and Management
- 9.2. Infection in Adolescents

- 9.3. Antiretrovirals in Pediatrics
  - 9.3.1. Updates
  - 9.3.2. Combinations
  - 9.3.3. Determination of Resistance
  - 9.3.4. Side Effects and Metabolic Alterations
- 9.4. Pharmacokinetics
  - 9.4.1. Interactions
  - 9.4.2. Level Monitoring
- 9.5. When and How to Start HAART
- 9.6. Current Management of HBV and HCV Coinfection

### Module 10. Systemic, Cardiovascular and Nervous System Infections

- 10.1. Myocarditis
- 10.2. Bacterial Meningitis
  - 10.2.1. Action in Case of Suspicion
- 10.3. Viral Meningitis
  - 10.3.1. Current Agents
- 10.4. Cerebral Abscess
  - 10.4.1. Infections Associated with Surgical Procedures
  - 10.4.2. Venous Thrombosis
- 10.5. Cat scratch Disease
- 10.6. Mononucleosis Syndromes
- 10.7. Hemorrhagic Fevers
  - 10.7.1. Diagnosis
  - 10.7.2. Treatment
- 10.8. Endocarditis
- 10.9. Pericarditis
- 10.10. Encephalitis
- 10.11. Sepsis, Severe Sepsis and Septic Shock in Pediatrics

**Module 11. Infections associated with Social Changes or Deficits**

- 11.1. Infections associated with Social Deficits
  - 11.1.1. Infections Associated with Social Deficits
  - 11.1.2. Current Child Poverty and Infections in our Environment
- 11.2. Tropical Diseases
  - 11.2.1. Initial Infection Examination of Newly Arrived Immigrant Children and Children from International Adoptions
  - 11.2.2. Febrile Syndrome in the Child Coming from a Low-Income Country or from the Tropics, Regardless of the Reason for the Trip
  - 11.2.3. Malaria. Current Diagnostic and Therapeutic Management
  - 11.2.4. Vector-Borne Infections Dengue. Chikungunya Zika
  - 11.2.5. Vector-Borne Diseases Schistosomiasis Onchocerciasis
  - 11.2.6. Parasitic Diseases Ascaris, Amoebas, Tenias, Oxyuris, *Strongyloides*, Trichuris Trichiura

**Module 12. Infection in the Patient at Risk**

- 12.1. Children with Immunomodulatory Treatments in Rheumatology
  - 12.1.1. Management of Patients Undergoing Immunomodulatory Treatments
- 12.2. Current Empiricism of Infections in Oncology Patients
  - 12.2.1. Adenovirus Infections in Hemato-Oncology
  - 12.2.2. Diagnostic and Therapeutic Approach to Febrile Neutropenia in Cancer Patients
  - 12.2.3. Empirical and Targeted Treatment of Infections in Cancer Patients
- 12.3. Infections and Current Response to Children with Underlying Pathology
  - 12.3.1. Risk infections in Patients with Hemolytic Anemias (emoglobinopathies and Membranopathies)
  - 12.3.2. Treatment of Severe Neutropenia and Congenital and Functional Asplenia
  - 12.3.3. Infections in Children with Cystic Fibrosis
- 12.4. Current Approach to Infections in the Transplanted Child
  - 12.4.1. Cytomegalovirus and BK Virus Infections in Transplant Recipients

**Module 13. Treatment in Pediatric Infectious Diseases**

- 13.1. Pharmacokinetics and Pharmacodynamics of Antibacterial Agents in Pediatrics
- 13.2. Bacterial Resistance and Antibiotherapy
  - 13.2.1. Carbapenem-Resistant Enterobacteriaceae, BLES, MRSA, Vancomycin-Resistant
  - 13.2.2. Resistance to Antifungals
- 13.3. Choice of Antibiotics in the Different Families
  - 13.3.1. Beta-Lactams
  - 13.3.2. Macrolides
  - 13.3.3. Aminoglycosides
  - 13.3.4. Fluoroquinolones
- 13.4. Choice Among the Different Families of Antifungals
  - 13.4.1. Azoles
  - 13.4.2. Echinocandins
  - 13.4.3. Polyenes
- 13.5. Resurrection of Old Therapeutic Agents
- 13.6. New Antibiotics or Families
  - 13.6.1. Ceftobiprole, Ceftaroline, Doripenem, Dalbavancin, Talavicina, Teixobactin, Ceftolozane-Tazobactam, Ceftazidime-Avibactam, Lugdunin, Oritavancin, Iclaprim, Ramoplanin, Fidaxomicin, Fidaxomicin
- 13.7. New Tuberculostatics
- 13.8. Antibiotherapy in Obese Pediatric Patients
- 13.9. New Requirements for the Rational and Judicious Choice of Suitable Treatment
  - 13.9.1. Antibiotic Policy in Hospitals and Primary Care Optimization Program
- 13.10. Role of Agriculture and Animal Husbandry in Antibiotic Resistance
- 13.11. Use of Antivirals
  - 13.11.1. In Immunocompetent Patients
  - 13.11.2. Use of Antivirals in Immunocompromised Patients
- 13.12. Essential Antiparasitic Drugs in Pediatrics
- 13.13. Update on Allergy to Anti-Infectives Alternatives
- 13.14. Monitoring of Anti-Infectives
- 13.15. Update on the Duration of Antibiotic Treatments

## Module 14. Preventive Measures

- 14.1. Control and Response to Hospital Outbreaks of Infection
  - 14.1.1. Common Microorganisms
  - 14.1.2. Current Multidrug-Resistant Microorganisms (Including Decontamination in the MRSA Patient)
- 14.2. Hospital Organization and Control of Today's Multidrug-Resistant Microorganisms
- 14.3. Current Indications for Isolation in Hospital Pediatrics
- 14.4. Update on Vaccination of Children in Special Situations
- 14.5. Current Indications for Antibiotic Prophylaxis
- 14.6. Indications for Prophylaxis
  - 14.6.1. In case of Accidental Puncture
  - 14.6.2. Indications for Sexual Abuse Prophylaxis
- 14.7. Post-Exposure Performance
  - 14.7.1. Chickenpox
  - 14.7.2. Measles
  - 14.7.3. In Hepatitis B
  - 14.7.4. In Hepatitis A
  - 14.7.5. Tuberculosis
  - 14.7.6. Tetanus
  - 14.7.7. Rabies
- 14.8. Current Status of Perioperative Prophylaxis of the Surgical Patient
- 14.9. Update on Antibiotic Prophylaxis in Transplant Children and Patients Treated for Atypical Hemolytic Uremic Syndrome



## Module 15. Public Health Infectious Disease Control and Research

- 15.1. Emerging Infectious Diseases
- 15.2. Diseases in Which Contact Study is Currently Indicated
- 15.3. Indications of Directly Observed Treatment
- 15.4. How to Plan a Study in Infectious Diseases?
- 15.5. Evaluation and Critical Reading of Scientific Publications
- 15.6. Current Morbidity and Mortality of Pediatric Infectious Diseases
- 15.7. Seasonality of Infection in Pediatrics



*A unique, key, and decisive educational experience to boost your professional development"*

06

# Methodology

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

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



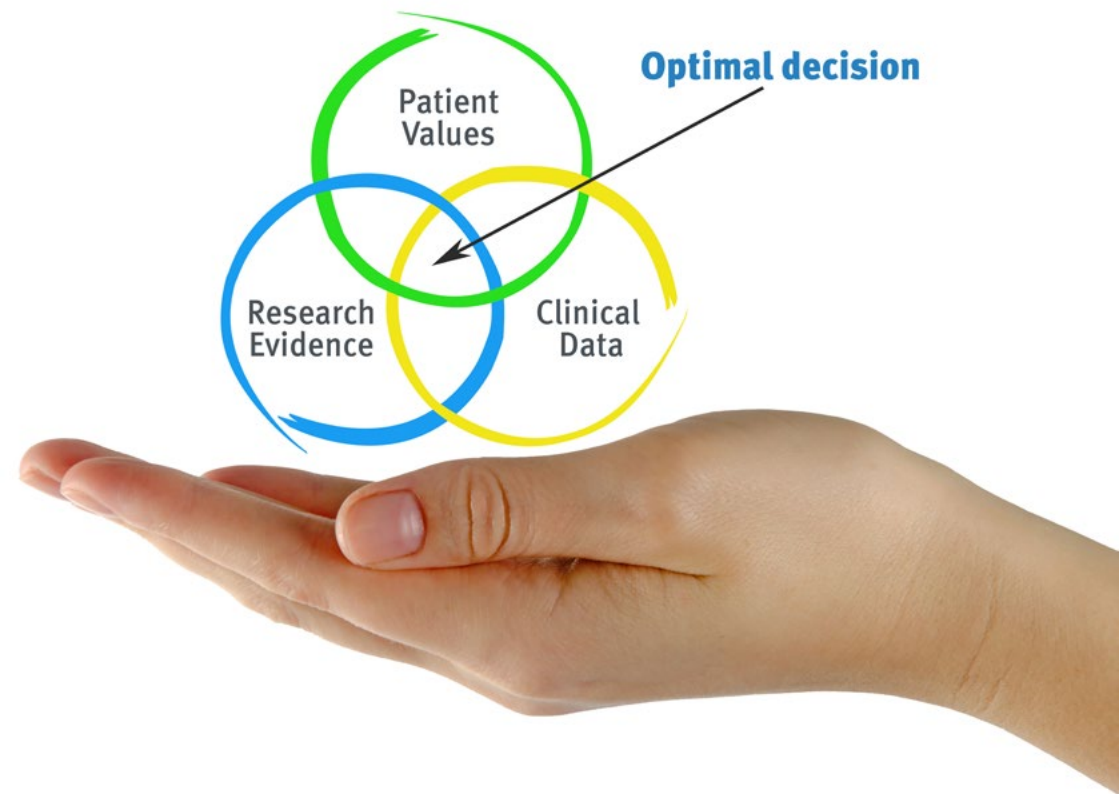
“

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

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will 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. Gervas, 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.

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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. 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.

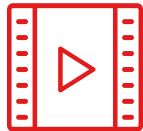
*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

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

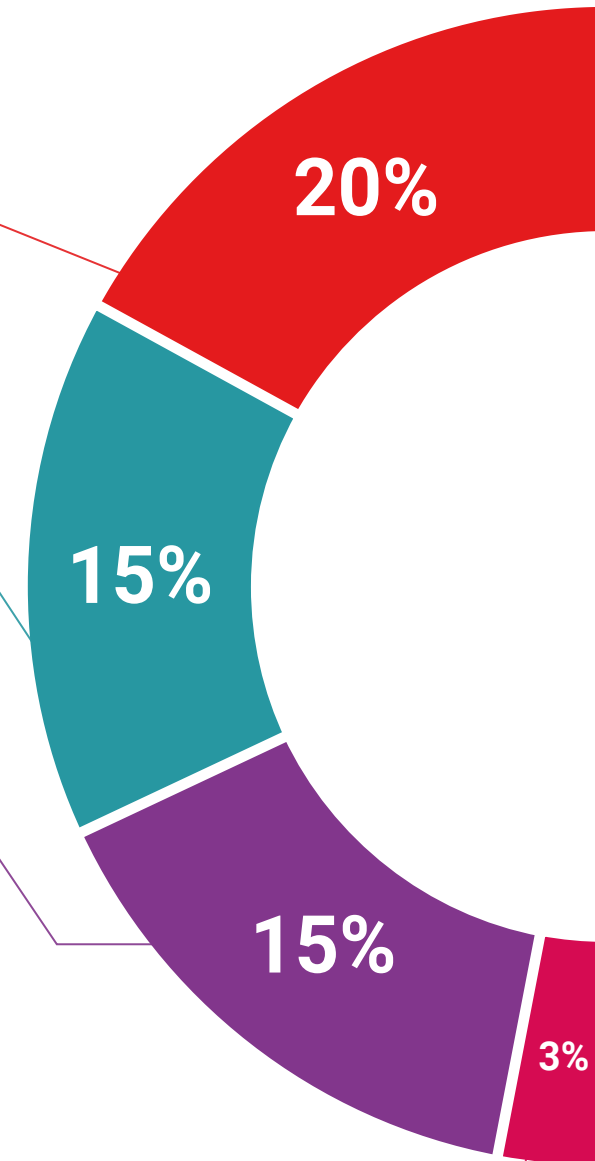
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

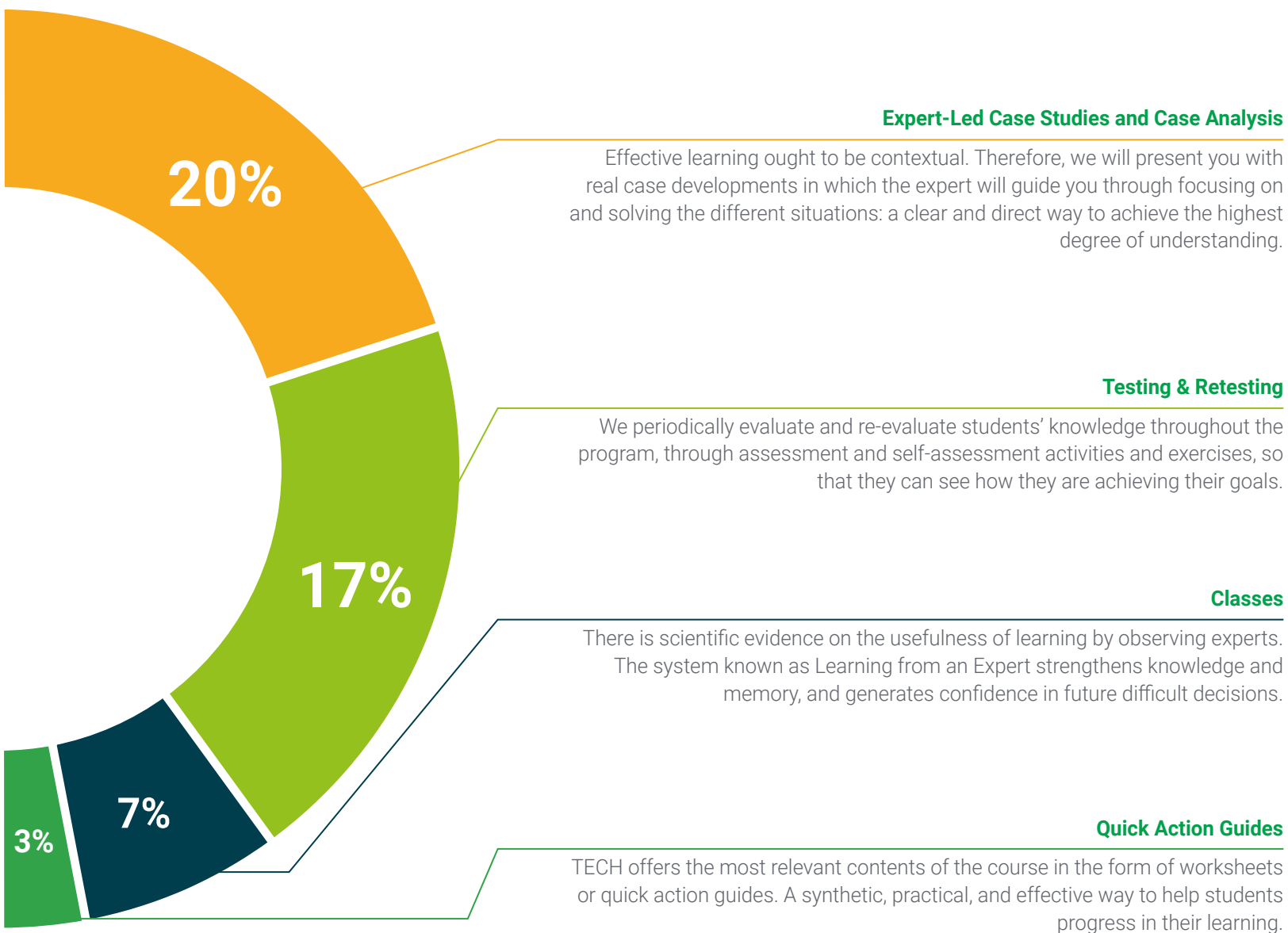
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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.





07

# Certificate

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



“

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

This private qualification will allow you to obtain a **Master's Degree diploma in Pediatric Infectious Diseases** endorsed by **TECH Global University**, the world's largest online university.

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

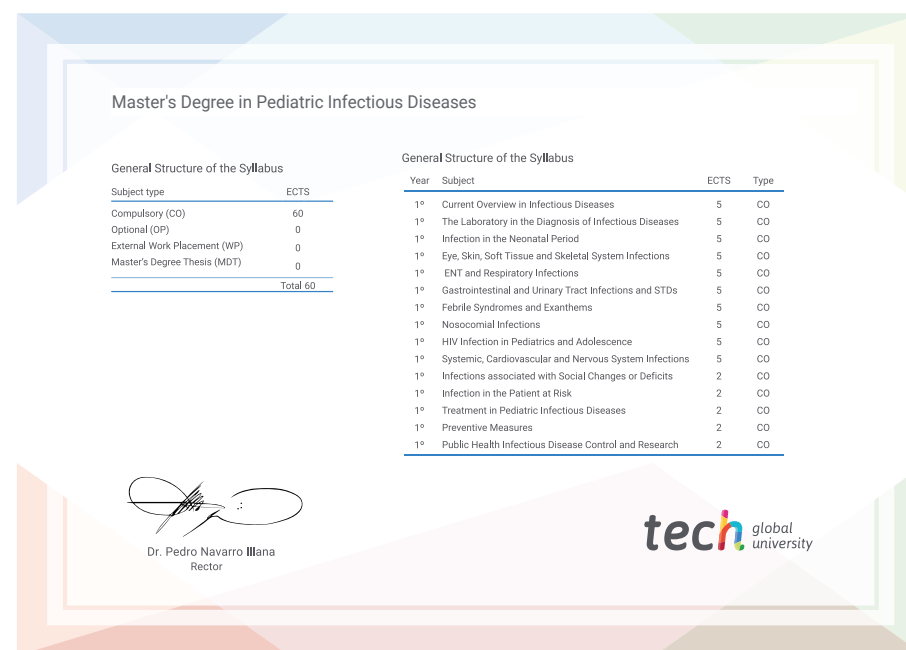
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Master's Degree in Pediatric Infectious Diseases**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**





## Master's Degree Pediatric Infectious Diseases

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

# Master's Degree

## Pediatric Infectious Diseases

