

# Postgraduate Certificate Non-Invasive Mechanical Ventilation in Pediatrics





## Postgraduate Certificate Non-Invasive Mechanical Ventilation in Pediatrics

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/medicine/postgraduate-certificate/non-invasive-mechanical-ventilation-pediatrics](http://www.techtute.com/us/medicine/postgraduate-certificate/non-invasive-mechanical-ventilation-pediatrics)

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# 01

# Introduction

A child with complex pulmonary conditions may often require Non-Invasive Mechanical Ventilation to alleviate their respiratory difficulties. However, the procedures for its administration and the potential benefits and drawbacks differ significantly from those in adults. Therefore, it is crucial for specialists to stay updated on the advancements in this field to provide state-of-the-art care for their younger patients. This is why TECH has created this program, through which medical professionals will gain insight into the latest scientific evidence regarding the indications and contraindications of NIMV in Pediatrics, as well as the selection of interfaces for each condition. They can complete this exquisite update in this field online and from the comfort of their home.





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*Through this Postgraduate Certificate, discover the updated indications and contraindications of Non-Invasive Mechanical Ventilation in different clinical pediatric contexts”*

Non-Invasive Mechanical Ventilation, increasingly used in adults with complex respiratory diseases, has also gradually found its way into the field of Pediatrics. As a result, recent scientific research has focused on finding updated indications and contraindications for its use in various clinical contexts, as well as cutting-edge strategies for selecting interfaces and techniques for adjustment. Hence, medical professionals are obliged to be aware of all these advancements to contribute to the well-being and improved quality of life for young patients.

For this reason, TECH has designed this program, which will provide students with an excellent update regarding the use of Non-Invasive Mechanical Ventilation in Pediatrics. Throughout this academic journey, they will delve into recent absolute and relative contraindications of NIMV in pediatric patients or understand the operation of sophisticated ventilatory modes used with children. They will also become acquainted with the most advanced techniques for adjusting ventilatory parameters in young patients and methods for discontinuing Non-Invasive Mechanical Ventilation in Pediatrics.

This Postgraduate Certificate is delivered through an innovative 100% online methodology, allowing specialists to manage their study time as they see fit for effective updating. Additionally, they will have access to the most cutting-edge educational materials in various formats, including supplementary readings, explanatory videos, and interactive summaries. As a result, students will benefit from an education tailored to their personal and professional needs.

This **Postgraduate Certificate in Non-Invasive Mechanical Ventilation in Pediatrics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in NIMV
- ♦ 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
- ♦ Its special emphasis on innovative methodologies
- ♦ 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



*Complete your medical update through revolutionary multimedia didactic formats that will optimize your study"*

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*This Postgraduate Certificate will allow you to learn the latest methods of ventilatory parameter adjustment in the pediatric patient"*

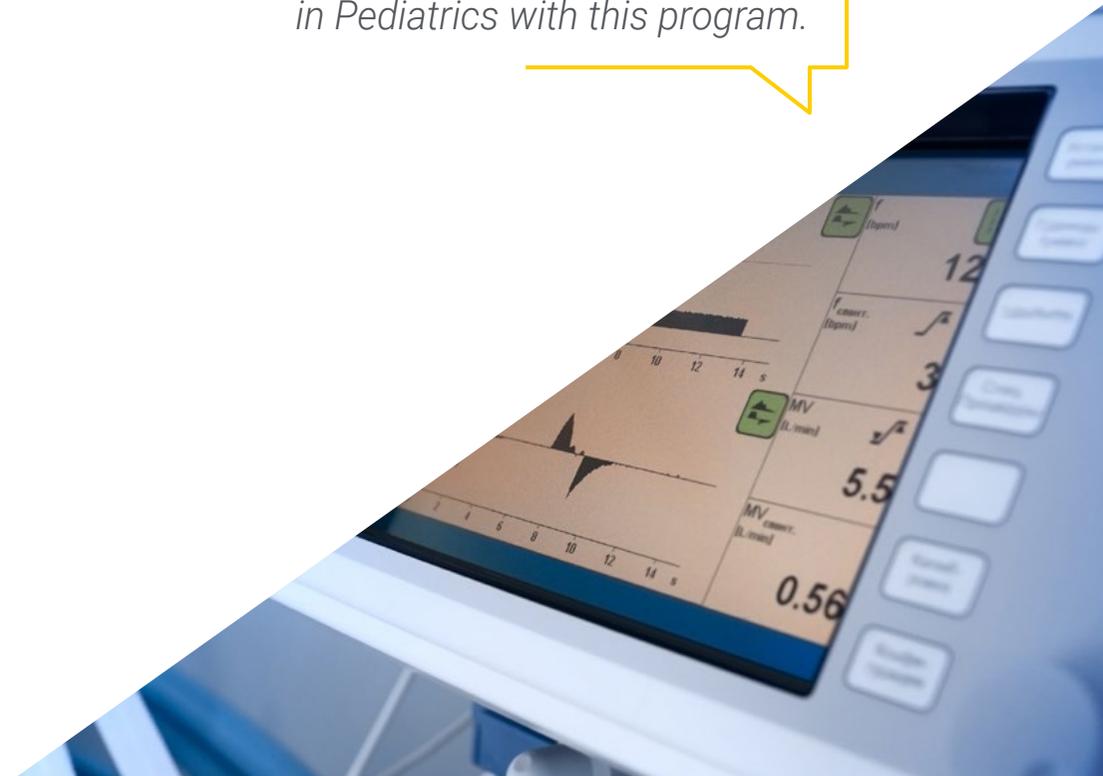
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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 immersive education programmed to learn in real situations.

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

*Do you want to update yourself in Non-Invasive Mechanical Ventilation in Pediatrics without leaving your home? This Postgraduate Certificate will be your best ally!*

*Explore cutting-edge techniques for the withdrawal of Non-Invasive Mechanical Ventilation in Pediatrics with this program.*



# 02 Objectives

The design of this Postgraduate Certificate has been carried out with the premise of guaranteeing with the up-to-date in Non-Invasive Mechanical Ventilation in Pediatrics by the specialist. Through this certification, you will delve into advanced techniques for monitoring young patients and adjusting their ventilatory parameters. All of this, in just 150 hours of study and with a revolutionary educational methodology.





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*Delve into the latest scientific evidence on Non-Invasive Mechanical Ventilation in Pediatrics and position yourself at the forefront of medicine”*



## General Objectives

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- Understand the importance and role of Non-Invasive Mechanical Ventilation in the treatment of acute and chronic respiratory pathologies
- Acquire knowledge of the updated indications and contraindications for the use of Non-Invasive Mechanical Ventilation, as well as the different types of devices and ventilation modes
- Develop skills and competencies in monitoring patients with Non-Invasive Mechanical Ventilation, including data interpretation and the detection and prevention of complications
- Explore cutting-edge technologies used in the telemonitoring of patients with Non-Invasive Mechanical Ventilation and the ethical and legal aspects related to its use
- Delve into the key differences in Non-Invasive Mechanical Ventilation in Pediatrics
- Delve your understanding of the ethical aspects related to the management of patients requiring NIV





## Specific Objectives

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- ◆ Understand the physiological and anatomical differences between pediatric and adult patients in terms of Non-Invasive Mechanical Ventilation
- ◆ Know the indications and contraindications of Non-Invasive Mechanical Ventilation in Pediatrics
- ◆ Properly adjust the Non-Invasive Mechanical Ventilation in Pediatrics based on individual patient needs
- ◆ Deepen your knowledge of updated monitoring and adjustment techniques for Non-Invasive Mechanical Ventilation in Pediatrics
- ◆ Manage the main pediatric respiratory pathologies that require Non-Invasive Mechanical Ventilation based on the latest scientific evidence



*Through this Postgraduate Certificate, you will learn in depth the state-of-the-art methods of monitoring the child who requires NIMV"*

03

# Course Management

With the aim of providing the highest academic level to its programs, TECH has selected the best specialists in Pediatric Pulmonology to lead and teach this certification. The doctors who serve as educators have accumulated excellent hospital experience in cutting-edge centers, so the knowledge they will impart to their students will have been applied in their professional careers.





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Leading pulmonologists and pediatricians will provide you with state-of-the-art knowledge on Non-Invasive Mechanical Ventilation in Pediatrics”

## Management



### Dr. Landete Rodríguez, Pedro

- ◆ Head of the Intermediate Respiratory Care Unit at Emergencias Enfermera Isabel Zendal Hospital
- ◆ Coordinator of the Basic Ventilation Unit at La Princesa University Hospital
- ◆ Pulmonologist at La Princesa University Hospital
- ◆ Pulmonologist at Blue Healthcare
- ◆ Researcher in various research groups
- ◆ Professor in undergraduate and postgraduate university studies
- ◆ Author of numerous scientific publications in international journals and contributor to several book chapters
- ◆ Speaker at international medical congresses
- ◆ Doctor Cum Laude from the Autonomous University of Madrid

## Professors

### Dr. Bascuas Arribas, Marta

- ◆ Specialist Pediatrician
- ◆ FEA of Pediatric Pneumology of the Hospital Universitario Infantil Niño Jesús
- ◆ Member of the Mucopolysaccharidosis Committee at the Hospital Universitario Infantil Niño Jesús
- ◆ Author of various scientific publications related to her specialty



Dräger Evita 2 dura

Valores medidos

Parámetro	Valor	Unidad
VM	10.3	L
VT	682	mL
Vt <sub>lim</sub>	811	mL
V <sub>Máx</sub>	3.20	L/min
V <sub>Máx</sub> Lim	0.25	L/min
PEEP	9	mbar
Temp	16	°C
R	18.0	L/min
C	44.9	cmH <sub>2</sub> O

640 Vt mL

13 Timp s

16 f rpm

69 O<sub>2</sub> Vol %

15 P<sub>ASP</sub> sobre PEEP mbar

9 PEEP mbar

0.25 Rampa s

IPPV SIMV BIPAP Otros Modos

# 04

## Structure and Content

The syllabus of this certification consists of excellent topics that will enable the specialist to delve into the most advanced and up-to-date aspects of the use of Non-Invasive Mechanical Ventilation in Pediatrics. The educational content available throughout this Postgraduate Certificate is presented in various formats, including explanatory videos, interactive summaries, and real-case simulations. Thanks to this, and its online methodology, the physician will receive effective, engaging, and personalized updates.





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The syllabus of this Postgraduate Certificate has been designed by specialists actively working in the field of Pediatric Pulmonology”

## Module 1. Non-Invasive Mechanical Ventilation in Pediatrics

- 1.1. Differences Between Non-Invasive Mechanical Ventilation in Adults and Pediatrics
  - 1.1.1. Lung Physiology in Pediatric Patients
  - 1.1.2. Key Differences in Managing the Pediatric Airway
  - 1.1.3. Common Respiratory Pathologies in Pediatrics Requiring NIMV
  - 1.1.4. Managing Patient Collaboration in Pediatric NIMV
- 1.2. Indications and Contraindications of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.2.1. Indications for NIMV in Pediatrics
  - 1.2.2. Absolute Contraindications for NIMV in Pediatrics
  - 1.2.3. Relative Contraindications for NIMV in Pediatrics
- 1.3. Equipment and Modes of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.3.1. NIMV Modes in Pediatrics
  - 1.3.2. Ventilatory Support Equipment in Pediatrics
  - 1.3.3. Accessories and Circuits for Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.3.4. Monitoring and Ventilation Adjustment in Pediatrics
- 1.4. Adjusting Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.4.1. Setting Support Pressures and PEEP
  - 1.4.2. Adjusting Airflow
  - 1.4.3. Adjustment of Respiratory Rate
  - 1.4.4. Setting Inspiratory Time
- 1.5. Monitoring and Adjustment of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.5.1. Clinical Assessment
  - 1.5.2. Arterial Blood Gas Assessment
  - 1.5.3. Pulse Oximetry Assessment
  - 1.5.4. Capnography Assessment
- 1.6. Non-Invasive Mechanical Ventilation in Pediatric Respiratory Pathologies
  - 1.6.1. Prematurity
  - 1.6.2. Bronchiolitis
  - 1.6.3. Cystic fibrosis
  - 1.6.4. Bronchopulmonary Dysplasia
  - 1.6.5. Neonatal respiratory failure



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- 1.6.6. Tracheostomy
  - 1.6.7. Neuromuscular Diseases
  - 1.6.8. Disconnections for Orotracheal Intubation
  - 1.7. Interfaces in NIMV in Pediatric Patients
    - 1.7.1. Nasal Mask
    - 1.7.2. Oro-Nasal Mask
    - 1.7.3. Face Mask
    - 1.7.4. Helmet
    - 1.7.5. Special Considerations in the Use of NIMV Interfaces in Pediatrics
  - 1.8. Complications of Non-Invasive Mechanical Ventilation in Pediatrics
    - 1.8.1. Pneumothorax
    - 1.8.2. Hypotension
    - 1.8.3. Hypoxemia
    - 1.8.4. Desaturation during support removal
  - 1.9. Home NIMV in Pediatrics
    - 1.9.1. Indications for Home NIMV
    - 1.9.2. Selection of Suitable Patients
    - 1.9.3. Caregiver Training
    - 1.9.4. Home Monitoring
  - 1.10. Weaning Techniques in Pediatrics
    - 1.10.1. Gradual withdrawal of NIMV
    - 1.10.2. Assessment of tolerance to NIMV withdrawal
    - 1.10.3. Use of oxygen therapy after withdrawal of NIMV
    - 1.10.4. Assessment of the patient after withdrawal of NIMV

“*Enroll in this Postgraduate Certificate to update your knowledge through simulations of real cases or complete explanatory videos*”

05

# Methodology

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

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



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

## At TECH we use the Case Method

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

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



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

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

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

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



## Relearning Methodology

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

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

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



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

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

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

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

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



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



#### Study Material

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

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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

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

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



#### Additional Reading

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





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

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



# 06 Certificate

The Postgraduate Certificate in Non-Invasive Mechanical Ventilation in Pediatrics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Non-Invasive Mechanical Ventilation in Pediatrics** contains the most complete and up-to-date scientific on the market.

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

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

Title: **Postgraduate Certificate in Non-Invasive Mechanical Ventilation in Pediatrics**

Official N° of Hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



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