

**RESPONSIBILITIES OF CARDIOLOGY FELLOWS DURING  
ELECTROPHYSIOLOGY SERVICE ROTATIONS – PGY 3, 4, 5, 6, 7**

**I. General Information**

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Attendings: Amit Noheria, M.D.  
Daniel Cooper, M.D.  
Phillip Cuculich, M.D.  
Mitchell N. Faddis, M.D., Ph.D.  
Marye Gleva, M.D.  
Timothy W. Smith, M.D., D. Phil.

Clinical Cardiac Electrophysiology Fellows:

Jason Meyers, M.D.  
Praveen Rao, M.D.  
Olusegun Olusesi, M.D.  
Sahil Attawala, M.D.

On Call Beeper: 424-4680

Night call coverage for patients with arrhythmias who are under the care of the Arrhythmia Service is the responsibility of the subspecialty Clinical Cardiac Electrophysiology Fellow. Calls regarding arrhythmia management may include inpatients who are being followed by the arrhythmia service, new consultations, or outpatients who have had shocks delivered by their defibrillators. The Clinical Cardiac Electrophysiology Fellow on call can be reached through the On Call Beeper (424-4680) or by calling the office (454-7834).

Pacemaker evaluations for inpatients are scheduled through the Pacemaker device nurse (Kathy Sax, pager 424-0487) or can be called to the EP service fellow on call. Pacemaker emergencies that arise after regular working hours can be referred to the Clinical Cardiac Electrophysiology Fellow on call (424-4680). Pacemaker programmers are stored outside the electrophysiology laboratories in the Cardiac Procedure Center (CPC) across from the cafeteria on the first floor, in the CCU, and on 2100.

**II. Responsibility of the Cardiology Fellows**

1. Objectives for the **First Year Cardiology Fellow:**

To gain consultative experience in the diagnosis and management of patients with complex supraventricular and ventricular arrhythmias, bradycardias, conduction abnormalities, and syncope, to learn appropriate indications for electrophysiology procedures, and to obtain basic skills needed to evaluate pacemakers and defibrillators.

a. Expectations:

- i. Attend EP conferences (7:30am – 8:30am Mondays; Central conference room, 13<sup>th</sup> Floor, NWT). These meetings are didactic sessions pertaining to the mechanisms, diagnosis, and treatment of arrhythmias. **Since general cardiology fellows are an integral part of the extremely busy EP service, no vacations are to be taken during the rotation. If the fellow is unable to be present, coverage must be arranged by the fellow.**

- ii. Present at Arrhythmia conference (Thursdays, once a month). This is a patient management conference focusing on clinical evaluations specifically directed toward arrhythmia issues. Discuss with Dr. Tim Smith at the beginning of rotation for case selection.
- iii. Attend EKG conferences (every Thursday from 12-1pm, Cain conference room). Assist in collecting EKGs to be presented at EKG conferences.
- iv. Responsible for morning rounds on the inpatient service and the evaluation of patients referred for consultation. Afternoon rounds are made with the attending physician to discuss patient management.
- v. Observe some EP procedures to get a better understanding of what is involved during these procedures. The observed procedures should include: pacemakers, ICDs, biventricular device, SVT ablation, Afib ablation.
- vi. Attend two half-day clinics during the rotation to evaluate outpatient EP issues and device follow-up/trouble-shooting.

## 2. Objectives for the **Second Year Cardiology Fellow:**

To be exposed to multiple areas of clinical electrophysiology in preparation for general cardiology board exam, and for understanding basic EP issues and making appropriate referrals in general cardiology practice.

### a. Expectations:

- i. Responsible for participation in management of the EP consult service and rounding on service with EP attending. **Since general cardiology fellows are an integral part of the extremely busy EP service, no vacations are to be taken during the rotation. If the fellow is unable to be present, coverage must be arranged by the fellow.**
- ii. Second year fellows will NOT take overnight or weekend call or be responsible for scheduling procedures.
- iii. Observe some EP procedures to get a better understanding of what is involved during these procedures. The observed procedures should include: pacemakers, ICDs, biventricular device, SVT ablation, Afib ablation.
- iv. Attend two half-day clinics during the rotation to evaluate outpatient EP issues and device follow-up/trouble-shooting.
- v. Assist in cardioversions and tilt table tests.
- vi. Attend EP Conference (7:30am-8:30am on Mondays; Central conference room, 13<sup>th</sup> floor, NWT). These meetings are didactic sessions pertaining to the mechanisms, diagnosis, and treatment of arrhythmias.
- vii. Attend EKG conferences (every Thursday from 12-1 pm, Cain conference room). Assist in collecting EKGs to be presented at EKG conferences.

## III. Core Competencies for the Arrhythmia Service Rotation

### A. Medical Knowledge

Know the mechanism and characteristics of normal sinus rhythm and of sinus node dysfunction.

Know the pathophysiology, differential diagnosis, clinical significance, and approach to management of re-entrant tachycardia (atrioventricular nodal re-entrant tachycardia; atrioventricular reciprocating tachycardia), ectopic atrial tachycardias, and accelerated atrioventricular junctional rhythm.

Know the pathophysiology, differential diagnosis, clinical significance, and approach to management of atrial fibrillation and flutter, including the assessment of stroke and bleeding risk, indications of anticoagulation, and selection of anticoagulant medications.

Know the risk factors for stroke and for bleeding in patients with atrial fibrillation or atrial flutter, as well as the indications for, and use of, anticoagulant medications.

Know the pathophysiology, differential diagnosis, clinical significance, and approach to management of sustained and nonsustained ventricular tachyarrhythmias.

Know the pathophysiology, differential diagnosis, and approaches to risk stratification and management of sudden cardiac death and cardiac arrest, including sudden cardiac death in athletes.

Know the types, mechanisms, differential diagnosis, clinical significance, and approach to management of atrioventricular dissociation and atrioventricular heart blocks (first, second, and third degree).

Know the physical examination characteristics of arrhythmias (e.g., findings of atrioventricular dissociation).

Know the significance of underlying structural or congenital heart disease in the likelihood and significance of cardiac arrhythmias, including sudden death risk, and their impact in clinical management decisions.

Know the indications, contraindications, and clinical pharmacology of antiarrhythmic medications, including drug–drug and drug–device interactions and proarrhythmia potential (including acquired long QT syndrome).

Know the indications and limitations of noninvasive testing in the diagnosis and management of patients with arrhythmias: electrocardiogram, ambulatory, event, implantable loop recorder, and tilt-table testing.

Know the indications for, and limitations and complications of, invasive electrophysiological testing, as well as catheter ablation for cardiac arrhythmias.

Know the indications and contraindications for permanent pacemaker placement, cardiac resynchronization therapy, and implantable cardioverter-defibrillator placement.

Know the pathophysiology, differential diagnosis, natural history, and approach to management of syncope, including neurocardiogenic causes and syncope in athletes.

Know the pathophysiology, differential diagnosis, natural history, and approach to management of syncope, including neurocardiogenic causes and syncope in athletes.

Know the pathology, clinical significance, and approach to evaluation (including the role of genetic testing) and management of inherited diseases that may cause cardiac arrhythmias due to ion channel abnormalities or structural changes in the heart (including the long QT syndrome, Brugada syndrome, arrhythmogenic right ventricular dysplasia, hypertrophic dilated cardiomyopathy, and myotonic dystrophy).

Know the principles and practice of radiation safety as applied to the evaluation and management of cardiac electrical disorders.

Know the basic principles of programming and interrogating implanted devices (permanent pacemakers, implantable cardioverter-defibrillators, cardiac resynchronization therapies, and implantable monitors)

## **B. Patient Care**

Skill to evaluate and manage patients with palpitations.

Skill to evaluate and manage patients with syncope.

Skill to evaluate and manage patients with supraventricular tachyarrhythmias.

Skill to evaluate and manage patients with atrial fibrillation and flutter (including rate and rhythm control and anticoagulation strategies).

Skill to evaluate and manage patients with wide-QRS tachycardia.

Skill to manage patients with nonsustained and sustained ventricular arrhythmias.

Skill to evaluate and manage patients with bradycardia and/or heart block.

Skill to perform electrical cardioversion.

Skill to perform defibrillation.

Skill to perform temporary pacemaker placement.

Skill to select and manage patients requiring a permanent pacemaker, implantable cardioverter defibrillator, or biventricular pacing.

Skill to integrate the information provided in cardiac electrophysiology consultation, and reports of procedures and device interrogation, into the overall clinical assessment of the patient and plan of management.

Skill to evaluate and manage patients with cardiac arrest.

Skill to prescribe and interpret the results of electrocardiographic recording devices.

### **C. Systems-Based Practice**

Utilize an interdisciplinary coordinated approach for patient management, including transfer of care and employment-related issues.

Use technology and available registries to assess appropriateness, performance, and safety of implanted devices.

Incorporate risk/benefit analysis and cost considerations in diagnostic and treatment decisions.

### **D. Practice-Based Learning and Improvement**

Identify knowledge and performance gaps and engage in opportunities to achieve focused education and performance improvement.

Utilize decision support tools for accessing guidelines and pharmacologic information at the point of care.

### **E. Professionalism**

Demonstrate sensitivity to patient preferences and end-of-life issues.

Practice within the scope of expertise and technical skills.

#### **D. Interpersonal and Communication Skills**

Communicate with and educate patients and families across a broad range of cultural, ethnic, and socioeconomic backgrounds.

Engage in shared decision-making with patients, including decisions regarding options for diagnosis and treatment.

#### **IV. Suggested Reading**

The EP syllabus is a collection of relevant papers arranged by topics which are on the cardiology fellow website (check with chief fellows).

**VI. Teaching Methods:** The primary mode of learning will be through teaching rounds with the attendings. Teaching rounds will occur 5 days a week (since general cardiology fellows do not round on weekends for EP). The fellow is expected to assure that the residents and students are prepared to present the appropriate data at teaching rounds. The fellow is expected to present a concise history and physical, to formulate a plan of action, and to provide necessary data in support of their plans. The fellow is expected to participate in the morning EP conferences.

**VII. Evaluation:** At the end of each two-week block, the fellow will meet with the attending for feedback. One attending will be asked to complete the evaluation in *MyEvaluations.com* after consulting the other attendings. It is highly encouraged that the fellows take the initiative to approach attending to discuss their experience on the EP rotation so that improvements can be made to enhance their education.