Intermediate Coronary Care Unit Rotation
Section of Cardiology
Dartmouth-Hitchcock Medical Center
(2008-2009)

I. Overview of Rotation

The cardiology-specific critical care experience is in the Intermediate Coronary Care Unit. Trainees in adult cardiovascular medicine must understand the structure and function of this specialized telemetry area. The ICCU is considered the optimal environment for the initial treatment of non-ST-elevation acute myocardial infarction, unstable angina, and various chest pain syndromes. Furthermore, the CCU is equipped with a full range of therapeutic supports for managing refractory congestive heart failure, atrial fibrillation, pericardial disease, syncope. Cardiology fellows must gain experience in the assessment and therapy of these and other critical conditions.

The cardiovascular trainee will have two rotations in the ICCU during the first two years of the core clinical experience. The fellow will work in concert with the attending cardiologist assigned to the ICCU and the general medical housestaff team according to the guidelines established for the Medicine 1 inpatient service. As with other rotations in which experience is cumulative, it is anticipated that the fellow will be given progressively greater responsibility for patient care over the course of the sequential rotations in the unit as defined below under the Patient Care section of the Core Competencies.

II. Core Competencies

1. Patient Care
   a. Fellows on the ICCU rotation will join the attending and medical housestaff on daily rounds. This experience will include case discussions, bedside teaching of physical examination, review of active pharmacotherapy and synthesis of the relevant laboratory, noninvasive and invasive medical data.
   b. The fellow will directly supervise medical order writing and all procedures performed in the ICCU with appropriate attending guidance according to their skill levels. The procedures include thoracentesis, direct current cardioversion, surveillance of temporary pacemakers, stress testing.
   c. Fellows are empowered to interface with referring physicians, other housestaff teams, consultants, and ancillary personnel regarding patient-care decisions
and plans of care. Further, fellows are expected to provide timely updates on care plans and medical decision making for patients and their families in compliance with HIPAA regulations.

d. Fellows will transition to greater degrees of primary responsibility on serial ICCU rotations as suggested below:

1. First rotation: Advanced resident posture with a high-level of attending oversight; initial experience will be to understand the logistics of the unit environment, clinical documentation expectations, equipment, and staff and ICCU function. Fellows will aid in transfer triage in coordination with the charge nurses, cardiology triage access nurse and the attending assigned to ICCU.

2. Second rotation: Development of comprehensive management strategy for ACS patients, including a full understanding of the role of pharmacotherapies as well as conservative versus invasive treatment paradigms and increasing degrees of responsibility for clinical decisions and patient/family education.

3. Third rotation: Expectation for global knowledge of the CCU population and ‘attending-like’ function. This will include the opportunity for independent rounding with the housestaff team and greater use of the attending physician in a consultant posture.

2. Medical Knowledge

a. The major topic areas to be learned during the ICCU rotations include, but are not limited to, the following:

1. Acute Coronary Syndromes
   a. Diagnosis of acute myocardial infarction and unstable angina
   b. Thrombolytic and interventional reperfusion strategies
   c. Pharmacotherapeutics of anti-ischemic, anti-platelet and anti-thrombotic agents
   d. Mechanical and arrhythmic complications of acute infarction
   e. Risk stratification and risk factor modification; role of pharmacologic therapy, smoking cessation counseling, dietary and weight control, and exercise regimens.
   f. Cardiac rehabilitation

2. Congestive Heart Failure
   a. Differential diagnosis of systolic and diastolic ventricular dysfunction
   b. Evaluation and management of left ventricular systolic dysfunction
c. Inotropic agents, vasodilators.

d. Quality indicators for optimal treatment strategies

3. Malignant Ventricular Arrhythmias
   a. Primary and secondary ventricular fibrillation and tachycardia; differential diagnosis and management
   b. ACLS protocols

4. Acute Pericardial Disease
   a. Evaluation and management of pericardial tamponade
   b. Differential diagnosis of acute pericarditis

5. Decision-Making and Medical Ethics
   a. Optimal utilization of resources and testing strategies
   b. Patient preferences and utilities for treatment options
   c. Living wills; limitations on resuscitative efforts and mechanical supports
   d. Communication skills with referring physicians, patients, families and staff

b. Educational Resources
   1. Braunwald Heart Disease 2005; Chapters 44-49
   2. ACCSAP 6: Book 3, Chapters 6-9
   3. ACC/AHA Guidelines for the Management of Acute Myocardial Infarction 2004:
   4. ACC/AHA Guideline Update on the Management of Unstable Angina and Non-STE Myocardial Infarction 2002:
   5. ACC/AHA Guidelines for the Evaluation and Management of Chronic Heart Failure 2005:
   6. Cardiology Core Curriculum for GIM Housestaff
      http://www.dartmouth.edu/~cardio/core_curriculum.htm

3. Practice-Based Learning and Improvement
   a. Fellows will experience care correlated with clinical guidelines for ACS and CHF. Order sets and the overall process of care are designed to ensure compliance with evidence-based practice in the ICCU. The fellow will engage in this deliberate but patient-specific treatment approach as a member of the care team and ICCU Redesign Project. The fellow will assist in educating the
housestaff and ancillary personnel on the basic principles established for best practice in the ICCU population.

b. Faculty will model the evidence-based management and provide additional context for incorporating accepted guidelines into day-to-day care.

c. Fellows will attend case conferences and M&M sessions to review complications of care and other outcomes.

d. Quality indicators of DHMC-specific practice are available on the web: [http://www.dhmc.org/QualityReports/list.cfm?metrics=Overall](http://www.dhmc.org/QualityReports/list.cfm?metrics=Overall)

### 4. Interpersonal and Communication Skills

a. Fellows will work in multidisciplinary teams to facilitate the care of patients in ICCU. The team will include the medical housestaff, bedside and charge nurses, respiratory and physical therapists, cardiac rehab team members, social service and clinical resource coordinators. The roles of each of the support personnel will be explained as part of the initial ICCU rotation.

b. Fellows will be guided in their communication to patients and families by the attending physician. Conferences during the academic year supplement communication skills, gender and minority issues.

c. Feedback from the nursing staff in ICCU will be encouraged to compliment the fellows’ formal evaluation of ICCU performance.

### 5. Professionalism

a. Fellows in cardiology are board-eligible or certified internists. As such, they already bring a mature clinical experience to the CCU environment. The role of the cardiology attending is to model the professional behavior of the cardiovascular specialist. Fellows will be counseled regarding informed consent, privacy issues, diversity, and empathy in the critical care environment. HIPAA information is available on the intranet: [http://intranet.hitchcock.org/hc/webpage.cfm?site_id=1&org_id=19&morg_id=0&gsec_id=7834&item_id=7834](http://intranet.hitchcock.org/hc/webpage.cfm?site_id=1&org_id=19&morg_id=0&gsec_id=7834&item_id=7834)

b. Formal education in Ethics, Palliative Care, and other aspects of professionalism are incorporated into the academic curriculum and conference schedule. Supplemental reading of the following reference is encouraged: [http://www.acc.org/clinical/consensus/ethics/index.htm](http://www.acc.org/clinical/consensus/ethics/index.htm)

c. Fellows will be expected to mentor DMS and other students, internal medicine trainees, nursing staff and other colleagues. Fellow-directed conferences will be held twice weekly for the CCU service on topics
designed to expand the educational experience of the rotation beyond the bedside component.

6. System-Based Practice
   a. Fellows will be participants in the Dartmouth Acute MI regional care program. This is a voluntary relationship of regional providers who refer to DHMC for tertiary cardiac support to manage acute non-STE MI and unstable angina. This treatment paradigm incorporates a database that provides insights into procedural success, mortality and other complications.
   b. Fellows will be exposed to the costs of care, systems of payment and other societal issues as part of the general conference schedule for the fellowship.

III. Administrative Issues
   a. New Fellow Orientation
      New fellows will benefit from a comprehensive overview of the ICCU environment. Please arrange for your orientation just before or early in the first ICCU rotation. The charge nurse will be the contact person for the orientation of new fellows.
      Performance evaluations will be completed by faculty working directly with the fellow through the E*Value system at the completion of the rotation. In addition, the nursing personnel will provide a 360 degree assessment with a tool that will also be incorporated into the fellow’s performance review.
   b. Admissions and Transfers
      ACCESS Center Interface:
      **Monday through Friday, 8AM to 5 PM:**
      1. The ICCU attending or EP service attending (or Cardiology Triage Nurse, once hired) receives a request for an acute transfer, DHMC clinic or ER admission from a referring physician. The basic clinical information and demographics (patient name, age, referring physician, hospital and phone number for return call) are obtained.
      2. The ICCU staff or EP attending notifies the cath scheduling office (ext 5-7946) about the transfer and likewise informs the charge nurse AND accepting inpatient team if not his/her own.
3. The cath scheduling office informs the ACCESS Center (ext 5-5152) about the transfer. If beds are open or expected to be open on ICCU or CCU for immediate acceptance, the charge nurses in those units should initiate the transfer by calling the transferring facility.

4. When the clinical situation is an acute STE MI, shock or refractory angina with a need for emergency PCI, the ICCU attending must inform the cath lab tech-in-charge (ext. 5-7783) directly to alert them. As these admissions are initially managed in the CCU, the CCU charge nurse or CCU fellow/staff deserve to know the situation early also.

**Evenings, Weekends, Holidays:**

1. The cardiology fellow on call receives the request for transfer and obtains the appropriate information as in #1 above.

2. The fellow should know the status of bed capacity during direct sign-out with the ACOS and can accept the patient directly if access is clear. However, if the critical care or ICCU bed capacity is in question, the fellow should check quickly with the ACCESS Center and then promptly call back the referring physician or facility once nursing coverage and a bed option is identified. It is crucial that even when DHMC is on "critical care triage or diversion" that every effort be made to ensure emergency access for ACS invasive treatment. In the case of acute STE MI, cardiogenic shock or refractory chest pain, the fellow should activate the cath lab and interventional team by standard methods.

3. If the clinical situation does not require immediate transfer of the patient but rather within 12-24 hours, the fellow should notify the ACCESS Center, the cath scheduling office (E-mail or voice mail) and primary team (ICCU staff and fellow) by E-mail or direct conversation to ensure continuity of care.

4. If fellows trying to expedite transfers to the cardiology services run into obstructions or inappropriate delays, they are to notify Dr. Catherwood at home (802-649-2601) or the on-call Medical Director (DHMC page operator has the list) to rectify the situation.
c. Internal Medicine Housestaff
The CCU service is covered by three internal medicine house officers; rotating every third night. The CCU fellow is responsible for supervising the care provided by the internal medicine housestaff. The CCU fellow on rotation will provide direct supervision and support for the GIM residents and the on-call cardiology fellow will do likewise during evenings and weekends. In all situations, there is a staff cardiologist available for support and direction at all times.

d. Formal Feedback
1. Fellows will evaluate the rotation through the E*Value system and these comments will be uploaded into their individual binders for review by the program director. The goal is to give fellows ample opportunity to provide constructive criticism of the rotation with a goal of continuous improvement.
2. Fellows will be given verbal and written evaluations at the end of each rotation. As attending rotations last only a week, the fellow will receive input from several staff regarding his/her performance. The evaluations will be entered using the E*Value system and will incorporate assessments of core competencies and other appropriate feedback.

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