

# **IRAQI BOARD FOR MEDICAL SPECIALIZATIONS**

## **THE SCIENTIFIC COUNCIL OF PEDIATRICS**

### **PEDIATRICS SCIENTIFIC CURRICULUM**

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The Academic Curriculum for the Board Study (Fellowship Degree) in

Pediatrics Specialty “FIBMS/Pediatrics”

Academic year: 2024-2025

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## **Academic Curriculum for Pediatrics Postgraduate Program**

### **• Introduction:**

Pediatrics is the medical specialty concerned with the health of infants, children, and adolescents. It integrates preventive, acute, and chronic care; growth and development; nutrition; mental and behavioral health; and the social determinants that shape child health outcomes. This booklet outlines a comprehensive four-year residency program designed by the Pediatric Scientific Council to produce independent, ethical, and highly competent pediatricians for Iraq.

### **• Vision:**

The program envisions graduates who can safely manage most pediatric conditions across inpatient, outpatient, emergency, and community settings; lead teams; practice evidence-based medicine; and advocate for children and families nationwide.

### **• Goal:**

To ensure that health facilities in Iraq are supported by specialists in pediatrics who possess current scientific knowledge, procedural competence, professional ethics, and social accountability to deliver comprehensive, continuous, and family-centered care.

## • Learning Objectives

1. Demonstrate compassionate, family-centered communication with children and caregivers.
2. Recognize and prioritize prevalent pediatric health problems in Iraq.
3. Diagnose and manage common acute and chronic pediatric conditions using a biopsychosocial approach.
4. Stabilize and refer pediatric emergencies appropriately (PALS-aligned).
5. Provide preventive care including EPI, nutrition, growth and developmental surveillance, and adolescent counseling.
6. Interpret pediatric labs, imaging, and bedside tests accurately.
7. Perform core pediatric procedures safely and maintain a competency logbook.
8. Apply evidence-based medicine, appraisal, and quality improvement methods.
9. Conduct and present a supervised research thesis relevant to child health in Iraq.
10. Teach peers, nurses, and medical students the model professionalism and ethics.

## **Study Period**

A four-year curriculum

### **First Year:**

- Residency for 4 months in Emergency and Outpatients
- Residency for 8 months in different hospital units

### **Second Year:**

- Residency for 4 months in Neonatology
- Residency for 2 months in Primary Health Care including maternity health and childhood care
- Residency for 6 months in hospital units and Emergency and Outpatients

### **Third Year:**

- Residency for 4 months in Neonatology
- Residency for 2 months in Communicable Diseases
- Residency for 6 months in different hospital units including Infectious Diseases Unit, Emergency, and Outpatients

### **Fourth Year:**

- Residency for 3 months in Cardiology
- Residency for 2 months in Neurology
- Residency for 2 months in Haematology and Oncology
- Residency for 2 months in Endocrinology
- Residency for 3 months in Nephrology

## Topics of Study

### Year I

#### **A- Introduction to Child Health, Growth & Development**

##### **Learning Settings:**

Well-baby clinics, immunization services, community pediatrics, outpatient clinics.

##### **Learning Objectives:**

- Explain concepts of child health, growth patterns, and developmental domains.
- Plot and interpret growth charts (WHO/CDC) and identify FTT, obesity, and micro/macrocephaly.
- Conduct developmental screening and surveillance; recognize red flags.
- Deliver vaccine counseling; implement EPI schedules; manage vaccine storage and AEFIs.
- Counsel on breastfeeding, complementary feeding, micronutrients, and anemia prevention.
- Communicate effectively with caregivers; apply ethics and safeguarding principles.

##### **Required Topics:**

- Concepts of child health and disease; social determinants; child rights and protection.
- Growth monitoring: length/height, weight, head circumference, BMI-for-age; Z-scores and percentiles.

- Development: gross/fine motor, language, social; tools (Ages & Stages, Denver); developmental delay approach.
- Nutrition across life stages: breastfeeding, complementary feeding, SAM/MAM management; micronutrients (iron, vitamin D, iodine).
- Immunization: schedules, contraindications, catch-up, adverse events, cold chain, outbreak response.
- Common well-child problems: colic, feeding difficulties, sleep issues, enuresis, toilet training.
- Health promotion: oral health, injury prevention, screen-time, school readiness.

## **B- Pediatric Emergency**

### **Learning Settings:**

Pediatric emergency department, high-dependency units, resuscitation areas.

### **Learning Objectives:**

- Rapidly assess and triage acutely ill children.
- Stabilize airway, breathing, and circulation in pediatric emergencies.
- Manage common acute presentations in infants and children.

### **Required Topics:**

- Shock: hypovolemic, septic, anaphylactic – recognition and initial management.
- Respiratory emergencies: asthma exacerbation, bronchiolitis, pneumonia, foreign body aspiration.

- Neurological emergencies: status epilepticus, acute encephalopathy, head trauma.
- Acute severe dehydration and electrolyte imbalances.
- Poisoning: initial stabilization, decontamination principles.
- Burns: assessment, fluid resuscitation basics, prevention of complications.
- Pediatric resuscitation (PALS protocols): airway adjuncts, bag-mask ventilation, CPR.

## C- Outpatient Pediatrics

### Learning Settings:

Pediatric outpatient clinics, referral centers, subspecialty clinics.

### Learning Objectives:

- Diagnose and manage common pediatric illnesses in the outpatient setting.
- Provide preventive and anticipatory guidance for different age groups.
- Coordinate follow-up care and referrals.

### Required Topics:

- Common outpatient respiratory conditions: URTI, pharyngitis, otitis media, sinusitis, mild asthma.
- Gastrointestinal complaints: diarrhea, constipation, abdominal pain, GERD.
- Skin problems: atopic dermatitis, impetigo, scabies, tinea.
- Nutritional concerns: undernutrition, overweight, picky eating.

- Developmental concerns: speech delay, motor delay, school performance issues.
- Follow-up after hospital discharge: pneumonia, asthma, neonatal jaundice.

## **D- General Pediatrics (Inpatient)**

### **Learning Settings:**

Pediatric wards, general inpatient units, observation bays.

### **Learning Objectives:**

- Admit, assess, and manage common pediatric conditions requiring hospitalization.
- Monitor and adjust treatment plans during inpatient care.
- Collaborate with multidisciplinary teams.

### **Required Topics:**

- Respiratory: pneumonia (CAP/HAP), bronchiolitis, severe asthma, TB
- Gastrointestinal & Hepatic: gastroenteritis with dehydration, hepatitis, biliary atresia, malabsorption syndromes.
- Cardiology: CHD (cyanotic/acyanotic), acute heart failure, rheumatic fever.
- Nephrology: nephrotic syndrome, acute glomerulonephritis, UTI with complications.
- Endocrinology: DKA, hypoglycemia, thyroid disorders.
- Hematology: severe anemia, hemolytic crises, bleeding disorders.
- Neurology: meningitis, encephalitis, seizures.

## Year II

### A- Neonatology

#### **Learning Settings:**

Neonatal Intensive Care Unit (NICU), delivery rooms, postnatal wards.

#### **Learning Objectives:**

- Provide immediate newborn care and resuscitation according to **NRP** guidelines.
- Diagnose and manage common neonatal conditions.
- Support breastfeeding and parental bonding.
- Recognize and stabilize critically ill neonates before transfer or referral.

#### **Required Topics:**

- **Newborn assessment:** Apgar score, physical examination, anthropometric measurements.
- **Resuscitation:** NRP algorithm, meconium aspiration, oxygen therapy, CPAP, intubation basics.
- **Prematurity:** Thermoregulation, feeding, apnea of prematurity, RDS, BPD prevention, NEC.
- **Neonatal infections:** Early- and late-onset sepsis, risk factors, antibiotic regimens.
- **Jaundice:** Physiologic vs pathologic, phototherapy, exchange transfusion, cholestasis workup.
- **Feeding:** Breastfeeding support, NG tube feeding, parenteral nutrition basics, prevention of hypoglycemia.

- **Screening programs:** Hearing screening, CCHD pulse oximetry, metabolic screening.
- **Congenital anomalies:** Initial stabilization, referral protocols.
- **Complications of prematurity:** IVH, ROP, anemia of prematurity.

## **B- Primary Health Care & Community Pediatrics**

### **Learning Settings:**

Primary Health Care centers, immunization clinics, maternal and child health services, school health programs, community outreach services.

### **Learning Objectives:**

- Implement **Integrated Management of Childhood Illness (IMCI)** protocols for common pediatric presentations.
- Deliver preventive and promotive child health services in the community.
- Identify at-risk children and initiate early interventions.
- Conduct school health screening and community health education.

### **Required Topics:**

- **Preventive care:** Growth monitoring, EPI vaccination schedule, vitamin supplementation, deworming programs.
- **IMCI guidelines:** Fever, cough, diarrhea, ear infection, malnutrition management.
- **Maternal-child health linkages:** Postnatal visits, breastfeeding promotion, family planning counseling.

- **School health:** Vision, hearing, scoliosis, BMI screening; injury prevention.
- **Developmental & behavioral screening:** ASD, ADHD, learning disabilities, speech delay.
- **Child protection:** Recognition and reporting of abuse and neglect.
- **Community outreach:** Health campaigns, outbreak response immunization, health fairs.
- **Public health priorities in Iraq:** Diarrheal disease prevention, respiratory infection reduction, nutrition programs.

### **C- Pediatric Emergency, Outpatient Pediatrics and General Pediatrics**

**See Above**

### **D- End-of- First Year Exam**

## Year III

### **A- Communicable Diseases in Pediatrics**

#### **Learning Settings:**

Infectious disease wards, isolation rooms, outpatient ID clinics, community outbreak response teams.

#### **Learning Objectives:**

- Diagnose and manage common and high-priority communicable diseases in children.
- Apply infection prevention and control (IPC) measures in hospital and community settings.
- Recognize and manage outbreaks, including coordination with public health authorities.
- Implement vaccination strategies and post-exposure prophylaxis when indicated.

#### **Required Topics:**

##### **1- General Principles**

- Epidemiology of pediatric infectious diseases in Iraq and globally.
- Modes of transmission: airborne, droplet, contact, vector-borne, vertical.
- Isolation precautions and PPE use in pediatrics.
- Rational use of antibiotics and antimicrobial stewardship.

##### **2- Bacterial Infections**

- **Respiratory:** Community-acquired pneumonia, pertussis, diphtheria, tuberculosis in children.

- **Systemic:** Sepsis, meningitis (bacterial, TB meningitis), osteomyelitis, septic arthritis.
- **Gastrointestinal:** Bacterial dysentery (*Shigella*, *Salmonella*), cholera, typhoid fever.
- **Skin & Soft Tissue:** Cellulitis, impetigo, staphylococcal scalded skin syndrome.

### 3- Viral Infections

- Vaccine-preventable: Measles, mumps, rubella, varicella, poliomyelitis.
- Respiratory: RSV bronchiolitis, influenza, parainfluenza.
- Hepatitis: Hepatitis A, B, E in children; vertical transmission prevention for Hep B.
- CNS: Viral meningitis, encephalitis.

### 4- Parasitic & Fungal Infections

- **Parasitic:** Malaria, leishmaniasis, amoebiasis, giardiasis, toxoplasmosis (congenital & acquired).
- **Fungal:** Oral thrush, tinea, systemic candidiasis, cryptococcal meningitis (in immunocompromised).

### 5- Special Populations

- Immunocompromised children (HIV, oncology, post-transplant): common opportunistic infections.
- Neonates: congenital infections (TORCH), neonatal sepsis pathogens, GBS prophylaxis.

### 6- Outbreak Management

- Outbreak investigation steps in schools and communities.
- Mass vaccination campaigns and cold chain management.
- Coordination with Ministry of Health and WHO surveillance systems.

## **7- Post-Exposure Prophylaxis**

- Rabies, tetanus, hepatitis B, varicella.
- Household and school contact management for TB, meningococcal disease, pertussis.

## **B- Neonatology**

**See Above**

## **C- Subspecialty Blocks**

### **Learning Settings:**

Inpatient referral units, subspecialty clinics, procedure rooms, day-care units.

### **Learning Objectives:**

- Acquire focused knowledge and skills in core pediatric subspecialties.
- Participate in multidisciplinary care for complex cases.
- Learn indications and interpretation of specialized diagnostic tests.

### **Subspecialties & Required Topics:**

#### **Pediatric Cardiology**

- CHD (cyanotic/acyanotic) detailed approach.
- Rheumatic heart disease prevention and management.
- Pediatric arrhythmias: SVT, WPW, long QT.
- Interpretation of ECG and echocardiography.

### **Pediatric Nephrology**

- Nephrotic syndrome, glomerulonephritis spectrum.
- AKI, CKD, dialysis basics.
- Hypertension in children.

### **Pediatric Endocrinology**

- Type 1 and Type 2 diabetes in children.
- Growth disorders: short stature, GH deficiency.
- Pubertal disorders, thyroid disease, CAH basics.

### **Pediatric Hematology & Oncology**

- Anemias, hemoglobinopathies, bleeding disorders.
- Pediatric leukemia and lymphoma overview.
- Principles of chemotherapy and supportive care.

### **Pediatric Neurology**

- Epilepsy syndromes and management.
- Cerebral palsy, neuromuscular disorders.
- Neuroinfections and neuroinflammatory disorders.

### **Pediatric Dermatology**

- Atopic dermatitis, infectious dermatoses.
- Genetic skin disorders, vascular lesions.

## **D- Research Completion and Mid-board exams**

### **Learning Settings:**

Academic offices, simulation labs, mock OSCE/OSPE sessions, study groups.

### **Learning Objectives:**

- Finalize and defend the required thesis.
- Review all major pediatric topics in preparation for final board exams.
- Practice structured clinical examination techniques.

### **Key Activities:**

- Submission of thesis with supervisor endorsement.
- Presentation of research findings in departmental or national forums.
- Participation in mock MCQ exams, OSCE stations, and viva sessions.
- Self-assessment and targeted review of weak areas.

## Year IV

### **A- Advanced Subspecialty Blocks**

#### **Learning Settings:**

National referral centers, specialized inpatient units, high-volume outpatient subspecialty clinics, procedure suites, diagnostic labs.

#### **Learning Objectives:**

- Refine diagnostic and management skills in complex pediatric subspecialty cases.
- Gain competence in interpreting advanced investigations and imaging.
- Coordinate multidisciplinary care and long-term follow-up plans.
- Prepare for independent practice in tertiary and secondary care settings.

#### **Pediatric Respiratory and Cardiology**

- Complex CHD: post-operative care, palliative vs corrective surgeries.
- Advanced heart failure management in children.
- Pediatric interventional cardiology basics (catheter-based interventions).
- Infective endocarditis in high-risk children.

#### **Pediatric Neurology**

- Management of refractory epilepsy (medications, ketogenic diet).
- Neurodegenerative and neurometabolic disorders.
- Spasticity management (botulinum toxin, intrathecal baclofen).
- Pediatric stroke: acute management and rehabilitation.

## **Pediatric Hematology & Oncology**

- Relapsed/refractory leukemia protocols.
- High-risk solid tumors: neuroblastoma, Ewing sarcoma, rhabdomyosarcoma.
- HSCT principles and complications.
- Palliative and end-of-life care in pediatric oncology.

## **Pediatric Endocrinology**

- Disorders of sex development.
- Insulin pump therapy and continuous glucose monitoring.
- Cushing syndrome, adrenal insufficiency.
- Multiple endocrine neoplasia syndromes in children.

## **Pediatric Nephrology**

- Advanced dialysis modalities in pediatrics.
- Kidney transplantation: indications, immunosuppression, complications.
- Complex electrolyte and acid-base disorders.
- Chronic kidney disease progression and preventive strategies.

## **B- Senior Residency & Leadership**

### **Learning Settings:**

Pediatric wards, outpatient clinics, academic meetings, quality improvement projects.

**Learning Objectives:**

- Function as chief resident or senior team leader.
- Supervise junior residents and medical students.
- Manage ward rounds, bed allocation, and emergency coverage.
- Lead morbidity and mortality (M&M) meetings.
- Implement quality improvement (QI) and patient safety initiatives.

**Key Activities:**

- Daily coordination of multidisciplinary rounds.
- Decision-making in complex cases under consultant supervision.
- Teaching bedside skills to junior trainees.
- Reviewing and updating clinical guidelines for the department.

## **Procedural Skills & Logbook**

- IV access (peripheral), blood sampling; arterial sampling (supervised).
- Lumbar puncture; suprapubic aspiration (selected cases); urethral catheterization.
- NG/OG tube insertion; feeding tube care; enema/rectal meds.
- Airway skills: bag-mask ventilation; basic airway adjuncts; endotracheal intubation (supervised); intraosseous access.
- Chest tube insertion (supervised); needle thoracostomy.
- Simple wound care; abscess I&D; splinting; burn first aid.
- Neonatal resuscitation; umbilical catheterization (supervised).
- Point-of-care tests: glucose, urinalysis; ABG; ECG; basic ultrasound exposure.
- Documentation: discharge summaries, referral letters; safeguarding reports.

## **Assessment of Students**

- Continuous Assessment (mandatory for Primary, Mid, and Final Exams): logbook (procedures/activities), attendance (>85%), weekly formative sessions (Thursdays), seminar participation, quizzes.
- Primary Exam (Part I) at end of Year I.
- Mid Study Exam (Year III) + Thesis submission and approval (mandatory to enter Part II).
- Part II Exam (end of Year IV): Theory (Paper 1 & 2), Clinical (OSCE/OSPE), Viva.

### **Recommended Books & Websites**

- Nelson Textbook of Pediatrics (latest edition).
- WHO IMCI and Child Growth Standards resources.
- PALS Provider Manual (current edition).
- Iraqi MoH pediatric guidelines (EPI, nutrition, neonatal care).
- American Academy of Pediatrics (AAP) clinical practice guidelines.
- UpToDate/DynaMed (institutional subscriptions).