Postgraduate Medical Training (Residency Program)

This overview presents a multidisciplinary and integrated program that covers all the major areas of modern medicine: clinical, surgical, biological, diagnostic, psychiatric, preventive, and research-based. It offers a comprehensive and specialized education tailored to the needs of contemporary medicine, encompassing patient care, innovation, and public health.

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1. Clinical Medicine and Medical Specialties

- **Internal Medicine**: Comprehensive management of chronic and multisystemic diseases with interdisciplinary coordination.
- **Infectious Diseases**: Diagnosis, treatment, and prevention of infections; epidemic management and appropriate antibiotic use.
- **Hematology**: Diagnosis and treatment of blood diseases; management of therapies such as chemotherapy and transfusions.
- **Pulmonology**: Management of respiratory diseases (asthma, COPD, tuberculosis, etc.) using functional and therapeutic assessments.
- **Gastroenterology**: Diagnosis of digestive disorders via endoscopy and management of hepato-digestive diseases.

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2. Medical-Biological and Diagnostic Disciplines

- **Pathology**: Morphological analysis of tissues for disease diagnosis, particularly in oncology.
- **Immunology**: Study of the immune system, immune-related diseases, and therapeutic/vaccine applications.
- **Biochemistry**: Molecular mechanisms and biomarkers for clinical diagnostics.
- **Hemobiology and Transfusion Medicine**: Blood management, transfusion safety, and prevention of complications.
- **Epidemiology**: Population-level disease studies supporting public health and health policies.

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3. Neuropsychic Specialties

- **Neurophysiology**: Analysis of nervous system electrical activity for diagnosing neurological disorders.
- **Child and Adolescent Psychiatry**: Management of early mental disorders using integrated therapeutic approaches.

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4. Imaging, Physiology, and Nuclear Medicine

- **Medical Radiology**: Imaging techniques for diagnosis (MRI, CT, ultrasound, etc.).
- **Nuclear Medicine**: Functional imaging and treatments using radioactive substances.
- **Cardiorespiratory Physiology and Exercise Testing**: Functional evaluation of the heart and lungs; used in sports and rehabilitation medicine.
- **Therapeutic Chemistry**: Design and optimization of bioactive molecules.
- **Clinical Physiology and Functional Testing**: Monitoring chronic conditions through specific functional tests.

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5. Emergency Medicine and Specialized Surgeries

- **Forensic Medicine**: Medico-legal investigations, autopsies, and expert reports.
- **Emergency Medicine**: Rapid stabilization of life-threatening emergencies; coordination of care pathways.
- **Pediatric, Thoracic, Vascular, Maxillofacial, Cardiac, Cardiovascular, Urologic, and Plastic Surgery**: Specialized surgical interventions across systems and age groups.
- **Pediatric Anesthesia and Resuscitation**: Anesthetic management and resuscitation adapted to children.

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6. Medico-Surgical Specialties

- **Obstetrics & Gynecology**: Care during pregnancy, childbirth, reproductive health, and gynecological surgery.
- **Dermatology**: Diagnosis and treatment of skin conditions with specific procedures.
- **Plastic Surgery**: Functional and aesthetic reconstruction, including microsurgery techniques.
- **Physical Medicine and Rehabilitation**: Post-trauma or post-surgical recovery through targeted therapies.
- **General Medicine**: Comprehensive patient care, prevention, and continuity of care.

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7. Cross-cutting and Foundational Specialties

- **Cardiorespiratory Physiology**: Understanding physiological mechanisms for diagnostic support.
- **Sports Medicine**: Management of injuries, prevention, and performance monitoring.
- **Functional Rehabilitation**: Technologies and therapies to restore mobility and autonomy.
- **Medical Botany and Cryptogamy**: Study of medicinal plants and fungi for pharmacological application.

Program Highlights

1. **Integrated Multidisciplinary Approach**
   Covers clinical, surgical, biological, diagnostic, psychiatric, preventive, and research fields for a holistic understanding of modern medicine.
2. **Patient-Centered Training**
   Comprehensive and personalized care, especially for chronic, complex, or multisystem diseases, promoting interdisciplinary collaboration and continuity of care.
3. **Excellence in Medical Specialties**
   Strong training in cutting-edge disciplines such as infectious diseases, hematology, pulmonology, and gastroenterology to meet current public health needs.
4. **Enhanced Diagnostic Expertise**
   Focus on medical-biological disciplines (pathology, immunology, biochemistry, etc.) and imaging/physiology tools for informed, data-driven decision-making.
5. **Focus on Contemporary Issues**
   Includes modern topics such as epidemiology, sports medicine, emergency medicine, and nuclear medicine aligned with scientific and societal developments.
6. **Research and Innovation Training**
   Development of skills in biomedical research, translational medicine, and therapeutic innovation to prepare for future medical challenges.
7. **Preventive and Community Health Dimension**
   Emphasizes prevention, public health, and therapeutic education, including training in epidemiology and community-based general practice.
8. **Technical and Technological Skills**
   Mastery of advanced techniques in specialized surgery, anesthesia-resuscitation, and functional medicine using modern equipment.
9. **Care Across All Life Stages**
   From pediatrics to geriatrics, including child and adolescent psychiatry, the program offers comprehensive training for all age groups.
10. **Diverse Career Prospects**
    Prepares graduates for a wide range of careers: hospital care, general practice, research, public health, forensic medicine, or medico-surgical specialties.

Core Courses

1. **Human Anatomy** – Structural study of the human body, essential for understanding pathology and surgery.
2. **General Physiology** – Functioning of biological systems (nervous, cardiorespiratory, digestive, renal, etc.).
3. **Medical Biochemistry** – Molecular bases of metabolism, enzymes, and diagnostic biomarkers.
4. **Cellular and Molecular Biology** – Study of cellular structures, signaling pathways, and genetic mechanisms.
5. **Histology and Embryology** – Tissue observation and understanding of normal and pathological embryonic development.
6. **Microbiology and Parasitology** – Study of infectious agents (bacteria, viruses, parasites) and their clinical implications.
7. **Fundamental Immunology** – Defense mechanisms and basis of autoimmune and allergic diseases.

8. **General Pathology** – Principles of disease: inflammation, necrosis, tumors, circulatory disorders...
9. **General Pharmacology** – Drug mechanisms, pharmacokinetics, pharmacodynamics, and side effects.
10. **Epidemiology and Biostatistics** – Health data analysis methods, disease surveillance, and risk assessment.
11. **Medical Semiotics** – Clinical examination techniques and interpretation of signs and symptoms.
12. **Preventive Medicine and Public Health** – Prevention principles, health promotion, vaccination, and health policy.
13. **Introduction to Medical Research** – Scientific methodology, critical reading of articles, clinical study design.
14. **Medical Ethics and Deontology** – Ethical principles, professional responsibility, and patient rights.

Advanced Topics

1. **Precision and Personalized Medicine** – Therapeutic approaches based on genetic, biological, and environmental profiles.
2. **Clinical and Molecular Oncology** – Cancer diagnosis and treatment, including targeted therapies and immunotherapy.
3. **Autoimmune Diseases and Immune Dysfunctions** – Complex differential diagnoses, biological treatments, long-term follow-up.
4. **Emerging Infectious Diseases and Antibiotic Resistance** – Pathogen monitoring, pandemic management, rational antimicrobial use.
5. **Clinical Neurosciences** – Neurodegenerative diseases, epilepsy, multiple sclerosis, neuroimaging, and neurostimulation.
6. **Minimally Invasive and Robotic Surgery** – Advanced techniques to reduce surgical risks and speed recovery.
7. **Advanced Therapies: Stem Cells, Gene Therapy, and Immunotherapy** – Frontiers of regenerative medicine and treatment of rare/severe diseases.
8. **Intensive Care and Critical Medicine** – Management of life-threatening conditions (resuscitation, ventilation, ECMO...).
9. **Rare Diseases and Orphan Medicine** – Specific diagnostic approaches and development of innovative therapeutic protocols.
10. **Environmental Medicine and Global Health** – Effects of the environment on health, diseases related to pollutants and endocrine disruptors.
11. **Interventional Radiology and Functional Imaging** – Use of imaging for targeted therapeutic procedures (embolization, guided biopsies...).
12. **Geriatric Medicine and Aging** – Management of geriatric syndromes, multiple pathologies, and autonomy support.
13. **Integrative Psychiatry and Behavioral Neurosciences** – Combined approaches (medication, psychotherapy, social) for complex psychiatric disorders.
14. **Artificial Intelligence and Health Data** – AI applications in diagnosis, clinical prediction, medical imaging analysis, and data management.