

# Advanced Master's Degree Clinical Pediatrics





## Advanced Master's Degree Clinical Pediatrics

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/medicine/advanced-master-degree/advanced-master-degree-clinical-pediatrics](http://www.techtitute.com/us/medicine/advanced-master-degree/advanced-master-degree-clinical-pediatrics)

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# 01

# Introduction

The great transformations that pediatrics has recently undergone, accentuated by the pandemic situation, have led to an increase in the complexity of the discipline. Thus, the most advanced techniques and knowledge are needed to respond to the current challenges of this health area. For this reason, this program has been designed to provide the physician with a complete update in the fields of hospital pediatrics, pediatrics in primary care and pediatric emergencies, delving into aspects such as respiratory diseases, hemato-oncology or invasive procedures in critical care, always focused on pediatric patients. All this, with a 100% online teaching methodology specially designed to combine studies with daily professional work.





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*This program will provide you with a comprehensive update in the area of Clinical Pediatrics, delving into the latest advances in pediatric emergencies and in hospital and primary care pediatrics”*

Of all the existing healthcare areas, pediatrics is one of those that has undergone the greatest changes in recent years. Recent scientific advances in the management of numerous pathologies and the updating of protocols in fields such as emergencies have led pediatrics to incorporate new diagnostic techniques and treatments. Thus, the specialist needs to keep up to date with these new procedures in order to have the most up-to-date methods and procedures.

For this reason, this program has been designed to bring him/her up to date immediately in many healthcare fields. In this way, throughout this Grand Master, the pediatrician will be able to delve into issues such as the care of the critically ill child outside the pediatric intensive care unit, parapneumonic pleural effusion or eosinophilic esophagitis and its relationship with celiac disease.

In addition, you will have at your disposal all the scientific evidence in the approach to febrile and parainfectious crises, as well as the respiratory pathology of the newborn and the syndrome of incomplete reabsorption of pulmonary fluid. However, this degree does not stop there and offers the latest innovations in issues such as current biosafety in microbiology laboratories for the handling of samples of different viruses.

In this way, the specialist will have access to the most cutting-edge knowledge while enjoying a 100% online learning methodology that will allow him/her to work while studying, without interruptions or rigid schedules. Furthermore, you will have the most expert teaching staff, composed of physicians with extensive experience, who will make use of numerous multimedia resources to streamline the teaching process.

This **Advanced Master's Degree in Clinical Pediatrics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Practical case studies are presented by experts in Pediatrics
- ♦ 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
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Special emphasis on innovative methodologies in pediatrics medicine
- ♦ 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



*Get updated thanks to TECH's online methodology, which will allow you to study while you continue to develop your professional work without interruptions or rigid schedules"*

“

*In this degree you will have at your disposal the best didactic resources: video procedures, interactive summaries, master classes... Everything to facilitate your learning process”*

*TECH will allow you to deepen, through this Advanced Master's Degree, on issues such as Crohn's disease or paraphimosis reduction, always in pediatric patients.*

*A teaching staff composed of practicing professionals will guide you throughout the program, ensuring that you get the update you are looking for.*

Its teaching staff includes professionals from the field of Pediatrics, who bring to this program the experience of their work, as well as recognized specialists from reference societies and prestigious 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.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02 Objectives

The main aim of this Advanced Master's Degree in Clinical Pediatrics is to bring the specialist closer to all the recent developments in this discipline, helping them to integrate the latest advances in pediatric emergencies into their daily work. And to achieve this goal, it offers a complete, up-to-date and in-depth syllabus, a teaching staff of great prestige and extensive experience, and a learning method that will adapt to your professional circumstances.





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*You will achieve your goal of updating yourself thanks to this program, specially designed to make you a professional up to date with all the advances in pediatrics"*



## General Objectives

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- ♦ Master the latest techniques and knowledge in modern hospital pediatrics
- ♦ Become highly fluent in pediatric patient management, ensuring maximum quality and safety during the process
- ♦ Develop exemplary skills to provide high quality care, guaranteeing patient safety based on the latest update of scientific evidence
- ♦ Update on hospital pediatrics
- ♦ Update the physician's knowledge in advanced life support as well as diagnostic and treatment techniques to use in pediatric patients with an emergency pathology. This is with the aim of providing quality emergency care which allows for a better prognosis for the child and better care for them and their family
- ♦ Broaden knowledge in the provision of emergency care to improve the child's prognosis and family care
- ♦ Review the main pathologies in children and adolescents and the advances made in them





## Specific Objectives

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### Module 1. Treating Critically Ill Children out of the Pediatric Intensive Care Unit

- Delve deeper into the different hospital practices regarding initial child management in life-threatening situations due to acute hemodynamic, respiratory and/or neurological involvement
- Update rapid intubation sequence and advanced cardiopulmonary resuscitation in children according to the latest ILCOR 2021 recommendations
- Practical diagnosis and therapy management for children disconnected from the environment
- Know the algorithm of action in case of status convulsus
- Deal with allergic reactions and anaphylaxis, oxygen therapy, fluid therapy, ECG, analgesia and sedation, and be introduced to thoracic ultrasound

### Module 2. Infectious Diseases in Pediatrics

- Focus on key issues such as antibiotic policy and isolation measures
- Analyze the most frequent infectious pathologies through new algorithms and protocols, as well as traveler and immigrant infections and new emerging viruses

### Module 3. Respiratory Diseases in Pediatrics

- Delve deeper into chronic respiratory pathologies of frequent hospitalization such as bronchopulmonary dysplasia, interstitial lung disease, cystic fibrosis, patients with neuromuscular pathology
- Master the latest diagnosis and monitoring procedures and new therapies

### Module 4. Digestive System Diseases in Pediatrics

- Take a deeper look into clinical cases and different algorithms in the diagnosis, management and updated therapeutic measures for different pathologies, some very frequent such as abdominal pain and gastroesophageal reflux, and other emerging ones such as eosinophilic esophagitis and biliary lithiasis

- Manage chronic diarrhea, whose etiology is varied and which can be the expression of a benign process or of a serious disease
- Update on inflammatory bowel disease and hepatic dysfunction, which require a high diagnostic suspicion, since they can cause, if detection is delayed, important complications causing a decline in patient quality of life
- Delve into gastrointestinal bleeding which, although infrequent, can have potentially severe consequences

### Module 5. Neurological Disorders in Pediatrics

- Develop the diagnostic approach and practical aspects of antiepileptic drugs, as well as the diagnostic approach to hypotonic infants and the most frequent conditions such as headaches, or acute conditions such as ataxia, pediatric stroke, or demyelinating diseases, among others

### Module 6. Cardiac Diseases in Pediatrics

- Discover new diagnostic modalities in pediatric cardiology: echocardiographic strain, transesophageal echocardiography, among others
- Delve deeper into the differential diagnosis for suspected heart disease in newborns, early diagnosis and initial stabilization treatment
- Know the clinical approach to heart disease given current regulations, as well as cardiac flow obstruction pictures, the key ideas behind arrhythmias detection, pathologies acquired in childhood, and suspected heart failure in infants and children and new challenges

### **Module 7. Endocrine System, Metabolism and Nutrition in Pediatrics**

- ♦ Delve deeper into nutritional assessment and the most frequent alterations observed during hospital admission, early diagnosis and therapeutic lines
- ♦ Adopt a critical attitude toward new trends in diet and the possible deficiencies they can generate
- ♦ Know when to suspect the presence of a metabolic disease, as well as different clinical pictures, some of which frequent, such as hypoglycemia, diabetic onset and control using new technologies, polyuria– polydipsia and suspected adrenal insufficiency

### **Module 8. Nephrology and Water and Electrolyte Disorders in Pediatrics**

- ♦ Offer a global vision of the most frequent pathologies found in hospital admissions through clinical cases, deepening in hematuria-proteinuria, nephrotic syndrome and acute renal damage, arterial hypertension and renal lithiasis, which are becoming more and more common
- ♦ Bring new diagnostic and therapeutic algorithms to the nephrological area

### **Module 9. Pediatric Hemato-Oncology**

- ♦ Using updated algorithms and clinical cases, explore simple approaches to the most common conditions such as anemia, purpura and neutropenia
- ♦ Know the indications for transfusions and anticoagulation
- ♦ Approach oncologic emergencies and the differential diagnosis of adenomegaly, hepato-splenomegaly and macrophage activity syndrome

### **Module 10. Other Pediatric Processes**

- ♦ Interpret skin lesions and apparent lethal episodes
- ♦ Manage complex pediatric patients
- ♦ Address pediatric intensive care, palliative care, maltreatment and sexual abuse
- ♦ Master standard procedures and new technologies
- ♦ Delve into the mental health and safety of pediatric patients in a hospital setting

### **Module 11. Care for a Healthy Child**

- ♦ Carry out a complete health assessment
- ♦ Describe the psychomotor development and optimal language level at each stage of childhood
- ♦ Explain the basic principles of successful breastfeeding according to the needs of the infant
- ♦ Describe the foundations of a balanced diet in each of the developmental stages of a normal child
- ♦ Implement diet and exercise programs adapted to each stage of growth
- ♦ Apply the current vaccination schedule

### **Module 12. Newborn**

- ♦ Revise the characteristics of a normal newborn and the care that should receive in the first few hours of life
- ♦ Explain the most common health problems that could occur in a normal newborn
- ♦ Describe the care protocol for normal newborns
- ♦ Differentiate between the most common respiratory problems in newborns with the aim of establishing an appropriate diagnosis and initiating the correct treatment
- ♦ Detect jaundice in a newborn and implement early treatment

### **Module 13. Dermatology**

- ♦ Describe the etiology and basic characteristics of certain dermatological alterations in childhood
- ♦ Implement treatment plans in the case of alterations such as eczema or acne
- ♦ Identify possible related illnesses and their etiology
- ♦ Explain the course of action in cases of infectious or parasitic dermatoses

### **Module 14. Sleep Disorders**

- ♦ Describe the basic principles of sleep and the characteristics at each stage of childhood
- ♦ Evaluate problems related to sleep in pediatrics
- ♦ Establish an appropriate diagnosis and treatment in these types of disorders

**Module 15. Rheumatology**

- ♦ Describe the main rheumatological alterations that can occur in childhood
- ♦ Establish a differential diagnosis with other non-rheumatological pathologies
- ♦ Apply appropriate treatment according to the etiological agent causing the infection

**Module 16. Allergy**

- ♦ Describe the main food allergies and how to establish an appropriate diagnosis
- ♦ Implement treatment and dietary plans with the aim of avoiding acute allergic reactions in children with allergies
- ♦ Describe the different diagnostic tests as well as how to prepare for them and possible complications that could arise
- ♦ Describe the action to be taken in case of urticaria and avoid the onset of angioedema by implementing appropriate therapeutic measures

**Module 17. Locomotor System**

- ♦ Identify possible alterations in the locomotor system in children
- ♦ Establish the most appropriate corrective treatment in the case of an established pathology
- ♦ Identify the causes of back pain and lower limb pain
- ♦ Identify walking abnormalities by thorough examination of the feet
- ♦ Apply corrective methods to reduce walking abnormalities

**Module 18. Ophthalmology**

- ♦ Describe ocular examination in children and the normal parameters
- ♦ Detect ophthalmologic conditions of infectious origin and establish appropriate treatment
- ♦ Establish a proper diagnosis in case of strabismus and apply necessary corrective measures
- ♦ Identify other ophthalmologic pathologies which require surgical and/or specialist care

**Module 19. Surgery**

- ♦ Describe the main surgical procedures in pediatrics
- ♦ Identify the cause of acute abdomen with the aim of establishing urgent surgical treatment if necessary
- ♦ Identify the causes of intestinal obstruction in a child and establish an adequate treatment plan

**Module 20. Miscellaneous**

- ♦ Identify the most appropriate forms of administering drugs in pediatric patients
- ♦ Explain the appropriate way to calculate the dosis of drugs in pediatrics
- ♦ Define alternative treatments in immunosuppressed patients, patients with allergies or with any associated pathology
- ♦ Identify the appropriate pediatric doses of commonly used drugs
- ♦ Describe the normal laboratory values in the newborns, infants and children
- ♦ Identify altered analytical values in the pediatric age group

**Module 21. Health Care Organization for Common Pediatric Emergencies**

- ♦ Identify the different elements of the equipment in the pediatric emergency department
- ♦ Practice patient selection according to the different triage systems
- ♦ Describe pediatric critical patient transport systems

**Module 22. Common Advanced Pediatric and Neonatal Cardiovascular Support**

- ♦ Identify the signs and symptoms of the main apparently lethal syndromes, as well as recognize the critically ill child

**Module 23. Invasive Techniques in Common Critically Ill Pediatric Patients**

- ♦ Incorporate intraosseous puncture as a frequently used technique in pediatric emergency departments

### **Module 24. Cardiologic Emergencies**

- ♦ Describe the main signs and symptoms of cardiac pathologies, arrhythmias, syncope, heart failure and congenital heart disease

### **Module 25. Respiratory Emergencies**

- ♦ Update the latest recommendations for the performance of basic and advanced cardiopulmonary resuscitation maneuvers and complete upper airway clearance of a foreign body
- ♦ To establish the procedures for performing Capnography and Pulse Oximetry, as well as to review the indications for oxygen therapy in pediatric patients, according to the latest scientific evidence
- ♦ Identify the main aspects of pediatric airway establishment, rapid intubation sequence, difficult airway and new facilitator devices
- ♦ Addressing respiratory pathology in the newborn, in the light of the latest scientific evidence
- ♦ Describe the main signs and symptoms of respiratory tract pathologies in the child, and the approach to acute pharyngotonsillitis, laryngitis or croup, spasmodic croup, otitis and sinusitis
- ♦ Determine the procedures for the management of the child with asthma and chronic cough, and the different diagnostic and therapeutic techniques, such as airway aspiration, thoracentesis and placement of the pleural tube, forced spirometry and bronchodynamic test

### **Module 26. Pediatric Trauma and Osteoarticular Injuries**

- ♦ Review the diagnostic process, assessment and care of the pediatric patient with traumatic brain injury
- ♦ Incorporate into medical practice the priorities of evaluation and treatment of the traumatized child and the characteristics of pediatric patients
- ♦ Develop and practice the sequences in the different workshops on mobilization and immobilization of the trauma patient, functional bandaging, casting and reduction of painful pronation

### **Module 27. Unintentional Injuries Child Accidents**

- ♦ Increase the ability to manage the acutely intoxicated child or adolescent

### **Module 28. Digestive Emergencies**

- ♦ To determine the novelties in the management of celiac disease in children
- ♦ Address the management procedures of the child with food refusal and relate it to the different digestive pathologies

### **Module 29. Infectious Emergencies**

- ♦ Review the latest advances in diagnostic and therapeutic procedures for the different hepatitis virus infections: HAV, HBV, HCV, HDV, HEV
- ♦ Review advances in the management of HPV, herpes simplex and shingles viral infections in children
- ♦ Review advances in the management of fungal infections, tinea, candidiasis and pityriasis versicolor
- ♦ Update knowledge in infectious diseases in children and the management of immunocompromised children



#### **Module 30. Ophthalmologic and Otorhinolaryngologic Emergencies**

- ♦ Analyze new developments in the management of children with ophthalmologic and otorhinolaryngologic problems

#### **Module 31. Pediatric Skin Emergencies**

- ♦ Update the management of the different common dermatological pathologies in the emergency department

#### **Module 32. Nephrourological Emergencies**

- ♦ Describe the main advances in the management of the child with nephrourological problems, incorporating the techniques of urine collection, suprapubic puncture and bladder catheterization, according to updated clinical guidelines

#### **Module 33. Special Situations in Pediatric Emergencies**

- ♦ Prepare the specialist to deal with the different special situations that may arise in pediatric emergencies

#### **Module 34. Update on Coronavirus Infections**

- ♦ Update the pediatrician on the latest advances in coronavirus infections in children and adolescents



*You will be able to learn about the most relevant novelties in aspects such as adrenal insufficiency or head trauma in children"*

# 03 Skills

Throughout this Advanced Master's Degree in Clinical Pediatrics, the specialist will be able to acquire and perfection a series of competencies in this health area with which he/she will continue to perform his/her work at the highest level. Thus, this program is completely focused on ensuring that the physician obtains all the necessary skills to respond, according to the latest scientific evidence, to the current challenges of the profession.







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*Incorporate the latest pediatric procedures into your work and hone your skills to adapt to the transformations that this discipline has undergone in recent years”*



## General Skills

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- ♦ Manage the latest diagnostic and treatment tools in pediatrics
- ♦ Know the advances in specific patient management in hospital pediatrics
- ♦ Master the behavior of the most common pathologies belonging to the subspecialties of pediatric nephrology, oncology or digestive medicine, among others
- ♦ Incorporate new technologies to diagnostic processes
- ♦ Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- ♦ Know how to apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study
- ♦ Integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- ♦ Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- ♦ Acquire the learning skills that will enable further studying in a largely self-directed or autonomous manner





## Specific Skills

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- ♦ Manage the most common infectious pathologies and new emerging viruses according to new algorithms and protocols
- ♦ Treat common chronic respiratory pathologies such as interstitial lung disease or cystic fibrosis
- ♦ Address the most prevalent digestive diseases such as eosinophilic esophagitis
- ♦ Learn about the latest developments in antiepileptic drugs, and the most frequent neurological processes such as headache, acute conditions such as ataxia or pediatric stroke
- ♦ Diagnose heart disease in newborns
- ♦ Detect the presence of a metabolic disease in pediatric patients
- ♦ Master the particularities of hematuria-proteinuria, nephrotic syndrome and acute renal damage, arterial hypertension
- ♦ Possess all the current tools to safely manage pediatric patients
- ♦ Carry out a complete health assessment with the aim of describing the psychomotor development and optimal language level at each stage of childhood
- ♦ Explain the basic principles for successful breastfeeding and normal infant development in order to ensure that the child's needs are adequately met through this method
- ♦ Describe the foundations of a balanced diet in each of the developmental stages of a normal child in order to implement diet and exercise programs adapted to each stage of growth
- ♦ Describe the characteristics of a normal newborn and the care that they should receive in their first hours of life, in order to detect the most common health problems that can occur in a normal newborn

- ♦ Differentiate between the most common respiratory problems in newborns with the aim of establishing an appropriate diagnosis and initiating the correct treatment
- ♦ Describe the etiology and basic characteristics of certain dermatological alterations in childhood in order to implement treatment plans in the case of alterations such as eczema or acne
- ♦ Identify possible related illnesses and their etiology to be able to carry out a correct diagnosis and implement an appropriate treatment
- ♦ Identify food-related disorders in order to carry out thorough monitoring of a child in the field of primary care
- ♦ Implement therapeutic plans for the care and treatment of the diabetic child in order to avoid hypoglycemia and to solve it in case it occurs
- ♦ Explain the different procedures that the pediatrician can carry out to resolve potentially dangerous situations safely in the emergency department
- ♦ Develop basic and advanced cardiopulmonary resuscitation procedures
- ♦ Describe actions for complete upper airway clearance
- ♦ Define the criteria for the correct detection of child abuse
- ♦ Assess the degree of pain in the pediatric patient
- ♦ Explain the sedoanalgesia procedure and indicate the necessary pharmacology
- ♦ Apply the specific protocols of action for pediatric patients with fever
- ♦ Connect the different types of brain damage and their clinical manifestations





- ◆ Perform initial assessment of traumatic brain injury
- ◆ Identify characteristics of the traumatized child and priorities for assessment and treatment
- ◆ State and describe the differences between viral and bacterial meningitis
- ◆ Describe the management procedure of the pediatric patient with acute intoxication
- ◆ Determine the specific actions of the physician in emergencies of the pediatric patient with special needs
- ◆ Explain and identify the most frequent causes of an apparently lethal episode
- ◆ Define anaphylaxis and its clinical manifestations to guide the diagnosis
- ◆ Classify the situations in which we suspect abuse
- ◆ Describe burn care, including cleanup, management of phlyctenas, draping, analgesia and prophylaxis
- ◆ Signal the differential organizational and management characteristics of pediatric emergency departments

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*The best program to  
update you in clinical  
pediatrics is here"*

# 04

# Course Management

TECH always aims to offer the best learning experience. Therefore, it is responsible for selecting the best teaching staff so that the pediatrician enjoys the most updated knowledge. Thus, the teaching staff of this Advanced Master's Degree has a great experience and prestige in the specialty, and will transfer to the professional the most advanced procedures, techniques and protocols, guaranteeing, in this way, that he/she obtains an immediate update.



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*The most distinguished professionals in the field of pediatrics will dynamically update you, adapting to your personal needs”*

## Guest Director



### Dr. Sánchez Díaz, Juan Ignacio

- ◆ Head of PICU and Pediatric Emergency Department at the 12 de Octubre University Hospital, Madrid
- ◆ Member of the Technical Assistance Board of the 12 de October University Hospital present
- ◆ PhD in Medicine and Surgery, at the Complutense University of Madrid
- ◆ Specialist Pediatrician
- ◆ Accreditation in Pediatric Intensive Care, Spanish Association of Pediatrics
- ◆ More than 80 national and international scientific publications

## Management



### Dr. Castaño Rivero, Antón

- ◆ Specialist in Pediatrics and its Specialized Areas
- ◆ Attending Physician, Pediatric Emergency Department, Cabueñas University Hospital. Gijón
- ◆ Accredited in the subspecialty of Pediatric Emergency Medicine by the AEP
- ◆ Former President of the Spanish Society of Pediatric Emergency Medicine
- ◆ Master's Degree in Emergencies and Acute Pathology in Pediatrics, Autonomous University from Madrid
- ◆ CPR Instructor and Course Director accredited by the Spanish Group of Pediatric and Neonatal CPR





### **Dr. García Cuartero, Beatriz**

- ♦ Chief of the Pediatrics Service and coordinator of the Pediatric Endocrinology and Diabetes Unit Ramón y Cajal University Hospital, Madrid, Spain
- ♦ Specialist Physician in Pediatrics at Severo Ochoa, Leganés University Hospital, Madrid
- ♦ Primary Care Pediatrician, Area 4, Madrid
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Specialist Degree in Pediatrics, MIR accreditation at the Infantil Niño Jesús University Hospital, Madrid Specific Training Area: Pediatric Endocrinology
- ♦ PhD from the Autonomous University of Madrid (UAM) Expression of manganese superoxide dismutase, heme oxygenase and nitric oxide synthase enzymes in cultured pancreatic islets with interleukin 1 by in situ hybridization Unanimous Cum Laude Award
- ♦ Associate Professor of Pediatrics Faculty of Medicine. Alcalá de Henares University
- ♦ Social Security Research Fund (FISS) Grant, Steno Diabetes Center, Copenhagen/Hagedorn Research Laboratory Project: Pancreatic beta cell destruction mechanism and free radicals in type 1 diabetes mellitus



### Dr. Mantecón Fernández, Laura

- ♦ Neonatology Assistant Specialist at the Central University Hospital of Asturias (Oviedo)
- ♦ PhD in Medicine from the University of Oviedo
- ♦ Specialist in Pediatrics and its Specialist Areas at Central University Hospital of Asturias (Oviedo)
- ♦ Rotation in the Neonatal Intensive Care Unit at Jackson Memorial Hospital (Miami, Florida). USA
- ♦ Member of Spanish Society of Neonatology (SEN)
- ♦ Postgraduate degrees in Neonatology, Pediatric Emergencies and Update in Primary Care in Pediatrics
- ♦ Degree in Medicine from the University of Cantabria

## Professors

### Dr. Morales Tirado, Ana

- ♦ Pediatrician Specialist Ramón y Cajal University Hospital
- ♦ Degree in Medicine from the Complutense University of Madrid
- ♦ Research and Disclosure in the Pediatrics Field. Articles entitled Pediculosis capitis: Is it really banal? Journal of Primary Care Pediatrics and Contact dermatitis Protocols updated to 2019. Spanish Association of from Pediatrics

### Dr. Vázquez Ordóñez, Carmen

- ♦ FEA Pediatric Nephrology and Pediatric Emergencies Ramón y Cajal University Hospital
- ♦ Rotation in the Pediatric Nephrology Service Doce de Octubre University Hospital
- ♦ Pediatric Resident Ramón y Cajal University Hospital
- ♦ Degree in Medicine and Surgery. Navarra University
- ♦ Teaching Collaborator for 4th and 6th year in Medicine at the University of Alcalá de Henares
- ♦ Seminars in Medicine at the University of Alcalá de Henares

**Dr. Buenache Espartosa, Raquel**

- ◆ Specialist Physician in Pediatrics and Specialized Areas with a focus on Neuropediatrics Ramón y Cajal University Hospital Neuropediatrics Profile
- ◆ Specialist Physician in Pediatrics and Specialized Areas Alcorcón Foundation University Hospital
- ◆ Resident Doctor in Pediatrics and Specialized Areas Ramón y Cajal University Hospital
- ◆ Associate Specialist Physician in Pediatrics and Specialized Areas Henares University Hospital Neuropediatrics Profile
- ◆ Specialist Physician in Neuropediatrics, La Zarzuela Hospital
- ◆ Degree in Medicine and Surgery. Autonomous University of Madrid
- ◆ Specialist in Pediatrics and Specialized Areas MIR training at Ramón y Cajal University Hospital Subspecialization in Neuropediatrics
- ◆ Doctorate Studies Diploma Certificate in advanced doctoral studies, which accredits research proficiency, with a qualification of outstanding in the area of Pediatrics in the doctoral program Medical Specialties at the University of Alcalá

**Dr. Blitz Castro, Enrique**

- ◆ Specialist Physician in Pediatrics and Specialized Areas in the Pediatrics Service and Cystic Fibrosis Unit, providing the main care as a Pediatric Pneumologist at the Ramón y Cajal University Hospital
- ◆ Supervisor in charge of the Cystic Fibrosis Neonatal Screening Program at Ramón y Cajal University Hospital
- ◆ Resident Intern in Pediatrics and Specialized Areas at Ramón y Cajal University Hospital (Madrid, Spain) and in the Neonatology Department at La Paz University Hospital (Madrid, Spain), devoting the last year of residency completely to the subspecialty of Pediatric Pneumology

- ◆ Degree in Medicine from the Complutense University of Madrid. Clinical training at Gregorio Marañón University Hospital in Madrid
- ◆ PhD student on the Doctoral Program in Health Sciences at the University of Alcalá de Henares and Doctoral Thesis Results on the Neonatal Screening Program for Cystic Fibrosis in the Community of Madrid since its implementation in 2009 to 2022
- ◆ Researcher at the Biomedical Research Foundation, Ramón y Cajal University Hospital, contributing to ongoing research projects in the Cystic Fibrosis Unit at e Ramón y Cajal University Hospital

**Dr. Stanescu, Sinziana**

- ◆ Ramón y Cajal Hospital. Area Specialist, Pediatrics Department, Metabolic Diseases Unit
- ◆ Ramón y Cajal Hospital. Medical on-call duty in the Pediatric Intensive Care Unit
- ◆ Ramón y Cajal Hospital. Area Specialist in Pediatrics
- ◆ Henares University Hospital Medical on-call duty
- ◆ Degree in Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest Degree approved by the Ministry of Education and Science (Government of Spain)
- ◆ Specialized training in Pediatrics via MIR Specialist in Pediatrics and Specialized Areas at Ramón y Cajal University Hospital, Madrid Subspecialty: Pediatric Intensive Care, Metabolic Diseases

**Dr. Vázquez Martínez, José Luís**

- ◆ Head of the Pediatric ICU Ramón y Cajal Hospital
- ◆ Postgraduate Diploma in Pediatrics and Specialized Areas La Paz Children's Hospital
- ◆ Degree in Medicine and Surgery from the University of Oviedo
- ◆ PhD in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Associate Professor, University of Alcalá

#### **Dr. Toledano Navarro, María**

- ♦ Assistant Specialist in Pediatric Cardiology in charge of the Family Cardiopathies consultation and Hemodynamics for diagnostic and interventional procedures for pediatric and adult congenital heart disease as first and second operator Ramón y Cajal University Hospital
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ EPALS accreditation at Great Ormond Street NHS Trust European Resuscitation Council
- ♦ ESC Certification in Congenital Heart Disease Echocardiography European Society of Cardiology
- ♦ Specialized training in Pediatrics at Ramón y Cajal Hospital (HRYC), Madrid Subspecialty in Pediatric Cardiology with training in Pediatric Cardiology and Adult Congenital Heart Disease (current)

#### **Dr. De Tejada Barásoain, Enrique Otheo**

- ♦ Area Specialist, Ramón y Cajal University Hospital (HURyC), Pediatrics Service
- ♦ Internal Hospital Pediatrics and Pediatric Infectious Diseases General Pediatrics and Pediatric Infectious Diseases Consultation
- ♦ Member of the HURyC Antimicrobial Policy Committee
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ PhD in Medicine, Doctoral Thesis: Etiology of Community Acquired Pneumonia in children, University of Alcalá, outstanding cum laude honors
- ♦ Associate Professor of Pediatrics at the University of Alcalá
- ♦ Member of the Spanish Society of Internal Hospital Pediatrics
- ♦ Member of the Spanish Society of Pediatric Infectology

#### **Dr. Vicente Santamaría, Saioa**

- ♦ Faculty Area Specialist Ramón y Cajal University Hospital
- ♦ Degree in Medicine and Surgery. Navarra University
- ♦ Master's Degree in Pediatric Gastroenterology and Hepatology Cardenal Herrera University
- ♦ Master's Degree in Clinical Nutrition in Pediatrics Cardenal Herrera University
- ♦ Postgraduate Course in Pediatric Nutrition Boston University School Medicine
- ♦ Expert Diploma in Malnutrition and Digestive Pathology in Children Cardenal Herrera University

#### **Dr. Tabares González, Ana**

- ♦ Assistant Pediatric Physician in the Emergency Department, Hospitalization and Consultations at Ramón y Cajal University Hospital (Madrid)
- ♦ Assistant Pediatric Physician in Emergency Department, Hospitalization and Consultations of Child Gastroenterology at San Rafael Hospital (Madrid)
- ♦ Assistant Pediatric Physician in the Pediatric Gastroenterology Consultation Area at Ramón y Cajal University Hospital (Madrid)
- ♦ Attending Pediatric Physician in the Pediatric Emergency and Hospitalization Area at Severo Ochoa Hospital in Leganés (Madrid)
- ♦ Degree in Medicine. Autonomous University of Madrid
- ♦ Postgraduate Diploma in Immunonutrition San Vicente Mártir Catholic University

**Dr. Quintero Calcaño, Víctor**

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- ♦ Department of Extractions and Prevention and Occupational Risks Service at La Paz Hospital
- ♦ Internal Medicine Department and Palliative Care Unit at Hospital San Rafael (Madrid)
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- ♦ Diploma in Company Nurse, Carlos III Institute and Ciudad Real Nursing University
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# 05

## Structure and Content

This Advanced Master's Degree in Clinical Pediatrics has been structured in a series of specialized modules that will delve into different aspects of hospital, emergency and primary care pediatrics. In this way, the professional will delve into the latest developments in the treatment of the main hydroelectrolyte and acid-base balance disorders, bronchopulmonary dysplasia, the latest tools for the diagnosis of pediatric cardiac pathology or the management of hypertensive crises, among many other relevant aspects.



“

*The most complete and advanced contents in clinical pediatrics will be at your disposal in this Advanced Master's Degree"*

## Module 1. Treating Critically Ill Children Not in the Pediatric Intensive Care Unit

- 1.1. Warning Signs and Symptoms
  - 1.1.1. Hemodynamic
  - 1.1.2. Respiratory
  - 1.1.3. Metabolic
  - 1.1.4. Neurologic
  - 1.1.5. Hematologic
  - 1.1.6. Decompensation in Critically Ill Children
  - 1.1.7. Monitoring: Instrumental Monitoring Clinic Clinical Ultrasound
  - 1.1.8. Cardiocirculatory Arrest
    - 1.1.8.1. Prevention
    - 1.1.8.2. Caring for Children in Arrest
    - 1.1.8.3. Stabilization
    - 1.1.8.4. Transport Intrahospital and Interhospital
  - 1.1.9. Humanized Care for Critically Ill Children
    - 1.1.9.1. The Family
    - 1.1.9.2. Music Therapy
    - 1.1.9.3. Others
  - 1.1.10. January 01, 2010) Difficult Decisions
    - 1.1.10.1. Therapeutic Effort Limitation
    - 1.1.10.2. Critically Ill Children
    - 1.1.10.3. Asystole Donation
- 1.2. Cerebral Crisis
  - 1.2.1. Initial Assessment
  - 1.2.2. Differential Diagnosis
  - 1.2.3. Acute Treatment
- 1.3. Acute Respiratory Failure. Oxygen Therapy
  - 1.3.1. Acute Respiratory Failure
  - 1.3.2. Pathophysiology
  - 1.3.3. Classification
  - 1.3.4. Diagnosis
  - 1.3.5. Treatment
- 1.4. Allergic Reactions: Anaphylaxis
  - 1.4.1. Allergic and Clinical Reaction
  - 1.4.2. Etiology
  - 1.4.3. Diagnosis
  - 1.4.4. Treatment
  - 1.4.5. Prevention
- 1.5. Blood gas interpretation
  - 1.5.1. Blood Gas Interpretation
  - 1.5.2. Pathophysiology
  - 1.5.3. Basic Elements to Interpret Acid-Base Balance
  - 1.5.4. General Diagnosis
  - 1.5.5. Approach to Acid-Base Balance Disturbances
- 1.6. Analgesia and Sedation
  - 1.6.1. Analgesia and Sedation
  - 1.6.2. Pain Assessment and Management
  - 1.6.3. Sedo Analgesia
    - 1.6.3.1. Adverse Effects
    - 1.6.3.2. Candidate Patients
    - 1.6.3.3. Necessary Personnel and Supplies
    - 1.6.3.4. Non-Pharmacological Measures in Pain Control and Anxiety
    - 1.6.3.5. Drugs and Antidotes
    - 1.6.3.6. Sedoanalgesia Procedures and Strategies
    - 1.6.3.7. Necessary Documentation
    - 1.6.3.8. Monitoring
- 1.7. Fluid Therapy
  - 1.7.1. Body Fluid Composition
  - 1.7.2. Main Mechanisms for Volume Regulation, Osmolarity and Acid-Base Balance
  - 1.7.3. Calculating Basal Needs
  - 1.7.4. Treating Dehydration: Rehydration Routes (Indications, Serums used)
  - 1.7.5. Treating the Main Hydroelectrolyte and Acid-Base Balance Disorders





- 1.8. Electrocardiogram
  - 1.8.1. General Aspects
  - 1.8.2. Electrical Changes during Childhood Development
  - 1.8.3. Sequential ECG Analysis: P Wave, PR Interval, QRS Complex, Q Wave, ST Segment, T Wave
  - 1.8.4. Characteristics of Atypical ECGs with NoPathological Findings
- 1.9. Thoracic Ultrasound Scan
  - 1.9.1. Clinical Ultrasound (POCUS)
  - 1.9.2. Artifacts and Bottonology
  - 1.9.3. Pulmonary Ultrasound Semiology
  - 1.9.4. POCUS Diagnosis
    - 1.9.4.1. Consolidated Pneumonia
    - 1.9.4.2. Alveolo-Interstitial Pneumonia
    - 1.9.4.3. Entrapment
    - 1.9.4.4. Heart Failure
    - 1.9.4.5. Pleural Effusion
    - 1.9.4.6. Pneumothorax

## Module 2. Infectious Diseases in Pediatrics

- 2.1. Healthcare-Associated Infections (HAIs) Measures to Prevent the Transmission of Infections
  - 2.1.1. Repercussions in a Pediatric Inpatient Ward
  - 2.1.2. Epidemiology and Incidence
  - 2.1.3. Types of IRAS
  - 2.1.4. Preventing the Transmission of Infections
    - 2.1.4.1. Types of Isolation and Indications for Specific Microorganisms
    - 2.1.4.2. Hand Hygiene
    - 2.1.4.3. Other Measures

- 2.2. The Laboratory in the Diagnosis of Infectious Diseases: Taking Microbiological Samples
  - 2.2.1. Biochemical and Hematologic Findings in Infectious Diseases
  - 2.2.2. Clinical Considerations Prior to Microbiological Sampling
  - 2.2.3. Recommended Biological Samples for the Diagnosis of the Most Frequent Infections: Conventional Microbiology, Rapid and Molecular Techniques
  - 2.2.4. Available Microbiological Techniques and their Indications
  - 2.2.5. Sample Transport and Storage
- 2.3. Empirical Antibiotic Therapy: Appropriate Use of Antibiotics
  - 2.3.1. General Principles in Antibiotic Treatment: Structured Clinical Rationale
  - 2.3.2. How to Adequately Select Antibiotics?
  - 2.3.3. When Is an Antibiotic Changed? Targeted Antibiotic Therapy
  - 2.3.4. What Is an Adequate Use of Antibiotics? Importance and Repercussions
  - 2.3.5. The Role of New Antibiotics in Hospital Pediatrics
- 2.4. Special Fever Situations: Recurrent Fever, Prolonged Fever, Fever in Patients Returning from the Tropics
  - 2.4.1. Recurrent and Periodic Fevers
    - 2.4.1.1. Causes
    - 2.4.1.2. Diagnostic Attitude
  - 2.4.2. Prolonged Fever
    - 2.4.2.1. Causes
    - 2.4.2.2. Assessment
  - 2.4.3. Fever in Patients Returning from the Tropics
    - 2.4.3.1. General Considerations (Traveler, Immigrant and Adopted Children)
    - 2.4.3.2. Most Common Causes
    - 2.4.3.3. Assessment
- 2.5. Community-Acquired Pneumonia (CAP): Etiological Diagnosis and Antibiotic Therapy
  - 2.5.1. Etiology According to Age Group
  - 2.5.2. Diagnostic Attitude
  - 2.5.3. CAP Therapy in Home Patients
  - 2.5.4. Diagnostic Attitude to "Pneumonia that Does Not Look Good"
  - 2.5.5. Complicated Pneumonia
    - 2.5.5.1. Types: Parapneumonic Pleural Effusion, Necrotizing Pneumonia, Lung Abscess
    - 2.5.5.2. Diagnostic and Therapeutic Attitude
- 2.6. Skin and Soft Tissue Infections (SSTIs): Osteoarticular Infection (OAI)
  - 2.6.1. SSTI: Diagnostic and Therapeutic Attitude
    - 2.6.1.1. Impetigo
    - 2.6.1.2. Cellulitis and Erysipelas
    - 2.6.1.3. Folliculitis and Boils
    - 2.6.1.4. Omphalitis
    - 2.6.1.5. Staphylococcal Scalded Skin Syndrome
    - 2.6.1.6. Ectima
    - 2.6.1.7. Necrotizing Fasciitis
    - 2.6.1.8. Bites
  - 2.6.2. OAI: Diagnostic and Therapeutic Attitude
    - 2.6.2.1. Incidence, Pathophysiology in Different Locations and Etiology According to Age Group
    - 2.6.2.2. Septic Arthritis
    - 2.6.2.3. Osteomyelitis
- 2.7. Genital Infection in Children and Adolescents
  - 2.7.1. Implications and Frequency of Sexually Transmitted Infections (STIs) in Adolescence
  - 2.7.2. STI Syndromes
    - 2.7.2.1. Genital Ulcers
    - 2.7.2.2. Inguinal Lymphadenopathy
    - 2.7.2.3. Condylomas
    - 2.7.2.4. Urethritis
  - 2.7.3. Microbiological Diagnosis and Treatment for STIs
  - 2.7.4. Vulvovaginitis in Girls and Adolescents: Bacterial Vaginosis
  - 2.7.5. Pelvic Inflammatory Disease
  - 2.7.6. Orchitis and Epididymitis

- 2.8. Central Venous Catheter (CVC) Related Infections
  - 2.8.1. Types of CVC
  - 2.8.2. Common Etiological Agents
  - 2.8.3. Clinical, Research and Diagnostic Criteria
  - 2.8.4. Treating CVC Related Infections
- 2.9. Infections in Immunocompromised Patients
  - 2.9.1. Most Frequent Etiologic Agents According to the Type of Immune System Involvement
  - 2.9.2. General Diagnostic Approach to Suspected Infection in Immunocompromised Children
  - 2.9.3. Antibiotic Prophylaxis in Children with Primary or Secondary Immunodeficiencies
  - 2.9.4. Patients Presenting Febrile Neutropenia
- 2.10. Emerging Virus Infections: SARS-CoV-2
  - 2.10.1. Changes to Hospital Pediatrics Organization in the Context of the COVID-19 Pandemic
  - 2.10.2. Diagnosis and Treatment of Acute SARS-CoV-2 Infection
  - 2.10.3. Multisystem multi- Inflammatory Syndrome Temporally Related to COVID-19 (MIS-C or PMIS)
  - 2.10.4. Considerations Regarding Future Epidemic Outbreaks
- 2.11. Systemic Inflammatory Response Syndrome (SIRS): Sepsis, Severe Sepsis and Septic Shock
  - 2.11.1. Clinical Examination
  - 2.11.2. Microorganisms Causing Sepsis: Diagnostic Attitude
  - 2.11.3. Initial Therapy for SIRS, Sepsis, Severe Sepsis and Septic Shock
  - 2.11.4. Toxic Shock Syndrome

### Module 3. Respiratory Diseases in Pediatrics

- 3.1. Acute Bronchiolitis
  - 3.1.1. Acute Bronchiolitis
  - 3.1.2. Etiology
  - 3.1.3. Epidemiology
  - 3.1.4. Clinical Symptoms
  - 3.1.5. Diagnosis
  - 3.1.6. Treatment
  - 3.1.7. Prevention
- 3.2. Asthma Attacks
  - 3.2.1. Asthma Attacks
  - 3.2.2. Epidemiology
  - 3.2.3. Pathophysiology
  - 3.2.4. Clinical Symptoms
  - 3.2.5. Diagnosis
  - 3.2.6. Treatment
  - 3.2.7. Educational
- 3.3. Chronic cough
  - 3.3.1. Persistent Bacterial Bronchitis
  - 3.3.2. Postinfectious Cough
  - 3.3.3. Psychogenic Cough
  - 3.3.4. Atelectasis: Middle Lobe
  - 3.3.5. Non-Cystic Fibrosis (CF) Bronchiectasis
- 3.4. Bronchopulmonary Dysplasia
  - 3.4.1. Bronchopulmonary Dysplasia
  - 3.4.2. Epidemiology
  - 3.4.3. Prevention
  - 3.4.4. Pathophysiology
  - 3.4.5. Clinical Symptoms
  - 3.4.6. Treatment
- 3.5. Interstitial Lung Diseases
  - 3.5.1. Classification
  - 3.5.2. Neuroendocrine Cell Hyperplasia
  - 3.5.3. Surfactant Protein Deficiency
  - 3.5.4. Pulmonary Interstitial Glycogenosis
  - 3.5.5. Hypersensitivity Pneumonitis
- 3.6. Respiratory Management in Neuromuscular Patients
  - 3.6.1. Pathophysiology
  - 3.6.2. Complementary Respiratory Tests
  - 3.6.3. Treatment

- 3.7. Cystic Fibrosis Respiratory Pathology
  - 3.7.1. Respiratory Pathology
  - 3.7.2. Pathophysiology
  - 3.7.3. Respiratory Exacerbation
  - 3.7.4. Pneumothorax
  - 3.7.5. Hemoptysis
  - 3.7.6. Allergic Bronchopulmonary Aspergillosis
  - 3.7.7. Atelectasis
- 3.8. Obstructive Sleep Apnea
  - 3.8.1. Obstructive Sleep Apnea
  - 3.8.2. Epidemiology
  - 3.8.3. Pathophysiology
  - 3.8.4. Clinical Symptoms
  - 3.8.5. Diagnosis
  - 3.8.6. Treatment
- 3.9. Inhalation Systems
  - 3.9.1. Inhalation Systems
  - 3.9.2. Metered Dose Inhaler (MDI), Dry Powder, Nebulizers
- 3.10. Pneumology Procedures
  - 3.10.1. Forced Spirometry
  - 3.10.2. Bronchoscopy

#### Module 4. Digestive System Diseases in Pediatrics

- 4.1. Abdominal Pain
  - 4.1.1. Acute Abdominal Pain in Children: Clinical Picture Diagnosis and Treatment
  - 4.1.2. Chronic Abdominal Pain. Incidence. Etiology
    - 4.1.2.1. Organic Abdominal Pain
    - 4.1.2.2. Functional Abdominal Pain: Treatment
  - 4.1.3. Gastritis. Peptic Ulcers in Pediatrics
    - 4.1.3.1. Gastritis
    - 4.1.3.2. Peptic Ulcers: Clinical Presentation. Diagnosis and Treatment
    - 4.1.3.3. Helicobacter pylori gastritis. Clinical Presentation. Digestive and Extradigestive Manifestations Diagnosis and Treatment



- 4.2. Constipation
  - 4.2.1. Constipation
  - 4.2.2. Pathophysiology
  - 4.2.3. Etiology
  - 4.2.4. Triggering Factors
  - 4.2.5. Organic Constipation Causes
  - 4.2.6. Functional Constipation: Clinical Diagnosis
  - 4.2.7. Treatment
    - 4.2.7.1. Lifestyle modifications
    - 4.2.7.2. Pharmacological Treatment: Disimpaction Maintenance Treatment. Other treatments
- 4.3. Gastroesophageal Reflux
  - 4.3.1. Gastroesophageal Reflux
  - 4.3.2. Pathophysiology
  - 4.3.3. Clinical Symptoms
    - 4.3.3.1. Warning Signs and Symptoms
    - 4.3.3.2. Digestive Manifestations
    - 4.3.3.3. Extradigestive Manifestations
  - 4.3.4. Diagnosis
    - 4.3.4.1. pH / Esophageal Impedance
    - 4.3.4.2. Upper Digestive Endoscopy
    - 4.3.4.3. Other Diagnostic Tests
  - 4.3.5. Treatment
    - 4.3.5.1. Non-pharmacological methods
    - 4.3.5.2. Medical treatment
    - 4.3.5.3. Surgical Management
  - 4.3.6. Therapeutic Diagnostic Approach according to Age
- 4.4. Eosinophilic Esophagitis
  - 4.4.1. Eosinophilic Esophagitis
  - 4.4.2. Epidemiology
- 4.4.3. Pathogenesis
  - 4.4.3.1. Environmental Factors
  - 4.4.3.2. Genetic Factors
- 4.4.4. Clinical Symptoms
- 4.4.5. Diagnosis
  - 4.4.5.1. Endoscopic Findings
  - 4.4.5.2. Histological Findings
  - 4.4.5.3. Natural History
- 4.4.6. Treatment
  - 4.4.6.1. Proton Pump Inhibitors
  - 4.4.6.2. Topical corticosteroids
  - 4.4.6.3. Dietary Treatment
  - 4.4.6.4. Endoscopic Dilatation
  - 4.4.6.5. Other treatments
- 4.5. Digestive and Nutritional Considerations for CF
  - 4.5.1. Digestive and Nutritional Considerations
  - 4.5.2. Gastrointestinal Tract Involvement in CF Patients
    - 4.5.2.1. Gastroesophageal Reflux
    - 4.5.2.2. Distal Obstruction Syndrome / Constipation
    - 4.5.2.3. Abdominal Pain
    - 4.5.2.4. Meconium Ileus
    - 4.5.2.5. Bowel Intussusception
  - 4.5.3. Pancreatic Involvement
    - 4.5.3.1. Exocrine Pancreatic Insufficiency
    - 4.5.3.2. Pancreatitis
    - 4.5.3.3. Cystic Fibrosis (CF) Related Diabetes
  - 4.5.4. Hepatobiliary Disease in CF Patients
    - 4.5.4.1. CF-Related Liver Disease
    - 4.5.4.2. Gallbladder Alterations
  - 4.5.5. Nutritional Involvement
    - 4.5.5.1. Chronic Malnutrition
    - 4.5.5.2. Fat-Soluble Vitamin Deficiency

- 4.6. Chronic Diarrhea: Malabsorption
  - 4.6.1. Pathophysiology
    - 4.6.1.1. Osmotic Diarrhea
    - 4.6.1.2. Secretory Diarrhea
    - 4.6.1.3. Inflammatory Diarrhea
    - 4.6.1.4. Intestinal Motility Alteration
  - 4.6.2. Etiology
    - 4.6.2.1. Functional Diarrhea
    - 4.6.2.2. Organic Diarrhea
      - 4.6.2.2.1. Diarrhea due to Infection Mechanism
      - 4.6.2.2.2. Diarrhea due to Immune Mechanism
      - 4.6.2.2.3. Diarrhea due to Carbohydrate Intolerance
      - 4.6.2.2.4. Diarrhea due to Exocrine Pancreatic Insufficiency and Hepatobiliary Dysfunction
      - 4.6.2.2.5. Diarrhea due to Anatomical Alteration
      - 4.6.2.2.6. Diarrhea due to Altered Motility
      - 4.6.2.2.7. Diarrhea due to Enterocyte Structural Defects
      - 4.6.2.2.8. Diarrhea due to Metabolic Errors
      - 4.6.2.2.9. Other Causes of Diarrhea
  - 4.6.3. Diagnosis
  - 4.6.4. Treatment
- 4.7. Inflammatory Bowel Disease
  - 4.7.1. Ulcerative Colitis and Unclassified Inflammatory Bowel Disease
    - 4.7.1.1. Inflammatory Bowel Disease
    - 4.7.1.2. Etiology
    - 4.7.1.3. Incidence
    - 4.7.1.4. Classification
    - 4.7.1.5. Symptoms and Physical Examination
    - 4.7.1.6. Complementary Tests: Laboratory and Imaging Tests Endoscopy with Biopsy
    - 4.7.1.7. Diagnosis
    - 4.7.1.8. Activity Indexes
    - 4.7.1.9. Onset Treatment and Maintenance
    - 4.7.1.10. Complications during Hospital Admission and Treatment
  - 4.7.2. Crohn's Disease
    - 4.7.2.1. Crohn's Disease
    - 4.7.2.2. Etiology
    - 4.7.2.3. Incidence
    - 4.7.2.4. Classification
    - 4.7.2.5. Symptoms and Physical Examination
    - 4.7.2.6. Complementary Tests: Laboratory and Imaging Tests Endoscopy with Biopsy
    - 4.7.2.7. Diagnosis
    - 4.7.2.8. Activity Indexes
    - 4.7.2.9. Onset Treatment and Maintenance
    - 4.7.2.10. Complications during Hospital Admission and Treatment
- 4.8. Biliary Lithiasis. Cholestasis
  - 4.8.1. Biliary Lithiasis
  - 4.8.2. Diagnosis
    - 4.8.2.1. Anamnesis and Physical Examination
    - 4.8.2.2. Complementary Tests: Laboratory and Imaging Tests Other Complementary Tests
  - 4.8.3. Treatment
  - 4.8.4. Newborn and Infant Neurological Examination
  - 4.8.5. Cholestasis in Older Children
    - 4.8.5.1. Cholestasis Secondary to Hepatocellular Injury
    - 4.8.5.2. Cholestasis due to Biliary Tract Involvement
- 4.9. Acute Liver Failure, Hepatic Dysfunction
  - 4.9.1. Hepatic Dysfunction: Hypertransaminasemia
    - 4.9.1.1. Acute Liver Failure
    - 4.9.1.2. Diagnosis
    - 4.9.1.3. Differential Diagnosis of Pathologies Presenting Hypertransaminasemia Infectious hepatitis. Wilson's Disease. Autoimmune Hepatitis. Other Causes of Hypertransaminemia in Pediatrics

- 4.9.2. Acute Liver Failure
  - 4.9.2.1. Liver Failure
  - 4.9.2.2. Acute Hepatic Failure Diagnosis in Pediatric Patients
  - 4.9.2.3. Therapeutic Approach
  - 4.9.2.4. Differential Diagnosis of Pathologies Presenting Liver Failure
- 4.10. Gastrointestinal bleeding
  - 4.10.1. Upper Gastrointestinal Bleeding
    - 4.10.1.1. Gastrointestinal Bleeding
    - 4.10.1.2. Etiology
    - 4.10.1.3. Diagnosis
    - 4.10.1.4. Medical and Endoscopic Treatments: Esophageal Varices
  - 4.10.2. Lower Gastrointestinal Bleeding
    - 4.10.2.1. Lower Gastrointestinal Bleeding
    - 4.10.2.2. Diagnosis. Differential Diagnosis of Lower Gastrointestinal Bleeding
    - 4.10.2.3. Treatment

## Module 5. Neurological Disorders in Pediatrics

- 5.1. Febrile and Parainfectious Crises
  - 5.1.1. Febrile Crises
  - 5.1.2. Epidemiology
  - 5.1.3. Etiology
  - 5.1.4. Clinical Symptoms
  - 5.1.5. Diagnosis
  - 5.1.6. Treatment
  - 5.1.7. Prognosis
- 5.2. Epileptic Syndromes in Pediatric Patients: Practical Considerations in Antiepileptic Drug Management
  - 5.2.1. Epileptic Syndromes Classification and Diagnostic Approach
  - 5.2.2. Epileptic Syndromes in Infants and Preschoolers
  - 5.2.3. Epileptic Syndromes in School Children and Adolescents
  - 5.2.4. Practical Considerations in Antiepileptic Drug Management
- 5.3. Non-Epileptic Paroxysmal Disorders
  - 5.3.1. Non-Epileptic Paroxysmal Disorders
  - 5.3.2. Clinical and Etiological Characteristics
  - 5.3.3. Differential Diagnosis: Epileptic Seizures
- 5.4. Infant Hypotonia and the Most Common Neuromuscular Disorders in Infancy
  - 5.4.1. Non-Paralytic or Central Hypotonia in Infants
  - 5.4.2. Paralytic or Peripheral Hypotonia in Infants
  - 5.4.3. Most Common Neuromuscular Disorders in Childhood: Spinal Muscular Atrophy, Hereditary Sensory-Motor Neuropathies, Myasthenias, Infantile Botulism and Myopathies
- 5.5. Guillain-Barré Syndrome
  - 5.5.1. Guillain-Barré Syndrome and Classification
  - 5.5.2. Pathophysiology
  - 5.5.3. Clinical Symptoms
  - 5.5.4. Diagnostic Criteria
  - 5.5.5. Treatment
  - 5.5.6. Prognosis
- 5.6. Headache
  - 5.6.1. Headaches
  - 5.6.2. Etiology
  - 5.6.3. Classification. Primary and Secondary Headaches: Migraines, Tension and Trigemino-Autonomic Headaches, and Others
  - 5.6.4. Anamnesis and Physical Examination
  - 5.6.5. Admission Criteria and Warning Signs
  - 5.6.6. Complementary Evaluations
  - 5.6.7. In-hospital Migraine Management
  - 5.6.8. Acute and Chronic Treatment
- 5.7. Acute Ataxia
  - 5.7.1. Vestibular Ataxia and Cerebellar Ataxia
  - 5.7.2. Main Etiologic Differential Diagnosis in Children Admitted for Acute Ataxia Episodes
  - 5.7.3. Practical Management Protocols

- 5.8. Pediatric Stroke
  - 5.8.1. Epidemiology, Etiology and Risk Factors
  - 5.8.2. Pediatric Stroke Clinical Manifestations
  - 5.8.3. Stroke Mimics
  - 5.8.4. Pediatric Stroke Code Protocol and Hospital Diagnostic Approach
- 5.9. Acute Encephalitis
  - 5.9.1. Acute Encephalitis / Encephalopathy and Classification
  - 5.9.2. Infectious Encephalitis / Meningoencephalitis
  - 5.9.3. Immune-Mediated Encephalitis
  - 5.9.4. Toxic-Metabolic Encephalitis
- 5.10. Demyelinating Diseases:
  - 5.10.1. Acute Demyelinating Injuries in Pediatrics
  - 5.10.2. Acute Disseminated Encephalomyelitis
  - 5.10.3. Multiple Sclerosis in Childhood: Diagnostic Criteria, Initial Therapeutic Approach

## Module 6. Cardiac Diseases in Pediatrics

- 6.1. Suspected Heart Disease in Newborns
  - 6.1.1. Past, Present and Future of Congenital Heart Disease in Pediatrics
  - 6.1.2. Fetal and Postnatal Circulation: Newborn Adaptation
  - 6.1.3. Physical Examination and Vital Signs
  - 6.1.4. Differential Diagnosis for Congenital Heart Disease in Newborns
  - 6.1.5. Prostaglandin Use
- 6.2. Diagnostic Tools for Pediatric Cardiac Pathology
  - 6.2.1. Basic Tools Utility for Diagnosing Congenital Heart Disease: ECG and Chest X-Ray
  - 6.2.2. Advances in Echocardiography
  - 6.2.3. Fetal Echocardiography
  - 6.2.4. Advanced Imaging Techniques for Diagnosing Congenital Heart Disease: CAT and MRI
  - 6.2.5. Diagnostic Cardiac Catheterization
- 6.3. Congenital Heart Disease Classification: Pulmonary Hypertension
  - 6.3.1. Segmental Classification for Congenital Heart Disease
  - 6.3.2. Congenital Heart Disease Pathophysiology: Hemodynamic Principles
  - 6.3.3. Pulmonary Hypertension, Classification and Diagnosis
  - 6.3.4. Pulmonary Hypertension associated with Congenital Heart Disease and Eisenmenger's Syndrome
  - 6.3.5. Therapeutic Advances in Pulmonary Hypertension Treatment
- 6.4. Cyanogenic Heart Disease
  - 6.4.1. Main Artery Transposition
  - 6.4.2. Truncus Arteriosus
  - 6.4.3. Anomalous Pulmonary Venous Drainage
  - 6.4.4. Fallot's Tetralogy and Variants
  - 6.4.5. Tricuspid Atresia
  - 6.4.6. Complete Septal Pulmonary Atresia
  - 6.4.7. Ebstein Disease
- 6.5. Non-Cyanogenic Heart Disease
  - 6.5.1. Atrial Septal Defect
  - 6.5.2. Ventricular Septal Defect
  - 6.5.3. Persistent Ductus Arteriosus
  - 6.5.4. Atrioventricular Canal
- 6.6. Conditions Obstructing Cardiac Flow and Other Less Common Congenital Heart Diseases
  - 6.6.1. Pulmonary Stenosis
  - 6.6.2. Aortic Stenosis
  - 6.6.3. Coarctation of Aorta
  - 6.6.4. S. Alcapa
  - 6.6.5. Vascular Rings
- 6.7. Childhood-Acquired Heart Disease
  - 6.7.1. Pericarditis
  - 6.7.2. Myocarditis
  - 6.7.3. Infectious Endocarditis
  - 6.7.4. Kawasaki Disease
  - 6.7.5. Rheumatic Fever



- 6.8. Heart Rate and Electrical Conduction Abnormalities in Children
  - 6.8.1. Supraventricular Tachycardia
  - 6.8.2. Ventricular Tachycardias
  - 6.8.3. Atrioventricular (AV) Block
  - 6.8.4. Cartography and Catheter Ablation
  - 6.8.5. Pacemakers and Automatic Implantable Defibrillators
- 6.9. Heart Failure in Infants and Children
  - 6.9.1. Etiological and Pathophysiological Characteristics
  - 6.9.2. Clinical Characteristics. Diagnostic Tools in Heart Failure
  - 6.9.3. Medical Treatment for Pediatric Heart Failure
  - 6.9.4. Ventricular Assist Devices and Other Technical Advances
  - 6.9.5. Pediatric Heart Transplantation
- 6.10. Pediatric Familial Heart Disease: Genetic Alterations
  - 6.10.1. Clinical Genetic Evaluation
  - 6.10.2. Cardiomyopathies: Hypertrophic, Dilated, Arrhythmogenic and Restrictive Dysplasia
  - 6.10.3. Connectivopathies
  - 6.10.4. Canalopathies
  - 6.10.5. Syndromes related to Heart Disease: Down Syndrome, DiGeorge Syndrome, Turner Syndrome, Williams Beuren Syndrome and Noonan Syndrome

## Module 7. Endocrine System, Metabolism and Nutrition in Pediatrics

- 7.1. Nutritional Status Assessment
  - 7.1.1. Nutritional Status Assessment
  - 7.1.2. Medical History, Nutritional Anamnesis and Physical Examination
  - 7.1.3. Body Composition Evaluation: Anthropometry, Weight / Height Ratio Indexes: Body composition
  - 7.1.4. Nutritional Screening
- 7.2. Healthy Children Diet
  - 7.2.1. Breastfeeding
  - 7.2.2. Artificial Breastfeeding
  - 7.2.3. Healthy Children Diversification
- 7.3. Enteral Nutrition at and Parenteral
  - 7.3.1. Detecting Patients in Need of Nutritional Support
  - 7.3.2. Requirement Calculations
  - 7.3.3. Choosing Artificial Nutrition Options
  - 7.3.4. Enteral Nutrition
    - 7.3.4.1. Access Routes
    - 7.3.4.2. Enteral Nutrition Formulas used in Pediatrics
    - 7.3.4.3. Monitoring and Complications
  - 7.3.5. Parenteral Nutrition
    - 7.3.5.1. Access Routes
    - 7.3.5.2. Monitoring and Complications
  - 7.3.6. Refeeding Syndrome
- 7.4. Deficiencies caused by New Forms Nutrition: New Diet Trends
  - 7.4.1. Types of Vegetarian Diets
  - 7.4.2. Macro- and Micro-Nutrients at Risk in Vegetarian Diets
  - 7.4.3. Vegetarian or Vegan Diet Recommendations according to Age
  - 7.4.4. Dietary Mistakes in Infants: Vegetable Drinks
  - 7.4.5. Information Sources
- 7.5. Approaching Patients with Suspected Inborn Errors of Metabolism (IEM)
  - 7.5.1. Inborn Errors of Metabolism (IEM)
  - 7.5.2. Clinical Approach
    - 7.5.2.1. IEM: Acute Presentation in the Neonatal Period and in Children <1 Year of Age
    - 7.5.2.2. EIM: Recurrent Seizures
    - 7.5.2.3. IEM: Chronic or Progressive Clinical Course
  - 7.5.3. Diagnostic Procedures
  - 7.5.4. Treatment
    - 7.5.4.1. Emergency Treatment
    - 7.5.4.2. Pharmacological Treatments and Cofactors
    - 7.5.4.3. Nutrition
    - 7.5.4.4. Others (Extrarenal Depuration Techniques, Organ Transplantation, etc.)

- 7.6. Hypoglycemia
  - 7.6.1. Hypoglycemia
  - 7.6.2. Directed Initial Evaluation: Anamnesis, Physical Examination
  - 7.6.3. Complementary Examinations during Hypoglycemia Episodes
  - 7.6.4. Differential Diagnosis
  - 7.6.5. Treatment
- 7.7. Polydipsia-Polyuria
  - 7.7.1. Polyuria in Pediatric Patients: Normal Diuresis by Age Group
  - 7.7.2. Etiopathogenesis
    - 7.7.2.1. Aqueous Diuresis: Osmotic Diuresis
    - 7.7.2.2. Osmotic Diuresis: Most Frequent Causes
  - 7.7.3. Clinical Practice for Polyuric States
  - 7.7.4. Diagnosis
    - 7.7.4.1. Anamnesis and Physical Examination
    - 7.7.4.2. Complementary Tests. Water Restriction Test or Miller's Test Indications. Limitations Arginine Vasopressin (AVP) and Copeptin Imaging and Other Tests
  - 7.7.5. Treatment. Side Effects and Precautions
  - 7.7.6. Current Lines of Research
- 7.8. Diabetes Mellitus
  - 7.8.1. Introduction
  - 7.8.2. Epidemiology
  - 7.8.3. Etiopathogenesis
    - 7.8.3.1. Type 1 Diabetes (T1D)
    - 7.8.3.2. Type 2 Diabetes (T2D)
    - 7.8.3.3. Monogenic Diabetes: Type Maturity Onset Diabetes of the Young (MODY) Diabetes Neonatal Diabetes
    - 7.8.3.4. Cystic Fibrosis (CF) Related Diabetes
    - 7.8.3.5. Other Specific Types
  - 7.8.4. Diagnostic Criteria
  - 7.8.5. Clinical Presentation of T1D and Action
    - 7.8.5.1. Diabetic ketoacidosis
    - 7.8.5.2. Hyperglycemia with / without Ketosis
    - 7.8.5.3. Hyperglycemia in Asymptomatic Patients
  - 7.8.6. T1D Treatment and Monitoring
    - 7.8.6.1. Glycemic Targets
    - 7.8.6.2. Diabetic Education
    - 7.8.6.3. Insulin Therapy
    - 7.8.6.4. Feeding
    - 7.8.6.5. Physical exercise
    - 7.8.6.6. Glycemic Monitoring
    - 7.8.6.7. Screening for Acute and Chronic Complications
  - 7.8.7. T2D Treatment and Monitoring
  - 7.8.8. MODY Treatment and Monitoring
  - 7.8.9. Other Types of Diabetes
- 7.9. Adrenal Insufficiency
  - 7.9.1. Adrenal Insufficiency
  - 7.9.2. Etiological classification
    - 7.9.2.1. Primary or Adrenal
    - 7.9.2.2. Secondary-Tertiary or Hypothalamo-Pituitary
  - 7.9.3. Clinical Manifestations
    - 7.9.3.1. Acute Adrenal Gland Failure: Determination of the Degree of Severity
    - 7.9.3.2. Chronic Adrenal Gland Insufficiency

- 7.9.4. Diagnosis
  - 7.9.4.1. Adrenal Crisis: Lab Findings
  - 7.9.4.2. Hypocortisolism: Suspicion of Adrenal Insufficiency Analytical Determinations
    - 7.9.4.2.1. Initial Complementary Tests: Cortisol and Plasma Corticotropin (ACTH) Reference Values
    - 7.9.4.2.2. Stimulus Hormone Tests: ACTH Test Insulin Hypoglycemia Test Other Tests
    - 7.9.4.2.3. Second Level Complementary Tests: Imaging, Microbiology, Pathological Anatomy, Immunology and Genetic Tests
- 7.9.5. Differential Diagnosis for Hypocortisolism: Relevant Entities
  - 7.9.5.1. Primary Forms
  - 7.9.5.2. Secondary and Tertiary Forms
- 7.9.6. Treatment
  - 7.9.6.1. Adrenal Crisis
  - 7.9.6.2. Replacement Therapy
  - 7.9.6.3. Adrenal Crisis Management and Prevention
  - 7.9.6.4. Chronic Corticosteroid Therapy Withdrawal
  - 7.9.6.5. Pre- and Postoperative Management
  - 7.9.6.6. Patient and Family Education

## Module 8. Nephrology and Water and Electrolyte Disorders in Pediatrics

- 8.1. Urinary Tract Infections
  - 8.1.1. Urinary Tract Infections
  - 8.1.2. Other Meanings
  - 8.1.3. Etiology
  - 8.1.4. Clinical Symptoms
  - 8.1.5. Diagnosis
  - 8.1.6. Treatment
  - 8.1.7. Monitoring
- 8.2. Urinary Tract Congenital Abnormalities
  - 8.2.1. Urinary Tract Congenital Abnormalities
  - 8.2.2. Etiology
  - 8.2.3. Classification (Hypodysplasia and Single Kidney, Obstructive Uropathies, Ureteral Vesico-ureteral Reflux)
  - 8.2.4. Pre- and Postnatal Diagnosis
  - 8.2.5. Treatment
  - 8.2.6. Scarring Nephropathy
- 8.3. Hematuria-Proteinuria
  - 8.3.1. Hematuria-Proteinuria
  - 8.3.2. Diagnosis
  - 8.3.3. Clinical Symptoms
  - 8.3.4. Differential Diagnosis
  - 8.3.5. Treatment
- 8.4. Post-Streptococcal Glomerulonephritis
  - 8.4.1. Post-Streptococcal Glomerulonephritis
  - 8.4.2. Etiology
  - 8.4.3. Clinical Symptoms
  - 8.4.4. Diagnosis. Practical Approach
  - 8.4.5. Treatment
  - 8.4.6. Prognosis
- 8.5. Nephrotic Syndrome
  - 8.5.1. Nephrotic Syndrome
  - 8.5.2. Pathophysiology
  - 8.5.3. Etiology
  - 8.5.4. Clinical Symptoms
  - 8.5.5. Diagnosis. Practical Approach
  - 8.5.6. Treatment: Onset and Relapses Maintenance
  - 8.5.7. Prognosis

- 8.6. Hydroelectrolytic Alterations and Acid-Base Balance
  - 8.6.1. Hydroelectrolytic Alterations and Acid-Base Balance
  - 8.6.2. Water and Sodium Alterations
  - 8.6.3. Potassium Alterations
  - 8.6.4. Phosphocalcium-Calcium Metabolism and Alterations
  - 8.6.5. Acid-base Equilibrium
- 8.7. Acute Renal Damage
  - 8.7.1. Acute Renal Damage
  - 8.7.2. Epidemiology
  - 8.7.3. Classification
  - 8.7.4. Diagnosis
  - 8.7.5. Treatment. Practical Approach
  - 8.7.6. Prognosis
- 8.8. Hypertension
  - 8.8.1. Hypertension
  - 8.8.2. Classification
  - 8.8.3. Clinical Symptoms
  - 8.8.4. Diagnosis
  - 8.8.5. Treatment
  - 8.8.6. Hypertensive Crisis and Emergency
  - 8.8.7. Monitoring
- 8.9. Renal Lithiasis
  - 8.9.1. Introduction
  - 8.9.2. Etiology and Pathophysiology
  - 8.9.3. Clinical Symptoms
  - 8.9.4. Diagnosis
  - 8.9.5. Renal Colic Treatment
  - 8.9.6. Long-Term Monitoring and Treatment Consultation

## Module 9. Pediatric Hemato-Oncology

- 9.1. Diagnosing Anemia in Pediatric Patients
  - 9.1.1. Anemia
  - 9.1.2. Anemia Pathophysiology
  - 9.1.3. Diagnostic Tests in Anemic Patients
  - 9.1.4. Differential Diagnosis in Anemic Pediatric Patients
  - 9.1.5. Clinical Cases
- 9.2. Iron Deficiency Anemia
  - 9.2.1. Iron Deficiency Anemia
  - 9.2.2. Iron Deficiency Epidemiology
  - 9.2.3. Iron Deficiency Anemia Pathophysiology
  - 9.2.4. Differential Diagnosis for Iron Deficiency Anemia
  - 9.2.5. Diagnostic Tests for Iron Deficiency Anemia
  - 9.2.6. Iron Deficiency Anemia Treatment
  - 9.2.7. Clinical Cases
- 9.3. Sickle Cell Anemia
  - 9.3.1. Sickle Cell Anemia Pathophysiology
  - 9.3.2. Epidemiology
  - 9.3.3. Diagnosis
  - 9.3.4. Neonatal Screening
  - 9.3.5. Sickle Cell Disease Treatment
  - 9.3.6. Most Common Complications in Sickle Cell Anemia
  - 9.3.7. Clinical Cases
- 9.4. Purpura
  - 9.4.1. Purpura
  - 9.4.2. Basic Principles in Studying Patients with Excessive Bleeding
  - 9.4.3. Diagnostic tests
  - 9.4.4. Differential Diagnosis
  - 9.4.5. Clinical Cases

- 9.5. Immune Thrombocytopenia Purpura (ITP)
  - 9.5.1. Immune Thrombocytopenia Purpura (ITP)
  - 9.5.2. ITP Pathophysiology
  - 9.5.3. Diagnostic tests
  - 9.5.4. Differential Diagnosis
  - 9.5.5. Acute ITP Treatment
  - 9.5.6. Chronic / Persistent ITP Treatment
  - 9.5.7. Clinical Cases
- 9.6. Neutropenia
  - 9.6.1. Neutropenia
  - 9.6.2. Differential Diagnosis
  - 9.6.3. Chronic vs. Reactive vs. Secondary Neutropenia
  - 9.6.4. Diagnostic tests
  - 9.6.5. Chronic Neutropenia
  - 9.6.6. Chronic Neutropenia Treatment
  - 9.6.7. Clinical Cases
- 9.7. Adenomegaly and Hepatosplenomegaly
  - 9.7.1. Differential Diagnosis for Adenopathies
  - 9.7.2. Differential Diagnosis for Splenomegaly
- 9.8. Oncologic Emergencies
  - 9.8.1. Tumor Lysis Syndrome
  - 9.8.2. Hyperuricemia
  - 9.8.3. Hypercalcemia
  - 9.8.4. Hypercalcemia
  - 9.8.5. Hyperphosphatemia
  - 9.8.6. Hyperleukocytosis
  - 9.8.7. Mediastinal Mass and Superior Vena Cava Syndrome
  - 9.8.8. Acute Medullary Compression
  - 9.8.9. Endocranial Hypertension
  - 9.8.10. Fever in Hematooncology Patients
  - 9.8.11. Disseminated Intravascular Coagulation (DIC)
  - 9.8.12. Hemorrhages

- 9.9. Transfusion Therapy in Pediatric Patients
  - 9.9.1. Transfusion Therapy in Pediatric Patients
  - 9.9.2. Common Blood Products
  - 9.9.3. Indications for Platelet Transfusion
  - 9.9.4. Indications for Platelet Transfusion
  - 9.9.5. Indications for Plasma Transfusion
  - 9.9.6. Complications in Transfusion Therapy
- 9.10. Anticoagulation in Pediatric Patients
  - 9.10.1. Anticoagulation Indications
  - 9.10.2. Anticoagulation in Children
  - 9.10.3. Anticoagulation Monitoring

## Module 10. Other Pediatric Processes

- 10.1. Most Common Injuries
  - 10.1.1. Etiology
  - 10.1.2. Diagnostic Approach
  - 10.1.3. Febrile and Afebrile Exanthema
  - 10.1.4. Vesicular Exanthem
  - 10.1.5. Purpuric Exanthem
  - 10.1.6. Morbilliform Exanthem
  - 10.1.7. Kawasaki Disease
  - 10.1.8. Scarlet Fever
  - 10.1.9. Steven Johnson Syndrome
- 10.2. Lactating Infant Presenting Apparent Life-Threatening Event (ALTE) or BRUE (Brief Reported Unexplained Event)
  - 10.2.1. Lactating Infant Presenting ALTE
  - 10.2.2. Epidemiology
  - 10.2.3. Risk Factors
  - 10.2.4. Hospital Diagnosis and Management
  - 10.2.5. Hospital Discharge Criteria

- 10.3. The Role of Nursing during Pediatric Hospitalization
  - 10.3.1. Illness in Childhood: Psychological Reactions and Attitude toward Hospital Admission
  - 10.3.2. Nursing Care during Hospitalization
    - 10.3.2.1. Objectives According to Age
    - 10.3.2.2. Parental Care / Interventions
    - 10.3.2.3. Environment Care / Interventions
  - 10.3.3. Hospitalization Procedures
    - 10.3.3.1. Measuring Vital Signs according to Age, Anthropometric Parameters and Capillary Measurements
    - 10.3.3.2. Secretion and Foreign Body Aspiration
    - 10.3.3.3. Clamping Techniques
    - 10.3.3.4. Probes
    - 10.3.3.5. Sample Collection
    - 10.3.3.6. Medication Administration, Reconstitution and Dosage Calculation
    - 10.3.3.7. Vesiculo-Vacuolar Organelle (VVO) Channeling
    - 10.3.3.8. Bandages
    - 10.3.3.9. Cardiopulmonary Resuscitation in Pediatrics
- 10.4. Nursing Care in Managing Diabetic Children upon Onset: Diabetic Education
  - 10.4.1. Patient and Family Needs upon Onset: Empowerment
  - 10.4.2. Capillary Ganglion Cell Layer (GCL) and Continuous Glucose Monitoring (CGM)
  - 10.4.3. Injection Technique, Rotational Zones
  - 10.4.4. Insulin: Storage and Maintenance
  - 10.4.5. Day-to-Day Diabetes Management
    - 10.4.5.1. Acute Complications, Hypoglycemia and Hyperglycemia Management (Symptoms, Prevention and Correction)
    - 10.4.5.2. Diabetes during Illness: Diabetic Ketoacidosis (DKA) PreventionPrevention of CAD
    - 10.4.5.3. Blood Glucose and Diet: Carbohydrate (CH) Quantification Glycemic Index Label Reading
    - 10.4.5.4. Attitude toward Exercise
    - 10.4.5.5. Children at School: Necessary Supplies
- 10.5. General Postoperative Patient Care
  - 10.5.1. Hospital Pediatrician Role in Cases of Children and Adolescents undergoing Surgery
  - 10.5.2. General Postoperative Care
    - 10.5.2.1. Controlling Temperature
    - 10.5.2.2. Liquids and Electrolytes
    - 10.5.2.3. Nausea and Vomiting
    - 10.5.2.4. Postoperative Nutrition
    - 10.5.2.5. Respiratory Function Recovery
    - 10.5.2.6. Early Rest and Mobilization
    - 10.5.2.7. Surgical Antibiotic Prophylaxis
    - 10.5.2.8. Controlling Postoperative Pain
- 10.6. Complex Pediatric Patients
  - 10.6.1. Chronicity and Complexity: Defining Populations
  - 10.6.2. Special Health Needs
  - 10.6.3. Technology Dependency: Nutritional, Respiratory and Cardiac Support
- 10.7. Home Hospitalization
  - 10.7.1. Home Hospitalization
  - 10.7.2. Historical journey
  - 10.7.3. Subsidiary Patients and Families
    - 10.7.3.1. Benefits for Patients and Family
    - 10.7.3.2. Benefits for the National Health System
  - 10.7.4. Organization: Resources and Coordination
- 10.8. Pediatric Palliative Care
  - 10.8.1. Palliative Care and Patient Classification
  - 10.8.2. End-of-Life Patient and Family Care
    - 10.8.2.1. Decision Making
    - 10.8.2.2. Communication with Patients and Families
  - 10.8.3. Palliative Medicine: Treatment and Support
    - 10.8.3.1. Pain Treatment
    - 10.8.3.2. Palliative Sedation
    - 10.8.3.3. Care during and after Death

- 10.9. Child Abuse
  - 10.9.1. Types of Child Maltreatment
  - 10.9.2. Epidemiology
  - 10.9.3. Clinical Manifestations
  - 10.9.4. Approach to Suspected Child Abuse in Pediatrics
- 10.10. Liaison and Interconsultation Psychiatry
  - 10.10.1. The Child and the Family in the Face of Illness and Hospitalization
  - 10.10.2. Chronic Diseases
  - 10.10.3. Psychopathology associated with Physical Pathologies
  - 10.10.4. Delirium
  - 10.10.5. Pain
  - 10.10.6. Psychosomatics
  - 10.10.7. Suicidal Behavior
  - 10.10.8. Psychopharmacology
- 10.11. Pediatric Patient Safety in a Hospital Setting
  - 10.11.1. Safety as a Critical Objective in Quality Care
  - 10.11.2. Adverse Events (AEs) in Pediatric Hospitalization
    - 10.11.2.1. Most Frequent Causes
    - 10.11.2.2. Most Frequent AEs in Pediatrics
    - 10.11.2.3. Prevention
  - 10.11.3. Patient Safety Culture
  - 10.11.4. Information Sources. Notification and Record Systems
  - 10.11.5. Analysis Systems
  - 10.11.6. Safety Strategies: Safe Practices

## Module 11. Care for a Healthy Child

- 11.1. Health Examinations
- 11.2. Psychomotor and Language Development
- 11.3. Breastfeeding and Formula Feeding
- 11.4. Nutrition in the First Year of Life and Pre-school
- 11.5. School and Adolescent Nutrition
- 11.6. Vaccines Vaccination Calendar
- 11.7. Vaccination in Special Situations

## Module 12. Newborn

- 12.1. Normal Newborn Characteristics and Care of a Recent Newborn and Most Common Problems
- 12.2. Respiratory Pathology in Recent Newborns

## Module 13. Dermatology

- 13.1. Skin Infections and Infestations
- 13.2. Eczema Atopic Dermatitis
- 13.3. Acne
- 13.4. Skin Alterations of the Hair and Nails

## Module 14. Sleep Disorders

- 14.1. Introduction to the Neuroanatomy of Sleep
  - 14.1.1. Sleep Cycles
  - 14.1.2. Sleep Regulation
  - 14.1.3. Evolution of Sleep in Pediatrics: From Fetus to Adolescent
- 14.2. Evaluation of Sleep Problems in PA
  - 14.2.1. Clinical Suspicion of Sleep Disorders: Daytime and Nocturnal Symptoms
  - 14.2.2. Tools for Sleep Evaluation in PA
  - 14.2.3. Expert Referral Indicators
- 14.3. Diagnosis and Treatment in PA of the Main Disorders
  - 14.3.1. Children with Difficulties in Falling Asleep: Insomnia, Circadian Disorders, Restless Leg Syndrome
  - 14.3.2. Children with Difficulties During Sleep
  - 14.3.3. Managing a Snoring Child Sleep Apnea Syndrome

## Module 15. Rheumatology

- 15.1. Arthralgias and Arthritis
- 15.2. Osteoarticular Infections

### Module 16. Allergy

- 16.1. Food-based
- 16.2. Medication Allergies
- 16.3. Diagnostic Tests

### Module 17. Locomotor System

- 17.1. Child Orthopedics
- 17.2. Assessment of Children's Feet
- 17.3. Hip Pathology by Age
- 17.4. Pathological and Walking Disorders

### Module 18. Ophthalmology

- 18.1. Visual Control in Children
- 18.2. Visual Sharpness Amblyopia Strabismus: Diagnosis Treatment Focus According to the Clinical Conditions

### Module 19. Surgery

- 19.1. Minor Surgery in the Emergency Room or Pediatrics Consultation Room

### Module 20. Miscellaneous

- 20.1. Medication in Pediatrics
- 20.2. Normal Values in Hematology

### Module 21. Health Care Organization for Common Pediatric Emergencies

- 21.1. Equipment in the Pediatric Emergency Department (PED)
  - 21.1.1. Differential Characteristics of PEDs
  - 21.1.2. Infrastructure, Staffing
  - 21.1.3. Material
- 21.2. Triage in Pediatrics
  - 21.2.1. Definition
  - 21.2.2. Classification Systems
- 21.3. Transport of Critical Pediatric Patient. In-hospital Transfer, Out-of-Hospital Transfer and ISOBAR
- 21.4. Neonatal and Pediatric Transportation

### Module 22. Common Advanced Pediatric and Neonatal Cardiovascular Support

- 22.1. Apparently Lethal Syndromes
  - 22.1.1. Sudden Infant Death
  - 22.1.2. Treatment
  - 22.1.3. Home Monitoring
- 22.2. Recognition and Management of Critically Ill Children
  - 22.2.1. Epidemiology, Etiology and Prevention of CRP in Childhood
  - 22.2.2. Pediatric Assessment Triangle (PAT) and its Utility
  - 22.2.3. Pediatric ABCDE Evaluation
- 22.3. Basic Pediatric Cardiopulmonary Resuscitation
- 22.4. Advanced Pediatric Cardiopulmonary Resuscitation Advanced Airway Management
- 22.5. Basic Concepts of Mechanical Ventilation
- 22.6. Infusion Routes and Drugs
- 22.7. Pediatric AVS Algorithms and Treatment of Arrhythmias
- 22.8. Neonatal Resuscitation
- 22.9. Stabilization, Post-Resuscitation and Neonatal Transportation



## Module 23. Invasive Techniques in Common Critically Ill Pediatric Patients

- 23.1. Peripheral and Central Vein Access
  - 23.1.1. Peripheral Route
  - 23.1.2. Central Route
- 23.2. Intraosseous Puncture
- 23.3. Capnography, Pulse Oximetry
- 23.4. Oxygen Therapy
- 23.5. Analgesia and Sedation
  - 23.5.1. Approaching Pain
  - 23.5.2. Procedure
  - 23.5.3. Reference Drugs in Analgesia and Sedation
- 23.6. Protocol for Child Death
- 23.7. Rapid Intubation Sequence

## Module 24. Cardiologic Emergencies

- 24.1. Hypertensive Crisis
  - 24.1.1. Diagnostic Guidance for Hypertension in Children and Adolescents
  - 24.1.2. Therapeutic Guidance for Hypertension in Children and Adolescents
- 24.2. Quick Reading of an ECG
- 24.3. Management of Tachyarrhythmias and Bradyarrhythmias: Electrical Cardioversion and Transcutaneous Pacing
- 24.4. Management of Defibrillable Arrhythmias: Defibrillation

## Module 25. Respiratory Emergencies

- 25.1. Respiratory Pathology in Recent Newborns
  - 25.1.1. Incomplete Pulmonary Fluid Reabsorption Syndrome
  - 25.1.2. Meconium Aspiration Syndrome
  - 25.1.3. Hyaline Membrane Disease
  - 25.1.4. Pneumothorax
  - 25.1.5. Pneumonia
  - 25.1.6. Apnea in Newborns

- 25.2. Airway Diseases
  - 25.2.1. Acute Pharyngotonsillitis
  - 25.2.2. Laryngitis or Croup
  - 25.2.3. Spasmodic Croup
  - 25.2.4. Otitis
  - 25.2.5. Sinusitis
- 25.3. Community-Acquired Pneumonia (CAP)
  - 25.3.1. Diagnosis
  - 25.3.2. Hospital Admission Criteria
  - 25.3.3. Latest Advances in Treatment
- 25.4. Managing a Child with a Persistent Cough Chronic cough
  - 25.4.1. Etiology
    - 25.4.1.1. Persistent Bacterial Bronchitis
    - 25.4.1.2. Asthma
    - 25.4.1.3. Gastroesophageal Reflux, etc
  - 25.4.2. Treatment
- 25.5. Caring for Asthmatic Children
  - 25.5.1. Clinical Diagnosis. Functional Diagnosis
  - 25.5.2. Pharmacological Treatment. Non-Pharmacological Treatment
  - 25.5.3. Health Education
- 25.6. Inhalation Techniques Oxygen Therapy
- 25.7. Thoracentesis and Chest Tube Placement
- 25.8. Forced Spirometry Bronchodynamic Tests FEM

## Module 26. Pediatric Trauma and Osteoarticular Injuries

- 26.1. Initial Pediatric Trauma Care
  - 26.1.1. Types and Patterns of Injury in Pediatrics
  - 26.1.2. Primary and Secondary Assessment
  - 26.1.3. Spinal Cord Injuries
- 26.2. Head Trauma in Children
- 26.3. Lower Extremity Trauma

- 26.4. Upper Limb Trauma
- 26.5. Thoracic Trauma. Rib Fractures and Contusions
- 26.6. Limping
  - 26.6.1. Types of Lameness
  - 26.6.2. Treatment
  - 26.6.3. Referral Criteria
- 26.7. Classification of Pediatric Fractures
- 26.8. Mobilization and Immobilization Workshop
- 26.9. Active Mobilization Stimulation
- 26.10. Hyperpronation
- 26.11. Supination-Flexion
- 26.12. Radial Head Subluxation

### Module 27. Unintentional Injuries Child Accidents

- 27.1. Injuries
- 27.2. Burns
- 27.3. Drowning
- 27.4. Stings and Bites
- 27.5. Drug and Non-drug Intoxications
- 27.6. Anaphylaxis
  - 27.6.1. Classification of Severity
  - 27.6.2. Diagnostic Procedures
  - 27.6.3. Treatment and Discharge Recommendations
- 27.7. Extraction of Foreign Body from the Ear
- 27.8. Extraction of Foreign Bodies from the Nose
- 27.9. Freeing of Trapped Penis or Scrotum
- 27.10. Incarcerated Inguinal Hernia Reduction
- 27.11. Reduction of Paraphimosis

### Module 28. Digestive Emergencies

- 28.1. The Infant with Food Refusal
- 28.2. Acute Abdominal Pain
- 28.3. Gastrointestinal Disorders
- 28.4. Acute Dehydration
  - 28.4.1. Isonatremic Dehydration
  - 28.4.2. Hyponatremic Dehydration
  - 28.4.3. Hypernatremic Dehydration
- 28.5. Acid-base Balance Disorders
  - 28.5.1. Metabolic Acidosis Respiratory Acidosis
  - 28.5.2. Metabolic Alkalosis Respiratory Alkalosis
- 28.6. Coeliac Disease
  - 28.6.1. Diagnostic Algorithm
  - 28.6.2. Treatment
- 28.7. Gastroesophageal Reflux (GER)
- 28.8. Constipation
- 28.9. Hepatitis
  - 28.9.1. HAV, HBV, HCV, HDV, HEV
  - 28.9.2. Autoimmune hepatitis
- 28.10. Gastrointestinal Bleeding
- 28.11. Jaundice
- 28.12. Techniques and Procedures Inguinal Hernia Reduction

### Module 29. Infectious Emergencies

- 29.1. Whooping Cough and Pertussis Syndrome
  - 29.1.1. Medical treatment
  - 29.1.2. Control Measures
- 29.2. Febrile Syndrome without Focus

### Module 30. Ophthalmologic and Otorhinolaryngologic Emergencies

- 30.1. Conjunctivitis and Blepharitis Pink Eye
  - 30.1.1. Most Frequent Infectious Pathology
  - 30.1.2. Non-Infectious Pathology
  - 30.1.3. Protocol for Pediatric Ophthalmologic Emergencies
- 30.2. Eyelids and Lacrimal System
  - 30.2.1. Palpebral Alterations and Malformations
  - 30.2.2. Inflammatory Pathology
  - 30.2.3. Cysts and Tumors
  - 30.2.4. Lacrimal Pathology in Children
  - 30.2.5. Palpebral Traumatology in Infancy
- 30.3. Acute Pharyngotonsillitis Acute Otitis Media Sinusitis
- 30.4. Extraction of Foreign Bodies from the Eye
- 30.5. Ophthalmologic Examination with Fluorescein
- 30.6. Eversion of the Upper Eyelid

### Module 31. Pediatric Skin Emergencies

- 31.1. Bacterial Infections in Pediatrics
  - 31.1.1. Impetigo Contagiosa
  - 31.1.2. Folliculitis, Furunculosis and Carbuncles
  - 31.1.3. Perianal Streptococcal Dermatitis
- 31.2. Viral Infections in Pediatrics
  - 31.2.1. Human Papillomavirus
  - 31.2.2. Contagious Molusco
  - 31.2.3. Simple Herpes
  - 31.2.4. Shingles

- 31.3. Mycotic Infections in Pediatric Dermatology
  - 31.3.1. Tinea
  - 31.3.2. Candidiasis
  - 31.3.3. Pityriasis Versicolor
- 31.4. Infestations in Pediatric Dermatology
  - 31.4.1. Pediculosis
  - 31.4.2. Scabies

### Module 32. Nephrourological Emergencies

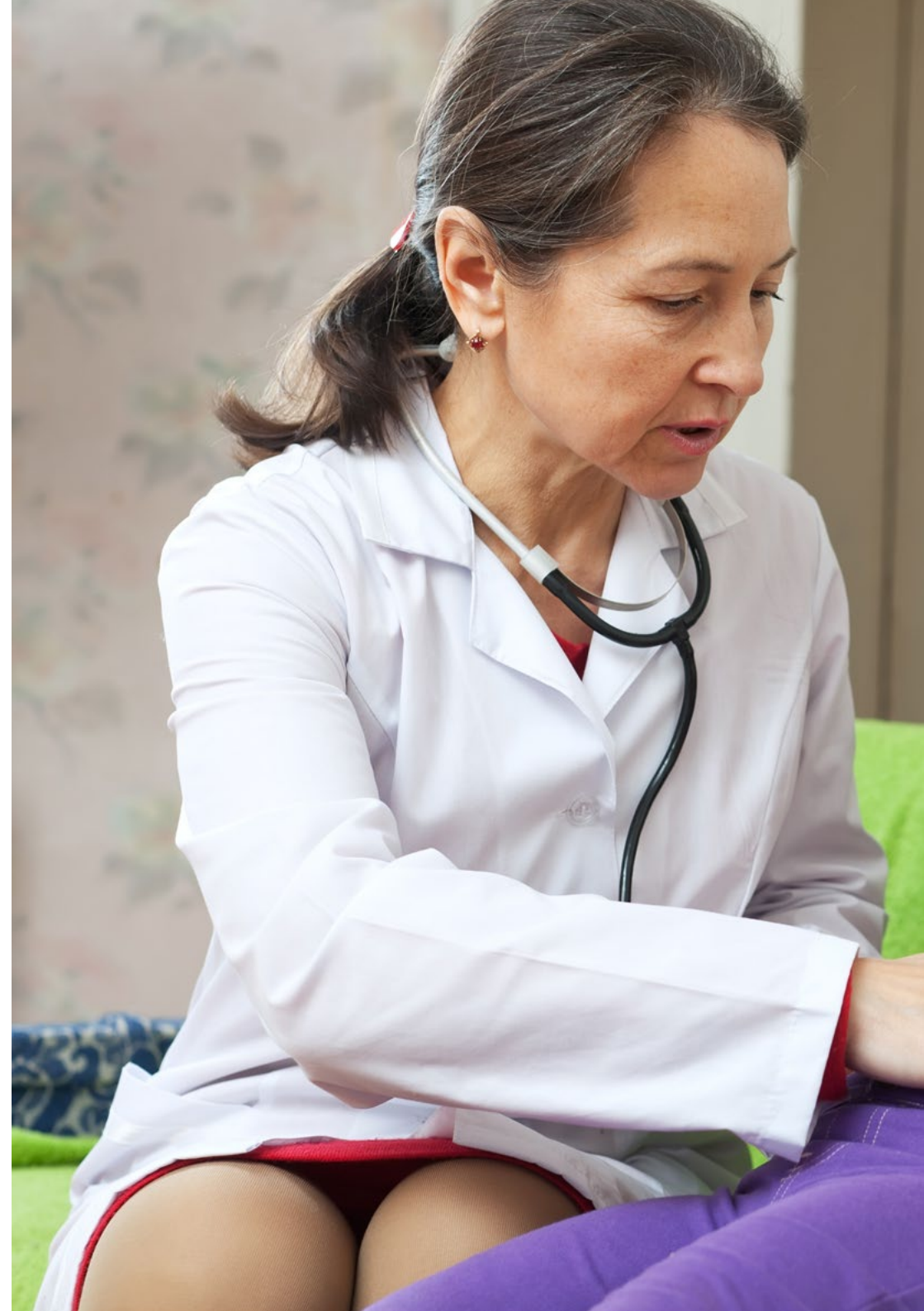
- 32.1. Acute Scrotum
  - 32.1.1. Frequency in the Pediatric Age Group
- 32.2. Suprapubic Puncture
- 32.3. Bladder Catheterisation
- 32.4. Reduction of Paraphimosis

### Module 33. Special Situations in Pediatric Emergencies

- 33.1. Children with Special Needs
  - 33.1.1. Tracheostomy and Home Mechanical Ventilation
  - 33.1.2. Gastrostomies and Feeding Tubes
  - 33.1.3. Peritoneal Ventriculo-Peritoneal Shunt Valves
  - 33.1.4. Central Catheters and Prosthetic Vascular Accesses
- 33.2. Medication in Pediatrics
- 33.3. Psychiatry in the Emergency Department
  - 33.3.1. Assessment and Initial Treatment
  - 33.3.2. Psychomotor Agitation and Violence
  - 33.3.3. Suicidal Behavior
  - 33.3.4. Psychotic Disorders
- 33.4. Child Abuse
  - 33.4.1. Attitude in the Emergency Room
  - 33.4.2. Assistance in the Case of Abuse
- 33.5. Techniques and Procedures Mechanical Restraint of the Agitated or Aggressive Child

## Module 34. Update on Coronavirus Infections

- 34.1. Discovery and Evolution of Coronaviruses
  - 34.1.1. Discovery of Coronaviruses
  - 34.1.2. Global Trends in Coronavirus Infections
- 34.2. Main Microbiological Characteristics and Members of the Coronavirus Family
  - 34.2.1. General Microbiological Characteristics of Coronaviruses
  - 34.2.2. Viral Genome
  - 34.2.3. Principal Virulence Factors
- 34.3. Epidemiological Changes in Coronavirus Infections from its Discovery to the Present
  - 34.3.1. Morbidity and Mortality of Coronavirus Infections from their Emergence to the Present
- 34.4. The Immune System and Coronavirus Infections
  - 34.4.1. Immunological Mechanisms Involved in the Immune Response to Coronaviruses
  - 34.4.2. Cytokine Storm in Coronavirus Infections and Immunopathology
  - 34.4.3. Modulation of the Immune System in Coronavirus Infections
- 34.5. Pathogenesis and Pathophysiology of Coronavirus Infections
  - 34.5.1. Pathophysiological and Pathogenic Alterations in Coronavirus Infections
  - 34.5.2. Clinical Implications of the Main Pathophysiological Alterations
- 34.6. Risk Groups and Transmission Mechanisms of Coronaviruses
  - 34.6.1. Main Sociodemographic and Epidemiological Characteristics of Risk Groups Affected by Coronavirus
  - 34.6.2. Coronavirus Mechanisms of Transmission
- 34.7. Natural History of Coronavirus Infections
  - 34.7.1. Stages of Coronavirus Infection
- 34.8. Latest Information on Microbiological Diagnosis of Coronavirus Infections
  - 34.8.1. Sample Collection and Shipment
  - 34.8.2. PCR and Sequencing
  - 34.8.3. Serology Testing
  - 34.8.4. Virus Isolation





- 34.9. Current Biosafety Measures in Microbiology Laboratories for Coronavirus Sample Handling
  - 34.9.1. Biosafety Measures for Coronavirus Sample Handling
- 34.10. Up-to-Date Management of Coronavirus Infections
  - 34.10.1. Prevention Measures
  - 34.10.2. Symptomatic Treatment
  - 34.10.3. Antiviral and Antimicrobial Treatment in Coronavirus Infections
  - 34.10.4. Treatment of Severe Clinical Forms
- 34.11. Future Challenges in the Prevention, Diagnosis, and Treatment of Coronavirus
  - 34.11.1. Global Challenges for the Development of Prevention, Diagnostic, and Treatment Strategies for Coronavirus Infections

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*At its experienced teaching staff and its innovative teaching method, it has the most updated and complete syllabus on the market"*

06

# Methodology

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

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





“

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

## At TECH we use the Case Method

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

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



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



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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.

Learning is solidly translated into practical skills that allow the student to better integrate into the real world.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

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

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

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



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

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

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

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

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



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



#### Study Material

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

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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

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

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



#### Additional Reading

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





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

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



# 07 Certificate

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



“

*Complete successfully this program and receive your university degree without the hassle of travel or paperwork”*

This **Advanced Master's Degree in Clinical Pediatrics** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Advanced Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Advanced Master's Degree in Clinical Pediatrics**

Official N° of Hours: **3,000 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.



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



## Advanced Master's Degree Clinical Pediatrics

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Advanced Master's Degree Clinical Pediatrics

