

Postgraduate Certificate

Multidrug-Resistant
Bacteria in Human
Pathology for Nursing





Postgraduate Certificate Multidrug-Resistant Bacteria in Human Pathology for Nursing

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/nursing/postgraduate-certificate/multidrug-resistant-bacteria-human-pathology-nursing

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Methodology

p. 20

06

Certificate

p. 28

01

Introduction

Antimicrobial resistance, driven by the acquisition and spread of resistance genes, represents a growing threat that compromises the effectiveness of conventional antimicrobial treatments. In this context, it is essential that nurses have a solid understanding of the mechanisms of resistance, as well as emerging strategies for its proper management. However, this update can be challenging due to the high workload of professionals. For this reason, TECH is launching an innovative program focused on the clinical implications of Multidrug-Resistant Bacteria. In addition, the program is delivered in a convenient 100% online format, allowing graduates to plan their own study schedules.



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Through this 100% online program, you will be able to perform comprehensive clinical evaluations of infections caused by Multidrug-Resistant Bacteria”

The alarming rise of Multidrug-Resistant Bacteria represents a critical issue for modern healthcare systems, threatening the efficacy of conventional antimicrobial treatments and exacerbating associated healthcare costs. Nursing staff, as the primary agent in direct patient care, play a key role in the early detection, clinical management and prevention of the spread of these resistant infections in the clinical setting. Therefore, these professionals have the responsibility to incorporate into their practice the most innovative strategies to mitigate the associated risks and improve clinical outcomes in patients with these infections.

Given this scenario, TECH presents a revolutionary program in Multidrug-Resistant Bacteria in Human Pathology for Nursing. The academic itinerary will delve into the mechanisms of acquired resistance to antibiotics, addressing factors such as genes, mutations or obtaining plasmids. It will also delve into the chronology and evolution of antibiotic rejection. This will enable nurses to make informed and effective decisions in patient care. The program will also provide graduates with state-of-the-art strategies to mitigate the problem of multi-resistance.

It should be noted that the study plan is based on TECH's innovative Relearning system, a method that consists of reiterating key aspects in a gradual and natural way. Therefore, nurses will not have to resort to traditional tactics such as memorization. In tune with this, professionals will be able to access the Virtual Campus from any electronic device with Internet access (such as a computer, mobile or tablet). There they will find a wide range of disruptive materials, complementary readings and numerous multimedia resources (such as explanatory videos, interactive summaries or infographics). Undoubtedly, a high-intensity academic experience that will elevate the professional career of nurses.

This **Postgraduate Certificate in Multidrug-Resistant Bacteria in Human Pathology for Nursing** 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 Microbiology, Medicine and Parasitology
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out 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



You are looking at a flexible university program that is compatible with your most demanding daily responsibilities”

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Are you looking to analyze the current situation of Antibiotic Resistance in the world? Achieve it with this complete program”

The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing 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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

You will delve into the Acquisition of Resistance Genes to reduce the incidence of nosocomial infections.

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.



02

Objectives

Upon completion of this university program, nursing personnel will have a holistic understanding of the microbiological principles related to antimicrobial resistance and the characteristics of Multidrug-Resistant Bacteria. Likewise, graduates will develop skills to perform comprehensive clinical assessments and accurate diagnoses of infections. In addition, professionals will implement effective infection control strategies to prevent the transmission of Multidrug-Resistant Bacteria in health care settings, ensuring compliance with protocols and regulations at all times.



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You will apply the most effective infection control measures to prevent the transmission of multidrug-resistant bacteria in healthcare settings, therefore minimizing their spread”



General Objective

- Understand how bacterial resistance evolves as new antibiotics are introduced into clinical practice

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You will have at your disposal a wealth of supporting audio-visual material, including interactive summaries, study guides, activities for each topic and supplemental readings”





Specific Objectives

- ♦ Evaluate the causes of antibiotic resistance, from the lack of new antibiotics, to socioeconomic factors and health policies
- ♦ Examine the current status of antibiotic resistance in the world, including global statistics and trends in different regions

03

Course Management

In line with its priority of making the most complete university programs available to everyone, TECH follows a rigorous process to form its faculty. Thanks to this effort, the present program counts with the participation of authentic references in the field of Multidrug-Resistant Bacteria in Human Pathology. These professionals have created a myriad of didactic materials that stand out for their quality and full applicability to the demands of today's labor market. Therefore, nurses will have access to a high-intensity experience that will optimize their clinical practice and expand their work horizons.



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The teaching team of this program is integrated by professionals specialized in Multidrug-Resistant Bacteria in Human Pathology, to offer you the knowledge with the greatest professional applicability in this area”

Management



Dr. Ramos Vivas, José

- Director of the Banco Santander-Universidad Europea del Atlántico Chair in Innovation
- Researcher at the Center for Innovation and Technology of Cantabria (CITICAN)
- Academic of Microbiology and Parasitology at the European University of the Atlantic
- Founder and former director of the Cellular Microbiology Laboratory of the Valdecilla Research Institute (IDIVAL)
- PhD in Biology from the University of León
- Doctor in Sciences from the University of Las Palmas de Gran Canaria
- Degree in Biology from the University of Santiago de Compostela
- Master's Degree in Molecular Biology and Biomedicine from the University of Cantabria
- Member of: CIBERINFEC (MICINN-ISCIII), Member of the Spanish Society of Microbiology and Member of the Spanish Network of Research in Infectious Pathology



04

Structure and Content

Through this program, nurses will have a thorough knowledge of the mechanisms of bacterial resistance to antibiotics, as well as their clinical and epidemiological implications. The syllabus will delve into the rejection of antibiotics in Human Pathology, taking into account factors such as increased mortality or the economic cost associated with antibiotic resistance. At the same time, the syllabus will delve into the analysis of bacteria highly dangerous to human health according to the World Health Organization.



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You will develop advanced skills oriented to the diagnosis, treatment and management of infections caused by Multidrug-Resistant Bacteria”

Module 1. Multidrug-Resistant Bacteria in Human Pathology

- 1.1. Mechanisms of Acquired Resistance to Antibiotics
 - 1.1.1. Acquisition of Resistance Genes
 - 1.1.2. Mutations
 - 1.1.3. Acquisition of Plasmids
- 1.2. Mechanisms of Intrinsic Resistance to Antibiotics
 - 1.2.1. Blockage of Antibiotic Entry
 - 1.2.2. Modification of the Antibiotic Target
 - 1.2.3. Inactivation of the Antibiotic
 - 1.2.4. Antibiotic Expulsion
- 1.3. Chronology and Evolution of Antibiotic Resistance
 - 1.3.1. Discovery of Antibiotic Resistance
 - 1.3.2. Plasmids
 - 1.3.3. Evolution of Resistance
 - 1.3.4. Current Trends in the Evolution of Antibiotic Resistance
- 1.4. Antibiotic Resistance in Human Pathology
 - 1.4.1. Increased Mortality and Morbidity
 - 1.4.2. Impact of Resistance on Public Health
 - 1.4.3. Economic Cost Associated with Antibiotic Resistance
- 1.5. Multidrug-Resistant Human Pathogens
 - 1.5.1. *Acinetobacter Baumannii*
 - 1.5.2. *Pseudomonas Aeruginosa*
 - 1.5.3. Enterobacteriaceae
 - 1.5.4. *Enterococcus Faecium*
 - 1.5.5. *Staphylococcus Aureus*
 - 1.5.6. *Helicobacter Pylori*
 - 1.5.7. *Campylobacter Spp*
 - 1.5.8. *Salmonellae*
 - 1.5.9. *Neisseria Gonorrhoeae*
 - 1.5.10. *Streptococcus Pneumoniae*
 - 1.5.11. *Hemophilus Influenzae*
 - 1.5.12. *Shigella Spp*



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- 1.6. Bacteria Highly Dangerous to Human Health: Update of the WHO List
 - 1.6.1. Critical Priority Pathogens
 - 1.6.2. High Priority Pathogens
 - 1.6.3. Pathogens with Medium Priority
 - 1.7. Analysis of the Causes of Antibiotic Resistance
 - 1.7.1. Lack of New Antibiotics
 - 1.7.2. Socioeconomic Factors and Health Policies
 - 1.7.3. Poor Hygiene and Sanitation
 - 1.7.4. Health Policies and Antibiotic Resistance
 - 1.7.5. International Travel and Global Trade
 - 1.7.6. Dispersal of High-Risk Clones
 - 1.7.7. Emerging Pathogens with Resistance to Multiple Antibiotics
 - 1.8. Antibiotic Use and Abuse in the Community
 - 1.8.1. Prescription
 - 1.8.2. Acquisition
 - 1.8.3. Misuse of Antibiotics
 - 1.9. Current Status of Antibiotic Resistance in the World
 - 1.9.1. Global Statistics
 - 1.9.2. Central and South America
 - 1.9.3. Africa
 - 1.9.4. Europe
 - 1.9.5. North America
 - 1.9.6. Asia and Oceania
 - 1.10. Perspectives on Antibiotic Resistance
 - 1.10.1. Strategies to Mitigate the Problem of Multidrug-Resistance
 - 1.10.2. International Actions
 - 1.10.3. Actions at the Global Level

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 Nursing School we use the Case Method

In a given situation, what should a professional do? 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. 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 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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of 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 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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. 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 really 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.



Nursing Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, 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 them as many times as you want.



Interactive Summaries

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

This 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 suggesting that observing third-party experts can be useful.

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 Multidrug-Resistant Bacteria in Human Pathology for Nursing 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 Multidrug-Resistant Bacteria in Human Pathology for Nursing** 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 **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 Multidrug-Resistant Bacteria in Human Pathology for Nursing**

Modality: **online**

Duration: **6 weeks**



*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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