

INTRODUCTION:

Patients seek medical attention for various reasons. These include:

1. Prevention of illness.
2. Relief of physical symptoms.
3. Control or preferably cure of an illness.
4. To find out about the prognosis of their illness.
5. Emotional comfort.

In order to address these needs, physicians need to be able to perform *two different, but related, tasks*:

1. To arrive at a *formulation of the patient's problem(s)*, that includes a provisional or established diagnosis, and possibly a differential diagnosis. (Patients often have more than one problem at a time, and thus a "problem list" is needed.)
2. To develop a *management plan* for their problem(s).

The goal of the medicine clerkship rotations (Course 441 Med.) is to assist the student in developing their competency in these tasks in the range of problems addressed by the discipline of internal medicine up to the level required for.. students to carry on their practice as general practitioners or continue their postgraduate training in any discipline, including internal medicine, family medicine and other specialty programs.

OBJECTIVES OF COURSE 441-MEDICINE:

At the end of the 441-Medicine course students are expected to:

- 1) Master the skills of **history taking and physical examination**.
With the ability to Identify abnormal physical findings.
- 2) Have a systematic and problem based approach to the diagnosis and **management of common medical conditions**.
- 3) Be able to interpret the results of commonly used **diagnostic tests**.
- 4) Be able to recognize patients with **life threatening conditions** & have a safe and organized approach to the diagnosis and management of common medical emergencies.
- 5) Be able to **communicate effectively**, both orally and in writing with patients and other health care professionals
- 6) Be able to practice **student centered learning** in his/her free time using available resources.

. These objectives will be realized by enforcing the ACTIVE INVOLVEMENT of the medical student in his/her own theoretical teaching and to be an *ACTIVE MEMBER* of the hospital team managing the patients rather than being merely an observer. Thus, it is not surprising that the bulk of the final assessment of the medical student will depend heavily on *HOW ACTIVE* the medical student was in the above mentioned tasks.

Appendix D- describes the skills to be acquired by medical students by the end of 441-Course in Medicine.

Description of the Course

The course will be for twelve (12) weeks,

The student will be posted as sub-intern to a consultant of any sub-specialty of Medicine, either in King Khalid University Hospital (K.K.U.H), Security Forces Hospital (S.F.H), and Riyadh Medical Complex (R.M.C), for six (6) weeks.

,In either end or at the beginning of the 7th week, they will be changed to the other specialty of Medicine or other hospital as the case maybe.

Each rotation is good for six (6) weeks; therefore each student will be rotated twice.

At the end of each rotation, the staff member will fill a form marking the student's attendance, behavior, ability to take history, conduct physical examination, etc... This marking will be reflected in the **CLINICAL ASSESSMENT MARKS**.

1. ROLE OF THE STUDENT ON THE WARD TEAM

Principle: Learning at the clerkship level is best achieved by assuming, in a gradual manner, the roles played by real physicians. Therefore, the student should increasingly assume real and meaningful responsibility for patient care, and not act merely as an observer.

How the principle is realized: The student becomes *a full member of the medical team*, which includes a consultant, a senior registrar/resident, one or more first-year residents, intern and other students.

The elements of being a full team member include *the following tasks*:

1. Performing admission history and physical examination of minimum of 2-3 patients/week as assigned by the supervising consultant.
 2. Attempting to develop a differential and provisional diagnosis and to formulate a problem list.
 3. Documenting the details of the history, physical examination, impression and plan in the students Log Book (see below).
 4. Presenting (orally) a summary of their findings to the medical team during daily rounds, and at other occasions such as the unit round.
 5. Follow up of one's own patients on a regular basis with respect to the progress of their various problems.
 6. Documenting in the student;s Log Book what is happening with the patient (i.e. writing progress notes regularly).
 7. Communicating with other people involved in the care of patients under their primary care e.g. (consultants, residents, consultation services, nurses and others).
 8. Gathering and reviewing relevant data, including laboratory and radiological data.
 9. Presenting at least one case history per week to the assigned consultant
- An example of writing a proper clinical progress note is provided in **Appendix A**.

2-ROLE OF THE STUDENT IN THE EMERGENCY ROOM

Principle: Taking on call duties in E/R is an essential component of learning in Internal medicine as this is where acutely ill patients are first assessed.

How the principle is realized:

1-On-call schedules will be arranged so that every medical student will be on call three to four times during the cycle, excluding weekends & final exam weeks.

2- Students are should join the on call medical registrar during their assessment of patients in E/R.

3-Students are expected to start their duties at 4PM and finish at 10PM.

4-Next morning students should attend their usual rounds & teaching sessions.

5-Every student is expected to take at least one full history&physical examination to be presented to his consultant next day.

6-The registrar on call will sign the student's attendance sheet.

7- The evaluation of emergency room duties will be included in the clinical assessment section.

3. INTERACTIONS WITH THE "SENIORS"

Principles:

1. The consultant is the individual best positioned to provide both "formative" feedbacks to students (advice about how to improve based on the student's performance so far) and a final judgment about the student's performance.
2. The consultant is the most important internal medicine teacher the student will encounter. The attending serves as a professional role model, a source of clinically relevant knowledge, and a teacher of clinical skills.
3. The interns, residents, and registrars will be the daily supervisors of the medical students.

How the principles are realized:

the student will join the medical team in their daily rounds and present their own patients accordingly. The consultant will provide his/her own final assessment of the medical student taking in consideration also an overall feedback from the various team members. The medical student is encouraged to act as a **SHADOW** to his/her particular team and to be actively involved in its various activities.

4. TUTORIALS:

One tutorial per week on management of medical emergencies for the whole group will be given in the afternoon of every Wednesday. It can be given in Quiz format ,case scenario format or interactive discussion (See schedule below: **Appendix B**)

5. NEUROLOGY SESSIONS:

- The **objective** of these sessions is to increase exposure of students to patients suffering from conditions seen mainly in the sub-specialized division of neurology.
- All students will assemble every Tuesday, 10:00-12:00 noon in the Medical Ward 32-B Level 3 as arranged by Neurology Division.
 - Each session will have one long case and one or two short cases. The students will be divided in two groups accordingly.
 - 32 – B Nurses at the station of Neurology Ward should notify the students about the case to be used for long case presentation. Notice should be given a day before the presentation no later than 12:00 noon.
 - The assigned student will prepare the case one day earlier and present it with complete history and physical examination, Provisional diagnosis, differential diagnosis and plan for the investigation and management. He may then be asked by the teacher other things related to the case presented. Discussion is open then to the whole class and exchanged of questions is allowed. The student could be asked to demonstrate abnormal physical findings and interprets ECG, X-RAY or scans of the said patient. Between 60 minutes should be given for these long case discussions.
 - The students assigned for short cases should be asked to do a physical exam of the patient. Student will be asked about the clinical findings after the examination; Physical examination should be timed and evaluated by the teacher. Each short case should take about 30 minutes.

6. INTERNAL MEDICINE MORNING ROUND:

Lecture Theatre C. Level 3. 07:45-08:30AM.

7. BED SIDE TEACHING

The objective of bed side teaching is to help the student utilize his/her diagnostic skills to formulate a problem list for individual patients & be more familiar with how to investigate and manage patient's specific medical conditions.

Each group of students will have one session/week with medical consultants of different subspecialties (excluding neurology) in which specific cases will be given to the students beforehand to take the history & physical examination & then the student will present the case to the consultant who will then discuss with students the patient's problem list, how to investigate them, interpret the results of investigations and put forward a management plan & follow up. (See the attached schedule).

Recommended References

A. Textbooks of Medicine

Any one of the following excellent books:

1. Clinical Medicine - A textbook for Medical students and doctors. P. J. Kumar and M. L. Clark "latest edition".
2. Textbook of Medicine - By Souhami and Moxham, latest edition

3. Davidson's Principles and Principles of Medicines - C. R. Edward and Ian, A.D. Bonchir, latest edition

B. Physical Examination

Any one of the following books:

1. A guide to physical examination and history taking by Barbara Bates, latest edition.
2. Macleod's Clinical Examination by John Munro and C. Edwards
3. Clinical Examination - 2nd Edition by Nicolas Talley and Simon O'Connor

Executive Summary of Mark Distribution:

Shown below a brief overview of the current mark distribution of different assessments in the course 441-Medicine:

- 1) **Ward Clinical assessment: 20% of the total mark**
a) **5% attendance. b) 10% unit evaluation. c) 5% log book.**
- 2) **Theoretical exam: 40% of the total mark**
- 3) **Final OSCE exam: 40% of the total mark**

For each student, it is mandatory to obtain (24% out of 40%) in the final clinical (OSCE) to pass this course.

ATTENDANCE

Attendance is continuously monitored and kept to see whether students will meet the required percentage of attendance set by the University.

As early as possible, any student noticed to have poor attendance would be given warning letters to call their attention and give them a chance to improve. As a rule, students should have attended **at least 75%** of each of the course clinical & theoretical activities . Names of students who will have less than 75% attendance will be submitted to the Vice Dean – Academic Affairs Office and will not be included in the exam until the University gives their approval.

IMPORTANT DATE TO REMEMBER:

● CLASSES:

Start On	Saturday	15/04/1430	11/04/2009
End On	Wednesday	24/06/1430	17/06/2009

1. FIRST ROTATION:

Start On	Saturday	15/04/1430	11/04/2009
End On	Wednesday	18/05/1430	13/05/2009

□ CONTINUOUS ASSESSMENT EXAM:

Start On	Saturday	21/05/1430	16/05/2009
End On	Wednesday	25/05/1430	20/05/2009

2. SECOND ROTATION:

Start On	Saturday	21/05/1430	16/05/2009
End On	Wednesday	24/06/1430	17/06/2009

□ FINAL EXAMINATION:

Start On	Saturday	20/06/1430	13/06/2009
End On	Wednesday	24/06/1430	17/06/2009

3. Assessment Exams

- Theory Exam

This is a clinically-oriented theoretical assessment that involves Single-Best MCQ's through patient case scenarios.

- Clinical Exam

- It consists of one long case for the mid-term exam and OSCE at the end of the course.

• LONG CASE

The mid-term clinical exam will consist of one long case. The goal here is to introduce the medical student to the clinical exam format mid-way in his/her training period so mistakes could be learned from and avoided in the future exams. Each student has the right to repeat the exam if a clear evidence was submitted indicating an unfair exam (e.g. non-compliant patient). A one-page "long-case feedback" form will be filled immediately by the examiners that will be copied and then given to the student in order to improve his/her performance for the next exam.

An example of how this form looks like is shown in Appendix C.

• OSCE: (Objective Structured Clinical Examination)

- This part will include both of the short clinical cases in addition to the oral part in the old system:
- **Rational: this will result in a more objective and standard exam by exposing the same students to the same examiners asking the same questions and have the ideal answers and mark distribution, with more efficient & effective use of time and staff.**
- It includes **10 stations**, and each station lasts for **7 minutes**, so the total time for **1 OSCE is 70 minutes**.
- The stations are divided into the following:
 - a - Data Interpretation Stations**
 - b- Focused Clinical Stations.**
 - c -Rest Stations.**

- 10-11 students will undertake the OSCE at one time, followed by a 10-minute break, then another 10-11 students will undertake the OSCE.
- Each student will be provided with 10 stickers that contain his/her name and university number that he/she will handle to the examiners to avoid wasting time in getting this information during the start of each station.

- **DATA INTERPRETATION:** It should be emphasized that the goal here is *not to test memory recall abilities but rather to test clinical approach to a brief clinical scenario through proper interpretation of a laboratory investigation*. Here are some examples of possible stations in each subspecialty:
 - **CVS:**
 - ECG (e.g: AMI, atrial fibrillation, ventricular fibrillation, LVH..etc)
 - **Respiratory:**
 - ABG (e.g.: acute respiratory acidosis..etc)
 - PFT (e.g.: obstructive lung disease..etc)
 - CXR (e.g.: T.B...etc)
 - Pleural fluid (e.g.: exudate..etc)
 - **Endocrine:**
 - Abnormal glucose control (e.g: DKA)
 - **Rheumatology:**
 - knee aspirate (e.g: septic versus inflammatory)
 - **Hematology/Oncology:**
 - CBC: (e.g: anemia, PRV...etc)
 - **GI:**
 - Abnormal liver enzymes (e.g.: acute hepatitis..etc)
 - Ascitic fluid aspirate (e.g.: exudate..etc)
 - **Nephrology:**
 - Electrolyte disturbance (e.g.: hyponatremia..etc)
 - Acid-base imbalance (e.g.: metabolic acidosis..etc)
 - **Neurology:**
 - CSF (e.g.: meningitis..etc)
 - **Infectious Diseases:**
 - Urine C/S (e.g: UTI)
 - Blood C/S (e.g: Staph. Septicemia in a drug addict..etc)

Example # 1:

CXR of a 60 year old man with cough, fever, and sweating for 4 weeks.

1. Interpret the main abnormal findings of the CXR? (2 marks)

✓ Ideal answer: Right upper lung lobe infiltration

2. List 3 differential diagnoses? (3 marks)

✓ Ideal answer: a. Pneumonia
 b. T.B
 c. Cancer

3. Mention 3 initial and essential laboratory investigations? (3 marks)

✓ Ideal answer a. Sputum for C/S
 b. Sputum for AFB
 c. CBC

4. Mention the initial antibiotic class of choice? (2 marks)

✓ Ideal answer Cephalosporin or a penicillin

Example # 2:

70 year old man with history of DM, HTN and hypercholesterolemia. He presents with the current ECG. (ECG is provided that shows an inferolateral MI).

1. Interpret the ECG (1 mark)

- ✓ Ideal answer: Inferolateral acute ST elevation myocardial infarction
(but If answered: Inferior STEMI: 1/2 out of 1 Mark)

2. How would you manage this patient? (6 marks)

- ✓ Ideal answer

1. ASA = 2 marks
2. Heparin = 1 mark
3. B-blocker = 1 mark
4. Fibrinolytic = 2 marks

3. How would you decide about successful reperfusion? (3 marks)

- ✓ Ideal answer

1. Resolution of the ischemic chest pain
2. Resolution of the ST-segment elevation by at least 50%
3. Reperfusion arrhythmia (e.g. AIVR)

II. FOCUSED CLINICAL EXAMINATION:

- **This is similar to the short case** format in the old system, but is more focused, e.g.: instead of asking about the CVS examination of a patient which is not practical to be done properly in 7 minutes as being done in the current system, the medical student will be asked to examine only the JVP and demonstrate it to the examiners over the 7minutes period allotted to that station.

- Here are some examples of possible stations in each subspecialty:

•CVS:

- Precodium: murmurs, mechanical valve sounds
- Peripheral Pulses
- JVP
- B.P measurement

•Respiratory:

- Chest (Percussion & Auscultation)

•Endocrine:

- Thyroid

•Rheumatology:

- Knee
deficil
- Hands

•Hematology/Oncology:

- Lymph nodes

•GI:

- Liver
- Ascitis

•Nephrology:

- Kidney

•Neurology:

- Specific Cranial Nerve (e.g.: 7th cranial nerve,..etc)
- Specific Motor on sensory

- Cerebellar exam

***FOCUSED CLINICAL EXAM
ASSESSMENT FORMAT***

JVP Station

Student Name: _____

Student No.: _____

I- Technique (60%): The medical student is able to properly do the following:-

YES NO

- | | | | |
|--|-------|-------|---------|
| 1. Identify the different anatomical landmarks for the JVP and the carotid pulse in the neck | _____ | _____ | 1 mark |
| 2. Able to measure the exact height of the JVP | _____ | _____ | 2 marks |
| 3. Able to demonstrate the different clinical maneuvers used to distinguish JVP from the carotid pulse | _____ | _____ | 3 marks |

II- Interpretation (40%):

The medical student is able to properly:

- Identify whether the JVP is low, normal or high 2 marks

- Mention 2 differential diagnoses for 2 marks

EXAMINER NAME: _____ EXAMINER NAME: _____

SIGNATURE: _____ SIGNATURE: _____

***FOCUSED CLINICAL EXAM
ASSESSMENT FORMAT***

SPLEEN Station

Student Name: _____

Student No.: _____

I- Technique (60%): The medical student is able to properly do the following:-

YES NO

- | | | | |
|----|---|-------|---------|
| 1. | Palpation: from the right iliac fossa toward the left costal margin | _____ | 2 marks |
| 2. | Percussion: able to demonstrate the percussion note over the abdomen & left lower ribs | _____ | 2 marks |
| 3. | Demonstrate the different clinical maneuvers used to distinguish spleen from the kidney (Palpation after rolling over the patient toward him/her, bimanual technique for the kidneys) | _____ | 2 marks |

II- Interpretation (40%):

The medical student is able to properly:

- Identify whether the spleen is normal or enlarged 2 marks

- Mention 2 differential diagnoses for 2 marks

EXAMINER NAME: _____ EXAMINER NAME: _____

SIGNATURE: _____ SIGNATURE: _____

APPENDIX - A

Sub-intern Progress Note

- 56 Y/O man who was admitted yesterday because of unstable angina CCS class III in the last 1 month. He has been having recurrent C/P overnight awakening him from sleep requiring multiple NTG puffs. +ve SOB & sweating.
- P/Ex: 170/85, 95/min reg. 90% O2 Sat on 2L FiO2. Chest: bilateral basal crackles. JVP: 5cm ASA with +ve AJR. S1+S2+ESM 2/6 @ the apex. +ve L.L edema. Abd.: NAD.
- Invx: ECG: deeply inverted T-waves in the anterior leads. TnT: -ve. FBS:10.4. T.Chol.:7.3. LDL: 5.5.

10.2		140	25	10.4
13.4	223	4.0	100	120

- **Issues (Assessment):**

- 1. Unstable Angina:**

Worsening to class IV with evidence of CHF

P: To discuss with the S.R/Consultant regarding transfer to CCU and start I/V NTG, heparin, IIb/IIIa-inhibitors and for possible urgent coronary cath. Today (?LAD lesion)

- 2. New CHF:**

P: D/C IVF. I/V lasix 40mg then R/A. Start Lisinopril 10 mg OD. CXR. Echocardiography to check LV function.

- 3. D.M (new Dx):**

P: Start Gliclazide (will check the dose). Consult endocrine service. Gluco-check QID. Check for microalbuminuria.

- 4. Uncontrolled HTN:**

P: B.P Goal is less than 135/80 b/c of D.M. Will follow it up after above meds take effect.

- 5. Hypercholesterolemia:**

P: start Lipitor 40mg OD.

Dr.M.ALQahtani

Subintern

Pager: 2300

APPENDIX - B

TUTORIAL ON EMERGENCY MEDICINE

LOCATION: Room: , level

DAY: Wednesday (1:00 – 3:30 p.m.)

DATE	TIME	TOPIC	TUTOR
	1:00 – 1:30	Liver Function Test	Prof. Saleh Al Amri
	1:30 – 3:30	Arterial Blood Gases (ABG) +	Dr.
	1:00 – 3:30	E.C.G. - Arrhythmia and Management	Dr. Hussam Al Faleh
	1:00 – 2:30	Acute G.I. Bleeding	Prof. Ibrahim Al Mofleh
	2:30 – 3:30	Acute Hepatocellular Failure	Dr. Ayman Abdo
	1:00 – 2:30	Chest x-ray (CXR)	Dr.
	2:30 – 3:30	Pulmonary Embolism	Dr. Ahmed Bahammam
	1:00 – 3:30	a) Meningitis b) Malaria c) Infective Endocarditis	Prof. Abdulkarim Al Aska / Dr. Fahad Al Majid
	1:00 – 2:30	Infectious Hazards	Dr.
	2:30 – 3:30	Electrolytes Imbalance	Dr.
	1:00 – 2:30	Acute Obstructive Airway Disease	Dr. Abdulaziz Al Zeer
	2:30 – 3:30	Hypertensive Crisis	Dr.
	1:00 – 3:30	Endocrine Emergencies a) Diabetic Ketoacidosis b) Thyroid Emergencies c) Adrenal Crisis	Prof. Riad Sulimani
	1:00 - 3:30	a) CBC Abnormalities and Diagnosis b) Coagulation – Abnormalities	Dr. Abdulrahman Al Diab
	1:00 – 2:30	Inflammatory Polyarthritis	Prof. Abdulrahman Al Arfaj
	2:30 – 3:30	Glomerulonephritis – acute kidney disease	Prof. Jamal Al Wakeel
	1:00 – 3:30	ECG General /Ischemic Heart Disease	Dr. Khalid Al Habib
	1:00 – 2:15	Acute Stroke – Diagnosis and Management	Dr. Radwan Zaidan
	2:15 – 3:30	Status Epilepticus	Dr. Mansour Al Moallem

APPENDIX - C

441- MED. LONG CASE STUDENT FEEDBACK FORM

(Please encircle 1 or more)

STUDENT NAME: _____

STUDENT NO.: _____

Major Strengths:

1. Confident
2. Organized
3. Proper attitude and bedside manners
4. Competent history: *comprehensive, accurate, and concise*
5. Competent physical examination: *complete and accurate*
6. Competent differential diagnosis & management:
analyses, synthesizes, and integrates all relevant data into a rational, logical management strategy.

Major Weaknesses:

1. Hesitant
2. Disorganized
3. Improper attitude and bedside manners
4. Incompetent history
5. Incompetent physical examination
6. Incompetent differential diagnosis & management

Further comments/advice for further improvements:

1. _____
2. _____
3. _____

EXAMINER NAME _____ EXAMINER NAME _____

APPENDIX - D

SKILLS TO BE ACQUIRED BY MEDICAL STUDENTS BY THE END OF THE COURSE 441-MEDICINE

I. Professional

II. Medical Expert/Skilled Clinical Decision Maker

III. Communicator/Doctor-Patient Relationship

IV. Collaborator

V. Manager

VI. Health Advocate

VII. Scholar

I. While achieving competency in Medicine Students are expected, throughout the clerkship in internal medicine, to act in a professional manner

a) Demonstrate compassion to his patient e.g.

1. Demonstrates sensitivity to patients' needs and concerns
2. Takes time and effort to explain information to patients & Comfort the sick ones.
3. Shows respect for patients' confidentiality

b) Demonstrate reliability and a strong sense of responsibility as he/she:

Completes assigned tasks timely and fully and takes on appropriate share of team work

c) Demonstrate commitment to self-improvement as he/she:

Accepts constructive feedback, reads up on patient cases and attends rounds, seminars, and other learning events

d) Demonstrate respect for others, as in the course of relationships with students, faculty and staff, he/she:

Establishes rapport with team members and relates well to other health care professionals in a learning environment

e) Demonstrates integrity by upholding a professional code of conduct as he/she:

1. Uses appropriate language in discussion with patients and colleagues
2. Behaves honestly

3. Respects diversity of race, gender, religion, age, disability, intelligence, and socio-12.
Dresses in an appropriate professional manner (context specific)

II. At the conclusion of the clerkship in internal medicine, the medical student will be a Medical Expert/ Skilled Clinical Decision Maker

1. **Demonstrate a thorough knowledge of internal medicine.** This has three dimensions:

- a) the student should know the common and life-threatening illnesses affecting adults in terms of the:

- i. Definition
- ii. Epidemiology
- iii. Etiology
- iv. Pathogenesis and pathophysiology
- v. Clinical features
- vi. Complications
- vii. Investigations required to confirm a diagnosis
- viii. Principles of prevention
- ix. Principles of management
 - Medical
 - Surgical
 - Involvement of allied health professionals
 - Nutritional
- x. Prognosis

A Check list of common and life threatening illness students should know through the course is included in the students log book.

- b) The student should develop an approach to the diagnosis of the major presenting problems encountered in internal medicine. In order to do this, the student needs to be able to:

- i. List in an organized fashion the **major causes** of each of these problems
- ii. List the **most important or life-threatening causes** of each problem
- iii. Explain how data that may be obtained from the history and physical examination will affect the **likelihood of these diagnostic possibilities** for each problem
- iv. Understand the appropriate use and interpretation of diagnostic tests (see below)

MAJOR PRESENTING PROBLEMS IN INTERNAL MEDICINE

Cardiorespiratory

Cardiac arrest / respiratory arrest
Chest discomfort
Cough
Cyanosis / hypoxemia / hypoxia
Dyspnea

Hematologic/oncologic

Leukocytosis
Leukopenia
Anemia
Bleeding tendency/bruising
Lymphadenopathy

Edema
Hemoptysis
Hypercarbia
Hypoxemia and hypoxia
*Insomnia / sleep-apnea syndrome
Murmurs / extra heart sounds
Palpitations (abnormal ECG, arrhythmias)
Shock, hypotension
Syncope, presyncope, loss of consciousness
Wheezing

Gastrointestinal / hepatobiliary

Abdominal pain
Ascites
Abnormal liver enzyme levels
Blood in stool (hematochezia and melena)
Constipation
Diarrhea
Dysphagia
Hematemesis
Abnormalities of liver synthetic function
Jaundice
Vomiting, nausea

Renal / fluid-electrolyte

Metabolic acidosis and alkalosis
Respiratory acidosis and alkalosis
Hypo- and hyperkalemia
Hypo- and hypernatremia
Hematuria
Hypertension
Proteinuria
Urinary frequency (associated with dysuria;
associated with polyuria)
Oliguria

Endocrine

Hyperglycemia
Hypo- and hypercalcemia
Hypo- and hyperphosphatemia
*Hirsutism and virilization

Polycythemia
Splenomegaly
Febrile neutropenia

Rheumatologic

Joint pain (mono-articular and poly-articular)
Painful limb
Back pain

Neurological

Coma / impaired consciousness
Confusion / delirium
Dementia / memory disturbances
Diplopia
Dizziness / vertigo
Gait disturbances /Ataxia
Headache
Numbness and tingling
Pupil abnormalities
Seizures
Speech and language abnormalities
Tremor
Visual disturbance / loss
Weakness / paralysis

Geriatrics

Falls
Failure to thrive (elderly)
Urinary incontinence (elderly)

General internal medicine

Allergic reactions
Dying patient
Fatigue
Fever and chills
Pain
Poisoning
Pruritus
Substance abuse, drug addiction, withdrawal
Weight gain / obesity
Weight loss

3. Demonstrate clinical skills:

- a) Students should be able to obtain and document both a complete and a focused medical history, as the situation requires. The history will be thorough and organized, and supplemented as needed by information from other sources (family members, other health care institutions, other physicians, etc.)
- b) Students should be able to perform and document both a complete and a focused physical examination, as the situation requires. In order to do this, students must be able to demonstrate:

- An understanding of the physiologic basis of clinical findings

- A logical, comprehensive, organized approach to the physical examination that is adaptable to specific circumstances
- Proper techniques of physical examination
- Appropriate attention to patient comfort, hygiene and privacy
- An understanding of the significance of, and the ability to detect the presence of, the most important physical examination abnormalities pertinent to internal medicine.

MAJOR PHYSICAL EXAMINATION ABNORMALITIES IN INTERNAL MEDICINE

General

Pallor
Cyanosis
Clubbing
Icterus
Cachexia

Vital signs

Hypertension / hypotension
Tachypnea / bradypnea
Tachycardia / bradycardia
Fever

Head and neck

Fundoscopy changes
(hypertensive, diabetic and papilledema)
Proptosis and lid lag
Thyroid nodule and goitre
Parotid enlargement
Meningismus

Cardiovascular

Edema
Findings of peripheral arterial insufficiency
Elevated JVP / hepatjugular reflux
Carotid bruit
Carotid upstroke delayed
Displaced apical impulse
Parasternal lift / heave
Abnormalities of S1
(loud, soft, variable)
Abnormalities of S2 (loud P2, paradoxical split, fixed split)
S3, S4
Friction rub
Systolic murmurs
Diastolic murmurs

Respiratory

Tracheal deviation
Findings of pleural effusion
Findings of consolidation
Findings of pneumothorax
Wheezing
Bronchial breath sounds

Dullness on Percussio

Abdominal

Findings of ascites
Hepatomegaly
Splenomegaly
Tenderness
Other masses

Neurological

Cranial nerve abnormalities
Weakness
Tremor
Spasticity and flaccidity
Sensory abnormalities
Hyper and hyporeflexia

Ataxia and postural instability

Musculoskeletal

Joint tenderness
Joint swelling
Stress pain
Crepitus
Reduced range of joint motion
Joint deformity
Muscle atrophy

Skin

Local lesions
Diffuse skin rash

Lymphatic

Cervical lymphadenopathy
Axillary lymphadenopathy
Inguinal/femoral lymphadenopathy

c) Students should be able to interpret commonly-employed diagnostic tests. The major tests those are pertinent to internal medicine. In order to use these effectively, students need to know their indications, contraindications, risks, and in general terms their test characteristics (sensitivity and specificity).

MAJOR DIAGNOSTIC TESTS IN INTERNAL MEDICINE

Hematologic tests (complete blood count, blood film, coagulation studies, ESR)

Biochemical blood tests

(electrolytes, urea, creatinine, osmolality, bilirubin, liver enzymes, ammonia, ketones, lactate, calcium, magnesium, phosphorus, albumin and total protein, glucose, uric acid, arterial blood gases, drug screen, ferritin, iron, TIBC, vitamin B12, folate,)

Endocrine blood tests

(Thyroid function tests, glycosylated hemoglobin, cortisol, aldosterone, urinary catecholamines, PTH, prolactin, vitamin D levels, cholesterol and triglyceride)

Immunologic tests

(serology including rheumatoid factor, ANA and related autoantibodies, ANCA, complement levels, serum and urine protein and immuno-electrophoresis, immunoglobulin levels)

Urine tests (urinalysis, 24 hour collection)

Microbiology tests

(gram stain and/or culture and sensitivity of blood, sputum, urine, joint fluid, CSF and other body fluids; viral serology; tests for tuberculosis and fungi;)

Stool tests (occult blood, culture, leukocytes)

Tests of other body fluids, including pleural fluid, ascites, joint fluid, bone marrow and CSF

Electrocardiography

Pulmonary function tests

Imaging tests

- Chest radiography (major emphasis)
- Plain abdominal X-ray films and CT scan of the brain (recognition of life-threatening abnormalities)

(Students should also have a general understanding of the role of other imaging modalities in the differential diagnosis of presenting problems, including in particular: ultrasound of the abdomen, Doppler ultrasound of leg veins and carotid arteries, CT scan of the chest and abdomen, nuclear medicine studies of lungs and bone, plain films of bones, DEXA scanning, and MRI.

Biopsy of specific organs (e.g. liver, lymph node, kidney,)

- d) Students should be able to integrate the above history, physical findings and diagnostic test results into a meaningful diagnostic formulation. This requires that the student can:
- Generate a **problem list and a differential diagnosis** for each of the problems.
- e) Students should be able to demonstrate therapeutic and management skills. In order to do this, the student needs to be able to:
- (i) Suggest appropriate additional investigations for each problem
 - (ii) Propose a management strategy for each of the problems based on knowledge of the properties of medical therapies in terms of their indications, contraindications, and mechanisms of action, side effects, cost and monitoring.

MAJOR MEDICAL THERAPIES

Oxygen

Nasal prongs
Face mask

Intravenous fluids

Normal saline, half-normal saline, hypertonic saline
Dextrose solutions (5%, 10%, & 50%)
Ringer's Lactate

Albumin (5%, 20%)

Nutritional therapies

Oral supplements
Enteral feeding via NG- and G-tube
Total parenteral nutrition (general principles only)

Emergency drugs

Epinephrine
Atropine
Lidocaine
Procainamide

Cardiovascular drugs

ACE inhibitors and angiotensin receptor blockers
Beta-blockers
Alpha-blockers
Calcium channel blockers
Diuretics
Digoxin
Nitrates

Antiarrhythmic medications

-Amiodarone
-Lidocaine
-Propafenone
-Sotalol

Antithrombotic therapy

Medications used to treat diabetes mellitus

Insulin
Sulfonylurea
Metformin
Thiazolidinediones
Meglitimides
Acarbose

*Medications used to treat dyslipidemia

HMG-CoA reductase inhibitors
Fibric acid derivatives
Cholestyramine
Nicotinic acid

Medications used to treat thyroid disease

Thyroid hormone replacement

Medications for Graves' disease (PTU, methimazole)

Antimicrobials

Antibiotics
Penicillins
Cephalosporins
Macrolides
Vancomycin
Aminoglycosides
Trimethoprim and sulphonamides
Metronidazole
Fluoroquinolones
Tetracyclines
Clindamycin

Antivirals

Acyclovir
Amantadine

Antiplatelet agents

- ASA
 - Clopidogrel
 - Ticlopidine
- Anticoagulants
- Warfarin
 - Heparin (unfractionated and low molecular weight)

Medications used to treat obstructive airways disease

Bronchodilators
Leukotriene antagonists
Corticosteroids
Theophylline

Medications used to treat acid-peptic disorders

Proton pump inhibitors
H2-blockers
Antacids

Medications used to treat arthritis

DMARDs
NSAIDs
Corticosteroids (local and systemic)
Biological agents (Infliximab, Etanercept)

Anticonvulsants

Phenytoin
Benzodiazepine
Valproic acid
Phenobarbital
Carbamazepine
Gabapentin

Medications used to treat inflammatory bowel disease

Steroids (local, systemic)
Budesonide
Antibiotics
Salicylate preparations
Immunosuppressives

Blood and blood products

- Packed RBC
- FFP (fresh frozen plasma)
- Platelet

*Antiretroviral therapy

***Antifungals**

Imidazoles (fluconazole, etc.)
Amphotericin
***Medications to treat mycobacterial infections**
Isoniazid
Rifampin
Ethambutol
Pyrazinamide

Medications for Parkinson's disease

L-dopa
Bromocriptine
Amanatidine

Medications for Alzheimer's disease

Aricept

Analgesics

Opioids
Acetaminophen , NSAIDs
Medications for neuropathic pain
Medications for bone pain

Laxatives

Bulk laxatives
Magnesium-based cathartics
Lactulose
PEG-based solutions
Stimulant cathartics

Anti-emetics

Dimenhydrinate
Prochlorperazine
Nabilone
Ondansetron

***Medications for osteoporosis**

Bisphosphonates
Calcitonin
SERMs (e.g. raloxifene)
Estrogen

***Chemotherapy**

General principles & emphasis on side-effects

- f) Students *are encouraged to be familiar* with the technical skills necessary to perform many of the common procedures used in internal medicine, as well as show that they understand the indications, risks and benefits of these procedures. A check list of the major procedures that medical student should be familiar with is included in the student log book.

III. Communicator/Doctor-Patient Relationship

At the conclusion of the clerkship in internal medicine, the medical student will be able to:

- a. Communicate effectively with patients and establish professional relationship characterized by understanding, trust, respect, empathy and confidentiality, taking into consideration the influence of factors such as the patient's age, gender, ethnicity, cultural and spiritual values, socioeconomic background, and medical conditions.

IV. Collaborator

At the conclusion of the clerkship in internal medicine, the medical student will be able to:

- a) Develop a care plan for a patient he/she has assessed, including investigation, treatment and continuing care, in collaboration with the members of the interdisciplinary team.
- b) Participate in interdisciplinary team discussions, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing an appropriate level of expertise to patient care.

V. Manager

During the clerkship in internal medicine, the medical student will deepen his/her understanding of the appropriate use of health care resources in the internal medicine context.

VI. Health /Advocate.

At the conclusion of the clerkship in internal medicine, the medical student will be able to:

- a) Accept appropriate responsibility for the health of patients assigned to their care.
- b) Recognize important determinants of health and principles of disease prevention pertinent to internal medicine.

VII. Scholar

At the conclusion of the clerkship in internal medicine, the medical student will be able to:

- a) Demonstrate the ability to engage in self-directed learning. This involves identifying personal learning objectives, and then finding and using a variety of resources to address learning needs.
- b) Assist in teaching others and facilitating learning where appropriate.