CLINICAL CARDIAC ELECTROPHYSIOLOGY (CCEP) FELLOWSHIP

Director: Dr. Shane Tsai
Teaching Faculty: Drs. Daniel Anderson, Arthur Easley, Faris Khan, Jason Payne, Niyada Naksuk, William Schleifer, Shane Tsai and John Windle

I. Core Curriculum Components:
Milestones are adapted for use from COCATS 4 Task Force 11 (JACC 2015; 65:1854-65). Level III training prepares the physician to specialize in invasive CCEP, and trainees should meet all Level II requirements and obtain additional advanced training in diagnostic electrophysiology procedures, catheter-based ablation procedures, and implantation of defibrillators and biventricular devices. Minimal procedure volumes are provided in accordance with the American College of Cardiology/American Heart Association/Heart Rhythm Society Electrophysiology Advanced Training Statement (JACC 2016; 2:120-3). Additional recommendations adapted from ACGME Program Requirements for Graduate Medical Education in CCEP (ACGME approved February 5, 2011).

A. Medical Knowledge
1. Must demonstrated knowledge of the scientific method of problem solving and evidence-based decision making
2. Must demonstrate knowledge of indications, contraindications, limitations, complications, techniques, and interpretation of results of those diagnostic and therapeutic procedures integral to the discipline, including the appropriate indications for and use of screening tests/procedures
3. Must demonstrated knowledge of
   a. Anticoagulation
   b. Arrhythmia control
   c. Basic cardiac electrophysiology, including but not limited to genesis of arrhythmias, normal and abnormal electrophysiologic responses, autonomic influences, effects of ischemia, drugs, and other interventions
   d. Device management
   e. Epidemiology of arrhythmias
   f. Genetic bases of pathological arrhythmias
   g. Medical management of acute and chronic heart failure associated with left ventricular systolic dysfunction
   h. Radiation physics, biology, and safety related to the use of x-ray imaging equipment
   i. Role of randomized clinical trials and registry experiences in clinical decision making

B. Patient Care and Procedural Skills
1. Skill to perform and interpret invasive EPS (n=175)
2. Skill to perform catheter ablation and manage complications
   a. Supraventricular tachycardia (not including AF) (n= 160 total)
      i. Focal atrial tachycardia (n= 5)
      ii. AV Nodal (n= 5)
      iii. Atrioventricular nodal recently tachycardia (n= 25)
      iv. Orthodromic reciprocating tachycardia/Accessory Pathway (n= 15)
   b. Atrial flutter (n=30 total)
      i. Isthmus dependent (n=20)
      ii. Non-isthmus dependent (n= 10)
c. Atrial fibrillation (n= 50)

d. Ventricular tachycardia/PVC (n= 30 total)
   i. Idiopathic VT/PVC (n= 20)
   ii. VT/PVC in patients with structural heart disease (n= 10)

3. Skill to perform CIED implantation and manage complications (n= 100 total)
   a. Pacemakers (n= 40)
   b. ICD (n= 60)
   c. CRT-P or CRT-D (n= 25)
   d. CIED replacement/revision (n= 30)

4. CIED interrogation/programming (n= 200 total)
   a. Pacemaker (n= 100)
   b. ICD (n= 100)
   c. Remote (n= 50)

5. Lead extractions (n=30*; special competency not expected of all CCEP trainees)

6. Tilt table tests (n=5)

C. Practice Based Learning
   1. Systematically analyze practice using quality improvement methods, and implement changes
      with the goal of practice improvement
   2. Locate, appraise, and assimilate evidence from scientific studies related to their patient’s health
      problems

D. Systems Based Practice and Improvement
   1. Fellows must demonstrate awareness of and responsiveness to the larger context and system of
      health care, as well as the ability to call effectively on other resources in the system to provide
      optimal health care

E. Professionalism
   1. Fellow must demonstrate high standards of ethical behavior, including maintaining appropriate
      professional boundaries and relationships with other physicians and other health care team
      members, and avoiding conflicts of interest
   2. Fellow must demonstrate competence in providing consultation to physicians in other disciplines

F. Interpersonal and Communication Skills
   1. Fellow must demonstrate interpersonal and communication skills that results in the effective
      exchange of information and collaboration with patients, their families, and health professionals
   2. Fellow must demonstrate competence in providing consultation and obtaining informed
      consent

II. Fellow Experiences
   A. Fellowship must include clinical experiences and appropriate protected time for research
   B. Fellow must participate in clinical case conferences, journal clubs, research conferences, and
      morbidity and mortality or quality improvement conference
   C. All core conferences must have at least one faculty member present
   D. Fellows must attend an outpatient clinic to provide follow-up care for patients
   E. Direct supervision of procedures performed by each fellow must occur until proficiency has been
      acquired and documented by the program director
F. Faculty members must teach and supervise the fellows in the performance and interpretation of procedures, which must be documented in each fellow’s record, including indications, outcomes, diagnoses, and supervisors.

G. All fellows must
1. Participate in pre-procedural planning, including the indications for the procedure and the selection of the appropriate procedure or instruments
2. Perform the critical technical manipulations of the procedure
3. Demonstrate substantial involvement in post-procedural care
4. Be supervised by teaching faculty responsible for the procedure

H. Fellows must have an opportunity to participate in research or other scholarly activities including
1. Research project with faculty mentorship; or
2. Participation with faculty in the initiation and conduct of clinical trials within the department; or
3. Participate in quality assurance/improvement or process improvement projects

III. Evaluations

A. Each fellow is to be evaluated on a monthly basis (360° Evaluation):

1. A formal evaluation will be completed by the EP attending(s), using New Innovations, and the content of the evaluation will be reviewed verbally with the fellow. Any negative evaluations must be discussed face-to-face with the fellow and the Program Director must be notified.
   - Faculty must discuss evaluations with fellow at least every 3 months
2. At the end of the rotation, the EP fellow(s) will evaluate the EP attending using New Innovations. This evaluation will be reviewed on semi-annually basis with the Program Director and Chief of Cardiology.
3. Program director must provide a summative evaluation for each fellow upon completion of the program