CURRICULUM ON GENERAL INPATIENT MEDICINE
UCHSC INTERNAL MEDICINE RESIDENCY PROGRAM
University of Colorado Hospital
(revised 8/2010)

I. Educational Purpose and Goals

Management of hospitalized patients remains essential for the practice of internal medicine. The inpatient medicine rotation at University of Colorado Hospital consists of a combined general internal medicine ward and subspecialty experience that is intended to provide exposure to a broad range of disease processes and medical problems seen in the hospitalized patient. The educational objectives for the resident during this rotation are as follows:

1) development of skills in the independent evaluation of patients through comprehensive history and physical examination and selection of appropriate diagnostic tests under the supervision of an attending physician in the inpatient setting
2) formulation of comprehensive patient management plans, including discharge planning
3) interaction with a broad range of subspecialty services/consultants to assist in the management of patients with complex conditions
4) development of procedural skills that are essential to the practice of internal medicine
5) exposure to medical consultation issues for the surgical patient

II. Principal Teaching Methods

a. Supervised Direct Patient Care:

i. Residents encounter patients admitted to the medical teaching service on the following units: general medicine wards and telemetry units. The patient population is obtained from the following sources: hospital emergency room, internal medicine outpatient clinics, the practices of any supervising internal medicine/subspecialty physician with admitting privileges to the teaching service, and an extensive number of outreach clinics and hospitals in Colorado and the surrounding states. Furthermore, patients followed in the HIV, hematology, renal renal transplant and other subspecialty clinics are dispersed among the 4 inpatient teams should any of these patients need inpatient admission. All patient care is supervised by the admitting attending physician to include admission histories, physical exams, daily management, diagnostic/therapeutic procedures and discharge plans.

ii. Organizational structure: The medical teaching service consists of four teams composed of 1 PGY-2 internal medicine resident and 2 PGY-1 internal medicine residents, as well as 1-2 third or fourth year medical students. The residents receive direct supervision from the admitting attending physician through daily communication regarding all patient care and management issues during daily attending rounds.

b. Formal Educational Rounds

i. Teaching Attending Rounds are provided by General Internal Medicine and Subspecialty faculty and are scheduled on a daily basis. Residents present cases and demonstrate requested skills at a bedside evaluation. These mandatory rounds involve critical critique and discussion assimilating basic science knowledge, clinical data, pathophysiology, and evidence based medicine principles. The teaching attendings provide didactic sessions and evidence based medicine review in addition to bedside rounds. The bedside component includes review of residents' history and physical examination skills on selected patients as well as their communication and interpersonal skills and clinical reasoning. Teaching attends receive feedback on their performance on a monthly basis from the Assistant Chief of Medicine.

ii. Morning Report:
Morning report (MR) is held daily at 7:00 AM and is primarily run by the Chief Medical Resident with input from Dr Brandenburg, Program Director. One or more teaching attending, frequently including subspecialty attendings familiar with the case or topic are present as well. Teaching attendings are selected by the housestaff, Assistant Chief of Medicine and the Residency Review Committee on an annual basis based a demonstration of teaching excellence. Attendance at morning report is mandatory for all inpatient medicine rotating residents. The MR format includes presentation of selected patients admitted in the previous 1-3 days followed by evidence based discussion of diagnosis/management and occasional review of the literature. An x-ray and ECG is also presented by the CMR prior to the case presentations for interpretation by the residents in a rotating fashion. MR also serves as a forum for discussion of difficult management issues selected by the residents.

One MR per month is dedicated to reviewing quality of care issues within the inpatient medical system at UCH. This inter-professional conference is attended by hospital administration, nurses, physicians, and others relevant to the issues at hand.

iii. Journal Club: This mandatory conference is conducted monthly for all residents. The format includes presentations on critical reading of the medical literature and evidence-based medicine, followed by resident presentation of articles from current medical literature. Respected faculty members are chosen by the residents to assist in preparation and provide additional commentary.

c. Conferences/Didactic Sessions

i. Morbidity and Mortality Conference: A recent clinical case is presented by the housestaff involved in the care of the patient. Pathologic specimens are reviewed by a staff pathologist; clinical history and management discussion is provided by the residents and chief medical resident with input from consulting services and clinical experts in the field. Findings from all autopsy reports for the month are also presented and discussed at this conference.
iii. Subspecialty Clinical Conference: This monthly conference is led by a subspecialty faculty member and is cased-based. The forum is interactive and focuses on diagnosis and management of common and uncommon diseases.

ii. Grand Rounds: Department of Medicine Grand Rounds is held weekly and features expert lectures from both the local and national ranks.

iii. Chief Medical Resident's Outcomes Conference: A cased-based interactive format where the CMR led discussion emphasizes systems based practice, patient safety and avoiding medical errors.

III. Educational Content

a. Mix of Diseases –The patient population possesses a variety of conditions representative of common as well as less frequently encountered medical problems, represented by all the medical subspecialties as well as neurology. General Medicine rotation residents act both as primary inpatient physicians and as medical consultants for patients admitted to non-medical specialty services.

b. Patient characteristics – Patients admitted to the teaching service are derived from the following sources: emergency room, direct admissions from physicians with teaching service privileges, and an extensive number of outreach clinics and hospitals in Colorado and the surrounding states. Furthermore, patients followed in the HIV, hematology, renal renal transplant and other subspecialty clinics are dispersed among the 4 inpatient teams should any of these patients need inpatient admission. Inpatient Medicine rotating residents also see patients on surgical, obstetric/gyn, or subspecialty services when medical consultation is requested. The demographic and ethic mix approximates that of the greater Denver community and the extensive socioeconomic diversity of the area supports a challenging training experience. The hospital's outreach efforts in surrounding rural communities also contribute to the diversity of the current population.

c. Learning venue:

i. In addition to serving the greater Denver and Aurora area, the University of Colorado Hospital is the major tertiary care referral center for a number of rural communities throughout Colorado as well as the surrounding states of Kansas, Nebraska, Wyoming, and New Mexico.

d. Procedures:

i. Procedural experience reinforced on this inpatient medicine rotation include but are not limited to:

1. Arterial puncture
2
3. Lumbar puncture
4. Abdominal paracentesis
5. Thoracentesis
6. Arthrocentesis
7. Nasogastric intubation
8. Central venous catheter placement
9.

ii. Interpretive skills that are reinforced or learned on general ward medicine services include:

1. Serum electrolytes and routine chemistry panel
2. Urinalysis and microscopic examinations of urine
3. Liver function tests
4. Coagulation studies
5. Arterial blood gases
6. Chest x-ray interpretation
7. Electrocardiogram
8. Interpretation of radiological studies (chest x-ray, abdominal flat plate, CT scan)
9. Peripheral smear
10. Sputum Gram Stain
11. Spirometry

iii. Consultative skills: Residents serve as supervised consultants to other specialties during the core General Medicine inpatient rotations. The General Medical Consult Service is a regular resident rotation. The attending physicians for this service are hospital-based Internal Medicine faculty. During this rotation, residents participate in general medical consults for a variety of non-medical services, including, but not limited to: general surgery, orthopedic surgery, psychiatry, OB / GYN, ENT, neurosurgery, burn surgery, transplantation surgery, anesthesia, ophthalmology, and radiation oncology to name the most common. This rotation focuses on the pre and post-operative medical care of patients, as well as general medical consults.

e. Ancillary services interacted with

i. Subspecialist and Primary Care Physicians

ii. Fellows from every specialty within internal medicine.

iii. Non-medicine program residents including family practice, surgery and surgical subspecialties, anesthesia, emergency medicine, OB/Gyn, and psychiatry.

iv. Nursing staff

v. Nurse practitioners and physician assistants

vi. Case Management, social workers
vii. Physical Therapy and Occupational Therapy
viii. Respiratory Therapy
ix. Numerous other ancillary staff – clinical, administrative, and paraprofessionals

f. Structure of rotation

i. Call is a required element of the inpatient service and occurs every fourth day. Responsibilities for residents are detailed in the resident manual. PGY-2 residents evaluate patients for admission from the emergency department and supervise first year residents in the admission and ongoing management of patients.

ii. Inpatient medicine service residents begin the day with general medicine rounds. Residents are required to meet daily with the attending physician of record to discuss all management plans. Morning report is mandatory for all residents at 11:00 AM daily. Required conferences are discussed above. A sample daily schedule is attached at the end of the document. Resident work hours are fully described in the resident manual and compliant with all ACGME duty hour restrictions.

IV. Principal Ancillary Educational Materials

a. All residents and managing physicians are provided with the General Medicine Curriculum and Learning Objectives prior to the start of each rotation.

b. Residents are provided with targeted reading in primary literature sources by Teaching Attending physicians throughout the rotation.

c. Library access is available and comprehensive librarian services are available. Web-based searchable medical databases are available through the library, and standard medical journals are available in both print and electronic formats.

d. Computer-based resources are available at the hospital to facilitate patient care, education and communication. The following are made available:

1. Clinical Workstation is our computer system for vital signs, patient care notes, laboratory and radiology results retrieval
2. Drug information including side effect and drug-drug interactions
3. E-mail services
4. Internet access to medical sites on the World Wide Web
5. Patient education materials
6. Summary evidence-based medicine resources including Up-to-Date, MD Consult, First Consult, Harrison’s and Stat! Ref.

e. All radiologic studies are available on a digital computerized PACS system.

V. Evaluation Methods

a. Resident Performance

i. Faculty complete web-based electronic resident evaluation forms provided by the Internal Medicine Residency office. The evaluation is competency-based. The evaluation is shared with the resident, is available for review by the resident at their convenience, and is internally reviewed by the residency office. The evaluation is part of the resident file and is incorporated into the semiannual performance review for directed resident feedback.

ii. Resident performance is additionally reviewed monthly at the Internal Medicine Housestaff Evaluation Committee meeting which is attended by a core faculty physician, the CMRs and the program director.

ii. Residents electronically record completed procedures. The supervising physician verifies the resident understands the procedure's indications, contraindications, complications and interpretation.

b. Admitting notes, progress notes, and discharge summaries are reviewed and co-signed by attending physicians on a daily basis, with specific feedback given to the resident on data-gathering and documentation skills.

c. Program and Faculty Performance

i. At the end of the rotation, all residents complete a written evaluation that assesses the faculty, admitting attending physicians, facilities and service experience. Anonymous evaluations are reviewed by the site director and attending faculty physicians..

ii. All admitting attending physicians are evaluated monthly on the basis of teaching capability and humanistic qualities, and they receive monthly feedback from the Assistant Chief of Medicine and annual aggregate summary evaluations and scores that can be compared to the mean for their peers. Any physician receiving a poor feedback or evaluations is contacted by the site director; failure to improve on subsequent evaluations may result in termination from the teaching service.

VI. Institutional Resources: Strengths and Limitations

a. Strengths

i. Faculty. GIM faculty with dedicated teaching roles and a history of educational excellence.

ii. Facilities. The hospital offers comprehensive internal medicine and subspecialty tertiary care with state-of-the-art technology and strong ancillary services.

iii. Patients. There is a diverse patient population with varied case mix.

b. Limitations- Due to the budgetary constraints, some routine ancillary services have limited availabilities on the weekends. However, emergent patient-based needs result in all services, procedures, and consultative capacities to be available on the weekends.

VII. Rotation Specific Competency Objectives

a. Patient Care

i. History taking. Residents at all levels of training will collect a thorough history by soliciting patient information and by consulting other sources of primary data in a logical and organized fashion. History taking will be hypothesis driven. Interviewing will adapt to the time available, use appropriate nonverbal techniques, and demonstrate consideration for the patient. The resident will inquire about the emotional aspects of the patient's experience while demonstrating flexibility based on patient need.

ii. Physical Exam. Residents at all levels of training will perform a comprehensive and / or focused physical exam as pertinent to the presenting problems, describing the physiological and anatomical basis for normal and abnormal findings.

iii. Charting. Residents at all levels of training will record data in a legible, thorough, systematic manner, in accordance with the hospital by-laws.

iv. Procedures.

1. PGY-1 and PGY-2 residents will demonstrate knowledge of: procedural indications, contraindications, necessary equipment, specimen handling, patient after-care, and risk and discomfort minimization. They will participate in informed consent and assist patients with decision making. They will correctly identify the meaning of test results. PGY1 residents will initially observe and then perform procedures prior to the completion of the first training year.
2. PGY-3 residents will demonstrate extensive knowledge and facility in the performance of procedures while minimizing risk and discomfort to patients. They will assist their junior peers in skill acquisition. A formal, hospital-wide policy on resident supervision for all procedures and practices on the medical service, and inclusive of all levels of training, has been established and is maintained and updated in the hospital by-laws.

v. Medical Decision Making, Clinical Judgment, and Management Plans. All residents will demonstrate improving skills in assimilating information that they have gathered from the history and physical exam.

1. PGY-1 residents will be able to identify patients' problems and develop a prioritized differential diagnosis. Abnormal findings will be interrelated with altered physiology. They will understand their limitation of knowledge and seek the advice of more advanced clinicians. PGY-1 residents will begin to develop therapeutic plans that are evidenced or consensus based. Residents will establish an orderly succession of testing based on their history and exam findings. Specific organ dysfunction will be anticipated based on known side effects of therapy. Additionally, residents will understand the correct administration of drugs, describe drug-drug interactions, and be familiar with expected outcomes.
2. PGY-2 residents will, in addition to the above, also regularly integrate medical facts and clinical data while weighing alternatives and keeping in mind patient preference. They will regularly incorporate consideration of risks and benefits when considering testing and therapies. They will present up-to-date scientific evidence to support their hypotheses. They will consistently monitor and follow-up patients appropriately. They will develop plans to avoid or delay known treatment complications and be able to identify when illness has reached a point where treatment no longer contributes to improved quality of life.
3. PGY-3 residents will demonstrate the above and in addition, will demonstrate appropriate reasoning in ambiguous situations, while continuing to seek clarity. Residents at this level of training will not overly rely on tests and procedures. PGY-3 residents will continuously revise assessments in the face of new data.

b. Medical Knowledge.

1. PGY-1 Residents will consistently apply current concepts in the basic sciences to clinical problem solving. They will use information from the literature and other sources including electronic databases. PGY-1 residents will demonstrate satisfactory knowledge of common medical conditions, sufficient to manage urgent complaints with supervision. Residents must exhibit sufficient content knowledge of common conditions to provide care with minimal supervision by completion of the PGY1 year.
2. PGY-2 residents will demonstrate a progression in knowledge and analytical thinking in order to develop well-formulated differential diagnoses for multi-problem patients. They will also demonstrate socio-behavioral knowledge.

3. PGY-3 residents in addition to the above will demonstrate appropriate habits to stay current with new medical knowledge, and will exhibit knowledge of effective teaching methods.

c. Interpersonal and Communication Skills.

1. PGY-1 residents will develop and refine their individual style when communicating with patients. They will strive to create ethically sounds relationships with patients, the physician team and supporting hospital personnel. They will create effective written communications through accurate, complete, and legible notes. They will exhibit listening skills appropriate to patient-centered interviewing and communication. Residents will recognize verbal and nonverbal cues from patients.
2. PGY-2 residents will also exhibit team leadership skills through effective communication as manager of a team. PGY2 residents are expected to assist junior peers, medical students, and other hospital personnel to form professional relationships with support staff. Residents will respond to feedback in an appropriate manner and make necessary behavioral changes. PGY-2 residents will be able to communicate with patients concerning end-of-life decisions. 3. PGY-3 residents should additionally be able to successfully negotiate nearly all "difficult" patient encounters with minimal direction. Third year residents should function as team leaders with decreasing reliance upon attending physicians.

Patient counseling

1. PGY-1 residents will be able to describe the rationale for a chosen therapy and will be able to describe medication side effects in lay terms. They will assess patient understanding and provide more information when necessary. Residents will demonstrate the ability to be a patient advocate.
2. PGY-2 residents, in addition to the above, will be able to explain the pros and cons of competing therapeutic interventions. PGY-2 residents will be expected to counsel patients regarding adverse habits. PGY-2 residents will be able to educate patients and families for enhanced compliance.
3. PGY-3 residents, in addition to the above, will effectively communicate with critically ill patients and those making life-style modifications.

d. Professionalism.

All residents will demonstrate integrity, accountability, respect, compassion, patient advocacy, and dedication to patient care that supercedes self-interest. Residents will demonstrate a commitment to excellence and continuous professional development. They will be punctual and prepared for teaching sessions. Residents will demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, and informed consent. Residents are expected to show sensitivity and responsiveness to patients' culture, age, gender and disabilities.

e. Practice Based Learning and Improvement

1. PGY-1 residents will use hospital and University library resources to critically appraise medical literature and apply evidence to patient care. They will use hand-held computers, desktop PC's and Internet electronic references to support patient care and self-education. They will model these behaviors to assist medical students in their own acquisition of knowledge through technology.
2. PGY-2 residents will in addition consistently seek out and analyze data on practice experience, identify areas for improvement in knowledge or patient care performance and make appropriate adjustments. They will regularly demonstrate knowledge of the impact of study design on validity or applicability to individual practice.
3. PGY-3 residents will additionally model independent learning and development.

f. Systems Based Practice. 1. PGY-1 residents will be sensitive to health care costs while striving to provide quality care. They will begin to effectively coordinate care with other health care professionals as required for patient needs and to ensure effective transitions of care both in the hospital and from hospital to other care settings.

2. PGY-2 residents, in addition to the above, will consistently understand and adopt available clinical practice guidelines and recognize the limitations of these guidelines. They will work with patient care managers, discharge coordinators and social workers to coordinate and improve patient care and outcomes.
3. PGY3 residents, in addition, will enlist social and other out-of-hospital resources to assist patients with therapeutic plans. PGY-3 residents are expected to model cost-effective therapy.

Note: This document is adapted from the Michigan State University General Medicine Curriculum