University of Wisconsin - Madison
Cardiovascular Medicine Fellowship Program
UW CCU Rotation
Goals and Objectives

Goals
- Learn to coordinate a variety of data from multiple cardiovascular sub-disciplines, e.g. catheterization laboratory, hemodynamic study, non-invasive imaging, nuclear, electrophysiologic, and in combination with their own clinical observation, formulate and implement an effective patient care plan.
- Serve as primary MD in the CICU, directly delivering or primarily supervising and coordinating ongoing patient care while serving as a liaison between internal medicine residents assigned to the CICU and the attending cardiologists.
- Fellows assigned to the CICU rotation the William S. Middleton Memorial VA Hospital will participate in the management of patients in the CICU and the cardiology Ward service.
- Assume a leadership role in the education of internal medicine residents assigned to the CICU rotation.
- Perform (with attending physician guidance as needed) all standard critical care procedures required of patients residing in the CICU and if appropriate, supervise and instruct the internal medicine residents in the performance of same.
- Collaborate with attending cardiologists in clinical decision-making and communicate decisions to the patient care team.
- At the completion of CICU rotations during the course of fellowship, the fellow should be able to function as an independent cardiac intensivist, capable of personally delivering a full range of cardiac services to acutely-ill cardiac patients.
- NOTE: The CICU rotations are not fellow level specific and the expectations will not vary with fellow year.

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<th>Competency</th>
<th>Required Skill</th>
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| Patient Care | - Serve as principal medical care-giver and point-person and main medical resource for the patient care team in the CICU.  
  - Effectively lead rounds with attending cardiologists  
  - Perform complete independent daily assessments of all CICU patients.  
  - Maintain accurate and complete medical records, including documentation of procedures including indications, performance of the procedures, results, complications and medical personnel present during the procedure.  
  - Review all pertinent laboratory and radiologic data on all CICU patients in a timely manner.  
  - Coordinate all off unit diagnostic procedures and treatments, ensuring that necessary consultations are obtained in a timely manner.  
  - Perform or supervise all critical care invasive procedures performed in the CICU, including central venous catheter insertions, pulmonary artery catheter insertions, transvenous pacemaker insertions, intra-aortic balloon pump placements, cardioversions and removal of large-bore arterial cannulae. |
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- Provide frequent timely communication regarding changes in clinical status and plan of care to patients, their families and loved ones.
- Ensure effective communication of pertinent and significant patient information during hand-offs at the beginning and end of day sign-outs.
- The fellows will be involved in the assessment of risk factors of cardiovascular disease, e.g. coronary artery disease and heart failure, and implement secondary prevention measures in their patients.

Evaluation Method: Mid-rotation and end-of-rotation evaluations by attending staff at the UW and VA.

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<th>Medical Knowledge</th>
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| The cardiovascular medicine fellows will be expected to assume cardiac care for all patients admitted to the CICU service at the respective institutions under the supervision of the cardiovascular medicine attending. The following expectations in medical knowledge are expected during the cumulative training period (note not all topics may be covered during individual CICU rotations):

  | General: |
  | - Initial evaluation and triage of hospitalized patient |
  | - Focused cardiac history and physical examination |

  | Acute Coronary syndromes: |
  | - Evaluation and management of patients of with acute ST segment elevation myocardial infarction (STEMI) and non-ST segment elevation (NSTEMI) and unstable angina, incorporating the current ACC/AHA guidelines for best practice. |
  | - Evaluation and modification of coronary risk factors |
  | - Evaluation and diagnosis of complications from myocardial infarction including arrhythmias, heart failure and mechanical complications |
  | - Understand indications, contraindications and potential complications for pharmacologic therapy for acute coronary syndromes including the following medications: |
  |   - Glycoprotein IIb/IIIa inhibitors |
  |   - Heparin (unfractionated and low molecular weight) |
  |   - Thioynopyridines |
  |   - Thrombolytic agents |
  | - Understand the use and contra-indications for invasive therapy |
  |   - Identify appropriate candidates for cardiac |
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catheterization and percutaneous coronary intervention and formulate care plans for patients following these procedures.
  - Use of intra-aortic balloon pumps
  - Temporary pacemaker systems
- Identify potential candidates for potential cardiac surgical intervention and carry out appropriate strategies to optimally prepare such patients for surgical intervention.
  - Fellows will present patients for consideration of cardiac surgery at the UW and VA Cardiac Catheterization Multi-disciplinary Conferences respectively to the cardiovascular medicine and surgery staff
- Understand the use for non-invasive cardiac testing in acute coronary syndromes
  - Echocardiography, radionuclide ventriculography
  - Stress testing (exercise, pharmacologic, imaging)

- Congestive heart failure
  - Acute heart failure management
    - The indications and techniques for invasive hemodynamic monitoring and interpretation of measure and derived hemodynamic data
  - Use of intravenous vasoactive and inotropic agents
  - Types and indications for implementation of mechanical circulatory support

- Chronic Heart Failure
  - Initial patient assessment (etiology, anatomy, physiology, diagnostic and therapeutic recommendations)
  - Appropriate referral for advanced therapies (cardiac transplantation, mechanical circulatory support)
  - Transition of heart failure care from the inpatient to outpatient setting
  - Familiarity with standard medications used for maintenance therapy (pharmacology, adverse reactions, contraindications and indications)
    - Beta blockers
    - ACE inhibitors/ARB/vasodilators
    - Diuretics
    - Anti-aldosterone agents

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- Digoxin
  - Other cardiovascular disorders (not inclusive)
    - Evaluation and management of valvular heart disease
      - Aortic stenosis
      - Mitral regurgitation (acute and chronic)
      - Aortic regurgitation (acute and chronic)
      - Mitral stenosis
    - Pulmonary hypertension
    - Management of Bacterial Endocarditis
    - Management of syncope of unknown origin
    - Management of hypertension
    - Cardiac Sarcoid
    - Carcinoid
    - Myocardial disorders
      - Hypertrophic Cardiomyopathy
      - Muscular Dystrophy
    - Pericardial Diseases
      - Tamponade
      - Constriction
    - Aortic diseases
      - Dissection
      - Thoracic and abdominal aneurysms
  - Peripheral arterial disease

- Electrocardiograms: the fundamentals of arrhythmia interpretation from EKG rhythm strips and telemetry.
  - EKG recognition of common heart rhythm abnormalities including
    - First, second and third degree SA block
    - First second and third degree AV block
    - Sinus arrhythmia
    - Sinus bradycardia
    - Wandering atrial pacemaker
    - Atrial tachycardia
    - Multifocal atrial tachycardia
    - Paroxysmal supraventricular tachycardia
    - AV nodal re-entrant tachycardia
    - AV re-entrant tachycardia (pre-excitation syndrome)
    - Atrial Fibrillation
    - Atrial Flutter
    - Junctional escape rhythm
    - Accelerated junctional escape rhythm
    - Ventricular escape rhythm
## Goals and Objectives

- Wide QRS tachycardia
- Ventricular tachycardia
- Ventricular Fibrillation
- Ventricular parasystole
- Paced rhythms (atrial, ventricular and AV sequential)
- Extrasystoles (atrial, junctional, ventricular)
- Digoxin/drug induced arrhythmias
- To assess artifact on EKG recordings.
- To use these fundamentals of EKG interpretation to help understand the standard management strategies for the most frequent conditions necessitating admission to the CICU and/or ward and the complications resulting thereof.

### Electrophysiology

- Understand principles of standard dysrhythmia management and device therapies used in the management of rhythm disorders, both implantable and external.
- Understand which patients should be referred for internal-cardioverter defibrillators
- Understand which patients should be referred for electrophysiology studies

## Evaluation Method:

1. **Mid-rotation and end-of-rotation evaluations by attending staff at the UW and VA for which evaluations will be done by direct observation and interaction of the fellow by the attending.**
2. **Mini-CEX examinations**

## Practiced-Based Learning and Improvement

- Fellows will appraise and assimilate evidence from scientific studies related to their patients’ health problems and use this information to help formulate best medical practice.
- Fellows will be expected to direct lectures for the other team members (graduate medical trainees and medical students) using evidence based medicine.
- Attend and participate in all regularly scheduled cardiovascular medicine division lectures and conferences

## Interpersonal Communication Skills

- Coordinate simultaneous demands and inputs
- Develop and maintain therapeutic and ethically sound relationships with patients
- Demonstrate effective listening skills, elicit and provide information using effective non-verbal, explanatory, questioning and writing skills
- Work effectively with others as a leader or co-leader of the care team

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| Professionals | o Interdisciplinary discharge planning meetings  
|              | ▪ Involvement in end-of-life issues with the patient and family members  
|              | ▪ Patient and family meetings  
|              | ▪ Interaction with palliative care service (available at the UW and VA)  
| Evaluation Method | Mid-rotation and end-of-rotation evaluations by attending staff at the UW and VA.  

| Systems-based Practice | o Understand how patient care and other professional practices affect other health care professionals, the health care organization and the larger society and how these elements of the system affect their own practice.  
|                        | ▪ Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources.  
|                        | ▪ The VA Medical Center is a national healthcare system. In this system, the cardiovascular medicine fellow will be actively involved this managed-care system. The fellows will be effective leaders in interdisciplinary rounds which comprises of nurses, physical therapists,  

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and social workers to ensure quality patient care. Additionally, the fellows will learn to effectively manage patients while using the VA medical formulary as well as meeting VA Core Measures in Acute Coronary Syndromes, Congestive Heart Failure

**Evaluation Method:** Mid-rotation and end-of-rotation evaluations by attending staff at the UW and VA. At the VA, the fellows will also review core measure with the cardiology attendings monthly.