

# Postgraduate Diploma

Diagnosis and Treatment of Infectious  
Disease in Pediatrics





## Postgraduate Diploma

### Diagnosis and Treatment of Infectious Disease in Pediatrics

Course Modality: **Online**

Duration: **6 months**.

Certificate: **TECH - Technological University**

**19 ECTS credits**

Teaching Hours: **475 hours**.

Acceso web: <https://www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-diagnosis-treatment-infectious-disease-pediatrics>

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# 01

# Introduction

Infectious diseases, due to their frequency in emergency department and primary care, account for more than 60 percent of consultations. From the end of the neonatal period to 5 years of age, pneumonia, malaria and diarrhea are the main causes of death. As can be intuited, this leads to a therapeutic approach, which in many cases will be with antibacterial, antiviral or antifungal agents.





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*The Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics contains the most complete and updated scientific program on the market"*



Infectiology is constantly undergoing changes. At the epidemiological level, with the emergence or re-emergence of certain diseases that are unknown or have little practice (zika, chikungunya, hemorrhagic fevers, among others), others that have fallen into oblivion or are unknown to younger physicians such as diphtheria, measles, whooping cough or flaccid paralysis associated with the polio vaccine virus.

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

At the diagnostic level, the increasingly frequent availability of new techniques allows a more rapid etiological diagnosis or by complementary techniques that require clinical diagnostic orientation such as ultrasound, computed tomography or magnetic resonance imaging. Without forgetting the support that the clinician has in laboratory tests that determine acute phase reactants such as procalcitonin or C-reactive protein, which are sometimes given excessive importance, forgetting that we treat patients and not laboratory results.

All this means that, in order to attend these patients with the maximum guarantee, the clinician must maintain a continuous training, even if they are not a specialist, since, as we have mentioned, the percentage of visits or interconsultations related to the 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.

The **Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics** contains the most complete and updated scientific program on the market.

The most important features of the program include:

- ♦ Clinical cases presented by experts in the different specialties. The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ News on Diagnosis and Treatment of Infectious Disease in Pediatrics
- ♦ Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- ♦ With a special emphasis on evidence-based medicine and research methodologies in Diagnosis and Treatment of Infectious Disease in Pediatrics.
- ♦ All of this will be complemented by 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.



*Update your knowledge through the Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics, in a practical way and adapted to your needs"*

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*This Postgraduate Diploma may be the best investment you can make in the selection of an up-to-date program for two reasons: in addition to updating your knowledge in Diagnosis and Treatment of Infectious Disease in Pediatrics, you will obtain a Postgraduate Diploma from TECH - Technological University"*

It includes in its teaching staff health professionals belonging to the field of Diagnosis and Treatment of Infectious Diseases in Pediatrics, who pour into this training the experience of their work, in addition to recognized specialists belonging to scientific societies of reference.

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

This program is designed around Problem Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the course. For this reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of Diagnosis and Treatment of Infectious Disease in Pediatrics with extensive teaching experience.

*Increase your confidence in decision making by updating your knowledge through this Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics.*

*Don't miss the opportunity to update your knowledge on Diagnosis and Treatment of Infectious Disease Pediatrics to improve patient care.*



02

# Objectives

The main objective of the program is the development of theoretical and practical learning, so that the physician can master in a practical and rigorous way the study of the Diagnosis and Treatment of Infectious Diseases in Pediatrics.







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*This up-to-date program will generate a sense of security in the performance of the physician's praxis, which will help you grow personally and professionally"*



## General Objectives

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- Update the knowledge of the pediatrician or the physician who treats children, through the latest advances in the field of Neurology Infectology, in order to increase the quality of care, the safety of the physician and achieve the best outcome for the patient.



## Specific Objectives by Modules

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- 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.
- Describe the management of severe sepsis and code sepsis.
- 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.
- ◆ Describe the optimal and rational use of antibacterials against multidrug-resistant bacteria.
- ◆ 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.
- ◆ Explain the ethical implications and repercussions in the research of antibacterial, antiviral, antifungal drugs or vaccines.

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*Take advantage of the opportunity and take the step to get up to date on the latest developments in the Diagnosis and Treatment of Infectious Disease in Pediatrics”*



03

# Course Management

This program includes in its teaching staff health professionals of recognized prestige, who belong to the field of Diagnosis and Treatment of Infectious Disease in Pediatrics and who pour into this training the experience of their work. In addition involved, renowned specialists, members of prestigious national and international scientific communities, are in designing and preparing the program.





*Learn about the latest advances in Diagnosis and Treatment of Infectious Disease in Pediatrics from leading professionals”*



## Guest Director



### Dr. Hernández-Sampelayo Matos, Teresa

- ♦ Head of Pediatrics Service and ACES at the 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 of the Autonomous University of Madrid. Medicine.
- ♦ Pediatric Gastroenterology of the Autonomous University of Madrid. Medicine.
- ♦ Neonatology of the 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 Carmen

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

## Teachers

### **D. 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 from the Universitat de València.
- ♦ Master's Degree in Pediatric Infectious Diseases at the Complutense University of Madrid.

### **Dr. Calle Miguel, Laura**

- ♦ Health Service of the Principality of Asturias, Health Area V, Pediatric Specialist Physician.
- ♦ Master's Degree in Research in Medicine from the University of Oviedo
- ♦ Degree in Medicine and Surgery from the University of Oviedo.

### **Dr. Hernanz Lobo, Alicia**

- ♦ Assistant Pediatric Physician at the Gregorio Marañón General University Hospital.

Graduated in Medicine from the Complutense University of Madrid (UCM) in 2012.

- ♦ Specialist in Pediatrics and its Specific Areas, having trained as a resident intern at the Gregorio Marañón General University Hospital.
- ♦ Master's Degree in Pediatric Infectious Diseases Complutense University of Madrid.

### **Dr. Manzanares Casteleiro, Ángela.**

- ♦ Medical Doctor, Autonomous University of Madrid. Completion of the Pediatrics specialty in May 2020.
- ♦ Currently working until 12/31/2020 in the Pediatric Infectious Diseases Section of the 12 de Octubre University Hospital and the Pediatric Clinical Research Unit of the 12 de Octubre Hospital.
- ♦ Since October 2020, he has been studying for a Master's Degree in Pediatric Infectious Diseases at University

## Coordinator

### **Dr. Martínez Morel, Héctor**

- ♦ Doctor of Medicine
- ♦ Specialist in Preventive Medicine and Public Health.
- ♦ Specialist Area Physician (University and Polytechnic Hospital La Fe).

### **Dr. Mollar Maseres, Juan**

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

### **Dr. Meyer García, Mari Carmen**

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

### **Dr. Gobernado Serrano, Miguel**

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

### **Dr. Izquierdo Macián, Isabel**

- ♦ Chief from the Neonatology Service of the Child Disease Area.

04

# Structure and Content

The structure of the contents has been designed by a team of professionals knowledgeable about the implications of training in daily medical practice, aware of the relevance of current training in order to be able to act with children at risk of infection and committed to quality teaching through new educational technologies.





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## 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. Relationship With 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. Antibiograms.
  - 2.3.1. Interpretation of Antibiograms 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. Treatment in Pediatric Infectious Diseases

- 3.1. Pharmacokinetics and Pharmacodynamics of Antibacterial Agents in Pediatrics.
- 3.2. Bacterial Resistance and Antibiotherapy:
  - 3.2.1. Carbapenem-Resistant Enterobacteriaceae, BLES, MRSA, Vancomycin-Resistant.
  - 3.2.2. Resistance to Antifungals.
- 3.3. Choice of Antibiotics in the Different Families:
  - 3.3.1. Beta-Lactams.
  - 3.3.2. Macrolides.
  - 3.3.3. Aminoglycosides.
  - 3.3.4. Fluoroquinolones.
- 3.4. Choice Among the Different Families of Antifungals:
  - 3.4.1. Azoles.
  - 3.4.2. Echinocandins.
  - 3.4.3. Polyenes.
- 3.5. Resurrection of Old Therapeutic Agents.
- 3.6. New Antibiotics or Families.
  - 3.6.1. Ceftobiprole, Ceftaroline, Doripenem, Dalbavancin, Talavicina, Teixobactin, Ceftolozane-Tazobactam, Ceftazidime-Avibactam, Lugdunin, Oritavancin, Iclaprim, Ramoplanin, Fidaxomicin, Fidaxomicin.
- 3.7. New Tuberculostatics.
- 3.8. Antibiotherapy in Obese Pediatric Patients.
- 3.9. New Requirements for the Rational and Judicious Choice of Suitable Treatment.
  - 3.9.1. Antibiotic Policy in Hospitals and Primary Care Optimization Program.
- 3.10. Role of Agriculture and Animal Husbandry in Antibiotic Resistance.
- 3.11. Use of Antivirals.
  - 3.11.1. In Immunocompetent Patients.
  - 3.11.2. Use of Antivirals in Immunocompromised Patients.
- 3.12. Essential Antiparasitic Drugs in Pediatrics.
- 3.13. Update on Allergy to Anti-Infectives. Alternatives.
- 3.14. Monitoring of Anti-Infectives.
- 3.15. Update on the Duration of Antibiotic Treatments.



#### Module 4. Public Health Infectious Disease Control and Research

- 4.1. Emerging Infectious Diseases.
- 4.2. Diseases in Which Contact Study is Currently Indicated.
- 4.3. Mandatory Disease Reporting and its Practical Significance.
- 4.4. Indications of Directly Observed Treatment.
- 4.5. Ethics in the Research of New Antibiotics, Antivirals, Antifungals or Vaccines.
- 4.6. How to Plan a Study in Infectious Diseases?
- 4.7. Evaluation and Critical Reading of Scientific Publications.
- 4.8. Current Morbidity and Mortality of Pediatric Infectious Diseases.
- 4.9. Seasonality of Infection in Pediatrics.



*“A unique, key, and decisive  
Training experience to boost your  
professional development”*



05

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you can 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 potential 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 professional medical 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 grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on 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.



## Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

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.



*The physician 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning 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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



In this Postgraduate Diploma you will have access to the best educational material, prepared with you in mind:



### Study Material

After a complex production process, we transform the best content into high-quality educational and audiovisual multimedia. We select the best syllabus and make it available to you. Everything you need to acquire in-depth knowledge of a discipline, from A to Z. Lessons written and chosen by specialists in each of the disciplines.



### Surgical techniques and clinical procedures on video

We bring you closer to the newest techniques, to the latest scientific advances, to the forefront of current doctor news. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



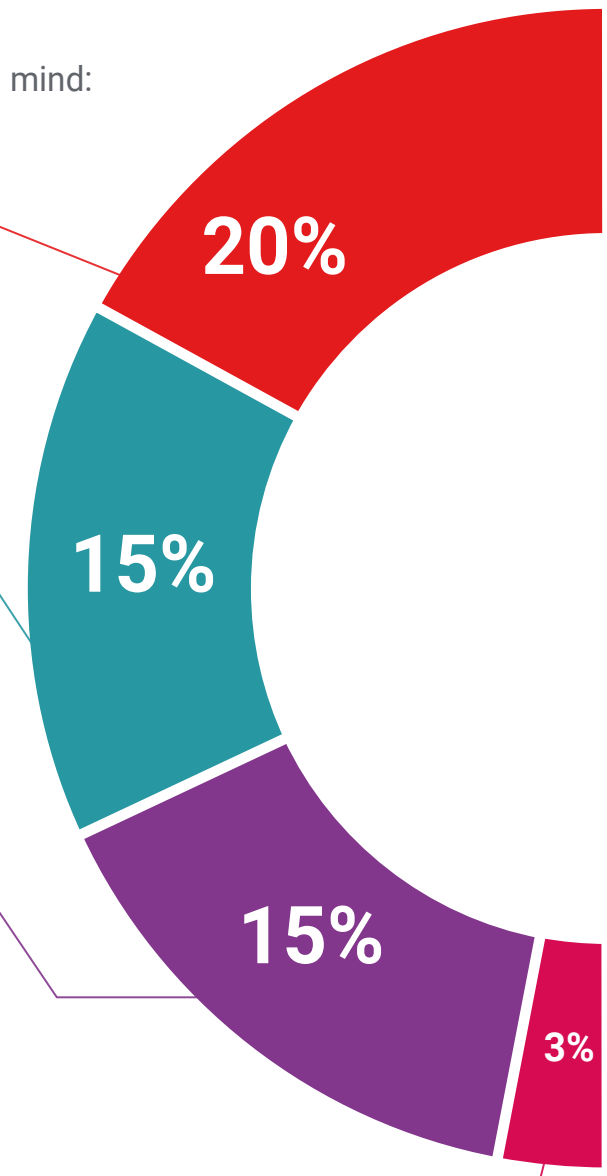
### Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge. This unique training system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

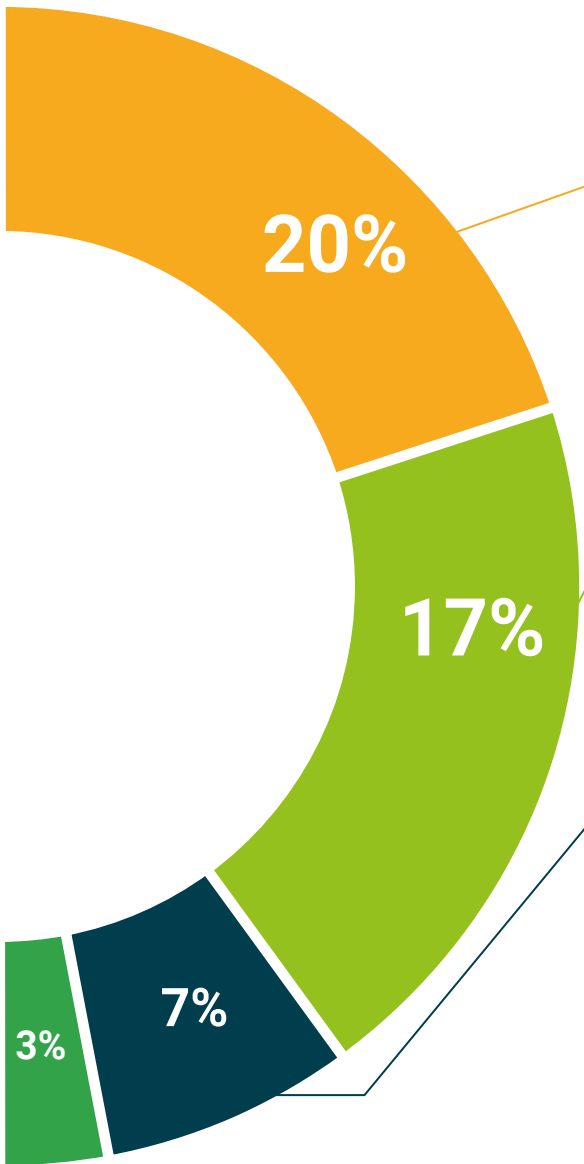


### Additional Reading

Recent articles, consensus documents, international guides... in our virtual library you will have access to everything you need to complete your training.







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

Through the narratives of expert professionals, it is possible to acquire a high degree of understanding of the most frequent problematic situations. The professional's healthcare practice is not alien to the context in which it takes place. If we want to train ourselves to improve our professional practice, this training must be situated within the context in which it takes place.



#### Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout this program through activities and evaluative exercises.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an expert strengthens knowledge and recall, and generates confidence in our future difficult decisions



#### Quick Action Guides

One of the most important functions of our team is to select those contents considered essential and present them in the form of worksheets or quick action guides to facilitate their understanding.



06

# Certificate

The Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics guarantees you, in addition to the most accurate and up-to-date training, access to a Postgraduate Diploma issued by TECH - Technological University.



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*Successfully complete this training and receive your university degree without travel or laborious paperwork”*

The **Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics** contains the most complete and updated scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH - Technological University via tracked delivery**.

The certificate issued by **TECH - Technological University** will specify the qualification obtained through the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations university, and professional career evaluation committees.

Title: **Postgraduate Diploma in Diagnosis and Treatment of Infectious Disease in Pediatrics**

ECTS: 19

Number of Hours: **475 hours**.





future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development languages  
virtual classroom

**tech** technological  
university

**Postgraduate Diploma**  
Diagnosis and Treatment  
of Infectious Disease in  
Pediatrics

Course Modality: Online

Duration: 6 months.

Certificate: TECH - Technological University

10 ECTS credits

Hours: 475 hours.

# Postgraduate Diploma

Diagnosis and Treatment of Infectious  
Disease in Pediatrics

