
NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS
SCHOOL OF HEALTH SCIENCES
SCHOOL OF MEDICINE
Master of Science in
Paediatric Infectious Diseases



STUDY GUIDE
2026-2027



General Description

What is the purpose and objectives of the postgraduate training Program?

The purpose of the master's degree Program "Pediatric Infectious Diseases" is to provide high quality postgraduate education to health care professionals. The objectives of the program have been formulated in accordance with applications and actions defined by the World Health Organization and include the promotion of knowledge and research, the provision of appropriate resources to young scientists to become active members of the field of Pediatric Infectious Diseases. Infectious Diseases is one of the three nationally certified Pediatric Specialties and covers a wide range of diseases and disease prevention in childhood. Therefore, Infectious Diseases is closely related to the field of Public Health. Despite the great progress that has been made in infectious diseases' control, significant challenges remain with the re-emergence of old infections and emergence of new ones, threatening the health of children and adults. Regardless of medical specialty, physicians should know the epidemiology, prevention practices and treatment of infectious diseases, following appropriate training at the undergraduate and postgraduate levels.

The development and implementation of mass vaccination of children resulted in the reduction or disappearance of infectious diseases. Despite this progress, epidemics of vaccine-preventable diseases still occur, even in developed countries. Ongoing education and vigilance in the epidemiology of vaccine-preventable diseases is essential. Furthermore, vaccination has been extended to teenagers and adults, while new vaccines are constantly being developed.

Although the development of antibiotics has contributed to the control of infections, improper use and abuse has led to the evolution and spread of multi-resistant pathogens with significant morbidity and mortality. This is a global crisis with serious implications for public health. Educating all healthcare professionals in understanding resistance mechanisms, proper use of antibiotics and measures to prevent hospital-acquired infections is extremely important and concerns all medical specialties.

The population of individuals with chronic diseases and immunocompromise is constantly growing. As these patients are particularly vulnerable to infections, treating physicians should know how to prevent and treat special pathogens.

In addition, the constantly increasing international immigration crisis, necessitates the greater awareness and subspecialization of health care professionals within the field of Pediatric Infectious Diseases. However, physicians of all specialties must be able to recognize infectious disease problems and threats, collaborate with epidemiologists, public health authorities, and laboratory personnel.



Aim of the Program

The purpose of the Master Degree Program "Pediatric Infectious Diseases" is to provide high quality postgraduate education in the scientific field of Pediatric Infectious Diseases.

Student aims upon completion of the Program include:

- To acquire theoretical knowledge of the general principles of Pediatrics.
- To scientifically approach childhood infections in terms of epidemiology, clinical presentation, treatment and prevention.
- To acquire specialized knowledge of the active and passive immunization of the general population, with a focus on childhood and adolescence, and groups with individualized needs (e.g. immunosuppressed patients).
- To acquire essential theoretical and practical knowledge of microbiology (virology, bacteriology and mycology) and diagnostic techniques.
- To acquire knowledge of Pharmacokinetics and Pharmacodynamics of antimicrobial agents.
- To acquire theoretical knowledge of immunodeficiencies (congenital and acquired) including the diagnostic approach, management and treatment of these conditions in childhood.
- To gain knowledge of the prevention of the transmission of Hospital-acquired infections, as well as specialized knowledge of treating infections in special population groups, such as patients in the PICU/NICU and in immunosuppression.
- To gain knowledge of the rational use of antibiotics in the hospital and community setting.
- To acquire knowledge of tropical diseases, travel medicine and infections among migrants and refugees.
- To gain knowledge about new and emerging pathogens threatening public health, as well as measures to prevent their transmission.
- To acquire knowledge of Epidemiology, Biostatistics and Research Methodology.
- To actively participate in research in the growing field of Pediatric Infectious Diseases, including the conduction of a literature review, the formulation of a research question, writing up a research protocol and applying for funding, and finally the completion of a research project.
- To develop oral and writing skills to accurately present and discuss research findings in the academic setting (e.g. participation in a conference, authorship of a manuscript).
- To develop diagnostic and independent management skills in solving diagnostic problems.



- To collaborate in the context of interdisciplinary teams and exchange opinions and ideas to generate new knowledge.
- To be able to staff:
 - Primary, pediatric and community health care centers
 - University and National Health System Pediatric Departments
 - Public Health Institutions (e.g. the National Public Health Organization)
- Completion of the program enables students to continue:
 - their training as Pediatric Infectious Disease specialists or
 - as specialists in Pediatric or Neonatal Intensive Care

Teaching

The program is taught by well-known professors, specialist scientists from Greece and abroad with broad experience in the field, and professionals from organizations providing hands-on and long-standing service in the field. In addition to theoretical lectures, teaching includes participation in relevant annual seminars-conferences, and hands-on training in collaboration with specialized centers.

Courses

A' Semester		B' Semester	
Compulsory	ECTS	Compulsory	ECTS
Principles of Pediatrics - Epidemiology / Principles of Public Health	9	Chemotherapy-Pharmacology	10
Biostatistics	6	Microbiology-Pathology	15
Infections by Systems- Infections of special interest	15	Immune deficiencies HIV (I)	5
Total	30	Total	30
C' Semester		D' Semester	
Compulsory	ECTS	Compulsory	ECTS
Vaccinations and Passive Immunization	15	Laboratory Excercise	5
Special Groups	10	A. Microbiological Laboratory B. Diagnostic techniques C. Control of Hospital Infections D. Antibiotic Stewardship	
Immune deficiencies HIV (II)	5	Master's thesis	25
Total	30	Total	30



The teaching hours of the courses include attending the following conferences:

1. Panhellenic Conference on Pediatric Infections.
2. Panhellenic Conference on Infections.
3. European Society for Paediatric Infectious Diseases (ESPID) Meeting .

General information

The courses are organized in four academic (4) semesters, held two (2) days a week, mostly in Greek and occasionally in English. During the fourth semester, students complete an internship and prepare their thesis which is a prerequisite for graduation and obtaining the degree. Students are required to attend the conferences-seminars during their studies and furnish relevant certificates of attendance to secretariat of the program. Should the Coordinating Committee decide, there may be modifications of the mandatory attendance of conferences-seminars depending on the educational needs of the students and the addition of new relevant conferences-seminars. Each conference corresponds to specific hours of attendance which are added to the total teaching time.

Attendance of all courses of the Master's Program is mandatory. In the event that the percentage of student absences exceeds 20% of each teaching module, repetition of the module might be necessary.

Student performance evaluation is conducted in the end of each semester following written exams and/or throughout the semester with the preparation / presentation of assignments, depending on the teaching module.

The educational materials of the lectures, the submission of assignments, the posting of grades are conducted online through the official e-class platform.

The Master's Program Coordinating Committee reserves the right to modify or add courses, seminars or practical exercises within the teaching modules as needed. Students will be informed about any changes at the beginning of each academic year.

DETAILED DESCRIPTION OF THE STUDY PROGRAM EDUCATIONAL MODULES

1st SEMESTER

1. Principles of Pediatrics - Epidemiology / Principles of Public Health

The aim of this module is to familiarize students with childhood health and the practice of pediatrics in general. It includes a brief review of physical and psychomotor developmental stages from infancy to adolescence.

Then, basic principles of epidemiology and public health are taught with a focus on the design of studies, the collection and analysis of data, the concept of changes in the epidemiology of infectious diseases, as well as epidemic outbreaks. The purpose of the module is also to acquire the necessary theoretical knowledge and practical skills that will allow the student to organize, conduct, and successfully complete his diploma thesis.



As far as public health principles are concerned, students are taught how to comprehend and design public health policies of infectious diseases' management.

2. Biostatistics

In this module, students are involved in designing medical research studies, analyzing numerical data/measurements and presenting them concisely and effectively, as well as drawing conclusions about a population based on information contained in a sample.

The aim of the course is to acquire knowledge of fundamental statistical methodology to enable students to:

- conduct scientific research,
- evaluate study findings,
- design experiments and studies,
- analyze study and experimental data,
- present data, and
- use data to draw conclusions.

The course is taught in the form of academic lectures. In addition to theory, the courses include computer lab practice with training in the use of the Statistical Package for the Social Sciences (SPSS).

During the teaching of biostatistics courses, students are required to bring their own laptop, to be able to carry out the practical part of the module through exercises under the supervision of the instructors.

3. Infections by Systems- Infections of special interest

This module is a very important part of the theoretical training of the program. This section includes:

- Infections by system (respiratory, skin and soft tissue, central nervous system, etc.)
- Specific multi-systemic infections, such as tuberculosis and congenital infections
- Septic syndrome
- Topics in tropical and travel medicine
- Management and control of hospital infections
- Infections in special care units



2nd SEMESTER

1. Chemotherapy-Pharmacology

The student objectives of this modules' lectures are to learn details of drug classifications, the indications and contraindications for their use and data related to pharmacokinetics and mechanisms of drug resistance. At the end of the semester students should be able to:

- Comprehend the basic principles of using antimicrobial drugs
- Know the principles of pharmacokinetics and pharmacodynamics for antimicrobial drugs
- Name major members of each class of antibacterial, antiviral and antiparasitic drugs
- Recognize the antimicrobial spectrum of each category and the main indications for their use
- Identify potential side effects and contraindications of use

2. Microbiology-Pathology

In this unit, students will be taught the most common causes (bacteria, viruses, fungi, parasites) of pediatric infections. They will acquire knowledge of microbiology, the clinical presentation and diagnostic approach of the specific microorganisms in pediatric patients. There will be a detailed description of the most common diagnostic techniques used in clinical practice, which will be combined with practical training in the 4th semester in collaborating microbiological laboratories.

The trainee is expected to acquire basic knowledge of clinical microbiology to be able to use clinical and laboratory data to diagnose pediatric infections from specific pathogens.

In the course of nosology, students will be taught the connection of specific microorganisms with categories of diseases, the diagnostic approach and the indicated treatment.

3. Immune deficiencies HIV (I)

Immunology is an integral part of infectious disease. In recent decades there has been a real revolution in the understanding of the function of the immune system and how it relates to the development of infections, depending on the pathogen or the site of infection. Immune disorders, primary and secondary immunodeficiencies, predispose to the development of infections; thus, this section of the program of Pediatric Infectious Diseases is of key importance. Teaching related to Immunology will cover modules such as:

- Basic principles of immunology
- Primary and secondary immunodeficiencies
- Newer genetic methods that correlate pathogen with immune response



- Approach to patients with immunodeficiency

3rd SEMESTER

1. Vaccinations and Passive Immunization

The prevention of infectious diseases through vaccination is an extremely important public health issue since it reduces significantly serious morbidity and mortality caused by the vaccine preventable diseases. After the eradication of smallpox, the eradication of polio, measles and other diseases seems possible in the near future. At the same time, with the progress of science and technology, new vaccines are constantly being developed with the aim of preventing even more diseases with infectious causes. The knowledge and implementation of vaccinations, as well as creating and rolling out vaccination programs, are becoming increasingly complex. A major threat to public health is the growing vaccine hesitancy and refusal.

The aims of this section are to:

- understand the epidemiology of vaccine preventable diseases
- familiarize with the composition and immunogenicity of vaccines, as well as the effectiveness and benefit of their administration in clinical practice
- train in vaccine safety
- familiarize with and understand the rationale of the pediatric vaccination program.

2. Special Groups

Infections in immunocompromised patients are potentially devastating. The epidemiology, pathogenesis, clinical presentation, treatment, and outcome differ significantly depending on the type and degree of immunosuppression. The aim of this section is to discuss the most common infections in immunosuppressed, oncological and transplant patients, such as the management of febrile neutropenia, fungal infections, and other opportunistic infections. In addition, infections in neonates, which are a special group of the population, will be discussed in relation to the type of pathogens and the immune response. Significant emphasis will also be given to infections related to newer immunological therapies with biological agents.



3. Immune deficiencies HIV (II)

In this course students will be educated about HIV infection. More specifically, the course will include lectures on the pathogenesis, epidemiology, risk factors, diagnosis, treatment and prevention of HIV infection. In addition, data concerning perinatal HIV infection and its prevention, epidemiology and treatment of opportunistic infections in HIV patients and co-morbidities of HIV infection will be analyzed. Special emphasis will be placed on the clinical manifestations, diagnosis, and treatment of HIV in childhood.

4th SEMESTER

1. Laboratory Exercise

A. Microbiological laboratory

B. Diagnostic Techniques

In this module, the students will practice in collaborating microbiological laboratories, hospital infection control committees, antibiotic consumption control committees and relevant departments of the National Public Health Organization. The aims of the training are to become familiar with the basic principles of microbiology, specifically with the receipt, preservation and evaluation of biological materials, cultivation, but also the investigation of antimicrobial drug resistance. In case of student interest, he/she may be given the opportunity to attend other laboratories such as immunology, molecular biology, or mycology.

C. Control of Hospital Infections

D. Antibiotic Stewardship

In this module, the students participating in the committees mentioned above will familiarize themselves with practices aimed at:

- the surveillance and treatment of colonization with resistant microbes in hospitalized patients and in the prevention of their possible spread to others,
- the surveillance of the correct use of antimicrobials,
- the prevention of infections associated with central catheters,
- the prevention of transmission of hospital infections,
- the prevention of infections among hospital workers.

The internship includes daily (morning) visits to collaborating relevant departments of hospitals or laboratories, for a total duration of 15 days, following the creation of an individualized student plan in consultation with the student, the Coordinating Committee and the collaborating agencies.

Following special consultation, students residing far from the Greater Metropolitan area of Athens may conditionally undertake their internships close to their residence.

2. Master's thesis

The thesis is an important part of the 4th semester. Each student discusses with the Coordinating Committee about his/her special interests and is given the opportunity to choose his thesis supervisor after consultation with his/her mentor. The thesis may concern a systematic review of the literature, or primary research (retrospective or prospective study) with the aim of publishing the results in scientific journals or presenting them at conferences. The selection of the subject of the students' thesis is made at the



beginning of the third semester, on dates set by the coordinating committee and after consultation with their supervisors.

Each student prepares and supports his thesis in order to complete his/her studies and graduate.

The Coordinating Committee sets three (3) examination periods per year to support of theses, namely in September, February and June. The thesis is presented (supported) by the candidate in a special session of the master's degree program, is graded by the examination committee appointed by the Coordinating Committee, and approved by the Assembly of the Faculty of Medicine. Diploma theses are written and presented in Greek or English at the student's discretion, based on detailed instructions given to students at the beginning of the second year.