

## CARDIAC ELECTROPHYSIOLOGY (PGY-2 TO 4)

### THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA *Objectives of Training and Specialty Training Requirements in Anesthesia*

#### Specific Objectives in CanMEDS Format

#### ROTATION OBJECTIVES

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

#### Medical Expert

##### *Specific Knowledge Requirements*

The resident will be able to:

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, and education.

##### *Specific Skill Requirements*

###### A. *Clinical Skills*

The resident must be able to:

- Obtain an accurate patient history and perform an appropriate physical examination.
- Develop a weighted differential diagnosis.
- Develop an appropriate plan of care and interpret electrocardiographic, laboratory and radiological investigations.
- Recommend an appropriate therapeutic plan taking into account such matters as age, general health, risk/benefit ratio, and prognosis.

###### *EP Specific*

- Develop a logical and systematic approach to interpretation of ECGs with regard to bradycardia, tachycardia, and pacing.
- Gain a detailed understanding of the pathophysiology of common cardiac arrhythmias (AF, A flutter, SVT, VT, bradycardia), their investigation and treatment.
- Understand of the pharmacology and clinical use of antiarrhythmic medications.
- Be proficient at assessment of the patient with bradycardia, tachycardia, palpitations, syncope, cardiac arrest, and high risk of arrhythmia.

- Gain a detailed understanding of the pathophysiology of the common cardiac arrhythmias, their investigation and treatment (medication, ablation, pacing therapy or surgery).
- Develop an understanding of the role in synchronization pacing in patients with heart failure.

### *B. Technical Skills*

The resident will:

#### *EP Specific*

- Gain knowledge of indications for implantation of temporary and permanent pacemakers, and an understanding of the role of biventricular pacing for heart failure management.
- Gain knowledge of indications, both primary and secondary, for implantation of ICDs.
- Gain knowledge of indications for EP study and ablation.
- Gain knowledge of indications for laser lead extraction.
- Gain experience interpreting ECGs, holter monitors and event recorder tracings.
- Become familiar with preparation, risks and perioperative issues regarding device implant, EP study, and lead extraction.
- Develop an awareness of the technical approaches to pacemaker and ICD implantation. This includes implantation of single and dual lead devices, as well as programming and troubleshooting.
- Gain exposure to lead extraction in terms of indications, techniques, preoperative and postoperative management of extraction patients.

### **Communicator**

#### *General Requirements*

The resident will be able to:

- Establish therapeutic relationships with patients / families.
- Obtain and synthesize relevant information from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

#### *Specific Knowledge Requirements*

The resident must be able to:

- Communicate with the patients and be sensitive to the patients' emotional status surrounding illness.

- Describe the dynamics of the traumatized family.
- Discuss the concerns patients have of loss of control, self-worth, and personal dignity.
- Describe the need for effective use of language.
- Discuss the need to explain medical matters in simple terms.
- Describe the role of interpreters in dealing with some patient groups (cultural, deaf).
- Appreciate how differences in race, gender and ethnicity affect patient/families responses to therapeutic suggestions and diagnosis.

### ***Specific Skill Requirements***

The resident must be able to:

- Address patients concerns with empathy and respect in every encounter.
- Explain details of medical conditions and therapy in understandable terms.
- Include all members of the health care team in discussions of therapeutic plan when appropriate.
- Communicate with medical colleagues, health team personnel, patients, and families in a professional, timely, accurate, informative and, compassionate manner, at all times.

#### *EP Specific*

- Independently perform full history and directed physical exam on patients referred for arrhythmia assessment
- Present a clear, concise history and physical exam pertaining to arrhythmia inpatients and outpatients, with a logical plan for investigation and therapy
- Actively participate in patient education discussions regarding risks and benefits of implant, extraction, and ablation procedures

### **Collaborator**

#### *General Requirements*

The resident will be able to:

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to interdisciplinary team activities.

### ***Specific Knowledge Requirements***

The resident must be able to:

- Describe the roles of the health care professionals in a team.
- Describe the unique aspects of care provided by nursing, physiotherapy, and health care technologists.

### ***Specific Skill Requirements***

The resident must be able to:

- Seek the advice of other members of the health care team.
- Effectively participate in team meetings to discuss problems in investigation and therapy.
- Consult with other physicians.

#### *EP Specific*

- Actively participate in a multidisciplinary approach to the arrhythmia patient.

### **Leader**

*General Requirements* The

resident will be able to:

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

### ***Specific Knowledge Requirements***

The resident must be able to:

- Describe the essential aspects of health care funding and the different models of health care delivery.

### ***Specific Skill Requirements***

The resident must be able to:

- Undertake quality assurance and quality delivery analyses.
- Develop plans for more effective use of resources for health care programs.
- Apply technology effectively to patient care.
- Contribute effectively in strategic planning.

#### *EP Specific*

- Gain understanding of resource utilization in arrhythmia management, in terms of cost-effective investigation and therapy for the arrhythmia patient.



## **Health Advocate**

### *General Requirements*

The resident will be able to:

- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

### *Specific Knowledge Requirements*

The resident must be able to:

- Describe the epidemiology of cardiac arrhythmias.
- Discuss the importance of preventive medicine for cardiac diseases.
- Describe methods of patient education and preventive medicine intervention for cardiac diseases.

### *Specific Skill Requirements*

The resident must be able to:

- Participate in patient education.
- Assist patients in the acquisition and interpretation of health care information.

#### *EP Specific*

- Advise families of the role of genetics in the genesis of arrhythmia.
- Understand arrhythmia therapy options and alternatives, including the risks and benefits of interventional procedures.

## **Scholar**

### *General Requirements*

The resident will be able to:

- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise and apply sources of medical information.
- Facilitate the learning of patients, house staff, students and other health professionals.
- Contribute to development of new medical knowledge.

### *Specific Knowledge Requirements*

The resident must be able to:

- Describe the important role of clinical and basic research in arrhythmia practice.
- Describe the scientific method and of outcome based research.
- Discuss the application of statistical methods to critical appraisal.

- Discuss the importance of continuing medical education (CME) for arrhythmia specialists.
- Describe where information on medical matters is reliably obtained.

### ***Specific Skill Requirements***

The resident must be able to:

- Question current practice.
- Apply outcome-based methodology to interpretation of clinical information.
- Critically appraise the current literature.
- Develop a plan for continuing personal professional development that includes but is not limited to CME meetings.
- Appraise the relevant medical literature on a regular basis.

#### *EP Specific*

- Teach other health care professionals about arrhythmia related topics.
- Gain knowledge of important clinical trials and other manuscripts which have guided modern arrhythmia management.
- Actively search peer-reviewed literature to answer management questions pertaining to patients seen in clinic and on the ward.

### **Professional**

#### *General Requirements*

The resident will be able to:

- Deliver highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviour.
- Practice medicine ethically consistent with the obligations of a physician.

#### ***Specific Knowledge Requirements***

The resident must be able to:

- Discuss the professional and ethical responsibilities of a specialist.
- Describe the requirements of patient confidentiality.

#### ***Specific Skill Requirements***

The resident must be able to:

- Demonstrate personal and professional attitudes consistent with a specialist.
- Display sensitivity to patient needs even when they conflict with best medical care.
- Maintain patient confidentiality.
- Practice in an ethical, honest, and forthright manner.



- Respond to conflict and abuse constructively.

*EP Specific*

- Actively participate in ongoing management of arrhythmia inpatients and consults
- Attend outpatient clinic at least 1 day per week, seeing patients independently and presenting the case and proposed management to attending physician
- Attend and participate in arrhythmia service rounds on Wednesday and Friday 8-9am
- Inform the service of expected absences or leave prior to beginning rotation, to allow for appropriate patient and physician scheduling

Revised: April 2011, Dr. Granton