

# **INTRODUCTION TO PEDIATRIC COURSE**

**(473 PED)**

Dear Student,

Welcome to the PEDIATRIC DEPARTMENT, that branch of medicine which is concerned about the child, its development and about the diseases of children and their treatments. In some countries “child health” or “child health and life” is substituted for (Pediatrics).

This course is designed to provide you with a good chance of building up your knowledge and clinical skills in pediatrics and to prepare you to function as a competent intern.

## **THE CURRICULUM**

It is impossible to cover all topics in details in this course. However, emphasis is put on graduating general physicians who have enough basics in pediatrics.

The following is a concise outlook of the curriculum:

### **1. OBJECTIVES**

#### **1.1 General Objectives:**

*To graduate a physician who:*

1.1.1 is aware of the personal qualities and attitudes required by a physician caring for children and their families e.g. empathy, concern, gentleness, etc.

1.1.2 has acquired adequate basic knowledge and skills in pediatrics which enable him/her to proceed into subsequent general practice, speciality training or research activities.

## **1.2 Specific Objectives:**

At the end of the course the student is expected to:

- 1.2.1 perform, record and interpret a full pediatric history.
- 1.2.2 carry out, record and interpret a complete physical examination in all pediatric age groups.
- 1.2.3 identify and solve common clinical problems in pediatrics by providing a provisional diagnosis and appropriate differential diagnosis.
- 1.2.4 recognize urgent and emergency situations in pediatrics and be able to outline an appropriate plan of action.
- 1.2.5 outline a general plan of investigations and management of common pediatric problems as they relate to Saudi Arabia.
- 1.2.6 demonstrate an understanding of how to use the laboratory to reach a diagnosis of common pediatric problems .
- 1.2.7 demonstrate knowledge of community problems related to child health.
- 1.2.8 demonstrate knowledge of preventive aspects of childhood health problems and to implement them.

1.2.9 recognize his limitations concerning management of pediatric patients and the need to consult and cooperate with others to provide optimum care.

1.2.10 interact with children and their parents or relatives in a gentle, emphatic and appropriate manner.

## **2. Instructional strategies:**

### **2.1 Lectures and Tutorials**

Series of lectures covering selected topics in pediatrics will be delivered to all students together during the whole course. Eight tutorials each will be given 4 times. Each time will include one major group (A, B, C, or D). **Students are expected to come fully prepared for the tutorial sessions.** The tutors were encouraged to distribute handouts to the students before the tutorials to help them prepare.

## **TOPIC CONTENTS OF THE COURSE**

### **2.1.1 Development and behavior in pediatrics**

- Normal development
- Developmental assessment
- Developmental delay (excluding mental retardation)
- Behavior
  - Normal versus abnormal
  - Common behavioral problems (e.g., temper tantrum, attention seeking, etc.)

### **2.1.2 Nutrition**

- Breastfeeding
- Bottle feeding
- Normal nutritional needs
- Protein-calorie malnutrition
- Failure to thrive
- Obesity
- Vitamin deficiency (e.g. Vit. D deficiency)

### **2.1.3 Neonatology**

- Normal newborn
- Common disorders; respiratory distress, sepsis, others

### **2.1.4 Genetics**

- Basics of inheritance
- Approach to dysmorphic children
- Examples of common syndromes e.g., Trisomy 21, 13, 18; Turner syndrome

### **2.1.5 Metabolic disorders**

- Presentation and detection
- Approach to suspected metabolic diseases e.g., galactosemia, aminoacidopathies, organic acidemia, storage diseases

### **2.1.6 Allergy, Immunology and immunization**

- Basics of immunity
- Common Allergic conditions
- Common immune deficiency disorders
- Active and passive immunization

### **2.1.7 Rheumatic and autoimmune disorders**

- Juvenile rheumatoid arthritis
- Systemic lupus erythematosus
- Myositis
- Henoch-Schonlein purpura
- Kawasaki syndrome

### **2.1.8 Infectious Diseases**

- **Common infections:**

Measles, chicken pox, rubella, scarlet fever, stomatitis, tonsillitis, otitis media, URI, sinusitis, infectious mononucleosis, cellulites, congenital infections, poliomyelitis, tetanus

- **Serious infections:**

Meningitis, encephalitis, osteomyelitis, tuberculosis, brucellosis, malaria, leishmaniasis, HIV infection

### **2.1.9 Gastroenterology and hepatology**

- Acute and chronic diarrhea and constipation
- Structural and functional disorders of the GI tract
- Childhood liver diseases (infantile cholestasis, hepatitis, liver failure and metabolic liver disease)

### **2.1.10 Respiratory tract diseases**

- Disorders of the upper airway
- Disorders of the lower airway

### **2.1.11 Congenital and acquired heart diseases**

- Common congenital defects
- Rheumatic fever
- Infective endocarditis
- Heart failure
- Common arrhythmias in children

### **2.1.12 Hematology**

- Common hematological problems (anemias)
- Disorders of hemostasis

### **2.1.13 Oncology**

- Pediatric malignancies
- Side effects of chemotherapy

### **2.1.14 Diseases of urinary system**

- Nephrosis-nephritis-renal failure
- UTI and obstructive uropathies

### **2.1.15 Fluid, electrolytes and acid base disturbances**

### **2.1.16 Neurology**

- Seizure disorders
- Mental retardation and cerebral palsy
- Neuromuscular disorders and hypotonia

### **2.1.17 Endocrine disorders**

- Thyroid, adrenal and bone mineralization disorders
- Polydipsia, polyuria and blood sugar disorders
- Disorders of growth and puberty

### **2.1.18 Dermatology**

- Description

- Neonatal skin rashes
- Dermatitis
- Skin infections

### **2.1.19 Emergency**

- Coma
- Shock
- Burns
- Other common pediatric emergencies

### **2.1.20 Poisoning**

- Treatment
- Prevention
- Environmental hazards

## **2.2 Clinical Teaching:**

### **2.2.1 Formal teaching**

Two (2) bedside teaching sessions are conducted by a teaching staff each week. Usually cases are prepared by students who present it to the group for discussion to demonstrate the relevant historical data and physical findings. Activity takes place from 9:00 – 12:00 PM.



Students will be divided into 12 groups to be posted into different hospitals for them to swap posting at a certain time of the cycle.

### **2.2.2 ER, OPD, Nursery & Ward rotations**

During rotations, students in each subgroup are divided into small groups of 3-5 students each. They rotate through: Ward, ER, OPD, or Nursery (level 1 and 2 only).

During the ward rotation, each student should follow 1-2 patients at a time. The student is expected to function as a “sub-intern” with direct involvement in patient care. They are expected to clerk patients, observe different aspects of inpatient care and share in the rounds with the team.

In OPD or Nursery sessions each subgroup is divided into 2, one half attends in the morning and the other in the afternoon.

In ER sessions each sub group is divided into 3, each will attend a 4 hours shift: 8-12, 12-4, and 4-8. The shifts should rotate in different sessions.

### **2.3 Attending the continuous medical education in the department.**

(See attached schedule)

### **NOTES:**

1. Students who are doing ward and those who are having clinical sessions, except those who are preparing cases, are required to attend the morning report at 8:00 in the Pediatric Seminar Room.

2. **Each student should:**

- a) *Wear white coat*
- b) *Wear his / her I.D.*
- c) *Bring his / her own equipment*
- d) *Dress according to the dress code assigned by the college.*

3. **Evaluation of students**

**During each rotation, medical students will be evaluated by:**

[1] **Continuous Assessment Evaluation** – which holds 40% of the total

**marks and consists of:**

- (a) *Attendance of all activities – 5 marks*
- (b) *Presentation and discussion during clinical sessions – 4 marks*
- (c) *Clerking of clinical cases (3) – 6 marks (on 2<sup>nd</sup> and 3<sup>rd</sup> clerking)*
- (d) *Written examination (MCQs)\* – 25 marks*

[2] **Final Examination** – which holds 60% of the total marks and consists of:

- (a) *Written examination (MCQ)\* - 40 marks*

(b) OSCE - 20 marks

*\* Some MCQs are based on pictures.*

- **Student who score  $\geq 60$  marks out of 100 (total course mark) will pass the course.**

#### **4. Absences:**

- Five (5) marks for attendance of lectures, clinical sessions, tutorials, ER, OPD, nursery and ward. 0.25 marks will be deducted for each absence from any of these sessions.
- The absence from every form of activities (lectures, tutorials, clinical sessions, ER, OPD, ward, or nursery) will be accounted for. If the cumulative absence rate exceeds 20 activities, which is more than 25% of total course activities, a letter regarding the concerned student will be sent to the Vice Dean of Academic Affairs and the student will not be allowed to take the final examination.

## **RECOMMENDED BOOKS FOR THE PEDIATRIC COURSE 473**

1. Illustrated Textbook of Paediatrics, Tom Lissauer, Tom Lissauer.
2. Nelson Essential Pediatrics, Kliegman / Marcantel / Jenson / Behrman.
3. Pediatric Clinical Examination, Gill and O'Brien.

## **GUIDELINES FOR CLERKING**

### **Purpose:**

The purpose of the case study is mainly to train the student to take a thorough history and perform a comprehensive physical examination. In addition the student, through this exercise, writes down his/her thoughts about the patient's problem(s) and formulates his/her plan of action to solve it. It helps the students think critically in a problem solving manner. The student can look at the patient's file (chart) and should discuss the case with the treating team as well.

### **History Taking:**

Starting with the patient's demographic data and presenting complaint and its detailed history, the student takes a full history as he is taught to do so and according to the guidelines.

### **Physical examination:**

It is important that the student examines the patient thoroughly as he/she has learned it, and according to the acceptable medical standard. Often times a thoroughly performed physical exam can discover some findings that may or may not be related to the patient's problem. Accordingly, a complete physical examination must be performed or at least attempted. It is wise, however, to do a problem oriented physical examination more in depth to better delineate the patient's problem.

### **Summary:**

A brief summary of the history and physical examination is advisable here.

### **Problem List:**

All the problems that the patient has as obtained by the history and the physical examination need to be listed down at this stage. It is important to put down the most important problems (e.g. most serious, most urgent, or most agonizing to the patient) at the top of the list. All problems that the patient has especially those that affect his well-being whether organic or psychosocial need to be listed own.

### **Provisional diagnosis and differential diagnosis:**

The provisional diagnosis is the one that best explains the patients' symptoms and signs and encompasses as many of the patients problems as possible.

The differential diagnoses are alternative possibilities that fit the symptoms and signs but to a lesser degree.

Each diagnosis, whether the prime one or the alternatives (differential) ones, needs to have the supportive evidence and negating points mentioned.

### **Management Plan:**

Management includes investigations and treatment:

### **Investigations:**

The student must suggest the investigations required whether hematological, other body fluids or tissues or radiological. Each investigation suggested must be accompanied by sound reasoning's as to why it should be done. Investigations need to be prioritized.

### **Other services:**

The help of other services or sub-specialties can be mentioned if need be.

### **Treatment:**

Base on the aforementioned information and findings the student is expected to write down his plan of treatment with sound rationalization.

At this stage the student is allowed to look at the patient's file. The student is expected to compare his findings, thoughts, and plans with those in the file and to give his comments.

### **Follow-up:**

On a daily basis the student has to report on the patient's condition as well as any plans after discussion with the team, following the patient. Daily progress notes should be written using the SOAP format.

### **The SOAP format should be used as follows:**

- **S (Subjective):** *Changes in the patient status, in the patient's or his guardian's words.*

- **O (Objective):** *Vital signs, examination of concerned system(s), and new investigations results.*
  
- **A (Assessment):** *Your interpretations and evaluation of the patient condition based on the subjective and objective data.*
  
- **P (Plan):** *Your decisions based on the assessment (e.g. order a new investigation, add or stop a medication).*

**Prognosis and future plan:**

The student has to give his/her opinion regarding the prognosis. The student, as well, must write down the future plan for the patient (irrespective of whether the patient has been discharged or not).

**General Comments:**

The student is required to write down a brief comment on the overall management care and plans for the patient.

## **TEACHING CLASS MANNERS**

Dear Students,

**Please take note of the following manners and behaviors during teaching sessions (lecture or bedside teaching);**

- 1) *You have to comply with the agreed college dress code for students. Students wearing differently will not be allowed to attend the class.*
- 2) *Students should be seated in the class on time. Late comers will not be allowed to join class and will be regarded as absent.*
- 3) *Chewing gum, drinking, eating and inappropriate talking to colleagues disturbing the class is strictly prohibited.*
- 4) *Sick or sleepy students are not supposed to attend class. Permission or sick leave is a better alternative.*
- 5) *Bleeps and cellular phones are expected to be inactivated during the class.*
- 6) *Teacher have the right not to grant permission for attending class and expected to send students away if none of the above manners were observed.*



**WEEKLY DEPARTMENTAL ACTIVITY (KKUH)**

**PLACE: SEMINAR ROOM, DEPARTMENT OF PEDIATRICS**

<b>DAY</b>	<b>TIME</b>	<b>ACTIVITIES</b>
Saturday	8:00 – 8:30 AM	Morning Admission Rounds (GENERAL)
Sunday	8:00 – 9:00 AM	Case Presentation
Monday	8:00 – 8:30 AM	Morning Admission Rounds (NICU, PICU,ER,OPD)
Tuesday	8:00 – 9:00 AM	Grand Rounds
Wednesday	8:00 – 8:30 AM	Morning Admission Rounds (GENERAL)

**NOTE:**

- 1) *Students who are doing ward and those who are having clinical sessions, except those who are preparing cases, are required to attend the morning report at the Pediatric Seminar Room. An attendance sheet will be distributed in each morning report to the students.*
  
- 2) *Those assigned in KFMC have to attend the daily morning meeting as scheduled and according to the instructions of the students' coordinator there.*

King Saud University

College of Medicine – Department of Pediatrics

**A recommended list of “Core” clinical presentations in Pediatrics**

Please tick (√) if the case is seen and discussed with teachers.

Symptoms / Signs	(√)	Comments
- Fever		
- Vomiting (Acute & Recurrent)		
- Convulsions / Seizures		
- Headache		
- Earache		
- Abdominal pain (Acute & Chronic / Recurrent)		
- Constipation		
- Diarrhea (Acute & Chronic)		
- Cough		
- Dyspnea		
- Wheeze		
- Stridor		
- Pallor / Anemia		
- Skin rash (Generalized or Localized)		
- Hematuria / Colored urine		
- Cyanosis		
- Syncope		
- Coma / Loss of consciousness		
- Weakness / Abnormal gait		
- Floppiness / Hypotonia / Delayed walking		
- Jaundice		
- Failure to thrive		
- Crying baby / Irritability		
- Bleeding tendency / Bruising		
- Bleeding ( <i>incl. GIT bleeding Hemoptysis &amp; Hematemesis</i> )		
- Dysuria		
- Vaginal discharge / Itching		
- Abnormal movements / Chorea		
- Sore throat		
- Edema of face, body and legs		
- Polyurea / Polydipsia		
- Palpitations		
- Heart murmurs		
- Chest pain		
- Proteinuria		

- Loss of weight		
- Lymphadenopathy		
- Abdominal mass (incl. Hepatomegaly/Splenomegaly)		
- Large head - Hydrocephalus		
- Small head - Microcephaly		
- Ataxia		

## King Saud University

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**A recommended list of “Core” clinical presentations in Pediatrics**

Please tick (√) if the case is seen and discussed with teachers.

<b>Disease / Diagnosis</b>	(√)	<b>Comments</b>
- URTI		
- Otitis Media / Externa		
- Pharyngitis / Streptococcal and others		
- Pneumonia / Pulmonary TB		
- Bronchial asthma		
- Bronchiolitis		
- Croup		
- Epiglottitis		
- Respiratory failure		
- Heart failure		
- Epilepsy (including infantile spasms)		
- Febrile seizures		
- Acute lymphoblastic leukemia		
- Vasculitic Disorders / HSP		
- Nephritis / Nephrosis (incl. nephrotic syndrome)		
- Diabetes Mellitus (including DKA)		
- Meningitis / Encephalitis		
- Gastroenteritis (including dehydration)		
- Urinary Tract Infection		
- Anemia (including SCD & Thallassaemia)		
- Hemophilia & other Bleeding Disorders		
- Thrombocytopenic purpura		
- Immunodeficiency disorders		
- Atopic dermatitis / Eczema		
- Diaper rash / Dermatitis		
- Neonatal jaundice		
- Hepatitis		

- Hypothyroidism / Cretinism		
- Inborn errors of metabolism		
- Down syndrome		
- Renal failure / Acute / Chronic		
- Poisoning		
- Congenital Heart Disease		
- Rheumatic fever / Rheumatoid arthritis		
- Prematurity and its complications		
- Neural tube defects		
- Rickets		
- Congenital Adrenal Hyperplasia		
- Chicken pox		
- Measles		
- Chronic Lung Disease (e.g. CF)		

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Please tick (√) if the case is seen and discussed with teachers.

<b>Disease / Diagnosis</b>	<b>(√)</b>	<b>Comments</b>
- Neck mass(es)		
- Ambiguous genitalia / Abnormal genitalia		
- Limping		
- Arthritis		
- Apnea		
- Ascites		
- Hypertension		
- Hemolysis (Acute & Chronic)		
- Tetany / Spasticity		
- Short Stature / Tall stature		
- Precocious puberty		

- Cerebral palsy + Mental retardation		
- Delayed / Abnormal development		

*Student Guide (Course 473) Revised 2007*

**Example of MCQs in the Mid-Cycle or Final Examinations**

- 1) A 9-year-old boy presents with a several day history of progressive arm and leg weakness. He has been well except for an upper respiratory infection 2 weeks ago. The patient is alert and oriented. On repeated examination, the heart rate varies between 60 and 140 beats/minute and the blood pressure varies between 90/60 and 140/90 mm Hg. Respirations are shallow with a rate of 50/minute. There is symmetric weakness of the face and all four extremities. Deep tendon reflexes are absent. Sensation is intact. The most likely diagnosis is:
- A. polymyositis
  - B. myasthenia gravis
  - C. transverse myelitis

- D. Guillain-Barre syndrome
  - E. viral encephalitis
- 2) A 6-week-old child is admitted because of tachypnea. Birth had been uneventful, although conjunctivitis developed on the third day of life and lasted about 2 weeks. Physical examination reveals tachypnea, bilateral inspiratory crackles, and slight expiratory wheezing. Bilateral pneumonia is evident on chest x-ray. The child is afebrile and has no history of fever. White blood cell count is 15,000 with 28% eosinophils. The most likely cause of this child's symptoms is:
- A. Pneumocystis jirovecii
  - B. Chlamydia trachomatis
  - C. Mycoplasma pneumoniae
  - D. Visceral larva migrans
  - E. Varicella
- 3) A 4-year-old child manifests symptoms of fever, sore throat, and swollen lymph nodes. Spleen tip is palpable. Throat culture and rapid slide (Monospot) test results are negative. The next logical diagnostic procedure would involve:
- A. repeat throat culture
  - B. heterophil titer
  - C. Epstein-Barr virus titer
  - D. Chest x-ray
  - E. Bone marrow examination

4) A 4-year-old child with moderate vesicoureteral reflux who has recurrent urinary tract infections despite adequate antibiotic prophylaxis should have:

- A. IV antibiotic treatment for 2 weeks
- B. Repeat IV pyelogram (IVP)
- C. Renal arteriogram
- D. Antireflux surgery
- E. Addition of vitamin C (ascorbic acid) to the treatment regimen



