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TOP 10 WAYS TO EXCEL ON THE INTERNAL MEDICINE CLERKSHIP

1. Find out what your residents and preceptors expect of you. Meet and try to exceed their expectations. Follow through on every assigned task.

2. Be actively involved in the care of your patients to the greatest extent possible. Go the extra mile for your patients. You will benefit as much as they will.

3. Go the extra mile for your team. Additional learning will follow. The more you put in, the more you will gain.

4. Read consistently and deeply about the problems your patients face. Raise what you learn in your discussions with your team and in your notes. Educate your team members about what you learn whenever possible.

5. Learn to do excellent presentations as early as possible. This will make you more effective in patient care and gain the confidence of your supervisors to allow you more involvement in patient care.

6. Ask questions when you don’t understand something, can’t figure something out, or feel lost or confused.

7. Speak up! Share your thoughts in teaching sessions, share your opinions about your patients’ care, constructively discuss how to improve the education you are receiving and the systems around you.

8. Actively seek feedback from ALL your supervisors, and take time to reflect on your experiences.

9. Keep your goals focused on the right priorities, in the following order: patient care, learning, and personal satisfaction. Keeping your priority focused on patient care will actually help you to meet all three goals.

10. Always be enthusiastic. Be caring and conscientious and strive to deliver outstanding quality to your patients, as you learn as much as you can from every experience.

Download free of charge from: http://connect.im.org/p/cm/lid/fid=664
DESCRIPTION OF THE THIRD-YEAR CLERKSHIP IN INTERNAL MEDICINE

INTRODUCTION

Goal of the Clerkship

The goal of the Third-Year Clerkship in Internal Medicine is to introduce students to the practice of both Inpatient and Ambulatory internal medicine, the foundation for all clinical specialties.

In caring for Internal Medicine patients, students are expected to refine their clinical abilities and knowledge, learn critical communication skills, develop an understanding of their role on the care team, and demonstrate professionalism. It is the student’s responsibility to utilize this clerkship experience to accomplish these goals. It is the Department of Medicine’s responsibility to assure that every graduate of the John A. Burns School of Medicine has obtained Graduation Level competency in Internal Medicine.

The core of this clerkship is “Patient-Based Learning.” This occurs as students evaluate patients through history taking and physical examinations, develop comprehensive assessments including appropriate differential diagnoses, formulate diagnostic, therapeutic and education plans and provide care and follow-up appropriate to the inpatient or ambulatory setting – all under supervision of JABSOM clinical faculty members.

Design of the Clerkship

Third-Year Clerkship in Internal Medicine (MED 531/532)
MED 531 for 6B students is 11 weeks in length and consists of 5-1/2 or 6 weeks of Inpatient Medicine and 5-1/2 or 5 weeks of Ambulatory Medicine. MED 532 for 6L students consists of 6 weeks of Inpatient Medicine (block) and 25 half days of ambulatory medicine (clinics - one half day weekly for 21-22 weeks plus 3-4 additional half days).

Work Hours

Medicine Clerkship adheres to the JABSOM Statement of Student Workload:
In recognition of the multiple expectations placed on students in all JABSOM clinical rotations, including the need to acquire knowledge and clinical skills, attend conferences, read about patients and research learning issues, it is important to support students in ways that will optimize their ability to accomplish the above. Therefore, at a minimum:

1. On-call and post-call hours will be limited to allow students to learn effectively the following day;
2. Adequate time will be allocated as designated study time in all required clerkships; and

3. All experiences, including clinical responsibilities, will be reviewed periodically to determine the educational value.

All JABSOM clinical rotations will comply with the following guidelines:

1. Work hours are limited to 80 hours/week, averaged over the duration of the rotation;
2. Students are given at least one 24-hour period off every 7 days; and
3. Third year students are excused from their clerkships to attend Colloquia.

The Medicine Clerkship recognizes that an excessive workload and work hours do not promote well-being and may endanger students, their patients and others with whom they interact. Therefore, the Medicine Clerkship monitors students’ inpatient & ambulatory workload and inpatient work hours (see Inpatient Work Hours Log).

**Safety in Numbers**

All students are strongly advised to carpool to all clinical sites and to walk to and from the hospitals and clinics in groups, especially during the early morning hours when lighting is not ideal. It may be wise to bring a flashlight with you to illuminate your pathway. If you are unable to carpool, consider arranging for a drop-off and pick-up by family or friends. If needed, please contact hospital security for an escort to your vehicle.

**Designated Study Time**

Students are provided one (1) **afternoon** of "designated study time" per week, **averaged** over the course of the clerkship.

"Designated study time" is defined as time Monday through Friday and morning through afternoon away from patient care responsibilities that is **devoted to studying**; this includes reading, completing write-ups, preparing for required clerkship activities such as PBL Tutorials, Bedside Clinical Skills rounds, Chief Rounds and other inpatient or ambulatory activities. This time should be used for educational activities as described above, not for leisure activities.

Students will have "designated study time" when their patient care responsibilities and any required activities are finished. *(See Summary Table of Required Medicine Clerkship Activities)*
In both the inpatient and ambulatory settings, students are advised to notify their team and preceptor(s), respectively, when they are leaving to study.

Academic action may be initiated against students who abuse the "designated study time," as determined by the Department of Medicine Student Education Committee. Likewise, inpatient and ambulatory sites that do not follow the guidelines on "designated study time" should be brought to the attention of the clerkship director.

**Students should be aware that on some busier weeks during Inpatient Medicine, there may not be one full afternoon per week available for “designated study time.”** As the Ambulatory portion of the clerkship will have far more afternoons available for study, we advise students to budget their time accordingly while on Ambulatory.

The day prior to the NBME Exam is designated a full day of “designated study time” for clerkship students.

**Days Off**

Students must have at least **one (1) day off per week, averaged** over the course of the clerkship.

On Inpatient Medicine, there is one (1) day off each week, usually a Saturday or a Sunday. The day off will be determined by the site’s Hospital Site Coordinator and Chief Medical Resident.

On Ambulatory Medicine, there are usually two (2) days off each week, usually Saturday and Sunday. The days off will be determined by the Ambulatory Preceptor.

**Holidays**

Students will follow the **holiday schedule** that is observed at their training site.

**Absences**

**Absences from Inpatient Medicine**

On **each day** you are absent, you must notify your Chief Medical Resident and Hospital Site Coordinator.

You may be required to make up any time missed. This decision will be made together by your Chief Medical Resident, Hospital Site Coordinator and Clerkship Director and is dependent on the reason for absence, length of absence, clerkship activities missed and your clerkship performance to date.

**Absences from Ambulatory Medicine**
On **each half day** you are absent, you must notify your Ambulatory Preceptor and the Clerkship Director (Dr. Christie Izutsu at cizutsu@hawaii.edu).

**Each half day of clinic missed must be made up.**

6B students usually have 2-4 weekday afternoons and every Saturday off each week. They should try to schedule their make up during these times, at the convenience of their Ambulatory Preceptor.

6L ambulatory students usually have 3 half days and every Saturday off each week. They should try to schedule their make up during these times, at the convenience of their Ambulatory Preceptor.

**Other Attendance Notes**

**Attendance is mandatory** for all Medicine Clerkship orientations, lectures, and exams.

Students may take time away from clinical responsibilities when needed to access health care without fear of academic penalty. The clerkship director must be notified in advance.

If you are absent for **more than three (3) days, totaled over the course of the clerkship**, the clerkship is required to report this to the Office of Student Affairs.

**Required make up** for time missed must be completed by the end of Medicine Clerkship to receive Credit for the clerkship. Ideally, it should be completed in the same half of the clerkship that time was missed.

**Questions regarding absences** should be directed to the Clerkship Coordinator (jirajlev@hawaii.edu)
The Medicine Clerkship Curriculum is adapted from the Clerkship Directors in Internal Medicine (CDIM)-Society of General Internal Medicine (SGIM) Core Medicine Clerkship Curriculum Guide Version 3.0. The Guide outlines thirty-three (33) Training Problems and seventeen (17) General Clinical Core Competencies that are aligned with the Accreditation Council for Graduate Medical Education (ACGME) general competencies. The Training Problems and General Clinical Core Competencies are printed in the clerkship’s Student Handbook and website.

The Medicine Clerkship Curriculum has been reviewed by JABSOM’s Department of Medicine Student Education Committee (SEC) and is aligned with & fulfills JABSOM’s Graduation Objectives. The curriculum provides third-year medical students with the opportunity to develop and demonstrate excellence in the medical knowledge, clinical skills and professionalism expected in the evaluation and care of the adult patient.

Learning Objectives

1. Refer to the Training Problems (See Appendix A)

2. Refer to the General Clinical Core Competencies in Internal Medicine (See Appendix B)

Learning Strategies

1. After seeing each patient, students should identify which Training Problems were addressed, read and study those Training Problems and assess whether they are able to meet the specific learning objectives for each (Appendix A).

2. Students should read and study the General Clinical Core Competencies in Internal Medicine and assess whether they are able to meet the specific learning objectives for each (Appendix B).

3. Students should refer to the Recommended Resources for their further reading and studying.

Learning Environment

The learning environment for the Medicine Clerkship includes selected Inpatient and Ambulatory settings which are conducive to ongoing learning, as well as the development of explicit and appropriate professional behaviors in our students, residents, faculty, and staff at all locations. We encourage students’ ongoing feedback to identify and promptly correct any violations of professional
standards. Any such concerns may be directed to Clerkship Director, at any time, and/or anonymously submitted via the end-of-clerkship survey forms.
EVALUATION IN THE THIRD-YEAR CLERKSHIP IN INTERNAL MEDICINE

General Guidelines

The clerkship uses a "competency-based" system to assess the 3 domains: Medical Knowledge, Clinical Skills and Professionalism.

1. For **Medical Knowledge**, competency is assessed throughout the clerkship by:
   a) Faculty and resident observations of students' clinical performance
   b) Performance on the NBME Subject Examination in Internal Medicine at the end of the clerkship

2. For **Clinical Skills**, competency is assessed throughout the clerkship by:
   a) Faculty and resident observations of students' clinical performance
   b) Performance on the Clinical Skills Exam (CSE) conducted by the Center for Clinical Skills at the end of the clerkship.

3. For **Professionalism**, competency is assessed throughout the clerkship by:
   a) Faculty and resident observations of students' clinical performance.

Hospital Site Coordinators and Ambulatory Preceptors give students mid-clerkship feedback on clinical performance, reviewing the students’ strengths & weaknesses and discussing specific improvement strategies. Therefore, the clerkship expects students to demonstrate growth in their clinical performance by the end of the clerkship.

The UH Department of Medicine Student Education Committee reviews each student’s entire clerkship performance, including clinical performance (inpatient and ambulatory), CSE and NBME Exam scores to determine each student’s grade.

The clerkship does not use a numerical formula for evaluation and grading.

For questions about clerkship grades, refer to JABSOM’s Academic Appeals Policy.

Credit

To earn **Credit** for the Third-Year Clerkship in Internal Medicine (**MED 531** for 6B students; **MED 532** for 6L students), students must demonstrate **Clerkship Level Competency** in all three domains of Medical Knowledge, Clinical Skills and Professionalism, as reflected by their Clinical Performance (inpatient and ambulatory), CSE and NBME Exam.

For Clinical Performance (inpatient and ambulatory rotations), students must receive ratings of **Met Expectations** or higher.
On the CSE, students must achieve a score of PASS (exam is graded on a Pass/Fail basis).

On the NBME Exam, students must score 60 or higher.

Students who do not demonstrate Clerkship Level Competency in all three domains by the end of the clerkship may be required to repeat part or all the clerkship and/or retake the CSE and/or NBME Exam. Students will have up to two (2) opportunities to achieve this.

**Honors**

The Department of Medicine gives all students the opportunity to earn an "Honors" grade for exceptional performance in the Third-Year Clerkship in Internal Medicine.

To earn Honors for the Third-Year Clerkship in Internal Medicine (MED 531 for 6B students; MED 532 for 6L students), students must **Exceed Expectations** in all three domains as listed above.
SPECIFIC REQUIREMENTS AND GUIDELINES: INPATIENT MEDICINE

Schedule

1. For 6B students, Inpatient Medicine is 5-1/2 weeks (if in the first half of the academic year) or 6 weeks (if in the second half of the academic year).
2. For 6L students, Inpatient Medicine is 6 weeks.

Location

Site: Students will be assigned to Kuakini Medical Center (KMC), Queen’s Medical Center (QMC) or Tripler Army Medical Center (TAMC).

Orientation: Students will be oriented to the site by its Hospital Site Coordinator(s) (HSC) and Chief Medical Resident (CMR).

Team Assignment: Students will be assigned to a medical team where an Upper Level Resident will be directly responsible for the student’s supervision. Student will also work with the Intern(s) on the team.

Call

Students must take call every day that their team is on call, until 10 p.m. at the latest. Students may leave earlier with approval from the Upper Level Resident if their patient care responsibilities are complete.

Work Hours (See Work Hours, Dedicated Study Time and Days Off)

The earliest time students are permitted to arrive at the hospital is 5:00 a.m.

The earliest time students are permitted to see patients, that is, to speak with and examine patients, is 5:30 a.m (excluding emergency situations such as Code Blues).

The Hospital Site Coordinators, Chief Medical Residents and Upper Level Residents are aware of these work hour guidelines. If a student is not able to complete his/her work within these guidelines, the student is advised to see his/her Hospital Site Coordinator, Chief Medical Resident or Upper Level Resident. If a student does not follow these work hour guidelines, the Hospital Site Coordinator, Chief Medical Resident or Upper Level Resident is required to advise the student and notify the
Patient Assignment

The Upper Level Resident is responsible for assigning patients to the student. Patients should be selected for their ability to cooperate and communicate, as well as for their specific medical problems.

The student has a list of Training Problems upon which the Third-Year Clerkship in Internal Medicine curriculum and specific learning objectives are based. The student’s goal is to see at least one (1) inpatient patient with each of thirty-two (32) Training Problems. The Training Problem does not have to be the patient’s Chief Complaint, and a patient may present with several Training Problems (see Training Problems section).

Patient Census

The student should admit 1–2 patients per call day and actively follow an average of three (3) patients at all times (maximum 5 patients).

Patient Care Responsibilities

1. History & Physical: The student should complete an Initial History and Physical on each patient assigned, whether or not the student was present for the patient’s admission (i.e. transfer patients, etc). The Initial History and Physical includes an interview and examination of the patient either independently (precepted) or while being observed by a resident or attending. If the student observes a resident or attending performing the History and Physical, this observation does not qualify as the student’s own History and Physical; the student must return at another time and perform his/her own independent History and Physical for this to count. “Group” work-ups are not allowed or accepted.

2. Physical exam: The student should perform the physical exam that was taught as the Basic Physical Exam Sequence (BPES) in the pre-clinical years. Note that the funduscopic exam is included in the BPES. The student is also expected to perform appropriate Branch Steps as needed. The Upper Level Resident is responsible for ensuring proper supervision of the following parts of the physical exam which may be performed by the student if clinically indicated: female breast exam, female genital and/or pelvic exam, male genital and/or prostate exam, and female & male rectal exam. This means that the student must be supervised by a physician (interns, upper level residents, chief residents or attendings) who is certified or has expertise to competently perform the exam in question.

3. Pre-Rounding: The student is expected to pre-round (see patients independently prior to rounding with the team) and write daily progress notes on all his/her assigned patients before the Intern or Upper Level Resident(s) write their note(s). The student is encouraged to seek out the Intern or Upper Level Resident prior to formal team rounds to discuss daily patient care plans. The Intern or Upper Level Resident should review the notes with the student, give constructive feedback and
countersign the notes. Any missed history or physical exam finding should be noted, corrected and demonstrated as needed.

4. Rounds: The student should round with the team. Since the student is expected to have detailed knowledge of his/her assigned patients, the student is expected to take the lead in discussing his/her patients, including the student’s assessment of the patients’ problems and the student’s plans. In addition, the student will be expected to have a general knowledge of the other patients on the team so that he/she can be included in the team’s discussions of the care of all the team’s patients and can assist in the care of all the team’s patients. The student will be expected to actively participate in teaching attending rounds with the team.

5. Patient care: The student is expected to assume as much patient care responsibility as the team feels is appropriate for the individual student’s level of training and competence. The student is expected to participate in patient education and counseling; work with nursing staff, dieticians, respiratory therapists, physical and occupational therapists, social workers, hospital chaplains, etc; and to assist in discharge planning.

6. Procedures: The student may perform or assist in the performance of procedures that the team feels are appropriate for the student’s level of training and competence. The Upper Level Resident is responsible for ensuring proper supervision of any procedure performed or assisted by the student. This means that the student must be supervised by a physician who is certified or has expertise to competently perform the procedure in question, which includes interns, upper level residents, chief residents or attendings. There are no required procedures for third-year medical students to perform.

7. Orders: The student should learn how to write Orders on his/her assigned patients. The student will observe the residents entering orders electronically and should practice writing orders in his/her Comprehensive Write-ups & daily Progress Notes (in the Plans section) The Hospital Site Coordinator and residents should review the student’s orders with the student and correct them as needed.

Comprehensive Write-ups

The student is required to submit 3 write-ups by the midpoint of the inpatient rotation (average of 1 per week, schedule to be determined by the Hospital Site Coordinator). The HSC will decide whether these 3 write-ups are satisfactory. If they are deemed satisfactory, the student will not be required to submit any additional write-ups. If they are deemed unsatisfactory, the student will be required to submit 1 – 3 additional write-ups, as determined by the Hospital Site Coordinator, up to a maximum of 6 write-ups (See Appendix).

The HSC will read and review each comprehensive write-up with the student and give constructive feedback.

Write-up #1 must be a traditional, Inpatient Medicine H&P (See Appendix).

Write-ups #2 and #3 will be an H&P printed directly from the inpatient site’s Electronic Medical Record. These write-ups will be reviewed in detail by the HSC to assess the student’s competency in
using the EMR to document a patient history.

At the end of Inpatient Medicine, the student is required to submit all comprehensive write-ups to the clerkship office, (total number to be determined by the HSC), either the originals or copies of the originals with the HSC’s comments.

**Required Clerkship Activities specific to Inpatient Medicine**

1. **Bedside Clinical Skills**
   
   a) All students on Inpatient Medicine will attend Bedside Clinical Skills 1 - 2 times each week.

   b) Each week, one student will prepare and formally present a **memorized case presentation** of one of his/her patients to the group. Written notes can be accessed for referral only.

   c) Chosen patients should ideally be unknown to the other students in the group and have reproducible physical exam findings.

   d) After presenting the case, the student will take the group to see the patient (The student should have already obtained the patient’s consent and determined that the patient would be available for bedside teaching).

   e) The Bedside Clinical Skills attending will teach/review physical exam skills and review/clarify important physical exam findings.

   f) The Bedside Clinical Skills attending may meet individually with the student who presented to give constructive feedback on his/her case presentation (see Case Presentation Evaluation Form).

   g) The Bedside Clinical Skills attending may use the Small Group Learning Experience Evaluation Form to evaluate the students in the group (see Small Group Learning Experience Evaluation Form)

2. **Chief Medical Resident Rounds**

   a) All students on Inpatient Medicine will attend weekly Chiefs Rounds with the Chief Medical Resident (CMR). These may include bedside or didactic teaching.

   b) Chief Rounds give the students the opportunity to specify which areas in Internal Medicine they would like the CMR to teach in a small group setting.

   c) The CMR, together with the Upper Level Resident, are responsible for ensuring that students are instructed in, but not limited to, the following:
o Case presentations
o Interpretation of basic EKGs
o Interpretation of common imaging, including chest and abdominal x-rays & CTs, head CT and MRI
o Physiology and management of fluids and electrolytes
o Interpretation of arterial blood gases
o Basic physiology and management of shock
o Basic understanding and management of ventilators (at KMC)

d) The CMR may use the Small Group Learning Experience Evaluation Form to evaluate the students in the group (see Small Group Learning Experience Evaluation Form).

3. HIPSTER (Hawaii InterProfessional Simulation Training for Emergency Response)

**Evaluation and Feedback to Students**

The student is expected to routinely (at least **once a week**) ask for feedback on his/her performance and progress from his/her residents and attendings. It is especially important that this occurs **before** the student rotates off the team and **before** the residents and attendings rotate off the team. This feedback should identify the student’s strengths and weaknesses so the student knows what to work on to continue improving.

Midway through Inpatient Medicine, the Hospital Site Coordinator will complete a **Mid-Clerkship Feedback Form** and review it with the student. The HSC will indicate whether the student’s progress to date is satisfactory or unsatisfactory, identify the student’s strengths & weakness and suggest a remediation plan if necessary (see Mid-Clerkship Feedback Form).

Interns, Upper Level Residents and Attendings who work with the student for **one (1) week or more** are expected to evaluate the student. Throughout the student’s Inpatient Rotation, the Intern and Upper Level Resident should provide the student with verbal feedback on his/her performance and progress on a daily (weekly at a minimum) basis. During the last week of the Intern and Upper Level Resident’s block or during the last week of the student’s inpatient rotation, the Intern and the Upper Level Resident will complete independent written evaluations of the student that will be turned in to the Chief Medical Resident or Hospital Site Coordinator. Finally, at the end of the student’s Inpatient Rotation, the HSC will summarize all evaluations and complete a **Student Evaluation Form** for the site, which is submitted to the clerkship office (see Student Evaluation Form).

The student will be formally observed performing sections of patient History and Physical Exam during Inpatient Medicine. It is the student’s responsibility to arrange for a time when the student and Chief Medical Resident (or HSC or Upper Level resident) are available to observe the student. The observing faculty member or Upper Level Resident will complete the appropriate **Observed History and Physical Sections Evaluation Forms** (which should be provided by the student) and give the student **immediate** feedback. If the student’s performance is not satisfactory, the student must repeat the section until his/her performance is satisfactory (see Observed History and Physical Sections
Evaluation Forms in the Appendix for format).

The student will have the opportunity to present his/her patients at various hospital rounds and conferences. The student should ask the Upper Level Resident or Chief Medical Resident in advance for assistance in preparing for such presentations at a level that is appropriate for the student’s training and for the rounds or conference. After the presentation, the student should ask the physician who is supervising the rounds or conference for feedback (see Case Presentation Evaluation Form).
SPECIFIC REQUIREMENTS AND GUIDELINES: AMBULATORY MEDICINE

Schedule

1. For 6B students, Ambulatory Medicine consists of 5 half days per week for 5-1/2 weeks (if in the first half of the academic year) or for 5 weeks (if in the second half of the academic year).
2. For 6L students, Ambulatory Medicine consists of 23 half days (one half day weekly for 21-22 weeks plus 1-2 additional half days).

Location

Ambulatory Medicine sites include Queen Emma Clinics, Waikiki Health, VA Clinics, community health clinics, Kaiser HMO and private physician offices. The sites for MED 531 (6B) are all on Oahu, primarily in Honolulu, while the sites for MED 532 (6L) are either outside of Honolulu on Oahu or on the neighbor islands. Although each site has unique features, the clerkship’s goal is to provide students with as uniform a learning experience as possible based on identical learning objectives, while allowing students the opportunity to take advantage of the strengths of each site.

6L students on Oahu are required to attend all clerkship activities while on their Ambulatory portion of the 3rd year. 6L students assigned to neighbor island sites will likely not be able to attend any clerkship activities while on Ambulatory Medicine (UH Department of Medicine Grand Rounds, EBM 1 and 2, HIV Medicine, Neuro 1 and 2). Therefore, these students will be required to attend these lectures during Inpatient Medicine. The only exception to this rule is EBM 1 and 2, which are both available on JBOWS. For questions regarding this, please contact Dr. Izutsu.

Patient Assignment

The Ambulatory Preceptors are responsible for assigning patients to the student. Patients should be selected for their ability to cooperate and communicate, as well as for their specific medical problems. The student has a list of Training Problems on which the Third-Year Clerkship in Internal Medicine curriculum and specific learning objectives are based. The student’s goal is to see at least one (1) ambulatory patient with each of the thirty-three (33) Training Problems. The Training Problem does not have to be the patient’s Chief Complaint, and a patient may present with several Training Problems (see Training Problems section).

Patient Census
The student should evaluate a minimum of two (2) patients each half day.

Patient Care Responsibilities

The student may see new or returning patients for complete examinations or problem-focused visits. Ideally, the student will see some patients in continuity when they return for their follow-up visits.

After reviewing the patient’s chart as necessary, the student will perform an appropriate history and physical examination. The student will present the case to the Preceptor who should correct and demonstrate any missed history or physical exam findings and review the student’s assessment & plans.

The student will write an appropriate History & Physical or Progress Note in a timely manner, as specified by the preceptor. The preceptor should review the write-up with the student and give constructive feedback.

The student is expected to carry out the patient care responsibilities his/her preceptor feels is appropriate for the student’s level of training and competence. The student should try to assume as much responsibility as is appropriate and possible. The student is expected to participate in patient education and counseling, work with office/clinic staff, and to assist in follow-up planning. If the student’s patient requires any consultations or procedures, the student is highly encouraged to be present if the patient agrees. If the student’s patient is hospitalized, the student is highly encouraged to follow the patient during the hospitalization.

Comprehensive Write-ups

The 6B student is required to complete an average of one (1) comprehensive write-up each week for a total of 5 over the course of the Ambulatory Rotation. The 6L student is required to complete an average of one (1) comprehensive write-up each month for a total of 5 over the course of the Ambulatory portion. These comprehensive write-ups are generally shorter than Inpatient Comprehensive write-ups and should reflect the faster, focused pace of the typical ambulatory Internal Medicine outpatient practice. The note should emphasize the HPI and Assessment & Plan, with additional relevant H&P details as needed. Students may include content from any of their EMR documentation on their Ambulatory patients and expand on any one problem in the Assessment and Plan as a Learning Issue. This learning issue will require some additional reading and thought (See Appendix D and E). Remember, the Ambulatory write-ups are not meant to be excessively lengthy but should be more concise and practical as this is a skill that is valuable to master. Students should aim to hand in 1 write-up during their first week to their Site Coordinator so early feedback can be provided and expectations for the write-ups clarified by the Site Coordinator.

The Ambulatory Preceptor should read, correct and review each comprehensive write-up with the student and give verbal and written (in the form of corrections written directly on the
writeup) constructive feedback.

At the end of Ambulatory Medicine, the student will turn in a total of five (5) comprehensive write-ups to the clerkship office, either the originals or copies of the originals with the preceptor’s comments.

**Evaluation and Feedback to Students**

The student is expected to regularly seek feedback from the Ambulatory Preceptor on his/her performance and progress, ideally weekly for 6B students and monthly for 6L students, and before the student finishes Ambulatory Medicine. This feedback will give the student the opportunity to correct mistakes and omissions and to improve skills.

Midway through Ambulatory Medicine, the student should provide the Ambulatory Preceptor with a Mid-Clerkship Feedback Form to complete and review with the student. The preceptor will indicate whether the student’s progress to date is satisfactory or unsatisfactory, identify the student’s strengths & weakness and suggest a remediation plan if necessary (see Mid-Clerkship Feedback Form).

At the end of Ambulatory Medicine, the Ambulatory Preceptor will complete a Student Evaluation Form provided by the Third-Year Clerkship in internal Medicine. This should be completed during the last week of the student’s Ambulatory Medicine, and the preceptor should review the completed form with the student. The student must sign the form, then submit it to the clerkship office (see Student Evaluation Form).

The student is required to be formally observed counseling a patient and/or family on two separate occasions (see Observed Patient Counseling Evaluation Form). Together, the student and preceptor should choose a counseling activity that is appropriate for the clinical scenario.
ROLE DESCRIPTIONS FOR MEDICINE 531/532

The Site Coordinator’s Role

Introduction: As a community-based clerkship, the Third-Year Clerkship in Internal Medicine utilizes several clinical sites for medical student instruction. A major role of the Site Coordinator is to provide students at his/her site with the best possible educational experience and to ensure that learning experience is equivalent to the educational experience provided at the other sites utilized by the clerkship.

The Site Coordinator is selected for his/her knowledge and experience at the site; the ability to work well with physicians, staff and administrators at the site; and the ability to work well with medical students. The Site Coordinator may be inpatient (Hospital Site Coordinator) or ambulatory (Ambulatory Site Coordinator).

Responsibilities of Hospital Site Coordinators and Ambulatory Site Coordinators include, but are not limited to:

1. **Selecting qualified faculty** to provide an excellent learning experience for the student(s) assigned to the site. The site coordinator will serve as a resource for the faculty and chief medical resident (CMR) at the site. This includes orienting new faculty and CMRs and assisting with faculty development and education regarding clerkship curriculum, expectations and goals.

2. **Identifying learning resources** at the site that are available for student use (i.e. library, photocopying, computer, classrooms, etc.).

3. **Orienting new students**, which includes scheduling & leading orientations to the site and key personnel including faculty, CMR and administrative staff; making team/clinic assignments; and reviewing clerkship requirements & student responsibilities. Orientation should occur on the student’s first day at the assigned site.

4. **Evaluating case presentations** (see Case Presentation Evaluation Form).

5. **Evaluating comprehensive write-ups**. The Site Coordinator will read students' comprehensive write-ups and provide constructive feedback at least on a weekly basis (see Appendix D and E).

6. **Meeting with each student** regularly to review the student's performance & progress and provide feedback. These meetings should be used to review the number and type of patients that students are seeing and their level of patient care involvement (see Training Problems List). Formal meetings with each student should be scheduled at least twice during the student’s rotation at the assigned site, once midway and once before the last day (ideally during the last week).

7. **Completing a Mid-Clerkship Feedback Form**, midway through the student’s rotation at the assigned site, indicating whether the student’s progress to date is satisfactory or unsatisfactory, identifying the student's strengths and weakness and suggesting a remediation plan if necessary. The Site Coordinator will review the completed form with the student to allow the student time to improve in the identified areas of weakness during the remainder of the rotation. If the student’s progress to date is unsatisfactory, the Site Coordinator must immediately notify the Clerkship Director who may further discuss the student’s performance and possible remediation with the Department of Medicine Student Education Committee (see Mid-Clerkship Feedback Form).

8. **Coordinating the site evaluation** of students. The Site Coordinator will review the student’s
performance with each physician (including Interns, Upper Level Residents and Attendings) who worked with the student for one (1) week or more and also with any Attendings who worked with the student on a weekly basis. The Site Coordinator will collect and review evaluation forms such as the Observed History and Physical, Observed Patient Counseling, Case Presentations and Small Group Learning Experiences. The Site Coordinator will complete a summary Student Evaluation Form for the site at the end of the rotation (ideally, during the last week), summarizing all the evaluations including his/her own personal evaluation. The Site Coordinator will be careful to insure that a single evaluation, incident or conflict will not overshadow a student’s overall performance. The Site Coordinator will review the form with the student and then submit it to the clerkship office. In addition, the Site Coordinator will complete the confidential Honors/AOA Evaluation Form which is not shared with the student but is submitted to the clerkship office. If the student’s performance is marginal in any area(s), the Site Coordinator should immediately notify the Clerkship Director who may further discuss the student’s performance and possible remediation with the Department of Medicine Student Education Committee. (See Student Evaluation Form and Honors/AOA Evaluation Form)

9. Serving as a member of the Department of Medicine Student Education Committee (SEC). The Site Coordinator attends the committee’s monthly meetings to act as a spokesperson for the students assigned to his/her site, reporting on students’ performance and progress and recommending commendation and remediation when appropriate. In addition, SEC members participate in the oversight, development and implementation of all of the Department of Medicine’s 3rd and 4th year clinical rotations.

10. Monitoring students’ work hours, dedicated study time, days off and absences (see Work Hours, Dedicated Study Time and Days Off section).

11. Serving as mediator in the event students encounter problems at their assigned site. Problems may include clerkship requirements, clerkship performance, absences, mistreatment, harassment and abuse. The Site Coordinator should refer significant problems to the Clerkship Director and/or the Department of Medicine Student Education Committee.

Additional responsibilities of Hospital Site Coordinators include, but are not limited to:

1. Assisting in Team Assignments - the Hospital Site Coordinator will assist the Chief Medical Resident with the assignment of students to medical teams.
2. Leading PBL Tutorial. This should occur on average once a week throughout the clerkship and each session should last on average 2 – 3 hours. (See PBL Tutorial description.)
3. Insuring that Bedside Clinical Skills occur 1 – 2 times each week and Chief Medical Resident Rounds occur 1 time each week and monitoring students’ attendance at these as well as at other hospital conferences and rounds deemed to be of educational value by the Hospital Site Coordinator.

The Bedside Clinical Skills (BCS) Attending’s Role

1. The BCS Attending’s role will be to serve as a role model, instructor and facilitator. The BCS Attending will make formal rounds. Meetings on the inpatient service will be scheduled regularly and this time should be held inviolable.
2. The BCS Attending will be familiar with and reinforce the method of problem based, self-
directed learning, as established in Units 1-5.

3. BCS Attendings will emphasize bedside clinical teaching during their rounds, never failing to see the patients that are presented. The Attending will serve as resource faculty at the bedside, teaching techniques and demonstrating abnormalities. In addition to the general bedside teaching, they are tasked to specifically ensure competent student performance of pulmonary and cardiac bedside examination skills.

4. The BCS Attending will be responsible for giving feedback to the student on his/her performance after each presentation. Any problems identified will be discussed and a plan to remedy difficulties will be constructed. Progress on previously identified difficulties will also be discussed.

5. BCS Attendings will be responsible for evaluation and will serve on the Departmental Student Evaluation Committee.

The Upper Level Resident’s Role

Introduction: The Upper Level Resident (PGY-2 or -3) is ultimately responsible for the third-year medical student’s experience with the inpatient medical team. At the beginning and throughout the student’s inpatient experience, the resident should clarify what is expected of the student.

Responsibilities:

1. The Upper Level Resident is responsible for assigning 2-3 patients per week for the student work up and care for. Patients should be selected for their ability to cooperate and communicate, as well as for their specific medical problems.

2. The Upper Level Resident is also responsible for reviewing the student’s write-ups, for assisting with development of learning issues and helping to execute the learning agenda. The Upper Level Resident may also provide formal feedback on two sections of the students’ Observed History and Physical Examination Evaluation Forms (other feedback should be provided by the Chief Medical Resident or Attending Physician).

3. The Upper Level Resident will "sign off" on the student’s write-up, confirming that he/she has reviewed the written note and provided feedback.

4. The Upper Level Resident will confirm that the student is pursuing self-directed learning by taking advantage of "Dedicated Learning Time."

The Chief Medical Resident’s Role

Introduction: The Chief Medical Resident (CMR) serves as a key faculty resource for the medical student on the inpatient service. As supervisor for the medical teams and their students, the CMR helps insure a good experience for the students.

Responsibilities:

1. The CMR will supervise and assist the Upper Level Resident in the inpatient instruction of medical students. They are responsible for ensuring that students are instructed in, but not limited
to, the following:

- Case presentations
- Interpretation of basic EKGs
- Interpretation of common imaging, including chest and abdominal x-rays and CT, head CT and MRI
- Physiology and management of fluids and electrolytes
- Interpretation of arterial blood gases
- Basic physiology and management of shock
- Basic understanding and management of ventilators (at KMC)

2. The CMR (or other faculty member) will observe and evaluate student’s Observed History and Physical Sections during the student’s first two weeks of inpatient medicine, as previously described.

3. The CMR will lead weekly Chief Rounds with the students as previously described.

4. The CMR will regularly discuss each student’s clinical performance with the Hospital Site Coordinator.

The Ambulatory Attending’s Role

Introduction: The ambulatory attending, or preceptor, is a critical element for student learning in Internal Medicine as it is practiced in the ambulatory milieu. Although sometimes lacking the drama of inpatient medicine, the outpatient setting offers special skills sets in learning and teaching critical thinking, decision making, clinical skills and judgment, and patient-physician communication in Internal Medicine.

Responsibilities:

1. The ambulatory attending/preceptor will serve as a role model for excellence in ambulatory primary internal medical practice, to include thoughtful, evidence-based health care that is patient focused, comprehensive, and which maximizes and restores health, and is preventative.

2. The attending/preceptor will assign patients for student evaluation that will cover the depth and breadth of ambulatory learning issues, as found in the Learning Objectives listed under Patient’s Presenting Health issues (Appendix A).

3. The attending/preceptor will monitor and teach data gathering as it applies to the clinical focus of ambulatory patient care; this includes appropriate consideration of the breadth of patient health issues, rather than a simple focus on chief complaint.

4. The attending/preceptor will model and teach evidence-based problem solving as it applies to the ambulatory experience.

5. The attending/preceptor will critique student write-ups for accuracy, style, problem solving and give constructive feedback, by applying the criteria of the “comprehensive write-up” and the write-up examples (see Appendix E).

6. The attending/preceptor will give continuous feedback on student clinical and analytical skills, and stimulate his/her intellectual growth.

7. The ambulatory preceptor will assure completion the “Observation of Patient Counseling form
for at least 2 separate patient encounters.
8. The attending/preceptor will evaluate student performance in areas of medical knowledge, clinical skills, and professionalism and work habits.
GUIDELINES FOR APPROPRIATE APPEARANCE AND ATTIRE

These guidelines are intended to contribute to your overall professional development as students in training to become physicians. The Third Year Clerkship in Internal Medicine expects students to appear and dress in a professional manner. Your appearance and attire should reflect respect towards faculty, staff, classmates, patients and the general public.

It is recognized that different attire will be necessary for different settings, depending on factors such as student activities and responsibilities, training sites, patient and public contact. Student attire should always be appropriate and not interfere with the activities and responsibilities expected of them.

General guidelines for all Medicine Clerkship students:

- Students should wear:
  - JABSOM name tag with photo ID
  - University of Hawaii-issued white medical coat
  - Closed-toe footwear
- Students should maintain an optimum level of personal hygiene and grooming
- Strong odors and fragrances should be avoided
- Clothes, hair, fingernails and footwear should be clean and neat
- Clothing should not be suggestive, revealing or tight-fitting
- Clothing should not have offensive images or language

Site-specific (inpatient and ambulatory) guidelines for Medicine Clerkship students:

- Students should adhere to the dress code/policy in place at their training site
RECOMMENDED RESOURCES

Highly recommended clerkship guidebook:


Online resources:

Internal Medicine Essentials for Clerkship Students - online materials such as photographs, tables, screening tools and other instruments – access free of charge at http://www.acponline.org/acp_press/essentials/

UpToDate – access available at some training sites, or students may purchase individual subscriptions directly from UpToDate.com.

Textbooks:

Internal Medicine Essentials for Students, American College of Physicians (ACP) and Clerkship Directors in Internal Medicine (CDIM), c2011 – discount offered for ACP student members at http://www.im.org/Publications/PhysiciansInTraining/Pages/Essentials.aspx

Kochar’s Clinical Medicine for Students, Lippincott Williams & Wilkins, c2008, 5th edition

Cecil Essentials of Medicine, Elsevier, c2011, 8th edition

Reference textbooks:


Spiral bound books and pocket guides:

Pocket Medicine, Lippincott Williams & Wilkins, c2010, 4th edition

Practical Guide to the Care of the Medical Patient, Elsevier, c2011, 8th edition

Washington Manual of Medical Therapeutics, Lippincott Williams & Wilkins, c2010, 33rd edition

Washington Manual of Outpatient Internal Medicine, Lippincott Williams & Wilkins, c2010, 2nd edition

The Sanford Guide to Antimicrobial Therapy, c2012, 42nd edition

Highly recommended self-assessment program:
MKSAP (Medical Knowledge Self-Assessment Program) for Students 5 (Book and Digital), American College of Physicians (ACP) and Clerkship Directors in Internal Medicine (CDIM), c2011 – discount offered for ACP student members at http://www.im.org/Publications/PhysiciansInTraining/Pages/MKSAPforStudents.aspx
REQUIRED EQUIPMENT

1. White coat
2. JABSOM nametag
3. Stethoscope
4. Ophthalmoscope and otoscope
5. Penlight
6. Reflex hammer
7. Tuning fork 128 Hz for vibratory exam
8. Tape measure
9. Visual acuity card
10. Small magnifier lens
11. Disposable tongue blades
12. Cotton-tipped swabs for sensory exam
13. Watch with second and minute marks to record vital signs, etc.

All the above listed equipment, except for the JABSOM nametag and watch, are available for purchase at the Medical School Bookstore.

Students are expected to have ALL the equipment and bring everything to their assigned training sites daily. The equipment should be readily accessible (i.e. worn, carried in a bag or in/on a white coat).

All students on Inpatient Medicine are required to carry ALL the listed equipment ALWAYS while on the wards.

Students on Ambulatory Medicine may find their assigned sites have some, but not all, of the listed equipment available for student use. If the listed equipment is NOT readily accessible at the site, it is the student’s responsibility to carry the equipment AT ALL TIMES.

The possible consequences of not having required equipment are (1) being immediately sent to the medical bookstore to purchase items (requiring the student to make up the missed time) and (2) receiving unsatisfactory evaluations in the areas of (a) Clinical Skills – physical examinations and (b) Professionalism – dependability, professional appearance and attire.
EXPOSURE TO BLOOD/BODY FLUIDS PROTOCOL

1. IMMEDIATELY following the exposure:
   a. Flush the exposed skin or mucous membrane with water or saline. If exposure to the eyes has occurred, use wash station or nearest sink to flush eyes with water for at least 5 minutes.
   b. Wash any needle stick, puncture, cut or abrasion with soap and water.

2. Initiate the host agency protocol for hazardous exposure to blood/body fluids by following the instructions outlined in the table below.

3. If the exposure is in a non-hospital setting (for example, ambulatory site not associated with a hospital, in a JABSOM lab, class, or other non-hospital-based exposure), you or your preceptor/ supervisor can call Queens ED (547-4311) to review current protocol for immediate needs in such a circumstance, and begin the process, (AFTER #1). You may go to an Emergency Department, or during open hours, contact the University Health Services (Manoa Campus) 956-8965, and ask for immediate attention.

<table>
<thead>
<tr>
<th>FACILITY</th>
<th>CONTACT or GO TO</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle Medical Center</td>
<td>Report incident to supervisor. Obtain care from Employee Health Coordinator or hospital supervisor who will assist in filing incident report. Contact JABSOM OSA to report incident.</td>
<td>263-5159 or hospital supervisor 263-5329 (5 pm-8 am)</td>
</tr>
<tr>
<td>HOME Clinic</td>
<td>Notify attending physician and complete incident report. Call Dr. Jill Omori to report exposure.</td>
<td>221-0685</td>
</tr>
<tr>
<td>Kaiser Permanente Medical Center</td>
<td>Report incident within 2 hours of exposure. Call operator in house “0” and ask for infection control personnel on duty.</td>
<td>432-0000</td>
</tr>
<tr>
<td>Kapiolani Medical Center</td>
<td>Report to Employee Health. Go to Emergency Dept, if EH closed, also call on-call Employee Health Coordinator, 983-6000).</td>
<td>983-8525</td>
</tr>
<tr>
<td>Kuakini Medical Center</td>
<td>Occupational Health Services. When closed, go to ED, and also notify Nursing Supervisor (through Operator, dial “O”).</td>
<td>547-9531</td>
</tr>
<tr>
<td>Pali Momi Medical Center</td>
<td>Employee Health during regular work hours or Emergency Department when exposure occurs after hours. Notify supervisor. Report incident Work Injury Line.</td>
<td>535-7200</td>
</tr>
<tr>
<td>The Queen’s Medical Center</td>
<td>Employee Health/PEP Team.</td>
<td>547-4004</td>
</tr>
<tr>
<td>Straub Clinic and Hospital</td>
<td>Employee Health during business hours, go directly to ED after business hours.</td>
<td>522-3481</td>
</tr>
<tr>
<td>Tripler Army Medical Center</td>
<td>Let care team know of exposure. Report to the ER. Report exposure to, or go to, Occupational Health the next business day.</td>
<td>433-6235</td>
</tr>
<tr>
<td>VA Clinic</td>
<td>Contact EHU during business hours. Go to TAMC ER after hours.</td>
<td>433-0091</td>
</tr>
<tr>
<td>Wahiawa General Hospital</td>
<td>Go to ER; also notify Nursing Supervisor (through operator) of exposure.</td>
<td>621-4230</td>
</tr>
</tbody>
</table>

You may also seek care and information from University Health Services (956-8965), your personal physician, or any emergency department, **but seek immediate evaluation and counseling.** All follow-up care after immediate evaluation services are the responsibility of the student.

4. Report exposure to;
   a. Your supervising faculty member and course/clerkship director
   b. Medical School Office of Student Affairs @ 692-1000;
   c. For URGENT after hours needs, call 692-0912, ask for Dr Smerz or Administrator on-call

5. Students should be knowledgeable about their health insurance coverage, and should know what their plan will cover related to occupational exposures. Remind anyone billing for follow-up that it is NOT an Occupational Exposure, but medical follow-up, or the insurer may not want to pay for services.

**JABSOM's Affiliation Agreement with Health Care Facilities (HCF) state:**
**“Environmental exposure.** In the event a medical student is exposed to an infectious, environmental, or occupational hazard at the HCF, the HCF shall be responsible for providing immediate evaluation and counseling as with employees of the HCF. Follow-up after
the initial evaluation and counseling will not be the responsibility of the HCF, and will proceed according to University student health policies."
All students in the Third-Year Clerkship in Internal Medicine are scheduled to attend one of the upcoming HIV Medicine sessions (except neighbor island 6L students).

This is a required clerkship activity.

How to prepare for the HIV Medicine session:

2. Use the resources available at AIDS Info [https://aidsinfo.nih.gov/](https://aidsinfo.nih.gov/)
4. If you are on inpatient medicine, please notify your team and chief resident of your scheduled absence to attend this required clerkship activity. Likewise, you should discuss with them whether or not you are expected to return to the hospital after this session.
MEDICINE T-RES INSTRUCTIONS

General
• Logging all your patients is required for JABSOM accreditation and for your clerkship grade.
• Failure to log properly and on a timely basis may lead to serious consequences for JABSOM and for you.
• You should log your patients regularly – ideally every workday so that you don’t forget and so that you don’t fall behind.
• You should sync your patient log regularly – at least once a week, ideally on the same day each week.

T-Res Data Fields
Complete all data fields (except 2\textsuperscript{nd} Diag which is not always needed).

Date:
• In the Inpatient setting, the date is when you first saw the patient. This may or may not be the date of admission.
• In the Ambulatory setting, the date is when you see the patient. If you see a patient again for a follow-up visit, the patient should be logged again using the date of the follow-up visit.

Site:
• In the Inpatient setting, select the hospital (KMC, QMC, TAMC)

• In the Ambulatory setting:
  o If you are working in a clinic, select the clinic (QEC, VA, Kaiser Nanaikeola, Kaiser-Waipio, Kalihi Palama, Kokua Kalihi Valley)
  or
  o If you are working in a physician’s office, select Medicine – Other Amb (Do not select Private Outpatient).

• Do not select Other

Setting:
• For the Inpatient block: Select Inpatient or Special (Do not select Other):

\textbf{Inpatient} is the patient for whom you performed a history and physical exam, and wrote daily progress notes.
You should log each patient only 1 time during the patient’s hospitalization. For example: If Mr. S was hospitalized for 3 days, although you wrote progress notes daily, you should log him only 1 time. If Mr. S. was discharged and then is readmitted and comes back to you, you should log him again as a new patient encounter. If, however, Mr. S. left the hospital AMA and then comes back with the same problem, you should not log him as a new patient encounter. If, however, Mr. S. left the hospital AMA and then comes back with a different problem, you should log him as a new patient encounter.

.Special is any patient that contributed to your education in the setting of conferences, rounds, procedures, etc. In other words, you did not “Participate in the care” of this patient.

Note: Special is also a patient on whom you wrote a couple of progress notes to help out your team (but not on a daily basis).

- For the Ambulatory block: Select **Ambulatory** or **Special** (Do not select Other):

  **Ambulatory** is the patient for whom you performed a history and physical exam, and wrote a note. Each and every visit, including follow-up visits, should be considered a new patient encounter and logged. **Special** is any patient that contributed to your education in the setting of conferences, rounds, procedures, etc. In other words, you did not “Participate in the care” of this patient.

**Supervisor:**

- In the Inpatient setting, select last name **MEDICINE** + first name **Inpt-KMC, Inpt-QMC-UHS or Inpt-TAMC**.

- In the Ambulatory setting, select the attending physician from the menu - except for the following situations:
  - If you are at QEC, select **MEDICINE, QEC**
  - If you are at VA Honolulu, select **MEDICINE, VA**
  - If you are at another VA, select your attending physician

- If the setting is Special, select **MEDICINE, Special**

- Do not select Other

**Birth Date:**

- Enter 1/1/ “patient’s year of birth”. For example: if the patient’s date of birth is 6/7/71, enter “1/1/71”.

**Sex:**

- Select the patient’s gender
Problems:
• Select up to 5 Training Problems that apply to the patient
• If none of the Training Problems apply to the patient, select None

Prim Diag:
• Select the primary diagnoses that you addressed for this patient. You may enter up to 5 diagnoses.
• If the diagnosis is not listed or if you have a more specific diagnosis than is listed, you can write in the diagnosis by choosing Other.

2nd Diag:
• Use this field if the patient has more than 5 diagnoses. You may enter up to 5 additional diagnoses, for a total of 10.

Printed Reports
• Print an activity report according to the following schedule:
  o Mid-inpatient feedback meeting
  o Mid-ambulatory feedback meeting
  o End of the inpatient block
  o End of the ambulatory medicine block
• At the end of the inpatient block and at the end of the ambulatory block, your printed reports must reviewed, signed and dated by your Hospital Site Coordinator or Ambulatory Preceptor, respectively, and then turned in to the clerkship.
• Your Hospital Site Coordinator or Ambulatory Preceptor may request that you report additional handwritten information on your printed report (to help identify patients). However, the signed reports that you turn in to the clerkship should be copies without any additional handwritten information.
• Instructions for generating and printing your T-Res Medicine Activity Report:
  o Login to the T-Res web site: www.t-res.net
  o Select Lists under Reports in the left column
  o View report 38C
  o Activity Type: Internal Medicine, then View Report
Please complete an evaluation on each of the following individuals with whom you interacted during your inpatient or ambulatory rotation:

**INPATIENT MEDICINE**
- Clerkship Director - Dr. Izutsu
- Hospital Site Coordinator
- PBL Tutor
- Bedside Clinical Skills Teacher(s)
- Chief Medical Resident
- Upper Levels
- Interns
- EBM - Dr. Kasuya
- HIV Medicine Teacher(s)
- HIPSTER - Dr. Ganitano
- Neurology - Dr. Yee

**AMBULATORY MEDICINE**
- Clerkship Director - Dr. Izutsu
- Ambulatory Preceptor(s)
- Upper Levels, if at VA or QEC
- Interns, if at VA or QEC
- EBM - Dr. Kasuya
- HIV Medicine Teacher(s)
- HIPSTER - Dr. Ganitano
- Neurology - Dr. Yee

In addition, you are also encouraged to complete evaluations on any other individuals to help the Department of Medicine recognize our most outstanding teachers as well as identify those who may need further training to improve their teaching.

*These evaluations are anonymous. Your honest and thoughtful feedback is integral in helping the Department of Medicine and its teachers improve students’ educational experiences. Your assistance is greatly appreciated. Thank you!*

**INSTRUCTIONS**

Please go to [https://uhdom.wufoo.com/forms/ms3-evaluation-of-teacher-20182019/](https://uhdom.wufoo.com/forms/ms3-evaluation-of-teacher-20182019/) to complete the evaluations.

Complete the evaluation form and then click submit.

You will be directed to a confirmation message. Please save it as a PDF or take a screenshot of this page.

Email the confirmation message to Julieta as proof of your submission.
EVALUATION FORMS
INSTRUCTIONS:
- Observed History and Physical Sections should be performed during the clerkship on appropriate patients.
- The Chief Medical Resident, Site Coordinator or any other Faculty Physician may observe student.
- The student should receive on-the-spot feedback on their performance. Observerer may require student to repeat a Section if further experience is felt to be necessary in performing the skill.
- The student must turn in all of their completed Observed History and Physical Sections Evaluation Form to the Hospital Site Coordinator by the end of the Inpatient portion.

OBSERVED FOCUS HISTORY-TAKING SKILLS

Medical Interviewing (Circle S=satisfactory, M=marginal, more practice needed)

- Student introduces self and explains his/her role correctly  S  M
- Elicits the History of Present Illness systematically and completely S  M
- Delineates major symptoms systematically and completely (location, duration, radiation, quality, intensity, setting, onset, frequency, aggravating/alleviating factors, associated manifestations, functional impairment, etc) S  M
- Facilitates accurate collection of a patient's history including PMHX, MEDS, ALL, FamHx, SocHx, ROS. S  M
- Effectively uses questions/directions to obtain accurate information needed S  M
- Responds appropriately to non-verbal cues S  M
- Demonstrates effective listening skills S  M
- Shows respect, compassion, empathy and establishes trust S  M
- Attends to a patient's needs of comfort, modesty, confidentiality and information S  M
- Uses language that patient understands S  M

Physical Examination:

HEENT (examine sitting)

- Follows efficient, logical sequence S  M
- Balances screening/diagnostic steps for problem S  M
- Sensitive to a patient's modesty and comfort S  M

HEAD/EYES

- Inspect face and scalp S  M
- Test visual acuity for each eye S  M
- Inspect lids, conjunctivae, sclerae, corneas S  M
- Test Extraocular Muscle movement S  M
- Test pupillary responses to light and accommodation  
- Inspect cornea, lens, retina of each eye with ophthalmoscope

**EARS**

- Test for auditory acuity bilaterally
- Inspect and palpate auricles and mastoids
- Inspect canals and tympanic membranes with otoscope
- Palpate nose and sinuses for tenderness
- Inspect nasal passages with speculum

**NECK**

- Inspect neck veins
- Inspect/palpate for posterior auricular, cervical, submandibular and supraclavicular nodes
- Palpate parotid glands
- Inspect and palpate thyroid (each lobe and trachea) with swallowing
- Evaluate for Acanthosis Nigricans
- Assess neck circumference

**MOUTH**

- Palpate TMJ; evaluate for tenderness or subluxation
- Evaluated Lips and oral mucosa
- Evaluate Dentition and Gums
- Evaluate airway patency/Mallampatti score

EXAMINER COMMENTS:

EXAMINER SIGNATURE____________________________________ DATE:_________

I have received feedback on my performance (student signature): ___________________________
Physical Examination: Thorax, Cardiovascular, and pulmonary

- Follows efficient, logical sequence S M
- Balances screening/diagnostic steps for problem S M
- Sensitive to a patient's modesty and comfort S M

THORAX/PULMONARY (sitting)

- Inspect posterior thorax with respiration S M
- Inspect anterior thorax with respiration S M
- Inspect/palpate spine S M
- Percuss costovertebral angles for tenderness S M
- Percuss posterior thorax bilaterally and symmetrically S M
- Percuss diaphragmatic excursion S M
- Auscultate posterior lung fields bilaterally S M
- Auscultate lateral lung fields bilaterally S M
- Auscultate anterior lung fields starting with supraclavicular area S M

CARDIOVASCULAR (supine)

- Inspect neck veins S M
- Auscultate carotid arteries for bruits S M
- Inspect precordium S M
- Palpate PMI and precordium for lifts/heaves/thrills S M
- Auscultate with diaphragm at aortic, pulmonic areas, LSB and apex S M
- Auscultate for splitting of S2 in pulmonic area S M
- Auscultate with bell at apex (supine and LL decubitus positions) S M
- Inspect extremities for cyanosis, clubbing, venous varicosities, and edema S M
- Palpate distal pulses: Radial, Dorsalis Pedis, Posterior Tibial if unable to feel Dorsalis Pedis pulse) S M

EXAMINER COMMENTS:

EXAMINER SIGNATURE____________________________________ DATE:_____________

I have received feedback on my performance (student signature): _______________________________
**Physical Examination** : Abdomen (supine, hips/knees flexed)

- Follows efficient, logical sequence  
  S  M
- Balances screening/diagnostic steps for problem  
  S  M
- Sensitive to a patient's modesty and comfort  
  S  M
- Alert patient to abdominal exam  
  S  M
- Inspect abdomen  
  S  M
- Auscultate epigastrium and aortic area for bruit  
  S  M
- Auscultate all 4 abdominal quadrants for bowel sounds  
  S  M
- Palpate superficially and deeply in all 4 quadrants  
  S  M
- Palpate and percuss for liver  
  S  M
- Palpate for aorta  
  S  M
- Palpate for spleen (supine and R lateral decubitus position)  
  S  M
- Palpate for inguinal nodes and femoral pulses bilaterally  
  S  M

EXAMINER COMMENTS:

EXAMINER SIGNATURE ___________________________  DATE: ____________

I have received feedback on my performance (student signature): _______________________________

**Physical Examination** : Neurological

- Follows efficient, logical sequence  
  S  M
- Balances screening/diagnostic steps for problem  
  S  M
- Sensitive to a patient's modesty and comfort  
  S  M
- Examine muscles for atrophy, asymmetry, fasciculation  
  S  M
- Examine CN II (optic nerve): visual acuity, pupillary light reflex  
  S  M
- Examine CN III, IV, VI: extraocular movements, nystagmus, accommodation  
  S  M
- Examine CN V (trigeminal): light touch in 3 divisions of trigeminal nerve, muscles of mastication (clench jaw)  
  S  M
- Examine CN VII (facial nerve): raise eyebrows, frown, close eyes tightly and resist opening, smile, puff cheeks  
  S  M
- Examine CN VIII : finger rub for hearing  
  S  M
- Examin IX and X: gag reflex, visualizing uvula deviation  
  S  M
- Examine XI: shrug shoulders with resistance  
  S  M
- Examine Deep Tendon Reflexes at biceps, triceps, brachioradials, patella, ankle  
  S  M
- Check for clonus and Babinski reflex  
  S  M
- Examine Gait (if possible)  
  S  M
- Examine muscle strength (flexion/extension against resistance in upper and lower extremities)  
  S  M

EXAMINER COMMENTS:

EXAMINER SIGNATURE ___________________________  DATE: ____________

I have received feedback on my performance (student signature): _______________________________
OBSERVED PATIENT COUNSELING
Evaluation Form

U.H. John A. Burns School of Medicine
Third-Year Clerkship in Internal Medicine

Complete 2 during ambulatory medicine and turn in to your Ambulatory Preceptor.

Student: __________________________ Site: ________________ Date: __________

Setting: _____ Inpatient Counseling was directed at: _____ Patient
_____ Ambulatory (check one or both) _____ Patient’s family

Counseling:
___ Explain diagnoses
___ Explain tests, procedures or surgery
___ Review results of tests, procedures or surgery
___ Review medications (indications, dosing, side effects, etc.)
___ Review diets, exercise or other lifestyle changes
___ Discuss smoking cessation
___ Discuss alcohol use
___ Discuss compliance (medications, follow-up, etc.)
___ Review discharge instructions
___ Other (specify) ___________________________

<table>
<thead>
<tr>
<th>Good</th>
<th>Needs Improvement</th>
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<tbody>
<tr>
<td>Student used clear and understandable language.</td>
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<tr>
<td>Student adapted to patient’s/family’s readiness to learn.</td>
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<tr>
<td>Student adapted to patient’s/family’s comprehension level</td>
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<tr>
<td>All pertinent information was presented accurately.</td>
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<tr>
<td>Student demonstrated empathy and compassion.</td>
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<tr>
<td>Patient’s/family’s comprehension was assessed.</td>
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Evaluator Comments:

Evaluator’s name _________________________ Evaluator’s signature ________________________

Student’s signature _______________________

I received constructive feedback on my Observed Patient Counseling (circle): Yes No
Before presenting, the student should give this form to the attending or resident leading rounds. Afterwards, the student should turn the form in to the Hospital Site Coordinator.

Student: _______________________________________         Date: _______________

Rounds:
___ Attending Rounds
___ Bedside Clinical Skills
___ ICU Rounds
___ Morning Report
___ PBL Tutorial
___ Other Rounds/Conference __________________

Major problems/diagnoses of case presented:
1. _____________________________________________________
2. _____________________________________________________
3. _____________________________________________________

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<thead>
<tr>
<th></th>
<th>Exceeded Expectations</th>
<th>Met Expectations</th>
<th>Needs Improvements</th>
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<tr>
<td>Presentation was clear</td>
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<td>Presentation was organized</td>
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<td>Presentation was memorized</td>
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<td>All pertinent history was presented accurately</td>
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<td>All pertinent physical findings were presented accurately</td>
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<td>All pertinent labs were presented accurately</td>
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<td>All pertinent problems were correctly identified</td>
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<td>Assessment was appropriate for level of training</td>
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<td>Plan (diagnostic, therapeutic, education) was appropriate for level of training</td>
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Comments:

Evaluator: _____________________________

Signature ________________________________________________
U.H. John A. Burns School of Medicine  
Third-Year Clerkship in Internal Medicine  
SMALL GROUP LEARNING EXPERIENCE  
Evaluation Form

Student: ____________________ Date: _________ Activity: _____ PBL Tutorial  
_____ Bedside Clinical Skills  
_____ Chief Rounds  
_____ Other: ____________

<table>
<thead>
<tr>
<th>Activity</th>
<th>Exceeded Expectations</th>
<th>Met Expectations</th>
<th>Needs Improvement</th>
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<tr>
<td>Participates actively</td>
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<td>Shares knowledge</td>
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<td>Respects opinions and learning needs of others</td>
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<td>Asks thoughtful questions</td>
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<td>Facilitates group process</td>
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<td>Demonstrates appropriate fund of knowledge for MS3</td>
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<tr>
<td>Demonstrates appropriate clinical skills for MS3</td>
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<td>Is properly prepared for this activity</td>
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Evaluator Comments:

Evaluator's name: ________________________  Evaluator's signature: ________________________

Student's signature: ____________________
U.H. John A. Burns School of Medicine
Third-Year Clerkship in Internal Medicine

MID-CLEKSHIP FEEDBACK FORM

Student’s name: ___________________________________________________

Considering the three domains of Medical Knowledge, Clinical Skills and Professionalism,

This student’s STRENGTHS are:

This student NEEDS TO WORK AND IMPROVE ON:

Overall, this student’s progress to date is:

___ Satisfactory
___ Unsatisfactory

Evaluator’s name: ___________________________  Signature: ___________________________

Student's signature: __________________________  Date reviewed with student: ______________

Please make a photocopy of this form after it is completed, reviewed and signed by both the Evaluator and the Student.

Instructions for the Student:
Keep a photocopy of this form after your Hospital Site Coordinator or Ambulatory Preceptor completes and reviews it with you. You should actively work on and improve the areas identified above. You will be instructed on how to turn in the completed form at the end of your inpatient block and at the end of your ambulatory block.

Instructions for the Evaluator:
Please keep a copy and include the information in your final Student Evaluation Form. Specifically, if you identified any areas to work on and improve, please comment on whether the student successfully responded to your feedback and improved by the end of the block.
STUDENT EVALUATION FORM
1  Searches for, critically appraises, and applies biomedical information appropriately to patient care.

<table>
<thead>
<tr>
<th>Exceeded Expectations</th>
<th>Met Expectations</th>
<th>Needs Improvement</th>
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2  Evaluates the knowledge base supporting good patient care and recognizes the gaps between prevailing and best practice; demonstrates self-directed learning.

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**The Biological Sciences**

Graduates will understand the biological sciences underlying clinical medicine.

3  Knows the various causes of illness and the ways in which they operate on the body (pathogenesis)

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4  Knows the altered structure and function (pathology and pathophysiology) of the body and its major organ systems.

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5  Applies the biological sciences to diagnosis and therapy.

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6 Approaches each patient with an awareness and sensitivity to the non-biological determinants of health.

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7 Demonstrates clinical reasoning, critical thinking, and problem-solving skills.

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8 Performs a complete or focused history and physical exam appropriate to the presenting complaint.

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9 Formulates a problem list and differential diagnosis.

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10 Plans appropriate diagnostic tests.

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11 Accurately interprets patient responses, physical findings, and diagnostic test results.

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12 Develops an appropriate therapeutic plan.

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13 Educates patients, families, and other healthcare providers about health, illness, and disease prevention.

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Comment

Oral and Written Communication Skills

Graduates will be able to communicate effectively with patients, families and other

14 Greets patients warmly and using rapport-building techniques.

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<tr>
<th>Exceeded Expectations</th>
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</table>
15 Presents cases clearly and concisely.

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**Populational and Community Health**

Graduates will appreciate the epidemiology of disease and the role of the physician in public health and global health issues, particularly those important to Hawaii and the AsiaPacific region

16 Writes notes (write-ups and progress notes, etc.) in a systematic, organized and thorough manner that is accurate, legible and appropriate for the clinical setting.

<table>
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<tr>
<th>Exceeded Expectations</th>
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17 Knows the epidemiology of common illnesses within within diverse populations and approaches useful in reducing such illnesses

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18 Knows how the health of certain subgroups of the population and ethnic groups differs from the population at large

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**Professionalism**

Graduates will be professional and ethical, demonstrate an enthusiasm for medicine, and value honor, integrity, altruism, respect, accountability, excellence, scholarship, and leadership while delivering compassionate care to their patients.

19 Presents a professional appearance and demeanor.

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<tr>
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20 Treats patients with compassion; respecting patient confidentiality and preserving patient dignity.

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21 Completes assignments and fulfills responsibilities promptly and with a positive attitude

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22 Interacts with peers, patients, residents, faculty, and staff members in an ethical manner.
23 Works effectively with peers.

24 Works effectively with Nurses and Ancillary Staff.

25 Works effectively with Attending Staff.

26 Works effectively with Residents.

27 Works effectively as a team member.

28 Open to feedback

29 Proactive, has initiative and motivation.

Please provide detailed comments regarding this student's overall performance below. These are crucial to the student's final evaluation for the Clerkship as well as their Dean's letter. Be as specific as possible.

I understand it is my responsibility to be familiar with the faculty orientation material for this clerkship. Submission of this evaluation attests that I have reviewed the Internal Medicine Clerkship Handbook and/or attended the clerkship faculty orientation, and that I have contacted the Clerkship Director with any questions I may have had about my student supervision responsibilities.

Additionally, submission of this evaluation certifies that I have no conflict of interest in evaluating this student. If I am unsure whether a conflict may exist, I will contact the Director of the Office of Student Affairs to discuss the matter.

Overall Comment
OTHER FORMS
Name of MS3 ______________________________________________

1. **The upper level (UL) resident (Level 2 or 3) is responsible for the third-year medical student’s inpatient medicine experience.** At the beginning and throughout the student’s inpatient experience, **the UL should clarify what is expected of the student.**

2. The earliest time that the student is permitted to **arrive at the hospital** is:
   - 4:00 a.m. at Kuakini
   - 5:00 a.m. at Queen’s
   - 5:00 a.m. at Tripler
   The earliest time that the student is permitted to **see patients** is:
   - 4:30 a.m. at Kuakini
   - 5:30 a.m. at Queen’s
   - 5:30 a.m. at Tripler

3. The student must take **every call** with his/her team **throughout** his/her inpatient block, until 10 p.m. at the latest. The student may leave earlier than 10 p.m. if his/her patient care responsibilities are complete, with the Upper Level Resident’s approval. If the student’s team is not on call, the student should assist his/her team until after the team signs out. There is no overnight call.

4. **The UL is responsible for assigning patients to the student** (see Training Problems List). The student will **admit 1 - 2 patients** per call. The student should actively **follow an average of 2 patients at all times (maximum 5 patients).**

5. **The student must interview and examine patients on his/her own.** The student may observe the Intern and/or UL obtain the history and physical, but this observation does **not** qualify as the student’s history and physical. The student must **complete** an independent complete H+P for each of the three required write-ups that are due to the site coordinator for grading/evaluation.

6. **The student must pre-round and write daily Progress Notes** on all his/her assigned patients **before the Intern and/or UL write their notes.** The UL should **review the Progress Notes with the student,** give constructive feedback and countersign the note.

7. **The UL is responsible for insuring proper supervision** of the following parts of the physical exam performed by the student: **female breast exams, pelvic exams, rectal exams and prostate exams.** The supervision must be provided by a physician (such as Interns, ULs, Chief Residents or Attendings).

8. **The UL is responsible for insuring proper supervision of any procedure** performed by the student. The supervision must be provided by a physician (such as Interns, ULs, Chief
Residents or Attendings) who is certified or has expertise to competently perform the procedure in question. Note that there are no required procedures for students.

9. **The UL should assist the student in preparing case presentations** at hospital rounds or conferences at a level that is appropriate for the student’s training. Whenever a student’s patient will be presented, the student is expected to be the one presenting the patient.

10. The student must have **one (1) day off per week**, either a Saturday or a Sunday. At Kuakini, the day off should be on Sunday - unless the student has call on Sunday, in which case the student will take Saturday off.

11. **The student must inform the UL of the student’s activities and whereabouts at all times.** Specifically, the student must notify the UL whenever leaving the hospital, including leaving to attend required 3rd year or clerkship activities or to study, and should discuss if or when he/she needs to return.

12. **When the UL is absent or off, the Intern should assume the UL’s role and responsibilities**, including all those listed above, in supervising the student.

13. **The Intern and UL should discuss medical student issues and problems** with the Chief Resident and/or Hospital Site Coordinator as soon as possible.

1st Upper Level Resident:

Name _______________________  Signature ______________________ Date _________
(Required by end of MS3’s 1st week)

2nd Upper Level Resident:

Name _______________________  Signature ______________________ Date _________
(Required by end of UL’s 1st week)
### Third-Year Clerkship in Internal Medicine

**INPATIENT WORK HOURS LOG**

**Student ____________________________________________**

**Inpatient site (circle) KMC QMC TAMC**

**Week ___ beginning _____/_____/201_**

<table>
<thead>
<tr>
<th></th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
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<tbody>
<tr>
<td><strong>On Call?</strong></td>
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<td><strong>Other Activities?</strong></td>
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**TOTAL # PATIENTS**

| For KMC, # ICU Patients |        |         |           |          |        |          |        |
| Time In                 |        |         |           |          |        |          |        |
| Time Out                |        |         |           |          |        |          |        |

**TOTAL # HOURS**

**TOTAL # HOURS FOR THE WEEK: __________**

- Please log your hours *daily* – otherwise it’s difficult to remember.
- You should log only the hours that you are *working* which includes patient care and required 3rd year, hospital and clerkship activities such as Colloquia, rounds, conferences, PBL Tutorials, Bedside Clinical Skills, Chief Rounds, CV PE, EBM, EKG, HIV Medicine, METS Sim Session, Neuro, etc.
- It’s ok to include meals in the middle of your “work day” (as long as it’s not a 1 hr lunch!) – it’s too much trouble to clock out for lunch and then clock in afterwards.
- You should *not* include meals at the hospital before/after your “work day” or reading at the hospital before/after your “work day.”
- You should *not* include writing your Comprehensive Write-ups and LIs – even if done at the hospital - since that is “home” work.
- You should work no more than **80 hours per week**, averaged over the course of the entire clerkship.
- You should have **1 day off per week**, usually a Sat or Sun.
- You should follow the holiday schedule observed by your site, since this varies by site.
- **On Call?** If relevant, please specify Short, Long, or Overnight.
- **Other Activities?** Please specify off-campus activities. Ex: Colloquia, HIV Medicine, METS Sim Session, etc.
- **# Patients** is the # of patients (counted at the end of each day) that you are actively following - that is, pre-rounding on, writing notes on and presenting.
- Ask your UL to sign the following Monday ________________________________ Then turn completed Log in to your CMR/Hospital Site Coordinator.
You are required to see at least 1 patient with each of the listed Training Problems during this clerkship. This is the minimum requirement. Your goal, however, should be to see at least 1 inpatient patient and 1 ambulatory patient with each of the Training Problems; the more patients you see, the more you will learn. The Training Problem does not have to be the patient’s Chief Complaint. In fact, a patient may present with many Training Problems.

Keep track of your patient encounters in the log below and in T-Res. Indicate which encounters you have:

Precepted (P) – you evaluated the patient independently then staffed the patient with an attending/upper level resident

Observed (O) – were observed evaluating a patient by an attending or upper level resident

Special activity (S) – participated in a patient activity that does not count towards either of the above categories

It is your responsibility to ensure that you have fulfilled the Training Problems requirement by the end of the clerkship. You are advised to see your Upper Level Resident, Chief Medical Resident and/or Hospital Site Coordinator (Inpatient Medicine) or Ambulatory Preceptor (Ambulatory Medicine) as soon as possible to assist in finding appropriate patients.

Please refer to the Student Handbook for the Specific Learning Objectives for each Training Problem. Your study of Internal Medicine in this clerkship should be guided by these Training Problems and their Specific Learning Objectives.

Complete the Inpatient half of this 2 page chart by your last day of inpatient medicine, including your Hospital Site Coordinator’s signature, and then turn in to Julieta Rajlevsky in the Dept of Medicine at UHT 7th fl.

Complete the Ambulatory half of this 2 page chart by your last day of ambulatory medicine, including your Ambulatory Preceptor’s signature, and then turn in to Julieta Rajlevsky in the Dept of Medicine at UHT 7th fl.

<table>
<thead>
<tr>
<th>Inpatient</th>
<th>Ambulatory/Outpatient</th>
<th>1. Healthy Patient:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Health promotion, disease prevention and screening</td>
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<tr>
<td></td>
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<td>(i.e. annual or routine physical exam)</td>
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Patients with a symptom, sign or lab abnormality (14):

<table>
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<tr>
<th>P</th>
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</table>

2. Abdominal pain

3. Altered mental status

4. Anemia

5. Back pain

6. Chest pain

7. Cough

8. Dyspnea

9. Dysuria

10. Fever

11. Fluid, electrolyte & acid-base disorders

12. GI bleeding

13. Knee pain

14. Rash

15. Upper respiratory complaints
<table>
<thead>
<tr>
<th>Inpatient</th>
<th>Ambulatory/Outpatient</th>
<th>Patients with a known condition (18):</th>
</tr>
</thead>
<tbody>
<tr>
<td>P O</td>
<td>P O</td>
<td>16. Acute MI</td>
</tr>
<tr>
<td>P O</td>
<td>P O</td>
<td>17. Acute renal failure &amp; Chronic kidney disease</td>
</tr>
<tr>
<td>P O</td>
<td>P O</td>
<td>18. Common cancers</td>
</tr>
<tr>
<td>P O</td>
<td>P O</td>
<td>19. COPD &amp; Obstructive airways disease</td>
</tr>
<tr>
<td>P O</td>
<td>P O</td>
<td>20. Diabetes mellitus</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>21. Dyslipidemias</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>22. Heart failure</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>23. HIV infection</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>24. Hypertension</td>
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<td>P O</td>
<td>P O</td>
<td>25. Liver disease</td>
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<td>P O</td>
<td>P O</td>
<td>26. Major depression</td>
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<td>P O</td>
<td>P O</td>
<td>27. Nosocomial infections</td>
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<td>P O</td>
<td>P O</td>
<td>28. Obesity</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>29. Pneumonia</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>30. Rheumatologic problems</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>31. Smoking cessation</td>
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<tr>
<td>P O</td>
<td>P O</td>
<td>32. Substance abuse</td>
</tr>
<tr>
<td>P O</td>
<td>P O</td>
<td>33. Venous thromboembolism</td>
</tr>
</tbody>
</table>

Student_____________________________ _____________________________ Date____________
Name Signature

Hospital Site Coordinator___________________  _____________________________ Date____________
Name Signature

Ambulatory Preceptor______________________    _____________________________ Date ____________
Name Signature

60
TRAINING PROBLEM #1: THE HEALTHY PATIENT: HEALTH PROMOTION, DISEASE PREVENTION, AND SCREENING

RATIONALE
With growing appreciation for the role of health screening and preventive care in promoting healthier patient outcomes, clinical education must incorporate these advancements. The important interventions related to prevention of cardiovascular disease, cancers and other chronic diseases are emphasized here.

PREREQUISITES
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to obtain additional history including a family history and assessment of risk factors.
- Knowledge of the warning signs of common cancers.
- Knowledge of basic criteria and principles of health screening.
- Knowledge of clinical epidemiologic concepts as they pertain to estimation of health risk and quantitative rationale for screening.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The epidemiology and definitions of hypertension, its contribution to cardiovascular risk, the impact of treatment on risk, and current. Recommendations for screening. (MK)
2. The epidemiology of hyperlipidemia, its contribution to cardiovascular risk, the reliability of testing modalities, the impact of treatment on cardiovascular risk, and current recommendations for screening. (MK)
3. The epidemiology of common cancers, including:
   - Breast cancer, including the efficacy of available screening modalities, impact of early treatment on survival, and current recommendations for screening. (MK)
   - Common skin cancers, including the warning signs of melanoma and basal and squamous cell carcinoma. (MK)
   - Cervical cancer, including the utility of the Pap smear, impact of early treatment on outcome, and current recommendations for screening. (MK)
   - Colorectal cancer, including the utility of available screening methodologies, the impact of early treatment on outcome, and current screening recommendations. (MK)
   - Prostate cancer, including the utility of available screening modalities, impact of early treatment on outcome, and current screening recommendations. (MK)
4. The risks, benefits, methods, and recommendations for immunizing adults against hepatitis B, influenza, pneumococcal infection, tetanus/diphtheria, and mumps/measles/rubella. (MK)
5. Safe sexual practices and risks, benefits, and efficacy of common methods of contraception. (MK)
6. Efficacy of seat belt use and proper belt application. (MK)
7. Efficacy of exercise and weight loss in prevention of cardiovascular disease and recommended exercise programs. (MK)
8. The clinical presentations of substance abuse and basic approaches to prevention and treatment. (MK)
9. The impact of smoking on cardiovascular and cancer risk and basic approaches to smoking.
cessation. *(MK)*

10. Daily caloric, fat, carbohydrate, protein, mineral, and vitamin requirements; adequacy of diets in providing such requirements; evidence of need for supplements (e.g. calcium, antioxidants). *(MK)*

11. The functional status assessment in the geriatric patient and its impact on assuring the best possible functional state. *(MK)*

12. Common environmental and occupational hazards. *(MK)*

13. Controversies and differences that exist in the recommendations for preventive measures and screening. *(MK)*

**B. SKILLS:** Students should demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, including:
   - Dietary intake of fats and cholesterol. *(PC, CS)*
   - Exercise and activity levels. *(PC, CS)*
   - Substance use and its effects, including tobacco, alcohol, and illicit drugs. *(PC, CS)*
   - Psychosocial stresses and environmental risks. *(PC, CS)*
   - Specific cancer risks (e.g. family history, exposures, warning symptoms, preventive efforts). *(PC, CS)*
   - Any high-risk sexual practices. *(PC, CS)*
   - Immunization status appropriate for adults, including:
     - Diphtheria/tetanus for all adults. *(PC, CS)*
     - Influenza vaccine and pneumococcal vaccine for the elderly and those with underlying chronic disease. *(PC, CS)*
     - Rubella for sero-negative women of child-bearing age. *(PC, CS)*
     - Hepatitis B vaccine for medical personnel and other at-risk populations. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical exam with features depending on age/sex/race and medical history of an individual, including:
   - Screening skin examination for signs of malignancy. *(PC)*
   - Screening breast examination for a dominant nodule and secondary signs of malignancy. *(PC)*
   - Participation in obtaining a Pap smear. *(PC)*
   - Screening rectal examination that includes palpation of the prostate gland, identification of any nodules, and performance of a stool test for occult blood. *(PC)*
   - Performance of a functional status examination in the geriatric patient. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis using specific history, physical exam, and laboratory findings identified during the screening examination *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend and interpret laboratory tests for screening purposes, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and other tests may include, when appropriate:
   - Complete blood count. *(PC, MK)*
   - Fasting lipid panel. *(PC, MK)*
   - Fasting blood glucose. *(PC, MK)*
• Urinalysis. (PC, MK)
• Stool test for occult blood. (PC, MK)
• Prostate specific antigen. (PC, MK)

Students should be able to define the indications for and interpret (with consultation) results of:

• Mammography. (PC, MK)
• Colonoscopy. (PC, MK)
• Pap smear. (PC, MK)
• Bone densitometry. (PC, MK)

5. **Communication skills:** Students should be able to:
   • Communicate results of the evaluation and counsel for disease prevention. (PC, CS)
   • Elicit questions from the patient and his or her family about the plan. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:
   • Perform a urinalysis (dipstick and microscopic). (PC)
   • Stool occult blood testing. (PC)
   • Calculate a BMI. (PC)
   • Perform a functional status examination for elderly patients. (PC)
   • Administer intramuscular injection of a vaccine. (PC)
   • Participate in obtaining a Pap smear. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for healthy patients, including:
   • Designing an appropriate work-up for any abnormalities noted on the screening exam. (PC, MK)
   • Teaching breast self-examinations. (PC, CS)
   • Counseling for:
     o Safe sexual practices. (PC, CS)
     o Seatbelt use. (PC, CS)
     o Healthy diet. (PC, CS)
     o Weight loss. (PC, CS)
     o Practical exercise program appropriate to the patient's age, and current physical condition. (PC, CS)
     o Stress management. (PC, CS)
     o Alcohol abstinence. (PC, CS)
     o Smoking cessation. (PC, CS)
     o Cancer screening. (PC, CS)
     o Limiting risks of occupational and environmental hazards. (PC, CS)
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to healthy patients. (PC, PLI)
   • Using a cost-effective approach based for screening. (PC, SBP)
   • Incorporating patient preferences. (PC, P)
   • Engaging the patient as an active participant in his/her health care. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Recognize the importance of regularly screening all patients followed and of teaching all patients about preventive measures. (PC, P)
2. Appreciate the necessity of keeping detailed records of screening and health maintenance
3. Understand that physicians and health care delivery organizations are frequently judged by their ability to deliver the highest quality screening and preventive measures. (PLI, P, SBP)
4. Recognize the importance of addressing community sources of health risk. (PC, P)
5. Respond appropriately to patients who are nonadherent preventive measures. (CS, P)
6. Respect the patient’s right to refuse preventive measures and screening. (P)
7. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of screening tests. (PLI, P)
8. Demonstrate ongoing commitment to self-directed learning regarding prevention and screening. (PLI, P)
9. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in preventative medicine. (P, SBP)

D. **RESOURCES:**

- USPSTF Recommendation: Screening for Breast Cancer  
  [www.ahcpr.gov/clinic/3rduspstf/breastcancer/brcanrr.htm](http://www.ahcpr.gov/clinic/3rduspstf/breastcancer/brcanrr.htm)
- USPSTF Recommendation: Screening for Cervical Cancer  
  [www.ahrq.gov/clinic/3rduspstf/cervcan/cervcanrr.htm](http://www.ahrq.gov/clinic/3rduspstf/cervcan/cervcanrr.htm)
- USPSTF Recommendations Statement: Counseling to prevent tobacco use and tobacco-caused disease  
  [www.ahrq.gov/clinic/3rduspstf/tobacccoun/tobcounrs.htm](http://www.ahrq.gov/clinic/3rduspstf/tobacccoun/tobcounrs.htm)
- Summary of Recommendations for Adult Immunization. Immunization Action Coalition Bulletin. Adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP), August 2005  
  [www.immunize.org/acip](http://www.immunize.org/acip)
TRAINING PROBLEM #2: ABDOMINAL PAIN

RATIONALE:
Abdominal pain is a common symptom that can be attributed to a wide variety of acute and chronic disease processes, many of which may represent serious medical problems. Mastery of the approach to patients with abdominal pain is important to third year medical students.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of gastrointestinal and gynecologic anatomy, physiology, and pathophysiology.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE**: Students should be able to define, describe, and discuss:

1. Three principal types of abdominal pain:
   - Visceral pain: *(MK)*
     - Poorly localized but site roughly corresponds to dermatome that innervates the affected organ.
     - Characteristics may vary (dull, cramping, burning).
     - Frequently accompanied by secondary autonomic effects (nausea, vomiting, pallor, diaphoresis, restlessness).
     - Patient moves around in an attempt to alleviate discomfort.
   - Somatoparietal or peritoneal pain: *(MK)*
     - More localized and more intense than visceral pain.
     - Arises from peritoneal irritation.
     - Aggravated by movement (patient attempts to lie still).
   - Referred pain: *(MK)*
     - Usually well localized but felt in areas remote to affected organ.
     - May be felt in skin or in deeper tissues.
     - Results from convergence of visceral afferent neurons with somatic neurons from different anatomic regions.

2. Relative likelihood of the common causes of abdominal pain based on the pain pattern and the quadrant in which the pain is located. *(MK)*

3. Diagnostic discrimination between common causes of abdominal pain based on history, physical exam, laboratory testing, and imaging procedures. *(MK)*

4. Symptoms and signs indicative of an acute/surgical abdomen. *(MK)*

5. The influence of age, gender, menopausal status, and immunocompetency on the prevalence of different disease processes that may result in abdominal pain. *(MK)*

B. **SKILLS**: Students should be able to demonstrate specific skills, including:

1. **History-taking skills**: Students should be able to obtain, document, and present an appropriately complete medical history that differentiates among etiologies of disease, including:
Chronology. (PC, CS)  
Location. (PC, CS)  
Radiation. (PC, CS)  
Character. (PC, CS)  
Intensity. (PC, CS)  
Duration. (PC, CS)  
Aggravating or alleviating factors. (PC, CS)  
Associated symptoms. (PC, CS)  
Pertinent information about previous abdominal or pelvic surgeries, chronic medical conditions, sexual activity, medications, and family history. (PC, CS)

2. **Physical exam skills**: Students should be able to perform a focused physical exam in patients who present with abdominal pain in order to:

- Establish a preliminary diagnosis of the cause. (PC)
- Assess the severity of the patient’s presenting symptoms and signs (PC)
- Determine the urgency of implementing diagnostic and treatment plans. (PC)

The initial physical examination of the patient should include:

- A general assessment of the patient’s appearance, position, and degree of discomfort. (PC)
- Measurement of vital signs, including temperature, pulse, blood pressure, and, when indicated, orthostatic blood pressure and pulse. (PC)
- Correct order and technique for examining the abdomen. (PC)
- Inspection of the abdomen for surgical scars, distension, asymmetry or cutaneous abnormalities (dilated veins, ecchymoses, etc.). (PC)
- Auscultation of the abdomen for abnormal bowel sounds, bruits. (PC)
- Percussion of the abdomen for detection of hepatomegaly, splenomegaly, abdominal masses, or the presence of ascites. (PC)
- Palpation of the abdomen for areas of tenderness, signs of peritoneal inflammation, hepatomegaly, splenomegaly, abnormal masses, pulsations, or hernias. (PC)
- Performance of rectal and pelvic exams (under supervision). (PC)

3. **Differential diagnosis**: Students should be able to generate a prioritized differential diagnosis of the most important and likely causes of a patient’s abdominal pain and recognize specific history, physical exam, and laboratory findings that distinguish between the following diagnoses or conditions:

- Appendicitis. (PC, MK)
- Cholecystitis (biliary colic). (PC, MK)
- Pancreatitis. (PC, MK)
- Diverticulitis. (PC, MK)
- Peptic ulcer disease including perforation. (PC, MK)
- Gastroenteritis. (PC, MK)
- Hepatitis. (PC, MK)
- Irritable bowel syndrome. (PC, MK)
- Small bowel obstruction. (PC, MK)
- Acute mesenteric ischemia. (MK, PC)
- Inflammatory bowel disease. (PC, MK)
- Ruptured abdominal aortic aneurysm. (PC, MK)
• Ureteral stones (renal colic). (PC, MK)
• Pelvic inflammatory disease. (PC, MK)
• Ruptured ectopic pregnancy. (PC, MK)
• Abdominal wall pain. (PC, MK)
• Referred pain. (PC, MK)

4. **Laboratory interpretation:** Students should be able to interpret specific diagnostic tests and procedures that are commonly ordered to evaluate patients who present with abdominal pain. Test interpretation should take into account:
   • Important differential diagnostic considerations including potential diagnostic emergencies. (PC, MK)
   • Pre-test and post-test likelihood of disease (probabilistic reasoning). (PC, MK)
   • Performance characteristics of individual tests (sensitivity, specificity, positive and negative predictive value, likelihood ratios). (PC, MK)

Laboratory and diagnostic tests should include, when appropriate:
- CBC with differential. (PC, MK)
- UA. (PC, MK)
- Pregnancy test. (PC, MK)
- Stool for occult blood. (PC, MK)
- Hepatic function panel. (PC, MK)
- Amylase and lipase. (PC, MK)
- Abdominal obstructive series. (PC, MK)

Students should be able to define the indications for, and interpret (with consultation) the results of:
- Abdominal ultrasound. (PC, MK)
- Abdominal CT scan. (PC, MK)
- Paracentesis fluid studies. (PC, MK)
- Upper gastrointestinal endoscopy. (PC, MK)
- Sigmoidoscopy/colonoscopy. (PC, MK)
- Barium contrast studies. (PC, MK)
- Radionuclide scan of the hepatobiliary system. (PC, MK)

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
   • Elicit questions from the patient and his or her family about the management plan. (PC, CS)
   • Communicate in lay terms the indications, risk/benefits, and expected outcomes essential to obtaining informed consent for diagnostic and therapeutic procedures commonly used to evaluate and treat patients who present with abdominal pain. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:
   • Insert a nasogastric tube. (PC)
   • Perform stool occult blood testing. (PC)
   • Assist in performing a paracentesis after explaining the procedure to the patient. (PC, CS)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Recognizing the role of narcotic analgesics and empiric antibiotics in treating selected
patients who present with acute abdominal pain. (PC, MK)

- Determining when to consult a gastroenterologist or a surgeon. (PC, SBP)
- Involving a surgeon as soon as possible when a patient is identified as having an acute abdomen. (PC, SBP)
- Selecting various tests and procedures commonly used to diagnose patients who present with symptoms of abdominal pain. (PC, MK)
- Recommending basic initial management plans for the various causes of abdominal pain listed in the differential diagnosis. (PC, MK)
- Considering the potential value of addressing psychosocial issues in the management of chronic abdominal pain. (PC, MK)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to abdominal pain. (PC, PLI)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Incorporating patient preferences. (PC, P)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for abdominal pain. (PLI, P)
2. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for abdominal pain. (P)
3. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of abdominal pain. (P, SBP)

D. REFERENCES:

TRAINING PROBLEM #3: ALTERED MENTAL STATUS

RATIONALE:
The diagnosis and management of altered mental status requires a working knowledge of all areas of internal medicine, so varied are the etiologies and corresponding treatment strategies. Internists must master an approach to the problem as they are often the first physicians to see such patients.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Basic course work in physiology, pathophysiology, and neuroanatomy.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The differentiation of delirium, dementia, and depression. (MK)
2. The pathophysiology, symptoms, and signs of the most common and most serious causes of altered mental status, including:
   - Metabolic causes (e.g. hyper/hyponatremia, hyper/hypoglycemia, hypercalcemia, hyper/hypothyroidism, hypoxia/hypercapnea, B12 deficiency, hepatic encephalopathy, uremic encephalopathy, drug/alcohol intoxication/withdrawal, and Wernicke’s encephalopathy). (MK)
   - Structural lesions (e.g. primary or metastatic tumor, intracranial hemorrhage, subdural hematoma). (MK)
   - Vascular (e.g. cerebrovascular accident, transient ischemic attack, cerebral vasculitis). (MK)
   - Infectious etiologies (e.g. encephalitis, meningitis, urosepsis, endocarditis, pneumonia, cellulites). (MK)
   - Seizures/ post-ictal state. (MK)
   - Hypertensive encephalopathy. (MK)
   - Low perfusion states (e.g. arrhythmias, MI, shock, acute blood loss, severe dehydration). (MK)
   - Miscellaneous causes (e.g. fecal impaction, postoperative state, sleep deprivation, urinary retention). (MK)
3. The importance of thoroughly reviewing prescription medications over-the-counter drugs, and supplements and inquiring about substance abuse. (MK)
4. The risk factors for developing altered mental status, including:
   - Dementia. (MK)
   - Advanced age. (MK)
   - Substance abuse. (MK)
   - Comorbid physical problems such as sleep deprivation, immobility, dehydration, pain, and sensory impairment. (MK)
   - ICU admission. (MK)
5. The diagnostic evaluation of altered mental status. (MK)
6. Indications, contraindications, and complications of lumbar puncture.  *(MK)*
7. Principles of management of the common causes of altered mental status.  *(MK)*
8. Nonpharmacologic measures to reduce agitation and aggression, including:
   - Avoiding the use of physical restraints whenever possible.  *(MK)*
   - Using reorientation techniques.  *(MK)*
   - Assuring the patient has their devices to correct sensory deficits.  *(MK)*
   - Promoting normal sleep and day/night awareness.  *(MK)*
   - Preventing dehydration and electrolyte disturbances.  *(MK)*
   - Avoiding medications which may worsen delirium whenever possible
     - (e.g. anticholinergics, benzodiazepines, etc.).  *(MK)*
9. The risks of using physical restraints.  *(MK)*
10. The risk and benefits of using low-dose high potency antipsychotics for delirium associated agitation and aggression.  *(MK)*

**B. SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of altered mental status including eliciting appropriate information from patients and their families regarding the onset, progression, associated symptoms, and level of physical and mental disability.  *(PC, CS)*
2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Complete neurologic examination.  *(PC)*
   - Mental status examination.  *(PC)*
   - Fundoscopic examination.  *(PC)*
3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for altered mental status.  *(PC, MK)*
4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - CBC with differential.  *(PC, MK)*
   - Electrolytes, BUN/Cr, GLC, hepatic function panel, Ca.  *(PC, MK)*
   - ABG.  *(PC, MK)*
   - Toxicology screen.  *(PC, MK)*
   - VDRL.  *(PC, MK)*
   - Vitamin B12 and thiamine measurements.  *(PC, MK)*
   - Thyroid function tests.  *(PC, MK)*
   - Urinalysis and urine culture.  *(PC, MK)*
   - Blood cultures.  *(PC, MK)*
   - Cerebrospinal fluid analysis (color, opening pressure, chemistries, cell counts, staining, cultures, cytology, cryptococcal antigen, VDRL).  *(PC, MK)*

Students should be able to define the indications for and interpret (with consultation) the results of:
• Cranial CT.  *(PC, MK)*
• Cranial MRI.  *(PC, MK)*
• Electroencephalogram.  *(PC, MK)*

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family.  *(PC, CS)*
   • Elicit questions from the patient and his or her family about the management plan.  *(PC, CS)*
   When the patient is unable to communicate, obtain a history from a collateral source such as a family member or other health care proxy.  *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   • Obtain an ABG.  *(PC)*
   • Assist in performing a lumbar puncture after explaining the procedure to the patient.  *(PC, CS)*

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Recognizing that altered mental status in a older inpatient is a medical emergency and requires that the patient be evaluated immediately.  *(PC, MK)*
   • Writing appropriate fluid and replacement orders for patients with common electrolyte and metabolic disturbances.  *(PC, MK)*
   • Writing appropriate antibiotic orders for the treatment of common infectious etiologies.  *(PC, MK)*
   • Ordering appropriate nonpharmacologic and pharmacologic interventions for patients with acute altered mental status with accompanying agitation and aggression.  *(PC, MK)*
   • Determining when to obtain consultation from a neurologist or neurosurgeon.  *(PC, SBP)*
   • Utilizing hospital and community resources for patients with permanent or disabling conditions to help assist their transfer back to the community or rehabilitation facility.  *(PC, SBP)*
   • Using a cost-effective approach based on the differential diagnosis.  *(PC, SBP)*
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to altered mental status.  *(PC, PLI)*
   • Incorporating patient preferences.  *(PC, P)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Appreciate the family’s concern and at times despair arising from a loved one’s development of altered mental status.  *(CS, P)*
2. Appreciate the patient’s distress and emotional response to that may accompany circumstances of altered mental status.  *(CS,P)*
3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for altered mental status.  *(PLI, P)*
4. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for altered mental status.  *(P)*
5. Demonstrate ongoing commitment to self-directed learning regarding altered mental status.  *(PLI, P)*
6. Appreciate the impact altered mental status has on a patient’s quality of life, well-being, ability to work, and the family.  *(P)*
7. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the diagnosis and treatment of altered mental status. *(P, SBP)*

D. REFERENCES:

TRAINING PROBLEM #4: ANEMIA

RATIONALE:
Anemia is a common finding, often identified incidentally in asymptomatic patients. It can be a manifestation of a serious underlying disease. Distinguishing among the many disorders that cause anemia, not all of which require treatment, is an important training problem for third year medical students.

PREREQUISITES:
- Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
  - Ability to perform a complete medical history and physical exam.
  - Ability to communicate with patients of diverse backgrounds.
  - Knowledge of pathogenesis and pathophysiology of anemia.
  - Knowledge of the basic biochemistry and pathophysiology of the blood and bone marrow.
  - Knowledge of the pharmacology of medications that can cause anemia as well as those used to treat it.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

  1. Classification of anemia based on red cell size:
     - Microcytic:
       - Iron deficiency. *(MK)*
       - Thalassemic disorders. *(MK)*
       - Sideroblastic anemia. *(MK)*
     - Normocytic:
       - Acute blood loss. *(MK)*
       - Hemolysis. *(MK)*
       - Anemia of chronic disease (e.g. infection, inflammation, malignancy). *(MK)*
       - Chronic renal insufficiency/erythropoietin deficiency. *(MK)*
       - Bone marrow suppression (e.g. bone marrow invasion, aplastic anemia).
       - Hypothyroidism. *(MK)*
       - Testosterone deficiency. *(MK)*
       - Early presentation of microcytic or macrocytic anemia (e.g. early iron deficiency anemia). *(MK)*
       - Combined presentation of microcytic and macrocytic anemias. *(MK)*
     - Macrocytic:
       - Ethanol abuse. *(MK)*
       - B12 deficiency. *(MK)*
       - Folate deficiency. *(MK)*
       - Drug-induced. *(MK)*
       - Reticulocytosis. *(MK)*
       - Liver disease. *(MK)*
       - Myelodysplastic syndromes. *(MK)*
       - Hypothyroidism. *(MK)*

  10. Morphological characteristics, pathophysiology, and relative prevalence of each of the causes
of anemia. (MK)

11. The meaning and utility of various components of the hemogram (e.g. hemoglobin, hematocrit, mean corpuscular volume, and random distribution width). (MK)

12. The classification of anemia into hypoproliferative and hyperproliferative categories and the utility of the reticulocyte count/index. (MK)

13. The potential usefulness of the white blood cell count and red blood cell count when attempting to determine the cause of anemia. (MK)

14. The diagnostic utility of the various tests for iron deficiency (e.g. serum iron, total iron binding capacity, transferrin saturation, ferritin). (MK)

15. The genetic basis of some forms of anemia. (MK)

16. Indications, contraindications, and complications of blood transfusion. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Constitutional and systemic symptoms (e.g. fatigue, weight loss). (PC, CS)
   - History of gastrointestinal bleeding or risk factors for it. (PC, CS)
   - Abdominal pain. (PC, CS)
   - Prior history of anemia or other blood diseases. (PC, CS)
   - Medications. (PC, CS)
   - Diet. (PC, CS)
   - Alcohol use. (PC, CS)
   - Menstrual history. (PC, CS)
   - Family history of anemia or other blood diseases. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Pallor (e.g. palms, conjunctiva, nail beds). (PC)
   - Mouth (e.g. glossitis, chéilosis). (PC)
   - Hyperdynamic precordium, systolic flow murmur. (PC)
   - Lymph nodes. (PC)
   - Spleen. (PC)
   - Obtain stool for occult blood testing. (PC)
   - Nervous system. (PC)

3. **Differential diagnosis:** Students should be able to generate a list of the most important and most common causes of anemia, recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - Hemoglobin and hematocrit. (PC, MK)
   - Red cell indices (e.g. mean corpuscular volume and random distribution width). (PC, MK)
   - White blood cell and platelet count. (PC, MK)
   - Reticulocyte count. (PC, MK)
• Iron studies (serum iron, TIBC, ferritin, transferrin). *(PC, MK)*
• Serum B12 and folate. *(PC, MK)*
• Haptoglobin. *(PC, MK)*
• Lactic dehydrogenase. *(LDH)* *(PC, MK)*
• Hemoglobin electrophoresis. *(PC, MK)*
• Blood smear. *(PC, MK)*

Students should be able to define the indications for and interpret *(with consultation)* results of:

• Bone marrow biopsy. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. *(PC, CS)*
   • Elicit questions from the patient about the management plan. *(PC, CS)*
   • Counsel with regard to (a) possible causes, (b) appropriate further evaluation to establish the diagnosis of an underlying disease, and (c) the impact on the family (genetic counseling). *(PC, CS)*

6. **Basic procedural skills:** Students should be able to perform and interpret:
   • Stool occult blood testing. *(PC)*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Evaluating for underlying disease processes, given that anemia is not a disease per se, but rather a common finding that requires further delineation in order to identify the underlying cause. *(PC, MK)*
   • Prescribing indicated replacement therapy, including iron, vitamin B12, and folic acid. *(PC, MK)*
   • Determining when to obtain consultation from a hematologist. *(PC, SBP)*
   • Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to anemia. *(PC, PLI)*
   • Incorporating patient preferences. *(PC, P)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for anemia. *(PLI, P)*
2. Respond appropriately to patients who are non-adherent to treatment for anemia. *(CS, P)*
3. Demonstrate ongoing commitment to self-directed learning regarding anemia. *(PLI, P)*
   Appreciate the impact anemia has on a patient’s quality of life, well-being, ability to work, and the family. *(P)*
4. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professions in the treatment of anemia. *(P, SBP)*

D. **REFERENCES:**

   ⇢ Guyatt, G H. Oxman, A D. Ali, M. Willan, A. McIlroy, W. Patterson, C. Laboratory


TRAINING PROBLEM #5: BACK PAIN

RATIONALE:
Back pain is one of the most commonly encountered problems in the outpatient, primary care internal medicine setting. It has an important differential diagnosis, and the initial decision-making must be made on the basis of clinical findings. As such, it is an excellent training condition for teaching decision-making based on careful collection and interpretation of basic clinical data. There is emerging data on test utility, especially as regards expensive spinal imaging, which facilitates teaching rational, cost-effective test ordering. Moreover, its requirement for skillful management, patient education, and support facilitate the teaching of these competencies.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of bony, soft tissue, vascular, and of the spine.
- Pathogenesis and pathophysiology of muscular strain, osteoarthritis, spinal stenosis, osteoporosis, disc degeneration, and spinal metastases.
- Pharmacology of non-narcotic and narcotic analgesics, nonsteroidal anti-inflammatory drugs, muscle “relaxants.”

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The symptoms, signs, and typical clinical course of the various causes of back pain including:
   - Ligamentous/muscle strain (nonspecific musculoskeletal back pain). (MK)
   - Degenerative arthritis (spondylitis). (MK)
   - Disc herniation. (MK)
   - Spinal stenosis. (MK)
   - Vertebral compression fracture. (MK)
   - Traumatic fracture. (MK)
   - Sacroileitis. (MK)
   - Spinal metastases. (MK)
   - Spinal epidural abscess. (MK)
   - Cauda equina syndrome. (MK)

2. The role of diagnostic studies in the evaluation of the back pain there indications, limitations, cost:
   - Plain radiography. (MK)
   - CT. (MK)
   - MRI. (MK)
   - Myelogram. (MK)
   - Electrodiagnosis (i.e. electromyography and nerve conduction studies). (MK)

   - Bone densitometry. (MK)
3. Response to therapy of the various etiologies, with understanding of the roles of:
   - Bed rest. (MK)
   - Exercise. (MK)
   - Analgesia. (MK)
   - NSAIDs. (MK)
   - Heat/ice. (MK)
   - Ultrasound. (MK)
   - Spinal manipulation. (MK)
   - Surgical interventions. (MK)

4. Risk factor for and means of limiting disability and chronicity. (MK)

5. Fear avoidance behaviors. (MK)

6. Pain related behaviors with regard to chronic narcotic use. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Cancer history. (PC, CS)
   - Weight loss. (PC, CS)
   - Fever. (PC, CS)
   - Recent infection. (PC, CS)
   - Intravenous drug use. (PC, CS)
   - Steroid use. (PC, CS)
   - Trauma. (PC, CS)
   - Rapidly progressive focal numbness and/or weakness. (PC, CS)
   - Bowel/bladder dysfunction. (PC, CS)
   - Saddle anesthesia. (PC, CS)
   - Symptoms of systemic rheumatologic conditions. (PC, CS)
   - Anatomic abnormalities (e.g. kyphosis, scoliosis). (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Examination of the spine. (PC)
   - Neurologic examination of the lower extremities. (PC)
   - Straight leg raising test. (PC)
   - Testing for saddle anesthesia. (PC)
   - Assessment of rectal tone. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for back pain (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.
   - Laboratory and diagnostic tests should include, when appropriate:
     - ESR. (PC, MK)
     - CBC. (PC, MK)
• Serum Alk Phos. (PC, MK)  
Students should be able to define the indications for and interpret (with consultation) the results of:
• Plain spinal radiography. (PC, MK)  
• Spinal CT. (PC, MK)  
• Spinal MRI. (PC, MK)  
• Radionuclide bone scan. (PC, MK)  
• Bone densitometry. (PC, MK)  
• Electrodiagnostic tests. (PC, MK)

5. **Communication skills:** Students should be able to:
• Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. (PC, CS)
• Explain the importance of active participation in the treatment plan. (PC, CS)
• Elicit questions from the patient and their family about the management plan. (PC, CS)

6. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
• Patient education about the typical course of back pain. (PC, MK)
• Methods to prevent the development of chronic back pain. (PC, MK)
• Proper use of analgesics, NSAIDs, muscle relaxants, and local heat/ice. (PC, MK)
• Teaching back hygiene measures, exercises, and proper lifting and standing ergonomics. (PC, MK)
• Counseling patients about lifestyle modifications including weight loss. (PC, MK)
• The potential role of chiropractic, acupuncture, and massage (PC, MK)
• Determining when to obtain consultation from an appropriate back pain specialist. (PC, SBP)
• Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
• Accessing and utilizing appropriate information systems and resources to help delineate issues related to back pain. (PC, PLI)
• Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:
1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for back pain. (PLI, P)
2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for back pain. (P)
3. Appreciate the importance of active patient involvement in the treatment of back pain. (P)
4. Respond appropriately to patients who are nonadherent to treatment for back pain. (CS, P)
5. Respond appropriately to patients with chronic back pain (P)
6. Demonstrate ongoing commitment to self-directed learning regarding back pain. (PLI, P)
7. Appreciate the impact back pain has on a patient’s quality of life, well-being, ability to work, and the family. (P)
8. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of back pain. (P, SBP)

D. **REFERENCES:**


TRAINING PROBLEM #6: CHEST PAIN

RATIONALE:
Chest pain is a common and important presenting symptom for a variety of disorders, some of which may be life-threatening emergencies. The ability to distinguish chest pain caused by an acute coronary syndrome (unstable angina or acute myocardial infarction) from other cardiac, gastrointestinal, pulmonary, musculoskeletal or psychogenic etiologies is an important training problem for third-year medical students.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate appropriately with patients of diverse backgrounds, including the elderly patient.
- Knowledge of the anatomy of the heart, chest and abdomen.
- Understanding of the epidemiology of heart disease.
- Knowledge of the pathogenesis and pathophysiology of cardiovascular disease.
- Knowledge of the pharmacology of cardiovascular drugs.
- Ability to perform a cardiovascular risk assessment and understand issues related to primary and secondary prevention of cardiovascular disease.
- Ability to understand the impact of illness on individuals and their families.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe and discuss:

1. Symptoms and signs of chest pain that may be due to an acute coronary syndrome such as unstable angina or acute myocardial infarction. *(MK)*
2. Symptoms and signs of chest pain that are characteristic of angina pectoris. *(MK)*
3. Symptoms and signs of chest pain due to other cardiac causes such as:
   - Atypical or variant angina (coronary vasospasm, Prinzmetal angina). *(MK)*
   - Cocaine-induced chest pain. *(MK)*
   - Pericarditis. *(MK)*
   - Aortic dissection. *(MK)*
   - Valvular heart disease (aortic stenosis, mitral valve prolapse). *(MK)*
   - Non-ischemic cardiomyopathy. *(MK)*
   - Syndrome X. *(MK)*
4. Symptoms and signs of chest pain due to gastrointestinal disorders such as:
   - Esophageal disease (GERD, esophagitis, esophageal dysmotility). *(MK)*
   - Biliary disease (cholecystitis, cholangitis). *(MK)*
   - Peptic ulcer disease. *(MK)*
   - Pancreatitis. *(MK)*
5. Symptoms and signs of chest pain due to pulmonary disorders such as:
   - Pneumonia. *(MK)*
   - Spontaneous pneumothorax. *(MK)*
   - Pleurisy. *(MK)*
6. Symptoms and signs of chest pain due to musculoskeletal causes such as:
   - Costochondritis. (MK)
   - Rib fracture. (MK)
   - Myofascial pain syndromes. (MK)
   - Muscular strain. (MK)
   - Herpes zoster. (MK)

7. Symptoms and signs of chest pain due to psychogenic causes such as:
   - Panic disorders. (MK)
   - Hyperventilation. (MK)
   - Somatoform disorders. (MK)

8. Factors that may be responsible for provoking or exacerbating symptoms of ischemic chest pain by:
   - Increasing myocardial oxygen demand.
     - Tachycardia or tachyarrhythmia. (MK)
     - Hypertension. (MK)
     - Increased wall stress (aortic stenosis, cardiomyopathy). (MK)
     - Hyperthyroidism. (MK)
   - Decreasing myocardial oxygen supply.
     - Anemia. (MK)
     - Hypoxemia. (MK)

9. Risk factors for the development of coronary heart disease:
   - Age and gender. (MK)
   - Family history of sudden death or premature CAD. (MK)
   - Personal history of peripheral vascular or cerebrovascular disease. (MK)
   - Smoking. (MK)
   - Lipid abnormalities (includes dietary history of saturated fat and cholesterol). (MK)
   - Diabetes mellitus. (MK)
   - Hypertension. (MK)
   - Obesity. (MK)
   - Sedentary lifestyle. (MK)
   - Cocaine use. (MK)
   - Estrogen use. (MK)
   - Chronic inflammation. (MK)

10. Physiologic basis and/or scientific evidence supporting each type of treatment, intervention or procedure commonly used in the management of patients who present with chest pain. (MK)

11. Role of a critical pathway or practice guideline in delivering high quality, cost-effective care for patients presenting with symptoms of chest pain in the outpatient clinic, emergency room or hospital. (MK, PC, SBP)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:
1. **History-taking skills:** Students should be able to obtain, document, and present an appropriately complete medical history that differentiates among the common etiologies of chest pain.
   - The initial medical history should allow students to categorize the patients’ symptoms as angina pectoris, atypical angina or non-cardiac chest pain. *(PC, CS)*
   - Specifically, the medical history of a patient with chest pain should contain information about those clinical characteristics that are typical of angina pectoris:
     - Substernal location. *(PC, CS)*
     - Precipitated by exertion. *(PC, CS)*
     - Relieved by rest or nitroglycerin. *(PC, CS)*
     - Onset, duration, severity, radiation, presence or absence of associated symptoms (such as dyspnea, diaphoresis or lightheadedness). *(PC, CS)*
   - The history of a patient with chest pain should also contain information about:
     - Risk factors for coronary heart disease. *(PC, CS)*
     - Previous history of ischemic heart disease or valvular heart disease (rheumatic fever, cardiac murmurs). *(PC, CS)*
     - Previous history of peripheral vascular disease or cerebrovascular disease. *(PC, CS)*
   - Students should be able to use the medical history to assess the functional status of patients who present with ischemic chest pain. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a focused physical exam that includes the following elements:
   - Accurate measurement of arterial blood pressure and recognition of the typical blood pressure findings that occur in patients with aortic stenosis, aortic insufficiency, and pulsus paradoxus. *(PC)*
   - Assessment of major arterial pulses for abnormalities, including bruits. *(PC)*
   - Assessment of the neck veins for jugular venous distention and, when necessary, evaluation for abdominal jugular reflux. *(PC)*
   - Assessment of the conjunctiva and optic fundus. *(PC)*
   - Assessment of the extremities to ascertain skin condition, including color, temperature and the presence of edema, xanthomas, cyanosis and clubbing. *(PC)*
   - Assessment of the lungs for crackles, rhonchi, rubs and decreased breath sounds. *(PC)*
   - Inspection and palpation of the anterior chest to identify right and left sided heaves, lifts, and thrills. *(PC)*
   - Auscultation of the heart to determine rhythm, intensity of heart sounds, splitting of S2 and the presence of rubs, gallops (S3, S4, summation) or extra heart sounds (e.g. clicks). *(PC)*
   - Auscultation of the heart to detect the presence of heart murmurs. When a heart murmur is present, students should be able to:
     - Identify timing (systolic vs. diastolic, holosystolic vs. ejection). *(PC)*
     - Describe pitch, location and pattern of radiation. *(PC)*
     - Gauge significance (innocent vs. pathologic, sclerosis vs. stenosis). *(PC)*
   - Assessment of the abdomen to determine the presence of epigastric or right upper quadrant tenderness, hepatomegaly, abnormal pulsations or bruits. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis and recognize specific history, physical exam, and laboratory findings that suggest a diagnosis of myocardial ischemia rather than a non-ischemic cause of chest pain (GI, pulmonary, musculoskeletal, psychogenic or undetermined). *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment.
based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Test interpretation should take into account:

- Important differential diagnostic considerations including the “must not miss” diagnoses. *PC, MK*
- Pre-test and post-test likelihood of disease (probabilistic reasoning). *PC, MK*
- Performance characteristics of individual tests (sensitivity, specificity, positive and negative predictive value, likelihood ratios). *PC, MK*

Laboratory and diagnostic tests should include, when appropriate:

- Cardiac biomarkers indicative of myocardial necrosis. *PC, MK*
- 12-lead ECG. *PC, MK*
- Chest radiograph. *PC, MK*
- ABG. *PC, MK*

Students should be able to define the indications for, and interpret (with consultation) the results of the following diagnostic tests and procedures:

- Echocardiogram (transthoracic and transesophageal). *PC, MK*
- Exercise stress test. *PC, MK*
- Stress thallium (myocardial perfusion scan). *PC, MK*
- Dobutamine stress echocardiography. *PC, MK*
- Coronary angiography. *PC, MK*
- Electron beam CT scan (for coronary calcification). *PC, MK*
- Ventilation/perfusion lung (V/Q) scan. *PC, MK*
- Pulmonary embolism protocol CT scan. *PC, MK*
- Pulmonary angiography. *PC, MK*

5. **Communication skills:** Students should be able to:

- Communicate the diagnosis, prognosis and treatment plan to patients and their families. *PC, CS*
- As appropriate for age and gender, educate patients about risk factors for cardiovascular disease. *PC, CS*
- Counsel patients or facilitate the provision of counseling related to:
  - Smoking cessation. *PC, CS*
  - Reduction of dietary saturated fats and cholesterol. *PC, CS*
  - Restriction of dietary sodium intake. *PC, CS*
  - Weight reduction. *PC, CS*
  - Increased physical activity. *PC, CS*

6. **Basic procedural skills:** Students should be able to:

- Perform a 12-lead ECG. *PC*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:

- Identification of the indications, contraindications, mechanisms of action, adverse reactions, significant interactions, and relative costs of the following medications:
  - Anti-platelet agents (aspirin, clopidogrel). *PC, MK*
  - Nitroglycerin and long-acting nitrates. *PC, MK*
  - Beta-blockers. *PC, MK*
  - Angiotensin-converting enzyme inhibitors. *PC, MK*
  - Calcium channel blockers. *PC, MK*
  - Antithrombotic therapy (heparin, warfarin). *PC, MK*
  - Glycoprotein IIb/IIIa inhibitors. *PC, MK*
Lipid-lowering agents. (PC, MK)
- Identification of the indications, contraindications, complications, long-term outcomes and relative costs associated with the following treatment modalities for ischemic heart disease:
  - Thrombolytic therapy. (PC, MK)
  - Percutaneous coronary intervention (with or without stenting). (PC, MK)
  - Coronary artery bypass graft surgery (CABG). (PC, MK)
- Determining when to consult a cardiologist or other subspecialist in the management of patients with chest pain. (PC, SBP)
- Description of how the diagnosis and treatment of chest pain in special populations may differ (e.g. very elderly, associated co-morbidities). (PC, MK)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to chest pain. (PC, PLI)
- Incorporating patient preferences. (PC, P)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Understand the emotional impact of a diagnosis of coronary artery disease and its potential effect on lifestyle (work performance, sexual functioning, etc). (PC, P)
2. Respond appropriately to patient who are nonadherent to lifestyle modifications. (CS, P)
3. Recognize the importance of early detection and modification of risk factors that may contribute to the development of atherosclerosis. (PC, P)
4. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for chest pain. (PLI, P)
5. Demonstrate ongoing commitment to self-directed learning regarding chest pain. (PLI, P)
6. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of chest pain. (P, SBP)

D. REFERENCES:


TRAINING PROBLEM #7: COUGH

RATIONALE: 85
Cough is one of the most common symptoms with which a patient will present in the outpatient setting. There are several common etiologies for cough of which a third year medical student should be aware, as well as more clinically concerning etiologies. A proper understanding of the pathophysiology, diagnosis, and treatment of cough is an important learning objective.

**PREREQUISITES:**
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of respiratory anatomy, physiology and pathophysiology.

**SPECIFIC LEARNING OBJECTIVES:**

A. **KNOWLEDGE:** Students should be able to define, describe and discuss:

1. The criteria used to classify a cough (e.g. acute vs. chronic, productive vs. non-productive). *(MK)*
2. Symptoms, signs, pathophysiology, differential diagnosis, and typical clinical course of the most common causes cough:
   - Acute cough:
     - Viral tracheitis. *(MK)*
     - Acute bronchitis. *(MK)*
     - Pneumonia. *(MK)*
   - Chronic cough:
     - Gastroesophageal reflux. *(MK)*
     - Post-nasal drip. *(MK)*
     - Asthma/reactive airways disease. *(MK)*
     - Angiotensin converting enzyme inhibitors. *(MK)*
     - Post-infectious. *(MK)*
     - Infectious (pertussis, tuberculosis). *(MK)*
     - Chronic bronchitis. *(MK)*
     - Bronchiectasis. *(MK)*
     - Pleural effusion. *(MK)*
     - Lung cancer. *(MK)*
     - Congestive heart failure. *(MK)*

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among the etiologies of disease, including:
   - Onset. *(PC, CS)*
   - Duration. *(PC, CS)*
   - Exacerbating/relieving factors. *(PC, CS)*
   - Associated symptoms (fever, chills, weight loss). *(PC, CS)*
   - Presence or absence of hemoptysis. *(PC, CS)*
   - Tobacco history. *(PC, CS)*
   - Relevant past medical history. *(PC, CS)*
2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Accurately determining respiratory rate and level of respiratory distress. (*PC*)
   - Recognizing the pharyngeal signs of post nasal drip. (*PC*)
   - Identifying rales, rhonchi, and wheezes. (*PC*)
   - Recognizing signs of pulmonary consolidation. (*PC*)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing history, physical exam, and laboratory findings that suggest a specific etiology of cough. (*PC, MK*)

4. **Laboratory interpretations:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - Chest radiograph. (*PC, MK*)
   - Pleural fluid cell count and chemistries. (*PC, MK*)
   - PFTs. (*PC, MK*)
   - Sputum Gram stain and sputum acid-fast stain. (*PC, MK*)
   - Sputum culture and sensitivities. (*PC, MK*)
   Students should be able to define the indications for and interpret (with consultation) results of:
   - Barium swallow. (*PC, MK*)
   - Upper endoscopy. (*PC, MK*)
   - Sputum cytology. (*PC, MK*)
   - Chest CT scan. (*PC, MK*)

5. **Communication skills:** Students should be able to:
   - Counsel and educate patients about environmental contributors to their disease, pneumococcal and influenza immunizations, and smoking cessation. (*PC, CS*)
   - Communicate the diagnosis, prognosis, and treatment plan, and subsequent follow-up to the patient and his or her family. (*PC, CS*)
   - Elicit input and questions from the patient and his or her family about the management plan. (*PC, CS*)

6. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Describing the indications, contraindications, mechanisms of action, adverse reactions, significant interactions, and relative costs of the various treatments, interventions, or procedures commonly used to diagnose and treat patients who present with symptoms of cough. (*PC, MK, SBP*)
   - Determining when to obtain consultation from a pulmonologist, allergist, otolaryngologist, or gastroenterologist. (*PC, SBP*)
   - Using a cost-effective approach based on the differential diagnosis. (*PC, SBP*)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to patients with chronic cough. (*PC, PLI*)
   - Incorporating patient needs and preferences. (*PC, P*)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:
1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for cough. *(PLI, P)*

2. Respond appropriately to patients who are non-adherent to treatment for cough and smoking cessation. *(CS, P)*

3. Demonstrate ongoing commitment to self-directed learning regarding diagnosis and management of cough. *(PLI, P)*

4. Appreciate the impact that an acute or chronic cough has on a patient’s quality of life, well-being, ability to work, and the family. *(P)*

5. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of cough. *(P, SBP)*

D. REFERENCES:

TRAINING PROBLEM #8: DYSPNEA

RATIONALE:
Shortness of breath or dyspnea is one of the most common patient complaints encountered in internal medicine. It has a very large number of etiologic possibilities—some benign but many potentially life-threatening. Because of the latter, a systematic approach to dyspnea is crucial.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of the pulmonary, cardiac, neurologic, and musculoskeletal systems.
- Physiology of acid-base homeostasis.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE**: Students should be able to define, describe, and discuss:

1. Major organ systems/pathologic states causing dyspnea and their pathophysiology, including:
   - Cardiac. *(MK)*
   - Pulmonary. *(MK)*
   - Anemia/hypovolemia. *(MK)*
   - Acid-base disorders and other metabolic derangements *(MK)*
   - Neuromuscular weakness. *(MK)*
   - Central neurologic derangements. *(MK)*

2. The symptoms, signs, and laboratory values associated with respiratory failure and ventilatory failure. *(MK)*

3. The alveolar-arterial oxygen gradient and the pathophysiologic states that can alter it. *(MK)*

4. The potential risks of relying too heavily on pulse oximetry as the sole indicator of arterial oxygen content. *(MK)*

5. The common causes of acute dyspnea, their pathophysiology, symptoms, and signs, including:
   - Pulmonary edema. *(MK)*
   - Pulmonary embolism. *(MK)*
   - Pneumonia. *(MK)*
   - Acute exacerbation of COPD. *(MK)*
   - Asthma. *(MK)*
   - Cardiac ischemia. *(MK)*
   - Pneumothorax. *(MK)*
   - Anxiety. *(MK)*

6. The common causes of chronic dyspnea their pathophysiology, symptoms, and signs, including:
   - Congestive heart failure. *(MK)*
   - COPD. *(MK)*
   - Pulmonary parenchymal disease. *(MK)*
- Pulmonary vascular disease. (MK)
- Anemia. (MK)
- Neuromuscular weakness. (MK)

7. Basic treatment options for the common causes of acute and chronic dyspnea. (MK)
8. The utility of supplemental oxygen therapy and the potential dangers of overly aggressive oxygen supplementation in some pathophysiologic states. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Quantity, quality, severity, duration, ameliorating/exacerbating factors of the dyspnea. (PC, CS)
   - Associated symptoms such as fevers, chills, sweats, orthopnea, paroxysmal nocturnal dyspnea, wheezing, edema, chest pain, cough, sputum production, hemoptysis, palpitations, nausea, anxiety, dizziness, orthostasis, weakness. (PC, CS)
   - History of pulmonary, cardiac, neuromuscular/neurologic, renal, hepatic, and coagulopathic disorders. (PC, CS)
   - Risk factors for deep vein thrombosis/pulmonary embolism. (PC, CS)
   - Ingestion of drugs and toxic substances, administration of IV fluids. (PC, CS)
   - Smoking and environmental exposures. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Accurately determining respiratory rate and level of respiratory distress. (PC)
   - Assessing the use of accessory muscles for breathing. (PC)
   - Accurately measuring pulsus paradox. (PC)
   - Identifying bronchial breath sounds, rales, rhonchi, wheezes, and subcutaneous emphysema. (PC)
   - Identifying signs of pulmonary consolidation and hyperresonance. (PC)
   - Identifying signs of pleural effusion. (PC)
   - Identifying signs of elevated central venous pressure. (PC)
   - Identifying signs of hypovolemia. (PC)
   - Identifying S3 gallop, edema, and pallor. (PC)
   - Identifying signs of deep vein thrombosis. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of dyspnea. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - CBC. (PC, MK)
   - Electrolytes, BUN/Cr, GLC. (PC, MK)
   - Pulse oximetry. (PC, MK)
   - ABG. (PC, MK)
- Chest radiograph. (PC, MK)
- 12-lead ECG. (PC, MK)
- Pulmonary function tests. (PC, MK)

Students should be able to define the indications for and interpret (with consultation) the results of:

- Ventilation perfusion scintigraphy. (PC, MK)
- Chest CT. (PC, MK)
- Venous Doppler studies. (PC, MK)
- Cardiac stress test. (PC, MK)
- Echocardiography. (PC, MK)

5. **Communication skills:** Students should be able to:

- Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
- Elicit questions from the patient and his or her family about the management plan. (PC, CS)
- Counsel and educate patients about environmental contributors to their disease. (PC, CS)
- Counsel patients nonjudgmentally about smoking cessation. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:

- Obtain an ABG. (PC)

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:

- A rapid triage approach to the acutely dyspneic patient. (PC, MK)
- An appropriate assessment of the patient’s oxygenation status. (PC, MK)
- Appropriate oxygen supplementation as indicated. (PC, MK)
- Management plans for pulmonary edema/congestive heart failure, pneumonia, COPD, asthma, pulmonary embolism, cardiac ischemia, hypovolemia, anemia, and pneumothorax. (PC, MK)
- Determining when to obtain consultation from an appropriate specialist. (PC, SBP)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to dyspnea. (PC, PLI)
- Incorporating patient preferences. (PC, P)

**C. ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for dyspnea. (PLI, P)
2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for dyspnea. (P)
3. Demonstrate ongoing commitment to self-directed learning regarding dyspnea. (PLI, P)
4. Appreciate the impact dyspnea has/have on a patient’s quality of life, wellbeing, ability to work, and the family. (P)
5. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the diagnosis and treatment of dyspnea. (P, SBP)
6. Show understanding for the difficulties patients face with smoking cessation. (P)
D. REFERENCES:


TRAINING PROBLEM #9: DYSURIA

RATIONALE:
Dysuria is a very common presentation in the outpatient setting. Given the amount of health care dollars that are spent on antibiotic treatment of urinary tract infections as well as the emergence of resistance, it is important for third year medical students to have a working knowledge of how to approach the patient with this complaint, and how to differentiate patients with cystitis from other common causes of dysuria.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of genitourinary anatomy, physiology and pathophysiology.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Presenting signs and symptoms of the common causes of dysuria, including:
   - Cystitis. (MK)
   - Urethritis, gonococcal and non-gonococcal (e.g. chlamydia, trichomonas, HSV). (MK)
   - Pyelonephritis. (MK)
   - Acute and chronic prostatitis. (MK)
   - Epididymitis. (MK)
   - Vaginitis (yeast, bacterial vaginosis, trichomonas, atrophic, irritant). (MK)
   - Interstitial cystitis. (MK)

2. Symptoms and signs of pyelonephritis and how to distinguish an upper from a lower UTI. (MK)
3. Common bacteria that cause UTI. (MK)
4. Aspects of pathogenesis that affect UTI, including gender, sexual activity, diabetes, anatomic anomalies, instrumentation, and use of an indwelling catheter. (MK)
5. Indications for pursuing further work up for patients with UTI. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate history that differentiates among etiologies of dysuria, including:
   - Timing, frequency, severity, and location of dysuria. (PC, CS)
   - Fever, chills, sweats. (PC, CS)
   - Frequency, urgency, hesitancy, incomplete voiding. (PC, CS)
   - Back, abdominal, and groin pain. (PC, CS)
   - History of nephrolithiasis. (PC, CS)
   - Hematuria. (PC, CS)
   - Vaginal or penile discharge. (PC, CS)
   - Penile skin lesions. (PC, CS)
   - Sexual activity. (PC, CS)
• History of sexual transmitted diseases. (PC, CS)
• Dyspareunia. (PC, CS)
• Scrotal, testicular, and perineal pain. (PC, CS)
• Use of topical hygiene products. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   • Percussion and palpation of the bladder to accurately recognize distention and tenderness. (PC)
   • Palpation over the kidneys to elicit flank tenderness. (PC)
   • Palpation of the abdomen to elicit tenderness. (PC)
   • Palpation and massage of the male prostate to obtain discharge. (PC)
   • Accurate recognition of perineal or vaginal atrophy and inflammation. (PC)
   • Techniques of the pelvic examination to assess for causes of vaginitis. (PC)

3. **Differential diagnosis:** Students should be able to generate a differential diagnosis recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology of dysuria. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.
   Laboratory and diagnostic tests should include, when appropriate:
   • Urinalysis interpretation including cells and casts, urine dipstick and Gram stain when appropriate. (PC, MK)
   • Urine culture. (PC, MK)
   • Gram stain and culture of urethral or cervical discharge. (PC, MK)
   • KOH stain and normal saline wet prep of vaginal discharge. (PC, MK)
   • Urinary or cervical PCR to test for gonorrhea and Chlamydia. (PC, MK)
   • KUB radiograph. (PC, MK)

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
   • Elicit input and questions from the patient and his or her family about the management plan. (PC, CS)
   • Counsel patients about safe sexual activity. (PC, CS)
   • Explain the risk of recurrent UTI and counsel regarding preventative measures. (PC, CS)

6. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Selecting appropriate empiric antibiotic therapy for cystitis, pyelonephritis or urethritis prior to culture results. (PC, MK)
   • Counseling patients on symptomatic therapies for acute cystitis. (PC, MK)
   • Selecting the appropriate duration of therapy for cystitis and pyelonephritis. (PC, MK)
   • Evaluating and managing patients with recurrent urinary tract infections including prophylaxis. (PC, MK)
   • Choosing appropriate treatment for vaginitis depending on results of evaluation. (PC, MK)
   • Understanding the treatment of prostatitis based on probable organisms and age. (PC, MK)
   • Determining when to obtain consultation from a urologist or gynecologist. (PC, MK)
   • Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
• Accessing and utilizing appropriate information systems and resources to help delineate issues related to dysuria. (PC, PLI)
• Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS**: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for dysuria. (PLI, P)
2. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for dysuria. (P)
3. Demonstrate ongoing commitment to self-directed learning regarding dysuria. (PLI, P)
4. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of dysuria. (P, SBP)

D. **REFERENCES:**

TRAINING PROBLEM #10: FEVER

RATIONALE:
Because fever can have many infectious or noninfectious causes, patients with fever should be stratified by host susceptibility factors and evaluated in a systematic manner. A rational approach to patients with fever will help clinicians recognize presentations that need immediate attention, limit unnecessary diagnostic testing in less seriously ill patients, and help inform therapeutic decision making.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Physiology and pathophysiology of thermoregulation and the immune response.
- Pharmacology of antipyretics.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Physiology of the acute febrile response, including the:
   - Beneficial and detrimental effects of fever upon the host. (MK)
   - The differences in clinical manifestations between immunocompetent and immunocompromised patients. (MK)

2. Risk factors and co-morbidities that are important in determining the host response to infection (e.g. neutropenia, asplenia, cirrhosis, alcoholism, diabetes, corticosteroid use, malnutrition, T cell dysfunction) (MK)

3. Etiology of fever in special populations, including patients with a history of:
   - Neutropenia due to cancer-related myelosuppression. (MK)
   - HIV disease. (MK)
   - Intravenous drug abuse. (MK)
   - Recent international travel or immigration. (MK)
   - Concomitant skin rash and lymphadenopathy. (MK)

4. Pathophysiology and clinical presentation of patients with sepsis syndromes. (MK)

5. Common causes of prolonged fever without apparent source, including:
   - FUO in a normal host. (MK)
   - Nosocomial FUO. (MK)
   - Neutropenic FUO. (MK)
   - FUO associated with HIV disease. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Chronology, duration and pattern of fever. (PC, CS)
   - Associated symptoms. (PC, CS)
   - Immune status and baseline co-morbidities. (PC, CS)
• Immunization status. *(PC, CS)*
• Relevant history of exposures. *(PC, CS)*
• Occupational, travel, family, and sexual history. *(PC, CS)*
• Medication history, including use of over-the-counter and illicit drugs. *(PC, CS)*

3. **Physical exam skills:** Students should be able to perform a complete physical exam to determine the severity of disease and establish a preliminary hypothesis about the cause of fever. *(PC)*

4. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology:
   • Infection. *(PC, MK)*
   • Rheumatologic disease/inflammatory disorder. *(PC, MK)*
   • Malignancy. *(PC, MK)*
   • Drug reaction. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   • CBC with differential. *(PC, MK)*
   • UA with exam of urinary sediment. *(PC, MK)*
   • Chest radiography. *(PC, MK)*
   • Blood cultures. *(PC, MK)*
   • Urine cultures. *(PC, MK)*
   • Sputum Gram stain and cultures. *(PC, MK)*
   • Sputum AFB stain and culture. *(PC, MK)*
   • ESR and/or specific rheumatologic tests. *(PC, MK)*
   • PPD. *(PC, MK)*
   • Cerebrospinal fluid analysis (color, opening pressure, chemistries, cell counts, staining, cultures, cytology, cryptococcal antigen, VDRL). *(PC, MK)*
   • Chemistries, Gram stain, and culture of abnormal fluid collections (e.g. pleural effusion, ascites, abscesses). *(PC, MK)*
   • Stool culture of enteric pathogens. *(PC, MK)*
   • Stool *Clostridium difficile* toxin assay. *(PC, MK)*
   • Stains and cultures from the throat, urethra, anus, cervix, vagina. *(PC, MK)*
   • HIV ELISA and western blot. *(PC, MK)*

Students should be able to define the indications for and interpret (with consultation) the results of:
   • CT imaging. *(PC, MK)*
   • Echocardiography. *(PC, MK)*
   • Tissue biopsy. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up patients. *(PC, CS)*
   • Elicit questions from the patient and their family about the management plan. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   • Obtain blood, wound, and throat cultures. *(PC)*
   • Place and interpret a PPD. *(PC)*
7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:

- Developing an appropriate evaluation plan for patients with fever including ordering and interpreting appropriate laboratory and radiographic studies. *(PC)*
- Assessing the severity of presentation based on the history, host factors, physical exam and laboratory results and recognizing presentations that need immediate attention. *(PC)*
- Developing an appropriate treatment plan for patients with fever including the selection of an initial, empiric treatment regimen for neutropenic patients with fever and/or patients with life threatening sepsis. *(PC)*
- Determining when to obtain consultation from an appropriate specialist. *(PC, SBP)*
- Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to fever. *(PC, PLI)*
- Incorporating patient preferences. *(PC, P)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for fever. *(P, PLI)*
4. Appreciate the impact fever has on a patient’s quality of life, well-being, ability to work, and family; recognize the emotional impact of differential diagnosis. *(P)*
5. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professions in the diagnosis and treatment of fever. *(P, SBP)*

D. **REFERENCES:**

TRAINING PROBLEM #11: FLUID, ELECTROLYTE AND ACID-BASE DISORDERS

RATIONALE:
Many disease processes can cause serious disturbances in the fluid, electrolyte and acid-base status of patients. Clinicians must be prepared to identify and correct these disturbances as efficiently as possible, thus making it an important training problem for third year medical students.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:

- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of pathogenesis and pathophysiology of fluid, electrolyte and acid-base disorders.
- Knowledge of medications that can cause alterations in fluid and electrolyte status as well as disturbance of acid-base status.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe and discuss:

1. The pathophysiology of:
   - Hypo- and hypervolemia. (MK)
   - Hypo- and hypernatremia. (MK)
   - Hypo- and hyperkalemia. (MK)
   - Hypo- and hypercalcemia. (MK)
   - Simple and mixed acid-base disorders. (MK)
   - Hypo- and hyperphosphatemia. (MK)
   - Hypo- and hypermagnesemia. (MK)
   - Respiratory acidosis and alkalosis. (MK)
   - Metabolic acidosis and alkalosis. (MK)

2. Presenting symptoms and signs of the above disorders. (MK)
3. The importance of total body water and its distribution. (MK)
4. The differential diagnosis of hypo- and hypernatremia in the setting of volume depletion, euvoolemia, and hypervolemia. (MK)
5. How to distinguish hyponatremia from pseudohyponatremia. (MK)
6. How to identify spurious hyperkalemia or acidosis-related hyperkalemia. (MK)
7. Risks of too rapid or delayed therapy for hyponatremia. (MK)
8. The most common causes of respiratory acidosis, respiratory alkalosis, metabolic acidosis and metabolic alkalosis. (MK)
9. How to calculate the anion gap and explain its relevance to determining the cause of a metabolic acidosis. (MK)
10. Changes in total body water distribution that occur with aging. (MK)
11. How altered mental status can contribute to electrolyte disorders. (MK)
12. Tests to use in the evaluation of fluid, electrolyte, and acid-base disorders. (MK)
13. Indications for obtaining an ABG. (MK)
14. The types of fluid preparations to use in the treatment of fluid and electrolyte disorders. (MK)

B. SKILLS: Students should demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Eliciting appropriate information from patients with volume overload, including recent weight gain, edema or ascites, symptoms of heart failure, dietary sodium intake, changes in medications, noncompliance and intravenous fluid regimens. (PC, CS)
   - Eliciting appropriate information from patients with volume depletion, including recent weight loss, thirst, gastrointestinal losses, urinary losses, oral intake, insensible losses, and intravenous fluid regimens. (PC, CS)
   - Eliciting appropriate information from patients with electrolyte problems, including use of diuretics and other medications, gastrointestinal losses, and history of relevant medical conditions (e.g., heart failure, liver disease, renal disease, pulmonary disease, central nervous system disease, and malignancy). (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Measurement of orthostatic vital signs. (PC)
   - Identification of signs of volume overload including peripheral edema, pulmonary edema, ascites, edema. (PC)
   - Identification of signs of volume depletion including tachycardia, orthostatic hypotension, dry mucous membranes, poor skin turgor. (PC)
   - Identification of signs of sodium disorders including lethargy, weakness, encephalopathy, delirium, seizures. (PC)
   - Identification of signs of potassium disorders including weakness, fatigue, constipation, ileus, cramping, tetany, hypo- or hyperreflexia. (PC)
   - Identification of signs of calcium disorders including cramping, tetany, Chvostek’s and Trousseau’s sign, seizures, anorexia, constipation, polyuria, hypo- or hyperreflexia, stupor, coma. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history, physical exam, and laboratory findings that distinguish between:
   - Hypo- and hypervolemia. (PC, MK)
   - Hypo- and hypernatremia. (PC, MK)
   - Hypo- and hyperkalemia. (PC, MK)
   - Hypo- and hypercalcemia. (PC, MK)
   - Hypo- and hyperphosphatemia. (PC, MK)
   - Hypo- and hypermagnesemia. (PC, MK)
   - Respiratory acidosis and alkalosis. (PC, MK)
   - Metabolic acidosis and alkalosis. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
• Serum electrolytes, BUN/Cr. (PC, MK)
• Anion gap. (PC, MK)
• ABG. (PC, MK)
• Serum and urine osmolality. (PC, MK)
• Urinary sodium. (PC, MK)
• Fractional excretion of sodium. (PC, MK)
• ECG findings in hyper- and hypokalemia. (PC, MK)

5. **Communication skills:** Students should be able to:
   • Explain to a patient and his or her family why intravenous fluids are needed. (PC, CS)
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
   • Elicit input and questions from the patient and their family about the management plan. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:
   • Insert a peripheral intravenous catheter. (PC)
   • Obtain an ABG. (PC)
   • Assist in the insertion of a central venous catheter. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Writing appropriate fluid orders for the treatment of hypo- and hypervolemia, hypo- and hypernatremia, hypo- and hyperkalemia, hypo- and hypercalcemia. (PC, MK)
   • Writing appropriate orders for replacing sodium, potassium, calcium, phosphates, and magnesium. (PC, MK)
   • Writing appropriate orders for correcting hyperkalemia, hypercalcemia, hyperphosphatemia, and hypermagnesemia. (PC, MK)
   • Calculating the water deficit that needs to be corrected to treat hypernatremia. (PC, MK)
   • Identifying indications for administration of bicarbonate. (PC, MK)
   • Determining when to obtain consultation from a nephrologist. (PC, SBP)
   • Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to fluid, electrolyte, and acid-base disorders. (PC SBP)
   • Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for problems related to fluid, electrolyte and acid-base disorders. (PLI, P)
3. Demonstrate ongoing commitment to self-directed learning regarding fluid, electrolyte and acid-based disorders. (PLI, P)
4. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of problems related to fluid, electrolyte and acid-base disorders. (P, SBP)

D. **REFERENCES:**

> Singer GG, Brenner BM. Fluid and Electrolyte Disturbances. In Kasper DL, Braunwald
TRAINING PROBLEM #12: GASTROINTESTINAL BLEEDING

RATIONALE:
Gastrointestinal bleeding is a common disorder which can be life-threatening if not properly diagnosed and treated. Knowledge of etiology, risk factors, approach, and management is integral to internal medicine training.

Prerequisites:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:

- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of the gastrointestinal tract.
- Pharmacology of non-steroidal anti-inflammatory medication (a major contributing factor in etiology of gastrointestinal bleeding) as well as proton pump inhibitors and other agents used in the acute setting for treatment of gastrointestinal bleeding.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. The common causes for and symptoms of upper and lower gastrointestinal blood loss, including:
   - Esophagitis/esophageal erosions. (MK)
   - Mallory Weiss tear. (MK)
   - Peptic and duodenal ulcer disease. (MK)
   - Esophageal/gastric varices. (MK)
   - Erosive gastritis. (MK)
   - Arteriovenous malformations. (MK)
   - Gastrointestinal tumors, benign and malignant. (MK)
   - Diverticulosis. (MK)
   - Ischemic colitis. (MK)
   - Hemorrhoids. (MK)
   - Anal fissures. (MK)

2. The distinguishing features of upper versus lower GI bleeding (MK)

3. The indications for inpatient versus outpatient evaluation and treatment (MK)

4. The principles of stabilization and treatment of acute massive GI blood loss. (MK)

5. The role of contributing factors in GI bleeding such as H. pylori infection; NSAIDs, alcohol, cigarette use, coagulopathies; and chronic liver disease. (MK)

B. **SKILLS:** Students should demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age appropriate history that differentiates among etiologies of disease, including:
   - Features that distinguish upper from lower GI bleeding. (PC, CS)
   - Quantification of degree of blood loss. (PC, CS)
   - Chronology and duration of bleeding. (PC, CS)
• Associated symptoms. *(PC, CS)*
• Relevant past medical history. *(PC, CS)*
• Medication history, including use of tobacco and alcohol. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical examination to establish the diagnosis and severity of disease, including:
• Postural blood pressure and pulse. *(PC, MK)*
• Abdominal palpation for organomegaly, masses, and tenderness. *(PC, MK)*
• Search for stigmata of chronic liver disease. *(PC, CS)*
• Anal and rectal examination. *(PC, CS)*

3. **Differential diagnosis:** Students should be able to generate a differential diagnosis recognizing specific history and physical examination findings that suggest a specific etiology for GI bleeding. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.

   Laboratory and diagnostic tests should include, when appropriate:
   • Stool and gastric fluid tests for occult blood. *(MK, PC)*
   • CBC. *(MK, PC)*
   • PT/PTT. *(MK, PC)*
   • Hepatic function panel. *(MK, PC)*
   • Tests for *Helicobacter pylori*. *(MK, PC)*

Students should be able to define the indications for and interpret (with consultation) results of:

   • Esophagogastroduodenoscopy (EGD). *(MK, PC)*
   • Colonoscopy. *(MK, PC)*
   • Barium studies of the gastrointestinal tract. *(MK, PC)*

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. *(PC, CS)*
   • Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   • Start an IV line using a large bore (i.e. 18 gauge) needle. *(MK, PC)*
   • Perform a stool or emesis occult blood testing. *(MK, PC)*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Establishing adequate venous access. *(PC, MK)*
   • Administering crystalloid fluid resuscitation. *(PC, MK)*
   • Ordering blood and blood product transfusion. *(PC, MK)*
   • Determining when to obtain consultation from a gastroenterologist or a general surgeon. *(PC, MK)*
   • Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to gastrointestinal bleeding. *(PC, PLI)*
   • Incorporating patient preferences. *(PC, P)*
Outlining long-term management when appropriate (e.g. Helicobacter pylori eradication, antacid, H-2 blocker or proton pump inhibitor therapy, smoking/alcohol cessation, NSAID restriction, and dietary modification. (MK, CS)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for gastrointestinal bleeding. (PLI, P)
2. Respond appropriately to patients who are nonadherent to treatment for gastrointestinal bleeding. (CS, P)
3. Demonstrate ongoing commitment to self-directed learning regarding gastrointestinal bleeding. (PLI, P)
4. Appreciate the impact gastrointestinal bleeding has on a patient’s quality of life, well-being, ability to work, and the family. (P)
5. Recognize the importance and demonstrate a commitment to the utilization of other health care professions in the treatment of gastrointestinal bleeding. (P, SBP)

D. RESOURCES:

TRAINING PROBLEM #13: KNEE PAIN

RATIONALE:  
Musculoskeletal complaints are some of the most common problems for which patients seek medical attention, and the knee is the single most common joint pain. Many of these problems can be effectively tackled in the primary care setting without need for consultation. The principles presented in this training problem can be readily applied to other joint pains.

PREREQUISITES:  
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of the musculoskeletal system.
- Pharmacology of acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), topical medications (capsaicin and lidocaine) and glucocorticoids.
- Basic bone radiograph interpretation.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

11. A systematic approach to joint pain based on an understanding of pathophysiology to classify potential causes. *(MK)*
12. The effect of the time course of symptoms on the potential causes of joint pain (acute vs. subacute vs. chronic). *(MK)*
13. The difference between and pathophysiology of arthralgia vs. arthritis and mechanical vs. inflammatory joint pain. *(MK)*
14. The distinguishing features of intra-articular and periarticular complaints (joint pain vs. bursitis and tendonitis). *(MK)*
15. The effect of the features of joint involvement on the potential causes of joint pain (monoarticular vs. oligoarticular vs. polyarticular, symmetric vs. asymmetric, axial and/or appendicular, small vs. large joints, additive vs. migratory vs. intermittent). *(MK)*
16. Indications for performing an arthrocentesis and the results of synovial fluid analysis. *(MK)*
17. The utility of describing the relative location of knee pain (anterior, medial, lateral, posterior). *(MK)*
18. The relative frequency of the various causes of knee pain. *(MK)*
19. The differential diagnosis, pathophysiology, and typical presentations of the common intra-articular causes of knee pain:
   - Osteoarthritis. *(MK)*
   - Inflammatory arthropathies. *(MK)*
   - Crystalline arthropathies. *(MK)*
   - Septic arthritis. *(MK)*
   - Patellofemoral pain syndrome. *(MK)*
   - Cruciate ligament tear. *(MK)*
   - Meniscal damage. *(MK)*
20. The differential diagnosis, pathophysiology, and typical presentations of the common periarticular causes of knee pain:
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- Collateral ligament sprain/tear. (MK)
- Ileotibial band syndrome. (MK)
- Prepatellar bursitis. (MK)
- Popliteal (Baker) cyst. (MK)

11. Basic symptomatic treatment for knee pain, including:
- Relative rest. (MK)
- Ice/heat. (MK)
- Compression. (MK)
- Elevation. (MK)
- Acetaminophen. (MK)
- Nonsteroidal anti-inflammatory drugs. (MK)
- Glucosamine and chondroitin sulfate. (MK)
- Physical therapy. (MK)
- Assistive devices. (MK)
- Topical “analgesics.” (MK)
- Corticosteroid injection. (MK)

12. Indications for and efficacy of intra-articular corticosteroid injections. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Delineation of the specific features of the pain. (PC, CS)
   - Presence of stiffness, swelling, warmth, redness. (PC, CS)
   - Symptoms of instability, locking, clicking/popping, and weakness. (PC, CS)
   - History of trauma, new activities, repetitive motion. (PC, CS)
   - Impact on the patient’s ability to carry out activities of daily living. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Examination of the knee, including:
     - Inspection. (PC)
     - Palpation. (PC)
     - Range of motion. (PC)
     - Gait assessment. (PC)
     - Evaluation for effusion. (PC)
     - Assessment of ligamentous and cartilaginous stability. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for knee pain. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.
   - Laboratory and diagnostic tests should include, when appropriate:
     - Synovial fluid analysis. (PC, MK)
   Students should be able to define the indications for and interpret (with consultation) the results of:
5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. *(PC, CS)*
   - Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*

6. **Basic and advanced procedure skills:** Students should be able to:
   - Assist in the performance of an arthrocentesis and intra-articular corticosteroid injection. *(PC)*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Determining when to perform an arthrocentesis. *(PC, MK)*
   - Prescribing simple, nonmedicinal symptomatic measures such as rest, ice/heat, compression, and elevation. *(PC, MK)*
   - Prescribing physical therapy and assistive devices *(PC, MK)*
   - Prescribing exercise. *(PC, MK)*
   - Counseling patients regarding weight loss. *(PC, MK)*
   - Prescribing non-narcotic analgesics and anti-inflammatory agents. *(PC, MK)*
   - Determining when to prescribe narcotic analgesics. *(PC, MK)*
   - Determining when to prescribe intra-articular corticosteroid injection. *(PC, MK)*
   - Determining when to obtain consultation from an orthopedic surgeon and rheumatologist. *(PC, MK)*
   - Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to knee pain. *(PC, PLI)*
   - Incorporating patient preferences. *(PC, P)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for knee pain. *(PLI, P)*
2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for knee pain. *(P)*
3. Respond appropriately to patients who are nonadherent to treatment for knee pain. *(CS, P)*
4. Appreciate the impact chronic knee pain has on a patient’s quality of life, psychological well-being, ability to work, and the family. *(P)*
5. Recognize the importance of and demonstrate a commitment to the utilization of other health care professions in the treatment of knee pain. *(P, SBP)*
6. Appreciate the difficulty patients with limited mobility have in achieving weight loss. *(P)*
7. Demonstrate an appropriate attitude in managing patients with chronic pain. *(P)*

D. **REFERENCES:**

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TRAINING PROBLEM #14: RASH

RATIONALE:
Rash is an extremely common complaint. It may be the manifestation of a primary cutaneous disorder or secondary to a systemic condition. Internists see many patients with both and, therefore, must be acquainted with the diagnosis and management.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of the skin.
- Pharmacology of glucocorticoids, antifungals, antibiotics, benzoyl peroxide, salicylic acid, and retinoids and derivatives.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

3. The standard nomenclature used to describe rashes (macule, patch, papule, nodule, plaque, vesicle, pustule, bulla, cyst, wheal, telangiectasia, petechia, purpura, erosion, ulcer). (MK)

4. The morphologic features used to describe potentially malignant skin lesions (Asymmetry, Border, Color, Diameter, Dynamic i.e. changing, Elevation, and Enlargement, “ABCDE”). (MK)

5. The significance of focal, organ-based, and constitutional signs and symptoms in the context of a rash (e.g. rash and fever, rash and arthritis, rash and renal failure). (MK)

6. The differential diagnosis, pathophysiology, and typical presentations of the common causes of eczematous dermatoses:
   - Atopic dermatitis. (MK)
   - Contact dermatitis. (MK)
   - Stasis dermatitis. (MK)
   - Seborrheic dermatitis. (MK)

7. The differential diagnosis, pathophysiology, and typical presentations of the common causes of maculopapular eruptions:
   - Viral exanthems. (MK)
   - Bacterial exanthems. (MK)
   - Erythema multiforme. (MK)

8. The differential diagnosis, pathophysiology, and typical presentations of the common causes of papulosquamous dermatoses:
   - Psoriasis. (MK)
   - Pityriasis rosea. (MK)

9. The differential diagnosis, pathophysiology, and typical presentations of the common causes of cutaneous infections:
   - Impetigo. (MK)
   - Cellulitis. (MK)
   - Folliculitis. (MK)
   - Dermatophytosis (tinea corporis, tinea capitis, tinea cruris, tinea pedis, onychomycosis).
11. The prevention of community acquisition of Methicillin-resistant Staphylococcus aureus (MRSA), including good hygiene practices:
   - Keeping hands clean by washing thoroughly with soap and water or using an alcohol-based sanitizer. (MK)
   - Keeping cuts and scrapes clean and covered with a bandage until healed. (MK)
   - Avoiding contact with other people’s wounds or bandages. (MK)
   - Avoiding sharing personal items such as towels and razors. (MK)

9. The differential diagnosis, pathophysiology, and typical presentations of the common causes of pustular diseases:
   - Acne. (MK)
   - Rosacea. (MK)

10. The differential diagnosis, pathophysiology, and typical presentations of the common causes of cutaneous ulcers:
    - Venous insufficiency. (MK)
    - Peripheral arterial disease. (MK)
    - Neuropathic. (MK)

11. The significance of palpable purpura and other cutaneous findings of vasculitis. (MK)

12. The differential diagnosis, pathophysiology, and typical presentations of the common causes of urticaria and angioedema. (MK)

13. The differential diagnosis, pathophysiology, and typical presentations of drug eruptions. (MK)

14. The differential diagnosis, pathophysiology, and typical presentations of the common causes of benign neoplasms and hyperplasias:
    - Seborrheic keratosis. (MK)
    - Epidermoid cyst. (MK)

15. The differential diagnosis, pathophysiology, and typical presentations of the common causes of premalignant lesions and malignancies:
    - Actinic keratosis. (MK)
    - Basal cell carcinoma. (MK)
    - Squamous cell carcinoma. (MK)
    - Malignant melanoma. (MK)

16. The differential diagnosis, pathophysiology, and typical presentations of the cutaneous manifestations of sexually transmitted diseases.
    - Syphilis. (MK)
    - Disseminated gonorrhea infection. (MK)
    - Human papilloma virus. (MK)
    - Herpes simplex virus. (MK)

17. The differential diagnosis, pathophysiology, and typical presentations of the cutaneous manifestations of internal/systemic diseases. (MK)

18. The general indications for skin biopsy. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:
1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Evolution (site of onset, manner of spread, duration). *(PC, CS)*
   - Symptoms associated with the rash (pruritis, pain, photosensitivity, malaise, fever, arthralgias). *(PC, CS)*
   - Past medical history of systemic diseases known to have cutaneous manifestation. *(PC, CS)*
   - Sexual history. *(PC, CS)*
   - Medication usage and allergies. *(PC, CS)*
   - Skin care product usage. *(PC, CS)*
   - Chemical skin exposure. *(PC, CS)*
   - Sun exposure. *(PC, CS)*
   - Travel history. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease including:
   - Description of the type of primary skin lesion (macule, patch, papule, nodule, plaque, vesicle, pustule, bulla, cyst, wheal, telangiectasia, petechia, purpura, erosion, ulcer). *(PC)*
   - Description of the shape, margination, color, arrangement, and distribution of the individual lesions. *(PC)*
   - Describe potentially malignant lesions in terms of **Asymmetry**, **Border**, **Color**, **Diameter**, **Elevation**, and **Enlargement** (“ABCDE”). *(PC)*
   - Presence of exudates: dry (crust) or wet (weeping) exudates. *(PC)*
   - Presence of scale or lichenification. *(PC)*
   - Palpation of lesions for consistency, alteration of temperature, mobility, and tenderness. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for a rash. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.
   Laboratory and diagnostic tests should include, when appropriate:
   - KOH preparation. *(PC, MK)*
   - CBC with differential. *(PC, MK)*
   - RPR and VDRL. *(PC, MK)*
   - Bacterial culture. *(PC, MK)*

   Students should be able to **define the indications for and interpret (with consultation)** the significance of the results of:
   - Skin biopsy. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   - Explain the dangers of excess sun exposure. *(PC, CS)*
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
   - Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*
   - Counsel patients regarding the prevention of community acquisition of MRSA. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
Perform a skin scraping and KOH preparation. \((PC)\)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Determining when to perform a skin scraping and KOH preparation. \((MK, PC)\)
   - Determining when to obtain tests appropriate for the diagnosis of systemic medical conditions suspected as the cause of rash. \((MK, PC)\)
   - Prescribing a simple hypoallergenic skin care regimen. \((MK, PC)\)
   - Prescribing appropriate moisturizing/emollient treatment. \((MK, PC)\)
   - Discussing the importance of and prescribing sunscreen use. \((PC, MK, CS)\)
   - Prescribing appropriate treatment for eczematous dermatoses, mild psoriasis, common cutaneous skin infections, acne, rosacea, venous stasis dermatitis and ulcers, and common drug eruptions. \((PC, MK)\)
   - Determining when to obtain a consultation from a dermatologist. \((PC)\)
   - Using a cost-effective approach based on the differential diagnosis. \((PC, SBP)\)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to common dermatologic complaints. \((PC, PLI)\)
   - Incorporating patient preferences. \((PC, P)\)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:
3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for rashes. \((PLI, P)\)
4. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for rashes. \((P)\)
5. Appreciate the impact rashes have on a patient’s quality of life, well-being, ability to work, and the family. \((P)\)

D. **REFERENCES:**

- American Academy of Dermatology Medical Student Core Curriculum
- Community-Associated MRSA Division of Healthcare Quality Promotion National Center for Infectious Diseases Centers for Disease Control and Prevention U.S. Department of Health and Human Services [www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html](www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html)
TRAINING PROBLEM #15: UPPER RESPIRATORY COMPLAINTS

RATIONALE:
Upper respiratory tract infections (URIs) are some of the most common problems for which patients seek medical attention. Many patients inappropriately receive antibiotic therapy for these mostly viral infections.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:

- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of the upper airway, Eustachian tubes, and sinuses.
- Anatomy and physiology of the respiratory system.
- Pathogenesis and pathophysiology of upper respiratory tract diseases.
- Microbial pathogens associated with upper respiratory tract infections.
- Pharmacology of antibiotics.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. A rational approach to the common URIs: nasal congestion, rhinorrhea, facial pain/tenderness, cough, sputum production, sore throat, and ear pain. (MK)
2. Common constitutional symptoms that accompany URIs: generalized weakness, fatigue, malaise, headache, mild myalgias, and modest fever. (MK)
3. The microbiology of URIs, highlighting the relative frequencies of viral and bacterial etiologies. (MK)
4. The most common microbiologic agents that cause the common URIs. (MK)
5. The pathophysiology and typical clinical presentation of the common URIs:
   - Common cold. (MK)
   - Acute bronchitis. (MK)
   - Pharyngitis. (MK)
   - Acute sinusitis. (MK)
   - Otitis media. (MK)
6. The pathophysiologic similarities between the common cold and acute sinusitis. (MK)
7. The clinical features and microbiology of acute compared to chronic sinusitis. (MK)
8. The pathophysiology and symptomatology of allergic rhinitis and the clinical features that may help differentiate it from the common cold and acute sinusitis. (MK)
9. The clinical features that may help differentiate the common URIs from influenza. (MK)
10. The pathophysiology and clinical features of acute compared to chronic bronchitis. (MK)
11. The pathophysiology and clinical features of acute bronchitis compared to pneumonia. (MK)
12. The pathophysiology and clinical features of otitis media and Eustachian tube malfunction. (MK)
13. The signs and symptoms that may help distinguish viral from bacterial pharyngitis. (MK)
14. Symptomatic treatment for URIs and the major side effects/contraindications for these treatments, including:
   - Decongestants. (MK)
• Non-selective antihistamines. (MK)
• Mucolytics. (MK)
• Cough suppressants. (MK)
• Pain relievers/fever reducers. (MK)

15. The general role of antibiotics in the treatment of URIs and specific evidence-based indications for them. (MK)
16. The basic elements of the treatment of allergic rhinitis. (MK)
17. The use of antiviral agents in the prophylaxis and treatment of influenza. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - The predominant symptom (nasal congestion/rhinorrhea, purulent nasal discharge with facial pain/tenderness, sore throat, cough with or without sputum, sore throat or ear pain). (PC, CS)
   - Constitutional symptoms. (PC, CS)
   - Symptoms of potential pneumonia. (PC, CS)
   - History of or symptoms of serious cardiopulmonary diseases (e.g. asthma, chronic obstructive pulmonary disease, congestive heart failure) that may alter the treatment plan. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Examination of the nasal cavity, pharynx, and sinuses. (PC)
   - Otoscopic examination. (PC)
   - Evaluation of the head and neck for lymphadenopathy. (PC)
   - Auscultation of the lungs to distinguish pulmonary consolidation, pleural effusion, pulmonary congestion, and chronic obstructive pulmonary disease. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of upper respiratory complaints:
   - Common cold. (PC, MK)
   - Acute sinusitis. (PC, MK)
   - Chronic sinusitis. (PC, MK)
   - Allergic rhinitis. (PC, MK)
   - Pharyngitis. (PC, MK)
   - Otitis media. (PC, MK)
   - Otitis externa. (PC, MK)
   - Acute bronchitis. (PC, MK)
   - Chronic bronchitis. (PC, MK)
   - Influenza. (PC, MK)
   - Pneumonia. (PC, MK)
   - Infectious mononucleosis. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include,
when appropriate:
- CBC with differential. (PC)
- Rapid strep test. (PC)
- Throat culture. (PC)
- Chest radiograph. (PC)
- PFTs. (PC)
- Monospot/heterophile antibody. (PC)

5. **Communication skills:** Students should be able to:
- Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (CS)
- Elicit questions from the patient and his or her family about the management plan. (CS)
- Explain the microbiologic origin of most URIs and why antibiotics are generally ineffective. (CS)
- Explain the importance of antimicrobial resistance. (CS)

6. **Basic and advanced procedure skills:**
- Throat culture. (PC)

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
- Determining when to obtain a chest radiograph. (PC, MK)
- Determining when to prescribe antibiotics. (PC, MK)
- Selecting the most appropriate antibiotic for acute bacterial sinusitis, streptococcal pharyngitis, and bacterial otitis media. (PC, MK)
- Prescribing symptomatic treatments. (PC, MK)
- Determining when to obtain consultation from an allergist, otolaryngologist, or pulmonologist. (PC, SBP)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to URIs. (PC, PLI)
- Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for common URI complaints. (P, PLI)
2. Appreciate the impact common URI complaints have on a patient’s quality of life, well-being, ability to work, and the family. (P)
3. Discuss the patient’s perspective regarding the use of antibiotics for URIs. (CS, P)
4. Discuss the role physicians play in the over-prescribing of antibiotics for URIs. (P)
5. Discuss the importance of antimicrobial resistance from the point of view of the individual and society at large. (P)

D. **REFERENCES:**


Guidelines for the Control of Pertussis Outbreaks
National Immunization Program
Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
[www.cdc.gov/nip/publications/pertussis/guide.htm](http://www.cdc.gov/nip/publications/pertussis/guide.htm)

Get Smart. Know When Antibiotics Work
National Campaign for Appropriate Antibiotic Use
Division of Bacterial and Mycotic Diseases
National Center for Infectious Diseases
Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
[www.cdc.gov/drugresistance/community/](http://www.cdc.gov/drugresistance/community/
TRAINING PROBLEM #16: ACUTE MYOCARDIAL INFARCTION

RATIONALE:
Cardiovascular disease is the number one killer of Americans. Many associated risk factors are quite modifiable. Proper urgent management of acute myocardial infarctions significantly reduces mortality.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of the heart and coronary vessels.
- Risk factors for and pathogenesis/pathophysiology of atherosclerosis.
- Pharmacology of aspirin, morphine, nitroglycerine, heparin, antiplatelet agents, thrombolytic agents, beta-blockers, angiotensin converting enzyme inhibitors (ACE-I), angiotensin II receptor blockers (ARB), and HMG-CoA reductase inhibitors.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The primary and secondary prevention of ischemic heart disease through the reduction of cardiovascular risk factors (e.g. controlling hypertension and dyslipidemia, aggressive diabetes management, avoiding tobacco, and aspirin prophylaxis). (MK)
2. The basic principles of the role of genetics in CAD. (MK)
3. Pathogenesis, signs, and symptoms of the acute coronary syndromes:
   - Unstable angina. (MK)
   - Non-ST-elevation myocardial infarction (NSTEMI). (MK)
   - ST-elevation myocardial infarction (STEMI). (MK)
4. Atypical presentations of cardiac ischemia/infraction. (MK)
5. The typical clinical course of the acute coronary syndromes. (MK)
6. ECG findings and macromolecular markers (myoglobin, CK-MB, Troponin-I, Troponin-T) of acute ischemia/MI. (MK)
7. The utility of echocardiography in acute MI. (MK)
8. The importance of monitoring for and immediate treatment of ventricular fibrillation in acute MI. (MK)
9. Therapeutic options for acute MI and how they may differ for NSTEMI and STEMI, including:
   - Aspirin. (MK)
   - Morphine. (MK)
   - Nitroglycerine. (MK)
   - Oxygen. (MK)
   - Heparin. (MK)
   - Antiplatelet agents (glycoprotein IIb/IIIa inhibitors). (MK)
   - Beta-blockers. (MK)
   - ACE-I/ARB. (MK)
   - HMG-CoA reductase inhibitors. (MK)
• Thrombolytic agents. (MK)
• Emergent cardiac catheterization with percutaneous coronary intervention. (MK)

10. Pathogenesis, signs, and symptoms of the complications of acute MI, including arrhythmias, reduced ventricular function, cardiogenic shock, pericarditis, papillary muscle dysfunction/rupture, acute valvular dysfunction, and cardiac free wall rupture. (MK)

11. The general approach to the evaluation and treatment of ventricular tachycardia and fibrillation. (MK)

12. The importance of post-MI risk stratification, including the burden of residual coronary disease and assessment of left ventricular function. (MK)

13. Basic principles of cardiac rehabilitation. (MK)


15. The Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for acute MI treatment. (MK, PLI, SBP)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   • Cardiac risk factors. (PC, CS)
   • Location, duration, intensity, exacerbating/ameliorating factors, radiation of chest pain. (PC, CS)
   • Symptoms associated with chest pain (e.g. nausea, emesis, dyspnea, diaphoresis, palpitations, dizziness, syncope, heartburn belching, etc.). (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease including:
   • Recognition of dyspnea and anxiety. (PC)
   • Accurate measurement of vital signs. (PC)
   • Examination of the heart and vascular system. (PC)
   • Examination of the lungs. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of chest pain:
   • Stable angina. (PC, MK)
   • Coronary vasospasm. (PC, MK)
   • Unstable angina. (PC, MK)
   • Acute MI. (PC, MK)
   • Pericarditis. (PC, MK)
   • Aortic dissection. (PC, MK)
   • Pulmonary embolism. (PC, MK)
   • Other noncardiac causes of chest pain. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   • ECG. (PC, MK)
• Chest radiograph. (PC, MK)
• Macromolecular markers (myoglobin, CK-MB, Troponin-I, Troponin- T). (PC, MK)

Students should be able to define the indications for and interpret (with consultation) the results of:
• Echocardiogram. (PC, MK)
• Cardiac stress testing. (PC, MK)
• Coronary angiography. (PC, MK)

5. **Communication skills:** Students should be able to:
- Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. (PC, CS)
- Elicit questions from the patient and his or her family about the diagnostic and management plan. (PC, CS)
- Educate patients about modifying cardiac risk factors. (PC, CS)

6. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
- Medical management of acute MI. (PC, MK)
- CCU monitoring. (PC, MK)
  Indications for and complications of thrombolytic therapy, cardiac catheterization with percutaneous coronary intervention, and CABG. (PC, MK)
- Proper pre-discharge risk stratification. (PC, MK)
- Secondary risk factor modification. (PC, MK)
- Determining when to obtain consultation from a cardiologist and cardiothoracic surgeon. (PC, SBP)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to acute MI. (PC, PLI)
- Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate a commitment to meeting national quality standards for the care of patient with acute MI. (P, PLI, SBP)
2. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for acute MI. (PLI, P)
3. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for acute MI. (P)
4. Demonstrate ongoing commitment to self-directed learning regarding acute MI. (PLI, P)
5. Appreciate the impact acute MI has on a patient’s quality of life, well-being, ability to work, and the family. (P)
6. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of acute MI. (P, SBP)

D. **REFERENCES:**

[ACC/AHA 2002 guideline update for the management of patients with chronic stable angina--summary article: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines (Committee on the Management]
of Patients with Chronic Stable Angina).  *J Am Coll Cardiol* 2003; 41:159-68.

www.acc.org/clinical/topic/topic.htm#guidelines


www.acc.org/clinical/topic/topic.htm#guidelines


www.acc.org/clinical/topic/topic.htm#guidelines


www.acc.org/clinical/topic/topic.htm#guidelines
RATIONAL E:
Renal disease is a common problem in internal medicine and may manifest with symptoms referable to the kidney as well as other systems. Patients who go on to end-stage renal disease have high morbidity and mortality, despite advances in dialysis treatment. Thus, an understanding of chronic kidney disease is useful to all physicians. A rational approach to patients with suspected or known acute renal failure allows students and clinicians to quickly assess the etiology and initiate treatment without unnecessary delay in an effort to prevent the development of chronic kidney disease.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of pathogenesis and pathophysiology of acute renal failure and the development of chronic kidney disease.
- Understanding of drugs that can have adverse effect on renal function.

SPECIFIC LEARNING OBJECTIVES:
A. KNOWLEDGE: Students should be able to define, describe and discuss:
1. The distinction between the three major pathophysiologic etiologies for acute renal failure (ARF):
   - Decreased renal perfusion (prerenal). (MK)
   - Intrinsic renal disease (renal). (MK)
   - Acute renal obstruction (postrenal). (MK)
2. The pathophysiology of the major etiologies of “prerenal” ARF, including:
   - Hypovolemia. (MK)
   - Decreased cardiac output. (MK)
   - Systemic vasodilation. (MK)
   - Renal vasoconstriction. (MK)
3. The pathophysiology of the major etiologies of intrinsic “renal” ARF, including:
   - Vascular lesions. (MK)
   - Glomerular lesions. (MK)
   - Interstitial nephritis. (MK)
   - Intra-tubule deposition/obstruction. (MK)
   - Acute tubular necrosis (ATN). (MK)
4. The pathophysiology of the major etiologies of “postrenal” ARF, including:
   - Urethral (e.g. tumors, calculi, clot, sloughed papillae, retroperitoneal fibrosis, lymphadenopathy). (MK)
   - Bladder neck (e.g. tumors, calculi, prostatic hypertrophy or carcinoma, neurogenic). (MK)
• Urethral (e.g. stricture, tumors, obstructed indwelling catheters). (MK)
5. The pathophysiology and clinical findings of uremia. (MK)
6. The natural history, initial evaluation and treatment, and complications of ARF. (MK)
7. The most common etiologies of chronic kidney disease (CKD):
  • DM. (MK)
  • Hypertension. (MK)
  • Glomerulonephritis. (MK)
  • Polycystic kidney disease. (MK)
  • Autoimmune diseases (e.g. systemic lupus erythematosus). (MK)
  • The staging scheme for CKD. (MK)
8. The significance for proteinuria in CKD. (MK)
9. The use of ACE-Is and ARBs in the management of CKD. (MK)
10. The importance of secondary hyperparathyroidism in CKD. (MK)
11. The pathophysiology of anemia in CKD. (MK)
12. The value of glycemic and hypertension control in limiting the progression of CKD. (MK)
13. The value of CAD risk factor modification in patients with CKD, particularly those treated with dialysis. (MK)
14. The basic principles of renal replacement therapy (e.g., hemodialysis and peritoneal dialysis) as well as the complications. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate history that distinguishes among the three major reasons for ARF (pre-renal, renal, post-renal), including the predisposing conditions, nephrotoxic drugs or agents, and systemic disease and the major causes of CKD. (PC, CS)
2. Physical exam skills: Students should be able to perform a physical examination to establish the diagnosis and severity of disease, including:
  • The determination of a patient’s volume status through estimation of the central venous pressure using the height of jugular venous distention and measurement of pulse and blood pressure in the lying/standing position. (PC)
  • Palpation and percussion of the bladder to recognize bladder distention. (PC)
  • Palpation of the prostate. (PC)
  • Determination of the presence of pulmonary edema, peripheral edema, ascites, and signs of heart failure. (PC)
  • Findings consistent with uremia. (PC)
  • Examination for evidence of systemic disease, including but not limited to: skin, joints, and nails. (PC)
3. Differential diagnosis: Students should be able to generate a differential diagnosis for a patient with ARF or CKD recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology. (PC, MK)
4. Laboratory interpretation: Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
  • Serum electrolytes, BUN/Cr, calcium, phosphorus. (PC, MK)
- Urine sodium. (PC, MK)
- Serum and urine osmolality. (PC, MK)
- Anion gap. (PC, MK)
- ABG (PC, MK)
- Serum BUN to Cr ratio. (PC, MK)
- CBC, ferritin. (PC, MK)
- Performing and interpreting a urinalysis, including microscopic examination for casts, red blood cells, white blood cells, and crystals. (PC, MK)
- Calculating fractional excretion of sodium and appreciate its usefulness in distinguishing between pre-renal and intrinsic renal disease. (PC, MK)
- Calculating creatinine clearance using the Cockcroft-Gault or MDRD (“modification of diet in renal disease study”) equations. (PC, MK)
- Serum parathyroid hormone level. (PC, MK)
- ECG findings in hyperkalemia. (PC, MK)

Students should be able to define the indications for and interpret (with consultation) results of:

- Renal ultrasonography. (PC, MK)

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
   - Elicit questions from the patient and his or her family about the management plan. (PC, CS)
   - Counsel patients regarding a renal diet. (PC, CS)

6. **Basic and advanced procedure skills:** Students should be able to:
   - Insert a peripheral intravenous catheter. (PC)
   - Place a urinary catheter. (PC)
   - Obtain an ABG. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients, including:
   - Designing an appropriate management plan for initial management of ARF, including volume management, dietary recommendations, drug dosage alterations, electrolyte monitoring, and indications for dialysis. (PC, MK)
   - Developing a management plan to effectively treat HTN and DM. (PC, MK)
   - Recommending treatment with phosphate binders, calcium replacement, and vitamin D replacement. (PC, MK)
   - Recommending treatment for dyslipidemia. (PC, MK)
   - Recommending treatment for anemia secondary to CKD. (PC, MK)
   - Recommending acute treatment for hyperkalemia. (PC, MK)
   - Determining when to obtain consultation from a nephrologist. (PC, MK)
   - Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to renal failure. (PC, PLI)
   - Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in
the selection of diagnostic and therapeutic interventions for ARF and CKD. (PLI, P)
4. Respond appropriately to patients who are nonadherent to treatment for renal failure. (CS, P)
5. Demonstrate ongoing commitment to self-directed learning regarding renal failure. (PLI, P)
4. Appreciate the impact renal failure has on a patient’s quality of life, wellbeing, ability to work, and the family. (P)
5. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of renal failure. (P, SBP)

D. REFERENCES:

TRAINING PROBLEM #18: COMMON CANCERS

RATIONALE:
A skillful initial workup for suspected cancer is an essential part of effective primary care practice. Developing a logical and practical diagnostic approach to the more common cancers (e.g. skin, colorectal, lung, breast, cervical, and prostate) is an excellent means of honing basic history-taking, physical examination, and communication skills and learning how to use diagnostic studies in a cost effective manner. Encountering patients in whom cancer is a diagnostic possibility will stimulate learning of the important clinical presentations and natural histories of these life-threatening conditions. Focusing on cancer diagnosis helps to concentrate the student’s learning and avoids premature immersion in the often very technical and specialized issues of cancer treatment.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of common cancers.
- Basic knowledge of the common symptoms and signs of the most common cancers.
- Knowledge of basic concepts of clinical epidemiology pertinent to test selection and interpretation (e.g. sensitivity, specificity, positive predictive value, negative predictive value).

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

3. Primary prevention measures for common cancers. (MK)
4. Current screening recommendations for skin, colorectal, lung, breast, cervical, and prostate cancer. (MK)
3. Principle clinical presentations, clinical courses, complications, and causes of death for the most common cancers (e.g. skin, colorectal, lung, breast, cervical, and prostate). (MK)
4. Basic methods of initial evaluation, including the sensitivity and specificity of basic diagnostic studies and indication for their use, including:
   - Indications for skin biopsy in a patient with a suspicious skin lesion. (MK)
   - Indications for colonoscopy in individuals a risk for colon cancer. (MK)
   - Indications for breast biopsy in a patient with a breast nodule or abnormal screening mammogram. (MK)
   - Indications for a lymph node biopsy in a patient with suspicious lymphadenopathy. (MK)
   - Initial cost-effective workups for: isolated pleural effusion, pulmonary nodule, liver nodule, prostate nodule, elevated prostate-specific antigen, testicular nodule, stool test positive for occult blood, abnormal
   - Pap smear, and other findings suggestive of gastrointestinal and urogenital cancers. (MK)
5. Genetic considerations of selected cancers (e.g. hereditary nonpolyposis colon cancer, familial adenomatous polyposis, BRCA1/BRCA2, HER2, Philadelphia chromosome/BRC-ABL). (MK)
6. The role of human papilloma virus in cervical cancer. (MK)
7. The similarities and differences between curative and palliative cancer care. (MK)
8. The principles of palliative care and hospice care. (MK)
9. Symptoms sometimes seen during end-of-life care and the basic principles of their
management (e.g., pain, dyspnea, nausea and vomiting, anorexia, fatigue, depression, delirium, constipation). (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Unintentional weight loss, fever, bone pain. *(PC, CS)*
   - Sun exposure history, abnormal skin lesions. *(PC, CS)*
   - Blood in the stool, alterations in bowel movements, abdominal pain, abdominal mass. *(PC, CS)*
   - Smoking, cough, hemoptysis, chest pain, dyspnea. *(PC, CS)*
   - Breast nodules and secondary signs of breast cancer. *(PC, CS)*
   - Abnormal vaginal bleeding. *(PC, CS)*
   - Abnormal urinary symptoms. *(PC, CS)*
   - Lymphadenopathy. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Skin examination. *(PC)*
   - Digital rectal examination. *(PC)*
   - Breast examination. *(PC)*
   - Lymph node examination. *(PC)*
   - Male genital examination and prostate examination. *(PC)*
   - Pelvic examination and Pap smear. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for:
   - Unintentional weight loss. *(PC, MK)*
   - Fever. *(PC, MK)*
   - Abnormal skin lesions. *(PC, MK)*
   - Occult blood positive stool. *(PC, MK)*
   - Colorectal mass. *(PC, MK)*
   - Chronic cough, hemoptysis, pulmonary nodule, and pleural effusion. *(PC, MK)*
   - Breast mass. *(PC, MK)*
   - Abnormal Pap smear. *(PC, MK)*
   - Abdominal or pelvic mass. *(PC, MK)*
   - Prostate nodule and elevated prostate specific antigen. *(PC, MK)*
   - Lymphadenopathy. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - CBC. *(PC)*
   - Electrolytes, BUN/Cr, Ca, hepatic function panel. *(PC)*
   - Stool occult blood testing. *(PC)*
• PSA. (PC)
Students should be able to define the indications for and interpret (with consultation) the significance of the results of:
• Skin biopsy. (PC)
• Mammogram. (PC)
• Breast biopsy. (PC)
• Colon/rectal biopsy. (PC)
• Lung biopsy. (PC)
• Pap smear. (PC)
• Prostate biopsy. (PC)
• Lymph node biopsy. (PC)

5. **Communication skills:** Students should be able to:
   • Communicate the diagnostic plan and subsequent follow-up to patients. (PC, CS)
   • Elicit questions from the patient and his or her family about the management plan. (PC, CS)
   • With guidance and direct supervision, participate in breaking bad news to patients. (PC, CS)
   • With guidance and direct supervision, participate in discussing basic issues regarding advance directives with the patient and his or her family. (PC, CS)
   • With guidance and direct supervision participate in discussing basic end-of-life issues with the patient and his or her family. (PC, CS)

6. **Basic and advanced procedure skills:** Students should be able to:
   • Cervical Pap smear. (PC)
   • Stool occult blood testing. (PC)

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Initial work-up of the symptom, sign, or abnormal laboratory value suspected to be due to cancer. (PC)
   • Provision of support and information for the patient. (PC)
   • Coordination of care for workup. (PC, SBP)
   • Determining when to obtain consultation from appropriate specialists. (PC, SBP)
   • A cost-effective approach based on the differential diagnosis. (PC, SBP)
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to common cancers. (PC, PLI)
   • Incorporating patient needs and preferences. (PC, P)
   • Appropriately assessing and treating pain when necessary with nonnarctoic and narcotic analgesics. (PC)
   • Anticipating and treating narcotic side effects if necessary. (PC)
   • Adjusting the therapeutic plan when goals of care change (e.g., a shift toward palliative care). (PC)
   • Alleviation of symptoms sometimes seen during end of life care (e.g., pain, dyspnea, nausea and vomiting, anorexia, fatigue, depression, delirium, constipation). (PC)
   • Utilizing supportive care or hospice service when appropriate. (PC, SBP)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Appreciate the uncertainty and fear patients experience when cancer is a significant diagnostic possibility. (P)
2. Respect the patient’s right to refuse cancer screening. *(P)*
3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for common cancers. *(PLI, P)*
4. Recognize the importance of patient preferences when selecting among diagnostic options for common cancers. *(P)*
5. Demonstrate ongoing commitment to self-directed learning regarding common cancers. *(PLI, P)*
6. Appreciate the impact common cancers have on a patient’s quality of life, well-being, ability to work, and the family. *(P)*
7. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professions in the workup and treatment of common cancers. *(P, SBP)*

D. REFERENCES:

- National Cancer Institute
  National Institutes of Health
  www.cancer.gov
- Guide to Clinical Preventive Services
  U.S. Preventative Services Task Force (USPSTF)
  Agency for Healthcare Research and Quality
  U.S. Department of Health and Human Services
  www.ahrq.gov/clinic/cps3dix.htm#cancer
- American Cancer Society
  www.cancer.org
- NCCN Clinical Practice Guidelines in Oncology National Comprehensive Cancer Network
  www.nccn.org/professionals/physician_gls/default.asp
TRAINING PROBLEM #19: COPD/OBSTRACTIVE AIRWAYS
DISEASE

RATIONALE:
The chronic obstructive pulmonary diseases (chronic bronchitis and emphysema) are important causes of morbidity and mortality and are a major cause of total disability, second only to coronary artery disease. Cigarette smoking plays a major role in the progression of the disease, with survival rates lower among patients who continue to smoke cigarettes. The severity and debilitation of these disorders make them an important training problem for all third year medical students. The number of new cases of asthma is dramatically increasing. Most cases with appropriate treatment can have minimal symptoms.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Normal structure and function of the heart and lungs and how these are altered in respiratory system diseases.
- Pathogenesis and pathophysiology of pulmonary diseases.
- Pharmacology of bronchodilators, corticosteroids, and antibiotics.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The epidemiology, risk factors, symptoms, signs, and typical clinical course of the common forms of COPD, including chronic bronchitis and emphysema. (MK)
2. Common causes of acute exacerbations of COPD (AECOPD), including:
   - Acute infectious bronchitis. (MK)
   - Pneumonia. (MK)
   - Pulmonary edema. (MK)
   - Poor air quality (e.g. ozone, pollutants, tobacco smoke). (MK)
   - Occupational exposures. (MK)
   - Medical noncompliance. (MK)
3. The etiology, pathogenesis, evaluation, and management of hypoxemia and hypercapnia. (MK)
4. The genetics and role of alpha-1 antitrypsin deficiency in some patients with emphysema. (MK)
5. The epidemiology, risk factors, symptoms, signs, and typical clinical course of asthma. (MK)
6. Allergic and non-allergic factors that may precipitate bronchospasm and exacerbate asthma, including:
   - Grass and tree pollen. (MK)
   - Animal dander. (MK)
   - Cockroaches. (MK)
   - Dust mites. (MK)
• Allergic rhinitis/post-nasal drip. (MK)
• Acute/chronic infectious sinusitis. (MK)
• Acute infectious bronchitis. (MK)
• Pneumonia. (MK)
• Pulmonary edema. (MK)
• Exercise. (MK)
• Anxiety/stress. (MK)
• Poor air quality (e.g. ozone, pollutants, tobacco smoke). (MK)
• Occupational exposures. (MK)
• Medical noncompliance. (MK)

7. Therapies for COPD and asthma, including:
• Beta-agonist bronchodilators. (MK)
• Anticholinergic bronchodilators. (MK)
• Leukotriene inhibitors. (MK)
• Mast cell stabilizers. (MK)
• Theophylline. (MK)
• Inhaled corticosteroids. (MK)
• Systemic corticosteroids. (MK)
• Antimicrobial agents. (MK)
• Supplemental oxygen. (MK)
• Immunotherapy. (MK)

8. The indications for and the efficacy of influenza and pneumococcal vaccines. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease including:
   • Existence, duration, and severity of dyspnea, orthopnea, paroxysmal nocturnal dyspnea, cough, sputum production, wheezing, fever, chills, sweats, chest pain, hemoptysis. (PC, CS)
   • Smoking history and passive exposure to tobacco smoke. (PC, CS)
   • Occupational history. (PC, CS)
   • Family history of pulmonary problems. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease including:
   • Accurately determining respiratory rate and level of respiratory distress. (PC)
   • Assessing the use of accessory muscles for breathing. (PC)
   • Identifying bronchial breath sounds, rales, rhonchi, and wheezes. (PC)
   • Identifying signs of pulmonary consolidation, pleural effusion, and pneumothorax. (PC)
   • Identifying the signs of pulmonary hyperresonance/hyperexpansion. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a diagnosis of chronic bronchitis, emphysema, asthma, or other conditions with similar findings.

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance
characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:

- Pulse oximetry. (PC, MK)
- ABG. (PC, MK)
- Chest radiograph. (PC, MK)
- Pulmonary function tests. (PC, MK)

5. **Communication skills:** Students should be able to:

- Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. (PC, CS)
- Elicit questions from the patient and his or her family about the management plan. (PC, CS)
- Counsel patients about smoking cessation. (PC, CS)
- Counsel patients about the performance of home peak flow monitoring. (PC, CS)
- Counsel patients about environmental controls. (PC, CS)
- Encourage asthma patients to be involved in their own disease management and counsel them about an “asthma action plan.” (PC, CS)

6. **Basic and advanced procedure skills:** Students should be able to:

- Obtain an ABG. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:

- The use of bronchodilators and inhaled corticosteroids. (PC, MK)
- The key components of the care of patients admitted with acute exacerbations of COPD and asthma. (PC, MK)
- Using systemic corticosteroids appropriately. (PC, MK)
- Judicious use of antimicrobial agents. (PC, MK)
- The principles of oxygen therapy. (PC, MK)
- Determining when to obtain consultation from a pulmonologist or allergist/immunologist. (PC, SBP)
- Smoking cessation strategies. (PC)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to COPD and asthma. (PC, PLI)
- Incorporating patient preferences. (PC, P)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for COPD and asthma. (PLI, P)

2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for COPD and asthma (P)

3. Respond appropriately to patients who are nonadherent to treatment for COPD and asthma. (CS, P)

4. Appreciate the impact of working, living, and environmental conditions on the development and progression of respiratory tract disease; demonstrate understanding that patients are often unable to change these factors on their own. (P)

5. Demonstrate ongoing commitment to self-directed learning regarding COPD and asthma. (PLI, P)
Appreciate the impact COPD and asthma have on a patient's quality of life, well-being, ability to work, and the family. (P)

Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the diagnosis and treatment of COPD and asthma. (P, SBP)

Appreciate the importance of antimicrobial resistance. (P)

Show understanding for the difficulties patients face with smoking cessation. (P)

D. REFERENCES:

- National Heart Lung and Blood Institute/World Health Organization Global Initiative for Chronic Obstructive Lung Disease Diagnosis, management, and prevention of chronic obstructive pulmonary disease
  www.goldcopd.com

  http://www.nhlbi.nih.gov/health/indexpro.htm

TRAINING PROBLEM #20: DIABETES MELLITUS

RATIONALE:
Diabetes mellitus is an increasingly prevalent illness in the United States. It is estimated that five to nine percent of American adults are diabetic with the illness appearing at earlier ages in some populations. It is a leading cause of disability and death. Over 130 billion health care dollars are spent on diabetes annually. All internists must identify those at risk and institute appropriate management to ameliorate the potentially fatal complications of this illness.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:

- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Pathogenesis and pathophysiology of type I and II diabetes mellitus, diabetic ketoacidosis, nonketotic hyperglycemia.
- Effects of insulin on glucose and fat metabolism.
- Pharmacology of insulin, sulfonylureas, metformin, thiazolidinediones, and glucose absorption inhibitors.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE**: Students should be able to define, describe, and discuss:

1. Diagnostic criteria for impaired fasting glucose and impaired glucose tolerance. *(MK)*
2. Diagnostic criteria for type I and type II diabetes mellitus, based on a history, physical examination, and laboratory testing. *(MK)*
3. Pathophysiology, risk factors, and epidemiology of type I and type II diabetes mellitus. *(MK)*
4. The basic principles of the role of genetics in diabetes mellitus. *(MK)*
5. Presenting symptoms and signs of type I and type II diabetes mellitus. *(MK)*
6. Presenting symptoms and signs of diabetic ketoacidosis (DKA) and nonketotic hyperglycemic (NKH). *(MK)*
7. Pathophysiology for the abnormal laboratory values in DKA and NKH including plasma sodium, potassium, and bicarbonate. *(MK)*
8. Precipitants of DKA and NKH. *(MK)*
9. Major causes of morbidity and mortality in diabetes mellitus (coronary artery disease, peripheral vascular disease, hypoglycemia, DKA, NKH coma, retinopathy, neuropathy—peripheral and autonomic, nephropathy, foot disorders, infections). *(MK)*
10. Laboratory tests needed to screen, diagnose, and follow diabetic patients including: glucose, electrolytes, blood urea nitrogen/creatinine, fasting lipid profile, HgA1c, urine microalbumin/creatinine ratio, urine dipstick for protein. *(MK)*
11. Non-pharmacologic and pharmacologic (drugs and side effects) treatment of diabetes mellitus to maintain acceptable levels of glycemic control, prevent target organ disease, and other associated complications. *(MK)*
12. The specific components of the American Diabetes Association (ADA) dietary recommendations for type I and type II diabetes mellitus. *(MK)*
13. Basic management of diabetic ketoacidosis and nonketotic hyperglycemic states, including the similarities and differences in fluid and electrolyte replacement. *(MK)*
14. Basic management of blood glucoses in the hospitalized patient. (MK)
15. The Somogyi effect and the Dawn phenomenon and the implications of each in diabetes pharmacologic management. (MK)
16. The fundamental aspects of the American Diabetes Association (ADA) clinical practice recommendations and how they encourage high quality diabetes care. (MK, PLI, SBP)
17. Basic management of hypertension and hyperlipidemia in the diabetic patient. (MK)

B. SKILLS: Students should be able to demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Weight changes. (PC, CS)
   - Hypo- or hyperglycemic symptoms. (PC, CS)
   - Medication history (adherence, side effects, other medications). (PC, CS)
   - Home glucose monitoring results. (PC, CS)
   - Target organ disease complications (cardiovascular, foot, gastrointestinal, infectious, neurological, sexual, skin, urinary, or vision symptoms). (PC, CS)
   - Diet history (total caloric intake, intake of sugar-containing foods, intake of saturated fat and cholesterol, physical activity level, timing of meals). (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Skin examination for diabetic dermopathy, furuncles/carbuncles, candidiasis, necrobiosis lipoidica diabeticorum, dermatophytosis, and acanthosis nigricans. (PC)
   - Fundoscopic exam. (PC)
   - Arterial pulses. (PC)
   - Peripheral nerves (e.g. monofilament testing). (PC)
   - Examination of the feet for corns, calluses, and ulcerations. (PC)
   - In patients with DKA or NKH evaluate for mental status alterations, Kussmaul’s respirations, fruity breath, and signs of volume depletion. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for:
   - Hyperglycemia. (PC, MK)
   - Hypoglycemia. (PC, MK)
   - Anion gap acidosis. (PC, MK)
   - Ketosis. (PC, MK)
   - Hyperosmolality. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences Laboratory and diagnostic tests should include, when appropriate:
   - Fasting serum GLC. (PC, MK)
   - Electrolytes, BUN/Cr. (PC, MK)
   - Serum and urine ketones. (PC, MK)
   - Serum and urine osmolality. (PC, MK)
   - HbA1c. (PC, MK)
• Fasting lipid profile. (PC, MK)
• UA. (PC, MK)
• Urine microalbumin/creatinine ratio. (PC, MK)
• 24-hour urine for protein and creatinine clearance. (PC, MK)

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. (PC, CS)
   • Elicit questions from the patient and their family about the management plan. (PC, CS)
   • Counsel patients appropriately on dietary measures, exercise, medication adherence, proper foot care, and prevention of other target organ disease. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:
   • Finger-stick capillary blood glucose determination. (PC)
   • Obtain an ABG. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Writing appropriate fluid and insulin orders and outline critical steps for the treatment of DKA and DKH. (PC, MK)
   • Counseling patients regarding basic features of ADA diabetic diet recommendations. (PC, CS)
   • Instructing patients in home blood glucose monitoring. (PC, CS)
   • Counseling patients on behavior changes (smoking cessation, medication adherence, poor glycemic control, obesity, hypertension, dyslipidemia, and infection) to avoid the complications of diabetes. (PC, CS)
   • Counseling patients regarding basic foot care. (PC, CS)
   • Determining when to institute diet therapy, oral hypoglycemic agents, and insulin therapy. (PC, MK)
   • Calculating an appropriate insulin dose for a diabetic patient. (PC, MK)
   • Using community resources (ADA, hospital and community-based education programs) to aid the patient in understanding and managing his or her illness. (PC, SBP)
   • Determining when to obtain consultation from an endocrinologist, nephrologist, ophthalmologist, podiatrist, and dietician. (PC, SBP)
   • Accessing and utilizing appropriate information systems and resources to help delineate issues related to diabetes mellitus. (PC, PLI)
   • Incorporating patient preferences. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate a commitment to meeting ADA clinical practice recommendations to insure quality diabetes care. (PLI, P, SBP)
2. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for diabetes mellitus. (PLI, P)
3. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for diabetes mellitus. (P)
4. Respond appropriately to patients who are nonadherent to treatment for diabetes mellitus. (CS, P)
5. Demonstrate ongoing commitment to self-directed learning regarding diabetes mellitus. (PLI, P)
6. Appreciate the impact diabetes mellitus has on a patient’s quality of life, wellbeing, ability to work, and the family. (P)
7. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of diabetes mellitus. *(P, SBP)*

**D. REFERENCES:**

- Clinical Practice Recommendations American Diabetes Association
TRAINING PROBLEM #21: DYSLIPIDEMIA

RATIONALE:
Dyslipidemia is a common, important, and treatable cardiovascular risk factor. Its pathophysiology is increasingly understood, diagnostic tests are readily available, and treatment modalities range from diet and exercise to a multitude of pharmacotherapies. Competency in the evaluation and management of this problem helps develop skills in rational test selection, patient education, and design of cost-effective treatment strategies. It also draws attention to the importance of community health education and nutrition.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of the vascular system.
- Basic cholesterol and lipoprotein metabolism.
- Pathogenesis and pathophysiology of atherosclerosis.
- Pharmacology of bile acid sequestrants (resins), nicotinic acid, fibric acid derivatives, HMG-CoA reductase inhibitors (statins), and cholesterol absorption inhibitors (ezetimibe).

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The contribution of lipoproteins to atherogenesis and CAD risk, including the importance of elevations in total cholesterol, LDL cholesterol, ratio of total to HDL cholesterol, and Lipoprotein a. (MK)
2. The classification and etiologies of primary dyslipidemias. (MK)
3. Etiologies and underlying pathophysiology of secondary dyslipidemias. (MK)
4. The basic principles of the role of genetics in dyslipidemia, particularly familial combined hyperlipidemia. (MK)
5. Screening recommendations for dyslipidemias in American adults. (MK)
6. The importance of identifying and treating asymptomatic patients at high risk for CAD as aggressively as those with symptomatic disease. (MK)
7. The available diagnostic studies and their use, particularly determinations of HDL, LDL, and total cholesterol, as well as the need to test for other cardiovascular risk factors. (MK)
8. The current National Cholesterol Education Program (NCEP, ATP III) guidelines for risk factor assessment, diagnosis and management of dyslipidemias, including goal LDL cholesterol, goal non-HDL cholesterol, and the concept of coronary artery disease equivalent based on risk factors for coronary artery disease. (MK, PLI, SBP)
9. Basic management of the common dyslipidemias, including diet, fiber, exercise, and risk/benefits/cost of drug therapy (statins, fibrates, ezetimibe, nicotinic acid, resins). (MK)
10. Diagnosis and implications of the "metabolic syndrome." (MK)

B. SKILLS: Students should be able to demonstrate specific skills including:
1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease including:
   - Prior patient or family history of dyslipidemia. *(PC, CS)*
   - Other coronary risk factors. *(PC, CS)*
   - Family history of early cardiovascular disease. *(PC, CS)*
   - Dietary fat, saturated fat, fiber, cholesterol, and refined carbohydrate intake. *(PC, CS)*
   - Exercise habits. *(PC, CS)*
   - Alcohol use. *(PC, CS)*
   - Past history of established CAD, cerebral vascular disease, and other vascular disease. *(PC, CS)*
   - Presence of symptoms of angina and peripheral vascular disease. *(PC, CS)*
   - History of renal, hepatic, or myopathic disease. *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Blood pressure elevation. *(PC)*
   - Xanthomata. *(PC)*
   - Atherosclerotic fundoscopic changes. *(PC)*
   - Carotid or femoral bruits. *(PC, CS)*
   - Diminished peripheral pulses. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest primary or secondary causes of dyslipidemia. *(PC, CS)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.
   Laboratory and diagnostic tests should include, when appropriate:
   - Fasting lipid profile. *(PC, MK)*
   - TSH *(PC, MK)*
   - Fasting GLC, electrolytes, BUN/Cr. *(PC, MK)*
   - Hepatic function panel. *(PC, MK)*
   - CK. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. *(PC, CS)*
   - Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*
   - Counsel patients about dietary measures to reduce cholesterol and saturated fats. *(PC, CS)*
   - Counsel patients about ways to increase exercise. *(PC, CS)*
   - Counsel patients about other modifiable cardiovascular risk factors. *(PC, CS)*

6. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - An individual treatment plan that follows the NCEP ATP III guidelines. *(PC, MK)*
   - Lifestyle modification (diet, exercise). *(PC, MK)*
   - Appropriate pharmacologic interventions, including bile acid sequestrants (resins), nicotinic acid, fibric acid derivatives, HMG-CoA reductase inhibitors (statins), and cholesterol...
absorption inhibitors (ezetimibe). (PC, MK)

- Monitoring for adherence and side effects due to pharmacologic management. (PC, MK)
- Laboratory response to therapy. (PC, MK)
- Identifying barriers that prevent patients from adhering to recommended dietary, exercise, and pharmacologic plans. (PC, MK)
- Determining when to obtain consultation from an endocrinologist, or dietician. (PC, SBP)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to dyslipidemia. (PC, PLI)
- Incorporating patient preferences. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate a commitment to meeting NCEP ATP III guidelines to insure quality care of patients with dyslipidemia. (PLI, P, SBP)
2. Appreciate the importance of encouraging patients to assume responsibility for modifying their diet and increasing their exercise level. (P, CS)
3. Appreciate the difficulties and frustrations that patients and health care providers face with recommended dietary changes. (P)
4. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for dyslipidemia. (PLI, P)
5. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for dyslipidemia. (P)
6. Respond appropriately to patients who are nonadherent to treatment for dyslipidemia. (CS, P)
7. Demonstrate ongoing commitment to self-directed learning regarding dyslipidemia. (PLI, P)
8. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of dyslipidemia. (P, SBP)

D. **REFERENCES:**

- National Institutes of Health, National Heart, Lung, and Blood Institute National Cholesterol Education Program Clinical Practice Guidelines for Cholesterol Management in Adults (ATP III) [www.nhlbi.nih.gov/about/ncep](http://www.nhlbi.nih.gov/about/ncep)
TRAINING PROBLEM #22: HEART FAILURE

RATIONALE:
Chronic heart failure (HF) is one of the most common cardiac problems encountered in clinical practice. Identification and correction of treatable underlying causes, control of precipitating factors and judicious use of multi-drug regimens for individuals with HF are important issues for third-year medical students.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship years should include:
- Knowledge of the structure and function of the heart and lungs.
- Understanding of the epidemiology of heart disease.
- Knowledge of the atherogenesis and pathophysiology of cardiovascular disease.
- Knowledge of the pharmacology of cardiovascular drugs.
- Ability to communicate appropriately with all types of patients including the elderly and those with diverse backgrounds.
- Ability to perform a complete medical history and physical exam.
- Ability to perform a cardiovascular risk assessment and understand issues related to primary and secondary prevention of cardiovascular disease.
- Ability to understand the impact of illness on individuals and their families and, when appropriate, to address issues related to end-of-life care.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:
1. Types of processes and most common disease entities that cause HF (i.e. ischemic, valvular, hypertrophic, infiltrative, inflammatory, etc.). (MK)
2. The basic role of genetics in certain forms of cardiomyopathy. (MK)
3. Staging system for heart failure:
   - Stage A: high risk for HF but no structural heart disease is present. (MK)
   - Stage B: structural heart disease is present but never any symptoms. (MK)
   - Stage C: past or current symptoms associated with structural heart disease. (MK)
   - Stage D: end-stage disease with requirements for specialized treatment. (MK)
4. Types of processes that cause systolic vs. diastolic dysfunction. (MK)
5. Symptoms and signs of left-sided vs. right-sided heart failure. (MK)
6. Compensatory mechanisms of heart failure including cardiac remodeling and activation of endogenous neurohormonal systems. (MK)
7. Factors leading to symptomatic exacerbation of HF, including ischemia, arrhythmias, hypoxemia, anemia, fever, hypertension, thyroid disorders, non-compliance with medications and dietary restrictions and use of nonsteroidal anti-inflammatory drugs. (MK)
8. Importance of age, gender and ethnicity on the prevalence and prognosis of HF. (MK)
9. Physiological basis and scientific evidence supporting each type of treatment, intervention, or procedure commonly used in the management of patients who present with HF. (MK)
10. The general approach to the evaluation and treatment of atrial fibrillation (MK)
11. Role of critical pathways or practice guidelines in delivering high-quality, cost effective care for patients presenting with new or recurrent heart failure. (PC, SBP)
12. The Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for HF treatment. (MK, PLI, SBP)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, including:
   - Differentiating between various etiologies of heart failure (answers the question: Why is the patient in heart failure?). (PC, CS)
   - Identifying clinical factors responsible for symptomatic exacerbation (answers the question: Why is the patient worse now?). (PC, CS)
   - Exercise intolerance (fatigue, dyspnea on exertion). (PC, CS)
   - Fluid retention (peripheral edema, dyspnea). (PC, CS)
   - Changes in sleep pattern (orthopnea, paroxysmal nocturnal dyspnea [PND], nocturia). (PC, CS)
   - Assessing the functional capacity of patients with HF (walking distance, New York Heart classification). (PC, CS)
   - Cardiac risk factors. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a focused physical exam to help establish the diagnosis of HF and estimate its severity:
   - Measurement of vital signs including weight and respiratory rate/pattern. (PC)
   - Accurate measurement of arterial blood pressure and recognition of the typical blood pressure findings that occur in patients with aortic stenosis, aortic insufficiency and pulsus paradoxus. (PC)
   - Assessment of major arterial pulses for abnormalities, including bruits. (PC)
   - Assessment of the neck veins for jugular venous distention and, when necessary, evaluation for abdominal jugular reflux. (PC)
   - Assessment of the conjunctiva and optic fundus. (PC)
   - Assessment of the extremities to ascertain for skin conditions, including color, temperature and the presence of edema, cyanosis or clubbing. (PC)
   - Assessment of the lungs for crackles, rhonchi and decreased breath sounds. (PC)
   - Inspection and palpation of the anterior chest to identify right and left sided heaves, lifts and thrills. (PC)
   - Auscultation of the heart to determine rhythm, intensity of heart sounds, splitting of S2 and the presence of rubs, gallops (S3, S4, summation) or extra heart sounds (e.g. clicks). (PC)
   - Auscultation of the heart to detect the presence of heart murmurs; when a murmur is present, students should be able to:
     - Identify timing (systolic vs. diastolic, holosystolic vs. ejection). (PC)
     - Describe pitch, location and pattern of radiation. (PC)
     - Gauge significance (innocent vs. pathologic, sclerosis vs. stenosis). (PC)
   - Assessment of the abdomen to determine the presence of hepatomegaly, ascites, abnormal pulsations and bruits. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis and recognize specific history, physical exam and/or laboratory findings that:
   - Help support or refute a clinical diagnosis of heart failure. (PC, MK)
• Distinguish between various underlying etiologies of HF, including disease processes that primarily affect:
  o Pericardium (constrictive pericarditis, pericardial tamponade). *(PC, MK)*
  o Endocardium (valvular [congenital, acquired], endocarditis). *(PC, MK)*
  o Myocardium (hypertrophic, restrictive, congestive). *(PC, MK)*

4. **Laboratory interpretation:** Students should be able interpret specific diagnostic tests and procedures that are commonly ordered to evaluate patients who present with heart failure. Test interpretation should take into account: Laboratory and diagnostic tests should include, when appropriate:
   • 12-lead ECG. *(PC, MK)*
   • Chest radiograph. *(PC, MK)*
   • B-type natriuretic peptide. *(PC, MK)*

Students should be able to define the indications for, and interpret *(with consultation)* the results of the following diagnostic tests and procedures:
   • Echocardiography. *(PC, MK)*
   • Treadmill and nuclear exercise testing. *(PC, MK)*
   • Radionuclide ventriculogram. *(PC, MK)*
   • Cardiac. *(PC, MK)*
   • Coronary angiography. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, prognosis and treatment plan to the patient and his or her family. *(PC, CS)*
   • Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*
   • Educate patients about cardiovascular risk factors. *(PC, CS)*
   • Council patients regarding a sodium-restricted diet. *(PC, CS)*
   • Address palliative care and end-of-life issues with patients who have intractable symptoms associated with end-stage heart failure. *(PC, CS, P)*

6. **Basic and advanced procedural skills:** students should be able to:
   • Perform a 12-lead ECG. *(PC)*
   • Obtain an ABG. *(PC)*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   • Recognize the importance of early detection and treatment of risk factors that may lead to the development of heart failure. *(PC)*
   • Identifying the indications, contraindications, mechanisms of action, adverse reactions, significant interactions, and relative costs of the following treatments/interventions:
     o Non-pharmacological management. *(PC, MK)*
       -Sodium restriction. *(PC, MK)*
       -Physical activity and limitations. *(PC, MK)*
     o Pharmacological management (recommended for routine use). *(PC, MK)*
       -Diuretics. *(PC, MK)*
       -ACE-I/ARB. *(PC, MK)*
         -Beta-blockers. *(PC, MK)*
         -Aldosterone antagonists (spironolactone, eplerenone). *(PC, MK)*
           -digoxin. *(PC, MK)*
     o Interventions considered for use in selected patients. *(PC, MK)*
       -Hydralazine and isosorbide dinitrate. *(PC, MK)*
- Angiotensin receptor blockers. (PC, MK)
- Calcium channel blockers. (PC, MK)
- Anti-arrhythmic agents. (PC, MK)
- Anticoagulants/anti-thrombotic agents. (PC, MK)
  - other modalities (PC, MK)
- Coronary revascularization. (PC, MK)
- Synchronized biventricular pacing. (PC, MK)
- Implantable cardiac defibrillators. (PC, MK)
- Developing a timely and appropriate evaluation and treatment plan for patients with heart failure due to diastolic dysfunction, including:
  - Control of physiologic factors (blood pressure, heart rate). (PC, MK)
  - Reduction in central blood volume by judicious use of diuretics. (PC, MK)
  - Alleviation of myocardial ischemia. (PC, MK)
  - Use of calcium channel blockers. (PC, MK)
- Describing use of other agents and interventions that may be useful in treating patients with refractory, end-stage heart failure:
  - Intravenous vasodilators. (PC, MK)
  - Intravenous positive inotropic agents. (PC, MK)
  - Infusion of B-type natriuretic peptide (nesiritide). (PC, MK)
  - Ventricular assist devices. (PC, MK)
  - Heart transplantation. (PC, MK)
- Defining and describing how the diagnosis and treatment of HF in special populations may differ (e.g., very elderly, associated co-morbidities). (PC, MK)
- Demonstrating how critical pathways or practice guidelines in ambulatory or hospitalized patients with HF can be used to guide diagnostic test ordering and medical decision making. (PC, PLI, SBP)
- Determining when to consult a cardiologist. (PC, SBP)
- Identifying when palliative care may be appropriate for patients with refractory symptoms associated with end-stage disease. (PC)
- Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to HF. (PC, PLI)
- Incorporating patient preferences. (PC)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for HF. (PLI, P)
2. Recognize the significant morbidity and mortality associated with HF. (P)
3. Recognize the impact of lifestyle limitations caused by HF. (P)
4. Respond appropriately to patients who are non-adherent to treatment for HF. (CS, P)

5. Demonstrate ongoing commitment to self-directed learning regarding heart failure. (PLI, P)
6. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of heart failure. (P, SBP)
7. Appreciate the importance of and demonstrate a commitment to meeting national health care quality measures for the treatment of HF. (PLI, P, SBP)
D. REFERENCES:

- Cook DJ, Simel DL. Does this patient have abnormal central venous pressure? JAMA. 1996; 275: 630-634.
TRAINING PROBLEM #23: HIV INFECTION

RATIONALE:
HIV infection and AIDS represent one of the most difficult challenges in clinical medicine today. An HIV specialist (usually an infectious diseases physician) cares for the vast majority of patients with HIV infection and AIDS. Given that there is no proven cure, this remains an important training problem for third year medical students. The enormous and continuously evolving complexities of antiretroviral treatment are generally beyond the level of the third year medical student and for that matter most general internists. Rather, an approach to HIV infection, AIDS, and its most common and serious complications are stressed.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:

- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of the worldwide epidemiology, biology, and immunology of HIV.
- Microbiology of common opportunistic organisms.
- Pharmacology of antimicrobial agents and antiretrovirals.
- Understanding of universal precautions.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Symptoms and signs of acute HIV seroconversion. (MK)
2. CDC AIDS case definition. (MK)
3. Specific tests for HIV (e.g. HIV ELISA, confirmatory western blot, quantitative PCR) and their operating characteristics. (MK)
4. Relationship of CD4 lymphocyte count to opportunistic infections as well as relationship between CD4 lymphocyte count and viral load to overall disease progression. (MK)
5. The basic principles of highly active antiretroviral therapy (HAART), including the different classes of antiviral medications and their use, as well as common side effects and drug-drug interactions. (MK)
7. The marked importance of antiretroviral medication adherence and the potential consequences of erratic or poor adherence. (MK)
8. Vaccination recommendation for patients infected with HIV. (MK)
9. Indications for and utility and risks of prophylaxis of HIV-related opportunistic infections. (MK)
10. Pathogenesis, symptoms, signs, typical clinical course, and management of HIV-related opportunistic infections with a recognition of which are most common:
   - Pneumocystis jiroveci. (MK)
   - Candidiasis (oral, esophageal, vaginal). (MK)
   - Cryptococcus neoformans. (MK)
   - Cryptosporidium parvum. (MK)
   - Cytomegalovirus infection (gastrointestinal, neurologic, retinal). (MK)
   - Varicella-zoster virus. (MK)
   - Isospora belli. (MK)
Microsporidiosis. (MK)
Mycobacterium avium complex. (MK)
Mycobacterium tuberculosis. (MK)
Toxoplasma gondii. (MK)

11. Symptoms and signs of the following HIV-related malignancies:
   - Kaposi’s sarcoma. (MK)
   - Non-Hodgkin’s lymphoma. (MK)
   - Cervical carcinoma. (MK)

12. Common skin and oral manifestations of HIV infection and AIDS:
   - Molluscum contagiosum. (MK)
   - Cryptococcus neoformans. (MK)
   - Viral warts. (MK)
   - Lipodystrophy. (MK)
   - Herpes zoster. (MK)
   - Seborrhoeic dermatitis. (MK)
   - Buccal candidiasis. (MK)
   - Oral hairy leukoplakia. (MK)

13. “Safe sex” practices (MK)

14. The importance of proper ongoing dental care. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - HIV infection risk factors. (PC, CS)
   - Sexual contacts. (PC, CS)
   - Parenteral exposure to infected blood by needle sharing or transfusion. (PC, CS)
   - Occupational exposures. (PC, CS)
   - Other sexually transmitted diseases. (PC, CS)
   - Tuberculosis exposure. (PC, CS)
   - Prior HIV serology results, CD4 lymphocyte count and viral load. (PC, CS)
   - Prior HIV-related opportunistic infections. (PC, CS)
   - Current/prior antiretroviral medications and their side effects. (PC, CS)
   - Fever, sweats, anorexia, unintentional weight loss, rash/skin lesions, lymphadenopathy. (PC, CS)
   - Cough, sputum production, dyspnea, chest pain. (PC, CS)
   - Headache, altered mental status, psychiatric complaints. (PC, CS)
   - Odynophagia, dysphagia. (PC, CS)
   - Vaginal discharge, history of cervical dysplasia or neoplasia. (PC, CS)
   - Diarrhea. (PC, CS)
   - Visual changes. (PC, CS)
   - A dietary history to determine caloric intake. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
• General appearance regarding atrophy/wasting/cachexia. *(PC)*
• Complete neurologic examination. *(PC)*
• Mental status examination. *(PC)*
• Fundoscopic examination. *(PC)*
• Lymph node examination. *(PC)*
• Skin and oral examination. *(PC)*
• Pelvic and male genital examination. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology in an potentially or known HIV-infected patient for the following:

• Fever. *(PC, MK)*
• Unintentional weight loss/wasting/cachexia. *(PC, MK)*
• Lymphadenopathy. *(PC, MK)*
• Rash and skin lesions. *(PC, MK)*
• Cough, sputum production, dyspnea, abnormal chest radiography. *(PC, MK)*
• Diarrhea, odynophagia, dysphagia. *(PC, MK)*
• Altered mental status and psychiatric changes. *(PC, MK)*
• Headache. *(PC, MK)*
• Oral lesions. *(PC, MK)*
• Visual/retinal abnormalities. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.

Laboratory and diagnostic tests should include, when appropriate:

• Specific tests for HIV (e.g. HIV ELISA, confirmatory western blot, quantitative PCR). *(PC, MK)*
• CD4 lymphocyte count. *(PC, MK)*
• CBC with differential. *(PC, MK)*
• Sputum staining and cultures. *(PC, MK)*
• Blood cultures. *(PC, MK)*
• Cerebrospinal fluid analysis (color, opening pressure, chemistries, cell counts, staining, cultures, cytology, cryptococcal antigen, VDRL, Ebstein Barr virus, cytomegalovirus, toxoplasmosis, JC virus). *(PC, MK)*
• Stool for ova and parasites, cryptosporium, isospora, microsporidia, cytomegalovirus antigen. *(PC, MK)*
• Chest radiograph. *(PC, MK)*

Students should be able to define the indications for and interpret (with consultation) the results of:

• Chest CT. *(PC, MK)*
• Cranial CT. *(PC, MK)*
• Cranial MRI. *(PC, MK)*

5. **Communication skills:** Students should be able to:

• Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
• Elicit input and questions from the patient and his or her family about the management
plan. (PC, CS)

- Counsel and educate patients about HIV exposure prevention (PC, CS)
- Counsel an exposed patient about seroconversion rates and, in appropriate situations, the availability of post-exposure prophylaxis. (PC, CS)
- Counsel and educate patients about complications of HIV drug therapy, drug-drug interactions, and the marked importance of adherence. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to:

   - Obtain blood cultures. (PC)
   - Obtain an ABG. (PC)
   - Place and interpret a PPD. (PC)
   - Assist in performing a lumbar puncture after explaining the procedure to the patient. (PC)

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:

   - Ordering appropriate laboratory tests. (PC, MK)
   - Advising patients regarding HIV transmission prevention. (PC, MK)
   - Insuring antiretroviral adherence. (PC, MK)
   - Following parameters of disease progression/activity. (e.g. CD4 lymphocyte count, viral load). (PC, MK)
   - Monitoring for the development of side effects from antiretroviral treatment and drug-drug interactions. (PC, MK)
   - Insuring the administration of appropriate vaccinations. (PC, MK)
   - Assessing PPD status. (PC, MK)
   - Prescribing and monitoring appropriate opportunistic infection prophylaxis. (PC, MK)
   - Ordering nutritional supplements to manage and prevent malnutrition. (PC, MK)
   - Assisting in the procurement of proper and ongoing dental care. (PC, MK)
   - Identifying and recommending community health care resources available for the care of AIDS patients. (PC, SBP)
   - Determining when to obtain consultation from an infectious diseases specialist. (PC, SBP)
   - Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to HIV infection and AIDS. (PC, PLI)
   - Incorporating patient need and preferences. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Appreciate the bioethical, social, and legal issues concerning patient confidentiality of HIV infection. (PC, CS)
2. Demonstrate a nonjudgmental attitude regarding the mode of HIV acquisition. (P)
3. Appreciate the sometimes severe social stigma of HIV infection and AIDS. (P)
4. Show respect of “alternative lifestyles.” (P)
5. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for HIV infection and AIDS. (PLI, P)
6. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for patients with HIV infection or AIDS. (P)
7. Respond appropriately to patients who are nonadherent to antiretroviral treatment. (CS, P)
8. Demonstrate ongoing commitment to self-directed learning regarding HIV infection and AIDS.
Appreciate the impact HIV infection and AIDS have on a patient’s quality of life, well-being, ability to work, and the family. (P)

Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis and treatment of HIV infection and AIDS. (P, SBP)

D. REFERENCES:


TRAINING PROBLEM #24: HYPERTENSION

RATIONALE:
As many as 50 million Americans have elevated blood pressure (systolic pressure 140 mmHg or greater and/or diastolic blood pressure 90 mmHg or greater) or are taking antihypertensive medication. Nonfatal and fatal cardiovascular disease (CVD)—including coronary heart disease (CHD), peripheral vascular disease, stroke and renal disease—all increase progressively with higher levels of both systolic (SBP) and diastolic (DBP) blood pressure levels. These relationships are strong, continuous, independent, predictive and etiologically significant, and indicate that reduction of blood pressure reduces these risks.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clinical years should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of the pathogenesis and pathophysiology of hypertension.
- Knowledge of the epidemiology and risk factors for hypertension.
- Understanding of the pharmacologic management of acute and chronic hypertension.
- Understanding the behavioral issues by sex, race, culture, and age that relate to the management and treatment of hypertension.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe and discuss:

1. The etiologies and relative prevalence of primary and secondary hypertension. (MK)
2. The basic principles of the role of genetics in hypertension. (MK)
3. The definition of hypertensive urgency and emergency, citing examples of both. (MK)
4. The difference between essential (primary) and secondary hypertension. (MK)
5. Symptoms and signs of the following disorders associated with secondary hypertension:
   - Renovascular hypertension. (MK)
   - Renal failure. (MK)
   - Polycystic kidney disease. (MK)
   - Cushing’s disease or syndrome. (MK)
   - Hyperaldosteronism. (MK)
   - Hyperthyroidism. (MK)
   - Hypercalcemia. (MK)
   - Medication, alcohol, and illicit drug use. (MK)
   - Coarctation of the aorta. (MK)
   - Sleep apnea. (MK)
6. The manifestations of target-organ disease due to hypertension. (MK)
7. Classification of blood pressure (SBP and DBP for all age 18 or older). (MK)
8. Basic approaches to the pharmacological management of acute and chronic hypertension, including the physiologic basis and scientific evidence supporting these approaches, and causes for lack of responsiveness to therapy. (MK)
9. Prevention strategies for reducing hypertension (including lifestyle factors, such as dietary
intake of sodium, weight, and exercise level), and explain the physiologic basis and/or scientific evidence supporting each strategy. (MK)

10. Steps in management of patients with a hypertensive emergency. (MK)
11. Factors that contribute to non-adherence with antihypertensive medications. (MK)

B. **SKILLS:** Students should demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Duration and levels of elevated blood pressure. (PC, CS)
   - History of symptoms of cardiovascular, cerebrovascular, peripheral vascular or renal disease; diabetes; dyslipidemia; or gout. (PC, CS)
   - History of symptoms suggesting secondary hypertension. (PC, CS)
   - History of weight gain, leisure-time physical activities, and smoking or other tobacco use. (PC, CS)
   - Family history of high blood pressure, premature CHD, stroke, CVD, diabetes mellitus and dyslipidemia. (PC, CS)
   - Psychosocial and environmental factors that may elevate blood pressure (family situation, employment status, working conditions, education level). (PC, CS)
   - Dietary assessment, including sodium intake and intake of saturated fat and cholesterol. (PC, CS)
   - Results and side effects of previous antihypertensive therapy. (PC, CS)
   - Use of commonly prescribed, over-the-counter, and illicit medications that may raise blood pressure or interfere with the effectiveness of antihypertensive medications. (PC, CS)
   - Alcohol intake. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Blood pressure measurements to detect and confirm the presence of high blood pressure. (PC)
   - Examination of the fundus for arteriolar narrowing, arteriovenous nicking, hemorrhages, exudates, or papilledema. (PC)
   - Neck for carotid bruits, distended veins, or an enlarged thyroid gland. (PC)
   - Heart for increased rate, increased size, precordial heave, clicks, murmurs, arrhythmias, and third (S3) and fourth (S4) sounds. (PC)
   - Abdomen for bruits, enlarged kidneys, masses, and abnormal aortic pulsation. (PC)
   - Extremities for diminished, delayed, or absent peripheral arterial pulsations, bruits, and edema. (PC)
   - Peripheral pulses specifically femoral arterial pulses. (PC)
   - Body habitus, looking for changes associated with secondary hypertension. (PC)
   - Peripheral and central nervous system for ischemic changes. (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology of hypertension. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend and interpret diagnostic and laboratory tests, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
• UA. (PC, MK)
• CBC. (PC, MK)
• Blood glucose (fasting if possible). (PC, MK)
• Electrolytes, BUN/Cr. (PC, MK)
• Uric acid. (PC, MK)
• Fasting lipid profile. (PC, MK)
• ECG. (PC, MK)

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan and prognosis of the disease to the patient and his or her family, taking into account the patient’s knowledge of hypertension and his or her preferences regarding treatment options. (PC, CS)
   - Elicit questions from the patient and his or her family about the management plan. (PC, CS)
   - Educate patients about hypertension risk factors, taking into account:
     - Demographics. (PC, CS)
     - Concomitant diseases and therapies. (PC, CS)
     - Quality of life. (PC, CS)
     - Physiologic and biochemical measurements. (PC, CS)
     - Economic considerations. (PC, CS)

6. **Basic and advanced procedural skills:** Students should be able to perform:
   - UA (dipstick and microscopic). (PC)
   - 12-lead ECG. (PC)

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Treating acute and chronic hypertension. (PC, MK)
   - Treating primary (essential) hypertension versus secondary hypertension. (PC, MK)
   - Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
   - Prescribing preventative strategies to diminish hypertension, including:
     - Weight reduction. (PC, MK)
     - Moderation of alcohol intake. (PC, MK)
     - Regular physical activity. (PC, MK)
     - Reduction of sodium intake. (PC, MK)
     - Increase in potassium intake. (PC, MK)
     - Smoking cessation. (PC, MK)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to hypertension. (PC, PLI)
   - Incorporating patient preferences. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Appreciate the importance of patient preferences and adherence with management plans for those with hypertension. (P)
2. Recognize the responsibility of the physician with regard to non-adherence. (P)
3. Respond appropriately to patients who are non-adherent to treatment for hypertension. (CS, P)
4. Appreciate how preventative strategies may diminish need for medications. (P)
5. Appreciate the importance of side effects of medications and their impact on quality of life and adherence (including those side effects to which the geriatric population may be more prone) and demonstrate a commitment to limiting the whenever possible. (P)
6. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for hypertension. (PLI, P)

7. Demonstrate ongoing commitment to self-directed learning regarding hypertension. (PLI, P)

8. Appreciate the impact hypertension has on a patient’s quality of life, wellbeing, ability to work, and the family. (P)

9. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of hypertension. (P, SBP)

D. REFERENCES:

  


TRAINING PROBLEM #25: LIVER DISEASE

RATIONALE:
The causes of hepatobiliary disease are many and can be quite overwhelming to the internal medicine clerk. A thorough understanding of a systematic approach to hyperbilirubinemia/jaundice is by far preferable to random knowledge of highly specific etiologies. The liver responds pathologically to injury in characteristic ways and knowledge of these patterns can also be very useful in differential diagnosis. Several etiologies of liver disease such as acute/chronic viral hepatitis and alcohol-induced liver disease are sufficiently common as to require specific attention. In addition, many liver diseases can result in cirrhosis and its complications and, therefore, understanding this end-stage development is important.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of the hepatobiliary system.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The biochemical/physiologic/mechanistic approach to hyperbilirubinemia, including:
   - Increased production. (MK)
   - Decreased hepatocyte uptake. (MK)
   - Decreased conjugation. (MK)
   - Decreased excretion from the hepatocyte. (MK)
   - Decreased small duct transport (intrahepatic cholestasis). (MK)
   - Decreased large duct transport (extrahepatic cholestasis, obstructive jaundice). (MK)

2. The biochemistry and common causes of unconjugated and conjugated hyperbilirubinemia. (MK)

3. The use of serum markers of liver injury (e.g. AST, ALT, GGT, Alk Phos) and function (e.g. bilirubin, ALB, PT/INR) in the diagnostic evaluation of hepatobiliary disease. (MK)

4. The clinical significance of asymptomatic, isolated elevation of AST, ALT, GGT, and/or Alk Phos. (MK)

5. The common pathologic patterns of liver disease and their common causes, including:
   - Steatosis (fatty liver). (MK)
   - Hepatitis. (MK)
   - Cirrhosis. (MK)
   - Infiltrative. (MK)
   - Intrahepatic cholestasis. (MK)
   - Extrahepatic cholestasis (obstructive jaundice). (MK)

6. The epidemiology, symptoms, signs, typical clinical course, and prevention of viral hepatitis. (MK)

7. The distinctions between acute and chronic hepatitis. (MK)

8. The indications for and efficacy of hepatitis A and B vaccinations. (MK)
9. The common causes and clinical significance of hepatic steatosis and steatohepatitis.  
10. The epidemiology, symptoms, signs, and typical clinical course of autoimmune liver diseases such as autoimmune hepatitis, primary biliary cirrhosis, and primary sclerosing cholangitis.  
11. The epidemiology, symptoms, signs, and typical clinical course of cirrhosis.  
12. The pathophysiologic manifestations, symptoms, signs, and complications of alcohol-induced liver disease.  
13. The symptoms, signs, and complications of portal hypertension.  
14. The pathophysiology and common causes of ascites.  
15. The pathophysiologic manifestations, symptoms, and signs of spontaneous bacterial peritonitis.  
16. The basic pathophysiology, symptoms, signs, typical clinical course, and precipitants of hepatic encephalopathy.  
17. The basic pathophysiology, symptoms, signs, and typical clinical course of the hepatorenal syndrome.  
18. The analysis of ascitic fluid and its use in the diagnostic evaluation of liver disease.  
20. Genetic considerations in liver disease (i.e. hemochromatosis, Wilson’s disease, alpha-1 antitrypsin deficiency, Gilbert’s syndrome).  
21. The epidemiology, pathophysiology, symptoms, signs, and typical clinical course of cholelithiasis and cholecystitis.  
22. The clinical syndrome of “ascending cholangitis” including its common causes and typical clinical course.  
23. The indications for and risks of paracentesis and liver biopsy.  
24. The indications for and utility of hepatobiliary imaging studies, including:  
   • Ultrasound.  
   • Nuclear medicine studies.  
   • CT.  
   • MRI.  
   • Magnetic resonance cholangiopancreatography (MRCP).  
   • Endoscopic retrograde cholangiopancreatography (ERCP).  

B. SKILLS: Students should be able to demonstrate specific skills, including:  
1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:  
   • Jaundice, discolored urine, pruritis, light-colored stool, unintentional weight loss, fever, nausea, emesis, diarrhea, altered mental status, abdominal pain, increased abdominal girth, edema, rectal bleeding, hematemesis.  
   • DM.  
   • Alcohol use.  
   • Prescription, over-the-counter, and illicit drug use.  
   • Transfusions and other sources of potential blood-borne pathogen exposure.  
   • Consumption of uncooked shellfish and other food items potentially contaminated with fecal matter.  
   • Sexual history.  
   • Vaccination history.
• Family history of liver diseases. \((PC, CS)\)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   • Jaundice. \((PC)\)
   • Complete abdominal examination including findings consistent with ascites (e.g. bulging flanks, shifting dullness, fluid wave). \((PC)\)
   • Findings compatible with chronic alcohol use and portal hypertension (e.g. palmar erythema, spider angiomas, gynecomastia, testicular atrophy, Dupuytren’s contracture, muscle wasting, splenomegaly, ascites, edema, caput medusa, hemorrhoids). \((PC)\)
   • Findings compatible with hepatic (portosystemic) encephalopathy (e.g. disturbances of consciousness and behavior, fluctuating neurologic signs, asterixis). \((PC)\)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of liver disease. \((PC, MK)\)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   • CBC. \((PC, MK)\)
   • Electrolytes, BUN/Cr, GLC. \((PC, MK)\)
   • ALB, TP, total bilirubin, direct bilirubin, PT/INR, AST, ALT, Alk Phos. \((PC, MK)\)
   • Hepatitis serology. \((PC, MK)\)
   • Ascitic fluid ALB, amylase, cell counts, staining, cultures, and the serum-ascites albumin gradient (SAAG). \((PC, MK)\)
   Students should be able to define the indications for and interpret (with consultation) the results of:
   • Ultrasound. \((PC, MK)\)
   • Nuclear medicine studies. \((PC, MK)\)
   • CT. \((PC, MK)\)
   • MRI. \((PC, MK)\)
   • Magnetic resonance cholangiopancreatography (MRCP). \((PC, MK)\)
   • Endoscopic retrograde cholangiopancreatography (ERCP). \((PC, MK)\)

5. **Communication skills:** Students should be able to:
   • Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. \((PC, CS)\)
   • Elicit input and questions from the patient and his or her family about the management plan. \((PC, CS)\)
   • Discuss the avoidance of known hepatotoxins. \((PC, CS)\)
   • Counsel patients regarding alcohol abstinence. \((PC, CS)\)
   • Discuss the importance of hepatitis A and B vaccinations for nonimmune patients. \((PC, CS)\)

6. **Basic and advanced procedural skills:** Students should be able to:
   • Assist in performing a paracentesis after explaining the procedure to the patient. \((PC)\)

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
   • The diagnostic evaluation of asymptomatic, isolated elevation of the transaminases and/or Alk Phos. \((PC, MK)\)
• The diagnostic evaluation of patients with jaundice and unconjugated or conjugated hyperbilirubinemia. *(PC, MK)*
• The basic management of steatosis, hepatitis, cirrhosis, intra- and extra hepatic cholestasis, acute cholecystitis, ascites, portal hypertension, spontaneous bacterial peritonitis, and hepatic encephalopathy. *(PC, MK)*
• Determining when to obtain consultation from a gastroenterologist, hepatologist, or biliary surgeon. *(PC, SBP)*
• Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
• Accessing and utilizing appropriate information systems and resources to help delineate issues related to liver disease. *(PC, PLI)*
• Incorporating patient preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for liver disease. *(PLI, P)*
2. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for liver disease. *(P)*
3. Respond appropriately to patients who are nonadherent to treatment for liver disease. *(CS, P)*
4. Demonstrate ongoing commitment to self-directed learning regarding liver disease. *(PLI, P)*
5. Appreciate the impact liver disease has on a patient’s quality of life, wellbeing, ability to work, and the family. *(P)*
6. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the diagnosis and treatment of liver disease. *(P, SBP)*
7. Discuss the public health role physicians play in the prevention of viral hepatitis. *(P, SBP)*
8. Appreciate the difficulties patient face with alcohol abstinence. *(P)*

D. **REFERENCES:**

- **Viral Hepatitis**
  National Center for Infectious Diseases
  Center for Disease Control and Prevention
  U.S. Department of Health and Human Services
  [www.cdc.gov/ncidod/diseases/hepatits/index.htm](http://www.cdc.gov/ncidod/diseases/hepatits/index.htm)
- **Practice Guidelines**
  American Association for the Study of Liver Diseases
  [www.aasld.org](http://www.aasld.org)
- **National Institute on Alcohol Abuse and Alcoholism**
  National Institutes of Health
  U.S. Department of Health and Human Services
  [www.niaaa.nih.gov](http://www.niaaa.nih.gov)
- Krige JE, Bechingham IJ. ABC of diseases of liver, pancreas, and biliary system.
Portal hypertension-1: varices.
TRAINING PROBLEM #26: MAJOR DEPRESSION

RATIONALE:
Major depression is a very common problem in adults, resulting in significant morbidity and mortality. Most often the primary care provider is the first health care professional to see a depressed patient. Frequently, the initial presentation is associated with somatic complaints that bring the patient to the physician. Major depression is also a relatively common accompaniment to serious medical conditions. There is significant evidence that primary care physicians commonly fail to diagnose major depression. With relatively recent improvements in available treatment, it is even more important for internists to screen for major depression and to know the common presenting symptoms. The internist should also be familiar with available therapeutic options and be prepared to treat selected patients, including those who decline consultation with a mental health professional.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Neurochemistry of major depression.
- Pharmacology of the major classes of antidepressants.
- Basic understanding of the efficacy of psychotherapy, antidepressants, and electroconvulsive therapy.

SPECIFIC LEARNING OBJECTIVES:
A. KNOWLEDGE: Students should be able to define, describe, and discuss:
1. The epidemiology of major depression in the general population and the impact of major illness on the prevalence of major depression (e.g. stroke, heart disease, DM, cancer, Parkinson’s disease, HIV/AIDS). (MK)
2. The impact of major depression on the outcome of medical illness. (MK)
3. The American Psychiatric Associations’ Diagnostic and Statistical Manual 4th edition (DSM-IV) diagnostic criteria for major depression. (MK)
4. Common psychological symptoms and signs of major depression (e.g. low mood/affect, anxiety, irritability/anger, disinterest, anhedonia, decreased libido, guilt, poor self-esteem, poor concentration, rumination, helplessness, hopelessness, thoughts of death and suicide, somatic complaints). (MK)
5. Common neurovegetative symptoms and signs of major depression (e.g. appetite disturbance, decreased energy, psychomotor retardation or agitation, sleep disturbance). (MK)
6. Common somatic complaints that accompany depressive disorders and the potential for the occurrence of these symptoms without obvious psychological symptoms (e.g. fatigue, weakness, myalgias, arthralgias, headache, nausea, dyspnea, palpitations, chest pain/discomfort, lightheadedness/dizziness, bowel movement alterations). (MK)
7. The distinguishing features of major depression with psychotic features, bipolar disorder, dementia, and delirium. (MK)
8. The differential diagnosis of major depression, including:
   - Other psychiatric disorders. (MK)
16. The side effects of the major classes of antidepressants and common interaction with other medications. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease including:
   - Eliciting the symptoms of major depression. (PC, CS)
   - Determining the presence or absence of underlying dementia, anxiety disorders, adverse drug effects, and grief in any patient suspected of having major depression. (PC, CS)
   - Obtaining a complete drug history (including illicit drugs). (PC, CS)
   - Identifying chronic diseases that are associated with increased risk of major depression. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - A complete neurologic examination. (PC)
   - A complete mental status exam. (PC)

5. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology for major depression (psychiatric and nonpsychiatric). (PC, MK)

6. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - Blood and urine drug screening. (PC, MK)
   - Thyroid function tests. (PC, MK)
   - Serum RPR and VDRL. (PC, MK)
• B12, folate, and thiamine levels. *(PC, MK)*

Students should be able to define the indications for and interpret *(with consultation)* the results of:

• Cranial CT. *(PC, MK)*
• Cranial MRI. *(PC, MK)*

7. **Communication skills:** Students should be able to:

• Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
• Elicit input and questions from the patient and his or her family about the management plan. *(PC, CS)*
• Demonstrate effective listening skills and empathy. *(PC, CS)*
• Advise the patient of the delay in therapeutic benefit from antidepressant medications. *(PC, CS)*

6. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:

• An appreciation of the fact that major depression is not generally a “diagnosis of exclusion” and that ruling out all other possible medical causes is typically not necessary. *(PC, MK)*
• Making an accurate diagnosis of major depression. *(PC, MK)*
• Assessing for the risk of suicide. *(PC, MK)*
• Recommending psychotherapy (cognitive behavioral therapy or interpersonal psychotherapy). *(PC, MK)*
• Selecting appropriate initial pharmacologic therapy considering efficacy, side effects, and potential drug-drug interactions. *(PC, MK, SBP)*
• Identifying barriers to major depression treatment. *(PC, SBP)*
• Anticipating potential resistance to seeing a psychiatrist and antidepressant treatment. *(PC)*
• Planning appropriate follow-up. *(PC, MK)*
• Recognizing success or failure of initial treatment and making appropriate adjustments. *(PC, MK)*
• Determining when to obtain consultation from a psychiatrist, psychologist, or other mental health professional. *(PC, SBP)*
• Using a cost-effective approach to treatment. *(PC, SBP)*
• Accessing and utilizing appropriate information systems and resources to help delineate issues related to major depression. *(PC, PLI)*
• Incorporating patient needs and preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Recognize major depression as an important and potentially life-threatening disease. *(P)*
2. Appreciate the social stigma of psychiatric diagnoses and the ways non-psychiatric physicians may inadvertently contribute to this. *(P)*
3. Appreciated the reluctance of some patients to see a psychiatrist. *(P)*
4. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for major depression. *(PLI, P)*
5. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for major depression. *(P)*
6. Respond appropriately to patients who are nonadherent to treatment for major depression.
7. Demonstrate ongoing commitment to self-directed learning regarding major depression. *(PLI, P)*
8. Appreciate the impact major depression has on a patient’s quality of life, wellbeing, ability to work, and the family. *(P)*
9. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis and treatment of major depression. *(P, SBP)*

**D. REFERENCES:**

- Depression
  National Institute of Mental Health
  National Institutes of Health
  U.S. Department of Health and Human Services
- Practice Guidelines
  American Psychiatric Association
  [www.psych.org/psych_pract/treatg/pg/prac_guide.cfm](http://www.psych.org/psych_pract/treatg/pg/prac_guide.cfm)
- The National Association on Mental Illness
  [www.nami.org/Template.cfm?Section=By_Illness&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=54&ContentID=26414](http://www.nami.org/Template.cfm?Section=By_Illness&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=54&ContentID=26414)
TRAINING PROBLEM #27: NOSOCOMIAL INFECTIONS

RATIONALE:
Nosocomial infections have been occurring since the inception of the hospital. Despite many advances the incidence is still roughly five percent of all acute care hospitalizations or about two million cases a year. Nosocomial infections are estimated to approximately double the morbidity and mortality rates of any person admitted to the hospital. Directly attributable deaths can total up to 88,000 per year with the expenditure of many millions of excess health care dollars. Preventing nosocomial infections is the responsibility of every health care worker, including physicians, house officers, medical students, nurses, technicians, administrators, etc. Also considered here are occupational exposures for which health care workers are at risk.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Basic training in body substance isolation procedures.
- Microbiology and pathophysiology of the common nosocomial organisms, including *Staphylococcus aureus* (methicillin sensitive and resistant), *Staphylococcus epidermidis*, *Enterococcus* species (vancomycin sensitive and resistant), *Pseudomonas aeruginosa* and other nosocomial gram-negative bacilli, *Clostridium difficile*, and *Candida* species.
- The pharmacology of antimicrobial agents.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. The epidemiology and significance of nosocomial infections in the United States. *(MK)*
2. The general clinical risk factors for nosocomial infection. including:
   - Immunocompromise. *(MK)*
   - Immunosuppressive drugs. *(MK)*
   - Extremes of age. *(MK)*
   - Compromise of the skin and mucosal surfaces secondary to:
     - Drugs. *(MK)*
     - Irradiation. *(MK)*
     - Trauma. *(MK)*
     - Invasive diagnostic and therapeutic procedures. *(MK)*
     - Invasive indwelling devises (e.g. intravenous catheter, bladder catheter, endotracheal tube, etc.). *(MK)*
3. The major routes of nosocomial infection transmission, including:
   - Contact. *(MK)*
   - Droplet. *(MK)*
   - Airborne. *(MK)*
   - Common vehicle. *(MK)*
4. The epidemiology, pathophysiology, microbiology, symptoms, signs, typical clinical course, and preventive strategies for the most common nosocomial infections, including:
- Urinary tract infection. (MK)
- Pneumonia. (MK)
- Surgical site infection. (MK)
- Intravascular devised-related bloodstream infections. (MK)
- Skin infections. (MK)
- Health care associated diarrhea. (MK)

5. Empiric antibiotic therapy for the most common nosocomial infections. (MK)

6. The epidemiology, pathophysiology, microbiology, symptoms, signs, typical clinical course, and preventive strategies for colonization or infection with the following organisms:
   - Vancomycin-resistant enterococci. (MK)
   - Clostridium difficile. (MK)
   - Methicillin-resistant *Staphylococcus aureus*. (MRSA) (MK)
   - Multidrug-resistant Gram-negative bacteria. (MK)

7. The crucial importance of judicious antibiotic use. (MK)

8. The effect of widespread use of broad spectrum anti-microbial agents on endogenous body flora and the hospital microbial flora. (MK)

9. The types of isolation procedures and their indications:
   - Standard. (MK)
   - Airborne. (MK)
   - Contact. (MK)
   - Droplet. (MK)

10. The Centers for Disease Control and Prevention (CDC) guidelines for hand hygiene. (MK)

11. Preventive strategies for needlestick and sharps injuries intended to reduce the transmission of bloodborne pathogens (hepatitis B, hepatitis C, and HIV). (MK)

12. Local hospital post-exposure (i.e. after an eye/mucous membrane splash, needlestick or other sharps injury) protocols for prompt reporting, evaluation, counseling, treatment, and follow-up. (MK, SBP)

13. The indications, efficacy, and side effects of post-exposure prophylaxis for hepatitis B and HIV/AIDS. (MK)

14. Negative-pressure ventilation isolation for known or suspected tuberculosis patients (MK)

15. National Institute for Occupational Safety and Health (NIOSH) approved personal respiratory protective equipment (i.e. N95 respirator) use for the prevention of transmission of *Mycobacterium tuberculosis* to health care workers. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

3. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease in the organ systems likely to be involved with nosocomial infection. (PC, CS)

4. **Physical exam skills:** Students should be able to perform a physical examination of skin, vascular access sites, lungs, abdomen, wounds, and catheter and drain sites and recognize signs of local or systemic infection (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis of the likely sites and organisms involved, recognizing specific history and physical exam findings that suggest a specific etiology. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic
and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:

- Urinalysis and culture and sensitivities. *(PC, MK)*
- Sputum Gram stain and culture and sensitivities. *(PC, MK)*
- Chest radiograph. *(PC, MK)*
- Wound cultures and sensitivities. *(PC, MK)*
- *Clostridium difficile* toxin assay. *(PC, MK)*
- Hepatitis serologies. *(PC, MK)*
- HIV ELISA and western blot. *(PC, MK)*
- Sputum AFB staining and culture. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
   - Elicit input and questions from the patient and his or her family about the management plan. *(PC, CS)*
   - Explain the necessity for isolation procedures. *(PC, CS)*
   - Counsel patients about the need for judicious antibiotic usage and the potential patient-specific and public health risks of not doing so. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   - Obtain blood cultures. *(PC)*
   - Place and interpret a PPD. *(PC)*
   - Demonstrate proper sterile technique for invasive procedures. *(PC)*

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Assessing a hospitalized patient who develops a new fever 48 or more hours after admission. *(PC, MK)*
   - Developing a plan for the evaluation and treatment of hospital acquired infection. *(PC, MK)*
   - Demonstrating appropriate choice of antimicrobial drugs which considers mechanisms of action, spectrum of activity, pharmacokinetics, drug interactions, and adverse reactions. *(PC, MK)*
   - Recognizing when indwelling intravascular and urinary collection devices should be removed. *(PC, MK)*
   - Requesting appropriate isolation measures to protect other patients and health care workers. *(PC, SBP)*
   - Determining when to obtain consultation from an infectious diseases specialist. *(PC, SBP)*
   - Contacting hospital infection control experts when appropriate. *(SBP)*
   - Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to nosocomial infections. *(PC, PLI)*
   - Incorporating patient needs and preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Serve as a role model to all other health care providers by strictly following all infection control measures including hand hygiene and all isolation procedures. *(P, SBP)*
2. Appreciate the role physicians play in the inappropriate prescribing of antimicrobial agents and the public health ramifications. \((P, SBP)\)

3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for nosocomial infections. \((PLI, P)\)

4. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for nosocomial infections. \((P)\)

5. Demonstrate ongoing commitment to self-directed learning regarding nosocomial infections. \((PLI, P)\)

6. Appreciate the impact nosocomial infections have on a patient’s quality of life, well-being, ability to work, and the family. \((P)\)

7. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis, treatment, and prevention of nosocomial infections. \((P, SBP)\)

D. REFERENCES:

- Infection Control Guidelines
  Division of Healthcare Quality Promotion
  National Center for Infectious Diseases
  Centers for Disease Control and Prevention
  U.S. Department of Health and Human Services
  [www.cdc.gov/ncidod/hip/default.htm](http://www.cdc.gov/ncidod/hip/default.htm)

- Vancomycin-Resistant Enterococci
  Division of Healthcare Quality Promotion
  National Center for Infectious Diseases
  Centers for Disease Control and Prevention
  U.S. Department of Health and Human Services

  [www.cmaj.ca/cgi/reprint/171/1/51](http://www.cmaj.ca/cgi/reprint/171/1/51)

- Healthcare-Associated MRSA
  Division of Healthcare Quality Promotion
  National Center for Infectious Diseases
  Centers for Disease Control and Prevention
  U.S. Department of Health and Human Services
  [www.cdc.gov/ncidod/dhqp/ar_mrsa.html](http://www.cdc.gov/ncidod/dhqp/ar_mrsa.html)
TRAINING PROBLEM #28: OBESITY

RATIONALE:

Obesity and overweight are recognized as ever growing epidemics in the United States. These conditions have been correlated with the development of medical conditions such as diabetes, hypertension, heart disease, and osteoarthritis. Mastery of the approach to patients who are not at an ideal body weight is important to general internists because they often deal with the sequelae of the comorbid illnesses.

PREREQUISITES:

Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:

- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Psychology associated with addictive behavior.
- Anatomy, physiology, and pathophysiology of the gastrointestinal tract and digestion.
- Pharmacology of the available drugs used to treat obesity.
- Nutrition and caloric requirements.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The etiology of obesity including excessive caloric intake, insufficient energy expenditure leading to low resting metabolic rate, genetic predisposition, environmental factors affecting weight gain, psychologic stressors, and lower socioeconomic status. (MK)
2. The definition and classification of overweight and obese using BMI. (MK)
3. The health implications that being overweight or obese may have on the patient. (MK)
4. How daily caloric requirements are calculated and the caloric deficit required to achieve a five to 10 percent weight reduction in six to 12 months. (MK)
5. The principles of behavior modification. (MK)
6. How to develop an exercise program and assist the patient in setting goals for weight loss. (MK)
7. Treatment options, including nonpharmacologic and pharmacologic treatment, behavioral therapy and surgical intervention. (MK)

B. SKILLS: Students should be able to demonstrate specific skills including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history, including:
   - Reviewing the patient’s weight history from childhood. (PC, CS)
   - Assessing the risk factors for obesity related conditions. (PC, CS)
   - Assessing the patient’s motivation for losing weight. (PC, CS)
   - Reviewing the patient’s past experience with losing weight and determining barriers encountered in prior attempts. (PC, CS)
   - Reviewing the patient’s activity level and diet. (PC, CS)
   - Obtaining an assessment of tobacco and drug use especially noting if the patient is in the
process of stopping either. (PC, CS)

- Obtaining a family history focusing on weight related issues and comorbid illnesses associated with obesity. (PC, CS)
- Obtaining a focused review of systems including signs and symptoms of secondary causes of obesity such as Cushing’s syndrome, hypothyroidism, and hypogonadism. (PC, CS)

2. **Physical exam skills**: Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:

- Calculation of degree of obesity from the patient’s height and weight by calculating BMI. (PC)
- Noting the presence of abdominal obesity based on waist-to-hip circumference. (PC)
- Assessing the signs of vascular disease including hypertension, carotid bruits, abdominal aortic size, blood pressure and peripheral pulses. (PC)
- Assessing for signs of endocrine abnormalities, including: striae, peripheral neuropathy, depressed tendon reflexes, bruising, and signs of dyslipidemia (e.g. xanthomas and xanthelasmas). (PC)

3. **Differential diagnosis**: Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of primary and secondary obesity. (MK, PC)

4. **Laboratory interpretation**: Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
- Serum GLC. (PC, MK)
- TSH. (PC, MK)
- Lipid profile. (PC, MK)
- HbA1c. (PC, MK)
- BUN/Cr. (PC, MK)
- Urine microalbumin. (PC, MK)
- ECG. (PC, MK)
- 24-hour urinary cortisol (PC, MK)

5. **Communication skills**: Students should be able to:
- Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. (PC, CS)
- Elicit questions from the patient and his or her family about the management plan. (PC, CS)
- Adapt to the patient’s life-style and preferences, with emphasis on the patient’s role in treatment and maximizing compliance. (PC, CS)
- Assist the patient in understanding that attainment of ideal body weight may not necessarily be a realistic goal and that health benefits may be achieved with losses of five to 10 percent body weight. (PC, CS)

6. **Management skills**: Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
- Determining when to obtain consultation from an endocrinologist, dietician, or obesity management specialist. (PC, SBP)
- Developing reasonable weight loss goals with the patient. (PC, MK)
- Developing a dietary plan. (PC, MK)
- Developing a prescription for physical activity. (PC, MK)
• Identifying indications for pharmacotherapy. *(PC, MK)*
• Identifying indications for bariatric surgery. *(PC, MK)*
• Accessing and utilizing appropriate information systems and resources to help delineate issues related to obesity. *(PC, PLI)*
• Incorporating patient preferences in the treatment plan. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for obesity. *(PLI, P)*
2. Respond appropriately to patients who are nonadherent to treatment for obesity. *(CS, P)*
3. Demonstrate ongoing commitment to self-directed learning regarding obesity. *(PLI, P)*
4. Appreciate the impact obesity has on a patient’s quality of life, well-being, ability to work, and family. *(P)*
5. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professions in the treatment of obesity. *(P, SBP)*

D. **REFERENCES:**

- Overweight and Obesity
  National Center for Chronic Disease Prevention and Health Promotion Center for Disease Control and Prevention
  U.S. Department of Health and Human Services
  [www.cdc.gov/nccdphp/dnpa/obesity](https://www.cdc.gov/nccdphp/dnpa/obesity)
- Aim for a Healthy Weight National Heart, Lung, and Blood Institute Obesity Education Initiative National Institutes of Health
- Screening for Obesity in Adults
  Agency for Healthcare Research and Quality
  U.S. Department of Health and Human Services
  [www.ahrq.gov/clinic/uspstf/uspsobes.htm](https://www.ahrq.gov/clinic/uspstf/uspsobes.htm)
TRAINING PROBLEM #29: PNEUMONIA

RATIONALE:
Pneumonia continues to be a major public health issue, a leading reason for hospitalization, and a significant cause of mortality. Not only that, it is an important complication of admission for other causes. Many different specialties encounter pneumonia in the course of practice, the internist most particularly.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:

- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy and physiology of the pulmonary system.
- Pathogenesis and pathophysiology of pneumonia.
- Microbiology of the common pneumonia pathogens.
- Pharmacology of antimicrobial agents.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. The epidemiology, pathophysiology, symptoms, signs, and typical clinical course of community-acquired, nosocomial, and aspiration pneumonia and pneumonia in the immunocompromised host. \((MK)\)
2. The conceptualization of “typical” and “atypical” pneumonia and its limitations. \((MK)\)
3. Common pneumonia pathogens (viral, bacterial, mycobacterial, and fungal) in immunocompetent and immunocompromised hosts. \((MK)\)
4. Identify patients who are at risk for impaired immunity. \((MK)\)
5. Indications for hospitalization and ICU admission of patient with pneumonia. \((MK)\)
6. The radiographic findings of the various types of pneumonia. \((MK)\)
7. The antimicrobial treatments (e.g. antiviral, antibacterial, antimycobacterial, and antifungal) for community-acquired, nosocomial, and aspiration pneumonia, and pneumonia in the immunocompromised host. \((MK)\)
8. The implications of antimicrobial resistance. \((MK)\)
9. The pathogenesis, symptoms, and signs of the complications of acute bacterial pneumonia including: bacteremia, sepsis, parapneumonic effusion, empyema, meningitis, and metastatic microabscesses. \((MK)\)
10. The indications for and complications of chest tube placement. \((MK)\)
11. The indications for and efficacy of influenza and pneumococcal vaccinations. \((MK)\)
12. The indications and procedures for respiratory isolation. \((MK)\)
13. The Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for community-acquired pneumonia treatment. \((MK, PLI, SBP)\)

B. **SKILLS:** Students should be able to demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-
appropriate medical history that differentiates among etiologies of disease, including:
- The presence and quantification of fever, chills, sweats, cough, sputum, hemoptysis, dyspnea, and chest pain. *(PC, CS)*
- Historical features consistent with potential immunocompromise. *(PC, CS)*
- Potential tuberculosis exposure *(PC, CS)*

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Accurately determining respiratory rate and level of respiratory distress. *(PC)*
   - Identifying bronchial breath sounds, rales, rhonchi, and wheezes. *(PC)*
   - Identifying signs of pulmonary consolidation. *(PC)*
   - Identifying signs of pleural effusion. *(PC)*
   - Identifying signs of the complications of pneumonia. *(PC)*

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of pneumonia and other possible diagnoses, including:
   - Common cold. *(PC, MK)*
   - Acute bronchitis. *(PC, MK)*
   - Influenza. *(PC, MK)*
   - Acute exacerbation of COPD. *(PC, MK)*
   - Asthma exacerbation. *(PC, MK)*
   - CHF. *(PC, MK)*
   - Pulmonary embolism. *(PC, MK)*
   - Aspiration. *(PC, MK)*

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - CBC. *(PC, MK)*
   - Blood cultures. *(PC, MK)*
   - ABG. *(PC, MK)*
   - Pleural fluid chemistry, cell counts, staining, and culture. *(PC, MK)*
   - Chest radiograph. *(PC, MK)*

Students should be able to define the indications for and interpret *(with consultation)* the results of:
   - Chest CT. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, prognosis, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
   - Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*
   - Educate the patient about pneumococcal and influenza immunizations. *(PC, CS)*
   - Educate the patient about the importance of smoking cessation. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   - Place and interpret a tuberculin skin test (PPD). *(PC)*
   - Obtain blood cultures. *(PC)*
   - Obtain an ABG. *(PC)*
7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Selecting an appropriate empiric antibiotic regimen for community-acquired, nosocomial, immunocompromised-host, and aspiration pneumonia, taking into account pertinent patient features. (PC, MK)
   - Adjusting antimicrobial treatment according to the sputum staining and culture results. (PC, MK)
   - Recognizing the complications of pneumonia. (PC, MK)
   - Determining when to obtain consultation from a pulmonologist or infectious diseases specialist. (PC, SBP)
   - Using a cost-effective approach based on the differential diagnosis. (PC, SBP)
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to pneumonia. (PC, PLI)
   - Incorporating patient preferences. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for the various types of pneumonia. (PLI, P)
2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for pneumonia. (P)
3. Demonstrate ongoing commitment to self-directed learning regarding pneumonia. (PLI, P)
4. Appreciate the impact pneumonia has on a patient’s quality of life, well-being, ability to work, and the family. (P)
5. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professionals in the treatment of pneumonia. (P, SBP)
6. Appreciate the importance of antimicrobial resistance. (P)
7. Appreciate the public health role of the physician when treating certain types of pneumonia (e.g. tuberculosis). (P)
8. Appreciate the importance of and demonstrate a commitment to meeting national health care quality measures for the treatment of acute MI. (P, SBP, PLI)

D. **REFERENCES:**

- Improving Treatment Decisions for Patients with Community-Acquired Pneumonia Agency for Healthcare Research and Quality
  U.S. Department of Health and Human Services
  [www.ahrq.gov/clinic/pneumonia/pneumonria.htm](http://www.ahrq.gov/clinic/pneumonia/pneumonria.htm)


- Influenza
  Centers for Disease Control and Prevention
  U.S. Department of Health and Human Services
  [www.cdc.gov/flu/](http://www.cdc.gov/flu/)
Prevention of Pneumococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 46(RR-08);1-24. Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
www.cdc.gov/mmwr/PDF/RR/RR4608.pdf

Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 50(RR-04);1-46. Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
www.cdc.gov/mmwr/PDF/RR/RR5004
TRAINING PROBLEM #30: RHEUMATOLOGIC PROBLEMS

RATIONALE:
Rheumatologic diseases are an important part of the practice of internal medicine. This includes problems referring to specific joints as well as patients with systemic symptoms that are sometimes difficult to unify into a single diagnosis.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Anatomy, physiology, and pathophysiology of the musculoskeletal system.
- Basic course work in immunology.
- Pharmacology of acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), glucocorticoids, disease-modifying antirheumatic drugs (DMARDs), drugs use in the treatment of gout.
- Basic bone radiograph interpretation.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. A systematic approach to joint pain based on an understanding of pathophysiology to classify potential causes. (MK)
2. The effect of the time course of symptoms on the potential causes of joint pain (acute vs. subacute vs. chronic). (MK)
3. The difference between and pathophysiology of arthralgia vs. arthritis and mechanical vs. inflammatory joint pain. (MK)
4. The distinguishing features of intra-articular and periarticular complaints (joint pain vs. bursitis and tendonitis). (MK)
5. The effect of the features of joint involvement on the potential causes of joint pain (monoarticular vs. oligoarticular vs. polyarticular, symmetric vs. asymmetric, axial and/or appendicular, small vs. large joints, additive vs. migratory vs. intermittent). (MK)
6. Indications for performing an arthrocentesis and the results of synovial fluid analysis. (MK)
7. The pathophysiology and common signs and symptoms of:
   - Osteoarthritis. (MK)
   - Crystalline arthropathies. (MK)
   - Septic arthritis. (MK)
8. Indications for and effectiveness of intra-articular steroid injections. (MK)
9. Treatment options for gout (e.g. colchicine, NSAIDs, steroids, uricosurics, xanthine oxidase inhibitors). (MK)
10. The pathophysiology and common signs and symptoms of common periarticular disorders:
    - Sprain/stain. (MK)
    - Tendonitis. (MK)
    - Bursitis. (MK)
11. The basic pathophysiology of autoimmunity and autoimmune diseases. (MK)
12. The basic role of genetics in autoimmune disorders. (MK)
13. Typical clinical scenarios when systemic rheumatologic disorders should be considered:
   - Diffuse aches and pains. (MK)
   - Generalized weakness/fatigue. (MK)
   - Myalgias with or without weakness. (MK)
   - Arthritis with systemic signs (e.g. fever, weight loss). (MK)
   - Arthritis with disorders of other systems (e.g. rash, cardiopulmonary symptoms, gastrointestinal symptoms, eye disease, renal disease, neurologic symptoms). (MK)

14. The common signs and symptoms of and diagnostic approach to:
   - Rheumatoid arthritis. (MK)
   - Spondyloarthopathies (reactive arthritis/Reiter’s syndrome, ankylosing spondylitis, psoriatic arthritis). (MK)
   - Systemic lupus erythematosus. (MK)
   - Systemic sclerosis. (MK)
   - Raynaud’s syndrome/phenomenon. (MK)
   - Sjögren’s syndrome. (MK)
   - Temporal arteritis and polymyalgia rheumatica. (MK)
   - Other systemic vasculitides. (MK)
   - Polymyositis and dermatomyositis. (MK)
   - Fibromyalgia. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
   - Eliciting features of joint complaints:
     - Pain. (PC, CS)
     - Stiffness. (PC, CS)
     - Location. (PC, CS)
     - Mode of onset. (PC, CS)
     - Duration. (PC, CS)
     - Severity. (PC, CS)
     - Exacerbating and alleviating factors. (PC, CS)
     - Warmth, redness, and tenderness. (PC, CS)
     - Associated nonarticular symptoms. (PC, CS)
   - Determining when in the course of acute arthritis it is necessary to obtain a sexual history. (PC, CS)
   - Determining the impact of rheumatologic complaints on a patient's activities of daily living. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - A systematic examination of all joints identifying the following abnormal findings:
     - Erythema, warmth, tenderness, and swelling. (PC)
     - Effusion. (PC)
     - Crepitus. (PC)
     - Altered range of motion. (PC)
     - Ulnar deviation. (PC)
     - Synovial thickening. (PC)
Joint alignment deformities (e.g. varus and valgus). (PC)
Podagra. (PC)
- Muscular bulk, strength, and tenderness. (PC)
- Examination of the skin identifying the following abnormal findings:
  - Rheumatoid and tophaceous nodules. (PC)
  - Alopecia. (PC)
  - Malar rash. (PC)
  - Sclerodactyly. (PC)
  - Telangiectasias. (PC)
  - Raynaud's phenomenon. (PC)
  - Psoriasis. (PC)
  - Cutaneous manifestations of vasculitis (e.g. palpable purpura). (PC)

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology:
- Osteoarthritis. (PC, MK)
- Crystalline arthropathies. (PC, MK)
- Septic arthritis. (PC, MK)
- Rheumatoid arthritis. (PC, MK)
- Spondyloarthropathies (reactive arthritis/Reiter's syndrome, ankylosing spondylitis, psoriatic arthritis). (PC, MK)
- Systemic lupus erythematosus. (PC, MK)
- Systemic sclerosis. (PC, MK)
- Raynaud's syndrome/phenomenon. (PC, MK)
- Sjögren's syndrome. (PC, MK)
- Temporal arteritis and polymyalgia rheumatica. (PC, MK)
- Other systemic vasculitides. (PC, MK)
- Polymyositis and dermatomyositis. (PC, MK)
- Fibromyalgia. (PC, MK)

5. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
- CBC with differential. (PC, MK)
- Synovial fluid analysis (Gram stain, culture, crystal exam, cell count with differential, and glucose). (PC, MK)
- Uric acid. (PC, MK)
- ESR. (PC, MK)
- Rheumatoid factor (RF). (PC, MK)
- Antinuclear antibody test (ANA) and anti-DNA test. (PC, MK)

Students should be able to define the indications for and interpret (with consultation) the results of:
- Plain radiographs of the shoulder, elbow, wrist, hand, hip, knee, ankle, and foot. (PC, MK)

5. **Communication skills:** Students should be able to:
- Communicate the diagnosis, treatment plan, and subsequent follow-up to patients. (PC, CS)
- Elicit questions from the patient about the management plan. (PC, CS)
6. **Basic and advanced procedure skills:** Students should be able to:
   - Assist in the performance of an arthrocentesis and intra-articular corticosteroid injection. *(PC)*

7. **Management skills:** Students should able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Selecting appropriate medications for the relief of joint pain. *(PC, MK)*
   - Prescribing acute and preventative treatment for crystalline arthropathies. *(PC, MK)*
   - Prescribing basic treatment options for septic arthritis. *(PC, MK)*
   - Prescribing basic treatment options for systemic rheumatologic conditions. *(PC, MK)*
   - Determining when to obtain consultation from a rheumatologist and orthopedic surgeon. *(PC, SBP)*
   - Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   - Accessing and utilizing appropriate information systems and resources to help delineate issues related to rheumatologic problems. *(PC, PLI)*
   - Incorporating patient preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection diagnostic and therapeutic interventions for rheumatologic problems. *(PLI, P)*
2. Recognize the importance of patient preferences when selecting among diagnostic and therapeutic options for rheumatologic problems. *(P)*
3. Respond appropriately to patients who are nonadherent to treatment for rheumatologic problems. *(CS, P)*
4. Demonstrate ongoing commitment to self-directed learning regarding rheumatologic problems. *(PLI, P)*
5. Appreciate the impact rheumatologic problems have on a patient’s quality of life, well-being, ability to work, and the family. *(P)*
6. Recognize the importance of and demonstrate a commitment to the utilization of other healthcare professions in the treatment of rheumatologic problems. *(P, SBP)*

D. **REFERENCES:**

- Management Guidelines
  American College of Rheumatology


- Arthritis Foundation
  [www.arthritis.org](http://www.arthritis.org)

- National Institute of Arthritis and Musculoskeletal and Skin Diseases
  National Institutes of Health
TRAINING PROBLEM #31: SMOKING CESSATION

RATIONALE:
Smoking is a major public health issue because it causes or aggravates many serious illnesses. Effective intervention strategies for chronic smokers have been developed using principals of behavioral counseling. These principals are applicable to other risky health behaviors. Health behavior risk assessment and intervention is now expected of physicians as part of the comprehensive care of adults. Selecting and performing an appropriate smoking cessation intervention is an important training problem for the third year medical student.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of the anatomy, physiology, and pathophysiology of the cardiopulmonary system.
- Knowledge of the pharmacology of addictive drugs.
- Knowledge of the risks of smoking, passive smoke, and smokeless tobacco.
- Appreciation of the reasons for or against discontinuing smoking.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The pharmacologic effects of nicotine. (MK)
2. Nicotine withdrawal symptoms. (MK)
3. Intervention strategies physicians can use for those patients willing and not willing to quit. (MK)
4. The stages of change, including:
   - Precontemplation. (MK)
   - Contemplation. (MK)
   - Preparation. (MK)
   - Action. (MK)
   - Maintenance. (MK)
5. The “five A’s” of smoking cessation:
   - Ask. (MK)
   - Advise. (MK)
   - Assess. (MK)
   - Assist. (MK)
   - Arrange. (MK)
6. The “five R’s” of smoking cessation:
   - Relevance. (MK)
   - Risks. (MK)
   - Rewards. (MK)
   - Roadblocks. (MK)
   - Repetition. (MK)
7. The common barriers preventing patients from undertaking smoking cessation. (MK)
8. The principles of at least one theory of behavior modification. (MK)
9. Common medical diseases associated with chronic smoking and the effects of stopping on future risk. *(MK)*
10. The indications for nicotine replacement therapy, pharmacotherapy (i.e. bupropion) or both. *(MK)*
11. The association between smoking cessation and weight gain. *(MK)*
12. The fact that tobacco dependence is considered a chronic relapsing disorder. *(MK)*
13. The Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for smoking cessation advice (i.e. all smoking patients admitted with pneumonia, HF, or an acute MI are given smoking cessation advice or counseling during hospital stay). *(MK, PLI, SBP)*

B. **SKILLS**: Students should demonstrate specific skills, including:

1. **History-taking skills**: Students should be able to obtain, document, and present an age-appropriate medical history, including:
   - Ask the patient if he or she uses tobacco. *(PC, CS)*
   - Determine the length and magnitude of tobacco use. *(PC, CS)*
   - Ask if the patient is interested in stopping.
   - Ask about the patient’s past experiences with smoking cessation. *(PC, CS)*
   - Ask relevant questions regarding the symptoms of diseases associated with long-term smoking (e.g. CAD, COPD, PVD, CVA, lung cancer). *(PC, CS)*

2. **Physical exam skills**: Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Identification of nicotine stains. *(PC)*
   - Identification of lesions with malignant potential on the lips and in the oral cavity. *(PC)*
   - Identification of chest findings consistent with chronic obstructive lung disease and lung cancer. *(PC)*
   - Examination of the heart and vascular system. *(PC)*

3. **Laboratory interpretation**: Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - Complete blood count to detect erythrocytosis. *(PC, MK)*
   - Lipid profile to aid in cardiovascular stratification. *(PC, MK)*

4. **Communication skills**: Students should be able to:
   1. Ask every patient if he or she uses tobacco. *(PC, CS)*
   2. Advise every patient who smokes to stop in a nonjudgmental manner. *(PC, CS)*
   3. Assess the patient’s willingness to make attempt to quit. *(PC, CS)*
   4. Assist those who are willing to make a quit attempt through counseling. *(PC, CS)*
   5. Respond positively and non-judgmentally to the patient’s excuses or concerns about cessation. *(PC, CS)*
   6. Get the patient to commit to a specific action plan that can lead to complete cessation. *(PC, CS)*
   7. For those unwilling to quit, use of “5 R’s” to motivate the patient:
      - Relevance. *(PC, CS)*
5. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patient, including:
   - Designing an intervention that matches the stage of behavior change demonstrated by the patient. *(PC, CS)*
   - Explaining how to use nicotine patch, nasal spray or inhaler, and/or bupropion therapy. *(PC, CS)*
   - Negotiating a follow-up plan with the patient. *(PC, CS)*
   - Encouraging the patient to increase physical activity to lessen weight gain, if medically appropriate. *(PC, CS)*
   - Accessing and utilizing appropriate information systems and resources to help delineate issues/resources related to aiding smoking cessation. *(PC, PLI)*
   - Incorporating patient preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Student should be able to:

1. Demonstrate a commitment to meeting national quality standards for smoking cessation. *(P, PLI, SBP)*
2. Maintain a non-judgmental attitude at all times regarding smoking cessation. *(P)*
3. Demonstrate a commitment to deliver a non-judgmental "stop smoking" message to every patient who smokes. *(P)*
4. Promote problem-solving by the patient. *(P)*
5. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for smoking cessation. *(PLI, P)*
6. Respond appropriately to patients who are non-adherent to treatment for smoking cessation. *(P)*
7. Demonstrate ongoing commitment to self-directed learning regarding smoking cessation. *(PLI, P)*
8. Appreciate the impact smoking cessation has on a patient’s quality of life, well-being, ability to work, and the family. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of smoking cessation. *(P, SBP)*

D. **RESOURCES:**

- Public Health Service
  Department of Health and Human Services
  Tobacco Cessation Guideline
  [www.surgeongeneral.gov/tobacco/default.htm](http://www.surgeongeneral.gov/tobacco/default.htm)
TRAINING PROBLEM #32: SUBSTANCE ABUSE

RATIONALE:
Substance abuse is a prevalent problem that intersects with patient care on a variety of different levels and in patients from every socio-economic status. Being able to recognize it, counsel patients appropriately, and devise an appropriate treatment plan is integral to the practice of internal medicine.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experiences should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of drug and alcohol metabolism and physiology.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. Presenting signs and symptoms of abuse of the following substances:
   - Alcohol. *(MK)*
   - Opioids. *(MK)*
   - Cocaine. *(MK)*
   - Amphetamines. *(MK)*
   - Hallucinogens. *(MK)*
   - Barbiturates. *(MK)*
   - Marijuana. *(MK)*
   - Anabolic steroids. *(MK)*
   - Benzodiazepines. *(MK)*

2. Signs, symptoms, risk factors for, and major causes of morbidity and mortality secondary to alcohol and drug abuse, intoxication, overdose, and withdrawal. *(MK)*

3. Diagnostic criteria for substance abuse, dependency and addiction. *(MK)*

4. Questions in the CAGE questionnaire:
   - Cut down. *(MK)*
   - Annoyed/angry. *(MK)*
   - Guilty. *(MK)*
   - Eye opener. *(MK)*

5. Health benefits of substance abuse cessation. *(MK)*

6. The potential role of genetics in substance abuse vulnerability. *(MK)*

B. **SKILLS:** Students should demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
   - Social history that is elicited in a nonjudgmental, supportive manner, using appropriate
questioning (e.g. CAGE questions, etc.). (PC, CS)
- Use of injection drugs and shared needles. (PC, CS)
- Relevant medication history. (PC, CS)
- Immune status. (PC, CS)
- Family history of substance abuse. (PC, CS)
- Lifestyle factors that will influence patient’s access to illicit substances and interfere with ability to enable effective treatment. (PC, CS)
- Screening for depression and other psychiatric disease. (PC, CS)

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Accurate recognition of signs that may indicate intoxication or withdrawal (e.g. behavioral or speech changes, changes in pupil size, conjunctival or nasal injection, tachycardia, sweating, piloerection, yawning, unsteady gait, etc.). (PC, MK)
   - Examination of the nose for septal perforation as complication of cocaine use. (PC, MK)
   - Examination of the skin for track marks or signs of needle use. (PC, MK)
   - Identification of stigmata of secondary disease states (e.g. cirrhosis – splenomegaly, gynecomastia, telangiectasias, caput medusa, etc.) (PC, MK)
   - Assessing for signs of endocarditis (e.g., fever, murmur, rash, etc). (PC, MK)
   - Obtaining full mental status examination. (PC, MK)

3. **Differential diagnosis:** Students should be able to generate a differential diagnosis recognizing history, physical exam and/or laboratory findings to determine the diagnosis of abuse of drugs or alcohol and their sequelae. (PC, MK)

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
   - Blood alcohol level. (PC, MK)
   - Urine and serum toxicology screens. (PC, MK)
   - Hepatic function panel. (PC, MK)
   - Amylase and lipase levels. (PC, MK)
   - Tests for HIV, hepatitis B and hepatitis C. (PC, MK)
   - CBC. (PC, MK)
   - Blood cultures. (PC, MK)

5. **Communication skills:** Students should be able to:
   - Communicate the evaluation, treatment plan, and subsequent follow up to the patient and his or her family in a non-judgmental manner. (PC, CS)
   - Elicit questions from the patient and his or her family about the disease process and management plan. (PC, CS)
   - Counsel patients regarding cessation and available community referral resources. (PC, CS, SBP)

6. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan that includes:
   - Assessing the patient’s motivation for achieving sobriety/abstinence. (PC, MK)
   - Understanding the principles of acute management of drug/alcohol intoxication and withdrawal versus long-term treatment planning. (MK, PC)
   - Using Clinical Institute Withdrawal Assessment for Alcohol. (CIWA-Ar) scale in acute
alcohol withdrawal to prevent seizures or delirium tremens (MK, PC)

- Recommending appropriate use of benzodiazepines for alcohol withdrawal. (MK, PC)
- Determining when to obtain consultation from a psychiatrist. (PC, SBP)
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to substance abuse. (PC, PLI)
- Incorporating patient preferences and understanding limitations of treatment. (PC)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for substance abuse. (PLI, P)
2. Respond appropriately to patients who are non-adherent to treatment for substance abuse. (CS, P)
3. Demonstrate ongoing commitment to self-directed learning regarding substance abuse. (PLI, P)
4. Appreciate the impact substance abuse has on a patient’s as well as a family’s quality of life, well-being, and ability to work. (P)
5. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of substance abuse. (P, SBP)

D. REFERENCES:

TRAINING PROBLEM #33: VENOUS THROMBOEMBOLISM

RATIONALE:
Venous thromboembolic disease (DVT and PE) is a very common problem in internal medicine and one that can have devastating consequences if not appropriately diagnosed and treated. Diagnosis of DVT and PE can be especially challenging. Prophylactic measures are very effective but do not eliminate the risk.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam (with particular attention to the cardiac, pulmonary, and venous systems).
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of the anatomy, physiology, and pathophysiology of the cardiac, pulmonary, and venous systems.
- Physiology and pathophysiology of the hemostatic system.
- Pharmacology of antithrombotic agents.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe and discuss:

1. Risk factors for developing DVT, including:
   - Prior history of DVT/PE. *(MK)*
   - Immobility/hospitalization. *(MK)*
   - Increasing age. *(MK)*
   - Obesity. *(MK)*
   - Trauma. *(MK)*
   - Smoking. *(MK)*
   - Surgery. *(MK)*
   - Cancer. *(MK)*
   - Acute MI. *(MK)*
   - Stroke and neurologic trauma. *(MK)*
   - Coagulopathy. *(MK)*
   - Pregnancy. *(MK)*
   - Oral estrogens. *(MK)*
2. Genetic considerations predisposing to venous thrombosis. *(MK)*
3. The symptoms and signs of DVT and PE. *(MK)*
4. The differential diagnosis of DVT including the many causes of unilateral leg pain and swelling:
   - Venous stasis and the postphlebitic syndrome. *(MK)*
   - Lymphedema. *(MK)*
   - Cellulitis. *(MK)*
   - Superficial thrombophlebitis. *(MK)*
   - Ruptured popliteal cyst. *(MK)*
   - Musculoskeletal injury. *(MK)*
   - Arterial occlusive disorders. *(MK)*
5. The differential diagnosis of PE including the many causes of chest pain and dyspnea:
   - MI/unstable angina. (MK)
   - Congestive heart failure. (MK)
   - Pericarditis. (MK)
   - Pneumonia/bronchitis/COPD exacerbation. (MK)
   - Asthma. (MK)
   - Pulmonary hypertension. (MK)
   - Pneumothorax. (MK)
   - Musculoskeletal pain (e.g. rib fracture, costochondritis). (MK)

6. Treatment modalities for DVT/PE, including:
   - Unfractionated heparin. (MK)
   - Low-molecular-weight heparin. (MK)
   - Warfarin. (MK)
   - Thrombolytics. (MK)

7. The risks, benefits, and indications for inferior vena cava filters. (MK)

8. The long-term sequelae of DVT and PE. (MK)

9. Methods of DVT/PE prophylaxis, their indications and efficacy, including:
   - Ambulation. (MK)
   - Graded compression stockings. (MK)
   - Pneumatic compression devices. (MK)
   - Unfractionated heparin. (MK)
   - Low-molecular-weight heparin. (MK)
   - Warfarin. (MK)

B. SKILLS: Students should demonstrate specific skills, including:

1. **History-taking skills**: Students should be able to obtain, document and present an age-appropriate medical history that suggests the diagnosis of DVT or PE, including:
   - The presence or absence of known risk factors. (PC, CS)
   - Presence or absence of leg pain, swelling, warmth, discoloration, and palpable cord. (PC, CS)
   - The presence or absence of dyspnea, chest pain, palpitations, cough, hemoptysis. (PC, CS)

2. **Physical exam skills**: Students should be able to perform a physical examination to establish the diagnosis and severity of disease, including:
   - Assessment of vital signs (i.e. hypotension, tachycardia, tachypnea, fever) and general appearance (i.e. degree of respiratory distress, anxiety). (PC)
   - Accurate identification of leg swelling, erythema, warmth, and tenderness. (PC)
   - Inspection for signs of lower extremity trauma, arthritis, or joint effusion. (PC)
   - Identification of pleural friction rubs, wheezes, rales, rhonchi, and signs of pneumothorax. (PC)

3. **Differential diagnosis**: Students should be able to generate a differential diagnosis for a patient suspected of having DVT/PE, recognizing specific history, physical examination and laboratory findings which suggest DVT/PE, including the disease states noted above. (PC, MK)

4. **Laboratory interpretation**: Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on
the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences.

Laboratory and diagnostic tests should include, where appropriate:
- Pulse oximetry. *(PC, MK)*
- 12-lead ECG. *(PC, MK)*
- Chest radiograph. *(PC, MK)*
- ABG. *(PC, MK)*
- D-dimer. *(PC, MK)*

Students should be able to define the indications for and interpret (with consultation) the results of:
- Duplex venous ultrasonography. *(PC, MK)*
- Ventilation perfusion (V/Q) scan. *(PC, MK)*
- CT angiography. *(PC, MK)*
- Pulmonary angiography. *(PC, MK)*
- Echocardiography. *(PC, MK)*

5. **Communication skills:** Students should be able to:
   - Communicate the diagnosis, treatment plan, and subsequent follow-up to the patient and his or her family. *(PC, CS)*
   - Elicit questions from the patient and his or her family about the management plan. *(PC, CS)*

6. **Basic and advanced procedural skills:** Students should be able to:
   - Perform a 12-lead ECG. *(PC)*
   - Obtain an ABG. *(PC)*

7. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
   - Outlining the acute and long-term treatment of isolated calf vein phlebitis, superficial thrombophlebitis, DVT, and thromboembolism, including appropriate use and monitoring of heparin and warfarin. *(MK, PC)*
   - Using a cost-effective approach based on the differential diagnosis. *(PC, SBP)*
   - Incorporating patient preferences. *(PC)*

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for venous thromboembolic disease. *(PLI, P)*
2. Respond appropriately to patients who are non-adherent to treatment for venous thromboembolic disease. *(CS, P)*
3. Demonstrate ongoing commitment to self-directed learning regarding venous thromboembolic
disease. \((PLI, P)\)

4. Appreciate the impact venous thromboembolic disease has on a patient’s quality of life, well-being, ability to work, and the family. \((P)\)

5. Recognize the importance and demonstrate a commitment to the utilization of other healthcare professions in the treatment of venous thromboembolic disease. \((P, SBP)\)

D. REFERENCES:

- American College of Chest Physicians. The seventh ACCP conference on antithrombotic and thrombolytic therapy: evidence-based guidelines. *Chest*. 2004;126 (Number 3 Supplement) www.chestjournal.org/content/vol126/3_suppl
#1 DIAGNOSTIC DECISION MAKING

RATIONALE:
Physicians are responsible for directing and conducting the diagnostic evaluation of a broad range of patients, including patients seeking advice on prevention of and screening for disease and patients with acute and chronic illnesses. In a time of rapidly proliferating tests, medical students must learn how to design safe, expeditious, and cost-effective diagnostic evaluations. This requires well-developed diagnostic decision-making skills that incorporate probability-based thinking.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Required course in pathophysiology.
- Required course in clinical epidemiology and biostatistics.
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. Key history and physical examination findings pertinent to the differential diagnosis. \((MK)\)
2. Information resources for determining diagnostic options for patients with common and uncommon medical problems. \((MK, PLI)\)
3. Key factors to consider when selecting from among diagnostic tests, including pretest probabilities, performance characteristics of tests (sensitivity, specificity, likelihood ratios), cost, risk, and patient preferences. \((MK, P)\)
4. The basics of the potential role of genetic information in diagnostic decision making. \((MK)\)
5. Relative cost of diagnostic tests. \((MK)\)
6. How critical pathways or practice guidelines can be used to guide diagnostic test ordering. \((MK)\)
7. The methods of deductive reasoning, forward thinking, and pattern recognition in clinical decision making. \((MK)\)

B. **SKILLS:** Students should demonstrate specific skills, including:

1. Identifying problems with which a patient presents, appropriately synthesizing these into logical clinical syndromes. \((PC)\)
2. Identifying which problems are of highest priority. \((PC)\)
3. Formulating a differential diagnosis based on the findings from the history and physical examination. \((PC)\)
4. Using probability-based thinking and pattern recognition to identify the most likely diagnoses. \((PC)\)
5. Using the differential diagnosis to help guide diagnostic test ordering and sequencing. \((PC)\)
6. Using pretest probabilities and scientific evidence about performance characteristics of tests (sensitivity, specificity, likelihood ratios) to determine post-test probabilities according to the predictive value paradigm. \((PC)\)
7. Participating in selecting the diagnostic studies with the greatest likelihood of providing useful results at a reasonable cost. (*PC*)
8. Communicating the prioritized differential diagnosis to the patient and his or her family. (*CS*)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS**: Students should be able to:

1. Incorporate the patient’s perspective into diagnostic decision making. (*P*)
2. Recognize the importance of patient preferences when selecting among diagnostic tests. (*P*)
3. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic tests. (*PLI, P*)
4. Seek feedback regularly regarding diagnostic decision making and respond appropriately and productively. (*P*)
5. Limit the chances of false positive/false negative results by demonstrating thoughtful test selection. (*P*)
6. Appreciate the element of uncertainty in diagnostic testing, including the occurrence and causes of false positive and false negative results. (*P*)
7. Appreciate the impact uncertainty may have on the patient. (*P*)
8. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in diagnostic decision making. (*P, SBP*)

D. **REFERENCES**:

- Primer to the Internal Medicine Clerkship A Guide Produced by the Clerkship Directors in Internal Medicine Clerkship Directors in Internal Medicine [www.im.org/CDIM/primer.htm](http://www.im.org/CDIM/primer.htm)
#2 CASE PRESENTATION

**RATIONALE:**
Communicating patient care information to colleagues and other health care professionals is an essential skill regardless of specialty. Internists have traditionally given special attention to case presentation skills because of the comprehensive nature of patient evaluations and the various settings in which internal medicine is practiced. Students should develop facility with different types of case presentations: written and oral, new patient and follow-up, inpatient and outpatient.

**PREREQUISITES:**
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.

**SPECIFIC LEARNING OBJECTIVES:**

A. **KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. Components of comprehensive and abbreviated case presentations (oral and written) and settings appropriate for each. (MK)

B. **SKILLS:** Students should be able to demonstrate specific skills, including:

1. Prepare legible, comprehensive, and focused new patient workups that include the following features as clinically appropriate:
   - Chief complaint. (PC, CS)
   - Identifying data. (PC, CS)
   - Concise history of the present illness organized chronologically, with minimal repetition, omission, or extraneous information, and including pertinent positives and negatives. (PC, CS)
   - Past medical history, including relevant details. (PC, CS)
   - Medications with dosages and frequencies, including herbals, supplements, and over-the-counter medications. (PC, CS)
   - Allergies with specific details of the reaction. (PC, CS)
   - Substance use, including tobacco, alcohol, and illicit drugs. (PC, CS)
   - Family history. (PC, CS)
   - Social history. (PC, CS)
   - Review of symptoms. (PC, CS)
   - A comprehensive physical examination with detail pertinent to the patient’s problem. (PC, CS)
   - A succinct, prioritized, and where appropriate complete list of all problems identified by the history and physical examination. (PC, CS)
   - A differential diagnosis (appropriate for the student’s level of training) for each problem that is neither over-inclusive or under-inclusive, addresses all reasonable possibilities,
pays special attention to diagnoses that are potentially the most serious or life-threatening, and is supported by the use of pertinent positives and negatives. (PC, CS)

- A diagnostic and treatment plan for each problem (appropriate for the student’s level of training). (PC, CS)

2. Orally present a new inpatient’s or outpatient’s case in a manner that includes the following characteristics:
   - Logically and chronologically develops the history of the present illness and tells the patient’s “story.” (PC, CS)
   - Summarizes the pertinent positives and negatives. (PC, CS)
   - Succinctly presents past medical history, family history, social history, and review of symptoms. (PC, CS)
   - Includes a logical, organized, and prioritized differential diagnosis. (PC, CS)
   - Includes diagnostic and therapeutic plans. (PC, CS)
   - Can be made briefer when necessary. (PC, CS)
   - Is presented as much from memory as possible with minimal reference to memory aids with the exception of highly important dates, diagnostic tests, laboratory values. (PC, CS)

3. Orally present a follow-up inpatient’s or outpatient’s case in a manner that includes the following characteristics:
   - Focused and very concise. (PC, CS)
   - Problem-based. (PC, CS)
   - Emphasizes pertinent new findings. (PC, CS)
   - Includes diagnostic and therapeutic plans. (PC, CS)
   - Can be made briefer when necessary. (PC, CS)
   - Is presented as much from memory as possible with minimal reference to memory aids with the exception of highly important dates, diagnostic tests, laboratory values. (PC, CS)

4. Produce inpatient or outpatient progress notes in a manner that includes the following characteristics:
   - Is appropriately titled. (PC, CS)
   - Includes a brief subjective that addresses new or changed patient symptoms. (PC, CS)
   - Provides an accurate and succinct accounting of the objective data (e.g. vital signs, in/out, telemetry monitoring, focused physical examination, laboratory results, and diagnostic tests). (PC, CS)
   - Includes a prioritized problem list with a concise assessment and plan for each. (PC, CS)

5. Select the mode of presentation that is most appropriate to the clinical situation (e.g. written vs. oral, long vs. short, etc.). (PC, CS)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate ongoing commitment to self-directed learning regarding case presentation skills by regularly seeking feedback on presentations. (PLI, P)
2. Respond appropriately and productively to feedback regarding performance. (P)
3. Accurately and objectively record and present all data. (P)
4. Demonstrate respect for the patient’s privacy when dealing with protected health information and follow Health Information Portability and Accountability Act (HIPAA) standards. (P)

D. REFERENCES:

- Primer to the Internal Medicine Clerkship A Guide Produced by the Clerkship Directors in Internal Medicine Clerkship Directors in Internal Medicine
  www.im.org/CDIM/primer.htm
GENERAL CLINICAL CORE COMPETENCIES

#3 HISTORY TAKING AND PHYSICAL EXAMINATION

RATIONALE:
The ability to obtain an accurate medical history and carefully perform a physical examination is fundamental to providing comprehensive care to adult patients. In particular, the internist must be thorough and efficient in obtaining a history and performing a physical examination with a wide variety of patients, including healthy adults (both young and old), adults with acute and chronic medical problems, adults with complex life-threatening diseases, and adults from diverse socioeconomic and cultural backgrounds. The optimal selection of diagnostic tests, choice of treatment, and use of subspecialists, as well as the physician’s relationship and rapport with patients, all depend on well-developed history-taking and physical diagnosis skills. These skills, which are fundamental to effective patient care, should be a primary focus of the student’s work during the core clerkship in internal medicine.

PREREQUISITES:
- Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Required pre-clinical courses in physical examination and physician-patient communication (should include instruction in breast, pelvic, rectal, and male genital exams).
- Ability to perform a complete medical history and physical exam on a wide variety of patients including adolescents and older adults.
- Ability to effectively communicate with patients of diverse backgrounds.
- Basic skills for obtaining a history related to substance abuse, sexual, occupational, and mental health.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The significant attributes of a symptom, including: location and radiation, intensity, quality, temporal sequence (onset, duration, frequency), alleviating factors, aggravating factors, setting, associated symptoms, functional impairment, and patient’s interpretation of symptom. (MK)
2. The four methods of physical examination (inspection, palpation, percussion, and auscultation), including where and when to use them, their purposes, and the findings they elicit. (MK)
3. The physiologic mechanisms that explain key findings in the history and physical exam. (MK)
4. The diagnostic value of the history and physical examination. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. Using language appropriate for each patient. (PC, CS)
2. Using non-verbal techniques to facilitate communication and pursue relevant inquiry. (PC, CS)
3. Eliciting the patient’s chief complaint as well as a complete list of the patient’s concerns. (PC, CS)
4. Obtaining a patient’s history in a logical, organized, and thorough manner, covering the following:
   - History of present illness. \((PC, CS)\)
   - Past medical history (including usual source of and access to health care, childhood and adult illnesses, injuries, surgical procedures, obstetrical history, psychiatric problems, sexual history, and hospitalizations). \((PC, CS)\)
   - Preventive health measures. \((PC, CS)\)
   - Medications with dosages and frequencies, including herbals, supplements, and over-the-counter medications. \((PC, CS)\)
   - Allergies with specific details of the reaction. \((PC, CS)\)
   - Substance use including tobacco, alcohol, and illicit drugs. \((PC, CS)\)
   - Family history. \((PC, CS)\)
   - Social history. \((PC, CS)\)
   - Occupational history. \((PC, CS)\)
   - Review of symptoms. \((PC, CS)\)

5. Obtaining, whenever necessary, supplemental historical information from collateral sources, such as significant others or previous physicians. \((PC, CS)\)

6. Demonstrating proper hygienic practices whenever examining a patient. \((PC)\)

7. Positioning the patient and self properly for each part of the physical examination. \((PC)\)

8. Performing a physical examination for a patient in a logical, organized, respectful, and thorough manner, including:
   - The patient’s general appearance. \((PC)\)
   - Vital signs. \((PC)\)
   - Pertinent body regions/organ systems. \((PC)\)
   - When appropriate breast, pelvic, rectal, male genital exams. \((PC)\)
   - When appropriate fundoscopic exam. \((PC)\)
   - When appropriate full neurologic exam. \((PC)\)

9. Adapting the scope and focus of the history and physical exam appropriately to the medical situation and the time available. \((PC)\)

10. Being observant of the patient’s modesty as much as possible. \((PC, P)\)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Appreciate the essential contribution of a pertinent and history and physical examination to patient care. \((P)\)

2. Demonstrate ongoing commitment to self-directed learning regarding history taking and physical examination skills. \((PLI, P)\)

3. Seek feedback regularly regarding history and physical examination skills and respond appropriately and productively. \((P)\)

4. Recognize the importance of and demonstrate a commitment to the utilization of other health care professions in obtaining a history and physical examination (e.g. interpreter services, advanced practice nurses, etc.). \((P, SBP)\)

5. Establish a habit of updating historical information and repeating important parts of the physical examination during follow-up visits. \((P)\)

6. Demonstrate consideration for the patient’s modesty, feelings, limitations, and sociocultural background whenever taking a history and performing a physical examination. \((P)\)
7. Appreciate that some patients will be very anxious about the physical examination, particularly the breast, pelvic, rectal, and male genital exams. (P)

D. REFERENCES:

- The Auscultation Assistant
  [www.med.ucla.edu/wilkes/intro.html](http://www.med.ucla.edu/wilkes/intro.html)
- Heart Sounds and Cardiac Arrhythmias
  Medical Multimedia Laboratories
  [www.blaufuss.org](http://www.blaufuss.org)
GENERAL CLINICAL CORE COMPETENCIES

#4 COMMUNICATION AND RELATIONSHIPS WITH PATIENTS AND COLLEAGUES

RATIONALE:
The physician-patient relationship forms the core of the practice of internal medicine. Many physicians view it as the most satisfying aspect of their work. The medical interview and the relationship between physician and patient are important diagnostic and therapeutic tools. Effective communication skills are needed for a physician to serve as an effective patient advocate. Communication skills also are needed to address patient concerns and requests. Proficiency in communicating with patients results in increased patient and physician satisfaction, increased adherence to therapy, and reduced risk of malpractice claims. The student on the internal medicine clerkship interacts with a diverse array of patients, physicians, and other health team members, necessitating proficiency in communication and interpersonal skills. Students also witness how diversities of age, gender, race, culture, socioeconomic class, personality, and intellect require a sensitive and flexible approach. The result of proficiency in communication and interpersonal skills is increased satisfaction for both doctor and patient.

PREREQUISITES:
- Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
  - Required pre-clinical courses in physician-patient communication.
  - Ability to perform a complete medical history on a wide variety of patients, including adolescents and older adults.
  - Ability to communicate with patients of diverse backgrounds.
  - Basic skills for obtaining a history related to substance abuse and sexual, occupational, and mental health.
  - Basic skills for discussing issues relating to advance directives.
  - Basic skills for breaking bad news.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. How patients’ and physicians’ perceptions, preferences, and actions are affected by cultural and psychosocial factors and how these factors affect the doctor-patient relationship. (MK, P)
2. The role and contribution of each team member to the care of the patient. (MK, SBP)
3. The role of psychosocial factors in team interactions. (MK)
4. The role of the physician as patient advocate. (MK)
5. Strategies for establishing positive patient-doctor relationships. (MK)
6. Patient, physician, and system barriers to successfully negotiated treatment plans and patient adherence; strategies that may be used to overcome these barriers. (MK, SBP)
7. Useful strategies when communicating with patients via an interpreter. (MK)
8. Basic techniques for breaking bad news. (MK)
9. Basic tenants of genetic counseling. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:
1. Demonstrating appropriate listening skills, including verbal and non-verbal techniques (e.g., restating, probing, clarifying, silence, eye contact, posture, touch) to communicate empathy and help educate the patient. (CS)
2. Demonstrating effective verbal skills including appropriate use of open- and closed-ended questions, repetition, facilitation, explanation, and interpretation. (CS)
3. Determining the information a patient has independently obtained about his or her problems. (CS)
4. Identifying patients’ emotional needs. (CS)
5. Respond to empathic opportunities by naming the emotions or feelings expressed. (CS)
6. Eliciting the patient’s point of view and concerns about his or her illness and the medical care he or she is receiving. (CS)
7. Discussing how the health problem affects the patient’s life. (CS)
8. Determining the extent to which a patient wants to be involved in making decisions about his or her care. (CS)
9. Providing basic information and an explanation of the diagnosis, prognosis, and treatment plan. (CS)
10. Responding to patients’ concerns and expectations. (CS)
11. With guidance and direct supervision, participating in breaking bad news to patients. (CS)
12. With guidance and direct supervision, participating in discussing basic issues regarding advance directives with patients and their families. (CS)
13. With guidance and direct supervision, participating in discussing basic end-of-life issues with patients and their families. (CS)
14. Assessing patient commitment and adherence to a treatment plan taking into account personal and economic circumstances. (CS)
15. Working with a variety of patients, including multi-problem patients, angry patients, somatizing patients, and substance abuse patients. (CS)
16. Working as an effective member of the patient care team, incorporating skills in inter-professional communication and collaboration. (CS, SBP)
17. Giving and receiving constructive feedback. (CS)
18. Orally presenting a new inpatient’s or outpatient’s case in a manner that includes the following characteristics:
   - Logically and chronologically develops the history of the present illness and tells the patient’s “story.” (PC, CS)
   - Summarizes the pertinent positives and negatives. (PC, CS)
   - Succinctly presents past medical history, family history, social history, and review of symptoms. (PC, CS)
   - Includes a logical, organized, and prioritized differential diagnosis (PC, CS)
   - Includes diagnostic and therapeutic plans. (PC, CS)
   - Can be made briefer when necessary. (PC, CS)
   - Is presented as much from memory as possible with minimal reference to memory aids with the exception of highly important dates, diagnostic tests, laboratory values. (PC, CS)
19. Orally presenting a follow-up inpatient’s or outpatient’s case in a manner that includes the following characteristics:
   - Is focused, very concise, and problem-based. (PC, CS)
• Emphasizes pertinent new findings. \((PC, CS)\)
• Includes diagnostic and therapeutic plans. \((PC, CS)\)
• Can be made briefer when necessary. \((PC, CS)\)
• Is presented as much from memory as possible with minimal reference to memory aids with the exception of highly important dates, diagnostic tests, and laboratory values. \((PC, CS)\)

20. Demonstrating the ability to make clear and concise presentations about topics assigned to research. \((CS)\)
21. Demonstrating basic strategies for conflict management and resolution. \((CS)\)
22. Demonstrating basic techniques of communication with non-English speaking patient via an interpreter. \((PC, CS)\)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate ongoing commitment to self-directed learning regarding effective doctor-patient communication skills. \((PLI, P)\)
2. Seek feedback regularly regarding communication skills and respond appropriately and productively. \((P)\)
3. Take into consideration in each case the patient’s psychosocial status \((P)\)
4. Demonstrate respect for patients. \((P)\)
5. Involve the patient actively in his or her health care whenever possible. \((P)\)
6. Demonstrate teamwork and respect toward all members of the health care team, as manifested by reliability, responsibility, honesty, helpfulness, selflessness, and initiative in working with the team. \((SBP, P)\)
7. Attend to or advocate for the patient’s interests and needs in a manner appropriate to the student’s role. \((P)\)
8. Maintain confidentiality when dealing with protected health information and follow Health Information Portability and Accountability Act (HIPAA) guidelines. \((P, SBP)\)

D. REFERENCES:

www.healthcarecomm.org

Contemporary Issues in Medicine: Communication in Medicine Medical School Objectives Project, October 1999 American Association of Medical Colleges  


GENERAL CLINICAL CORE COMPETENCIES

#5 INTERPRETATION OF CLINICAL INFORMATION

RATIONALE:
In the routine course of clinical practice, most physicians are required to order and interpret a wide variety of diagnostic tests and procedures. Determining how these test results will influence clinical decision making and communicating this information to patients in a timely and effective manner are core clinical skills that third-year medical students should possess.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Introductory course in clinical pathology and laboratory medicine.
- Introductory course in epidemiology and biostatistics.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to:

1. Interpret specific diagnostic tests and procedures that are ordered to evaluate patients who present with common symptoms and diagnoses encountered in the practice of internal medicine. (PC, MK)
2. Take into account:
   - Important differential diagnostic considerations, including potential diagnostic emergencies. (PC, MK)
   - Pre-test and post-test likelihood of disease (probabilistic reasoning). (PC, MK)
   - Performance characteristics of individual tests. (sensitivity, specificity, positive and negative predictive value, likelihood ratios). (PC, MK)
3. Define and describe for the tests and procedures listed:
   - Indications for testing. (PC, MK)
   - Range of normal variation. (PC, MK)
   - Critical values that require immediate attention. (PC, MK)
   - Pathophysiologic implications of abnormal results. (PC, MK)
   - Relative cost. (MK, SBP)
4. Independently interpret the results of the following laboratory tests:
   - CBC with diff and blood smear. (PC, MK)
   - UA. (PC, MK)
   - Electrolytes. (PC, MK)
   - BUN/Cr. (PC, MK)
   - GLC. (PC, MK)
   - Hepatic function panel. (PC, MK)
   - Hepatitis serologies. (PC, MK)
   - Cardiac biomarkers (e.g. myoglobin, CK-MB, and Troponin I/T). (PC, MK)
   - Routine coagulation tests (e.g. PT/PTT and INR). (PC, MK)
   - Thyroid function tests (e.g. T3, T4, and TSH). (PC, MK)
   - ABG. (PC, MK)
   - Body fluid cell counts and chemistries. (PC, MK)
5. Independently interpret the results of the following diagnostic procedures:
   - 12-lead ECG. (PC, MK)
   - Chest radiograph. (PC, MK)
   - Plain abdominal films (e.g. obstructive series, KUB). (PC, MK)
   - Pulmonary function tests. (PC, MK)
6. Describe the basic electrophysiologic events that produce the surface ECG. (MK)
7. Describe how errors in test interpretation can affect clinical outcomes and costs. (PC, MK)
8. Describe the concept of a threshold as it relates to testing and treatment decisions. (PC, MK)
9. Describe the basic principles of using genetic information in clinical decision making. (PC, MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. Interpreting a blood smear, Gram stain, and UA. (PC)
2. Approaching ECG interpretation in a systematic and logical fashion analyzing the following:
   - rate, rhythm, P wave morphology, PR interval, QRS width, axis, voltage, QT interval, ST segment morphology, and T wave morphology. (PC)
3. Recognizing the following on ECG:
   - Sinus tachycardia, sinus bradycardia, sinus arrhythmia. (PC)
   - Premature atrial beats, ectopic atrial rhythm/tachycardia, narrow complex supraventricular tachycardia. (PC)
   - Multifocal atrial tachycardia, atrial flutter, atrial fibrillation (PC)
   - First degree, second degree (Mobitz type I and II), and third degree (complete) heart block. (PC)
   - Junctional rhythm. (PC)
   - Premature ventricular beats. (PC)
   - Typical ventricular tachycardia, ventricular fibrillation. (PC)
   - Left and right atrial enlargement. (PC)
   - Left ventricular hypertrophy. (PC)
   - Left and right bundle branch block, left anterior and posterior fascicular block. (PC)
   - The characteristic features of a properly functioning ventricular or dual chamber pacemaker. (PC)
   - The delta wave in Wolf-Parkinson-White Syndrome. (PC)
   - The classic features of myocardial ischemia and infarction and be able to localize the findings (i.e. inferior, anterior, lateral, posterior, right ventricular) and identify the probable culprit vessel. (PC)
   - The classic features of pulmonary embolism. (PC)
   - The characteristic effects of hypo- and hyperkalemia. (PC)
4. Approaching chest radiography interpretation in a systematic and logical fashion analyzing the following: technique (e.g. view, rotation, exposure), visible abdomen, soft tissues and bones of the thorax, mediastinum/hila, and lungs. (PC)
5. Recognizing the following on chest radiograph:
   - Rib fracture. (PC)
   - Cardiomegaly. (PC)
   - Lobar pneumonia. (PC)
   - Pleural effusion. (PC)
   - Pneumothorax. (PC)
• Pulmonary nodule. (PC)
• Pulmonary edema/"congestive heart failure" (e.g. cardiomegaly, pulmonary vascular redistribution, Kerley’s B Lines, interstitial/alveolar edema). (PC)
• Hilar lymphadenopathy. (PC)
• Mediastinal widening. (PC)

6. Recording the results of laboratory tests in an organized manner, using flow sheets when appropriate. (PC)
7. Estimating the pre-test likelihood of a disease or condition. (PC, MK)
8. Estimating the post-test probability of disease and stating the clinical significance of the results of laboratory tests and diagnostic procedures. (PC, MK)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for acute MI. (PLI, P, SBP)
2. Regularly seek feedback regarding interpretation of clinical information and respond appropriately and productively. (P)
3. Recognize the importance of patient preferences when selecting among diagnostic testing options. (P)
4. Demonstrate ongoing commitment to self-directed learning regarding test interpretation. (PLI, P)
5. Appreciate the implications of test results before ordering tests. (P)
6. Appreciate the importance of follow-up on all diagnostic tests and procedures and timely communication of information to patients and appropriate team members. (P)
7. Demonstrate a commitment to excellence by personally reviewing radiographs, ECGs, Gram stains, blood smears, etc. to assess the accuracy and significance of the results. (P)

D. REFERENCES:


Dubin D. Rapid Interpretation of EKG’s. 5th ed. Tampa, FL: Cover Publishing Company; 2000.


Lab Test Online
www.labtestsonline.org/
RadQuiz: Your Gateway to Radiology Resources

www.radquiz.com

Introduction to Chest Radiology
Department of Radiology
University of Virginia Health Sciences Center

www.med-ed.virginia.edu/courses/rad/cxr/index.html

#6 THERAPEUTIC DECISION MAKING

RATIONALE:
Internists are responsible for directing and coordinating the therapeutic management of patients with a wide variety of problems, including critically ill patients with complex medical problems and the chronically ill. To manage patients effectively, physicians need basic therapeutic decision-making skills that incorporate both pathophysiologic reasoning and evidence-based knowledge.

PREREQUISITES:
- Introductory coursework in clinical epidemiology and biostatistics.
- Introductory coursework in physiology and pathology.
- Introductory coursework in pharmacology.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:
1. Information resources for determining medical and surgical treatment options for patients with common and uncommon medical problems. (MK)
2. Key factors to consider in choosing among treatment options, including risk, cost, evidence about efficacy, and consistency with pathophysiologic reasoning (MK)
3. How to use critical pathways and clinical practice guidelines to help guide therapeutic decision making. (MK)
4. Factors that frequently alter the effects of medications, including drug interactions and compliance problems. (MK)
5. Factors to consider in selecting a medication from within a class of medications. (MK)
6. Factors to consider in monitoring a patient’s response to treatment, including potential adverse effects. (MK)
7. Various ways that evidence about clinical effectiveness is presented to clinicians and the potential biases of using absolute or relative risk or number of patients needed to treat. (MK)
8. Methods of monitoring therapy and how to communicate them in both written and oral form. (MK)
9. The basics of the potential role of genetic information in therapeutic decision making. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:
1. Formulating an initial therapeutic plan. (PC)
2. Changing the therapeutic plan when goals of care change (e.g. a shift toward palliative care). (PC)
3. Accessing and utilizing, when appropriate, information resources to help develop an appropriate and timely therapeutic plan. (PC, PLI)
4. Explaining the extent to which the therapeutic plan is based on pathophysiologic reasoning and scientific evidence of effectiveness. (PC)
5. Beginning to estimate the probability that a therapeutic plan will produce the desired outcome. (PC)
6. Writing prescriptions and inpatient orders safely and accurately. (PC)
7. Counseling patients about how to take their medications and what to expect
when doing so, including beneficial outcomes and potential adverse effects. (PC, CS)
8. Monitoring response to therapy. (PC)
9. Recognizing when to seek consultation for additional diagnostic and therapeutic recommendations. (PC, SBP)
10. Recognizing when to screen for certain conditions based on age and risk factors and what to do with the results of the screening tests. (PC)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS**: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based consideration in the selection of therapeutic interventions. (PLI, P)
2. Demonstrate ongoing commitment to self-directed learning regarding therapeutic interventions. (PLI, P)
3. Seek feedback regularly regarding therapeutic decision making and respond appropriately and productively. (P)
4. Appreciate the impact therapeutic decisions have on a patient’s quality of life (P)
5. Incorporate the patient in therapeutic decision making, explaining the risks and benefits of treatment. (CS, P)
6. Respect patients’ autonomy and informed choices, including the right to refuse treatment. (P)
7. Demonstrate an understanding of the importance of close follow-up of patients under active care. (P)
8. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in therapeutic decision making. (P, SBP)

D. **REFERENCES**:

- Users’ guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid? Evidence-Based Medicine Working Group. *JAMA*. 1993;270:2598-601.
- Users’ guides to the medical literature. II. How to use an article about therapy or prevention. B. What were the results and will they help me in caring for my patients? Evidence-Based Medicine Working Group. *JAMA*. 1994;271:59-63.

**GENERAL CLINICAL CORE COMPETENCIES**

#7 BIOETHICS OF CARE

**RATIONALE**: A basic understanding of ethical principles and their application to patient care is essential for all
physicians. During the internal medicine core clerkship, the student can put into practice some of the ethical principles learned in the preclinical years, especially by participating in discussions of informed consent and advance directives. Additionally, the student learns to recognize ethical dilemmas and respect different perceptions of health, illness, and health care held by patients of various religious and cultural backgrounds.

**PREREQUISITES:**
Introductory course on medical ethics providing a basic understanding of ethical principles and fiduciary relationships and their application in clinical medicine:
- Autonomy.
- Beneficence.
- Nonmaleficence.
- Truth-telling.
- Confidentiality.
- Respect for autonomy (informed choice).

**SPECIFIC LEARNING OBJECTIVES:**

**A. KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. Basic ethical principles (autonomy, beneficence, nonmaleficence, truth-telling, confidentiality, and autonomy). *(MK)*
2. The patient’s right to refuse care. *(MK)*
3. The unique nature of a fiduciary relationship. *(MK)*
4. Basic elements of informed consent. *(MK)*
5. Circumstances under which informed consent is necessary and unnecessary *(MK)*
6. Basic concepts of treatment efficacy, quality of life, and societal demands. *(MK)*
7. Potential conflicts between individual patient preferences and societal demands *(MK)*
8. The role of the physician in making decisions about the use of expensive or controversial tests and treatments. *(MK)*
9. Bioethical concerns regarding genetic information, privacy issues in particular. *(MK)*
10. The unique bioethical concerns regarding end-of-life care. *(MK)*
11. Circumstances when withholding or withdrawing care is acceptable. *(MK)*
12. The role of federal and state legislation in governing health care. *(MK)*
13. Circumstances when it may be unavoidable or acceptable to breach the basic ethical principles. *(MK)*

**B. SKILLS:** Students should be able to demonstrate specific skills, including:

1. Participating in a discussion about advance directives with a patient. *(PC, CS)*
2. Participating in obtaining informed consent for a procedure. *(PC, CS)*
3. Participating in explaining and obtaining informed consent for genetic testing *(PC, CS)*
4. Participating in a preceptor’s discussion with a patient about a requested treatment that may not be considered appropriate (e.g., not cost-effective). *(PC, CS)*
5. Participating in family and interdisciplinary team conferences discussing end-of-life care and incorporating the patient’s wishes in that discussion. *(PC, CS, SBP)*
6. Obtaining additional help from ethics experts in conflict resolution. (*PC, SBP*)

**C. ATTITUDES AND PROFESSIONAL BEHAVIORS:** Students should be able to:

1. Demonstrate ongoing commitment to self-directed learning regarding bioethics. (*PLI*)
2. Recognize the importance of patient preferences, perspectives, and perceptions regarding health and illness. (*P*)
3. Demonstrate a commitment to caring for all patients, regardless of the medical diagnosis, gender, race, socioeconomic status, intellect/level of education, religion, political affiliation, sexual orientation, ability to pay, or cultural background. (*P*)
4. Recognize the importance of allowing terminally ill patients to die with comfort and dignity when that is consistent with the wishes of the patient and/or the patient’s family. (*P*)
5. Recognize the potential conflicts between patient expectations and medically appropriate care. (*P*)
6. Respond appropriately to patients who are nonadherent to treatment. (*P*)
7. Demonstrate respect for the patient’s privacy and confidentiality when dealing with protected health information and follow HIPAA standards. (*P*)
8. Appreciate the psychological impact genetic information may have on patients. (*P*)

**D. REFERENCES:**

- Bioethics Resources on the Web
- Inter-Institute Bioethics Interest Group
- National Institutes of Health
- University of Pennsylvania Center for Bioethics [www.bioethics.upenn.edu](http://www.bioethics.upenn.edu)
- World Medical Association Ethics Unit [www.wma.net/e/ethicsunit/resources.htm](http://www.wma.net/e/ethicsunit/resources.htm)
- Ethics in Medicine University of Washington School of Medicine [eduserv.hscer.washington.edu/bioethics](http://eduserv.hscer.washington.edu/bioethics)
- Program in Ethics In Science and Medicine University of Texas Southwestern Medical Center [www3.utsouthwestern.edu/ethics/](http://www3.utsouthwestern.edu/ethics/)
- Bioethics Interest Group American Medical Student Association [www.amsa.org/bio/index.cfm](http://www.amsa.org/bio/index.cfm)
GENERAL CLINICAL CORE COMPETENCIES

#8 SELF-DIRECTED LEARNING

RATIONALE:
Because of the breadth of the problems encountered in clinical practice, internists face an extraordinary challenge to keep up with the burgeoning amount of new information relevant to providing high quality care. Therefore, they must master and practice self-directed life-long learning, including the ability to access and utilize information systems and resources efficiently.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
- Basic library skills, including the ability to perform an electronic literature search.
- Critical appraisal skills.
- Understanding of basic concepts of biostatistics and clinical epidemiology including: sensitivity, specificity, positive predictive value, negative predictive value, absolute risk reduction, relative risk reduction, number needed to treat, likelihood/odds ratios, and tests of significance.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Key sources for obtaining updated information on issues relevant to the medical management of adult patients. (MK, PLI)
2. A system for managing information from a variety of sources. (MK, PLI)
3. The concept of the focused clinical question. (MK, PLI)
4. Key questions to ask when critically appraising articles on diagnostic tests:
   - Was there an independent, blind comparison with a reference ("gold") standard? (MK, PLI)
   - Was the diagnostic test evaluated in an appropriate spectrum of patients (like those in whom it would be used in practice)? (MK, PLI)
   - Was the reference standard applied regardless of the diagnostic test result? (MK, PLI)
   - What were the results of the study (e.g. sensitivity, specificity, likelihood ratios, and/or pre- and post-test probabilities)? (MK, PLI)
5. Key questions to ask when critically appraising articles on medical therapeutics:
   - Was the assignment of patients to treatments randomized? (MK, PLI)
   - Were all patients who entered the trial properly accounted for at the conclusion of the study and analyzed in the group they were randomized to? (MK, PLI)
   - Were patients and study personnel blind to the treatment? (MK, PLI)
   - Were the groups similar at the start of the trial? (MK, PLI)
   - Aside from the experimental intervention, were the groups treated equally? (MK, PLI)
   - What were the results of the trial (e.g. relative risk reduction, absolute risk reduction, and "number needed to treat")? (MK, PLI)

B. SKILLS: Students should be able to demonstrate specific skills, including:
1. Performing a computerized literature search to find articles pertinent to a focused clinical question. (PLI)
2. Demonstrating critical review skills. (PLI)
3. Reading critically about issues pertinent to their patients. (PLI)
4. Assessing the limits of medical knowledge in relation to patient problems (PLI)
5. Using information from consultants critically. (PLI)
6. Recognizing when additional information is needed to care for the patient (PLI)
7. Asking colleagues (students, residents, nurses, faculty) for help when needed (PLI, SBP)
8. Making use of available instruments to assess one’s own knowledge base (PLI, P)
9. Summarizing and presenting to colleagues what was learned from consulting the medical literature. (PLI, CS)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:
1. Demonstrate self-directed learning in every case. (PLI, P)
2. Acknowledge gaps in knowledge to both colleagues and patients and request help. (PLI, P)
3. Seek feedback regularly and respond appropriately and productively. (P)
4. Recognize the value and limitations of other health care professionals when confronted with a knowledge gap. (PLI, P, SBP)

D. REFERENCES:


Users' guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid? Evidence-Based Medicine Working Group. JAMA. 1993;270:2598-601.

Users' guides to the medical literature. II. How to use an article about therapy or prevention. B. What were the results and will they help me in caring for my patients? Evidence-Based Medicine Working Group. JAMA. 1994;271:59-63.

Users' guides to the medical literature. III. How to use an article about a diagnostic test. A. Are the results of the study valid? Evidence-Based Medicine Working Group. JAMA. 1994;271:389-91.

Users' guides to the medical literature. III. How to use an article about a diagnostic test. B. What are the results and will they help me in caring for my patients? The Evidence-Based Medicine Working Group. JAMA. 1994;271:703-7.


Advancing Education in Practice-Based Learning and Improvement An Educational Resource from the ACGME Outcome Project www.acgme.org/outcome/implement/complete_PBLIBooklet.pdf

GENERAL CLINICAL CORE COMPETENCIES

#9 PREVENTION
RATIONALE:
One of the most important responsibilities of primary care physicians is to promote health and prevent disease in a cost-effective manner. Appropriate care by internists includes not only recognition and treatment of disease but also the routine incorporation of the principles of preventive health care into clinical practice. All physicians should be familiar with the principles of preventive health care to ensure their patients receive appropriate preventive services.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:

- Introductory course in clinical epidemiology and biostatistics.
- Introductory course in health promotion and disease prevention.
- Ability to perform a complete medical history and physical exam.
- Ability to communicate with patients of diverse backgrounds.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Primary, secondary, and tertiary prevention. (MK)
2. Criteria for determining whether or not a screening test should be incorporated into the periodic health assessment of adults. (MK)
3. General types of preventive health care issues that should be addressed on a routine basis in adult patients (i.e., cancer screening; prevention of infectious diseases, coronary artery disease, osteoporosis, and injuries; and identification of substance abuse). (MK)
4. Vaccines that have been recommended for routine use in at least some adults (i.e., influenza, pneumococcal, measles, mumps, rubella, tetanus-diphtheria, hepatitis). (MK)
5. Indications for endocarditis prophylaxis. (MK)
6. Methods for counseling patients about risk-factor modification, including the “stages of change” approach to helping patients change behavior. (MK)
7. Influence of age and clinical status on approach to prevention. (MK)
8. General categories of high-risk patients in whom routine preventative health care must be modified or enhanced (e.g., family history, travel to an underdeveloped area, occupational exposures, etc.). (MK)
9. The major areas of controversy in screening. (MK)
10. The potential roles and limitations of genetic testing in disease prevention/early detection. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. Obtaining a patient history, including a detailed family history, vaccination history, travel history, sexual history, and occupational exposures. (PC)
2. Identifying patients at high risk for developing diabetes, dyslipidemia, coronary artery disease, cancer, osteoporosis, influenza, pneumonia, hepatitis, HIV infection, and tuberculosis by screening for major risk factors. (PC)
3. Obtaining a Pap smear and interpreting its results. (PC)
4. Performing a breast examination. (PC)
5. Instructing patients to perform breast self-examination. (PC, CS)
6. Interpreting the results of a mammogram. (PC)
Performing a digital rectal examination. (PC)
Interpreting the results of a PSA test and understand its limitations. (PC)
Performing a testicular examination. (PC)
Interpreting the results of a bone densitometry test. (PC)
Interpreting the results of a fasting lipid profile. (PC)
Interpreting the results of a fasting glucose test. (PC)
Counseling patients about safe-sex practices, smoking cessation, alcohol abuse, weight loss, healthy diet, exercise, and seat belt use. (PC, CS)
Place and interpret a PPD. (PC)
Locating recently published recommendations as well as original data regarding measures that should be incorporated into the periodic health assessment of adults. (PLI)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Address preventive health care issues as a routine part of their assessment of patients. (P)
2. Encourage patients to share responsibility for health promotion and disease prevention. (P)
3. Recognize the importance of patient preferences when recommending preventive health measures. (P)
4. Understand the patient’s right to refuse preventive health measures. (P)
5. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection preventive health measures. (PLI, P)
6. Demonstrate ongoing commitment to self-directed learning regarding preventive health measures. (PLI, P)

D. REFERENCES:

Guide to Clinical Preventive Services
U.S. Preventative Services Task Force (USPSTF)
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
USPSTF Recommendation: Screening for Cancer
www.ahrq.gov/clinic/cps3dix.htm#cancer
USPSTF Recommendation: Screening for Lipid Disorders
www.ahrq.gov/clinic/ajpmsuppl/lipidrr.htm
USPSTF Recommendation: Screening for High Blood Pressure
www.ahrq.gov/clinic/3rduspstf/highbloodsc/hibloodrr.htm
USPSTF Recommendations Statement: Counseling to prevent tobacco use and tobacco-caused disease
www.ahrq.gov/clinic/3rduspstf/tobaccoun/tobcounrs.htm
Summary of Recommendations for Adult Immunization Immunization Action Coalition Bulletin
Adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP), August 2005
www.immunize.org/acip
Martin GJ. Screening and prevention of disease. In Kasper DL, Braunwald EB, Fauci AS,
#10 COORDINATION OF CARE

**RATIONALE:**
The task of coordinating a patient’s care is central to the role of the internist, and involves communication with the patient and his or her family, colleagues, consultants, nurses, social workers, and community-based agencies. It is essential for the student to learn that the physician’s responsibility toward the patient does not stop at the end of the office visit or hospitalization but continues in collaboration with other professionals to ensure that the patient receives optimal care.

**PREREQUISITES:**
- Prior knowledge, skills, and attitudes acquired during the pre-clinical experience should include:
  - Ability to perform patient-centered interviewing to determine the patients’ needs and communicate about diagnostic and therapeutic plans, transitions of care, and end-of-life care.
  - Ability to identify community resources for care and strategies for coordination of care.
  - Health Information Portability and Accountability Act (HIPAA) training to promote patient privacy.
  - Required introductory courses in interviewing/physical examination with emphasis on doctor-patient communication and health care delivery.

**SPECIFIC LEARNING OBJECTIVES:**

**A. KNOWLEDGE:** Students should be able to define, describe and discuss:

1. The role of consultants and their limits in the care of a patient. *(MK, SBP)*
2. Key personnel and programs in and out of the hospital that may be able to contribute to the ongoing care of an individual patient for whom the student has responsibility (e.g. home health providers, social workers, case coordinators/managers, community health organizations, etc.). *(MK, SBP)*
3. The role of the primary care physician in coordinating the comprehensive and longitudinal patient care plan, including communicating with the patient and family (directly, telephone, or email) and evaluating patient well-being through home health and other care providers. *(MK, SBP)*
4. HIPAA guidelines to promote patient privacy. *(MK, SBP)*
5. The role of the primary care physician in the coordination of care during key transitions (e.g. outpatient to inpatient, inpatient to skilled nursing facility, inpatient to hospice, etc.). *(MK, SBP)*
6. The role of clinical nurse specialists, nurse practitioners, physicians assistants, and other allied health professionals in co-managing patients in the outpatient and inpatient setting. *(MK, SBP)*
7. The importance of reconciliation of medications at all transition points of patient care. *(MK, SBP)*
8. The rationale for a standardized approach to all “hand off” communications *(MK, SBP)*

**B. SKILLS:** Students should be able to demonstrate specific skills, including:

1. Discussing with the patient and their family ongoing health care needs; using appropriate language, avoiding jargon, and medical terminology. *(PC, CS)*
2. Participating in requesting a consultation and identifying the specific question to be addressed.  
   \((PC, CS, SBP)\)
3. Participating in the discussion of the consultant’s recommendations.  \((PC, CS, SBP)\)
4. Participating in developing a coordinated, ongoing care plan in the community.  \((PC, SBP)\)
5. Obtaining a social history that identifies potential limitations in the home setting which may 
   require an alteration in the medical care plan to protect the patient’s welfare.  \((PC, CS)\)
6. Reconciling patient medications at key transition points in care.  \((PC, SBP)\)
7. Conveying accurately vital patient information at all care “hand-off” points  \((PC, CS, SBP)\)

C. **ATTITUDES AND PROFESSIONAL BEHAVIORS**: Students should be able to:
   1. Demonstrate teamwork and respect toward all members of the health care team.  \((P, SBP)\)
   2. Demonstrate responsibility for patients’ overall welfare.  \((P)\)
   3. Participate, whenever possible, in coordination of care and in the provision of continuity.  \((P, SBP)\)

D. **REFERENCES**:

   1983;143:1753-5.
   Stille CJ, Jerant A, Bell D, Meltzer D, Elmore JG.  Coordinating care across diseases, settings, 
   Haggerty JL, Reid RJ, Freeman GK, Starfield BH, Adair CE, McKendry R.  Continuity of care: 
   Wenger NS, Young R. Quality indicators of continuity and coordination of care for vulnerable 
   Building a Case for Medication Reconciliation Institute for Safe Medication Practices
   www.ismp.org/Newsletters/acuteCare/articles/20050421.asp
   Reconcile Medications at All Transition Points Institute for Healthcare Improvement
   www.ihi.org/IHI/Topics/PatientSafety/MedicationSystems/Changes/Reconcile+Medications+at+All+Transition+Points.htm
   Healthcare Communications Toolkit to Improve Transitions of Care Department of Defense
   Patient Safety Program
   https://patientsafety.satx.disa.mil/ ContentStore/2005_12-8%20Handoff%20Toolkit%20FINAL.htm
#11 GERIATRIC CARE

**RATIONALE:**
Geriatric patients often have multiple, chronic illnesses which may present with atypical symptoms. Management strategies need to take into account the effects of aging on multiple organ systems and socioeconomic factors faced by our elderly society. As the number of geriatrics patients steadily rises, the internist will devote more time to the care of these patients.

**PREREQUISITES:**
- Required courses in anatomy, physiology, pathophysiology, physical examination, and nutrition with attention to specific considerations in the elderly.
- Ability to perform a complete medical history and physical.
- Ability to communicate with patients of diverse backgrounds.

**SPECIFIC LEARNING OBJECTIVES:**

**A. KNOWLEDGE:** Students should be able to define, describe, and discuss:

1. Functional implications of aging on each major organ system. *(MK)*
2. Nutritional needs of the elderly and adaptations needed in the presence of chronic illness. *(MK)*
3. Key illnesses in the elderly, focusing on their often atypical presentation, including:
   - Cardiovascular and cerebrovascular disease. *(MK)*
   - Diabetes. *(MK)*
   - Urinary tract infection. *(MK)*
   - Pneumonia. *(MK)*
   - Substance abuse. *(MK)*
   - Depression. *(MK)*
   - Thyroid disease. *(MK)*
   - Fluid and electrolyte disturbances. *(MK)*
   - Arthritis. *(MK)*
   - Constipation. *(MK)*
   - Acute abdomen. *(MK)*
   - Depression. *(MK)*
4. The common “geriatric syndromes” (i.e. symptoms and conditions common in the elderly and often multifactorial in origin), including:
   - Immobility. *(MK)*
   - Falls/gait and balance problems. *(MK)*
   - Dizziness. *(MK)*
   - Incontinence. *(MK)*
   - Weight loss/failure to thrive/malnutrition. *(MK)*
   - Sleep disturbance. *(MK)*
   - Dementia/delirium. *(MK)*
   - Osteoporosis. *(MK)*
   - Hearing and visual impairment. *(MK)*
• Pressure ulcers. (MK)
5. Basic treatment plans for illness in the elderly, with an awareness of the pharmacokinetic and pharmacodynamic changes seen as we age. (MK)
6. Principles of screening in the elderly, including immunizations, cardiovascular risk, cancer, substance abuse, mental illness, osteoporosis, and functional assessment. (MK)
7. Factors that contribute to polypharmacy in the elderly. (MK)
8. Principles of Medicare (including who and what services are covered) and prescription drug coverage (who and what drugs are covered). (MK, SBP)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. Taking a complete and focused history from a geriatric patient with attention to current symptoms, chronic illnesses, and physical and mental functioning (PC, CS)
2. Always obtaining historical information from collateral source, whenever possible. (PC, CS)
3. Performing a physical examination and functional assessment on an elderly patient, adapting it to a patient's symptoms, chronic illness, and possible conditions of frailty, immobility, hearing loss, memory loss, and other impairments. (PC)
4. Performing a mental status examination to evaluate confusion and/or memory loss in an elderly patient. (PC)
5. Identifying patients at high risk for falling. (PC)
6. Developing a diagnostic and management plan for patients with the with symptoms/conditions common in the geriatric population. (PC, MK)
7. Communicating the diagnosis, treatment plan, and subsequent follow-up to the patient and their family. (PC, CS)
8. Eliciting input and questions from the patient and their family about the diagnostic and management plan. (PC, CS)
9. With guidance and direct supervision, participating in discussing basic issues regarding advance directives with patients and their families. (CS)
10. With guidance and direct supervision participating in discussing basic end-of-life issues with patients and their families. (CS)
11. Actively attempting to limit polypharmacy whenever possible. (PC)
12. Participating in an interdisciplinary approach to management and rehabilitation of elderly patients. (PC, SBP)
13. Determine when to obtain consultation from a geriatric specialist. (PC, SBP)
14. Accessing and using appropriate information systems and resources to help delineate issues related to the common geriatric syndromes. (PC, PLI)
15. Incorporating patient needs and preferences. (PC, P)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Respect the increased risk for iatrogenic complications among elderly patients by always taking into account risks and monitoring closely for complications (P)
2. Demonstrate respect to older patients, particularly those with disabilities, by making efforts to preserve their dignity and modesty. (P)
3. Always treat cognitively impaired patients and patients at the end of their lives with utmost respect and dignity. (P)
4. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for the common geriatric syndromes. (PLI, P)

5. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for the common geriatric syndromes. (P)

6. Demonstrate ongoing commitment to self-directed learning regarding care of the geriatric patient. (P, PLI)

7. Appreciate the impact the common geriatric syndromes have on a patient’s quality of life, well-being, and the family. (P)

8. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis and treatment of geriatric patients. (P, SBP)

D. REFERENCES:

- The American Geriatrics Society
  [www.americangeriatrics.org/](http://www.americangeriatrics.org/)
  Guidelines and Position Statements
  [www.americangeriatrics.org/products/positionpapers/](http://www.americangeriatrics.org/products/positionpapers/)

- Portal of Geriatric Online Education (POGOe)
  In association with AAMC MedEdPORTAL
  [www.pogoe.org](http://www.pogoe.org)


GENERAL CLINICAL CORE COMPETENCIES

#12 BASIC PROCEDURES

RATIONALE:
For many students, the internal medicine clerkship is where the basic procedural skills required in other clerkships, subinternships, and residencies are learned.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:

- Pertinent anatomic considerations, including venous anatomy of the extremities (for venipuncture and IV placement), arterial anatomy of the wrist and groin (for blood gases), vaginal/vulvar anatomy (for urethral catheterization in women as well as pap smear) and prostate anatomy in men (for prostate exam), rectal anatomy (for digital rectal exam) and surface anatomy and electrical vector orientation of the heart (for EKG placement).
- The fundamental tenants of informed consent.
- Basic training in body substance isolation procedures and sterile technique.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Key indications, contraindications, risks to patients and health care providers, benefits, and techniques for each of the following basic procedures:
   - Venipuncture. (MK)
   - Blood culture. (MK)
   - ABG. (MK)
   - ECG. (MK)
   - Chest radiography. (MK)
   - Nasogastric tube placement. (MK)
   - Urethral catheterization. (MK)
   - Peripheral intravenous catheter insertion. (MK)
   - Throat culture. (MK)
   - PAP smear. (MK)
   - Digital rectal examination. (MK)
   - Urine dipstick. (MK)
   - Stool occult blood testing. (MK)
   - Subcutaneous injection. (MK)
   - Intramuscular injection. (MK)
   - Wound culture. (MK)
   - Dressing change. (MK)
   - PPD placement. (MK)

2. Alternatives to a given procedure. (MK)
3. The patient’s experience of the procedure. (MK)

B. SKILLS: Students should be able to demonstrate specific skills, including:
1. Obtaining informed consent, when necessary, for basic procedures, including the explanation of the purpose, possible complications, alternative approaches, and conditions necessary to make the procedure as comfortable, safe, and interpretable as possible. (PC, CS)
2. Explaining what the patient’s experience is likely to be in understandable terms. (CS)
3. Demonstrating step-by-step performance of basic procedures with technical proficiency. (PC)
4. Demonstrating proper sterile technique and body substance isolation procedures. (PC)
5. Appropriately documenting, when required, how the procedure was done, any complications, and results. (CS)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Appreciate the fear and anxiety many patients have regarding even simple procedures. (P)
2. Make efforts to maximize patient comfort during a procedure. (P)
3. Appreciate the patient’s right to refuse procedures. (P)
4. Regularly seek feedback regarding procedural skills and respond appropriately and productively. (P)

D. REFERENCES:

#13 NUTRITION

RATIONAL: Despite the importance of nutritional factors in health and illness, physicians frequently have been criticized for giving these factors inadequate attention. Internists, by virtue of their dedication to providing comprehensive care to their patients, must assess nutritional factors on a routine basis. Medical students should be prepared to provide patients with basic advice regarding ways to optimize their nutritional status. Students also need to have at least a basic working knowledge of the principles of nutritional assessment and intervention.

PREREQUISITES: Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:

- Ability to perform a complete medical history.
- Ability to communicate with patients of diverse backgrounds.
- Knowledge of body metabolism, the respective roles of dietary fats, carbohydrates, and protein, and the need for vitamins and minerals for maintenance of health.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Each student should be able to define, describe, and discuss:

1. The relationship between diet and disease. (MK)
2. Common medical problems that can cause nutritional deficiencies. (MK)
3. Contributions of nutrition to medical problems such as obesity, hyperlipidemia, diabetes, and hypertension. (MK)
4. How to perform a nutritional assessment and assist the patient in setting goals for dietary improvement. (MK)
5. Daily caloric, fat, carbohydrate, protein, mineral, and vitamin requirements; adequacy of diets in providing such requirements; evidence of need for and potential risks of supplements (e.g. calcium, antioxidants). (MK)
6. Common dietary supplements and their known adverse and beneficial effects on health. (MK)
7. The consequences of poor nutrition on a critically ill patient, such as poor wound healing, increased risk of infection, and increased mortality. (MK)
8. Nutritional needs of the elderly and adaptations needed in the presence of chronic illness. (MK)
9. The indications for enteral and parenteral nutrition. (MK)

B. SKILLS: Student should be able to demonstrate specific skills, including:

1. Obtaining a nutritional history for all patients, with additional focus on those with chronic disease (obesity, hyperlipidemia, diabetes mellitus, hypertension, alcoholism, cancer, COPD, CHF, renal, and GI disease), giving attention to weight change, appetite, eating habits, digestive problems, dental problems, physical handicaps, psychiatric problems, socioeconomic factors, alcohol use, medications, and physical activity. (PC, CS)
2. Identifying physical exam abnormalities that may suggest malnutrition, such as muscle wasting, decreased adipose stores, as well as stigmata of vitamin/mineral or protein-calorie
malnutrition (e.g. alopecia, ecchymoses, angular chelosis, glossitis, peripheral neuropathy, edema, etc.). (PC)

3. Calculating a patient’s body mass index (BMI) and measuring waist circumference. (PC)

4. Ordering appropriate tests for evaluating a patient’s nutritional status, including albumin, prealbumin, serum chemistries and coagulation profile (PC)

5. Performing basic nutritional counseling with patients with obesity, diabetes mellitus, hyperlipidemia, hypertension, heart failure, and coronary artery disease. (PC, CS)

6. Identifying barriers that prevent a patient from successfully adhering to a recommended diet. (PC, CS)

7. Determining when to obtain consultation from a dietician. (PC, SBP)

8. Incorporating patient needs and preferences. (PC, P)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for malnutrition. (PLI, P)

2. Recognize the importance of patient preferences and cultural factors when selecting nutritional counseling. (PLI, P)

3. Respond to patients who are non-adherent to recommendations for appropriate nutritional intake. (CS, P)

4. Demonstrate ongoing commitment to self-directed learning regarding nutrition. (PLI, P)

5. Appreciate the impact malnutrition has on a patient’s quality of life, wellbeing, ability to work, and the family. (P)

6. Recognize the importance of involving other healthcare professionals when appropriate. (P, SBP)

D. REFERENCES:

Division of Nutrition and Physical Activity National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention
U.S. Department of Health and Human Serviced
www.cdc.gov/nccdphp/dnbp/

Dietary Guidelines for Americans
U.S. Department of Agriculture
U.S. Department of Health and Human Services
www.health.gov/dietaryguidelines/

American Dietetic Association
www.eatright.org

Food and Nutrition Information Center
U.S. Department of Agriculture
www.nal.usda.gov/fnic/


GENERAL CLINICAL CORE COMPETENCIES

#14 COMMUNITY HEALTH CARE

RATIONALE:
The increasing number of physicians practicing under managed care and in community-oriented primary care practices necessitates expanding medical education to prepare graduates for population-based clinical practice. In a managed care setting, population-based clinical practice includes the health of an enrolled population. In a community-based setting, population-based clinical practice includes the health of a population in addition to the health of the individual patient through concern with resource allocation, epidemiology, and the care of patients whose needs are not currently met by the health care system.

PREREQUISITES:
- Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
  - Required introductory coursework in health care delivery (with an emphasis on medical sociology and health care delivery to at risk populations).
  - Required introductory course in clinical epidemiology and biostatistics.
  - Required introductory coursework in population health (with an emphasis on differences between individuals and populations).

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE**: Students should be able to define, describe, and discuss:

1. The concepts of rate, incidence, and prevalence to characterize the health of a population. (MK)
2. How to gather health information about a population. (MK)
3. How disease epidemiology in a community differs from that experienced in an office or hospital practice. (MK)
4. How health care financing and health care delivery systems affect individual physicians, patients, and communities. (MK, SBP)
5. How community and individual responses to health problems may be affected by both individual and community socio-cultural characteristics. (MK)
6. Local government, social service, or community organizations that provide links between the underserved members of the community and the medical care systems. (MK, SBP)
7. Barriers faced by his or her patients in the community setting. (MK)

B. **SKILLS**: Students should be able to demonstrate specific skills, including:

1. Defining and describing a population, its demography, culture, socioeconomic makeup, and health status. (PC)
2. Identifying the unique characteristics of a population that affect the health of the population and individuals within that population. (PC)
3. Considering how the socio-cultural characteristics of a particular community may affect that population’s attitudes toward health care. (PC)
4. Using, in daily patient care, an understanding of the community and sociocultural context that may affect an individual patient’s health care decisions and health-related behaviors. (PC)

5. Identifying patients whose illnesses may put the community at risk. (PC, MK)

6. Incorporating a population-based perspective in analyzing clinical problems (PC)

7. Reading critically clinical studies and applying findings to health care decisions involving real patients and populations of patients. (PC, MK, PLI)

8. Incorporating principles of disease prevention and behavioral change appropriate for specific populations of patients within a community. (PC, MK)

9. Attempting to develop solutions for barriers to health care delivery (e.g. sociocultural, financial, and system-based) that affect individual patients. (PC, SBP)

10. Functioning effectively as a member of a health care team. (PC, P, SBP)

11. Using, when appropriate, local government, social service, and community organizations to improve the health of individuals and populations. (PC, SBP)

12. Accessing and utilizing appropriate information systems and resources to help delineate issues related to population health. (PC, PLI)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate respect for cultural and socioeconomic diversity. (P)

2. Show willingness to accept at least partial responsibility for the health of populations. (P)

3. Respond non-judgmentally to an individual whose socio-cultural and community-based background result in seemingly counterproductive health care decisions and health-related behaviors. (P)

4. Value the unique contributions of all members of the health care team. (P)

5. Demonstrate ongoing commitment to self-directed learning regarding population/community health issues. (PLI, P)

D. REFERENCES:

Contemporary Issues in Medical Education: Quality of Care Medical Informatics and Population Health, June, 1998
American Association of Medical Colleges www.aamc.org/meded/msop/msop2.pdf
Population Health Forum University of Washington School of Public Health and Community Medicine depts.washington.edu/eqhlth/index.htm
Behavioral Risk Factor Surveillance System Division of Adult and Community Health National Center for Chronic Disease Prevention and Health Promotion Centers for Disease Control and Prevention U.S. Department of Health and Human Services www.cdc.gov/brfss/index.htm
Healthy People 2010 National Center for Health Statistics Centers for Disease Control and Prevention U.S. Department of Health and Human Services www.cdc.gov/nchs/hphome.htm


GENERAL CLINICAL CORE COMPETENCIES

#15 CONTINUOUS IMPROVEMENT IN SYSTEMS OF MEDICAL PRACTICE

RATIONALE:
In the past clinical education had emphasized the role of the physician as an individual decision maker. Problems with cost and quality of care had usually been attributed to errors in individual decision making. In recent years, it has become clear that the individual does not function in isolation but within the context of a health care system and a health care team whose structure ranges from simple to complex. The way the system functions is critical to achieving high quality patient care, ensuring patient safety, reducing sources of errors in medicine, and promoting an environment that respects disclosure without blame. Furthermore, we have begun to focus on the patient as the center of the health care delivery system and to assess quality from the perspectives of the patient and the physician. With the patient as the center of the health care delivery system, the physician becomes a collaborative partner with other health professionals who share a common goal of providing safe, accessible, high quality, evidence-based care.

PREREQUISITES:
Prior knowledge, skills and attitudes acquired during the pre-clerkship experience should include:
- Required introductory course in clinical epidemiology and biostatistics.
- Required introductory course in health care delivery.
- Required introductory course in bioethics and professionalism.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The concept of systems-based practice. (MK, SBP)
2. How patient care is affected by other professionals, organizations, and society. (MK, SBP)
3. The principles of clinical quality improvement, including the notion of variation in practice as a quality issue and the concept of medical care as a process which can be studied and improved. (MK, SBP)
4. The analysis and improvement of systems to address common quality problems (e.g., treatment delays, medication errors, failure to use evidence-based diagnostics/treatments, failure to provide preventive care, etc.). (MK, SBP)
5. Principles of medical record organization in both inpatient and ambulatory settings. (MK, SBP)
6. The importance of complete medical documentation in the context of measuring quality of care, avoiding redundancy, preventing medical errors, and improving patient safety. (MK, SBP)
7. The need for a multidimensional approach to the assessment of quality, including the patient’s perspective of quality. (MK, SBP)
8. The relationship of quality and cost in health care from the standpoint of the individual, health care systems, and society. (MK, SBP)
9. Major health care safety concerns (e.g., medication errors, wrong-site procedures, patient misidentification, miscommunication among health care givers, nosocomial infections, falls, use of restraints, etc.). (MK, SBP)
10. Potential benefits and pitfalls of critical pathways/practice guidelines intended to improve the quality of care. (MK, SBP)
11. Basic organizational structures and financing streams of the U.S. health care system. (MK, SBP)
12. The fundamentals of the various type of health insurance (e.g., fee-for-service, preferred provider organization, health maintenance organization, point-of-service). (MK, SBP)
13. The fundamentals of Medicare and Medicaid. (MK, SBP)

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. Using hospital-based support systems to assist in making clinical decisions (e.g., antibiotic control program, critical pathways/practice guidelines, etc.). (PC, PLI, SBP)
2. Recognizing system flaws in the delivery of care (e.g., inability to arrange a post-discharge appointment within a needed time frame, delays in obtaining test results, inaccessibility of medical records, etc.). (SBP)
3. Using patient education materials to facilitate patients' participation in their own care. (CS, SBP)
4. Using the medical records system efficiently to produce medical notes that communicate information clearly. (PC, CS, SBP)
5. Maintaining accurate documentation of preventive health measures. (PC, CS, SBP)
6. Working collaboratively with other health professionals in the delivery of quality care. (PC, P, SBP)
7. Assessing the patients' needs from the standpoint of the individual, family, and community. (PC, SBP)
8. Identifying resource available to patients within the health care system. (PC, SBP)
9. Reporting patient safety concerns and medical errors to the appropriate individuals. (CS, SBP)
10. Using resources, appropriate information systems, and the tenants of evidence-based medicine to assess systems-based practice issues. (PLI, SBP)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Recognize the importance of systems, particularly inter-professional collaboration, in delivering high quality patient care. (P, SBP)
2. Strive to improve the timeliness diagnostic and therapeutic decision making in order to improve quality of care, increase patient satisfaction, and reduce health care costs. (PLI, P, SBP)
3. View the patient as the center of the health care delivery system. (P, SBP)
4. Advocate for patients in the health care system. (P, SBP)
5. Appreciate that medical error prevention and patient safety are the responsibility of all health care providers and systems and accept the appropriate degree of responsibility at the medical student level. (P, SBP)
6. Appreciate the importance teamwork in delivering high quality care. (P, SBP)
7. Respect other health care professionals as colleagues on a patient-centered health delivery team and as mutual contributors to high quality patient care. (P, SBP)

D. REFERENCES:

GENERAL:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
QUALITY OF CARE:

- Institute for Healthcare Improvement
  www.ihi.org/ihi
- Crossing the Quality Chasm: A New Health System for the 21st Century
  Committee on Quality Health Care in America
  Institute of Medicine
  National Academies Press, 2001
- National Committee for Quality Assurance
  www.ncqa.org
- National Guideline Clearing House
  Agency for Healthcare Research and Quality
  U.S. Department of Health and Human Services
  www.guideline.gov

MEDICAL ERRORS AND PATIENT SAFETY:

- To Err Is Human: Building a Safer Health System
  Institute of Medicine
  www.iom.edu/?id=4117&redirect=0
- Patient Safety Network
  Agency for Healthcare Research and Quality
  U.S. Department of Health and Human Services
  psnet.ahrq.gov
- National Patient Safety Foundation
  www.npsf.org
- Facts About Patient Safety
 Joint Commission on Accreditation of Healthcare Organizations
  www.jcaho.org/accredited+organizations/patient+safety/facts+about+patient+safety.htm

HEALTH INSURANCE AND FINANCE:

- Understanding Managed Care
  Institute for Health Care Studies
  Michigan State University
- The Official U.S. Government Site for People with Medicare
  U.S. Department of Health and Human Services
  www.medicare.gov
- Checkup on Health Insurance Choices
  Agency for Healthcare Research and Quality
  www.ahrq.gov/consumer/insuranc.htm
GENERAL CLINICAL CORE COMPETENCIES

#16 OCCUPATIONAL HEALTH CARE

RATIONALE:
Despite increasing recognition of the health hazards found in living and working environments, physicians have traditionally received little formal training in the assessment and management of occupational and environmental health problems.

PREREQUISITES:
- Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
  - Required introductory course work in clinical epidemiology and biostatistics.
  - Required introductory course work in the fundamental principles of public health.
  - Ability to perform a complete medical history and physical exam.
  - Ability to communicate with patients of diverse backgrounds.

SPECIFIC LEARNING OBJECTIVES:

A. **KNOWLEDGE**: Each student should be able to define, describe, and discuss:

1. Common environmental diseases that are likely to be encountered by an internist and the principal etiologic agents associated with them. \(MK\)
2. Pathogenesis of specific occupational diseases and the types of risks that may be encountered in the home or at the work site:
   - Musculoskeletal/ergonomic or “repetitive stress” disorders (e.g. low back pain, carpal tunnel syndrome, etc.). \(MK\)
   - Work related lung disorders (e.g. occupational asthma, particulate inhalation, etc.). \(MK\)
   - Noise related hearing loss. \(MK\)
   - Skin disorders (e.g. latex allergy and other forms of occupational dermatitis). \(MK\)
   - Infectious disease exposure (e.g. hepatitis, HIV, TB, etc.). \(MK\)
   - Psychological/stress related disorders \(MK\)
3. Information sources for determining the risk of specific environmental and occupational health hazards. \(MK\)
4. Purpose of Occupational Safety and Health Act (OSHA) regulations and the function of the National Institute for Occupational Safety and Health. (NIOSH). \(MK, SBP\)

B. **SKILLS**: Students should be able to demonstrate specific skills, including:

1. Obtaining an appropriate occupational history on all patients and identifying those patients whose health may have been adversely affected by their living conditions or work environment. \(PC, CS\)
2. Considering the possibility that the patient’s illness may be related to their home or work environment. \(PC\)
3. Providing patients with sound advice on the prevention of occupational and environmental-related diseases. \(PC, CS\)
4. Accurately diagnosing and developing a cost-effective basic management plan for common occupational health problems (e.g. carpal tunnel syndrome, asthma, asbestosis). (PC, MK, SBP)
5. Determining when to obtain consultation from an environmental and occupational medicine specialist. (PC, SBP)
6. Accessing and utilizing appropriate information systems and resources to help delineate issues related to occupational health problems. (PC, PLI)

C. ATTITUDES AND PROFESSIONAL BEHAVIORS: Students should be able to:

1. Demonstrate an understanding that physicians have a duty and professional responsibility to follow-up on conditions that are suspected of causing occupational or environmental-related illnesses. (P, SBP)
2. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of diagnostic and therapeutic interventions for occupational health problems. (PLI, P)
3. Recognize the importance of patient needs and preferences when selecting among diagnostic and therapeutic options for occupational health problems. (P)
4. Demonstrate ongoing commitment to self-directed learning regarding occupational health problems. (PLI, P)
5. Appreciate the impact occupational health problems have on a patient’s quality of life, well-being, ability to work, and the family. (P)
6. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis and treatment of occupational health problems. (P, SBP)

D. REFERENCES:

- Occupational Safety and Health Administration
  U.S. Department of Labor
  www.osha.gov
- National Institute for Occupational Safety and Health
  Centers for Disease Control and Prevention
  U.S. Department of Health and Human Services
  www.cdc.gov/niosh/homepage.html
GENERAL CLINICAL CORE COMPETENCIES

#17 ADVANCED PROCEDURES

RATIONALE:
A number of advanced procedures may be performed by general internists, and occasionally third-year medical students under their supervision. In either case, knowledge of the key indications, contraindications, risks, and benefits of these procedures is essential for high quality patient care. Physicians, regardless of specialty, must be able to explain to their patients, in understandable terms, what will be experienced during a procedure.

PREREQUISITES:
Prior knowledge, skills, and attitudes acquired during the pre-clerkship experience should include:
- Pertinent anatomic considerations, including vascular anatomy of the extremities, wrist/hand, neck, subclavian area and groin.
- Pertinent anatomic landmarks important for the safe performance of thoracentesis, paracentesis, lumbar puncture, and arthrocentesis.
- Required introductory course in interviewing and physical examination.
- The fundamental tenants of informed consent.
- Basic training in body substance isolation procedures and sterile technique.

SPECIFIC LEARNING OBJECTIVES:

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Key indications, contraindications, risks, benefits, techniques of each of the following advanced procedures:
   - Arthrocentesis. (MK)
     o Elbow (olecranon bursa). (MK)
     o Wrist. (MK)
     o Knee. (MK)
     o Ankle. (MK)
   - Central venous catheterization. (MK)
     o Internal jugular vein. (MK)
     o Subclavian vein. (MK)
     o Femoral vein. (MK)
   - Arterial line placement. (MK)
     o Radial artery. (MK)
     o Femoral artery. (MK)
   - Lumbar puncture. (MK)
   - Thoracentesis. (MK)
   - Paracentesis. (MK)

2. Potential alternatives to the listed procedures. (MK)
3. The patient’s probable experience during these procedures. (MK)
4. Indications for and efficacy of intra-articular corticosteroid injections. (MK)

B. SKILLS: Each student should be able to demonstrate specific skills, including:
1. Participating in obtaining informed consent for advanced procedures, including the explanation of the purpose, possible complications, alternative approaches, and conditions necessary to make the procedure as comfortable, safe, and interpretable as possible. (PC, CS)

2. Explaining the patient’s probable experience during the procedure in understandable terms. (PC, CS)

3. Helping to position the patient and make them as comfortable as possible during the procedure. (PC)

4. Assisting (under supervision, when appropriate) in the performance of the procedure. (PC)

5. Demonstrating proper sterile technique and body substance isolation procedures. (PC)

6. Appropriately documenting, when required, how the procedure was done as well as any complications and results. (CS)

7. Ordering and interpreting appropriate diagnostic tests on fluids removed from the patient (e.g. synovial fluid, cerebrospinal fluid, pleural fluid, and ascitic fluid). (PC, MK)

C. ATTITUDES AND PROFESSIONAL BEHAVIOR: Students should be able to:

1. Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection of procedures to be performed. (PLI, P)

2. Appreciate the fear and anxiety many patients have regarding these procedures. (P)

3. Make efforts to maximize patient comfort during a procedure. (P)

4. Appreciate the patient’s right to refuse procedures. (P)

5. Seek feedback regularly regarding procedural skills and respond appropriately and productively. (P)

D. REFERENCES:


LIST OF ERROR-PRONE ABBREVIATIONS, SYMBOLS, AND DOSE DESIGNATIONS
It’s been over 2 years since we published a list of abbreviations, symbols, the organization’s list, we’ve highlighted these items with a double and dose designations that have contributed to medication errors. Now, asterisk (**). Also, effective April 1, 2004, each organization must include with the 2004 JCAHO National Patient Safety Goals calling for organiza-at least three additional items on their list. However, we hope that you tional compliance with a list of prohibited “dangerous” abbreviations, will consider ot others beyond the minimum JCAHO requirement. Selections acronyms and symbols, we thought an updated list would be useful. can be made from the attached list. These items should be considered Since JCAHO has specified that certain abbreviations must appea for handwritten, preprinted, and electronic forms of communication.

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Intended Meaning</th>
<th>Misinterpretation</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>µg</td>
<td>Microgram</td>
<td>Mistaken as “mg”</td>
<td>Use “mcg”</td>
</tr>
<tr>
<td>AD, AS, AU</td>
<td>Right ear, left ear, each ear</td>
<td>Mistaken as OD, OS, OU (right eye, left eye, each eye)</td>
<td>Use “right ear,” “left ear,” or “each ear”</td>
</tr>
<tr>
<td>OD, OS, OU</td>
<td>Right eye, left eye, each eye</td>
<td>Mistaken as AD, AS, AU (right ear, left ear, each ear)</td>
<td>Use “right eye,” “left eye,” or “each eye”</td>
</tr>
<tr>
<td>BT</td>
<td>Bedtime</td>
<td>Mistaken as “BID” (twice daily)</td>
<td>Use “bedtime”</td>
</tr>
<tr>
<td>cc</td>
<td>Cubic centimeters</td>
<td>Mistaken as “u” (units)</td>
<td>Use “mL”</td>
</tr>
<tr>
<td>D/C</td>
<td>Discharge or discontinue</td>
<td>Premature discontinuation of medications if D/C (intended to mean “discharge”) has been misinterpreted as “discontinued” when followed by a list of discharge medications</td>
<td>Use “discharge” and “discontinue”</td>
</tr>
<tr>
<td>IJ</td>
<td>Injection</td>
<td>Mistaken as “IV” or “intravenous”</td>
<td>Use “injection”</td>
</tr>
<tr>
<td>IN</td>
<td>Intranasal</td>
<td>Mistaken as “IM” or “IV”</td>
<td>Use “intranasal” or “NAS”</td>
</tr>
<tr>
<td>HS hs</td>
<td>Half-strength At bedtime, hours of sleep</td>
<td>Mistaken as bedtime Mistaken as half-strength</td>
<td>Use “half-strength” or “bedtime”</td>
</tr>
<tr>
<td>IU**</td>
<td>International unit</td>
<td>Mistaken as IV (intravenous) or 10 (ten)</td>
<td>Use “units”</td>
</tr>
<tr>
<td>o.d. or OD</td>
<td>Once daily</td>
<td>Mistaken as “right eye” (OD-oculus dexter), leading to oral liquid medications administered in the eye</td>
<td>Use “daily”</td>
</tr>
<tr>
<td>OJ</td>
<td>Orange juice</td>
<td>Mistaken as OD or OS (right or left eye); drugs meant to be diluted in orange juice may be given in the eye</td>
<td>Use “orange juice”</td>
</tr>
<tr>
<td>Per os</td>
<td>By mouth, orally</td>
<td>The “os” can be mistaken as “left eye” (OS-culus sinister)</td>
<td>Use “PO,” “by mouth,” or “orally”</td>
</tr>
<tr>
<td>q.d. or QD**</td>
<td>Every day</td>
<td>Mistaken as q.i.d., especially if the period after the “q” or the tail of the “q” is misunderstood as an “i”</td>
<td>Use “daily”</td>
</tr>
<tr>
<td>qbs</td>
<td>At bedtime</td>
<td>Mistaken as “qhr” or every hour</td>
<td>Use “at bedtime”</td>
</tr>
<tr>
<td>qn</td>
<td>Nightly</td>
<td>Mistaken as “qh” (every hour)</td>
<td>Use “nightly”</td>
</tr>
<tr>
<td>q.o.d. or QOD**</td>
<td>Every other day</td>
<td>Mistaken as “q.d.” (daily) or “q.i.d. (four times daily) if the “o” is poorly written</td>
<td>Use “every other day”</td>
</tr>
<tr>
<td>q1d</td>
<td>Daily</td>
<td>Mistaken as q.i.d. (four times daily)</td>
<td>Use “daily”</td>
</tr>
<tr>
<td>q6PM, etc.</td>
<td>Every evening at 6 PM</td>
<td>Mistaken as every 6 hours</td>
<td>Use “6 PM nightly” or “6 PM daily”</td>
</tr>
<tr>
<td>SC, SQ, sub q</td>
<td>Subcutaneous</td>
<td>SC mistaken as SL (sublingual); SQ mistaken as “5 every;” the “q” in “sub q” has been mistaken as “every” (e.g., a heparin dose ordered “sub q 2 hours before surgery” misunderstood as every 2 hours before surgery)</td>
<td>Use “subcut” or “subcutaneously”</td>
</tr>
<tr>
<td>ss</td>
<td>Sliding scale (insulin) or ½ (apothecary)</td>
<td>Mistaken as “55”</td>
<td>Spell out “sliding scale;” use “one-half” or “½”</td>
</tr>
<tr>
<td>SSRI SSI</td>
<td>Sliding scale regular insulin Sliding scale insulin</td>
<td>Mistaken as selective-serotonin reuptake inhibitor Strong Solution of Iodine (Lugol’s)</td>
<td>Spell out “sliding scale (insulin)”</td>
</tr>
<tr>
<td>Dose Designations and Other Information</td>
<td>Intended Meaning</td>
<td>Misinterpretation</td>
<td>Correction</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------</td>
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<td>------------</td>
</tr>
<tr>
<td>i/d</td>
<td>One daily</td>
<td>Mistaken as “tid”</td>
<td>Use “1 daily”</td>
</tr>
<tr>
<td>TIW or tiw</td>
<td>3 times a week</td>
<td>Mistaken as “3 times a day” or “twice in a week”</td>
<td>Use “3 times weekly”</td>
</tr>
<tr>
<td>U or u**</td>
<td>Unit</td>
<td>Mistaken as the number 0 or 4, causing a 10-fold overdose or greater (e.g., 4U seen as “40” or 4u seen as “44”); mistaken as “cc” so dose given in volume instead of units (e.g., 4u seen as 4cc)</td>
<td>Use “unit”</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<tbody>
<tr>
<td>Trailing zero after decimal point (e.g., 1.0 mg)**</td>
<td>1 mg</td>
<td>Mistaken as 10 mg if the decimal point is not seen</td>
<td>Do not use trailing zeros for doses expressed in whole numbers</td>
</tr>
<tr>
<td>No leading zero before a decimal dose (e.g., .5 mg)**</td>
<td>0.5 mg</td>
<td>Mistaken as 5 mg if the decimal point is not seen</td>
<td>Use zero before a decimal point when the dose is less than a whole unit</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>Drug name and dose run together (especially problematic for drug names that end in “L” such as Inderal 40 mg; Tegretol 300 mg)</td>
<td>Inderal 40 mg Tegretol 300 mg</td>
<td>Mistaken as Inderal 140 mg Mistaken as Tegretol 1300 mg</td>
<td>Place adequate space between the drug name, dose, and unit of measure</td>
</tr>
<tr>
<td>Numerical dose and unit of measure run together (e.g., 10 mg, 100 mL)</td>
<td>10 mg 100 mL</td>
<td>The “m” is sometimes mistaken as a zero or two zeros, risking a 10- to 100-fold overdose</td>
<td>Place adequate space between the dose and unit of measure</td>
</tr>
<tr>
<td>Abbreviations such as mg. or mL. with a period following the abbreviation</td>
<td>mg mL</td>
<td>The period is unnecessary and could be mistaken as the number 1 if written poorly</td>
<td>Use mg, mL, etc. without a terminal period</td>
</tr>
<tr>
<td>Large doses without properly placed commas (e.g., 100,000 units; 1,000,000 units)</td>
<td>100,000 units, 1,000,000 units</td>
<td>100,000 has been mistaken as 10,000 or 1,000,000; 1,000,000 has been mistaken as 100,000</td>
<td>Use commas for dosing units at or above 1,000, or use words such as 100 “thousand” or 1 “million” to improve readability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug Name Abbreviations</th>
<th>Intended Meaning</th>
<th>Misinterpretation</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA A</td>
<td>vidarabine</td>
<td>Mistaken as cytarabine (ARA C)</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>AZT</td>
<td>zidovudine (Retrovir)</td>
<td>Mistaken as azathioprine or aztreonam</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>CPZ</td>
<td>Compazine (prochlorperazine)</td>
<td>Mistaken as chlorpromazine</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>DPT</td>
<td>Demerol-Phenergan-Thorazine</td>
<td>Mistaken as diphtheria-pertussis-tetanus (vaccine)</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>DTO</td>
<td>Diluted tincture of opium, or deodorized tincture of opium (Paregoric)</td>
<td>Mistaken as tincture of opium</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>HCl</td>
<td>hydrochloric acid or hydrochloride</td>
<td>Mistaken as potassium chloride (The “H” is misinterpreted as “K”)</td>
<td>Use complete drug name unless expressed as a salt of a drug</td>
</tr>
<tr>
<td>HCT</td>
<td>hydrocortisone</td>
<td>Mistaken as hydrocortisone</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>HCTZ</td>
<td>hydrocortisone (seen as HCT250 mg)</td>
<td>Mistaken as hydrocortisone</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>Drug Name</td>
<td>Intended Meaning</td>
<td>Misinterpretation</td>
<td>Correction</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------</td>
<td>------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>MgSO4**</td>
<td>magnesium sulfate</td>
<td>Mistaken as morphine sulfate</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>MS, MSO4**</td>
<td>morphine sulfate</td>
<td>Mistaken as magnesium sulfate</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>MTX</td>
<td>methotrexate</td>
<td>Mistaken as mitoxantrone</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>PCA</td>
<td>procainamide</td>
<td>Mistaken as Patient Controlled Analgesia</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>PTU</td>
<td>propylthiouracil</td>
<td>Mistaken as mercaptopurine</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>T3</td>
<td>Tylenol with codeine No. 3</td>
<td>Mistaken as liothryonine</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>TAC</td>
<td>triamcinolone</td>
<td>Mistaken as tetracaine, Adrenalin, cocaine</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>TNK</td>
<td>TNKase</td>
<td>Mistaken as “TPA”</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>ZnSO4</td>
<td>zinc sulfate</td>
<td>Mistaken as morphine sulfate</td>
<td>Use complete drug name</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stemmed Drug Names</th>
<th>Intended Meaning</th>
<th>Misinterpretation</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitro drip</td>
<td>nitroglycerin infusion</td>
<td>Mistaken as sodium nitroprusside infusion</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>NorfloxF</td>
<td>norfloxacin</td>
<td>Mistaken as Norflex</td>
<td>Use complete drug name</td>
</tr>
<tr>
<td>IV Vanc</td>
<td>intravenous vancomycin</td>
<td>Mistaken as Invanz</td>
<td>Use complete drug name</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Intended Meaning</th>
<th>Misinterpretation</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>dram minim</td>
<td>Dram Minim</td>
<td>Symbol for dram mistaken as “3” Symbol for minim mistaken as “mL”</td>
<td>Use the metric system</td>
</tr>
<tr>
<td>x3d</td>
<td>For three days</td>
<td>Mistaken as “3 doses”</td>
<td>Use “for three days”</td>
</tr>
<tr>
<td>&gt; and &lt;</td>
<td>Greater than and less than</td>
<td>Mistaken as opposite of intended; mistakenly use incorrect symbol; “&lt; 10” mistaken as “40”</td>
<td>Use “greater than” or “less than”</td>
</tr>
<tr>
<td>/ (slash mark)</td>
<td>Separates two doses or indicates “per”</td>
<td>Mistaken as the number 1 (e.g., “25 units/10 units” misread as “25 units and 110” units)</td>
<td>Use “per” rather than a slash mark to separate doses</td>
</tr>
<tr>
<td>@</td>
<td>At</td>
<td>Mistaken as “2”</td>
<td>Use “at”</td>
</tr>
<tr>
<td>&amp;</td>
<td>And</td>
<td>Mistaken as “2”</td>
<td>Use “and”</td>
</tr>
<tr>
<td>+</td>
<td>Plus or and</td>
<td>Mistaken as “4”</td>
<td>Use “and”</td>
</tr>
<tr>
<td>o</td>
<td>Hour</td>
<td>Mistaken as a zero (e.g., q2° seen as q 20)</td>
<td>Use “hr,” “h,” or “hour”</td>
</tr>
</tbody>
</table>

** Identified abbreviations above are also included on the JCAHO’s "minimum list" of dangerous abbreviations, acronyms and symbols that must be included on an organization’s "Do NotUse" list, effective January 1, 2004. An updated list of frequently asked questions about this JCAHO requirement can be found on their website at [www.jcaho.org](http://www.jcaho.org).
**COMPREHENSIVE WRITE-UPS**

**Definition of Comprehensive Write-up**

A **Comprehensive Write-up** is a complete history and physical or a problem-focused note in standard Problem-Oriented Medical Record form (see following examples) and includes:

a) A complete Problem List, with problems designated as “active” or “inactive/resolved” with dates of onset and resolution, respectively

b) A comprehensive Assessment of at least three (3) problems from the Problem List, with discussion of differential diagnoses of undiagnosed problems (including rationale for including/excluding diagnoses) or discussion of diagnosed problems (such as course, complications, control and compliance)

c) Plans, divided into Diagnostic, Therapeutic and Education Plans

d) Resources and References

e) Student’s name, printed and signed, followed by “MS3”

f) Abbreviations: Since medical records communicate important information and may be scrutinized, abbreviations should not be used because their meaning is not universal among all readers of the medical records. Specifically, students should not use error-prone abbreviations, symbols, and dose designations (see Appendix).

**Submission Requirements of Comprehensive Write-ups**

a) 6B and 6L students on Inpatient Medicine are required to submit 3 write-ups by halfway through the inpatient rotation (averaging 1 write-up each week). The Hospital Site Coordinator will decide whether these 3 write-ups are satisfactory. If they are deemed **satisfactory**, then the student will not be required to submit any more write-ups. If, however, they are deemed **unsatisfactory**, then the student will be required to submit 1 – 3 additional write-ups, as determined by the Hospital Site Coordinator, up to a maximum of 6 write-ups.

b) 6B students on Ambulatory Medicine are required to submit 2 write-ups each week for a total of 5 write-ups to their Ambulatory Preceptor.

c) 6L students on Ambulatory Medicine are required to submit 1 write-up each month for a total of 5 write-ups to their Ambulatory Preceptor.

d) All write-ups, either originals with corrections/comments from the preceptor or copies of the originals with corrections/comments, must be turned in by the last day of the respective inpatient or ambulatory component of the clerkship.
Example of Inpatient History and Physical

Date of Admission: 11/01/02
Date of Exam: 11/01/02
ID: 78-yo Japanese woman who is a widow and a retired hotel worker
S/R: Patient and her daughter, who are fair historians. Medical records not available.
RE: Admission to Progressive Care Unit at Kuakini Medical Center

CC: Three episodes of "Bloody stools" since last night

HPI: The patient is a 78-year old woman with history of hypertension, hypercholesterolemia and two previous "mild strokes", who was in her usual state of health until October 29, 2002, three days prior to admission, when she began passing bright red blood per rectum along with "dark black clots" and "black stools". The patient claims to have had more than 10 bowel movements of this kind within 10 hours. She admits to feeling weak at this time with a "near-fainting" episode after which she found herself drenched with sweat, as if "someone dumped a bucket of water over my head". The patient's daughter claims that the patient may have experienced a brief loss of consciousness (less than 30 seconds) during this "near-fainting" episode, as she stopped talking for a short period of time. On the morning of October 30, 2002, the patient went in to see her physician, Dr. Shozo Ogawa. At this time the bleeding had ceased and her only complaint was weakness. Dr. Ogawa found her to be stable, and found her hemoglobin to be 12.2, and arranged for her to follow-up with a gastroenterologist. On October 31st, at around 5:00pm, the patient again began to pass bright red blood per rectum, but without black clots. She says she passed 3 bloody bowel movements since that time until she presented to the Emergency Room on the morning of November 1st. She admits to feeling weak and "lousy" and again feeling faint, but not actually fainting.

The patient denies any prior episodes of rectal bleeding. She had experienced some constipation the week before, and had used Metamucil, which had given relief. She denies fever, nausea, vomiting, diarrhea, sick contacts, chest pain, shortness of breath, recent weight changes or changes in appetite. She claims to have a chronic mild right lower quadrant abdominal pain which she attributes to her degenerative vertebral disc disease. She also admits to having "sour stomach" every few months, but no history of previously diagnosed GERD or peptic ulcer disease.

In 2000, the patient was diagnosed with "degenerative disc disease" in her lower spine. She claims to have had back pain since age 17, and utilizes a back brace and cane to assist in mobilization. She has been using aspirin for the pain, with her last dose taken 10 days ago. She was told by her physician at the office visit three days ago that "aspirin wasn't good for her stomach" and so she has since been taking Extra-Strength Tylenol, with gives her only partial relief.

PMH:
Childhood illnesses: Not asked
Immunizations: Not asked
Adult illnesses: Two "mild strokes" (Had slurred speech) in 1970s
  Cervical cancer – had possible cone biopsy in 1970s
  Hypertension- first aware of diagnosis in 1970s
  Degenerative disc disease- told of diagnosis in 2000; uses back brace, cane, occasional acupuncture
  Cataracts bilaterally- date of diagnosis unknown
  Hypercholesterolemia- date of diagnosis unknown
The patient has no history of bleeding disorder, liver disease, diabetes mellitus, myocardial infarction or renal disease.
Hospitalizations/Surgeries:
1950s Kapiolani Medical Center - birth of her children
1960s Kapiolani Medical Center - Hysterectomy, reason for surgery unknown.
1998 Queens Medical Center - "surgery for the insides coming out the vagina"

Transfusions: Not asked

Current medications: Covera HS (verapamil) 240mg qd
Tylenol 1 tab every 4-6 hrs pm back pain, last dose taken 1 day ago
Aspirin - dosage unknown, last dose taken 10 days ago

Allergies: Penicillin → reaction unknown; told by doctor not to take penicillin
Sulfa → acute onset of "red rash and skin peeling in sheets" (1960s)
Cortisone → face swelling

**FH:** Patient's father died in his 40s from "stomach cancer." Mother died in her 90s of a "stroke," and had diabetes mellitus. The patient has numerous siblings, some of whom are step-siblings. One sister has diabetes. Two of the step-siblings have died, causes unknown. Health status of the other siblings are unknown. There is no family history of bleeding disorders.

**Personal Profile/SH:** The patient is a retired hotel worker and widow. She now lives with her daughter. She denies the use of cigarettes, alcohol or illicit drugs. Her diet consists mostly of cereals, oatmeal and bread. She doesn't each much fruit or vegetables.

**ROS:**
General: See HPI. Denies weight loss, fever.
Skin: Has no rash, itching, bruising.
Eyes: Reports no blurry vision, other visual disturbances.
Ears: Reports no hearing loss, tinnitus, pain, discharge, vertigo.
Nose: Has "allergies" which cause runny nose, sneezing, cough.
Mouth: Has no gingivitis, sore tongue, taste changes, dental problems
Throat: Reports no pain, voice changes
Pulmonary: Reports no chest pain, pneumonia, SOB, DOE, wheezing, sputum, hemoptysis
Circulatory system: Has no chest pain, palpitations, dyspnea, PND, orthopnea, edema, syncope
GI: See HPI; has no change in appetite, dysphagia, nausea, vomiting, rectal pain, hematemesis, diarrhea, peptic ulcer disease
GU: Reports no frequency, nocturia, polyuria, urgency, dysuria, hematuria, hesitancy, urinary flow changes, retention, incontinence; has no history of kidney problems
Female genitalia: See PMH.
Breast: Not asked
Sexual Hx: Not asked
Endocrine system: Reports no neck mass, thyroid problems, exophthalmos, heat/cold intolerance, thirst changes
Hemopoietic system: Has no lymph node enlargement, excessive bleeding, bruising, anemia
Musculoskeletal system: See HPI and PMH. Has other joint or muscle pain.
Nervous system: Has no history of head trauma, headaches, numbness, paralysis, convulsions, seizures, tremor, gait disturbances, coordination changes
Mood: Not asked.

PE:
General Appearance: Patient appears well-nourished, appearing her stated age. She is lying comfortably in bed, in no evident distress. She is alert, oriented and cooperative.
Vital Signs: Temp 96.0; Respirations 11; Oxygen sat 99% on Room Air; Supine- HR 89, BP 147/64; Standing- HR 110, BP 131/54
Skin: Warm, dry, pale
Head: Nontender over scalp
Eyes: Acuity not tested. PERRL. Extraocular muscles function intact. Fundi not visualized due to cataracts.
Mouth: Mucosa pink, moist, slightly pale. No lesions or bleeding. No tonsillar erythema or exudates.
Neck: Supple. No thyromegaly, enlarged lymph nodes, jugular venous distention; no carotid bruits.
Pulmonary: Lungs clear to percussion and auscultation bilaterally, anteriorly and posteriorly
Cardiac: No thrills, lifts or heaves. PMI palpated in left 5th ICS at the midclavicular line, non-bounding.
Rate and rhythm are regular, normal S1 and S2. No murmurs, extra heart sounds heard.
Abdomen: Soft, non-tender, non-distended. Normoactive bowel sounds in four quadrants. No hepatosplenomegaly by palpation.
Rectal (done by ER physician- reported as showing no masses, with “pink stool”. Bright red blood on glove which tested positive with hemoccult.
Extremities: Full motion in all extremities. No clubbing, cyanosis, edema. Patient was slow to stand, and had an antalgic gait she attributed to back pain.
Neuro: Alert and oriented x 3. Cranial Nerves: II - XII grossly intact. Speech slightly slurred, difficult to comprehend at times. Sensation normal to light touch and 10 gram monofilament; motor 5/5 in all extremities. DTRs 2+ in biceps, triceps, knees and ankles. No Babinski response is noted.

Admission lab results:
CBC: WBC  7.9, differential: Bands 7, Segs 50, Lymphs 37, Monocytes 5, Eos O, Baso 1
Hgb 9.8 (was noted to have been 12.2, 2 days PTA),
Hct 28.4
MCV 93.9
Platelet count 238
BMP: Na 140  BUN 20  PT 12.3  
K 3.6  Creatinine 0.7  INR 1.0  
Cl 110  Glucose 135  PTT 22  
Bicarb 25

Problem List

<table>
<thead>
<tr>
<th>Problem No.</th>
<th>Date Onset</th>
<th>Active Problems</th>
<th>Date Resolved</th>
<th>Inactive/Resolved Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1960s</td>
<td>Allergic reaction to sulfa (rash, peeling skin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>1970s</td>
<td>Hx of “mild stroke x2 → slurred speech</td>
<td>1970s</td>
<td>Hx of cervical cancer s/p TAHBSO</td>
</tr>
<tr>
<td>3.</td>
<td>1970s</td>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>1970s</td>
<td>Degenerative disc disease → chronic lower back pain</td>
<td></td>
<td>Bladder prolapse s/p corrective surgery</td>
</tr>
<tr>
<td>5.</td>
<td>1998</td>
<td>GI bleed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>2000</td>
<td>Anemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>10-29-02</td>
<td>Hypercholesterolemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>11-01-02</td>
<td>Unknown</td>
<td></td>
<td>Bilateral cataracts s/p cataract surgery</td>
</tr>
<tr>
<td>10.</td>
<td>Unknown</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Unknown</td>
<td>Allergy to penicillin (unknown reaction), cortisone (facial swelling)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Problem #1: Bleeding per rectum**

**Assessment:** The patient has experienced 2 episodes of bloody stools in the past three days, during which time she has had more many bloody bowel movements. During the first episode, she describes bright red blood as well as “black clots.” In the most recent episode, she reports only bright red blood. She has been feeling weak since these episodes. In addition, there is evidence that this patient has had substantial blood loss including: (1) a decrease in hemoglobin from 12.2 to 9.8 in two days with normal MCV, which suggest an acute bleed; (2) orthostatic changes with an increase in HR of >20 and decrease in Systolic BP > 15mmHg suggest that the patient is hypovolemic, with a blood loss of greater than 1 Liter. In trying to identify the source of the bleed we must attempt to differentiate an upper GI bleed from a lower GI bleed, as well as confirm that the bleeding is from the rectum and not from the vagina or urethral orifice. Because the rectal exam confirms that there is blood in the rectum, we can assume the patient does have a GI bleed. With the reports of “bright red blood”, it is likely that the patient is having a lower GI bleed, although a brisk upper GI bleed could also present
as bright red blood per rectum. The “black clots” seen in the first episode suggest a possible upper GI bleed, in which the “clots” may have been melenic stool.

The differential diagnosis of lower GI bleed include diverticulosis, colon cancer or polyps, ulcerative colitis, angiodysplasia, and hemorrhoids. **Diverticulosis** is likely as it most common in the elderly and can present with painless bright red blood per rectum that can result in massive hemorrhage. A diverticular hemorrhage is usually caused by erosion of a blood vessel by a fecalith within the diverticular sac. The patient did have some recent constipation which could have lead to the development of a fecolith. She took Metamucil for relief. It is unknown if the patient then had diarrhea, which can occur with Metamucil; but if she did, it is possible that the diarrhea in its rapid transit through the colon could have dislodged the fecalith resulting in injury to a blood vessel and hemorrhage. Diverticular bleeding stops spontaneously in the majority of patients. This was not the case for this patient. This could be due to the rupture of a large blood vessel in the colon, or it could be due to the patient's chronic use of aspirin (which can inhibit platelet aggregation resulting in decreased clotting ability for about 7-10 days, however, she claims to have not had aspirin for 10 days prior to admission).

**Colon cancer** is also possible. Like diverticular disease, it is more common in the elderly. The patient displays signs and symptoms that are characteristic of a left colonic cancer- change in bowel habits (constipation, diarrhea) and bright red blood per rectum. Intestinal obstruction is also common with a left colon cancer, however the patient did not complain of abdominal pain or tenderness which would be expected with obstruction. A right colon carcinoma would present with an iron deficiency anemia due to chronic blood loss, which can be occult and thus unknown to the patient, and a dull vague abdominal pain. The patient did have a chronic dull lower right quadrant abdominal pain. She also had anemia (Hgb 9.8), however this anemia appears to be due to the acute blood loss and not iron deficiency as her Hgb was 12.2 two days prior to admission, and her MCV was normal.

**Ulcerative colitis** should also be considered, although more commonly diagnosed in younger adults, there is also a small peak incidence among the elderly, ages 50-65. Although the patient is beyond this peak, UC must still be considered given that it's hallmark is bloody diarrhea. Most patients with UC will also have fever and weight loss, which this patient did not have. **Angiodysplasia/AVM** is also possible as it is most commonly seen in the elderly and presents with painless bright red blood per rectum. **Hemorrhoids** can be a cause of rectal bleeding, however there is usually associated pain and a palpable rectal mass, which this patient did not have. Infectious colitis is less likely in this patient as she is has no fever, abdominal pain or leukocytosis, all of which would be expected with an infectious process. The patient also denies any sick contacts.

A brisk **Upper GI bleed** could also be responsible for this patient's rectal bleeding, however with such a large amount of blood loss, one would also expect some hematemesis, which did not occur. The differential would include gastritis, vascular ectasia, peptic ulcer disease and ruptured varices. **Gastritis** is very likely given the patient’s chronic use of aspirin. However, she does not have abdominal pain which might be expected if it were severe enough to have caused this patient's bleeding. **Peptic ulcer disease** is less likely as pain is its predominant symptom, and the patient denied any abdominal or chest pain. It is important to rule-out a gastric ulcer in this patient, or to diagnose and treat it, as an untreated ulcer can increase her risk of developing gastric cancer. She is already at risk given her Japanese ethnicity and positive family history of gastric cancer. Ruptured
varices is unlikely as the patient has no hematemesis and no history of liver disease which would cause the formation of varices. Her normal coagulation studies make liver disease unlikely. Given the numerous possible diagnoses for this patient's GI bleed it is imperative to have the patient to undergo both upper endoscopy and colonoscopy, especially given her history of both bright red blood per rectum and "black clots".  

Plan: Admit to acute care hospital with careful monitoring of vital signs.  

Plans:  
Diagnostic:  
- Place NG tube to assess for gastric bleeding  
- Consult a gastroenterologist for upper endoscopy and colonoscopy  

Treatment:  
- Type and crossmatch. Transfuse 2 units packed red blood cells to replace blood loss, since she is at risk to continue bleeding  
- No food or drink in preparation for endoscopy according to gastroenterologist instructions  
- Further treatment dependent on endoscopic findings. Consider initiate gastric acid blocking regimen prophylactically  

Patient education:  
- Inform patient of the possible diagnoses and the need for careful monitoring and testing  
- Inform patient of endoscopic procedures, explain risks and benefits, obtain informed consent  
- Inform patient of need for transfusion, explain risks and benefits, obtain informed consent  

Problem #2: Anemia  

Assessment: The patient has developed an acute anemia. Her hemoglobin had dropped 2.4 G/dL (from 12.2 to 9.8), which correlates with a decrease in hematocrit of approximately 7%. Hematocrit generally falls 2-3 points for every 500 mL of blood lost, making the estimated blood loss in this patient 3.5L. The normal MCV also suggests that the anemia is due to an acute blood loss. The normal coagulation studies rule-out a coagulopathy that may complicate the patient's GI bleed, although platelet dysfunction due to the patient's chronic aspirin use may exacerbate the bleed. The patient's orthostatic changes in heart rate and systolic BP is consistent with blood loss of greater than 1 liter resulting in hypovolemia. The patient appears pale with pale mucous membranes and has complaints of weakness and light-headedness, which are all due to her anemia. It is important to transfuse this patient and increase her hemoglobin in order to avoid the complications associated with anemia and hypovolemia, such as high output cardiac failure and organ hypoperfusion, which may be of greater risk in the elderly.  

Plans:  
Diagnostic:  
- Monitor blood count every 4 hrs for continued bleeding and decrease in hemoglobin  

Treatment:  
- Place adequate intravenous access (2 large bore peripheral catheters)  
- Type and crossmatch. Transfuse 1 unit packed red cellss now.  
- Intravenous fluids: normal saline at 100cc/hour  
- Transfuse packed red cells to keep hemoglobin > 10 G/dL  

Patient education:  
- Inform patient of need for transfusion, explain risks and benefits, obtain informed consent  
- Inform patient of signs and symptoms of worsening anemia that she should be aware of, such as worsening orthostatic hypotension, weakness, faintness, pallor, tachycardia.  

Problem #3: Back pain  

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Assessment: The patient has been previously diagnosed with degenerative disc disease and suffers from chronic back pain. She regularly uses a back brace and cane to assist with mobilization. She occasionally has acupuncture treatments to relieve the pain. She had been taking aspirin on a regular basis for pain, and recently changed to Extra-Strength Tylenol which gives only partial relief. Given the possibility of gastritis, it is best for the patient to avoid aspirin and any other NSAID, especially with an active GI bleed. Once the bleeding has resolved, a specific COX-2 inhibitor could be considered, although there is still a risk of GI irritation with COX2 inhibitors, the risk is less than that of nonspecific NSAIDs. Given the patient's allergic reaction to sulfa, celecoxib is contraindicated; however, rofecoxib can be used. In clinical trials with rofecoxib, 3.9% of the patients had a reported sulfa sensitivity, none developed anaphylactic reactions. Another option would be to administer misoprostol along with the NSAID, in order to further protect the gastric mucosa. In order to completely avoid NSAIDs but still provide complete relief, tramadol could be considered. Tramadol is a centrally acting analgesic which acts as an opiate agonist, although it is not opioid-derived. Tramadol does not irritate gastric mucosa, thus not causing an increased risk for GI bleed. Side effects reported for tramadol include constipation, dizziness, nausea, dry mouth, sweating and minimal cardiovascular effects including hypotension, tachycardia and syncope. Given the patient's current gastritis, recent GI bleed and sulfa allergy, tramadol might be the best choice for pain relief in this patient should she request more complete relief than she is currently receiving with Tylenol; while being aware of possible hypotensive effects of this drug.

Plans:
- **Diagnostic:** No further diagnostic studies at this time.
- **Treatment:**
  - Continue Tylenol 1 gram every 4-6 hrs as needed for back pain, not to exceed 4g daily
  - If better pain control is desired, consider starting tramadol 25 mg daily
- **Patient education:**
  - Inform patient of the need to avoid NSAIDs
  - Inform patient of the daily maximum dose of Tylenol (4 G per day) and the adverse effects that could occur in the event of toxicity
  - Inform patient that a trial of tramadol could be started, with attention to added side effects, if better pain control is needed

Resources:
AHFS Drug Information, 2002
Myers. NMS Medicine, 4th ed" 2001

<Signed>
Toby Best, MS 3
Example of Ambulatory Note

Ambulatory Medicine Clerkship H&P (Comprehensive-style Ambulatory note for a New Patient Visit – please note that more problem-focused notes may be acceptable for different types of patient visits. Please discuss expectations with your Site Coordinator if you are unsure of the length, content, or style expected for notes at your site).

Student Note

Date of Exam: 6/1/13
Pt ID: 57 year old, Chuukese, male
Source and Reliability: patient and wife who are unreliable due to language barrier
CC: LLE open wound x 3 weeks

HPI:
Patient is a 57 year old, Chuukese, gentleman with PMH significant for uncontrolled DM2, HTN, HLD, CAD s/p stent placement, A-Fib, and subclinical hypothyroidism who presents to clinic today for f/u of LLE venous stasis ulcer.

Patient was in his usual state of fair general health until 5 weeks prior to clinic visit when he noted the gradual onset of bilateral LE swelling. Four weeks prior to clinic visit, the swelling caused the bilateral LE to become very tense and the LLE began weeping clear fluid from the anterior aspect of the lower leg. The weeping progressed to become an open wound with mild serous drainage. Patient sought care at our clinic for this wound 1 week ago. Since this time, patient feels the wound is getting smaller now. The wound is not painful and is not associated with surrounding erythema, induration, fever, chills, nausea, vomiting, diarrhea, c/p, SOB.

Labs were ordered after last visit including CMP, CBC, TSH, and A1C which were remarkable for BUN at 30 (baseline is 30), normal CBC, normal TSH at 4.17, and elevated A1C at 11.9 (down from 13.3 in January).

PMH:
Illnesses:
- HTN: stage I despite treatment with carvedilol and lisinopril (BP last week 129/91, today 155/85)
- HLD: on atorvastatin
- CAD s/p stent. Has nitroglycerin for angina but says he never has to take it. Takes aspirin and clopidogrel.
- A-Fib. On aspirin and clopidogrel

Meds:
- Furosemide, 20 mg, PO, QAM
- Carvedilol, 12.5 mg, PO, BID
- Insulin glargine, 45 U, BID
- Insulin aspart, 30 U before breakfast, 35 U before lunch and dinner
- Metformin, 1000 mg, BID
- Lisinopril, 5 mg, BID
- Atorvastatin, 80 mg, daily
- Clopidogrel, 75 mg, daily
- ASA, 81 mg, daily
- Nitroglycerin, 0.4 mg, sublingual, 1 dose Q5M x 3 PRN

Allergies: NKDA

FHx, SHx reviewed and no changes

ROS: negative except as stated in HPI

PE:
- Vitals: temp 98.3, pulse 102, RR 14, BP 155/85, weight 128.7 kg (was 126.4 kg last week)

General appearance: sitting comfortably in no acute distress
- HEENT: MMM
- Neck: no lymphadenopathy
- Resp: CTAB
- CV: irregularly irregular rhythm, normal S1 and S2, no r/m/g
- Abd: obese, nondistended, soft, nontender, normoactive BS
- Ext: bilateral pitting edema to thighs, tense, open wound on anterior aspect of lower left leg measuring 7x3 cm in transverse orientation, wound appears pink with granulation tissue, no surrounding erythema, induration, or associated heat; no popliteal lymphadenopathy; foot exam negative for lesions, monofilament test revealed lack of sensation in toes and plantar feet

A/P

#1) Venous stasis ulcer of LLE. Differential diagnosis of lower extremity skin ulceration in patient with long-standing diabetes and evidence of end organ damage includes venous stasis ulcer, arterial insufficiency ulcer, and diabetic foot ulcer. This lesion is most likely a venous stasis ulcer due to the associated dependent pitting edema, extremely tense nature of the skin encouraging progression to ulceration, and characteristic sequence of onset with edema then weeping then ulceration in area of weeping. Less likely this lesion represents an arterial insufficiency ulcer (it is not located distally at tips of toes), or diabetic foot ulcer (it is not located on feet at pressure points). The pathogenesis of edema related to venous stasis centers on chronic valvular incompetence which disrupts normal outflow of venous blood from dependent areas. Resulting increases in hydrostatic pressure in the capillary beds proximal to obstruction of venous outflow (in dependent areas) cause an abnormal quantity of fluid to transfer from the vascular to the interstitial space. Often, the interstitial volume must expand several liters before the edema becomes clinically apparent. Typically, a weight gain of several kilograms precedes the clear manifestations of edema and certainly precedes the onset of complications related to the edema such as venous stasis ulceration. Importantly, the abnormal transfer of fluid to the interstitium may occur at the expense of circulating blood volume in the remainder of the body which can in turn stimulate the retention of NaCl and water until the plasma volume deficit is corrected. This cycle serves to exacerbate the developing edema. Associated findings in chronic venous insufficiency include erythema, dermatitis, and hyperpigmentation along the distal aspect of the leg.

For our patient, there has been no change since last week in lesion or in associated edema despite assurance he is taking furosemide with good adherence. Cellulitis is often a recurring problem
in the setting of venous insufficiency. Patient is applying bactroban and there are no signs of secondary infection, however, still high risk for secondary infection given poorly controlled DM2 and break in skin barrier.

In terms of treatment, effective control and prevention of skin ulceration centers on reduction of edema. There are several lifestyle supportive measures that can be encouraged, as well as the mainstay of diuretics to promote reduction of total body fluid. Patient education should focus on advising the patient to avoid prolonged standing or sitting with the utilization of frequent leg elevation. Additionally, graded compression stockings can be employed during the day to promote outflow of venous blood from the dependent lower extremity. For ulcer treatment, wet to dry dressings or occlusive hydrocolloid dressing are shown to promote more rapid ulcer resolution. There are also commercially available compressive dressings which contain pastes or zinc oxide, glycerin, calamine, and gelatin which can be applied in one week intervals until healing occurs. As a last resort, surgical valvuloplasty and bypass of venous occlusions can be attempted.

Plan
- Increase furosemide to 40 mg, PO, QAM
- Referral to wound care clinic for more intensive wet to dry dressings or compressive dressing application
- Continue topical bactroban
- F/u with us in 2 weeks

#2) Poorly controlled DM2. A1C from 5/28/13 is 11.9. Patient brought glucometer to appointment today and is checking sugars at least four times per day with good adherence, glucometer reveals sugars in the 300-400s and one reading of 97. Patient believes he misses at least one to two insulin doses per day.
Plan
- Due to questionable adherence, will not make any changes to insulin or metformin today, as patient has appointment with diabetes educator next week.
- Patient has scheduled referrals to podiatry and ophthalmology.

#3) HTN. Stage I despite treatment with carvedilol and lisinopril.
Plan
- Increase carvedilol to 25 mg, PO, BID
- Continue lisinopril

#4) HLD: continue atorvastatin

#5) CAD s/p stent: continue clopidogrel and ASA

#6) A-Fib: tachycardic today to 102. On carvedilol for rate control.
Plan
- As above, increase carvediolol to 25 mg, PO, BID
- Continue clopidogrel and ASA

#7) Hx of subclinical hypothyroidism. Previous TSH 5.69 on 1/7/13, most recent TSH 4.17 on 5/28/13. Asymptomatic.
Plan
- Monitor for symptoms at follow up visits
#8) Poor medication adherence
Plan
- Pillbox visit

**Resources:**
DESCRIPTION

The CSE is a practical examination consisting of 5 - 10 clinical problems including patient encounters and writing stations. The examination requires you to interact with standardized patients who volunteer for this exercise. These patients are carefully trained to simulate patients with "real" medical problems. You should interview and examine these patients as if they are being seen in an actual patient care situation.

GENERAL PROCEDURES

You will have 15 minutes with each patient. You are responsible for pacing your visit with the patient. The timer will announce the beginning of each patient session. You will be warned when there are 5 minutes remaining in each station, when to rotate to and begin the next station. Do not enter an exam room until told to begin. Each of you will start at a different point along the exam route and will continue to rotate until all stations are completed. If 2 (or more) students end up in the same station at the same time, notify the exam monitor immediately.

Please knock before entering a patient's room. If you are finished evaluating the patient before the 15 minutes are up, you may leave the station and begin answering questions in the writing station. Introduce yourself to the standardized patients as you would introduce yourself to any patient. End the encounter as you would end any encounter. On the door of every patient's room you will find student instructions in a RED FOLDER. Do not open the RED FOLDER until the timer says, “begin the encounter.” Reading the student instructions is considered part of your 15 minutes with the patient. In general, there will be enough time to review the instructions for 1 to 2 minutes and still complete your task with the patient.

The instructions will give you the patient’s name, age, gender and reason for the visit. The instructions may also indicate where you are seeing the patient (outpatient clinic, emergency room, etc.), and the time of day (if it is different from the current time). The vital sign including the temperature, heart rate, blood pressure and respiratory rate may also be given. You should accept the vital signs as accurate and you do not need to repeat them unless you feel the case specifically requires it.

Your task with the patient will be specifically defined. For example the instructions may tell you to take an appropriate history and counsel the patient . . . or take an appropriate history and perform a focused physical examination. You are to perform a focused examination of each patient that is consistent with the instructions provided. Hand washing is an essential practice when seeing patients and should be considered as a requirement during this examination. Facilities for washing your hands are available in each examining room.

READ THE INSTRUCTIONS CAREFULLY BEFORE ENTERING EACH STATION. Do not take the RED FOLDER containing the student instructions into the examination room. A copy of the instructions will be placed in each room for your reference. If you feel it is necessary, you may take notes on the blank sheets provided on your clipboard. PLEASE DO NOT WRITE ON THE STUDENT INSTRUCTIONS.
You should not perform rectal, genital, breast or corneal reflex examinations on your patients. As part of the encounter, you should provide the patient with your initial impression and initial management plan. End the encounter with the patient as you would end any patient encounter.

You will receive a supply of “BUSINESS CARDS” pre-printed with your Examinee Identification Number. Before leaving the patient's rooms please leave one card with the patient (e.g. "If you have any questions or need to get in touch with me, here is my card"). This will allow the standardized patient to complete your evaluation forms. If you forget to give your card to the patient please leave it with the monitor and he/she will bring it in to the patient. ONCE YOU LEAVE THE PATIENT'S ROOM, YOU ARE NOT ALLOWED TO RE-ENTER FOR ANY REASON.

WRITING STATIONS (PATIENT NOTE):

Immediately after each patient encounter there is a “writing station” where you will answer specific questions related to the encounter. You will be entering your answers on a computer.

Log on to the computer using your UH USERNAME AND PASSWORD. Enter the Patient’s ID Number (located in a blue folder next to the computer monitor) to access the entry form for the station and begin answering the questions. You will have 10 minutes to answer the questions and complete any evaluation forms. When you have finished, remember to SUBMIT your answers.

In most stations, you will be asked to describe the significant positive and negative clinical findings uncovered during your interaction with the patient that will allow you to make clinical decisions. You may be asked to construct a differential diagnosis consisting of up to 3 diagnoses that could explain the patient’s problem(s) in order of likelihood and to list the patient's history and clinical findings that support each diagnosis. Be as specific as possible.

BREAKS
You are asked not to leave the examination area during the break times and to refrain from discussing the cases with each other.

CONTENT OF EXAM
The clinical scenarios reflect some of the most common patient complaints seen in outpatient medical practice. There are no “zebras” on this exam! You are being evaluated based on checklists and rating scales completed by the patient and by the responses you provide in the test booklet regarding your findings (Writing Stations). You are not allowed to consult any medical references during the exam. The best way to prepare for the exam would be to review the “General Core Clinical Competencies” and “Training Problems” described in the clerkship handbook.

PAGERS/CELLULAR PHONES
Cellular phones and pagers will not be allowed inside the examination area. We can hold them for you while you take the examination, but we will not be responsible for loss or damages. Please plan accordingly.

EQUIPMENT
1. STETHOSCOPE
2. REFLEX HAMMER
3. PENS with black ink
4. NAME TAG
5. PROPER ATTIRE. You should dress as you would to see patients.
6. Otoscopes, ophthalmoscopes, sphygmomanometers, tongue blades, reflex hammers, drapes, clip boards and other supplies will be available in each examination room.

GRADING AND FEEDBACK
Student performance on each station will be examined for Communication/Interpersonal skills, Hx-Taking/Physical Exam/Counseling Skills, and Problem Solving skills (at writing stations).

Grading is on a pass/fail basis, and will include students’ ability to document the clinical encounter effectively in the writing station and faculty review of student performance. In addition, the standardized patients will also be giving students feedback on specific communication skills (introducing self, active listening, showing interest etc). Unfortunately, we cannot return the actual checklists and written test materials to students without compromising the cases, which may be used on future examinations.

At least two of the clinical skills stations will not be graded, but instead, will be formative Faculty Feedback stations. Department of Medicine faculty members will observe the students’ patient encounter via camera, and will give the student immediate feedback on their clinical performance. The writing station will not be included in the Faculty Feedback station.

IMPORTANT REMINDER:
You must have your UH Login and Password to complete this examination.

FREQUENTLY ASKED QUESTIONS:

Q1: How can I best prepare for this examination?
A1: Review the Training Problems and General Core Clinical Competencies sections of your Clerkship Handbook. For each of the Training Problems listed, be able take an appropriate history and focused physical examination. Understand how specific signs and symptoms relate to the differential diagnosis for each problem. Most importantly, review and practice good communication and interpersonal skills when seeing patients during the rotation.

Q2: Are all the stations equal in length and difficulty?
A2: Some stations, especially those requiring both a focused history and focused physical examination, seem to take everyone longer than other stations, although there is great variability among students. All of the stations are designed to be completed in the time allotted. The more difficult stations require students to focus their examination on obtaining the most relevant clinical information. The passing score for each station is adjusted for case difficulty.

Q3: How many differential diagnoses do I need to list?
A3: You only need to list as many differential diagnoses as you feel are relevant to the clinical encounter.

Q4: How were the clinical scenarios designed?
A4: The Scenarios were designed in order to help students prepare for their Step 2 CS exam, and are reflective of the types of clinical encounters students may expect to see on the CS.
1. A 22-year-old woman with a 10-year history of asthma comes to the physician because she has had to increase her use of her albuterol inhaler during the past 6 weeks. Her asthma was previously well controlled with inhaled glucocorticoids. She has a 2-year history of generalized anxiety disorder controlled with fluoxetine and a 5-year history of migraines. The migraines were well controlled with sumatriptan until 4 months ago when she began to have headaches twice weekly; propranolol was added to her regimen at that time. She has been taking an oral contraceptive for the past year. She says she has been under increased stress at graduate school and in her personal life during the past 3 months; during this period, she has been drinking an average of four cups of coffee daily (compared with her usual one cup daily). She does not drink alcohol or use illicit drugs. She appears mildly anxious but is not in respiratory distress. Scattered end-expiratory wheezes are heard. The remainder of the examination shows no abnormalities. Which of the following is the most likely cause of the exacerbation of this patient's asthma?

(A) Fluoxetine therapy
(B) Increased caffeine intake
(C) Oral contraceptive therapy
(D) Propranolol therapy
(E) Sumatriptan therapy

2. A 28-year-old woman has palpitations that occur approximately once a week, last 15 minutes, and consist of rapid, regular heart pounding. The episodes start and stop suddenly and have not been associated with chest discomfort or dyspnea. There is no history of heart problems. She drinks two to three cups of coffee daily. She rarely drinks alcohol and does not smoke. Her pulse is 96/min and regular, and blood pressure is 120/88 mm Hg. A stare and lid lag are noted. The thyroid gland is firm and 1.5 times larger than normal. There is a midsystolic click at the apex and a grade 2/6, early systolic murmur at the upper left sternal border. An ECG is normal except for evidence of sinus tachycardia. Which of the following is the most appropriate next step in diagnosis?

(A) Ambulatory ECG monitoring
(B) Measurement of serum thyroid-stimulating hormone concentration
(C) Measurement of urine catecholamine concentration
(D) MUGA scan
(E) Echocardiography
3. A study is conducted to assess the benefits of a new drug to reduce the recurrence of colonic polyps. The results show a number needed to treat (NNT) of 16. Which of the following is the most accurate interpretation of this result?

(A) For every 16 patients treated, 1 would benefit from the new drug
(B) For every 100 patients treated, 16 would benefit from the new drug
(C) The new drug is 1.6 times more beneficial than a placebo
(D) 93% of patients taking the new drug would benefit from it
(E) 84% of patients taking the new drug would not have any benefit from it

4. A previously healthy 57-year-old woman comes to the physician 1 week after noticing a lump under her right arm. She is concerned that it is breast cancer because both her mother and maternal aunt died of breast cancer. She does not smoke, drink alcohol, or use illicit drugs. She has avoided the sun for the past 10 years. She notes that her skin has never tanned but always burned and freckled when exposed to the sun. She exercises daily on a stationary bicycle and eats a well-balanced diet. Her temperature is 37°C (98.6°F), pulse is 82/min and regular, respirations are 14/min, and blood pressure is 130/74 mm Hg. There are numerous freckles over the entire body. Examination of the right breast shows a 0.6-cm, flat, brown lesion; the lesion is mottled with deep purple and black areas and has an irregular border. There are no breast masses, dimpling, peau d’orange, or nipple discharge. The patient says that the lesion has been present for 1 year, but she has never had it examined. There is a firm, nontender mass in the right axilla. Examination shows no other abnormalities. Which of the following is the most likely diagnosis?

(A) Basal cell carcinoma
(B) Fibrocystic changes of the breast
(C) Malignant melanoma
(D) Mastitis
(E) Pigmented nevus
(F) Port-wine stain
(G) Squamous cell carcinoma

5. Two days after receiving 3 units of packed red blood cells for postpartum hemorrhage, a 24-year-old woman has fatigue and slight jaundice. Laboratory studies show:

Hemoglobin 8.8 g/dL
Hematocrit 28%
Serum total bilirubin 5 mg/dL

Liver tests are otherwise within normal limits. Which of the following is the most appropriate next step in diagnosis?

(A) Cytomegalovirus antibody titer
(B) Direct and indirect antiglobulin (Coombs) tests
(C) Monospot test
(D) Serology for hepatitis B
(E) Ultrasonography of the gallbladder

6. A 30-year-old man has had nausea, vomiting, and severe colicky right flank pain radiating into the thigh for 4 hours. He is afebrile. There is right costovertebral angle tenderness. Urinalysis shows RBCs too numerous to count and no bacteria. Which of the following is the most likely diagnosis?

(A) Acute glomerulonephritis
(B) Bacterial cystitis
(C) Benign prostatic hyperplasia
(D) Bladder carcinoma
(E) Renal cell carcinoma
(F) Urinary tract tuberculosis
(G) Urolithiasis

7. A 66-year-old woman comes to the emergency department 1 hour after the sudden onset of retrosternal chest discomfort accompanied by nausea and diaphoresis. She has hypotension, jugular venous distention, and a murmur of tricuspid regurgitation. An ECG shows ST-segment elevation in the right precordial leads. Which of the following is the most likely diagnosis?

(A) Constrictive pericarditis
(B) Dissecting aortic aneurysm
(C) Pericardial tamponade
(D) Pulmonary embolism
(E) Right ventricular infarction
8. A 20-year-old African American woman comes to the physician because of a 6-month history of diffuse joint pain, especially in her hips and knees. During this period, she occasionally has had a rash on her nose and cheeks. She has no history of serious illness and takes no medications. Her temperature is 38.1°C (100.5°F). Examination shows warmth and swelling of the knees. Laboratory studies show:

- Hemoglobin 10.5 g/dL
- Erythrocyte sedimentation rate 40 mm/h
- Urea nitrogen 30 mg/dL
- Creatinine 1.8 mg/dL

Which of the following is the most likely diagnosis?

(A) Ankylosing spondylitis  
(B) Gouty arthritis  
(C) Psoriatic arthritis  
(D) Reactive arthritis  
(E) Rheumatoid arthritis  
(F) Septic arthritis  
(G) Systemic lupus erythematosus

9. A 37-year-old man with type 1 diabetes mellitus comes to the physician for a routine examination. His only medication is insulin. His pulse is 72/min, respirations are 12/min, and blood pressure is 138/88 mm Hg. Funduscopic examination shows microaneurysms and hemorrhages. Sensation to vibration and light touch is decreased over the lower extremities. His serum creatinine concentration is 1.6 mg/dL. A 24-hour urine collection shows 550 mg of protein. Treatment with which of the following is most likely to slow progression of this patient's renal disease?

(A) Atenolol  
(B) Clonidine  
(C) Hydralazine  
(D) Hydrochlorothiazide  
(E) Lisinopril

10. A 50-year-old man is admitted to the hospital within 2 hours of the onset of nausea, vomiting, and acute crushing pain in the left anterior chest. He has a family history of early coronary artery disease. The pain does not subside with the administration of nitroglycerin, sublingually. An ECG shows ST-segment elevation in leads aVL and V2 through V4. Which of the following is the most appropriate management to decrease myocardial damage and mortality?

(A) Administration of digitalis  
(B) Administration of lidocaine  
(C) Administration of quinidine  
(D) Coronary artery bypass grafting within 1 week  
(E) Thrombolytic therapy

11. A previously healthy 67-year-old woman comes to the physician with her husband because of a 4-month history of a resting tremor of her right arm. Her husband reports that her movements have been slower and that she appears less stable while walking. Examination shows increased muscle tone in the upper extremities that is greater on the right than on the left. There is decreased right arm swing. Her gait is slow and shuffling. Which of the following is the most likely explanation for this patient's symptoms?

(A) Bilateral frontal lobe degeneration  
(B) Decreased dopaminergic input to the brain stem  
(C) Decreased serotonergic activity in the brain stem  
(D) Excessive output of oxytocin  
(E) Excessive thalamic output of norepinephrine

12. A 47-year-old man comes to the physician because of a 4-week history of increased thirst and urination. He has had a 23-kg (50-lb) weight gain during the past 2 years. He has no history of serious illness and takes no medications. His mother and maternal grandfather have type 2 diabetes mellitus. The patient does not smoke and drinks one beer every night. He is 175 cm (5 ft 9 in) tall and now weighs 104 kg (230 lb); BMI is 34 kg/m². His pulse is 90/min, and blood pressure is 150/88 mm Hg. The remainder of the examination shows no abnormalities. His serum glucose concentration is 330 mg/dL. Which of the following is the most likely underlying cause of this patient's increased serum glucose concentration?

(A) Autoimmune destruction of islet cells  
(B) Chronic pancreatitis  
(C) Exogenous production of corticosteroids  
(D) Insulin resistance  
(E) Pancreatic cancer
13. A previously healthy 39-year-old woman is brought to the physician because of a tingling sensation in her fingers and toes for 2 days and rapidly progressive weakness of her legs. She had an upper respiratory tract infection 2 weeks ago. She was unable to get up from bed this morning. Examination shows weakness of all four extremities, distal greater than proximal. Deep tendon reflexes are absent. Sensation is mildly decreased over the feet. Which of the following is the most likely diagnosis?

(A) Guillain-Barré syndrome  
(B) Multiple sclerosis  
(C) Myasthenia gravis  
(D) Poliomyelitis  
(E) Tick paralysis

14. A previously healthy 77-year-old woman who resides in a skilled nursing care facility is brought to the emergency department 6 hours after the onset of acute midback pain that began while lifting a box. The pain does not radiate, and she has no other symptoms. She continues to carry out her daily activities. She appears to be in mild distress. She is 157 cm (5 ft 2 in) tall and weighs 47 kg (104 lb); BMI is 19 kg/m². Examination shows mild tenderness over T11. There is no tremor. Serum studies show a calcium concentration of 9.1 mg/dL, a urea nitrogen concentration of 12 mg/dL, and a creatinine concentration of 0.5 mg/dL. An x-ray of the dorsal and lumbar spine shows an anterior wedge fracture of T11. In addition to treating the pain, supplementation with which of the following is most likely to improve this patient's underlying condition?

(A) 25-Hydroxycholecalciferol  
(B) Levothyroxine  
(C) Selenium  
(D) Vitamin C  
(E) Vitamin E

15. A 52-year-old woman comes to the physician because of a 3-month history of diarrhea and intermittent abdominal pain that radiates to her back. The pain is exacerbated by eating. She describes her stools as greasy, foul-smelling, and difficult to flush. She has had a 4.5-kg (10-lb) weight loss during the past 4 months. She has a history of chronic alcohol abuse. Examination shows mild epigastric tenderness. An x-ray of the abdomen shows calcifications in the epigastrium. Which of the following is the most likely diagnosis?

(A) Bacterial overgrowth  
(B) Celiac disease  
(C) Lactose intolerance  
(D) Malabsorption of bile salts  
(E) Pancreatic insufficiency

16. A 67-year-old woman comes to the physician because of an 8-month history of progressive shortness of breath. The shortness of breath initially occurred only with walking long distances but now occurs after walking ¼ mile to her mailbox. She also has a daily morning cough productive of whitish tan sputum. She has had no chest pain, palpitations, orthopnea, or paroxysmal nocturnal dyspnea. She has smoked one pack of cigarettes daily for 52 years. Her pulse is 88/min, respirations are 20/min, and blood pressure is 144/90 mm Hg. Examination shows a barrel-shaped chest. Breath sounds are decreased, and faint expiratory wheezes are heard in all lung fields. There is no peripheral edema. An x-ray of the chest shows no abnormalities except for hyperinflation. Which of the following is the most likely diagnosis?

(A) Angina pectoris  
(B) Asthma  
(C) Chronic obstructive pulmonary disease  
(D) Chronic pulmonary embolism  
(E) Congestive heart failure  
(F) Panic disorder

17. A 22-year-old woman comes to the physician because of a 10-day history of pain in multiple joints. She first had pain in her right elbow, and then her right shoulder, and now has pain, redness, and swelling in her left knee that began 2 days ago. She currently has no pain in the right shoulder and elbow. There is no history of trauma. She is sexually active, and she and her partner use condoms for contraception inconsistently. Examination of the left knee shows warmth, erythema, tenderness, and soft-tissue swelling. Range of motion of the knee is limited to 10 degrees of flexion. The remainder of the examination, including pelvic examination, shows no abnormalities. Arthrocentesis of the knee joint yields 10 mL of cloudy fluid with a leukocyte count of 18,300/mm³ (97% segmented neutrophils). Microscopic examination of the leukocytes within the joint fluid is most likely to show which of the following?

(A) Acid-fast bacteria  
(B) Cuboidal positively birefringent crystals  
(C) Gram-negative diplococci  
(D) Gram-positive cocci in clusters  
(E) Needle-shaped negatively birefringent crystals

18. A 47-year-old woman comes to the physician for a routine health maintenance examination. She feels well and has no history of serious illness. Her mother, brother, and sister have hypertension. The patient's pulse is 84/min, and blood pressure is 138/85 mm Hg. Examination shows no abnormalities. The most appropriate recommendation is decreased intake of which of the following?

(A) Calcium  
(B) Carbohydrates  
(C) Potassium  
(D) Protein  
(E) Sodium
19. A 32-year-old man comes to the physician because of a 12-day history of abdominal cramps and bloating, diarrhea, and flatulence. He says that he started a new exercise program 2 weeks ago and has been consuming a high quantity of yogurt bars, peanut butter, and protein- and calorie-enriched milk shakes to "bulk up." He has no history of serious illness and takes no medications. His temperature is 37°C (98.6°F). The abdomen is distended, nontender, and tympanitic to percussion. Bowel sounds are increased. The remainder of the examination shows no abnormalities. Which of the following is the most likely cause of this patient's symptoms?

(A) Allergy to peanuts
(B) Fungal overgrowth in the small bowel
(C) Incarcerated hernia
(D) Irritable bowel syndrome
(E) Lactase deficiency

20. A 22-year-old college student comes to student health services because of a 7-day history of low-grade fever, sore throat, fatigue, and general malaise. One month ago, she had a painless vulvar ulcer that resolved spontaneously; she has been otherwise healthy. Her last menstrual period was 3 weeks ago; she uses tampons regularly. She is sexually active and has had three partners since the age of 15 years; she uses an oral contraceptive. Her temperature is 38°C (100.4°F), pulse is 100/min, and blood pressure is 110/60 mm Hg. Examination shows a rash over the palms and soles and mild cervical lymphadenopathy. Pelvic examination shows no abnormalities. Which of the following is the most appropriate pharmacotherapy?

(A) Acyclovir
(B) Dexamethasone
(C) Interferon
(D) Penicillin
(E) Zidovudine (AZT)
Answer Form for Medicine Subject Test Sample Questions

(Questions 1-20)

1. _____  11. _____
2. _____  12. _____
3. _____  13. _____
4. _____  14. _____
5. _____  15. _____
6. _____  16. _____
7. _____  17. _____
8. _____  18. _____
9. _____  19. _____
10. _____  20. _____
**Answer Key for Medicine Subject Test Sample Questions**

(Questions 1-20)

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JABSOM ensures that medical students providing health care are supervised at all times to protect the safety of the student, patient, and other health care workers. The level of responsibility delegated to the student must be appropriate to his or her level of training, and the activities supervised must be within the scope of practice of the supervising health professional. This guideline outlines the requirements and procedures to be followed by faculty, residents, and other health care providers who supervise JABSOM medical students and other visiting medical students under the auspices of JABSOM, in the clinical setting. It is the shared responsibility of the department chair in conjunction with the respective clerkship or course director, site coordinators, and supervising faculty members to assure that the specifications of this statement are followed. Residents and medical students are expected to adhere to these guidelines as well.

- Supervisors for medical students in hospitals and clinics may be physicians, residents, and other health care providers appropriately certified and working within the scope of their professions.
- Supervisors of medical students must be aware of their student’s level of training and the learning objectives of the course or clerkship.
- Supervisors should either have a faculty appointment or be guided by a physician with a faculty appointment at the school of medicine.
- While obtaining a patient history or conducting a physical examination, a supervisor must be either physically present with the medical student or readily available so that they may take over the provision of care if necessary.
- A clinical supervisor must be physically present at all times and carefully supervise any procedure performed by medical students. The supervising physician must have privileges or authorization to perform the procedures they supervise.
- Students may only participate in procedures when they are judged to be ready and prepared by their clinical supervisor.
- The principles and practice of informed consent must be followed at all times and patients shall be made aware when the individual performing a procedure is a student.
- Medical students are not allowed to provide any health care services to patients in the intensive care unit unless under the direct supervision of a clinical supervisor physically present in the room.
- Medical students are allowed to document findings in the medical record and enter physician orders under the supervision of residents and faculty.
- Student entries into the medical record should be reviewed within 24 hours by clinical supervisors for accuracy and may be corrected or amended.
- Medical orders may not be entered by medical students unless they have been discussed thoroughly with their clinical supervisors. No order entered by a student may be acted upon until a resident or faculty member “co-signs” the order. Clinical supervisors should notify the clerkship or course director if they identify significant concerns about academic readiness or professionalism of students.
- Students are encouraged to voice any concern to their clerkship directors or the director of student affairs, about the adequacy of their clinical supervision. They should not perform aspects of a
history, physical examination, or a procedural skill that they believe they are not prepared to perform, even in the presence of faculty. Students may only provide health care or perform procedures that have been thoroughly discussed and agreed upon by their clinical supervisors.

- Medical students should not be asked to deliver patient care or perform procedures in the case of fatigue, especially when they are post-call.
- Medical students should not be involved in the care of other medical students. Exceptions may include the delivery of influenza vaccines or a PPD through school sponsored activities.
- Faculty should not supervise medical students who are also their patients, members of their family, or someone with whom they have had a close relationship with in the past to avoid potential conflicts of interest. If a potential conflict of interest exists, it should be discussed and resolved with the help of the clerkship director and/or director of the Office of Student Affairs.

NON-PARTICIPATION IN HEALTH CARE (Avoiding Conflicts of Interest)

Faculty should not provide health care (psychological counseling, medical care or psychiatric care) to medical students they are supervising or may supervise in their faculty roles. Exceptions include but are not limited to situations where the faculty member is the only physician or one of a limited number of physicians with expertise in the medical student’s illness. In addition, faculty should not evaluate students who are family members or close associates. Should faculty or other supervisors find themselves in a situation where their contribution to a summative evaluation or decision on academic standing or promotion of a student represents a conflict of interest, that faculty member will recuse themselves from any discussions regarding the student. Medical students are encouraged to raise any concern they have about a conflict of interest in their evaluation with course and clerkship directors or the Director of the Office of Student Affairs.

In order to ensure that providers of health and/or psychiatric/psychological services to a medical student has no involvement in the academic assessment of, or in decisions about, promotion of that student, this statement will be shared with medical students, residents, and faculty. In addition, each evaluation form will include the statement, “Submission of this form certifies that I have no conflict of interest in evaluating this student. If I am unsure whether a conflict may exist, I will contact the Director of the Office of Student Affairs do discuss the matter.” Course and clerkship directors are also encouraged to contact the Director of the Office of Student Affairs to resolve potential conflicts of interest in student evaluations.

REQUESTING AN ALTERNATIVE SITE ASSIGNMENT FOR CLERKSHIPS

Under rare circumstances, JABSOM will consider requests from medical students with an appropriate rationale for an alternative assignment. Such requests must be submitted within one week of the date of student notification of site assignment and before the start of that clerkship. Students should understand that it is their responsibility to report to their assigned sites, unless a change is granted. For third-year courses, the authority for site assignment rests with clerkship directors.

Clerkship directors use the following criteria when evaluating a request for a change in assignment site.
• Will the assignment site directly impact the health of student?
• Will the assignment place the student under the supervision of or in close working proximity to a faculty member who is also a member of the student’s family, a close family friend, or a physician treating this student?

Students wishing to submit a request for an assignment change should notify their clerkship director via e-mail, phone, or in a scheduled face-to-face meeting and be prepared with a written explanation including:

• Which of the two criteria listed above is applicable to their request.
• An estimate of the perceived impact on themselves should a change not be made
• Alternative assignment sites that would alleviate the conflict.

In making their decision, the clerkship director may consult the Director of the Office of Medical Education and the Director of the Office for Student Affairs.

JABSOM faculty respect the confidentiality required for student health issues. Direct requests for assignment changes based on the above criteria may also be brought to the Director for Student Affairs or a counselor at the student’s discretion. The Director for Student Affairs may communicate a clear recommendation directly to clerkship directors after meeting with the student or discussing the issue with a student counselor without the need for further explanation. Clerkship directors will follow these recommendations.

Should students encounter a change in their circumstances related to the three criteria above during a course, they may use the listed mechanisms to request a change in assignment.

Students are not allowed to negotiate switches in assignment sites with other students at any time before or during a required course.

MEDICAL STUDENT MISTREATMENT GUIDELINES & PROCEDURES

I. Standard of Conduct

All members of the educational community in the John A. School of Medicine (JABSOM) have the right to function in a respectful educational environment. This environment will be conducive to learning, respecting the diversity of opinion, race, gender, religion, sexual orientation, age, disability and socioeconomic status. The environment will be free of belittlement, humiliation, or hostility.

II. Purpose

The School is committed to addressing the issue of mistreatment of students by residents and faculty. The purpose of these guidelines is to provide mechanisms and procedures for students to report mistreatment against them or mistreatment that students observe against others. These guideline and procedures also inform students what happens to their reports of mistreatment.
III. Definition of Mistreatment Against Students

Mistreatment is defined on the Association of American Medical Colleges Graduation Questionnaire as follows: “Mistreatment arises when behavior shows disrespect for the dignity of others and unreasonably interferes with the learning process. It can take the form of physical punishment, sexual harassment, psychological cruelty, and discrimination based on race, religion, ethnicity, sex, age or sexual orientation”.

Specific examples of mistreatment include (but not limited to) being:

- Belittled or humiliated
- Spoken to in a sarcastic or insulting manner
- Threatened with or experiencing physical harm
- Subjected to offensive remarks or names
- Required to perform personal services (i.e. babysitting, shopping)
- Denied opportunities for training or rewards based on gender, race, ethnicity, religion, or sexual orientation
- Receiving lower grades/evaluations based upon gender, race, ethnicity, religion, or sexual orientation

In general, actions taken in good faith by faculty to correct unacceptable performance is not considered mistreatment. Pointing out during rounds, conferences, operating rooms, or other settings that a learner is not adequately prepared for his/her assignments or required learning material is not mistreatment unless it is done in an inappropriate manner.

IV. Procedures for Reporting Mistreatment based on Sexual Harassment or Discrimination

Sexual harassment and other forms of discriminatory harassment are prohibited under the University System-wide Non-discrimination policy. Sexual harassment and other forms of discriminatory harassment are prohibited under this policy. The UH sexual harassment complaint procedures can be found at http://www.hawaii.edu/offices/eeo/docs/UHMSHprocedure2006.pdf. Title IX concerns/issues/complaints can be addressed through the JABSOM Office of Student Affairs or by contacting the Title IX coordinator for the University of Hawaii at Manoa: Dr. Dee Uwono, Director and Title IX Coordinator, Hawai‘i Hall, room 124, phone (808) 956-2299. Email: t9uhm@hawaii.edu. Website: http://manoa.hawaii.edu/titleix/.

Additional resources include:

Dr. Lori Ideta, Interim Vice Chancellor for Students, Deputy Title IX Coordinator for Students and ADA Coordinator, Queen Liliuokalani Center for Student Services, room 409, phone (808) 956-3290 (voice/text). Email: vcs@hawaii.edu.

Jenna Friedman, J.D., Gender Equity Specialist, Queen Liliuokalani Center for Student Services, room 210, phone (808) 956-9977. Fax: (808) 956-4541. Email: jenna.h.friedman@hawaii.edu.

V. Procedures for Reporting Mistreatment Other than Sexual Harassment or Discrimination
A. Informal Procedure to Report Mistreatment

Students can report concerns about mistreatment or their learning environment to any of their instructors, faculty, academic advisors, course directors, or the Director of Student Affairs. Students may also make reports confidentially or anonymously via the student ombudsperson to the Director of Student Affairs or via an anonymous online report of student mistreatment (weblink: http://jabsom.surveyshare.com/s/AYAWVAA).

Medical Students requesting complete anonymity should be made aware that doing so may interfere with the medical school’s ability to investigate the concern and their ability to receive information about the follow-up investigation.

B. Administrative Procedure for Reporting Mistreatment

The Director of Student Affairs is the academic administrator responsible for the oversight of the respectful learning environment for the medical students. Students may report mistreatment directly to the Director of Student Affairs should they choose not to use the reporting mechanisms described in “A” above or in addition to using those reporting mechanisms.

VI. Mechanism for Investigating Mistreatment

The Director of Student Affairs will thoroughly consider any reported allegations of medical student mistreatment, and monitor trends by departments, as well as by individual residents and faculty. The Director of Student Affairs will report trends or serious offenses to the respective department chairs (or their designee), program director, associate dean and/or appropriate authority at the involved sites so that the proper authorities can investigate the issues and decide if and what action is warranted.

VII. Protection from Retaliation

Every effort will be made to protect alleged victims of mistreatment from retaliation if they seek redress. Retaliation will not be tolerated. To help prevent retaliation, those who are accused of mistreatment will be informed that retaliation is regarded as a form of mistreatment. Accusations that retaliation has occurred will be handled in the same manner as accusations concerning other forms of mistreatment.

VIII. Malicious Accusations

A complainant or witness found to have been dishonest or malicious in making the allegation of mistreatment may be subject to disciplinary action.

IX. Monitoring

Aggregate and de-identified data on reports of mistreatment of medical students will be shared with the Curriculum Committee and Medical School Executive Committee on an annual basis.

X. Education
Education is the cornerstone in the prevention of medical student mistreatment. A thorough and on-going effort should be made to inform all involved individuals about the appropriate treatment of medical students, and of these guidelines for dealing with alleged mistreatment. To that end, the following notification mechanisms will be utilized:

**Medical Students**

A written copy of these guidelines regarding appropriate treatment of medical students will be included in packet of information provided to students at Freshman Orientation. A discussion of mistreatment in general will take place each year during freshman and junior orientations, which will be presented by the Director of Student Affairs.

**Residents**

A review of this policy will be included in the annual orientations to teaching skills and supervisory responsibilities provided by each residency program involved in medical student teaching.

**Faculty**

Department chairs and program directors will convey this information to all teaching faculty on an annual basis.