

Internal Medicine Clerkship Syllabus 2011-2012

Clerkship Directors

- Karen Szauter, M.D. (UTMB)
- Bernard Karnath, M.D. (UTMB)
- Sherine Salib, M.D. (Austin)
- Barry Zeluff, M.D. (St. Luke's)
- Lary Kupor, M.D. (St. Joseph's)

Coordinators

- Toni Hickerson (UTMB)
- Candice Russell (Austin)
- Fran Dawe (Houston)
- Jennifer Thomas (St. Luke's)
- Marivel Lozano (St. Joseph's)

I. Overview

Each student will spend three months on the Internal Medicine Clerkship.

Galveston students

On the Galveston campus, each student will spend one month on a general internal medicine inpatient service (John Sealy medicine, TDCJ medicine or Geriatrics), one month on a subspecialty service (cardiology, nephrology, infectious diseases), and one month on an ambulatory/consultative service depending on your preference sheets. A subspecialty consult/ambulatory rotation in the community may be requested only as a substitute for the UTMB-based ambulatory/consult month. All such rotations must have prior approval by the Clerkship Director at least 4 weeks prior to beginning the clerkships.

Austin students

On the Austin campus, each student will spend two months on a general internal medicine inpatient service and one month at a community general internal medicine practice. Students will be oriented to specific clinical responsibilities by Dr. Sherine Salib (site director in Austin) or his designee. A subspecialty consult/ambulatory rotation may be requested only as a substitute for the community-based ambulatory month. All such rotations must have prior approval by the Associate Clerkship Director in Austin.

Houston students

On the Houston campus, each student will spend one month on a general internal medicine inpatient service, one month at a community general internal medicine practice, and one month on a subspecialty service or general internal medicine inpatient service. Students will be oriented to specific clinical responsibilities by Dr. Barry Zeluff at St. Luke's Hospital and Dr. Lary Kupor at St. Joseph's Hospital. A community-based ambulatory month will be required for Houston students.

Community Rotation

Each student may spend 4 weeks on an ambulatory outpatient rotation in the community.

Criteria for Community Rotation:

1. The 4 week block must be a full-time experience - meaning at least 20 days out of the 28 with at least 8 hours per day.
2. The preceptor/attending must be a faculty at UTMB and/or have their credentials reviewed and approved by the local AHEC and course director.
3. The attending physician must agree to the policies and procedures of the clerkship
 - a) give mid-month feedback to the student
 - b) return their evaluation form within 3-4 days of the end of the rotation
 - c) be familiar with and teach towards the learning objectives
4. The student proposing the new rotation must ensure the new attending understands these parameters and agrees that s/he has the time and willingness to take a student for the specified time period. Documentation will be by the signed request form.

II. Goals and Objectives

The third year is an exciting year for students. This is when all the learning that has been occurring in the first two years begins to make sense. This is when students begin to move from mostly abstract learning to real patients in real situations. This is when students take on responsibility, when what they do matters to their patients and the healthcare team, and they take it on in pace with their gaining of skills.

In this year, students will move from thinking about patients piecemeal or in artificial situations, to interacting with real patients having real problems, usually multiple problems ranging from psychosocial to organ system damage. Students will begin to learn how to apply their basic skills to true situations, integrate them with real patient issues in real situations, and watch their skills grow as they become competent physicians. Students will learn how to gather information in difficult settings (e.g. how to obtain a history and examine a patient with dementia), develop appropriately thoughtful and defensible differential diagnoses (e.g. develop a rational differential diagnosis for a patient with chest pain who has historical and physical exam findings suggestive of both coronary artery disease and musculoskeletal causes), and learn basic diagnostic and therapeutic plans (e.g. criteria for admission to the hospital, urgent treatment of a gastrointestinal bleed, and diagnostic work-up for atypical chest pain).

A. Goals

- Gain knowledge of common medical problems: pathophysiology, presentation, natural history/complications of disease, basic treatment - acute and chronic, and diagnostic work-up.
- Gain the knowledge and skills to gather appropriate information on an adult patient with medical problems, recognize abnormal physical findings, interpret basic lab, x-ray and ECG findings, to develop a defensible differential diagnosis
- Be able to present relevant patient information in written format (e.g. H&P and daily progress notes), and verbally (e.g. full H&P, daily patient rounds, and focused visits or consults)
- Be able to recommend basic therapeutic plans for common medical problems (e.g. appropriate classes of medication for the treatment of hypertension and why one class would be better than another in different patient situations and rational choices of antimicrobials for specific infectious diseases).
- Be able to recommend basic diagnostic work-ups for common medical problems (e.g. when to do a non-invasive cardiac test for atypical angina and the most appropriate work-up for abdominal pain).
- Be able to communicate instructions/education, difficult information and provide support to patients.
- Understand and be able to act in a professional manner in different clinical situations.

B. Objectives

Knowledge:

- Be able to demonstrate a fund of knowledge in basic science essential to the understanding of disease processes and therapeutics
- Specific learning objectives by discipline and subject are listed below.
- Be able to demonstrate knowledge of chest x-ray and ECG interpretation
- Be able to demonstrate the appropriate knowledge of basic patient education for common medical problems and counseling techniques
- Be able to demonstrate knowledge of psychosocial issues and their impact on health and disease
- Be able to demonstrate knowledge of medicolegal and ethical issues, and their impact on the practice of medicine

Skills:

- Be able to perform a competent (i.e. relevant, complete, accurate) history and physical examination on a patient with an acute or chronic problem
- Be able to gather the appropriate information for a focused problem/visit, consultation, or hospital admission.
- Be able to generate an appropriate differential diagnosis for a patient's problem(s).
- Be able to generate a plan for a patient problem(s) - basic therapeutic and diagnostic work-up.
- Be able to write an appropriately focused (e.g. for consult or ambulatory visit) and an appropriately comprehensive (e.g. hospitalized patient) H&P; be able to write an appropriate (clear, concise, accurate) daily progress note.
- Be able to verbally present both complete history and physical examinations and focused/problem-oriented history and physical examinations.
- Demonstrate appropriate clinical reasoning (problem-solving) skills including the ability to:
 - * integrate basic science information into the assessment of the patient's problems/presentation
 - * prioritize a patient's signs and symptoms
 - * identify patient risks or likelihood of disease
 - * identify the pertinent positive and negative information in developing a differential diagnosis
 - * develop an appropriate, prioritized differential diagnosis
 - * discuss the logical rationale behind the diagnostic rationale
 - * recommend appropriate disease screening, health maintenance, and health promotion
 - * recommend and discuss appropriate management for common acute and chronic diseases
- Be able to demonstrate appropriate interpersonal and communication skills to provide patient education and information. This would include breaking bad news and discussing end-of-life issues.
- Be able to perform basic procedures, i.e. breast exam, rectal exam including stool guaiac

Attitude:

- Be able to demonstrate appropriate regard for patients (e.g. respect patient belief systems, autonomy, financial situation, education level, self-discipline abilities, etc.)
- Be able to demonstrate respect for the health care team, colleagues and the medical profession
- Be able to demonstrate appropriate professionalism, i.e. appropriate work responsibilities, civility with colleagues and patients, and ethical behavior (e.g. understand, practice and promote honesty and integrity in the care of patients and interactions with colleagues)

III. Required Textbooks for Comprehensive Reading

- Kochar's Clinical Medicine for Students
- Harrison's Textbook of Internal Medicine (Available online)
- Dale Dubin's Rapid Interpretation of EKGs

Note: see learning objectives in Appendix D to help guide your studies.

It is also helpful to utilize review books with board style questions for your preparation and review for the NBME shelf examination. MKSAP for Students is highly recommended for Board Exam preparation.

IV. Course Policies

A. Discipline

Students will be governed by the academic rules of UTMB while on the clerkship. Any act of academic dishonesty including recording, transmitting, giving or receiving exam questions or answers, or plagiarism, will result in a report to the Associate Dean for Student Affairs and will be dealt with according to the regulations of the University.

B. Absence Policy

Any planned absence for examinations only must be approved in advance by the Associate Dean for Student Affairs. All other planned absences from the clerkship **MUST** have prior approval by the clerkship office (see the attached student absence policy). Unexpected absences (e.g., illness) must be reported as soon as possible that day or the next to the clerkship office, the student's attending and resident. Absences that are not approved or that are not reported in a timely manner will be considered **"UNEXCUSED"**. Any unexcused absence from the clerkship or an examination will result in a **FAILING** grade for the clerkship. If a student arrives late to an examination he/she will not be given extra time to complete the examination. Excused absences totaling four or more days will generally result in a grade of **"INCOMPLETE"(I)** and the student will be required to spend additional time on the clerkship.

C. Days Off Policy

Each student will receive the weekend off in between rotations. For inpatient rotations, it is recommended that students take off one weekend day per week during the month (this includes three day holiday weekends). Each student will receive most weekends off during outpatient and consult rotations. Days off may vary for AHEC sites depending on the practice. The first two rotations will end at 5:00pm on the last Friday. **The last rotation will end at Noon on the last Thursday.**

In the event that a call day falls on a Saturday and a post-call day falls on a Sunday, it is recommended that students ask their resident for a compensation day off. Students are strongly encouraged to participate on all call days and post-call days within the confines of the rotation. Weekdays off are strongly discouraged except in the scenario mentioned above involving a weekend call.

NOTE Per the School of Medicine Academic Calendar: Holiday schedules for Year 3 and Year 4 students with clinical responsibilities are determined by each School of Medicine

department. Students may be required to attend clinical responsibilities during listed holiday periods. Each department is expected to publish its holiday policy for students.

D. Examination Policy

Students are excused from clinical duties on the day of the Shelf exam. Students are excused from call and clinical duties the afternoon and evening before the shelf examination.

E. Grading Policy

Grades in Internal Medicine are determined as follows:

- | | |
|---|-----|
| ▪ Clinical Performance Evaluations: | 40% |
| ▪ NBME Shelf Exam: | 30% |
| ▪ Logbooks, H&P's, and Theme-based Write Ups: | 20% |
| ▪ Challenges in Medicine Essay: | 10% |

Appeals Process: consistent with SOM policy, the student who wishes to appeal an examination, evaluation or course grade/score must notify the course director in writing within five workdays of the posting of the examination, evaluation or course grade/score. The course director will decide the most appropriate action to take in hearing the student's appeal, which may include, but is not limited to: acting on the appeal directly, requesting the grading or course committee to review the appeal, or asking for input from other faculty and administrators. Appeals of a **failing** clinical performance or final clerkship grade will be reviewed by an independent committee consisting of no less than 3 faculty members knowledgeable in education and assessment. The appeals committee will only review **relevant information to the student's performance on the clerkship**. After the appropriate committee or individual has heard the appeal, the student will be notified of their decision within 3-5 working days. Once a final decision has been rendered, the student may appeal to the Academic Review Committee as per School of Medicine policies.

Clinical Evaluations: (40%)

The attending faculty and supervising resident/fellow will complete written evaluations on students for all three months. (see appendix D) These evaluations, student write ups and presence at all required activities are reviewed by the Course Committee and a clinical grade is assigned. The Committee also takes into account verbal or written information, both positive and negative constructive criticism, about a student's performance while on the clerkship from any professional source; for example the Chief Residents in preparing students to present at a CPC conference, nursing service comments, and/or course coordinator comments. This committee also takes into account any issues of professional behavior or absenteeism. They assign a grade based on these items. Written comments from the faculty evaluations are edited and submitted to the Office of Student Affairs for inclusion in the Dean's Letter.

A student's clinical performance is the most important part of her/his evaluation for competency for the clerkship. It is only here that all the clinical skills are assessed, i.e. data collection, communication, problem-solving, knowledge and professional behavior. This is the key assessment of a student having obtained competency in the required skills. Because of this the Course Committee assigns the scores for this component. The members carefully review **ALL** the information on the evaluation forms from both the faculty and the residents. No single item checked on the form outweighs the other information. In some cases, the faculty or resident may be asked to provide further information that will also be included in the Committee's deliberations.

It is also very important to recognize that the highest standards of professional behavior are expected from all members of the health care team. Information on professional behavior is part of the clinical evaluation and significant irregularities in behavior may result in a failing clinical score, outweighing other positive demonstration of clinical skills.

After failures have been determined, the students scores will be curved based on the mean and standard deviation of the cohort's raw scores.

NBME Shelf Exam: (30%)

Students will take the NBME shelf exam for Internal Medicine at the end of the rotation. The lecture series given during the clerkship and the reading material should prepare the students adequately for passing this exam. The Course Committee will determine the passing score and curve, if applicable, for the examinations.

In order to be eligible for a curved score, a student must be at or above the 5th percentile nationally. A score below the 5th percentile nationally is considered a failing score. Please see the Grade Determination section below in regards to "Partial Competency."

After failures have been determined, the students scores will be curved based on the mean and standard deviation of the cohort's raw scores.

Patient Logbook, H&P's, and Theme-based write ups: (20%)

Comprehensive Patient Evaluation:

All students will be required to complete 6 H&P's during the clerkship. Each H&P must be reviewed (please submit your H&P with the evaluation from on page 21) and signed by your attending physician. It should also be noted that some consult attending physicians require comprehensive write ups. See appendix C for Sample write up. All H&P's must be uploaded into the assignments section of our website upon completion.

Theme-based supplemental write ups:

Linked to H&P and Specific to the Patient (must turn in 4 supplements as described below) These are to be an addendum to your H&Ps. These are graded by the Clerkship Directors. Literature References must be included. Limit the addendum to 1 or 2 pages.

- **Preventive Healthcare (2)**
 - Health maintenance in one female patient and one male patient
 - Must include literature review supporting the health maintenance plan
 - Review the guidelines for health care maintenance (e.g. routine blood tests, immunizations, screening exams, other studies) recommended for each of your patient. Document what your patient has had done, and what is needed to be in compliance with the current recommendations

- **Evidence-Based Medicine (2)**
 - Incorporated into the Assessment and Plan Section
 - Literature review supporting the Assessment and Plan.
 - Reference your assessment and plan with literature from current journals.
 - Consider how your literature review has impacted the care of your patient

Note that 4 of the 6 H&P's should include theme-based supplements as above. These 4 supplements are to be uploaded into the assignments section of our website along with your H&P's. You must turn in 2 supplemental write ups by the end of month 1 and the other 2 supplemental write ups by the end of month 2 of the clerkship.

Patient Logbook:

Student expectations will be to perform a history, physical examination, and clinical reasoning concerning diagnosis and/or management on the selected patient. These patient issues do not have to be the presenting complaint; they can be issues that have developed during hospitalization or are a secondary issue where a clinical reasoning activity (e.g., rounds discussion) took place and utilized student data collection. Interaction can occur in any clinical care area. See appendix A for the educational requirements checklist.

Challenges in Medicine Essay Assignment: (10%)

As part of the experience on Internal Medicine, we would like you to take some time to reflect on some of the challenges of patient care.

Essay structure: there are many issues that challenge us in the care of our patients. We would like you to select a topic from the list below

1. Rationing healthcare
2. Truth-telling
3. Decision-making capacity
4. Impaired colleague
5. End-of-life decisions
6. Informed consent
7. Other as **pre-approved** by clerkship directors [must propose a topic and get email approval from Dr. Karnath or Dr. Szauter]

The essay should be 2-3 typed pages (double spaced; 12 point font; 1.25 inch margins)

The first paragraph should describe a specific patient situation to frame your discussion. This should be a patient that you cared for, or was on your team during the internal medicine rotation. You do not need to present all of the details of the patient's medical problems; limit the introductory comments to provide enough information as to why this patient's situation prompted you to reflect on one of the above listed issues.

The remainder of the essay should explore your selected topic, and what you learned from the patient interaction or situation surrounding the care of the patient. Please reflect on the topic and explain how this patient interaction has shaped your thoughts about the issue.

You should include at least 2-3 references from the current literature.

This essay will be 10% of your final clerkship grade. The essays will be graded by the internal medicine clerkship committee (UTMB faculty).

The absolute deadline for your essay is the final Monday of the clerkship.

You must pass all components to pass the clerkship!!!

- **Failure of the NBME alone results in a "PC"**
- **Failure of clinical performance evaluations results in a "Fail"**

V. Appendix

- A. Educational Requirements Checklist
- B. Sample Progress Notes
- C. Sample Medicine Comprehensive H&P
- D. Theme-Based Write ups Criteria.
- E. Clinical Performance Evaluation Form
- F. Learning Objectives

Appendix A

Internal Medicine Clerkship Educational Requirements Checklist

The following requirements must be met in order to pass the Internal Medicine clerkship. Please use the checklist below to track your requirements.

General areas to be covered

(checklist)

Management of new acute condition with an emphasis on diagnosis (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of new acute condition with an emphasis on treatment (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of a chronic condition (2)	<input type="checkbox"/>	<input type="checkbox"/>		
Management of an exacerbation of a chronic condition (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of a psychosocial issue as significant issue of the interaction, e.g. difficulty with placement post discharge or depression/anxiety playing a significant part of the patient's healthcare management (2)	<input type="checkbox"/>	<input type="checkbox"/>		
Caring for a patient from a culture not your own (1)	<input type="checkbox"/>			
Caring for a patient with limited access to care (1)	<input type="checkbox"/>			
Caring for an elderly patient (1)	<input type="checkbox"/>			

Topic specific areas to be covered

Cardiology:
(must see at least two of the following)

- Coronary artery disease
(e.g. angina, myocardial infarction, stable disease) []
- Chest pain evaluation []
- CHF (e.g. SOB from a cardiac cause, edema) []
- Arrhythmia (e.g. atrial fibrillation, ectopy) []
- Valvular disease (e.g. aortic stenosis, HOCM) []

Pulmonary:
(must see at least two of the following)

- Dyspnea evaluation []
- Cough evaluation []
- Pulmonary Hypertension []
- Respiratory acidosis or alkalosis []
- Patient with Pleural Effusion []

Gastroenterology:
(must see at least two of the following)

- Abdominal Pain []
- Liver disease
e.g. acute or chronic hepatitis, cirrhosis, jaundice []
- Patient with GI bleed []
- Evaluation of Diarrhea []
- Patient with Nausea and Vomiting []

Endocrinology:
(must see at least two of the following)

- Patient with diabetes mellitus []
- Patient with thyroid Diseases []
- Patient with dyslipidemia []

Geriatrics:
(must see at least two of the following)

- Patient with delirium or dementia []

- Patient with home care issues []
- Patient at risk for fall []
- Elderly patient with urinary incontinence []
- Elderly patient with constipation []

Nephrology:
(must see at least two of the following)

- Patient with Hypertension []
- Patient with abnormal kidney function []
- Patient with abnormal electrolytes []
- Patient with acid/base disorder []

Rheumatology:
(must see at least one of the following)

- Patient with arthritis []
- Patient with autoimmune disease []

Hematology/Oncology:
(must see at least two of the following)

- Patient with anemia []
- Patient being evaluated for cancer []
- Patient with complications from cancer []

Infectious Diseases:
(must see at least two of the following)

- Patient with impaired immune response (HIV) []
- Patient with endocarditis []
- Patient with meningitis or CNS infection []
- Patient with community-acquired pneumonia []
- Patient with TB []
- Patient requiring management with antimicrobials []

Challenges in Medicine:
(must see any two of the following)

- 1. Rationing healthcare
- 2. Truth-telling
- 3. Decision-making capacity
- 4. Impaired colleague
- 5. End-of-life decisions
- 6. Informed consent
- 7. Other (specify)

Required Skills/Procedures:

- Examination of an abdomen with abnormal findings
(1 pt – can be done in a group on rounds in any venue)
- Examination of a chest with abnormal findings
(1 pt – can be done in a group on rounds in any venue)
- Examination of a heart with abnormal findings
(1 pt – can be done in a group on rounds in any venue)

Must perform 2 of the following

- Breast exam
- Rectal exam/stool guaiac
- ECG interpretation
- CXR interpretation

Must perform counseling (1 each)

- Breaking Bad News
- Discharge instructions
- Behavior change
(e.g., tobacco, alcohol, diet, weight loss, exercise)
- Medicine compliance

Comprehensive Patient Write ups Reviewed and signed by Faculty (6 total)

-
-

Theme-based Write ups Graded by Clerkship Directors (4 Theme-based supplements)

-

Patient encounter cards should be used to help you track your patients. Please use the electronic (Word document) version of this page and save to your computer daily.

Patient Encounter Card

Date: _____
Gender: _____
Age: _____
Ethnicity: _____
Inpatient: _____
Consult: _____

Reason(s) for admission or clinic visit

Primary: _____
Secondary: _____

Diagnosis/co-morbidities

Primary: _____
Secondary: _____

Patient Encounter Card

Date: _____
Gender: _____
Age: _____
Ethnicity: _____
Inpatient: _____
Consult: _____

Reason(s) for admission or clinic visit

Primary: _____
Secondary: _____

Diagnosis/co-morbidities

Primary: _____
Secondary: _____

Patient Encounter Card

Date: _____
Gender: _____
Age: _____
Ethnicity: _____
Inpatient: _____
Consult: _____

Reason(s) for admission or clinic visit

Primary: _____
Secondary: _____

Diagnosis/co-morbidities

Primary: _____
Secondary: _____

Patient Encounter Card

Date: _____
Gender: _____
Age: _____
Ethnicity: _____
Inpatient: _____
Consult: _____

Reason(s) for admission or clinic visit

Primary: _____
Secondary: _____

Diagnosis/co-morbidities

Primary: _____
Secondary: _____

Appendix B: Sample Progress Note Content

Student Progress Note	SOAP format
<p>S: Ms. Rogers describes no chest pain in the last 24 hours. She walked around the nursing station for 20 minutes on three occasions yesterday without limitation. She noted a brief (5 second) episode of chest fluttering at rest after dinner without associated pain, dizziness or other complaints. She describes no dyspnea, cough, nausea or vomiting overnight.</p>	<p>First comment is an update of chief complaint; circumstances of stability or instability are described. Positive findings related to complaint are described and quantitated. Relevant negative ROS included here.</p>
<p>O: BP 132/80 P 72-regular R-12 T 37.2</p> <p>Neck: No visible JV pulsations Chest: RRR with no murmurs, gallops, rubs Lungs: Clear without crackles or wheezes Ext: No cyanosis, edema</p> <p>Labs: 7/60 132 102 11 3.2 22 1.0</p> <p>ECG: (1730 yesterday; after palpitations) NSR without ectopy or ST changes</p> <p>12/60 Normal; unchanged from admission</p>	<p>Always start with vital signs Character of pulse relevant here. Include relevant CV exam</p> <p>Labs relevant to problem; list all values</p> <p>List time of ECG, associated symptoms</p> <p>Not immediately relevant; summarized</p>
<p>A: 1. Chest Pain Character of previous episodes strongly suggestive of angina pectoris. She has remained pain free for 72 hours on her current medications</p> <p>2. Palpitations This is her first mention of this complaint. Other symptoms suggestive of ischemic heart disease (angina) raise question of a dysrhythmia, but she manifests no other signs of continuing ischemia.</p> <p>3. Hypokalemia May be related to diuretic use, and may contribute to #2 above.</p>	<p>List primary problem first; if DX of ischemic heart disease is firmly established, this problem could be labeled ischemic heart disease instead of chest pain. Describe degree of stability.</p> <p>A new complaint; discuss possible etiologies specific for this patient, in order of likelihood.</p> <p>Important, relevant lab abnormality Discuss in relation to other problems</p> <p>Include your rationale for each intervention Include continuation of major management steps, as well as new interventions.</p>
<p>P: 1. Continue anti-anginal medications (ISDN, nifedipine). Indication: Ischemic heart disease.</p> <p>2. Continue HCTZ Indication: Hypertension</p> <p>3. Add KCL 40 meg po BID Indication: Hypokalemia</p> <p>4. Recheck K level in 48 hours Indication: Hypokalemia</p> <p>5. Await evaluation by cardiology Indication: Possible cardiac catheterization</p>	<p>Addition of new medication. A list of current meds should be posted prominently in the chart for you to refer to.</p> <p>If not written early in the day, it must be updated as warranted by new information or changes in the patient's condition.</p>

Sample Progress Note in EPIC Format

Sample Progress Note in EPIC

Please take the time to format your progress notes in EPIC.
You may use pre-existing templates or create your own.

STUDENT: XXXXX

PATIENT: XXXXXX (968393Q) J5C 13

NOTE: PROGRESS NOTE

DATE OF SERVICE: 7/10/2008

SUBJECTIVE:

Hospital day # 3. No acute problems overnight. Patient says he feels better everyday.
However, patient says his cough has gotten worse and is again producing green sputum.

CURRENT HOSPITAL MEDICATIONS:

MEDICATION	DOSE	FREQUENCY
Dextromethorphan-guaifenesin NaCl 0.9%	(ROBITUSSIN DM) 10-100 mg/5 ml (NS)	5 ml Oral Q6HPRN IV continuous
Hydrocodone-acetaminophen	(NORCO 5) 5-325 mg	1 Tab Oral Q6HPRN
Acetaminophen	(TYLENOL) tablet 650 mg	1 Tab Oral Q6HPRN
Levofloxacin in D5W	(LEVAQUIN) 750 mg	IV Q24H ABX
Albuterol-ipratropium	(COMBIVENT) 18-103 mcg inhaler	2 Puff Inhalation QID

OBJECTIVE:

PHYSICAL EXAM:

T max: 39.3 T current: 37.0 Pulse:105-126/min Resp: 20/min BP: 100-130/ 62-93 mmHg
General: pt alert and oriented and in no apparent distress
Lungs: Decreased breath sounds in LLL, clear to auscultation on right
Chest: chest tube in place with only 50 cc of drainage overnight.
Cardiac: tachycardic with normal S1 and S2; no murmurs, rubs or gallops
Abdomen: soft; non-tender; non-distended; normoactive bowel sounds
Extremities: No edema

Laboratory:

	Normal Range	7/10/08 6:33 AM
WBCx10 ³	Range: 4.0-10.0 /CMM	14.5
RBCx10 ⁶	Range: 3.90-5.30 /CMM	3.51 (L)
HGB	Range: 11.5-15.5 G/DL	10.0 (L)
HCT	Range: 34.0-45.0 %	32.4 (L)
MCV	Range: 80.0-96.0 FL	92.3
MCH	Range: 27.0-32.0 PG	28.5
MCHC	Range: 31.0-37.0 %	30.9 (L)
RDW	Range: 11.6-14.0 %	17.0 (H)
PLTx10 ³	Range: 150-400 /CMM	209
GRAN%	Range: 40.0-73.0 %	71.0
LYMPH%	Range: 18.0-53.0 %	20.0
MONO%	Range: 4.0-12.0 %	6.8
EOS%	Range: 0.0-6.0 %	1.8
BASO%	Range: 0.0-2.0 %	0.4

SPUTUM SAMPLE RECEIVE DATE: 07/09/08
GRAM STAIN: FEW GRAM NEGATIVE BACILLI
RARE POLYMORPHONUCLEAR LEUKOCYTES

BODY FLUID CULTURE COLLECT DATE: 07/08/08
SOURCE: PLEURAL FLUID RECEIVE DATE: 07/08/08
PLEURAL FLUID START DATE: 07/08/08
GRAM STAIN: NO ORGANISMS OBSERVED
NUMEROUS PMN'S, RARE MONONUCLEAR CELLS (LYMPHOCYTES, MONOCYTES)
PRELIMINARY REPORT: NO GROWTH AT 24 HOURS

AFB CULTURE -STERILE BODY SITE COLLECT DATE : 07/08/08
SOURCE: ASPIRATE RECEIVE DATE: 07/08/08
ASPIRATE START DATE: 07/08/08 1
AFB STAIN: NO ACID-FAST BACILLI OBSERVED ON SMEAR.

BLOOD CULTURE: NO GROWTH AT 72 HOURS
FUNGAL CULTURE IN PROGRESS

ASSESSMENT/PLAN:

XXXXX is a 60 year old man admitted to the hospital with chest pain.

1) CHEST PAIN

Chest pain was pleuritic in nature
CP has resolved and was likely due to LLL pneumonia.

2) COMMUNITY ACQUIRED PNEUMONIA

Continue with IV Levaquin 750 mg daily day # 3.
Blood cultures are negative.
Sputum cultures negative.

3) LEFT PLEURAL EFFUSION

Exudative effusion per laboratory evaluation.
Chest tube might be removed as it is no longer draining effusion.
Will call Radiology for re-evaluation of chest tube today

4) PRODUCTIVE COUGH

Change dosage of Robitussin DM to q4h as cough has worsened.
Re-submit sputum for gram stain as his cough is now productive.

5) DYSPNEA

Educate patient on use of Combivent inhaler.
O₂ per protocol. Monitor O₂ saturations.

XXXXX, MSIII

Pager: 643-XXXX

Appendix C

Sample Comprehensive Medicine H&P

SAMPLE MEDICINE WRITE-UP

Chief Complaint: "Chest pain with excessive sweating and nausea"

History of Present Illness:

Mrs. A.L. is a 50-year old white female who presented to the UTMB Emergency Room at 8:00 this morning with the chief complaint of "chest pain, nausea, and sweating" upon waking 1 ½ hours earlier. She describes the pain, which was constant for the 1.5 hours, as "squeezing". The pain diffusely spread over her upper anterior chest wall. She rates the pain 8/10 with radiation to her left jaw and left arm. She has never experienced this type of pain before. She noted no other associated signs or symptoms other than sweating and nausea and denies dyspnea, tachypnea, and fever. Although nothing relieved the pain at the time, exertion made the pain worse. She denied any previous history of chest pain, orthopnea, paroxysmal nocturnal dyspnea, or edema. Pertinent cardiovascular risk factors include a 45-pack-year smoking history, a family history of premature myocardial infarction, and being menopausal. Her mother and father both suffered MI's before age 50. This patient does report occasional brief palpitations, chronic dyspnea on exertion, and wheezing with overexertion.. Pertinent social history includes a one year history of depression and stress due to the illness and death of her ex-husband.

Past Medical History:

Childhood Illnesses: Recurrent ear infections. Appendicitis at age 10. Chickenpox and measles.

Medical Illnesses: Granuloma annulare on hands for past one year. Currently undergoing treatment in the Dermatology Dept. for cosmetic reasons. Patient did not know any other details or medications.

Injuries: Stabbed with a pencil in the abdomen in 1990. She was treated surgically to close wound, no complications.

Surgeries: Appendectomy (1962), no complications

Ob/Gyn History: G3P3 ABO LC3, all vaginal deliveries, no complications
Menarche at age 10
Menopause at age 48

Psych Hx: Depression since menopause, treated with Prozac by her PCP for the past year.

Other Hospitalizations: none

Medications: Prozac 20 mg PO daily. Multivitamin daily. Antacids prn dyspepsia.

Drug allergies: Penicillin (causes diffuse rash)

Blood transfusion/donation: none

Toxic Exposure: not aware of any

Preventive Care: She sees her family doctor annually and as needed. She receives annual mammograms and pap smears. Immunizations: Last Td was 3 yrs ago and received influenza vaccine last fall.

Family History:

Father passed away at age 46 from an MI. He had his first MI at age 35.

Mother, 75 has heart disease (MI at age 45)

46 yo sister with Type 2 diabetes mellitus

42 yo sister with Type 2 diabetes mellitus

40 yo sister in good health

Daughters: 24, 27 and Son: 29, all in good health

Significant family history for Type 2 diabetes mellitus with maternal grandmother and 2/3 maternal aunts afflicted. No family history of hypertension or cancer.

Social History:

She lives at home with her husband in Galveston and works as a secretary at a local insurance company. Her lifestyle is sedentary, as she works a desk job and does not exercise. Mrs. A. L. was married at 18 and divorced at 28. All three of her children are from that marriage. She remarried at 30 to her current husband and has a good relationship with him. The major stressor in her life is the death of her ex-husband recently. She did not want to elaborate further but mentioned that they were on bad terms when he passed away and she feels guilt. Her social support network is mainly through her husband and friends at church. She also gets stress relief from visiting her children who all reside in Austin. Mrs. A.L. has smoked 1.5 packs a day for 30 years (45-pack-year) and denies any alcohol or drug use. In terms of diet, she eats mainly fried foods and pork but has recently switched to turkey and chicken over the last 3 months.

Review of Systems:

General: She has lost 10 pounds over the past year due to diet. Denies fever, chills, night sweats

Skin: Rash on hands from granuloma annulare. Denies other pruritus, rashes, change in hair, or skin changes.

HEENT: Nearsighted since youth, vision corrected with glasses. Denies headaches or vision changes. No hearing loss, ear pain, or tinnitus. Denies epistaxis, nasal discharge, sinusitis, dental problems, mouth ulcers, or sore throats. No hoarseness, neck pain, or stiff neck.

Breasts: No breast sores, masses, pain, or discharge

Respiratory: Other than the HPI, patient has non-productive cough associated with smoking. She denies hemoptysis.

Cardiovascular: Other than the HPI, she denies claudication or syncope.

GI: Minor heartburn for the past 3 months, primarily after meals and lasts about an hour. Patient takes antacids as needed but has not had the problem evaluated further. No anorexia, hematemesis, vomiting, dysphagia, odynophagia, abdominal pain, hematochezia, melena, constipation or other changes in bowel habits.

GU: No dysuria, nocturia, or hematuria, or pelvic pain. Patient's age at menarche was 10 and she has been menopausal since January 2001. No vaginal discharge, bleeding, or sexual dysfunction.

Neurologic: No past history of seizures, muscle weakness, sensation change, incoordination, or headache.

Musculoskeletal: Denies joint stiffness, pain, swelling, or backache.

Hematologic/Lymphatic: Denies bleeding, easy bruising, infections, or swollen lymph nodes.

Endocrine: No history of heat/cold intolerance, excessive sweating, diabetes, polyphagia, polydipsia, polyuria.

Psychiatry: Depression over the past year since menopause associated with the illness/death of her ex-husband. Denies anxiety, sleep disturbance, or suicidal ideation.

Physical Examination:

Vital Signs: Temp. 37°C. Ht. 64", Wt. 170 lbs. (BMI=29.2)
BP, left arm sitting, 110/57 mmHg
Pulse: 68/min, regular Respirations: 17/min

General: Well-developed white female who appears stated age in mild distress.
Appropriately dressed and groomed.

Skin: Few hyperpigmented macules on anterior chest. Few flat pinkish-white skin discolorations on the dorsum of both hands. Lesions are not raised or fluid-filled when palpated. No other skin abnormalities on the back, upper/lower extremities, or scalp. Hair has normal texture.

Eyes: Visual acuity reduced without glasses. Patient did not have glasses with her to test corrected vision. Pupils equally round and reactive to light and accommodation. Extraocular muscles intact. Sclerae anicteric and eyelids without lesions. Conjunctiva non-injected. Fundi-discs sharp. Vessels without hemorrhages or exudates on funduscopic exam.

ENT: Hearing intact, bilaterally. External auditory canal patent, free of cerumen. Auricles without lesions. Tympanic membrane appears intact with visible landmarks, and cone of light. Nares patent and nasal mucosa appears pink. Teeth, lips, and gums without lesions. Oral mucosa without lesions. Posterior pharynx without erythema or exudate.

Neck: Full range of motion. Thyroid non-palpable. Trachea in midline. No masses or lymph nodes palpable.

Breasts: Exam Deferred

Chest: Respirations without retractions or use of accessory muscles. Symmetrical in thoracic expansion. No deformities on posterior chest wall. Lungs resonant to percussion and clear to auscultation bilaterally, without adventitious sounds. Delayed expiratory phase.

Heart: No deformities on anterior chest wall. PMI is in the 5th ICS, mid-clavicular line, 1-2 cm diameter. Regular rhythm, with normal S1, single S2. 2/6 systolic ejection murmur heard best at left midsternal border without radiation. No S3, S4, or rub. No JVD. Carotids 2+ bilaterally without bruits. Femoral arteries 2+ bilaterally without bruits. Dorsalis pedis and posterior tibial 2+ bilaterally.

Abdomen: Well-healed surgical scars in RLQ and midline. Bowel sounds normoactive. Abdomen non-tender, without guarding or rebound tenderness to deep palpation. Liver span 9 cm in the mid-clavicular line. Spleen and kidneys not palpable. No hernias palpable. Rectal exam deferred. (Stool was guaiac negative in the Emergency Room.)

GU: Deferred

Psychiatric: Patient alert, oriented to person, place, and time. Intact memory for remote and recent events. Mood normal and appropriate. Patient able to interpret proverbs (abstraction intact).

Neurologic: Cranial nerves II-XII intact. Muscle bulk is appropriate in upper/lower extremities. Motor strength is 5/5 in upper (biceps and triceps) and lower extremities (quadriceps, hamstrings, and ankles). Sensation intact to light touch, temperature, and pinprick. DTR's 2+ in the biceps, triceps, quadriceps, and ankles. Babinski responses downgoing bilaterally. Gait normal. Romberg negative.

Extremities: Full range of motion of shoulders, elbows, wrists, fingers, hips, knees, and ankles. No joint deformity, tenderness, or swelling. No cyanosis, clubbing, or edema in the extremities.

Lymphatic: No palpable lymph nodes in the neck, axilla, or inguinal region.

Problem List:

1. Chest pain
2. Nausea
3. Diaphoresis
4. Tobacco abuse
5. Dyspnea on exertion
6. Granuloma annulare
7. GERD/Heartburn
8. Depression
9. Penicillin allergy
10. Post-menopausal
11. Family Hx of premature cardiovascular disease
12. Family HX of diabetes mellitus
13. Obesity (BMI=29.2, Wt=170, Ht=64 in)
14. Prolonged expiratory phase

Assessment:

1. Chest Pain: Based on history and physical exam, the patient's chest pain is most likely due to myocardial infarction. The onset with constant "squeezing" chest pain for 1.5 hours with radiation to the left arm and jaw, quality of the pain, and presence of risk factors (pertinent family history, smoking, menopause, and obesity) are consistent with this diagnosis. Further laboratory evaluation with ECG, CK-MB, and troponin-I can confirm this diagnosis. Until proven otherwise, this patient would benefit from beta-blockers, heparin, aspirin, and telemetry monitoring. Other differential diagnoses to consider in a patient with chest pain would include angina, pneumonia, esophageal spasms/GERD, aortic aneurysm, pulmonary embolus, and costochondritis. The absence of crackles most likely excludes pneumonia and CHF. Aortic aneurysms typically present with pain in the center of the back. This condition can be suggested by chest x-ray/imaging. This patient does not have the classic symptoms for PE: dyspnea, tachypnea, and pleuritic chest pain. Since pulmonary emboli usually impair arterial oxygen saturation, determination of arterial PO₂ in addition to radiographic imaging can make this differential less likely. Pneumonia is less likely since the patient's lungs are clear to auscultation and she does not have fever. Lastly, diffuse esophageal spasms (DES)/GERD often present with more epigastric pain or dysphagia (in DES). However, this patient has had recent onset of heartburn, and further evaluation with upper endoscopy or imaging may be necessary.
2. Obesity/Family Hx of Diabetes/Smoking: With BMI of 29.2, this patient is considered obese. Since obesity is a risk factor for several illnesses including coronary artery disease, hypertension, and diabetes, she should be counseled to lose weight with exercise and diet. Additionally, patient should be closely monitored/educated for diabetic symptoms (polyuria, polydipsia, polyphagia), especially considering her family history. Smoking cessation should be encouraged as she is at risk for cardiovascular, pulmonary, and neoplastic diseases. She might benefit from nicotine patches, which may facilitate her quitting smoking.
3. GERD/Heart Burn: The patient has had recurring episodes for several months. Further evaluation may be warranted as she may benefit from more effective drugs such as proton pump inhibitors/H₂ blockers. She may also be counseled on avoiding foods that exacerbate symptoms. She may later need evaluation with upper GI endoscopy or imaging.

4. COPD: The history of dyspnea on exertion, wheezing, and tobacco abuse along with the physical exam finding of prolonged expiratory phase suggest that she has developed COPD. She should be counseled on smoking cessation. Consider PFT evaluation later as an outpatient to quantify pulmonary function.
5. Depression: The patient has a history of depression and states that she is currently controlled with Prozac. She should continue follow-up with her PCP.
6. Post-Menopausal: The patient has been post-menopausal for one year and has not been taking estrogen replacement. Recent studies have raised concerns over the safety of HRT in women with recent coronary events and in women taking HRT for greater than 5 yrs. The patient should be counseled about osteoporosis prevention or perhaps be screened for osteoporosis at a later time.
7. Granuloma annulare: These lesions require no further intervention; Patient should continue dermatologic treatment and follow-up.

Laboratory:

	Normal Range	
NA	Range: 135-145 MMOL/L	138
K	Range: 3.5-5.0 MMOL/L	4.0
CL	Range: 98-108 MMOL/L	100
CO2 TOTAL	Range: 23-31 MMOL/L	31
AGAP	Range: 2-16	7
BUN	Range: 7-23 MG/DL	12
GLUCOSE	Range: 70-110 MG/DL	95
CREATININE	Range: 0.50-1.04 MG/DL	0.90
CK	Range: 33-194 U/L	144
TROPONIN	Range: High: <0.030 ng/mL	<0.012

Plan:

Diagnostic Evaluation:

1. ECG
2. Chest X-Ray
3. Repeat CK (with CK-MB fraction), Troponin Enzymes
4. Telemetry monitoring
5. CBC/with differential, Fasting Lipid Profile in AM
6. Cardiology consultation if rules in for MI
7. Echocardiography to assess ejection fraction and wall motion

Pharmacologic/Therapeutic (In Confirmed Myocardial Infarction):

1. O₂ 2 L/min per nasal cannula
2. Beta-blocker to reduce myocardial oxygen demand
3. Aspirin/anti-platelet drugs to reduce platelet coagulation
4. Heparin until results of cardiac enzymes rule out MI
5. Proton Pump Inhibitor/H₂ antagonist for GERD
6. HMG CoA Reductase Inhibitor, if dyslipidemia is present

Patient Education/Counseling:

1. Education on Smoking Cessation
2. Education on diet/weight management and looking for diabetic symptoms
3. Education on osteoporosis prevention
4. Education on anti-reflux measures
5. Education on Ambulation/Cardiac Rehabilitation, focusing on low intensity exercise
6. Schedule follow-up visit

Comprehensive Write up Evaluation Form

H&P #	1	2	3	4	5	6	Needs Significant Help	On Target	Well Above Expectations
	1	2	3	4	5				
<p><u>History:</u></p> <p>CC: Concise, Uses quotations appropriately</p> <p>HPI Onset Time prior to admission Qualifiers Duration, Frequency, Location, Radiation, Alleviating, Aggravating Factors, Severity, etc.... Pertinent (+) Pt identifiers, Associated Symptoms, relevant PMH Pertinent (-) e.g. Pt. Denies possible assoc symptoms etc..... Organization Easy to read, starts with ID and CC Chronology Logical sequence</p> <p>PMH Meds Dose, frequency, correctly spelled Allergies Type of reaction Hospitalizations Dates and reason Surgeries Dates and reason Medical illnesses Duration or date of diagnosis</p> <p>SH: Home Living arrangements Occupation Marital status Married, divorced, widowed Alcohol Amount, frequency, type Tobacco Duration and amount Drugs Illicit</p> <p>FH: Ages and illnesses or relatives</p> <p>ROS: Must have 3 (+) or (-) per system or refer to HPI</p> <p><u>Physical Examination:</u></p> <p>Vital Signs: Blood pressure, Pulse, Respirations, Temperature General: Describes patient and mental status Skin: Rashes, Scars, Tattoos, Piercings etc..... Head and Neck: HEENT, Neck Exam, Thyroid Cardiac: Auscultation, PMI, Pulses Lungs: Auscultation and Percussion Abdomen: Inspection, Auscultation, Percussion, and Palpation Genitourinary: As indicated for pelvic and rectal examination Extremities: Joints, ROM, Edema Neurological: CN, Motor, DTR's, Sensation Lymph nodes: Presence or absence</p> <p><u>Laboratory Data:</u> Labs formatted and clearly labeled</p> <p><u>Clinical Thinking:</u></p> <p>Problem list Rank order Most important first Complete All major active medical problems, risk factors</p> <p>Assessment Rank order Most important first Discussion Incorporates history and PE data Differential Appropriately justified</p> <p>Plan Diagnostic Justifies reason based on differential Therapeutic Dose, route, duration Pt education Health Maintenance, Counseling etc...</p>	<p><u>History of Present Illness:</u></p> <p style="text-align: center;">○ ○ ○ ○ ○</p> <p>Comments:</p> <p><u>PMH, SH, FH and ROS:</u></p> <p style="text-align: center;">○ ○ ○ ○ ○</p> <p>Comments:</p> <p><u>Physical Examination:</u></p> <p style="text-align: center;">○ ○ ○ ○ ○</p> <p>Comments:</p> <p><u>Clinical Thinking:</u></p> <p style="text-align: center;">○ ○ ○ ○ ○</p> <p>Comments:</p> <p><u>Overall Impression:</u></p> <p style="text-align: center;">○ ○ ○ ○ ○</p> <p>Comments:</p>								

Evaluation Criteria for Evidence-Based Medicine Supplements

Evidence Based Medicine # 1 Date _____

Clearly discusses the topic in the assessment and plan. <i>(addendum restates the key issues to be discussed)</i>	
Article selected is from a well recognized, peer reviewed journal <i>(article clearly relates to the assessment and plan)</i>	
Key relevant findings of the article are documented in the review <i>(evidence-based discussion relates to the assessment and plan)</i>	
Application in the care of the patient is documented <i>(how did the article impact the approach to the care of the patient?)</i>	
	2.0

Evidence Based Medicine # 2 Date _____

Clearly discusses the topic in the assessment and plan. <i>(addendum restates the key issues to be discussed)</i>	
Article selected is from a well recognized, peer reviewed journal <i>(article clearly relates to the assessment and plan)</i>	
Key relevant findings of the article are documented in the review <i>(evidence-based discussion relates to the assessment and plan)</i>	
Application in the care of the patient is documented <i>(how did the article impact the approach to the care of the patient?)</i>	
	2.0

Summary for Student

Preventive Health #1 score _____

Preventive Health #2 score _____

EBM #1 score _____

EBM #2 score _____

TOTAL SCORE _____

Appendix E Clerkship Student Evaluation Form

A. Interview & Examination Skills

- ✓ Obtained pertinent data relevant to patient problem
- ✓ Obtained accurate Hx and PE information
- ✓ Performs PE maneuvers appropriately
- ✓ Able to distinguish normal from abnormal PE findings

B. Verbal Presentation Skills

- ✓ Uses proper medical terminology
- ✓ Presents data in appropriate, logical sequence w/o commentary

C. Writing Skills

- ✓ Writes complete, thorough, well organized H&P
- ✓ Incorporates pertinent positive/negative information
- ✓ Daily notes are accurate, up-to-date, legible

D. Clinical Reasoning

- ✓ Appropriate knowledge of common problems
- ✓ Incorporates basic science knowledge
- ✓ Focus assessment on patient problems
- ✓ Suggests appropriate diagnostic & therapeutic management
- ✓ Incorporates team thinking into ongoing care

E. Professional Behavior

- ✓ Arrives prepared, on time, participates on rounds
- ✓ Accepts responsibility and criticism
- ✓ Demonstrates concern for patient.
- ✓ Conducts self professionally
- ✓ Works well with team/staff

The following scale will be used for each section above

Un- satisfactory	Needs Improvement	Competent/ Satisfactory	Outstanding
0	0	0	0

Note: Comments from your evaluator should be provided for each section. Please review your evaluation during the last week of each rotation with your attending physician and resident.

Appendix F

Learning Objectives

Cardiology Learning Objectives

How to diagnose and manage a patient with **CHEST PAIN**:

- Distinguish cardiac from non-cardiac chest pain from history, physical examination and appropriate diagnostic studies.

How to diagnose and manage a patient with **CAD**:

- Understand the spectrum of presentation of angina pectoris
- Know when a patient with angina should be hospitalized,
- Distinguish angina from myocardial infarction
- Know the pathophysiology of CAD and MI
- Know basic treatment regimens for CAD and MI – both inpatient and outpatient treatment plans – both pharmacological and non-pharmacological – including mechanisms of action, side effects, etc.
- Define risk factors for CAD and MI

How to diagnose and manage a patient with **HEART FAILURE (HF)**:

- Understand the pathophysiology of heart failure, e.g. diastolic and systolic dysfunction and their causes; Starling's curve, preload, afterload and contractility
- Recognize symptoms and findings characteristic of HF
- Know basic treatment regimens for HF – pharmacological and non-pharmacological – including mechanisms of action, side effects, etc.

How to diagnose and manage a patient with a **HEART MURMUR**:

- Recognize clinical findings, historical and physical examination data, in aortic and mitral valve heart disease, including distinguishing stenotic from regurgitant valvular disease
- Recognize complications of aortic and mitral valvular heart disease
- Understand basic treatment regimens; understand the role of surgery in management of valvular heart disease

How to diagnose and manage a patient with **PALPITATIONS**:

- Recognize the causes of palpitations, cardiac and non-cardiac
- Recognize common atrial and ventricular arrhythmias, including risk factors
- Distinguish benign from potentially lethal arrhythmias
- Know basic treatment regimens

Know how to read **EKG's**:

- Recognize basic EKG electrical complexes, e.g. QRS, P waves
- Recognize basic arrhythmias – atrial and ventricular
- Recognize ischemic changes

Nephrology Learning Objectives

How to diagnose and manage a patient with **HYPONATREMIA / HYPERNATREMIA**

- Recognize the clinical findings in patients with hypo/ hypernatremia
- Understand the major causes of hypo/ hypernatremia
- Understand the classification of hypo / hypernatremia based on volume status
- Know how to evaluate a patient with hypo / hypernatremia
- Select proper therapy for patients with hypo/ hypernatremia

How to diagnoses and manage a patient with **HYPOKALEMIA/ HYPERKALEMIA**

- Recognize the clinical findings of patients with hypo/ hyperkalemia
- Understand the major causes of hypo/hyperkalemia
- Understand the classification system for hypo/hyperkalemia
- Know how to evaluate a patient with hypo / hyperkalemia
- Select proper therapy for patients with hypo/ hyperkalemia

How to diagnose and manage a patient with metabolic disorders of **ACID-BASE BALANCE**

- Recognize the clinical findings of patients with metabolic acidosis and alkalosis
- Recognize the major causes of metabolic acidosis and alkalosis
- Understand the clinical evaluation of a patient with an acid / base disorder
- Distinguish causes of normal and elevated anion gap metabolic acidosis
- Select proper therapy for patients with metabolic acidosis and alkalosis

How to diagnoses and manage a patient with **ELEVATED BUN/CREATININE**

- Recognize clinical features of patients with **acute or chronic renal failure**; be able to distinguish between them; be able to define either **acute or chronic renal failure**
- Understand risk factors and causes for development of **acute or chronic renal failure**
- Distinguish pre-renal, renal and obstructive causes of **acute renal failure**
- Distinguish glomerular from tubulointerstitial disease in patients with **renal failure**
- Recognize common complications seen in patients with **renal failure – acute or chronic**
- Be able to describe indications for dialysis in the management of **renal failure**; be able to describe basic management of **acute or chronic renal failure**.

How to diagnose a patient with **NEPHROTIC or NEPRITIC** syndromes

- Recognize the clinical features of each syndrome; be able to define each syndrome
- Be able to describe the causes or predisposing factors for each syndrome
- Be able to describe basic diagnostic testing for each
- Be able to describe basic management issues for each

How to recognize and diagnose a patient with **RENOVASCULAR HYPERTENSION**

- Recognize the clinical features of **renovascular hypertension**
- Be able to describe the causes or predisposing factors for this disease
- Be able to describe basic diagnostic testing

How to diagnose and manage a patient with **NEPHROLITHIASIS**

- Recognize the clinical features of patients with acute stone disease
- Be able to describe the natural history and epidemiology of stone disease
- Be able to describe the basic diagnostic and management work-up of a patient with stone disease
- Be able to describe basic treatment of a patient with stone disease

Gastroenterology Learning Objectives

How to diagnose and manage a patient with **ACID-PEPTIC DISEASES**

- Recognize the clinical features of **peptic ulcer disease**; distinguish peptic ulcer disease from **GERD and esophagitis** clinical features; be able to describe common complications and their manifestations
- Be able to describe the common causes or predisposing factors for each syndrome
- Be able to describe appropriate diagnostic testing for each
- Be able to describe basic treatment plans for each syndrome

How to diagnose and manage a patient with **JAUNDICE /CHOLESTASIS**

- Distinguish a hepatocellular from a cholestatic process

- Recognize clinical manifestations of liver dysfunction
- Recognize risk factors that contribute liver and biliary tract disease
- Identify common causes of drug induced cholestasis
- Identify common metabolic / systemic causes of cholestasis

How to diagnose and manage a patient with **HEPATITIS**

- Recognize common causes of acute and chronic hepatitis
- Recognize the clinical manifestation of acute and chronic hepatitis
- Understand the viral etiologies of hepatitis
- Know how to interpret viral serology in acute and chronic liver disease
- Understand distinguishing features of alcohol induced liver disease
- Understand common causes of drug induced hepatocellular / cholestatic injury

How to diagnose and manage a patient with **CIRRHOSIS**

- Be able to describe the pathophysiology of cirrhosis and its complications
- Be able to diagnose cirrhosis
- Be able to describe common causes of cirrhosis and how to evaluate a patient for these causes
- Be able to describe the clinical presentation of cirrhosis

How to diagnose and manage a patient with **GASTROINTESTINAL BLEEDING**

- Distinguish upper from lower gastrointestinal bleeding.
- Recognize risk factors that predispose to upper or lower gastrointestinal bleeding
- Distinguish signs of acute and chronic gastrointestinal bleeding
- Be able to describe the appropriate diagnostic testing for GI bleeds, including work-up of guaiac positive stools
- Be able to describe appropriate management of a patient with GI bleeding

How to diagnose and manage a patient with **ACUTE ABDOMINAL PAIN**

- Understand distinguishing features of abdominal pain
- Understand pertinent physical findings
- Understand appropriate use of diagnostic tests for abdominal pain

How to diagnose and manage a patient with **DIARRHEA**

- Understand the clinical presentation of **Acute and Chronic Diarrhea**; understand the definition that distinguishes one from the other
- Be able to describe the clinical presentation and tests that differentiates osmotic from secretory diarrhea; understand the pathophysiology for both
- Be able to describe the common causes of **Acute and Chronic Diarrhea** and how to diagnose them
- Be able to describe basic treatment regimens for common causes of diarrhea

How to diagnose and manage a patient with **NAUSEA AND VOMITING**

- Be able to describe the common causes for **acute and chronic nausea and vomiting** and their clinical presentations
- Be able to describe an appropriate diagnostic work-up for each
- Be able to describe basic treatment plans for common causes of nausea and vomiting

How to diagnose and manage a patient with **DYSPHAGIA**

- Be able to describe the clinical presentation of common causes of dysphagia
- Be able to describe an appropriate diagnostic work-up and basic treatment plan for common causes of dysphagia
- Understand the pathophysiology of common causes of dysphagia

Pulmonary Learning Objectives

How to diagnose and manage a patient with pulmonary causes of **DYSPNEA**

- Distinguish major patterns of obstructive and restrictive lung disease, i.e. pathophysiology, clinical presentation, risk factors and diagnostic testing; including **Asthma, Emphysema, Chronic Bronchitis (COPD)**
- Understand pulmonary function tests, recognize the flow-volume loop profile of obstructive and restrictive diseases
- Understand the diagnostic value of arterial blood gases (ABG's); select treatment options in a patient with hypoxemia
- Be able to describe basic treatment regimens for common causes of dyspnea, i.e. basic treatment regimens for obstructive and restrictive disease
- Recognize features of impending respiratory failure
- Identify the pathologic process that can lead to respiratory failure
- Recognize the clinical and laboratory features and treatment of pulmonary embolus

How to diagnose and manage a patient with pulmonary causes of **COUGH**

- Be able to describe the common causes of cough and distinguish non-pulmonary from pulmonary causes by clinical presentation and diagnostic testing
- Be able to describe basic treatment regimens for pulmonary causes of cough

How to diagnose and manage a patient with a respiratory disorder of **ACID-BASE BALANCE**

- Recognize patterns of acute and chronic respiratory acidosis
- Recognize patterns of acute and chronic respiratory alkaloses
- Select treatment options in patients with hypercapnia

How to diagnose and manage a patient in with **PULMONARY HYPERTENSION**

- Recognize disease processes that can lead to pulmonary hypertension
- Identify physical examination findings characteristic of pulmonary hypertension
- Select diagnostic tests in patients with suspected pulmonary hypertension
- Select treatment options for patients with suspected pulmonary hypertension

How to diagnose and manage a patient with a **PLEURAL EFFUSION**

- Identify risk factors and physical exam findings in patients with pleural effusion
- Know how to evaluate a patient with a pleural effusion
- Distinguish transudative and exudative effusions
- Select treatment options in patients with pleural effusion

Endocrinology Learning Objectives

Diagnosis and management of a patient with **HYPERGLYCEMIA**

- Describe the clinical presentation, pathophysiology and diagnosis of **diabetes**; describe the common complications and end organ damage associated with **diabetes**; describe the risk or predisposing factors for **diabetes**
- Describe the basic treatment regimens for **diabetes**, including pharmacological and non-pharmacological
- Describe the roles of physicians (primary care, endocrinology, ophthalmology, nephrology), nurses, dietitians, podiatrists, and other healthcare providers in optimizing the health outcomes for patients with diabetes
- Describe the pathogenic abnormalities that cause **diabetic ketoacidosis (DKA) and non-ketotic hyperosmolar state (NKHOS)**; describe the metabolic derangement that occurs in patients with **DKA**; describe the clinical presentations of **DKA and NKHOS** and common precipitating factors of **DKA and NKHOS**
- Discuss the diagnosis, treatment and monitoring of patients with **DKA and NKHOS**

Diagnosis and management of a patient with **HYPERCALCEMIA**

- Describe the homeostatic control of calcium and phosphorus metabolism
- Discuss the pathophysiologic mechanisms of causes of hypercalcemia
- Describe the clinical symptoms and findings in patients with hypercalcemia
- Discuss the pros and cons of available treatment options in patients with hypercalcemia

Diagnosis and management of a patient with **ADRENAL INSUFFICIENCY**

- Describe the regulation of the hypothalamic-pituitary-adrenal axis
- Describe the clinical presentation of primary and secondary adrenal insufficiency
- Describe the general principles of management of patients with adrenal insufficiency

Diagnosis and management of a patient with **THYROID DISEASE**

- Know how to interpret thyroid function tests
- Describe the clinical presentations, common causes and pathophysiology of **hypothyroidism and hyperthyroidism**
- Describe the basic treatment options for **hypothyroidism and hyperthyroidism**
- Describe the clinical presentation, diagnostic work-up and basic treatment options for **thyroid nodules**

Diagnosis and management of a patient with **DYSLIPIDEMIAS**

- Describe the pathophysiology of common dyslipidemias
- Describe the work-up and basic treatment options (pharmacological and non-pharmacological) for common dyslipidemias
- Describe the common complications of dyslipidemias, e.g. pancreatitis, atherosclerotic diseases

Diagnosis and management of a patient with **OSTEOPOROSIS**

- Describe the pathophysiology of osteoporosis
- Describe the diagnosis, screening, clinical presentation, pathologic versus natural aging, and basic treatment plans

How to diagnose a patient with **SECONDARY HYPERTENSION (HTN)**:

- Understand the pathophysiology and epidemiology of secondary causes of HTN
- Know the various causes of secondary hypertension (e.g. pheochromocytoma, hyperaldosteronism, renal artery stenosis).

Geriatrics Learning Objectives

How to diagnose and manage a patient with **DELIRIUM or DEMENTIA**

- Recognize **delirium or dementia** in elderly patients
- Obtain relevant historical information in a patient with **delirium or dementia**
- Develop a differential diagnosis for **delirium or dementia**
- Distinguish **delirium from dementia** and other related conditions

How to diagnose and manage a patient who **FALLS**

- Obtain relevant historical information in a with a history of falls
- Recognize the complications of falls
- Develop a differential diagnosis for the causes of falls
- Recruit ancillary services for the treatment of a patient with falls

How to diagnose and manage a patient with **PRESSURE SORES**

- Recognize preventive measures to avoid pressure sores
- Understand different treatment modalities for pressure sores

- Identify the complications of pressure sores

How to diagnose and manage **ACUTE URINARY INCONTINENCE**

- Distinguish between acute and established urinary incontinence
- Understand the causes of acute urinary incontinence
- Appreciate the appropriate treatment of acute urinary incontinence

How to diagnose and treat **CONSTIPATION**

- Recognize preventive measures to avoid constipation
- Identify the complications of constipation

How to coordinate **DISCHARGE PLANNING**

- Understand the importance of functional ability of patients to be discharged
- Identify appropriate resources and social supports for patients to be discharged
- Recognize the need for convalescent care for patients to be discharged

Infectious Diseases Learning Objectives

How to diagnose and manage a patient with **FEVERS**

- Describe the pathophysiology of fevers, definition of pathologic fever, common treatments of fever.
- Know the basic workup for fever

How to select **ANTIMICROBIALS**

- Recognize clinical signs of infection requiring antimicrobial use
- Distinguish signs and symptoms of bacterial, viral, and fungal infection
- Know the antimicrobial activity of the major classes of
- Know the toxicity of the major antibiotic classes
- Know basic treatment options for common infections or infectious presentations

How to diagnose a patient with **MENINGITIS OR ENCEPHALITIS**

- Know the most common organisms that cause meningitis encephalitis (i.e. bacterial vs. viral), including risk or predisposing factors for different micro-organisms
- Know distinguishing features of aseptic meningitis vs. bacterial meningitis
- Know the clinical features and presentation of meningitis or encephalitis, including risk or predisposing factors
- Know the basic diagnostic work up for meningitis or encephalitis
- Know basic treatment regimens for both meningitis and encephalitis

How to recognize infections with **IMPARED IMMUNE RESPONSE**

- Know the definition and classification system for HIV infection
- Know the T cell and B cell defects that occur in HIV infection
- Know the initial work-up of an HIV positive patient
- Know the most important causes of pneumonia, intracranial infection and retinitis in patients with AIDS
- Know the most likely organisms that cause infection in patients with humoral deficiencies, neutropenia and deficiencies in cellular function
- Know the approach to evaluation and therapy of a febrile neutropenic patient

How to manage a patient with **INFECTIVE ENDOCARDITIS (IE)**

- Know the pathogenesis of IE: turbulence, endothelial damage, nonbacterial thrombus formation
- Know the valvular abnormalities that predispose to IE

- Know the most common organisms that cause native valve and prosthetic valve endocarditis
- Know the common physical examination findings and clinical complications that are associated with IE
- Know the diagnostic value of echocardiography and blood cultures in IE
- Know the general principles of antimicrobial therapy in patients with IE
- Know the common indications for antimicrobial prophylaxis of IE in susceptible individual

How to diagnose and manage a patient with **TUBERCULOSIS**

- Recognize screening tests and populations at risk for infection
- Recognize clinical presentation of disease
- Recognize treatment options and indications for adverse effects of drug therapy

How to diagnose and manage a patient with **SOFT TISSUE AND BONE INFECTIONS**

- Recognize populations as risk for infection
- Know microbiology and pathophysiology of disease
- Recognize clinical presentation of disease, especially for **cellulitis and osteomyelitis**, common diagnostic tests
- Recognize basic treatment/management plans

How to diagnose and manage a patient with **LOWER RESPIRATORY TRACT INFECTIONS**

- Be able to describe the clinical presentation, diagnosis, predisposing factors, pathophysiology and microbiology of **bronchitis and pneumonia**
- Be able to describe basic treatment regimens **bronchitis and pneumonia**

Rheumatology Learning Objectives

How to diagnose and manage a patient with **ARTHRITIS**

- Be able to describe the clinical presentation, pathophysiology and diagnosis of **osteoarthritis, rheumatoid arthritis and infectious arthritis**
- Be able to discuss how to evaluate patients with musculoskeletal complaints
- Be able to describe basic treatment regimens for the above diseases

How to diagnose and manage a patient with a **CYRSTALLINE ARTHRITIS**

- Be able to describe the clinical presentation, pathophysiology and diagnosis of **gout versus pseudogout**
- Be able to describe basic treatment regimens for the above diseases

How to diagnose and manage a patient with an **AUTOIMMUNE DISEASES**

- Recognize the clinical features and complications of **systemic lupus erythematosus**
- Recognize the clinical features and complications of **scleroderma**
- Recognize the clinical features and complications of **polymyositis/dermatomyositis**

How to appropriately order **IMMUNOLOGIC TESTS**

- Understand the appropriate use of immunologic tests
- Understand the clinical utility of specific immunologic tests

Hematology/Oncology Learning Objectives

How to diagnose and manage a patient with abnormal **BLEEDING**

- Distinguish disorders of primary hemostasis (e.g. dysfunctional platelets, thrombocytopenia) vs. secondary hemostasis (e.g. clotting factor deficiencies, hemophilia)
- Understand the coagulation cascade and the rational use of lab studies in the diagnosis of bleeding disorders
- Recognize clinical features of bleeding disorders
- Understand the blood components available for blood transfusion
- Understand the potential complications of transfusion of blood and the appropriate clinical management

How to diagnose and manage a patient with **ANEMIA**

- Recognize common clinical and laboratory findings in patients with anemia
- Classify anemia by blood count indices and reticulocyte counts
- Distinguish hypoproliferative and hyperproliferative anemia
- Determine appropriate therapies for anemia

How to diagnose and manage a patient with a **MYELOPROLIFERATIVE or LYMPHOPROLIFERATIVE DISORDER**

- Be able to recognize the common diseases of **Leukemia, Lymphoma and Multiple Myeloma** – clinical presentation, pathognomic features, general pathophysiology, basic diagnostic work-up and general approaches to therapy

How to diagnose **COMMON MALIGNANCIES**

- Be able to describe the clinical presentations of common malignancies, i.e. **breast, lung and colon cancer**
- Be able to describe appropriate diagnostic testing for lung nodule, breast nodule/mass, guaiac positive stools

How to diagnose and manage **COMPLICATIONS OF CANCER**

- Recognize the common complications and their presentations of cancer including malignant pleural effusion, cord compression, tumor lysis syndrome, hypercalcemia, superior vena cava syndrome –
- Be able to recognize the clinical presentations of oncologic emergencies - SVC cord compression, hypercalcemia
- Recognize the general therapeutic to treatment of common cancer complications

How to provide a cancer patient with **SUPPORTIVE CARE**

- Understand the principles of effective pain management in patients with cancer
- Understand obstacles to effective pain management in patients with cancer
- Understand the skills needed to cope with quality of life and end-of-life issues in cancer patients and their families

General Internal Medicine Learning Objectives

How to diagnose and manage a patient with **ESSENTIAL HYPERTENSION (HTN)**:

- Understand the pathophysiology and epidemiology of HTN
- Know the definition of HTN and the common causes and risk factors
- Know basic treatment regimens, pharmacological and non-pharmacological; know basic classes of agents mechanism of action and side effects

How to diagnose and manage a patient with **TYPE 2 DIABETES**

- Describe the clinical presentation and pathophysiology of **type 2 diabetes**

- Describe the common complications and end organ damage associated with **type 2 diabetes**
- Describe the risk or predisposing factors for **type 2 diabetes**
- Describe the basic treatment regimens for **type 2 diabetes**, including pharmacological and non-pharmacological
- Describe the roles of physicians, nurses, dietitians, podiatrists, and other healthcare providers in optimizing the health outcomes for patients with diabetes

How to provide **health maintenance screenings** for the general adult population:

- Know the differences between the American Cancer Society and United States Preventative Services Task Force guidelines for cancer screening for the commonly screened malignancies (e.g. colorectal cancer, breast cancer, prostate cancer, and cervical cancer).
- Know the risks and benefits of cancer screening.
- Know the indications for early screening for osteoporosis

How to provide **routine immunizations** for the general adult population:

- Know the guidelines for providing routine immunizations for the general adult population (e.g. influenza vaccine, pneumococcal vaccine, tetanus vaccine, and Zoster vaccine).

How to conduct a **preoperative evaluation** and assess for cardiac risk

- Know the ACP and AHA guidelines on preoperative cardiac risk assessment.
- Know the indications for a preoperative cardiac work up.

How to provide general medical care to the **hospitalized patient**:

- Know how to prevent DVT's in hospitalized patients.
- Know the indications for intravenous fluids. Be able to describe the various intravenous fluids available and their common indications (e.g. volume expansion in the hypotensive patient)

Ethical and Professional Learning Objectives

How to provide medical care in an ethically responsible manner

- Understand and describe the basic principles behind informed consent, patient autonomy, right to refuse treatment, patient confidentiality, breaking bad news, end of life discussion and advance directives
- Demonstrate ability to obtain appropriate informed consent, including understanding role of surrogate decision makers, determination of decisional capacity, and ability to maintain patient confidentiality.
- Demonstrate ability to participate with the team in treatment decisions including DNR decisions, the use of advance directives and palliative care.

How to behave in an acceptably professional manner

- Understand the elements of professional behavior, e.g. demonstrating integrity and accepting responsibility, respecting patients and other members of the healthcare team, and accepting criticism
- Demonstrate professional behavior, e.g. accepts responsibility for actions and information, accepts feedback and makes positive changes, demonstrates compassion for patients and family.

How to effectively communicate with patients and family

- Demonstrates ability to establish rapport with family and patients
- Understands key concepts in effective communication with a variety of patients, e.g. angry, seductive, non-compliant.

Note: The learning objectives should provide a strong format for your NBME shelf exam preparations. It is also recommended that you take practice quizzes provided in many standardized board review books.

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