

# Postgraduate Diploma

Fundamentals and Epidemiology  
of Immunization. Vaccination  
Process and its Future





## Postgraduate Diploma Fundamentals and Epidemiology of Immunization. Vaccination Process and its Future

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

Website: [www.techtute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-fundamentals-epidemiology-immunization-vaccination-process-future](http://www.techtute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-fundamentals-epidemiology-immunization-vaccination-process-future)

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# 01

# Introduction

Immunization and vaccination are two closely related concepts, since vaccination is the most effective way to achieve immunization to a disease without having previously suffered from it. In addition, through the vaccination process, a herd immunity can be achieved that will help to slow the spread of infectious diseases. If you want to specialize in this field, don't think twice. We offer you the most comprehensive training on the fundamentals and epidemiology of immunization from the leading experts in the field.





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*Specialize in immunization epidemiology and add to your nursing education You will achieve personal and professional growth in a short period of time”*

The vaccination process carried out by nursing professionals involves extensive training, since it is not simply the act of pricking, but rather a whole protocol that allows vaccination to be carried out with all the guarantees of safety.

With this Postgraduate Diploma, the student will learn everything related to the vaccination itself and the immunity process, starting with the history of vaccines and their contextualization in the present time as a basis for a deeper understanding of more specific concepts related to immunity and immunogenicity.

The vaccination process is an act closely related to epidemiology as a study, since it relates in terms of health prevention different diseases and its fundamental primary prevention. The bases for understanding vaccines is knowledge of the diseases that cause them, their frequency of occurrence in vulnerable populations and the existing measures for their eradication and prevention. And, therefore, this specialization also aims to train nurses in this field.

Thus, and as a fundamental issue, the Postgraduate Diploma enters fully into what might traditionally be expected from a study of the vaccine administration process. It begins with a small contextualization with basic aspects related to the act of vaccination itself and its legal basis to continue with everything related to the transport and conservation of vaccines and the cold chain, concepts prior to the actual administration of the vaccine and essential for professionals in this field.

Lastly, the student will study the future of vaccination: which vaccines are currently in development or in production, which diseases are expected to have a vaccine in the near future, and where we stand with the COVID-19 epidemic in relation to the act of vaccination.

In this Postgraduate Diploma we have proposed to offer you the most complete training on vaccination in a simple and easy to learn way. Also, being a 100% online training, you will have the opportunity to combine your study hours with the rest of your daily obligations, so that you can increase your training in a comfortable way.

This **Postgraduate Diploma in Fundamentals and Epidemiology of Immunization. Vaccination Process and its Future** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Clinical cases presented by experts in vaccines.
- ♦ The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ News on Vaccination.
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning.
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course.
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- ♦ Content that is accessible from any fixed or portable device with an Internet connection.



*Increase your training in the field of vaccination and improve thanks to this highly academic specialization"*

“

*This Postgraduate Diploma is the best investment you can make to specialize to acquire the best and most up-to-date training in vaccines”*

Its teaching staff includes a professionals from the field of vaccines in nursing, who bring the experience of their work to this training, as well as recognised specialists from leading scientific societies.

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 training program designed to train in real situations.

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


*Our trainings have the best teaching methodology and the latest didactic tools, which will allow you to study from home, but without losing the possibilities offered by on-site classes.*





# 02 Objectives

This Postgraduate Diploma in Fundamentals and Epidemiology of Immunization. The Vaccination Process and its Future is aimed at facilitating the nurse's performance and increasing his or her ability to treat patients who require this type of intervention with full guarantees of success.



Human  
Papillo  
Vaccine  
Quadrivalen  
(Types 6, 11





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*Our goal is to offer our students the most complete specialization on the market so that they are able to excel and broaden their knowledge and, therefore, become more efficient in their profession"*



## General Objectives

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- Update the knowledge in relation to the vaccination and disease prevention process and its applicability in the population served that will allow the nursing professional to increase training at the time of exercising his/her professional activity
- Know in depth and apply the research methodology at the clinical-care and methodological level in the field of the vaccination process
- Develop skills to transmit and sensitize the population to the importance and need for vaccines and the vaccination process itself, through health promotion strategies
- Training in the management of vaccines and vaccine management and prevention strategies for communicable diseases susceptible to vaccination

*Acquire the most updated knowledge in this field of work and apply advanced protocols in this intervention in your day-to-day work*



## Specific Objectives

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- Describe the history and major milestones of vaccination over time
- Know in depth the current vaccination status in our country and in the different countries of the world
- Establish the immunological bases on which to carry out the act of vaccination and the rationale for the same
- In-depth knowledge of the technologies used in the production of vaccines and their characteristics
- Establish the theoretical basis of vaccine safety, including the concept of pharmacovigilance and its practical application
- In-depth knowledge of how vaccines are created and the limitations of the process
- Determine the different compounds related to vaccines and their relationship with vaccines, such as adjuvants
- Identify the concept of vaccine response and how vaccine administration affects the body
- Recognize existing post-vaccine markers and their relationship to preventable disease
- Contextualize the concept of epidemiology in our social environment
- Know in depth the different existing applications of epidemiology and the concept of causality
- Identify the concept of epidemiological surveillance, the existing application in vaccines and its importance in the health context
- Learn more about the different communicable diseases and their prevention, as well as their transmission mechanism
- Apply knowledge of health determinants and explanatory models of health in their daily practice to improve the quality of their care

- ♦ Deepen the concept of the CCAES, the coordinating center for health alerts and emergencies, and its functions
- ♦ Integrate the concept of epidemic curve in the current epidemiological context
- ♦ Determine the different existing theoretical explanatory models of health and their relationship with population health
- ♦ Understand the concept of health determinants and how they affect self-care and population health
- ♦ In-depth knowledge of the aspects of the vaccination process as a theoretical basis for learning the process itself, as well as its legal aspects
- ♦ Integrate cold chain knowledge into vaccine transport, control and preservation
- ♦ Correctly differentiate the different types of vaccines according to the classification determined between systematic and non-systematic vaccines and the different existing classifications
- ♦ Relate health safety in the concept of the vaccination process to the recording of vaccines in daily practice
- ♦ Identify the different patterns of vaccine administration, co-administration of vaccines with other products and existing vaccination routes
- ♦ Detect the real contraindications of vaccines versus false contraindications
- ♦ Integrate the necessary knowledge about vaccination emergencies to be able to act safely during daily practice
- ♦ Know the different vaccines currently being created in the world and where they are in the process
- ♦ Relate the vaccination process to how it is exposed to the rest of the world through the media in its different ways
- ♦ Establish the basis of the concept called reverse vaccinology and to know the genome concept
- ♦ Identify the different vaccination strategies existing worldwide by the different existing organizations and their most important differences
- ♦ Have an in-depth knowledge of the current anti-vaccine movements and what should be a correct approach in daily practice
- ♦ Relate the current epidemiological situation to the COVID-19 situation and vaccines
- ♦ Become familiar with the different sources of reliable information available on the web about vaccines in order to be able to pass it on to patients at a later date
- ♦ Identify the vaccine safety network concept and know its theoretical basis
- ♦ Establish different basic tips when finding reliable scientific information about vaccines on the Internet

03

# Course Management

The program includes in its teaching staff renowned experts in nursing, who contribute their work experience to this training. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.



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*Leading experts in the field are at the best university to help you achieve professional success”*

## Management



### Hernández Solís, Andrea

- ♦ Nurse specialist in family and community nursing at the Hospital Universitario de Getafe
- ♦ Nurse assistant in primary care in Madrid
- ♦ Teacher and tutor in different postgraduate programs since 2015

## Professors

### Rodriguez Fernández, Erica

- ♦ Nurse specialist in pediatric and obstetric-gynecological nursing.
- ♦ Teacher and tutor at post-graduate level, competitive examinations and specialized training.
- ♦ Nurse as a midwife.







# 04

## Structure and Content

The structure of the contents has been designed by a team of professionals from the best educational hospital and universities in the country, who are aware of the relevance of up-to-date, training, and are committed to quality teaching using new educational technologies.



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*We have the most complete and up-to-date academic program in the market. We strive for educational excellence and we want you to achieve it too"*

## Module 1. Fundamentals of Immunization

- 1.1. History and Milestones of Vaccination
  - 1.1.1. Most Important Vaccination Milestones
- 1.2. Current Status of Vaccines in Spain and the World
- 1.3. Fundamentals and Immunological Basis of Vaccines
- 1.4. Vaccine Production Technologies
- 1.5. Vaccine Safety
  - 1.5.1. Features for Safe Vaccination
- 1.6. Pharmacovigilance in Vaccines
  - 1.6.1. Vaccine Surveillance Network
- 1.7. Vaccine Development
- 1.8. Vaccine Adjuvants and Other Compounds
  - 1.8.1. Types of Adjuvant Vaccines
  - 1.8.2. Vaccine Stabilizers
- 1.9. Vaccine Response
- 1.10. Post-vaccination Markers
  - 1.10.1. Types of Vaccine Markers
  - 1.10.2. Interpretation of Vaccine Markers

## Module 2. Epidemiology of Immunization

- 2.1. Epidemiology in the Spanish Context
  - 2.1.1. Epidemiology in the Beginnings of Public Health
  - 2.1.2. Epidemiology in the Consolidation Stage
- 2.2. Application of Epidemiology Causality
  - 2.2.1. Koch-Henle Model
  - 2.2.2. Bradford-Hill Model
  - 2.2.3. Rothman Model
  - 2.2.4. Hume Model
- 2.3. Epidemiological Surveillance
  - 2.3.1. RENAVE Vaccine Surveillance Network
  - 2.3.2. Sentinel Physicians
  - 2.3.3. Mandatory Disease Reporting
- 2.4. Transmissible Diseases
  - 2.4.1. Most Prevalent Communicable Diseases
  - 2.4.2. Transmissible Digestive Transmitted Diseases
  - 2.4.3. Transmissible Diseases Transmitted Through Contact

- 2.5. Epidemiological Chain in Transmissible Diseases
  - 2.5.1. Stages Within the Epidemiological Chain
- 2.6. Coordinating Center for Health Alerts and Emergencies CCAES
  - 2.6.1. National Early Warning and Rapid Alert System (EWRS)
  - 2.6.2. Epidemiological Intelligence
- 2.7. Epidemiological Health Surveys
  - 2.7.1. Design of Epidemiological Surveys
  - 2.7.2. Seroprevalence Surveys
- 2.8. Epidemic Curves
  - 2.8.1. How to Design Epidemic Curves
- 2.9. Theoretical Explanatory Models of Health
  - 2.9.1. Applications of Health Models
- 2.10. Health Determinants
  - 2.10.1. How the Determinants of Health Affect the Population

## Module 3. The Vaccine Process

- 3.1. Basic Aspects of Vaccination
  - 3.1.1. What Is the Vaccination Process
- 3.2. Legal Aspects of Vaccination
  - 3.2.1. Institutions Involved in the Vaccination Process
- 3.3. Transport and Storage of Vaccines
  - 3.3.1. Cold Chain
  - 3.3.2. Elements Involved in the Transport and Conservation of Vaccines
- 3.4. Vaccine Classification
  - 3.4.1. Types of Vaccine Classification
  - 3.4.2. Viral and Bacterial Vaccines
  - 3.4.3. Attenuated and Inactivated Vaccines
- 3.5. Routine Vaccines
  - 3.5.1. What Are Routine Vaccines
  - 3.5.2. Vaccines Included in Routine Immunizations
- 3.6. Non-routine Vaccines
  - 3.6.1. What Are Non-routine Vaccines
  - 3.6.2. Vaccines Included in Non-routine Vaccination
- 3.7. Vaccine Safety
- 3.8. Vaccine Administration and Registration
  - 3.8.1. Process of Vaccine Registration
  - 3.8.2. Process of Vaccine Administration

- 3.9. Co-administration of Vaccines and Other Biological Products
  - 3.9.1. Vaccination Intervals Between Vaccines and Other Biological Products
  - 3.9.2. Vaccination Intervals Between Vaccines and Between Doses of the Same Vaccine
- 3.10. Vaccination Routes
  - 3.10.1. Different Existing Vaccination Routes
- 3.11. Contraindications and Adverse Effects of Vaccines
  - 3.11.1. False Contraindications in Vaccines
  - 3.11.2. Relative Contraindications in Vaccination
  - 3.11.3. Absolute Contraindications in Vaccination
  - 3.11.4. Most Frequent Adverse Effects in Vaccination
- 3.12. Vaccination Emergencies
  - 3.12.1. Possible Emergencies in the Vaccination Process
  - 3.12.2. Nursing Action in the Event of an Emergency During Vaccination

#### Module 4. The Future of Vaccines

- 4.1. Vaccines in Development
  - 4.1.1. Different Vaccines Currently in Development
- 4.2. Vaccines and the Media
- 4.3. Reverse Vaccinology: Genome
  - 4.3.1. What Is the Genome
  - 4.3.2. Concept of Reverse Vaccinology
- 4.4. Global Vaccination Strategy
- 4.5. Anti-vaccine Movements Situation and Approach
- 4.6. Vaccines and COVID-19
  - 4.6.1. Vaccines and COVID 19
- 4.7. Vaccines Safety Network
- 4.8. Vaccine Web Query
- 4.9. Vaccine Website Credibility
  - 4.9.1. Tips for Checking the Reliability of a Vaccine Website
- 4.10. Tips for Finding Reliable Information Online
  - 4.10.1. Practical Tips for Finding Reliable Online Health Information





05

# Methodology

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

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





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

## At TECH Nursing School we use the Case Method

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

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
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 university program.



## Re-learning Methodology

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

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.

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



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

With this methodology we have trained more than 175,000 nurses with unprecedented success, in all specialties regardless of from the workload. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



In this program you will have access to the best educational material, prepared with you 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 really specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



### Nursing Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current nursing procedures and techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



### Interactive Summaries

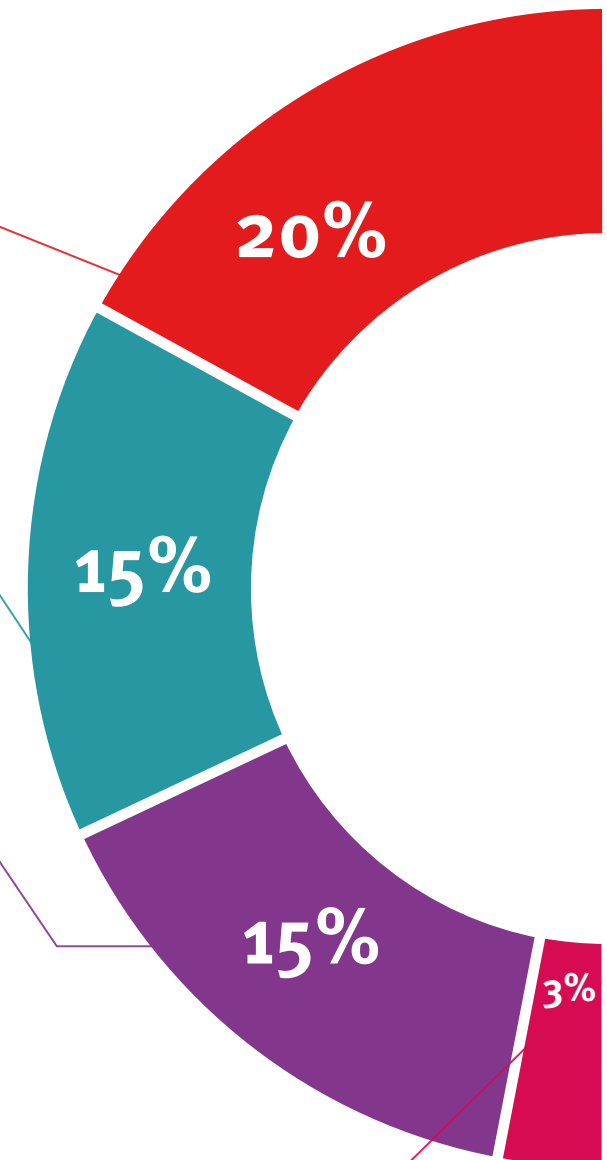
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

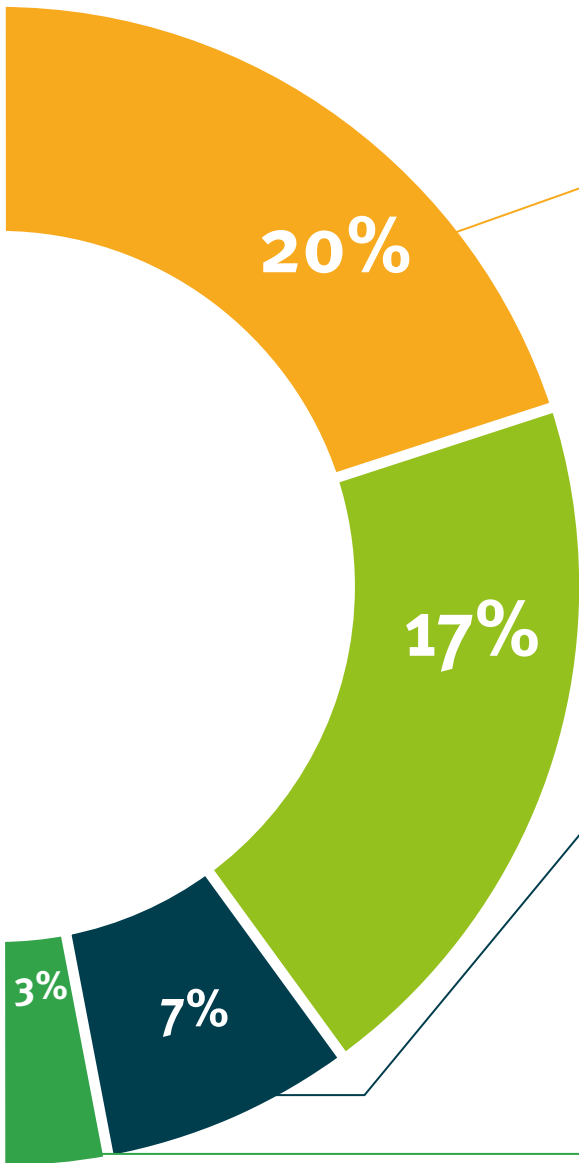


### Additional Reading

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







**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through 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 your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.



**Classes**

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



**Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



# 06 Certificate

This **Postgraduate Diploma in Fundamentals and Epidemiology of Immunization. Vaccination Process and its Future** guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Diploma issued by **TECH Technological University**.





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



This **Postgraduate Diploma in Fundamentals and Epidemiology of Immunization. Vaccination Process and its Future** contains the most complete and up-to-date scientific program on the market.

After passing the assessments, students receive their corresponding **Postgraduate Diploma issued by TECH Technological University.**

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

Title: **Postgraduate Diploma Fundamentals and Epidemiology of Immunization. Vaccination Process and its Future**

Official Number of Hours: **600**



\*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



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