

**MEHARRY MEDICAL
COLLEGE
SCHOOL OF MEDICINE**

JUNIOR ROTATION

**EDUCATIONAL
GUIDELINES
FOR
INTERNAL MEDICINE
CLERKSHIP**

**THIRD YEAR CLERKSHIP/INTERNAL MEDICINE
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INTERNAL MEDICINE JUNIOR CLERKSHIP

COURSE NUMBER	MEDI 501
TITLE:	Junior Internal medicine Clerkship
COURSE CREDIT	27 hours
INSTRUCTOR:	Medicine Faculty
INSTRUCTIONAL LEVEL	MS-III
INSTRUCTIONAL AREA	Nashville General Hospital at Meharry and the Medicine Clinic; York VAMC, Murfreesboro, TN; Centennial Medical Center; Matthew Walker Community Health Center; Blanchfield Army Community Hospital, Fort Campbell, KY
DEPARTMENT	Internal Medicine/Medical Services
PREREQUISITES	Students must have successfully completed the pre-clinical years.

Goal(s)	<ol style="list-style-type: none"> 1. To develop a knowledge base that will enable the student to evaluate and manage clinical problems commonly encountered in the subspecialty of internal medicine. 2. To develop clinical judgment and interpretive skills necessary for effective patient evaluation and management. 3. To develop the technical skills to necessary to safely and accurately perform basic diagnostic and therapeutic procedures common to the practice of general internal medicine. 4. To develop the interpersonal skills necessary to function effectively as a part of the health care team.
Objectives	Upon completion of this clerkship, students should be able:

	<ol style="list-style-type: none">1. To demonstrate the ability to apply the principles of epidemiology, occupational medicine, and treatment of patients.2. To describe the pathophysiology of diseases states.3. To summarize the natural history of diseases.4. To describe treatment options available for various disease processes and the anticipated outcome.5. To perform a complete and organized history and physical examination.6. To write a complete problem list.7. To orally present the patient's history, physical examination, laboratory and x-ray data in a succinct and organized fashion.8. To define the major clinical problems, and prioritize patient problems.9. To interpret and evaluate laboratory and x-ray values in clinical context.10. To formulate an appropriate differential diagnosis for each identified clinical problem using the results of H&P, laboratory, and x-ray exams.11. To record in a problem oriented fashion for each clinical problem: plans for patient evaluation, results of patient evaluation, patient plans and results of patient management.12. To describe the impact of social, economic and psychological factors on patient illness.13. To research the medical literature, textbooks of medicine and standard medical journals for information on patient diseases.14. To demonstrate the ability to correctly and safely perform venipuncture; to obtain peripheral venous blood; insertion peripheral intravenous infusion devices; radial artery puncture for arterial blood gas determination; insertion of a Foley catheter; insertion of a nasogastric tube; stool for occult blood; microscopic examination of the urine; interpretation of peripheral blood smear; interpretation of sputum gram stain; electrocardiogram for interpretation;
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		<p>basic EKG interpretation; basic chest ex-ray interpretation and basic interpretation of flat and upright x-ray of the abdomen.</p> <p>15. To demonstrate honesty in all situations</p> <p>16. To demonstrate appropriate verbal and nonverbal communication skills with patients and other members of the health care team.</p> <p>17. To demonstrate proper respect for all members of the health care team including supervisors, colleagues, nurses and other allied health professionals.</p> <p>18. To demonstrate concern for each patient’s dignity, privacy and comfort.</p> <p>19. To demonstrate the ability to relate to patients professionally.</p> <p>20. To demonstrate the ability to communicate with patients as a person rather than as “cases” or “diseases.”</p>
CONTENT OF THE COURSE: The Overview		Requires 12 weeks rotation. Eight weeks for inpatient care—four weeks for ambulatory care.
		Inpatient and outpatient clinical management of patients with various medical disorders under the supervision of attending physicians and Meharry Medicine Residents
OUTCOME		Students leaving this clerkship will have the basic medical skills for providing quality care to their patients. The clerkship will further prepare them for senior medicine requirements and medicine electives.
TEXTS		
Required		
Recommended Texts		<i>Internal Medicine</i> , Third Edition, William N. Kelly, Lippincott-Raven Publishing Co. and <i>Cecil’s Essentials of Medicine</i> , Fourth Edition, Adneroli Bennett, Carpenter Plum, W. B. Saunders Co.
Recommended Articles and Journals		As assigned by the preceptor and/or Medicine Resident

PROCESS	:
Policies	Policy statements on such things as attendance, appropriate attire, patient-student doctor interaction, safety for the patient and the student. (See more in detail in this manual.)
GRADING	
Preceptor Grade and Clinical Log	A Clinical Evaluation form is completed by the preceptor including comments and grades. A clinical log is required for each training site. (a total of three) Students must successfully pass an OSCE, a final examination and a subject board to complete this clerkship. (See more in detail regarding grading in this manual.)
Quizzes	A 20-25 minute quiz is administered each week on the previous week's lectures.
SCHEDULE	On Mondays, Tuesdays, Thursdays and Fridays, Work rounds begin at 7:00 a.m. Students are expected to be on duty until 5:00 p.m. unless they have call. The schedule and call is described more in detail in this manual. Students have lectures on Wednesdays beginning with Grand Rounds at 8:00 a.m. with the day ending at approximately 5:00 p.m.
SESSIONS:	Students are expected to be present daily. There is a 100% attendance requirement for the clinics and wards and an 80% attendance requirement for the core lectures on Wednesdays. The requirements are discussed further in this manual.

Meharry Medical College Clerkship Faculty & Staff

Department Chairman	Steven Wolff, M.D.
Clerkship Director Co-Director	Ayodeji Oso, M.D. Monique Bennerman, M.D.
Clerkship Coordinator	Mrs. Abonda Smith
Blanchfield Army Hospital 650 Joel Drive Fort Campbell, KY 42223 (270) 798-8112/798-8758	Dr. J. D. Littleton
Centennial Medical Center 2400 Patterson Street Nashville, TN 37203 (615) 342-7470	Nta Henshaw, M.D.
York V A Medical Center 3400 Lebanon Road Murfreesboro, TN 37150 (615) 893-1360 Ext.3789	David N. Pennington, FACHE, VA TVHS Director
Medical Secretary/ Coordinator	Ms. Rebecca Fraley
Nashville General Hospital at Meharry 1818 Albion Street Nashville, TN 37208 (615) 341-4000	

MISSION STATEMENT OF THE DEPARTMENT OF INTERNAL MEDICINE

The Department of Internal Medicine is committed to effectively educating students, residents and faculty members in the latest, most innovative forms of medical therapy.

The Department is committed to professional and compassionate care of all patients rendered under its care.

The Department is committed to enhancing and maintaining effective and cohesive performance of departmental programs at affiliated medical facilities, with emphasis on scholastic and research activities.

COURSE OVERVIEW -JUNIOR MEDICINE CLERKSHIP (501)

Internal Medicine Junior Clerkship MEDI 501

The junior medicine clerkship is a twelve-week rotation divided into three separate four-week blocks. Each student spends at least four weeks rotating on a general medicine ward. Performing history and physical examinations, assisting with various medical procedures and participating in on call duties under the supervision of senior medical residents and a medical attending physician.

General Medicine ward rotations are available at the following clinical sites: Nashville General Hospital at Meharry (NGHM), Alvin C. York V.A. Medical Center (VAMC) and Blanchfield Army Community Hospital (BACH) and Matthew Walker Community Health Center.

At least four of the remaining eight weeks are spent in an ambulatory clinical setting. Students evaluate patients in the outpatient setting with emphasis on diagnosis and economical management of common ambulatory disease processes.

During the clerkship students actively participate in regularly scheduled teaching rounds, grand rounds and clinical conferences.

During each rotation students are provided with a structured medical curriculum, which includes weekly core lectures pertaining to common medical specialties, grand rounds and clinical conferences.

Students are given constructive feedback regarding their clinical performance via attending/resident and clerkship director evaluations with adequate time to correct clinical deficiencies.

COURSE RATIONALE

Internal medicine has had a long and distinguished record as an intellectual discipline dedicated to clinical observation, discovery of new knowledge and the application of this knowledge to human disease. It encompasses medical diseases ranging from adolescence to adults. A vast amount of continuously expanding information must be mastered in more than twelve subspecialty areas. The course components provided in this syllabus offer a systematic approach to the acquisition of the fundamentals of internal medicine. The principles of internal medicine form the foundation of the diagnostic evaluation of all patients. Internal medicine, as a discipline, emphasizes and places great importance on the skills of history taking and physical examination. All students are expected to master these skills. This discipline further seeks to foster problem solving skills through acquisition of a broad knowledge base, generation of clinical hypotheses, and synthesis of a plan to discriminate among hypotheses. This process of differential diagnoses formation and problem definition are best learned in the internal medicine clerkship. Patient management skills for hospitalized patients are emphasized. The internal medicine ward experience also teaches the student to take personal responsibility for the individual patient's medical care.

TEACHING FORMAT

The Medicine Team

Each student is assigned to a ward medicine team that consists of two interns, a *PGY -2* or *PGY -3* supervising resident, and an attending. The attending is legally responsible for care delivered to the patient but delegates much of the day to day responsibility to the supervising resident. You will be the primary physician for the patients assigned to you although a *PGY-1* resident (or intern) will also be assigned to each patient. You are expected to enter data and initial history and physical examination on your assigned patient's charts. You are also expected to assess patient issues, formulate a complete problem list, and record daily pertinent progress notes and patient orders in the medical record. These task are performed under the direct supervision of the interns and the supervising resident. All orders, databases, progress notes and problems lists are to be read, corrected, if necessary , and cosigned by the intern assigned to the patient with the student.

Students are on call with their teams and take night call every fourth night. Patients managed by the student are always seen by the intern and *PGY -2/3* resident who directly supervise and are integrally involved in socialization of the student into the health care team. In addition, these residents assist the student in performing necessary patient procedures and in understanding the pathophysiology, evaluation, assessment, and treatment of patient problems. Students must perform the routine clinical work (drawing blood, starting I.V's, checking lab results, etc.) on their assigned patients. If offered the opportunity, they may elect to assist with procedures on other patients on the team. The student is encouraged to fully participate in all team activities.

POLICIES AND PROCEDURES

Professional Attitude and Behavior

Medical knowledge and skills alone are insufficient to make a good health professional. In addition, students will learn the basic values and attitudes of the medical profession. These include the following:

- Reverence for human life and the understanding that sympathy of the suffering is the fundamental concern of the medical professional's action.
- Adherence to the highest standards of integrity and discretion while treating all with equal honor, respect and compassion.
- Grace to admit mistakes and lack of knowledge. The desire to continuously learn and improve.

Dress Code

Personal attire should be reflective of professionalism accordance with institutional, departmental and course director mandates. When present on the medical ward or at clinical sites, this attire should include a short white laboratory coat with I.D. badge in addition to the following:

- .A clean, short white laboratory coat with appropriate I.D.
- .Shirt and tie for males
- .Dress/pants for females
- .Medical instruments necessary to perform clinical examinations

Conduct on medical wards should be professional at all times.

In accordance with departmental regulations students are required to comply with the following:

- .Students are not to wear scrub suits during regular work days. (Scrub suits are only permitted during on-call periods.)
- .Students are not permitted to wear visible body piercing ornaments while rotating on the medical service (except for earrings worn by female students.) Students who fail to comply will be subject to disciplinary action
- .Absolutely no food, beverages or cigarette smoking is allowed in patient care areas. Smoking is not allowed in any building on the Meharry campus or its affiliated facilities.
- .It is important that each student keep his or her work area/classroom clean at all times.
- .Students must notify the clerkship office in the Department of Internal Medicine Clerkship Office (327-5998), the site-coordinator, the preceptor's office and the clinical administrative assistant as soon as possible in the event of tardiness or absences.

Attendance/ Absences

In compliance with school policy, student(s) will not be allowed to attend classes for which/he/she is not officially registered for by the Office of Admissions and Records. **No student will be allowed to register retroactively for the Junior Medicine Clerkship unless approved by the Office of Student and Academic Affairs.**

Students are required to attend at least 80% of Wednesday core lectures. Students who do not comply with this requirement will not be permitted to take the subject board examination until a Dean's Excuse is received and missed lecture time is made up in the form of additional call duty. One hundred (100%) attendance is required while rotating on the general medicine wards or at affiliated clinical sites. Time missed must be made up in the form of additional call duty. A Dean's Excuse is also required. Such excuses imply that the student will not be penalized for work missed during his/her absence. However, the student is required to make up missed work.

Students who are repeatedly absent from class lectures or clinical duties will be referred to the Senior Associate Dean for Student/ Academic Affairs for counseling and/or disciplinary action. Request for Dean's Excuses must be made in advance of anticipated absences. Please notify the administrative assistant and/or the assistant clerkship coordinator (327-5998) of the anticipated absences.

Tardiness

Students are asked to be on time for all lectures and conferences. A class roster will be distributed the first 15 minutes of each class period. Each student is to sign his or her name. Students who are tardy in excess of 15 minutes for lectures and/or conferences will be counted as absent.

Student Organizations

Students are encouraged to appoint a class spokesperson who will be responsible for alerting fellow class members of schedule changes and bringing class concerns to the attention of the Clerkship Director.

Medical Grand Rounds

Medical Grand Rounds are weekly conferences conducted by faculty members or guest speakers on selective topics in internal medicine. All students are required to attend these conferences and sign the attendance roster. Questions from these sessions may appear on weekly quizzes. Medical Grand Rounds is held on Wednesday at 8:00 a.m. to 9:00 a.m. (except during the summer months) either in the lower level of the Learning Resource Center (LRC) or M001 (WBSC).

Morning Report

A daily brief review of patients admitted to the medical ward team in the previous 24-hours is conducted by the chief resident and/or the supervising attending physician.

Morning report is conducted from 8:00 a.m. -9:00 a.m., on the 4th floor of building one (I) at VAMC (except on Wednesday) in the 7th Floor Conference Room located at MNGH. Morning report is primarily for residents, but students are required to attend morning report at the closest medical facility. Each student should sign the attendance roster prior to the end of the conference.

Work Rounds

Student patient evaluation should begin each morning under the direction of the team's senior medical resident. These rounds are traditionally conducted prior to Morning Report at the discretion of supervising senior residents.

Wards and Clinic

General medicine attending rounds are regularly scheduled Monday through Sunday at the discretion of the attending physician. Students are expected to track patients progress and give brief presentations of patients work-ups while on call.

Clinical assignments are to be completed within 24 hours of the patients admission and placed on the patients clinical chart.

On Call Schedule

- Students are required to participate in on-call schedule while present on the service. Call periods are every 4th day and every 4th night at both MNGH and VAMC. **Students in the clinics are expected to keep a log of the patients they see and have the supervising attending physician sign their log at the end of each clinic (AM and PM).** Overnight accommodations are available at each medical facility. For specific details regarding living quarters, consult the clinical site coordinator.
- When on call you are to remain at the assigned site during the entire scheduled call period. Call period begins at 7:00 a.m., and extends to 7:00 a.m., the following morning. On weekends call duty begins at 7:00 a.m., extending to 7:00 a.m., the following day. In order for students to attend **Monday and Wednesday** core lectures, call periods that occur on **Sundays and Tuesdays will extend only until 9:00 p.m.**
- Each student, while on call, should be readily accessible, actively participating in the work-up of new patients admitted. This includes drawing blood, starting IV lines, and placing Foley catheters, etc.....

Histories & Physicals

Each student is required to turn in four (4) hand written or neatly typed history and physical write-ups from each clinical site. These reports are to be turned in to the Junior Clerkship Office on or PRIOR to the LAST of each 4-week period. Failure to turn in all clinical write-ups on the last day of each 4-week period will result in a 5% reduction in the students overall grade of each 4-week period.

Students are to avoid copying patients names and medical record number for confidentiality purposes.

Logs

A separate patient clinical log will be kept for each site. All clinical activities must be included in the log while rotating on the service and signed by the supervising attending physician. Clinical logs will be counted as part of the clinical evaluation. Entries of all patients must include the following:

1. Entries of all patients H&P's, lab work ordered, treatment the student assisted with or observed.
2. Entries of all patients rounded with or received lectures on.
3. Entries of all case presentations
4. A student evaluation of the site(s) and preceptor(s)
5. An attending or resident must initial all log entries daily. The attendings signature must appear on the last log entry page.

Progress Notes

Each patient's medical progress should be evaluated daily and recorded in the progress notes by the medical student. These notes **MUST** be co-signed by the medical resident and/or attending physician for medical/legal reasons. Students are asked to use the S.O.A.P. format when writing progress notes.

All procedures performed on patients, such as lumbar punctures, bone marrow aspiration, pleural biopsy and etc., **MUST** be documented in the progress note with the indications for the procedure, date, time, operators, a brief discussion of procedural technique and any complications that occurred.

Exams and Grades (See Grading Scale on the following page.)

A total of (2) tests given at 4-week intervals, the internal medicine subject board examination and an OSCE will be given during each rotation. Tests will include material covered during the previous core lectures and medical grand rounds.

The definitive clinical evaluation of the student's performance will be recorded using the following grading scale: **A+, A, A-, B+, B, B-, C+, C, C- or F**. A narrative statement including the clinical evaluation final grade will be submitted to the Office of Student and Academic Affairs at the end of the rotation. (See grading scale on following page.) Students having concerns regarding grade calculations should make an appointment with the Clerkship Director or Clerkship Coordinator.

Clinical evaluations via attending/resident physicians will be utilized to determine each student's performance during the clerkship. Students are encouraged to review the sample evaluation form disseminated to them in order to meet requirements for each Letter Grade. If a discrepancy arises regarding a clinical evaluation, please contact the Clerkship Director. Students, under no

circumstances, are to harass or threaten resident physicians and/or attending physicians regarding their evaluations.

Students not completing tests, final examination or subject board examination will receive an "I" incomplete until such examinations are completed. A Dean's Excuse is required before any makeup examinations can be taken. A Dean's excuse must be received no later than **one** week after an absence occurs for a student to be permitted to make up an exam and/or not have the absence counted against his/her overall attendance record. Students not completing all course work will receive an "**I**" until the work is completed.

Any student receiving an "I" should complete course work within **10 days** of the ending rotation (other than for subject board), at which time the "I" will be removed. Failure to remove incomplete grades during the prescribed period will result in the student receiving a "failing" grade for the rotation.

Subject Boards

Students with less than a 60 percent average after the (2) tests may not be permitted to take the subject board with the class. They may be required to participate in remedial sessions and then take the subject board at a later date. The passing score for Medicine's subject board is set at 60 percent. Students scoring in the 60's and above percentile will be permitted to retake the subject board just to enhance their score and final grade.

Students scoring between 52 and 59 percentile on the Medicine Subject Board will be given an "**I**" in the course and must repeat the subject board to clear the incomplete. A retake of a subject board will not be done with the new clerkship class. The retake must be done during an off-rotation period, i.e., when other departments finish their rotation and administer their subject boards. Remedial sessions will be provided by the Department of Internal Medicine for a period of four (4) weeks. It is mandatory that students attend the remedial sessions before they will be permitted a retake of the subject board. If a student fails the subject board for the second time, he/she must serve an extra month in internal medicine before retaking the exam for the third and final time. Students failing the subject board for the third time will repeat the entire course. An "I" grade must be removed within a year from the first attempt date. After one year, the "I" will automatically become an 'F'. Students are also encouraged to contact the Office of Student/Academic Affairs for academic support services and skills development. Students scoring less than 52 percent on the subject board will automatically repeat the course. A retake of the subject board will not be permitted until the course has been repeated and performance on test and examinations has improved.

Grading! Scale for Junior Clerkship in Internal Medicine

Clinical Performance Grades

A+ : 100 A = 93, A- : 85,
B+ = 84, B = 80, B- = 75,
C+ = 74 C = 70, C- = 64, Below 64
(C-) = Below 60 = Failing (must retake)

Subject Boards

70 + = 15 pts.
60 – 69 x.15 to calculate points

Final Grade Percentage for Calculating Points

A+ = 100-94; A = 93-86; A- = 85; B+ = 81-84;
B = 76-80; B- = 75; C+ = 71-74; C = 65-70; C- =
60-64 Below 60 is Failing.

For Final Grade

30% of Clinical Average
25% of Subject Board Score
15% of OSCE
10% Mid-term (average of 3 tests)
10% Professor's Rounds
5% Attendance
5% Discretion of the Clerkship Director

Textbooks: *Internal Medicine*, Third Edition, William N. Kelley, Lippincott -Raven Publishing
Cecil's Essentials of Medicine, Fourth Edition, Adneroli Bennett, Carpenter Plum, W. B.
Saunders Co.

Learning Disabilities: Students who desire testing for learning disabilities should submit a letter to the Medicine Clerkship Office from the Senior Associate Dean for Student/Academic Affairs advising the Clerkship Office of any special accommodations that must be made while the student is serving a clerkship in The Department of Internal Medicine. All information will be held in complete confidence.

WEEKLY SCHEDULE

MONDAY, TUESDAY, THURSDAY, FRIDAY

Work Rounds 7:00 a.m. – 8:00 a.m.

Morning Report 8:00 a.m. – 9:00 a.m.

Clinical 9:00 a.m. – 5:00 p.m.
(Depending on site, times varies)

WEDNESDAY

Grand Rounds 8:00 a.m. – 9:00 a.m.
(No grand rounds during summer months)

Core Lectures

Mondays 1:00 p.m. – 5:00 p.m.

Wednesdays 9:15 a.m. – 11:30 a.m.

CALL SCHEDULE

Calls are assigned by chief residents at Nashville General Hospital at Meharry and at Alvin C. York VAMC

LIST OF DISEASES FOR PROBLEMS STUDENT WILL ENCOUNTER

skin changes	increased heart rate
rash	decreased heart rate
acne	irregular heart rhythm
mouth problems	palpitations
dysphagia	chest pain
nausea, vomiting	shortness of breath
heartburn	congestive heart failure
abdominal pain	orthopnea
loss of appetite	orthostasis
blood in stool	edema
constipation	heart murmur
diarrhea	wheezing
jaundice	snoring
weight loss	URI
fever, chills, night sweats	hemoptysis
fatigue, malaise	bronchitis
weakness	pneumonia
abnormal bleeding, bruising	hoarseness
lymphadenopathy	excessive thirst
pain	galactorrhea
syncope	temperature intolerance
anemia	excessive appetite
involuntary movements	excessive urine production
seizures	thyromegaly
headache	itching
memory problems	nasal discharge
transient ischemic attack	AIDS
disturbances of sensation	sexually transmitted disease
disturbances of speech	tuberculosis
confusion	change in bowel habits
double vision	enlarging abdomen
decreased visual acuity	muscle pain
altered mental status	joint pain, swelling
disturbed coordination	stiffness
sleep disorders	deformities of spine
back pain	joint deformities
paralysis	breast mass
movement disturbances	pelvic pain
hematuria	vaginal discharge
UTI	menopause
proteinuria	irregular menses
dysuria	impotence
incontinence	decreased libido
hesitancy	penile discharge
	kidney stones

Ambulatory Medicine

This rotation provides the student with clinical experience in an outpatient setting. This rotation encompasses a full array of clinical experience in the private physicians' offices, managed care practices, community based clinics and hospital outpatient based clinics. Students will observe all aspects of the practice as they provide primary care services to individuals from a cross segment of the socioeconomic classes in an ambulatory setting.

Course Objectives

1. Assume primary care responsibility commensurate with students experience and ability .
2. Work cooperatively with physicians, nurse practitioners and physician assistants in outpatient settings.
3. Development of skills in the diagnosis and management of patient care in an ambulatory setting.
4. Utilize the appropriate problem solving skills in patient care management and outpatient settings.
5. Knowledge and development of clinical procedures performed in the physician's office and outpatient clinics.
6. Ability to have a professional attitude in the clinical setting.
7. Obtain knowledge of patient referrals to other physicians, home health agencies and supportive services.
8. Understands the importance of continuity of patient care in the clinical setting.
9. Develops and understanding of how the private physician deals with patient emergencies.
10. Understands the role of the physician in the clinical setting.
11. Gives students an opportunity to provide healthcare to the medically underserved.
12. Improve history and physical examination skills.
13. Gain awareness of the availability and utilization of community resources, the importance of good referral patterns, and special problems encountered in practice in underserved area practice.
14. Learn some of the economics and management of medical practice
15. Learn how cultural issues impact on health care delivery.

Training Problems Learning Objectives

A review of the core competencies underscores the fact that internal medicine is a very broad, content-driven field that places a premium on cognitive work and interpersonal skills. Some argue that any patient will suffice to teach internal medicine's basic approach to clinical problem solving, but most faculty agree that mastery of a substantial fund of knowledge and the ability to function effectively across a wide spectrum of problems are important hallmarks of the general internist and should be emphasized in the core clerkship. Consequently, this curricular model specifies a set of high-priority "training problems" that help to define the core knowledge, base, encourage mastery of basic skills, and advance the attitudinal agenda. Some may argue that it is too difficult to get "the right patients," but utilizing both the inpatient and outpatient services for clinical experiences and limiting the training problem list to common clinical conditions helps to ease the burden of case selection.

The training problems listed below and detailed in the following pages were those receiving the highest scores from internal medicine faculty in the national survey described about (see Appendix for details). Each is presented with a statement regarding its rationale, prerequisite, and associated learning objectives (knowledge, skills, and attitudes). The training problems and their associated learning objectives are presented in the spirit of elaborating a model content-based curriculum that drives from the core competencies, each training problem is appropriate for the core medicine clerkship. The content is not exclusionary. It is expected that faculty will want to revise the training problem list or limit the learning objectives for a particular problem to better match their clinical resources and course objectives.

The list of training problems resembles the list of common problems encountered by general internists in their practices. Unlike the spectrum of the problems encountered in the inpatient-based traditional core medicine clerkship, these include conditions dealt with predominantly in the outpatient setting (e.g., screening for cancer, evaluation of hyperlipidemia, management of hypertension, evaluation of joint pain,). The training problems can be roughly divided into categories by clinical presentations.

The Learning objectives for each training problem have been spelled out in considerable detail. The degree of depth and sophistication is relatively high.

LEARNING OBJECTIVES FOR EACH TRAINING PROBLEM

Training Problem Objective Number

Healthy Patients

Health Promotion 1

Patients with a Symptom, Sign or Lab Abnormality

Cough
Dysuria 3
Back Pain 4
Altered Mental Status 5
Joint Pain 6
Chest Pain 7
Abdominal Pain 8
Fluid & Electrolytes, & Acid Based Disorders 9
Anemia 10
EKG-Rate, Rhythm 21

Patients with a Known Disease

Hypertension 11
COPD 12
HIV Infection 13
Congestive Heart Failure 14
Diabetes Mellitus 15
Dyslipidemia 16
Substance Abuse 17
Smoking Cessation 18
Depression 19
Common Cancers 20

Dermatological Problems 22

Nephrology 23

Nephrotic Syndromes
Acute & Chronic Renal Failure

Endocrine 24

Thyroid Disorders
Pituitary Diseases

Cardiology Disorders 25

Myocardial Ischemia
Chamber Enlargement-Hypertrophy
Congestive Heart Failure

Valvular Heart Disease: Mitral & Aortic Bundle Branch/AV Bloc	
Rheumatology Disorders	26
Pulmonary Disorders	27
Gastroenterological Disorders	28
Neurological Disorders	29
Infectious Diseases	30

HEALTHY PATIENTS

Health Promotion, Disease Prevention, and Screening

Specific Learning Objective: #1

Knowledge: Students should be able to describe and define:

1. The epidemiology and definitions of hypertension, its contribution to cardiovascular risk, the impact of treatment on risk, and current recommendations for screening.
2. The epidemiology of hyperlipidemia, its contribution to cardiovascular risk, the reliability of testing modalities, the impact of treatment on cardiovascular risk, and current recommendation for screening.
3. The epidemiology of common cancers, including:
 - .breast cancer, the efficacy of available screening modalities, impact of early treatment on survival, and current recommendations for screening.
 - .common skin cancers, including the warning signs of melanoma and basal and squamous cell carcinoma.
 - .cervical cancer, the utility of the PAP smear, impact of early treatment on outcome, and current recommendations for screening
 - colorectal cancer, the utility of available screening methodologies, the impact of early treatment on outcome, and current screening recommendations
 - .testicular cancer, the early clinical presentation, impact of early treatment on outcome, and current screening recommendations.
 - prostate cancer, the utility of available screening modalities, impact of early treatment on outcome, and current screening recommendations.
 -
4. The risks, benefits, methods, and recommendations for immunizing adults against hepatitis B, influenza, pneumococcal infection, tetallus/diphtheria, and mumps/measles/rubella.
5. Safe sexual practices and risks, benefits, and efficacy of common methods of contraception.
6. efficacy of seat belt use and proper belt application
7. efficacy of exercise in prevention of cardiovascular disease and recommended exercise programs
8. the clinical presentations of substance abuse and basic approaches to prevention and treatment (see more detailed recommendations in segment on substance abuse)

9. the impact of smoking on cardiovascular and cancer risk and basic approaches to smoking cessation (see also specific recommendations in segment on smoking)
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)
11. methods of stress reduction and their efficacy
12. the functional status assessment in the geriatric patient and its impact on assuring the best possible functional state
13. common environmental and occupational hazards

Cough

Specific Learning Objective: # 2

Knowledge: Student should be able to:

1. Understand the criteria used to classify a cough as chronic and a cough as productive.
2. Know the signs and symptoms associated with the most common causes of acute cough:
 - .viral tracheitis
 - .bronchitis
 - .pneumonia
3. Know signs and symptoms associated with the most common causes of chronic cough:
 - .post nasal drip
 - .asthma
 - .gastroesophageal reflux
 - .cigarette smoking
 - .lung cancer
 - .TB
 - .CHF
4. Recognize signs and symptoms of variant asthma and its precipitants
5. Identify the pathogenic, epidemiologic and pathophysiologic differences between:
 - community-acquired vs. hospital-acquired pneumonia
 - .lobar vs. Interstitial pneumonia
 - .normal host vs. Immunocompromised pneumonia
 - .aspiration pneumonia vs. Viral/bacterial pneumonia
6. Identify the effect of old age on the pathogenic, epidemiologic and pathophysiologic factors for each of the pneumonias listed above.
7. Recognize the differences in pathogens and clinical presentation for chronic and acute pneumonia.
8. Know the pathophysiology of lung abscess, post-obstructive pneumonia, and pseudotumor.
9. Know the indications for pneumococcal and influenza immunizations.
10. Know the severe complications of acute bacterial pneumonia (bacteremia, sepsis, emphysema, meningitis, metastatic microabscesses).

11. Identify patients who are at risk for impaired or deficient immunity
12. Obtain a thorough history of environmental/occupational allergies and determine the likelihood of topic disease
13. Assess a patient for symptoms of gastroesophageal reflux disease.

DYSURIA

Specific Learning Objective: #3

Knowledge: Student should be able to describe:

- I. the signs and symptoms, in women, of the following:
 - .cystitis
 - .urethral syndrome
 - .estrogen deficiency changes
 - .genital herpes
 - .virginitis

2. The signs and symptoms, in men, of the following:
 - .urethritis
 - .cystitis
 - .genital herpes
 - .balanitis

3. The signs and symptoms of the following:
 - .urinary tract infection associated with dysuria
 - .pyelonephritis
 - .prostatitis
 - .asymptomatic bacteruria

4. The signs and symptoms of the following:
 - .cystitis
 - .urethritis
 - .urethral syndrome

5. The typical presenting features that distinguish cystitis, pyelonephritis, and urethritis from each other

6. The signs and symptoms of bacteremia and sepsis.

7. Factors that may predispose a patient to cystitis, pyelonephritis, urethritis, and asymptomatic bacteruria including:
 - .sexual activity
 - .pregnancy
 - .barrier contraceptives (diaphragm)
 - .prior urinary tract instrumentation
 - .urinary catheterization (in-dwelling and intermittent)
 - .anatomic anomalies (congenital and acquired)
 - .bladder dysfunction

8. Reasons why the following signs differentiate the causes of urinary tract infection:
 - .flank tenderness

- .enlarged kidney
- .palpable bladder
- .post-void residual urine
- .urethral discharge

9. The indications for the diagnostic tests for urinary tract infection including:

- .intravenous pyelogram
- .voiding cystourethrogram
- .urodynamic determination
- .renal ultrasound

10. The rationale for different durations of antimicrobial therapy for cystitis and pyelonephritis.

11. The commonly used antimicrobial drugs used for urinary tract infections by:

- .naming six drugs and the class to which each belongs
- .describing the antimicrobial spectrum for each, and their effectiveness
- .designating the cost of each
- .toxicity/side effects of each

TRAINING PROBLEM: BACK PAIN

Specific Learning Objective: #4

Knowledge: Students should be able to define and describe:

1. The signs and symptoms of muscle strain, lumbar disc herniation, vertebral compression fracture, spinal metastasis, spinal epidural abscess, and cauda equina syndrome.
2. The clinical features that differentiate one etiology from another.
3. The role of neuroimaging studies in the evaluation of back pain, including their indications, limitations, and cost.
4. The natural history of the important causes of back pain, especially those which require urgent attention (cauda equina syndrome, epidural abscess, spinal metastasis and those which do not (strain, minor disc herniation).
5. Response to therapy of the various etiologies, with understanding of the roles of bed rest, exercise, analgesia, anti inflammatory agents, heat, cold, ultrasound, back manipulation, and surgical interventions.
6. means of limiting disability and chronicity .

ALTERED MENTAL STATUS

Specific Learning Objective: #5

Knowledge: Students should be able to describe and define:

1. Know the pathophysiology, signs and symptoms of common causes of altered mental status including: Metabolic causes (i.e., hyper/hyponatremia, hyper/hypoglycemia, hypercalcemia, hyper/hypothyroidism, hypoxia/hypercapnea, hepatic encephalopathy, uremic encephalopathy, drug intoxication/withdrawal, Wernicke's encephalopath); structural lesions (primary or metastatic tumor, intracranial hemorrhage, infection), cerebrovascular accident, transient ischemic attack, meningitis, encephalitis, seizures, postictal state, hypertensive encephalopathy, vasculitis, arrhythmias, pump failure, and endocarditis.
2. Recognize the differential diagnosis of altered mental status based on history and physical findings, specifically being able to distinguish delirium from dementia.
3. Know the key diagnostic criteria of altered mental status.
3. Know the essential diagnostic tests to differentiate among possible causes of altered mental status with their indications and contraindications including
 - lumbar puncture
 - CT scan.
 - MRI scan
 - .EEG
 - .drug screen
 - .CBC with differential
 - .electrolytes
 - .serum chemistry screen (glucose, renal/hepatic function tests)
 - .VDRL
 - .arterial blood gas
 - .vitamin B12 and Thiamine
 - .thyroid function tests
5. Know the principles of management of common causes of altered mental status.

JOINT PAIN

Specific Learning Objective: #6

Knowledge: Students should be able to describe:

I. Common symptoms and signs of:

- .osteoarthritis
- .rheumatoid arthritis
- .systemic lupus erythematosus
- .polymyositis
- .crystalline arthropathies
- .scleroderma
- .carpal tunnel syndrome
- .herniated disc
- .aseptic necrosis of the hip
- .sarcoidosis

2. The difference between arthralgia and arthritis
3. A systematic approach based on an understanding of pathophysiology to classify potential causes of joint pain
4. Key diagnostic criteria for common causes of joint pain
5. Pathophysiology of joint stiffness and pain
6. Immunologic tests to use in the evaluation of patients with joint pain
7. Indications for performing an arthrocentesis
8. Basic types of therapy used in the management of joint pain.

CHEST PAIN

Specific Learning Objective: # 7

Knowledge: Students should be able to describe and define:

- I. The signs and symptoms of:
 - .right- and left-sided congestive heart failure
 - .ischemic heart disease
 - .valvular heart disease (aortic stenosis, aortic insufficiency, mitral stenosis, mitral regurgitation)

2. Signs and symptoms associated with:
 - .ischemic heart disease
 - .mitral valve prolapse
 - .dissecting aortic aneurysm
 - pericardial pain (acute)
 - .cardiomyopathy

3. Signs and symptoms associated with:
chest pain due to GI Disorders:
 - .gastroesophageal reflux
 - .peptic ulcer disease
 - .biliary colic
 - pancreatitis

4. Signs and symptoms associated with:
chest pain due to pulmonary disorders:
 - pneumonia
 - .spontaneous pneumothorax
 - .pulmonary embolism
 - .pulmonary hypertension
 - .inflammation of the pleura

5. Signs and symptoms associated with:
chest pain due to musculoskeletal causes:
 - .anemia
 - .hypoxemia
 - .hypertension
 - tachyarrhythmia
 - hyperthyroidism

6. Typical blood pressure values that occur with aortic stenosis, aortic insufficiency, and pulsus paradoxicus.
7. The common abnormalities that can cause paradoxical fixed splitting of the S2; factors that increase or diminish the intensity of S1

8. The consequences of the following risk factors and their association with heart

disease:

- .hypertension
- .smoking
- .lipid abnormalities
- .age and gender
- .diabetes mellitus
- .family history of heart disease
- .obesity
- .dietary intake of saturated fat and cholesterol
- sedentary lifestyle

9. The steps in a critical pathway for patients hospitalized with ischemic chest pain.
10. The presence of chest pain (typical, atypical), dyspnea (resting, exertional, nocturnal), history of hypertension, valvular heart disease, mitral valve prolapse, rheumatic fever, cardiac murmurs, family history of heart disease and cardiovascular risk factors.

ABDOMINAL PAIN

Specific Learning Objective: #8

Knowledge: Students should be able to describe and define

1. Principal types of pathophysiologic mechanisms of abdominal pain (i.e, obstruction, peritoneal irritation, vascular insufficiency, abnormal motility , mucosal irriation, metabolic aberrations, nerve injury, referred pain, psychopathology).
2. Describe the relative likelihood of common causes of abdominal pain according to the quadrant in which the pain is located.
3. List symptoms and signs indicative of an acute abdomen
4. Describe the key diagnostic criteria for common causes of abdominal pain based on a history, physical exam and laboratory testing
5. Identify the indications and the limitations of the following principal diagnostic studies necessary to differentiate among common causes of abdominal pain, including:
 - fecal leukocytes
 - stool culture
 - .stool guaiac
 - .stool fat
 - .hepatitis serology
 - .liver enzymes
 - .amylase and lipase
 - .paracentesis
 - .upper endoscopy
 - .sigmoidoscopy
 - .colonoscopy
 - .barium studies
 - .abdominal ultrasound
 - .CT scan
 - .radionuclide scan of hepatobiliary system
6. Identify indications for dietary intervention, drug therapy and therapeutic procedures in patients with common causes of abdominal pain
7. Identify indications for empiric therapy in patients with abdominal pain
 - .describe steps in a critical pathway for patients with an acute abdomen

FLUID, ELECTROLYTES & ACID BASED DISORDERS

Specific Learning Objective: # 9

Knowledge: Students should be able to describe:

1. Pathophysiology of hypo and hypervolemia, hypo- and hyponatremia, hypo- and hyperkalemia, hypo- and hypercalcemia, simple and mixed acid-base disorders, hypo- and hyperphosphatemia, hypo- and hypermagnesemia (respiratory acidosis & alkalosis, and metabolic acidosis & alkalosis).
2. Presenting symptoms and signs of the above disorders.
3. The importance of total body water and its distribution
4. The differential diagnosis of hypo- and hypernatremia in the setting of volume depletion, euvolemia and hypervolemia
5. Distinguish hyponatremia from pseudohyponatremia
6. And identify spurious hyperkalemia or acidosis-related hyperkalemia
7. The risks of too rapid or delayed therapy for hyponatremia
8. The most common causes of respiratory acidosis, respiratory alkalosis, metabolic acidosis and metabolic alkalosis
9. Calculate the anion gap and explain its relevance to determining the cause of a metabolic acidosis
10. How to differentiate saline responsive from saline resistant metabolic alkalosis
11. Changes in total body water distribution that occur with aging
12. How altered mental status can contribute to electrolyte disorders
13. The tests to use in the evaluation of fluid, electrolyte and acid-base disorders
14. The indications for obtaining an arterial blood gas
15. The types of fluid preparations to use in the treatment of fluid and electrolyte disorders

ANEMIA

Specific Learning Objective: #10

Knowledge: Students should be able to define and describe the:

- I. Classification of anemias
2. morphological characteristics of:
 - .iron deficiency and other microcytic anemias (i.e., sideroblastic)
 - .macrocytic anemias
 - .anemia of chronic disease
 - .congenital disorders (sickle cell, thalassemias)
 - .hemolytic anemias
3. Available laboratory tests and normal values
4. Explain indications, contraindications and complications of blood transfusion

HYPERTENSION

Specific Learning Objective: #11

Knowledge: Students should be able to:

1. Identify the etiologies and prevalence of primary and secondary hypertension
2. Define hypertensive urgency and emergency, citing examples of both
3. Describe signs and symptoms of the following presenting disorders associated with secondary hypertension:
 - .polycystic kidneys
 - .renovascular hypertension
 - .Cushing's disease syndrome
 - .pheochromocytoma
4. Define and describe the manifestations of target-organ disease due to hypertension. (appendix)
5. Define the classification of blood pressure (systolic blood pressure (SBP), diastolic blood pressure (DBP) for all age 18 or older (young adult, middle age, old age, and the elderly).
6. Identify the pharmacological management of acute and chronic hypertension and causes for lack of responsiveness to therapy.
7. Describe the prevention strategies for reducing hypertension including lifestyle factors, dietary intake of sodium, weight, and exercise level.
8. describe steps in a critical pathway for management of patients with a hypertensive emergency.

COPD

Specific Learning Objectives: #12

Knowledge: Students should be able to describe and define:

1. Know the disease entities and processes of common, serious, or prototypical respiratory diseases that can result in COPD.
 - asthma
 - chronic bronchitis
 - emphysema
 - genetic predisposition --alpha 1 antitrypsin deficiency
2. Identify allergic and non-allergic factors that may precipitate bronchospasm and asthma.
3. Know the risk for developing COPD in various patients and correlate risk factors associated with each respiratory tract disease with occupational and environmental hazards.
4. Know the basic principles of O₂, antibiotic, bronchodilator and corticosteroid therapy.
5. Know role of influenza vaccine/pneumovax in COPD patients.
6. Know the etiologies of the disease, including:
 - .existence, duration, and severity of the following symptoms:
 - .shortness of breath
 - .sputum production
 - .cough
 - .wheezing
 - .hemoptysis
 - .fever
 - .abnormal nocturnal/diurnal sleep patterns
7. The patient's occupational history, including current and past exposures environmental, smoking (active and passive), travel, and family respiratory tract history, including:
 - a history of allergies, previous respiratory tract diseases, and previous PPD, TB, and BCG status
 - .the risk for alpha 1 antitrypsin deficiency.
 - .differentiating between a normal, dull and hyperresonant chest by percussion; differentiating between areas of consolidation and pleural fluid by assessing the quality of the breath sounds and ancillary findings such as egophony and whispered pectoriloquy
 - .assessing the presence of pleural friction rub.

HIV INFECTION

Specific Learning Objective: #13

Knowledge: Students should be able to describe:

1. CDC AIDS case definition
2. Know symptoms and signs of HIV-related opportunistic infections
 - .P. carina
 - .Candidiasis
 - .Cryptococcosis
 - .Cryptosporidiosis
 - .Cytomegalovirus
 - .Mycobacterium avium complex
 - .Mycobacterium tuberculosis
 - .Toxoplasmosis
3. Know the symptoms and signs of the following HIV-related malignancies:
 - .Kaposi's sarcoma
 - .Non-Hodgkin's lymphoma
 - .Cervical carcinoma
4. Know what constitutes hospice care
5. Recognize the relationship of CD4 count to opportunistic infections

CONGESTIVE HEART FAILURE

Specific Learning Objective: #14

Knowledge: Student should be able to describe:

1. Know the types of processes (i.e. ischemic, valvular, cardiomyopathy, infiltrative, inflammatory) and most common disease entities that cause CHF:
2. Identify types of processes that cause systolic vs. diastolic dysfunction.
3. Know the signs and symptoms of left-sided vs. right sided heart failure.
4. Know the compensatory mechanisms in heart failure.
5. Recognize factors leading to exacerbation of CHF including hypoxemia, anemia, fever, hypertension, tachyarrhythmia, and hyperthyroidism.

DIABETES MELLITUS

Specific Learning Objective: #15

Knowledge: Students should be able to describe:

1. Identify symptoms and signs of type I and type II diabetes mellitus.
2. Identify symptoms and signs of diabetic ketoacidosis and nonketotic hyperglycemic coma.
3. Know major causes of morbidity and mortality in type I and type II diabetes mellitus (e.g., coronary artery disease, peripheral vascular disease, hypoglycemia, diabetic ketoacidosis, nonketotic hyperglycemic coma, retinopathy, neuropathy, nephropathy, foot disorders).
4. Know pathogenesis, genetics, and epidemiology of type I and type II diabetes mellitus
5. Know diagnostic criteria for type I and type II diabetes mellitus, based on a history , physical examination, and laboratory testing.
6. Identify key laboratory tests needed to diagnose type I and type II diabetes mellitus, diabetic ketoacidosis, nonketotic hyperglycemic coma, and hypoglycemic coma including:
 - .serum glucose
 - .electrolytes
 - .blood urea nitrogen
 - .creatinine, ketones (serum)
 - .arterial blood gas
 - .glycosylated hemoglobin or fructosamine
 - .urine glucose, ketones, albumin/protein
7. Know the goals of treatment of diabetes mellitus (i.e., preventing complications, maintaining acceptable levels of glycemic control, and achieving weight reduction, if obese).
8. Know key indications for diet therapy, oral hypoglycemic agents, and insulin therapy in diabetes mellitus.
9. Know management strategies for diabetic ketoacidosis and nonketotic hyperglycemic states, including the similarities and differences in fluid and electrolyte replacement.
10. Identify the American Diabetes Association (ADA) dietary recommendations for type I and type II diabetes mellitus
11. Know the Somogyi effect and the dawn phenomenon, and the implications of each in diabetes management.

DYSLIPIDEMIAS

Specific Learning Objective #16

Knowledge: Students should be able to define and describe:

1. the contribution of hypercholesterolemia to coronary heart disease (CHD) risk, including the importance of elevations in total cholesterol, **LDL** cholesterol, **HDL**
2. cholesterol, ratio of total to **HDL** cholesterol, and lipoprotein subfractions.
3. the classification of dyslipidemias, including who to screen, and how often.
4. 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 (see the Training Problem: Healthy Patient).
5. the current National Cholesterol Education Program (NCEP) guidelines for treatment of hypercholesterolemia.
6. the therapeutic modalities for treatment of the common dyslipidemias, including diet, exercise, cessation of smoking, and use of statins, resins, and other agents; risks, benefits, expense, and how to choose a program.

SUBSTANCE ABUSE

Specific Learning Objective: #17

Knowledge: Students should be able to describe:

1. Present signs and symptoms that can help diagnose a substance abusing patient
2. Present symptoms of alcohol and drug intoxication
3. Identify symptoms of alcohol and drug overdose
4. Know symptoms of acute alcohol and drug withdrawal
5. Know the key risk factors for alcohol and drug abuse (social, genetic)
6. Identify the major causes of morbidity and mortality associated with substance abuse (e.g. trauma, motor vehicle accidents, homicide, overdose, cirrhosis, endocarditis, HFV, hepatitis B)
7. Know the differences among substance abuse, dependency, and addiction
8. Know the diagnostic criteria for alcohol and drug abuse, dependency, and addiction, based on a history, physical examination, and laboratory testing.
9. Know questions in the CAGE questionnaire ("have you ever felt angry when people talk about your drinking?") Guilty about your drinking?", "Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hang-over [Eye-opener]?")*.
10. Know the key laboratory tests useful in evaluating substance abuse (e.g., blood alcohol level, liver function

SMOKING CESSATION

Specific Learning Objective: #18

Knowledge: Students should be able to describe:

1. The pharmacological effects of nicotine
2. Know nicotine withdrawal symptoms
3. Describe intervention strategies that physicians can use for their patients
4. Know the symptoms indicating nicotine dependence
5. The common barriers preventing patients from understanding smoking cessation
6. The principles of at least one theory of behavior modification.
7. The common medical diseases associated with chronic smoking.
8. The indications for nicotine replacement therapy.
9. Describe the association between smoking cessation and weight gain.

COMMON CANCERS

Specific Learning Objective: #20

Knowledge: Students should be able to define and describe:

1. Principal Clinical presentations, Clinical Courses, Complication, and causes of death for the most common cancers.

2. The basic methods of initial evaluation, including the sensitivity and specificity of basic diagnostic studies and indications for their use, including:

- .Indications for skin biopsy in a patient with a suspicious skin lesion.
- .Indications for breast biopsy in a person with a breast nodule or abnormal screening mammogram.
- .Indications for a lymph node biopsy in a person with isolated lymphadenopathy.
- .Initial cost-effective work-ups for: isolated pleural effusion, pulmonary nodule, liver nodule, prostate nodule, elevated PSA, testicular nodule, stool test positive for occult blood, abnormal PAP smear, testicular nodule, and other findings suggestive at risk for colon cancer.

EKG-RATE, RHYTHM & AXIS

Specific Learning Objective: #21

Knowledge: Student should be able to:

1. Obtain basic understanding of EKG interpretation;
2. Outline mechanisms and pathogenesis of cardiac arrhythmias;
3. Correlate EKG Findings with clinical findings, other laboratory data and therapeutic modalities.
4. Demonstrate a fundamental knowledge necessary to evaluate and interpret 12-lead EKG's quickly and accurately;
5. Accurately place each of the 12 EKG leads and understand its corresponding view of the heart;
6. Readily identify PQRSTU waves, complexes, intervals and segments, and their correlation with the electrical and physiological events of the heart;
7. Master the two ways of determining the heart rate and heart rhythm;
8. Readily determine the QRS axis and know its clinical implications;
9. Recognize ventricular and atrial hypertrophy and be able to clinically correlate findings (i.e., hypertension, mitral valve and aortic valve disease);
10. Recognize intraventricular conduction disturbances (i.e., RBBB, LBBB, hemiblock);
11. Understand the pathoelectrophysiology of myocardial infarction, and its various components. Be able to recognize the various ST-T changes associated with ischemia, injury and infarction;
12. Know the characteristic findings of the anterior, inferior and posterior infarction.
13. Recognize various common arrhythmias, their implications and therapy
 - (a) Atrial and ventricular premature beats
 - (b) Atrial tachycardia
 - (c) Atrial flutter and atrial fibrillation
 - (d) Ventricular tachycardia
 - (e) Ventricular fibrillation
14. Know the various types of heart block
 - (a) First degree
 - (b) Second degree Mobitz I
 - (c) Third degree or complete A V block
 - (d) Wolff-Parkinson-White Syndrome

Mobitz II

15. Be able to recognize the various E KG changes associated with the following:
- (a) Electrolyte disturbance (hyperkalemia, hypocalcaemia, hypokalemia, hypercalcemia)
 - (b) Digitalis intake ("DIG EFFECT")
 - (c) Quinidine intake
 - (d) Pericarditis
 - (e) Early repolarization
 - (f) Torsades de Pointes

DERMATOLOGY

Specific Learning Objective #22.

Knowledge: Student should be able to:

1. Understand the dermatological language and nomenclature
2. Recognize the common dermatological entities seen generally by practitioners of medicine.
3. Assess diseases of the skin exclusively; cutaneous manifestations of systemic diseases, and unusual presentations of normal or abnormal structures derived from cellular elements.
4. Discuss the following topics:
 - External Agents and the Skin: bacterial viral, fungal, ectoparasites, etc.
 - The dermatitides
 - The papulosquamous diseases
 - Drug eruptions
 - Vesiculobullous diseases
 - Collagen and connective tissue diseases

5. Describe and identify the following:

Primary Skin Lesions

- (a) Macule
- (b) Papule
- (c) Nodule
- (d) Tumor
- (e) Vesicle
- (f) Bulla
- (g) Wheal
- (h) Pustule

Secondary Skin Lesions

- (a) Erosion
- (b) Ulcer
- (c) Fissure
- (d) Excoriation
- (e) Crust
- (f) Scale
- (g) Lichenification
- (h) Atrophy
- (i) Scar

Special Dermatological Lesions

- (a) Comedone
- (b) Burrow
- (c) Keloid
- (d) Scutulum

6. Describe the following pathological changes:

- | | |
|--------------------|--------------------------|
| (a) Hyperkeratosis | (g) Papillomatosis |
| (b) Parakeratosis | (h) Spongiosis |
| (c) Acanthosis | (i) Granulosis |
| (d) Dyskeratosis | (j) Alteration cavitaire |
| (e) Acantholysis | (k) Munro abscesses |
| (f) Desmosomes | (l) Pautrier's abscesses |

7. Define the following:

- (a) Auspitz's sign

- (b) Darier's sign
- (c) Dermographism
- (d) Nikolsky's sign

8. Describe the following dermatological techniques:

- (a) Wood's lamp exam
- (b) Skin scrapings
- (c) Patch testing
- (d) Diascopy
- (e) Curettage
- (f) Electrodesiccation
- (g) Punch biopsy
- (h) Cryotherapy
- (i) Electrolysis
- (j) Ultraviolet light
- (k) 10% KOH preparation
- (l) Tzanck preparation
- (m) Darkfield examination
- (n) Mineral oil preparation (MOP)

9. Know the etiology, pathophysiology, clinical presentation, differential diagnosis for the following:

- (a) Contact dermatitis (primary irritancy and allergic)
- (b) Atopic dermatitis
- (c) Dermatophytosis
- (d) Acne vulgaris
- (e) Psoriasis vulgaris
- (f) Seborrheic dermatitis
- (g) Verruca vulgaris
- (h) Lichen simplex chronicus
- (i) Dermatitis medicamentosa
- (j) Alopecia (all types)
- (k) Candidiasis

NEPHROLOGY

Specific Learning Objectives #23

Knowledge: Student should be able to:

1. Review of the normal structure and function of the kidney, the mechanisms of, and factors affecting glomerular filtrate formation, renal handling of sodium, potassium, hydrogen ions and other electrolytes.

Understand Abnormal Renal Function of the following:

1. Disorders of water metabolism
2. Disorders of potassium metabolism
3. Disorders of calcium phosphorus, vitamin D and parathyroid activity
4. Disorders of magnesium metabolism
5. Disorders of the renin angiotensin-aldosterone system
6. Pathogenesis and management of metabolic acidosis and alkalosis
7. Pathogenesis and management of respiratory and mixed acid-base disorders
8. Pathogenesis, diagnosis and management of acute renal failure
9. Pathogenesis, manifestations and metabolic consequences of chronic renal failure
10. Immunologic models and mechanisms in renal disease
11. Clinical and pathologic aspect of the glomerulopathies
12. Proteinuria with the nephrotic syndrome
13. Obstructive nephropathy: pathophysiology and management
14. Renal function in pregnancy
15. The kidney in hypertension
16. Drugs used in the management of hypertension -a review of the mechanisms of action and side effects
17. Pathogenetic models of hypertension
18. Malignant hypertension -diagnosis and management
19. Primary hyperaldosteronism -diagnosis and management
20. Complications of hypertension
21. Hematuria, clinical significance and evaluation
22. Renal function tests: The rationale behind urinalysis, clearance, P AH clearance, insulin clearance, IVP, renal arteriogram, renogram, renal scan, renal biopsy, etc.
23. Renal disease systemic illnesses:
 - (a) The kidney in diabetes mellitus
 - (b) Renal amyloidosis
 - (c) The vasculitides
 - (d) Collagen vascular diseases and the kidney
 - (e) The kidney in the paraneoplastic syndrome
 - (f) The kidney in gout
24. Nephrolithiasis
25. Congenital and hereditary diseases of the kidney
26. Dialysis:
 - (a) Peritoneal vs. hemodialysis: when and for whom
 - (b) Complications of peritoneal dialysis
 - (c) Complications of hemodialysis

- (d) Renal transplantation
 - Immunosuppression in renal transplant
 - Immunology of renal transplantation
 - Renal allograft rejection: recognition and management

ENDOCRINOLOGY

Specific Learning Objective: #24

Knowledge: Students should be able to describe and define

1. The definition for the term "hormone" and describe the mechanisms of action for (1) cyclic AMP-mediated hormone action, and (2) steroid hormone action.
2. Recall the physiology associated with the secretion and actions of anterior pituitary hormones.
3. Outline the classification, epidemiology, pathophysiology, clinical features and therapeutic modalities for the following disorders of the anterior pituitary:
 - (a) Pituitary tumors
 - (b) Gigantism and acromegaly
 - (c) Sexual ateliotic dwarfism
 - (d) Postpubertal panhypopituitarism (Simmonds' disease)
4. Review the physiology of the secretion and actions of neurohypophyseal hormones.
5. Summarize the epidemiology, clinical features and diagnostic procedures utilized in making a differential diagnosis and treatment of the following:
 - (a) Diabetes insipidus
 - (b) Inappropriate secretion of ADH (Schwartz-Bartter Syndrome)
6. Recall the physiology of iodine metabolism in the thyroid gland.
7. Explain the following laboratory tests for measuring thyroid function:
 - (a) Serum Total Thyroxine or T_4 concentration
 - (b) Serum Total Triiodothyronine or T_3
 - (c) Resin T_3 (Uptake (RT_3U))
 - (d) Free Thyroxine Index (FTI)
 - (e) Serum TSH
 - (f) Anti- Thyroglobin Antibody
8. Outline the incidence, etiology, pathophysiology, clinical features, significant laboratory data, and treatment of the following disorders of the thyroid gland:
 - (a) Simple (nontoxic) goiter
 - (b) Primary adult hypothyroidism (Myxedema)
 - (c) Toxic diffuse goiter (Graves' disease)
 - (d) Hashimoto's thyroiditis
 - (e) Thyroid nodules
 - (t) Thyroid carcinoma
9. Summarize the classification, biosynthesis, transport, metabolism, excretion and action of the hormones of the adrenal cortex.

Outline the etiology, incidence, clinical features, significant laboratory findings, diagnostic procedures, and treatment for the following disorders of the adrenal cortex:

- (a) Addison's disease
 - (b) Cushing's syndrome
 - (c) Primary aldosteronism (Conn's syndrome)
 - (d) Congenital adrenal hyperplasia
-
12. Outline the prevalence, etiology, staging, pathophysiology, clinical features, diagnostic procedures, management (diet vs. insulin vs. oral hypoglycemic agents) and complications (e.g., diabetic ketoacidosis in patients with diabetes mellitus).
 13. Summarize the etiology, clinical features, diagnostic procedures and treatment of hypoglycemia.
 14. Recall the physiology associated with the testes (i.e., regulation of testicular function, actions of testosterone).
 15. Describe the etiology, classification and clinical features of endocrine disorders of the ovary .
 16. Describe the physiology associated with the parathyroid gland, with special emphasis on its relationship to the gastrointestinal tract, bone, and kidneys.
 17. Compare and contrast osteoporosis vs. osteomalacia with respect to etiology, clinical features, laboratory data (e.g., serum alkaline phosphatase), pathophysiology, histopathology, radiology and therapy.
 18. Summarize the etiology, pathology, clinical features, diagnostic procedures, differential diagnosis, and therapeutic modalities for hyper- and hypo-parathyroidism.

CARDIOLOGY
Valvular Disorders
Congenital Heart Disease
Cardiac Arrhythmias
Ischemic Heart Disease

Specific Learning Objective: #25

Knowledge: Student should be able to:

1. Recall the complete cardiac diagnosis required for heart disease as outlined by the New York Heart Association and list at least three (3) examples from each category.
 - .Etiology
 - .Anatomic abnormalities
 - .Physiologic disturbances
 - .Functional disability

2. Understand the pathophysiology of the following cardiovascular signs and symptoms.
 - Chest Pain
 - .Dyspnea
 - .Edema
 - .Fatigue
 - .Hemoptysis
 - .Palpitations
 - .Syncope
 - .Cyanosis

3. Identify the murmurs associated with the following valvular disorders, and name at least two (2) non-valvular disorders in which each murmur may be heard:
 - Mitral stenosis
 - .Mitral insufficiency
 - .Aortic stenosis
 - .Aortic insufficiency
 - .Mitral valve prolapse

4. Outline the prevalence, etiology, pathogenesis, clinical features, diagnostic procedure, and treatment for the following congenital heart disease. .
 - Atrial septal defect
 - .Ventricular septal defect
 - .Patent ductus arteriosus
 - .Tetralogy of Fallot
 - .Coarctation of the aorta
 - .Pulmonary stenosis with and without VSD
 - .Bicuspid aortic valve

- Eisenmenger's Syndrome
5. Recognize the indications and contraindications for cardiac catheterization
 7. Recall the pharmacologic actions, adverse reactions, therapeutic uses, and usual dosages and routes of administration of the following drugs.
 - A. Digitalis glycosides (know the clinical, laboratory and EKG findings associated with toxic serum levels of these agents).
 - .Digoxin Lanoxin
 - .Digitoxin
 - B. Catecholamines and sympathomimetic drugs
 - .Metaraminol (Aramine)
 - .Methoxamine (Vasoxyl)
 - .Phenylephrine (Neo-Synephrine)
 - .Isoproterenol (Isuprel)
 - .Dopamine
 - .Epinephrine
 - .Dobutamine
 - C. Antiarrhythmic agents
 - .Quinidine
 - .Procainamide (pronestyl)
 - .Lidocaine (Xylocaine)
 - .Diphenylhydantoin (Dilantin)
 - .Tocainide
 - .Flecainide
 - .Mexiletine
 - .Amiodarone
 - .Encainide
 - .Bretylium
 - .Disopyramide
 - .Ethmozine
 - .Propranolol
 - .Digoxin
 - .Adenosine
 - .Propafenone
 - .Morizine
 - .Sotalol
 - D. Beta-adrenergic receptor blocking agent
 - .Propranolol (Inderal)
 - .Selective-blocking agents
 - .Labetalol

E. Vasodilators

- .Nitroglycerin
- .Minoxidil
- .Prazosin
- .Nitroprusside
- .Hydralazine
- .Diazoxide

F. Calcium Channel Blockers

- .Nifedipine
- .Diltiazem
- .Nicardipine
-

G. Angiotensin converting enzyme inhibitors

- Enalapril
- Captopril .
- Lisinopril

H. Antiadrenergic Agents

- .Clonidine
- .Methyldopa
- .Guanethidine
-

7. Know at least two (2) clinical types of angina pectoris that may occur, and discuss the clinical management of a patient with angina pectoris.
8. Describe the typical clinical presentation, physical findings, E KG manifestations and laboratory diagnosis of a patient with myocardial infarction.
9. Explain the clinical management of and complications arising in patients with myocardial infarction.
10. Outline the indications, contraindications and complications of thrombolytic therapy in acute myocardial infarction.
11. Describe where and how stress testing is used in evaluating ischemic heart disease.

RHEUMATOLOGY

Specific Learning Objective: #26

Knowledge: Student should be able to describe and define:

1. The normal structure and function of joints and connective tissue.
2. Know the characteristics of joint fluid and the differential diagnosis made possible by the examination of joint fluid, according to the categories listed in number IV.
3. Describe the immunologic factors and immunopathologic mechanisms involved in the pathogenesis of connective tissue disease.
4. Know the epidemiology, pathogenesis, clinical features, differential diagnosis, treatment complications and prognosis for the following disease of the joints and connective tissues.
 - (a) Rheumatoid arthritis
 - (b) Systemic lupus erythematosus
 - (c) Scleroderma
 - (d) Polymyositis and dermatomyositis
 - (e) Necrotizing arteries
 - (f) Rheumatic fever
 - (g) Ankylosing spondylitis
 - (h) Reiter's syndrome
 - (i) Gout and pseudogout
 - (j) Degenerative joint disease
 - (k) Bacterial arthritis
 - (l) Inherited disorders of connective tissue

PULMONARY DISEASES

Specific Learning Objective #27

Knowledge: Students should be able to describe and define:

1. The respiratory physiology of the following:
 - (a) Mechanisms of breathing
 - (b) Ventilation
 - (c) Diffusion
 - (d) Pulmonary circulation
 - (e) Ventilation/Perfusion relationships
 - (f) Acid-base balance

2. The diagnostic work-up of patients with each of the following chest complaints:
 - (a) Dyspnea
 - (b) Chest pain
 - (c) Cough and expectoration
 - (d) Hemoptysis

3. Know how to calculate and interpret examples of the following pulmonary function tests:
 - (a) Vital capacity
 - (b) Forced expiratory volume
 - (c) Closing volume
 - (d) Obstructive vs. Restrictive Diseases

4. Know the pathogenesis, epidemiology, pathophysiology and treatment for the following respiratory diseases:
 - (a) Granulomatous diseases (e.g., tuberculosis, sarcoidosis, fungal infections)
 - (b) Suppurative diseases (e.g., pneumonia, abscess, emphysema)
 - (c) Chronic respiratory diseases (e.g., bronchitis, emphysema, fibrosis, bronchiectasis, pneumoconiosis, COPD)
 - (d) Neoplasms (e.g., bronchogenic carcinoma, bronchial adenoma, sarcoma)
 - (e) Other disorders (e.g., pulmonary embolus, influenza, pneumothorax, pleural effusion)
 - (f) Inhalational (occupational) lung diseases (e.g., silicosis, asbestosis, coal workers' pneumoconiosis)

5. Know at least two (2) pulmonary manifestations of each of the following systemic diseases:
 - (a) Primary heart disease (e.g., mitral stenosis, left ventricular failure)
 - (b) Primary hepatic disease (e.g., cirrhosis of the liver)
 - (c) Pulmonary-renal syndrome (e.g., uremic pneumonitis, polyarteritis)
 - (d) Central nervous system diseases (e.g., brain damage with associated abnormal

- breathing patterns)
 - (e) Hematologic diseases (e.g., Hodgkins disease, leukemias)
 - (f) Immunologic diseases (e.g., B-cell and mixed B- and T-cell deficiencies)
6. Know the management of patients with respiratory failure, including the indications for intubation and use of a respirator.
7. Know at least three (3) of the following in the media library:
- (a) A Practical Approach to Acid-base Balance
 - (b) Blood Gas Analysis
 - (c) Clinical Interpretation of Blood Gases
 - (d) Pulmonary Emergencies

GASTROENTEROLOGY

Specific Learning Objective: #28

Knowledge: Students should be able to describe and define:

1. The physiologic mechanisms involved in swallowing, with special emphasis upon the mechanical, nervous, and hormonal control of reflux of gastric contents.
2. The normal physiologic mechanisms of gastric secretion and motility
3. The gastric ulcer vs. duodenal ulcer with respect to incidence, pathophysiology endocrine relationships, symptoms, complications, diagnostic procedure, presence of malignancy treatment, and post-surgical complications. Describe the relationship of campylobacter pylori to acid peptic disease and any currently accepted treatment.
4. The relationship of campylobacter pylori to acid peptic disease and any currently accepted treatment.
5. The major steps involved in the digestive and absorption of fat, proteins, and carbohydrates
6. The normal motor and absorptive processes occurring in the colon
7. The following with emphasis upon etiology, pathophysiology, clinical features, diagnostic procedures, complications, and management
8. Describe the metabolism of the following
 - a. Bilirubin
 - b. ammonia
 - c. Protein
9. Know the following liver function tests, and list for each test at least two (2) liver disorders that would have abnormal test results.

(a) Alkaline phosphatase	(f) Albumin
(b) AST	(g) Globulins
(c) ALT	(h) Prothrombin time
(d) Serum bilirubin (direct and indirect)	(i) Fibrinogen
(e) Bromsulphalein (BSP) excretion	(j) Serum cholesterol
10. Discuss hepatitis, with respect to etiology, epidemiology, pathogenesis, clinical features, diagnosis and management.
 - (a) Cholecystitis
 - (b) Cholelithiasis
 - (c) Carcinoma of the biliary tree

CLINICAL NEUROLOGY

Specific Learning Objective: #29

Knowledge: Students should be able to describe and define:

1. The common neurodiagnostic procedures, their indications and possible complications. Some of the procedures are as follows:
 - Lumbar puncture
 - Myelography
 - Plain skull & vertebral column x-rays with corresponding tomography
 - Computerized axial tomography of the brain (CA T scan)
 - Magnetic resonance imaging (MRI)
 - Arteriography of the nervous system
 - Electroencephalography
 - Nerve conduction velocity determination
 - Electroencephalography
 - Nerve conduction velocity determination
 - Electromyography
 - Magnetic resonance imaging (MRI)
2. Know at least six (6) risk factors associated with the development of ischemic and thrombotic cerebral vascular disease.
3. Know the normal arterial blood supply and venous drainage of the brain.
Learn the formation composition and circulation of the cerebral spinal fluid.
4. Know the following:
 - Asymptomatic carotid bruit
 - Transient ischemic attack (TIA)
 - Ischemic infarct
 - Lacunar infarct
 - Hemorrhagic infarct
 - Parenchymal (infracerebral) hemorrhage
 -
 - Amaurosis fugax (transient monocular blindness)
5. Know the clinical differences between occlusion of the internal carotid artery, the middle cerebral artery, the anterior cerebral artery, the posterior cerebral artery, lenticular arteries, and basilar artery .
6. Know the causes of intracerebral hemorrhage, intracerebral hemorrhage and subarachnoid hemorrhage based upon clinical laboratory findings.
7. Learn the general features of the management and treatment of patients with the various types of cerebrovascular disease.
8. Know the following terms:
 - Concussion

- .Contusion
 - .Hematoma (epidural and subdural)
 - .Post-traumatic encephalopathy
9. Know the Metabolic and Nutritional group of diseases according to the etiological factor.
10. Know the etiology, diagnostic criteria, treatment and prognosis of the following diseases:
- .Hypoxic encephalopathy
 - .Hypoglycemic encephalopathy
 - .Hepatic encephalopathy
 - .Pellagra
 - .Wernicke-Korsakoffs syndrome
 - .Subacute combined degeneration of the spinal cord
11. Know the epidemiology, etiology, clinical features, laboratory findings, treatment and prognosis of the following diseases:
- .Bacterial meningitis
 - .Viral meningitis
 - .Tuberculosis meningitis
 - .Neurosyphilis
 - .Viral encephalitis
 - .Poliomyelitis
 - .HIV encephalitis
12. Know the etiology, pathology, clinical features, laboratory findings, treatment and prognosis of the following diseases:
- .Multiple sclerosis
 - .Acute disseminated encephalomyelitis
 - .Guillane-Barre Syndrome
13. Know the common types of seizures on the basis of clinical manifestations.
14. Learn the International Classification of seizure disorders.
- | | |
|-------------|------------------|
| a. Dementia | d. Confabulation |
| b. Delirium | e. Hallucination |
| c. Amnesia | |
15. Know the acute confusional state (delirium) from dementia
16. Know the common features of dementia and give at least one bedside test for each feature
- (a) List common causes of dementia
 - (b) Distinguish from pseudodementia secondary to depression
 - (c) Define normal pressure hydrocephalus

INFECTIOUS DISEASES

Specific Learning Objective: #30

Knowledge: Students should be able to define and describe:

- I. The mechanisms of action, spectrum of activity, dosages, routes of administration, primary routes of excretion, toxicities and principle clinical uses for each of the following drugs or drug classes (be knowledgeable of at least three (3) examples of each class and toxicities).
 - (a) Penicillins
 - (b) Cephalosporin's
 - (c) Aminoglycosides
 - (d) Tetracyclines
 - (e) Erythromycin, Lincomycin, Clindamycin
 - (f) Chloramphenicol
 - (g) Polymyxins
 - (h) Vancomycin
 - (i) Sulfonamides
 - (j) Antifungal agents
 - (k) Antituberculosis agents
 - (l) Nitrofurans
 - (m) Spectinomycin

2. Know the epidemiology, etiology, pathogenesis, clinical features, significant diagnostic laboratory findings, and therapy for the following infectious diseases.
 - (a) Pneumonia (including atypical)
 - (b) Urinary Tract infections
 - (c) Meningitis
 - (d) Bacterial endocarditis
 - (e) Enteric infections (salmonella, shigella, campylobacter and parasites)
 - (f) Sexually transmitted diseases including AIDS
 - (g) Generalized Sepsis etiology
 - (h) Tuberculosis
 - (i) Systemic Mycosis
 - (j) Major viral diseases (Herpes Simplex, CMV, EBV, Varicella zoster)
 - (k) Nosocomial infections

3. Know at least four (4) examples of immune responses to infections, and explain the pathophysiology of (1) their contribution to the defense of the host, and (2) their role as contributors to the development of further disease.

4. Know the etiology, pathogenesis and treatment for opportunistic infections, secondary either to antibacterial drugs or to the depression of host defense mechanisms (e.g., patients with immunodeficiency states of using immunosuppressive drugs).

