

Hospitalist Elective Curriculum

Denver Health Internal Medicine Residency Program

Chief of Service: Richard K. Albert, MD

DH Internal Medicine Residency Director: Diana Mancini, MD

Course Co-directors: Rebecca Allyn, MD and Marshall Miller, MD

Course Committee: Phil Fung MD, Gaby Frank MD, Marisa Echaniz MD,
Kasia Mastalerz MD, Lily Cervantes MD, Marisha Burden MD,
Smitha Chadaga MD

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I. Educational Purpose and Goals

During residency, internal medicine trainees develop the ability to care for medical inpatients in a team environment. However, most hospitalists practice without a resident team and are responsible for all elements of patient care. This difference between the typical teaching environment in residency and the actual practice of hospital medicine may leave some new hospitalists unprepared for real-world practice.

The goal of this elective is to expose residents, who may be considering a career in hospital medicine, to our hospitalist model. Throughout this elective, residents will work one-on-one with hospitalist faculty, caring for patients on services organized to run without resident support. This is a patient care model we feel most accurately reflects what a practicing hospitalist will experience following residency.

Objectives

- Expose residents who are considering careers in hospital medicine to a model of clinical care in which attending level care is provided directly to patients without a housestaff team.
- Help residents develop skills in system-based practice which hospitalists are expected to master, particularly those that revolve around patient throughput efficiency, and quality of care.
- Help resident to become more comfortable with peri-operative management of surgical patients and learn the co-management model.
- Teach residents how to appropriately triage patients admitted from the ED to a hospitalist service.

- Teach residents patient care in an observation unit and how to manage patients with low risk chest pain.
- Expose residents to the importance of fiscal care responsibility and the need for prioritizing diagnostic tests and identifying those which should be deferred to the outpatient setting.
- Teach residents the skill of communicating the specific goals of hospitalization to patients, caregivers, and nursing staff, with early implementation of discharge planning.
- Expose residents to the basics of medical documentation and billing.
- Teach residents the important skill of care transitioning, both within the hospital and to the ambulatory care setting
- Allow residents to participate in hospitalist quality improvement project such as a Rapid Improvement Event that focuses on the Toyota LEAN model
- Allow residents to participate in a research paper or abstract, potentially creating publications for them prior to course completion.
- Teach residents how to safely perform a spectrum of bedside medical procedures.

II. Principal Teaching Methods

A. Supervised Direct Patient Care

1. **Services:** The primary teaching method will be direct hands-on experience with the various hospitalist services under the direct supervision of an attending physician with expertise in that particular area. These services include the consult service, acute hospital medicine service, emergency room-based observation service, chest pain observation service, and the hospitalist procedure service. Residents will be the primary care provider to the patients they are assigned by their attending. They will be responsible for developing and executing the plan of care and will be responsible for all orders, documentation and communication with other providers. Faculty will supervise admission histories, physical exams, daily management, procedures, and discharge plans.
2. **Daily Rounds:** Hospitalist elective rounds are conducted Monday – Friday mornings with the specific start times dependent on the service to which the resident is assigned. Residents will assume primary responsibility for the patients on their personal census – managing the entire service in

parallel with the supervising attending on service. Informal rounds with the attending will occur daily in the late morning, to complete necessary documentation and solidify care and disposition plans for the day. This rounding structure is designed to emphasize fundamental skills needed in the management of hospitalized patients. We additionally intend to teach the importance of work flow, efficiency, resource utilization, and multidisciplinary management in the daily care of patients on a hospitalist service. The parallel management of the service is designed to naturally limit volume for the residents while on the elective - optimizing the work to education ratio and the overall potential for high quality learning.

3. **Daily multidisciplinary rounds:** Multidisciplinary rounds vary between services but must be attended by both resident and attending while on parallel service. These typically include social work, utilization management, physical therapy, and nursing. They will occur in person on several services or by phone on others. Residents are expected to learn and optimize their communication and facilitation skills while working as the primary patient advocate during these multidisciplinary rounds.
4. **Discharge planning/rounds:** In our hospitalist model, this begins at admission and should be continuously addressed during hospitalization. Discharge will be discussed at daily multidisciplinary rounds in addition to throughout the day with the multidisciplinary team. The residents will be encouraged to master thorough discharge planning while on our elective services.

B. Conferences and Didactics

1. **Conferences:** Residents on the elective rotation will be expected to attend all hospitalist lectures while on service. These include, but are not limited to: Acute Care Grand Rounds, Morbidity and Mortality conferences, Mid-level Provider Education talks, and Hospitalist Research Conferences. If a hospitalist conference is not being provided, the resident is welcome to attend any and all morning reports provided on the 9th floor for inpatient ward services. The resident will also be expected to give a conference to hospitalist attendings during their rotation. The resident will choose the format and topic for the conference that they present to the hospitalist group.

2. **Didactics:** Residents will meet with attendings twice per week to discuss topics within the expertise of that attending. Topics will be covered with residents before the resident does their clinical work related to that topic. For example, residents will receive didactics on consultative and peri-operative medicine before they start clinical shifts on the consult service. Residents will also complete a module, designed to teach them about triage in observation medicine by reviewing admission criteria for common conditions such as syncope, reactive airway disease, chest pain, heart failure, pneumonia and syncope. This didactic curriculum is designed to maximize the residents preparation and learning on each specific service.

C. Program Educational Expectations

1. **Wednesday Education Sessions:** Time is reserved each Wednesday from 8-12 will be provided as protected educational time for the elective residents regardless of the hospitalist service on which they are rotating.
2. **Continuity clinics:** Clinics will be scheduled by the CMR 1-2 half days weekly while the resident is on rotation.

III. Structure of the Rotation

The goal of the elective will be to engage PGY2 and PGY3 residents with enough experience to operate with the degree of autonomy offered by the rotation. The elective will accept one resident per month so that a schedule can be custom built to accommodate the desired experience of the resident. The resident's schedule will closely parallel the schedule of a practicing academic hospitalist, meaning that they will be scheduled for 15 shifts which will be 8-12 hours long. They will also be expected to complete 4 non-clinical shifts.

A. Clinical Shifts

1. The 15 clinical shifts will be divided into 3 Monday – Friday weeks. The resident will rotate between the following clinical services:
 - Acute Hospitalist Medicine
 - Consult Medicine

- Telluride/Observation Medicine

These clinical shifts will be 8-12 hours long. Resident hours will parallel their supervising attending. Most hospitalist services at Denver health begin work at 0700 and finish around 1700.

If desired, the resident can also supplement their clinical experience with:

- Medical Procedures
- Medical Ethics

The resident can improve their procedure skills by working directly with a procedure attending to perform emergent and urgent procedures requested by ward teams. If the resident is interested they can also choose to add exposure to Medical Ethics by working with hospitalist members of the ethics committee who are performing consults during their rotation. These topics will be intertwined with the clinical work on each service.

B. Non-Clinical Shifts

1. The 4 non-clinical shifts will be completed during the month and will be dedicated to either an academic or quality improvement project. Options for non-clinical time include::

- LEAN Rapid Improvement Event
- Research abstract, poster, or publication

Residents will be assigned a direct supervising attending for the above projects. Their shifts will be scheduled either in conjunction with the already scheduled 4 day RIE or with their supervising research attending. They will be evaluated for the work completed during this time. Both research time and RIE participation will need to be coordinated at the time of elective enrollment to ensure availability of an RIE during the resident's rotation or to establish an active research project and mentor prior to their arrival.

IV. Educational Content

A. Academic Opportunities

As Denver Health strives for excellence in academics, research and quality improvement projects are strongly encouraged in our hospitalist group. Thus, while on the hospitalist service, visiting residents will be expected to participate in one of two options:

1. **Quality Improvement:** Residents may contribute to an ongoing quality improvement or hospital throughput research project (LEAN or Rapid Improvement Event) designed to evaluate and improve patient safety and bed utilization on the unit.
2. **Research projects:** Residents may participate in an ongoing research project investigated by a faculty member. For example, the resident may assist in the composition of an abstract or manuscript. Opportunities for continued participation in these projects following completion of the elective will be considered on a case-by-case basis for visiting residents who are interested in gaining additional research experience. We recognize that one month is insufficient time to become a study investigator. It ensures, however, that residents are briefly exposed to the types of research and quality improvement initiatives that Denver Health hospitalists are expected to participate in and direct at their institutions.

B. Didactic Education

Specific evidence-based talks will be provided on the following topics:

- Pre-operative assessment and peri-operative management
- Consultative medicine
- Evaluation of chest pain and use of stress tests
- Bariatric surgery
- Medical complications of eating disorders
- Inpatient procedures – vascular access
- Alcohol withdrawal
- Billing/coding
- Medical ethics
- Palliative care
- Physician role in Hospital Flow

As outlined above, these talks will be provided based on the design of each resident's month, optimizing the timing of these talks to prepare the resident for their upcoming hospitalist service.

Additionally, the resident will be expected to give a conference to hospitalist attending s during their rotation. The resident will choose the format and topic for the conference that they present to the hospitalist group.

C. Patient Care

1. **Diversity of Diseases:** Residents on the DH Hospitalist Elective will encounter patients with a variety of medical conditions that are not sufficiently serious to require monitoring or treatment in the intensive care unit. These might include, but are not limited to, patients with chest pain, pneumonia, COPD, asthma, pulmonary embolism, congestive heart failure, syncope, hepatitis, pancreatitis, connective tissue disease, various types of cancer requiring intravenous infusion of chemotherapy, diabetes, hypertension, acute or acute on chronic renal failure, and intoxications and overdoses. Because Denver Health treats a large number of patients from Mexico, Central America, Africa and Asia, we treat a variety of infectious diseases that are uncommon in the United States including active tuberculosis, Q Fever, leishmaniasis, and leprosy. Residents will also encounter common infectious conditions such as pyelonephritis, cellulitis, meningo-encephalitis, HIV-AIDS, Residents will additionally care for trauma and surgical patients on the consultative services, further broadening their exposure from the traditional internal medicine ward services.
2. **Patient Characteristics:** Patients admitted to the ward-based Denver Health General Medicine service come from the general population of the City and County of Denver and surrounding counties. The majority of patients are admitted from the Emergency Department. The patient population at Denver Health is 50% female, 50% Latino and approximately 20% African American. Many patients come from Mexico and Central America and smaller numbers come from Eastern Europe or Africa.

D. Learning Venue:

1. **Facility:** Denver Health provides geographically based care to maximize efficiency and inter-professional interface. Hospital Medicine patients are geographically localized to the 5th and 7th floors of pavilion A and to the 3rd, 4th, and correctional care units in pavilion B. The Clinical Transition Unit (CTU) is staffed by hospital medicine and is located in the ED, providing observation level care to patients requiring a 48 hours or shorter hospitalization. The consult service will typically see patients on all floors in all pavilions A-C.
2. **Computer Access:** Every floor in all three pavilions have smart card access to the Lifetime Clinical Record that includes all in-patient and out-patient

records for all patients cared for in the Denver Health system, all laboratory results ever obtained, access to copies of dictated radiology, pathology, ECG, echocardiogram, heart catheterization and operative reports, and web-based access to UpToDate, MedLine and a variety of other informational databases. All imaging studies can also be accessed remotely with the computerized PACS system.

3. **Procedures:** The residents working with the hospitalist procedure team will perform procedures in the semi-sterile procedure room on the 7th floor or at the bedside. Procedure location will vary with each case. Residents will have the opportunity to insert central venous lines and learn about bedside ultrasonography and how it is used to improve the safety of procedures. . Residents will also have the opportunity to perform paracenteses, thoracenteses, lumbar punctures, and arthrocenteses.
3. **Physician Order Entry and Standardized Order Sets:** Residents are expected to place all orders through Computerized Physician Order Entry (CPOE). They are expected, when appropriate, to utilize the more than forty-five standardized order sets that are available.
4. **Ancillary Services:** Residents interact with subspecialists on all hospitalist services. Subspecialty services at Denver health include: Hematology/Oncology, Gastroenterology/Hepatology, Nephrology, Neurology, Surgery, Neurosurgery, Orthopedic Surgery, Obstetrics/Gynecology, Pathology, Rheumatology, Endocrinology, Infectious Disease, and Dermatology, and with Clinical Pharmacists who attend daily work rounds. Residents will meet with Social Workers, Physical Therapists and Utilization Review personnel based on the schedule of their particular service.

V. Principal Ancillary Educational Materials

A. Hospitalist Elective Digital Library:

Residents will receive a copy of a digital library containing review articles, relevant consensus statements and recent landmark papers covering topics relevant to hospital medicine (see attached).

B. Hospital Medicine Pocketcard:

Residents will also receive pocket cards summarizing important topics such as peri-operative risk stratification, cardiac stress testing and optimal documentation language (see attached).

C. Procedure Medicine Workshop:

Residents will attend a workshop with a procedure attending during which they will receive hand-on training on ultrasound guided placement of central venous catheters. The resident will also have access to gel block and models which replicate vascular anatomy, so that they can practice the techniques they learn in this workshop.

D. Hospital Medicine Modules:

Residents will complete a short module that has been developed to teach them admission and triage criteria for common observation medicine diagnoses.

E. Online Resources:

Residents will have Internet access to numerous web-based medical information sources (e.g., UpToDate, Medline, Pubmed) is available on the Denver Health Pulse from all computers. This access also includes all on-line journals, drug information programs, and electronic textbooks available at the UCD Denison Medical Library. Internet access also includes secured e-mail for inter-system notification of primary care physicians when their patients are admitted and discharged, and a variety of patient education materials.

V. Methods of Evaluation

A. Resident Performance

1. **Attending Evaluations of Resident:** Each attending that spends > 2 days of supervision time with the resident will complete a faculty evaluation of that resident for their time under their supervision. It is expected that each supervising attending also provide verbal formative feedback to residents while on each service. A minimum of one attending evaluation per week will be collected and provided to the course co-directors.

2. **360 Degree Evaluation of Resident:** A multidisciplinary evaluation from at least one of the resident's clinical or LEAN experiences will be collected by their supervising Faculty on that week.
3. **Composite Rotation Evaluation of Resident:** The course Co-directors will collect the above independent evaluations and complete a composite evaluation for their time on service at Denver Health. This along with the above independent evaluations will be sent to the residency office for review and placement in the Resident's file where it is used to formulate the semiannual performance review with the Director of the Residency program

B. Procedures

1. **Procedure Log:** All procedures performed by the resident will be supervised by a procedure attending. A procedure note will be completed by the resident and attending and included in the medical record. The resident will then submit written documentation of all procedures performed during the rotation to the Medicine Residency Office for inclusion in their residency requirements.

C. Academics

All resident work performed on a Rapid Improvement Event or during research will be evaluated by the assigned QI or research attending.

D. Program and Faculty Performance

1. **Resident Evaluation of Attendings:** Each attending that spends ≥ 4 days of supervision time with the resident will have an evaluation completed by that resident on their performance. This evaluation will be submitted to the Chief of Hospital Medicine for submission in their annual Performance review. The identity of the evaluator will be kept confidential.
2. **Resident Evaluation of Didactics:** The resident will complete an evaluation on each didactic session provided. These will be given both the educator and again the Chief of Hospital Medicine for inclusion in annual performance evaluations.
3. **Resident Evaluation of Rotation:** The resident will complete an evaluation of their elective month as a whole. This will include separate sections of evaluation for each week of rotation at DH. This evaluation will be kept by the course directors for continued improvement and quality control of the elective going forward.

D. Rotation Performance

Annual review of the collected above information will be performed by the elective co-directors, the DH APD for Internal Medicine, and the elective committee for elective curricular adjustments and improvements.

VI. Institutional Resources: Strengths and Limitations

A. Strengths

Denver Health is the only Public Hospital in the City and County of Denver. It also serves as the tertiary referral center for the Community Health Center of Denver, the first Community Health Center in the country. Accordingly, the patient base cared for is extraordinary. Forty-seven percent of the faculty have NIH funding, much of which is for clinical research. The faculty has won numerous system-wide awards for teaching excellence. Over the past several years the Divisions of Pulmonary and Critical Care Medicine, Rheumatology, Neurology, and/or Nephrology have been listed in the U.S. News and World Report as being in the top 50 programs in the country. Denver Health is number 1 ranked trauma center for survival. Denver Health has the lowest overall mortality rate among University Health System Consortium hospitals.

B. Limitations

Denver Health has no organ transplant program and does not perform open heart surgery or provide radiation therapy. All of these services are available at the University Hospital. We believe our higher patient volume provides a unique opportunity for residents to become familiar with the expected demands of post-residency practice. However, we acknowledge this workload can impede residents' learning opportunities – we have designed this elective to minimize this learning limitation.

VII. Rotation Specific Competency Objectives

A. Patient Care

1. **History taking:** Residents at all levels of training will obtain a thorough history by utilizing all sources of secondary information in a logical and organized fashion. Residents will obtain relevant historical subtleties to

assist building a differential that is adapted to the instability of the patient at that time. The resident will solicit the difficult emotional aspects of the patient's or family's experience and address end-of-life issues while demonstrating flexibility based on patient need and reception to these questions.

2. **Physical Exam:** Residents at all levels of training will perform a comprehensive physical examination describing the physiological and anatomical basis for normal and abnormal findings. Residents will obtain subtleties and unusual findings within the exam, when present, to assist in creating their hypothesis driven differential diagnosis. Residents should additionally exhibit the ability to perform focused physical examinations that are targeted to the patient's level of clinical stability.

4. **Written Documentation:** Residents are expected to create prompt, legible, thorough documentation of their patient care. All documentation must be timed and dated and promptly made available in the chart for the multidisciplinary team to use.

5. **Procedures:** Residents will demonstrate knowledge of procedural indications, informed consent, contraindications, necessary equipment, specimen handling, patient after-care, and risk and discomfort minimization. Residents will possess the technical skills to safely complete the necessary procedures required for IM certification. Resident will exhibit an ability to teach and supervise procedures performed by junior members of their team.

6. **Medical Decision Making, Clinical Judgment, and Management Plans:** Residents will use their medical knowledge to create care plans that present reasonable diagnostic and therapeutic management strategies for each patient. These care plans should reflect current evidence based or consensus based medicine. Residents will continually modify these care plans based on each patient's clinical course and all newly acquired data. Residents will recognize disease presentations that deviate from common patterns. Residents will provide inpatient management of complex chronic conditions. Residents will recognize situations which require urgent or emergent care. Residents will acquire a better understanding of their personal knowledge and clinical limitations and will more timely seek advice and assistance from more

advanced clinicians to ensure the safety of all patients under their care. Residents will develop plans to avoid or delay known treatment complications and be able to identify when an illness has reached a point where treatment no longer contributes to improved quality of life.

6. **Patient counseling:** Residents will display an ability to explain the rationale for a chosen therapy and major medication side effects in terms understandable by the patient. They will assess patient/family understanding and provide more information when necessary. Residents will be able to explain the pros and cons of competing therapeutic interventions. Residents will be expected to counsel patients regarding adverse habits and educate patients and families for enhanced compliance. They will be able to effectively communicate with critically ill patients and engage patients and families in end of life discussions.

B. Medical Knowledge

Residents will possess the foundational medical, behavioral, and socioeconomic knowledge required to successfully diagnose and treat illnesses and diseases encountered in inpatient medicine. Residents will interpret complex tests with accuracy while displaying an understanding of pre-test probability and limitations to diagnostic tools.

C. Interpersonal and Communication Skills

Residents will strive to quickly establish therapeutic relationships with patients, the physician team, and supporting hospital personnel. They will engage patients in shared decision making using uncomplicated communication and active listening techniques. Residents will incorporate patient specific preferences into the plan of care. They will create effective written communications through accurate, complete, and legible notes. Residents will use verbal, non-verbal, and written communication which facilitates collaboration amongst the patient and care team and enhances patient care. Residents will use feedback to improve personal performance and patient care.

D. Professionalism

All residents will demonstrate integrity, accountability, respect, compassion, patient advocacy, and dedication to patient care over 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

Residents will use appropriate resources to critically appraise medical literature and apply evidence to patient care. They will understand the importance of a systems-based approach to reducing medical errors and improving quality of care. Residents will 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. They will recognize the importance of the systems-based approach to reducing medical errors and improving quality of care. Residents will additionally model independent learning and development.

F. Systems Based Practice

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. Residents will 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.