Clinical cardiac electrophysiology

Background

Clinical cardiac electrophysiology (CCEP) is the subspecialty of cardiology focused on the treatment of patients with complex heart rhythm or conduction abnormalities (i.e., problems with the heart’s electrical system). Clinical cardiac electrophysiologists are internal medicine and cardiology specialists who treat patients with conditions such as palpitations, congenital heart disease, syncope (fainting), bradyarrhythmias, and supraventricular and ventricular tachyarrhythmias.

Clinical cardiac electrophysiologists develop a high level of expertise in such areas as interpreting noninvasive test results related to arrhythmia diagnosis and treatment, performing and interpreting invasive electrophysiologic testing, and performing cardiac ablation procedures. The latter—a noninvasive procedure that involves inserting catheters to reach the heart—entails placing intense heat on the area of the heart causing the rhythmic pumping problems in order to turn pulmonary vein tissue into scar tissue that no longer conducts electricity.

According to the American College of Cardiology (ACC), catheter ablation has “revolutionized the field of electrophysiology” as an alternative to open heart surgery and/or long-term drug treatment for the cure or modification of many arrhythmias.

Clinical cardiac electrophysiologists also have special expertise in the use of implantable pacemakers and defibrillators, tilt-table studies (designed to induce fainting in patients with syncope), and the application of other interventional techniques and treatments. They also provide nonpharmacologic therapies, including electrophysiologic mapping prior to catheter use and surgical ablation, and prescribe antiarrhythmic agents for use alone or in conjunction with cardiac implantable electrical devices.

Core privileges in CCEP include the ability to admit, evaluate, treat, and provide consultation to acute and chronically ill patients of all ages, except as specifically excluded from practice, with various heart rhythm disorders, including sinus node dysfunction, atrioventricular (AV) and intraventricular block, and supraventricular and ventricular tachyarrhythmia; clinical conditions of unexplained syncope; aborted sudden cardiac death; palpitations; Wolff-Parkinson-White (WPW) syndrome and long QT syndrome; care of patients in the cardiac care unit, ER, or other intensive-care settings before and after an electrophysiologic procedure; and care of patients with temporary and permanent pacemakers, postoperative arrhythmias, and implantable cardioverter defibrillators (ICD).
Clinical cardiac electrophysiology

Involved specialties
Cardiac electrophysiologists, cardiologists

Positions of societies and academies

ACC

The ACC’s mission is to advocate for quality cardiovascular care—through education, research promotion, and the development and application of standards and guidelines—and to influence healthcare policy. Members of the ACC are physicians with special education, training, and interest in the practice of cardiology.

In its 2006 update of the Clinical Competence Statement on Invasive Electrophysiology Studies, Catheter Ablation, and Cardioversion, written in conjunction with the American Heart Association and the American College of Physicians, in collaboration with the Heart Rhythm Society (HRS), the ACC set forth recommended training and competency standards for electrophysiologists as follows:

- A minimum of one year of specialized training in electrophysiology studies to acquire the cognitive and technical skills required to become expert in CCEP, in addition to time spent during general cardiology fellowship training learning to diagnose and manage arrhythmias.
- During the specialized training year, each trainee should be a primary operator and analyze 100–150 initial diagnostic studies. At least 50 of these procedures should involve patients with supraventricular arrhythmias.
- The trainee should also have been a primary operator during 25 or more implantations and electrophysiological evaluations of implantable antiarrhythmic devices.
- The trainee’s experience should be documented in writing and confirmed by the laboratory supervisor. For each procedure during the training period, the following facts should be documented: date, patient ID number, patient age, indication, type of procedure, findings, and complications.
- The one-year training period is the minimum for most individuals to become proficient in basic pacemaker and ICD implantation and management, performance and interpretation of diagnostic electrophysiology studies, and catheter ablation of common forms of paroxysmal supraventricular tachycardia. However, the ACC states that two years of training is optimal for cardiac electrophysiologists who wish to perform more complex procedures.

The document also addresses the issue of obtaining and maintaining competency in emerging technologies. It states that “the majority of clinical electrophysiologists will first be exposed to, and begin using, emerging techniques and technologies outside of their training experience. As such, the skills required to
Clinical cardiac electrophysiology

record, compile, synthesize, integrate, render, interpret, and apply the resulting data will be acquired through alternative educational pathways.” Specifically, the document points out that the training required for proficiency in the application of new technologies and techniques will depend on the technology and procedures under consideration, and advises that developments in technology may require changes to formal training programs as the specific technology becomes more readily available.

HRS The HRS, formerly the North American Society of Pacing and Electrophysiology, has a membership of more than 4,500 physicians, scientists, and associated professionals from roughly 70 countries. It is a leading professional group representing the allied specialties of cardiac pacing and cardiac electrophysiology.

In a 2004 document, Clinical Competency Statement: Training Pathways for Implantation of Cardioverter Defibrillators and Cardiac Resynchronization Therapy Devices, and a 2005 addendum to the document, the HRS sets forth its position that completion of a fellowship in electrophysiology is “clear evidence” of the training necessary to implant ICDs and cardiac resynchronization therapy (CRT) devices.

According to the statement, physicians who have not completed an electrophysiology fellowship should have passed the NASPExAM examination or its successor examination within the past 10 years and have completed an HRS-sponsored or -endorsed didactic course about ICDs and CRTs. In addition, the nonelectrophysiologist who is already experienced in pacemaker implantation and who wishes to independently implant prophylactic ICD and CRT devices should meet the following criteria:

- Have documentation of performing 35 pacemaker implantations per year, of which at least 75% should be “full system” implants, with a minimum of 100 implantations during the preceding three years
- Have been proctored on 10 ICD implantations and five revisions, which should include upgrades, lead extraction and replacement, pulse generator change, and new lead insertion
- Have observed two CRT implantations and performed five with proctoring

This recommended alternative pathway expires in 2008. After 2008, nonelectrophysiologists wishing to independently implant ICD and/or CRT devices should follow the guidelines recommended in the ACC/HRS document, Core Cardiology.
According to the COCATS document, cardiology training for those wishing to specialize in adult cardiac electrophysiology can be divided into three levels. Level 1 should be composed of at least two months of CCEP rotation designed for cardiology trainees to acquire knowledge and experience in the management of bradyarrhythmias and tachyarrhythmias. HRS recommends that this two-month rotation be a compulsory unit of a cardiology residency.

Level 2 is an optional six-month period of advanced training for cardiologists who wish to acquire advanced training in management of arrhythmias but who do not wish to undertake training in all aspects of advanced electrocardiology. Level 2 training is designed to develop advanced competence and proficiency in the diagnosis, treatment, and longitudinal care of patients with complex arrhythmias. The level 2 trainee will acquire skills and experience in programming and follow-up management of all types of bradycardia pacing, biventricular pacing, and ICD systems. He or she will acquire advanced expertise in temporary pacing, cardioversion, interpretation of invasive electrophysiologic study data, and complex arrhythmia electrocardiogram (ECG) interpretation. However, level 2 training will not qualify the trainee to perform the invasive surgical procedures required to implant arrhythmia control devices.

Level 3 is for those cardiology residents who have completed levels 1 and 2 and who wish to specialize in invasive diagnostic and therapeutic CCEP. CCEP training will require four years of training in clinical cardiology and electrophysiology (current Accreditation Council for Graduate Medical Education [ACGME] requirements call for a 24-month general cardiology program followed by 12 months of elective study, which may include cardiac electrophysiology, and an additional one year of CCEP training).

Successful completion of level 3 training will require completion of levels 1 and 2, plus performance of at least 150 electrophysiologic procedures as primary operator, and analysis of 100–150 initial diagnostic studies. Fifty to 75 of these procedures should involve patients with prevenricular arrhythmias. The trainee should be a primary operator during at least 25 electrophysiologic evaluations of implantable antiarrhythmic devices.
Level 3 trainees will have significant exposure to the management and follow-up of ICD pacemaker implantations, but will not necessarily be trained in the surgical aspects of these procedures. Surgical training requires optional training in surgical implantation procedures, which may be obtained concurrently with level 3 training or sequentially after completion of level 2 training.

All of the preceding guidelines apply only to adult cardiac electrophysiology. The HRS’ 2005 addendum to the Clinical Competency Statement: Training Pathways for Implantation of Cardioverter Defibrillators and Cardiac Resynchronization Therapy Devices also states:

The guidelines . . . set forth in this document do not necessarily prepare a practitioner to deal with the implantation issues important for patients with smaller heart size and abnormal cardiovascular anatomy or to care for children prior to and following such procedures. Therefore, these guidelines should not be considered to apply directly to training and competency requirements for individuals who implant devices in children . . .

AOA

The American Osteopathic Association (AOA), which represents 59,000 osteopathic physicians (DO), serves as the primary certifying body for DOs and is the accrediting agency for all osteopathic medical colleges and healthcare facilities. The AOA does not publish guidelines for granting privileges in CCEP. However, in conjunction with the American College of Osteopathic Internists, the AOA has published the document Specific Requirements for Osteopathic Subspecialty Training in Cardiac Electrophysiology.

According to this document, the purpose of the cardiac electrophysiology fellowship is to develop clinical and laboratory skills in the diagnosis and treatment of cardiac arrhythmias. To be eligible for a cardiac electrophysiology fellowship, candidates must have completed a three-year residency in general cardiology. The duration of a cardiac electrophysiology fellowship is one year. The fellowship must cover the following knowledge areas:

➤ Basic electrophysiology, to include formation and propagation of normal and abnormal impulses, autonomic nervous control of cardiac electrical activity, mechanisms of arrhythmias, and conduction disturbances

➤ Evaluation and management of patients with clinical syndromes resulting from bradyarrhythmias and tachyarrhythmias in both ambulatory and hospital settings
Clinical cardiac electrophysiology

Practice area 118

- Indications for, and selection of, permanent pacemakers
- Pacemaker interrogation and troubleshooting
- Pharmacology, pharmokinetics, and use of antiarrhythmic agents
- Interpretation of electrophysiology studies, ambulatory monitoring, and electrocardiograms including signal-averaged ECGs
- Interpretation and application of key clinical trials as identified by the program director

With regard to clinical requirements, the AOA states that fellows must actively participate in the diagnosis and treatment of electrophysiologic cardiac disorders and must be given the opportunity to function in the role of consultant in electrophysiology. Fellows must have the opportunity to function as the primary operator under supervision for required electrophysiology procedures.

The fellowship must have an ambulatory component of at least one half day per week throughout the 12 months of the fellowship; ambulatory experience must include outpatient monitoring of pacemakers, implantable defibrillators, and patients with chronic arrhythmias.

The AOA requires fellows to demonstrate the following technical skills: catheter and intraoperative mapping procedures, catheter and surgical ablations, insertion of pacemakers and implantable defibrillators, external cardioversion and defibrillation, diagnostic electrophysiology studies, and CPR.

Positions of other interested parties

ACGME

In its *Program Requirements for Fellowship Education in Clinical Cardiac Electrophysiology*, the ACGME states that a subspecialty program in CCEP must be one year in length and must function as an integral component of an accredited subspecialty fellowship in cardiovascular disease. Fellows must first have completed a residency program in internal medicine as well as an accredited cardiovascular disease program.

Formal instruction in CCEP must include:

- Basic cardiac electrophysiology including genesis of arrhythmias, normal and abnormal electrophysiologic responses, autonomic influences, effects of ischemia, drugs, and other interventions
- CCEP
- Arrhythmia control device management
- Genetic basis of pathological arrhythmias
Epidemiology of arrhythmias
Clinical trials of arrhythmia management and their effect on clinical practice

Clinical experience
Fellows must have formal instruction, clinical experience, and demonstrated competence in the prevention, evaluation, and management of both inpatients and outpatients with the following:
- Disorders of the cardiac rhythm including but not limited to sinus node dysfunction, AV and intraventricular block, and supraventricular and ventricular tachyarrhythmias
- Unexplained syncope
- Aborted sudden cardiac death
- Palpitations
- WPW syndrome
- Prolonged QT syndrome
Consultation to physicians in other disciplines
Care of patients in the cardiac care unit, ER, or other intensive-care settings
Care of patients before and after an electrophysiologic procedure
Care of patients with postoperative arrhythmias
Outpatient follow-up of patients treated with drugs, devices, or surgery
Electrocardiography, proficiency in the interpretation of standard 12-lead ECGs, stress testing, ambulatory ECG recording, signal-averaged ECGs, and telephone-transmitted ECGs
Care of patients with temporary and permanent pacemakers and care of patients with ICDs

Technical and other skills
Fellows must have formal instruction and clinical experience and must demonstrate competence in the performance of the following:
- Noninvasive testing relative to arrhythmia diagnosis and treatment
- Three or more electrophysiology invasive diagnostic/interventional procedures per week as primary operator or as an assistant closely involved with data collection and analysis
- A minimum of 150 intracardiac procedures, which must include at least 75 studies related to supraventricular arrhythmia
- Electrode catheter introduction and positioning, stimulating techniques to obtain conduction times and refractory periods and to initiate and terminate tachycardias,
recording techniques (including an understanding of amplifiers, filters, and signal processors), and measurement and interpretation of data
– A minimum of 75 catheter ablative procedures, including postdiagnostic testing, which must include a mix of AV nodal reentrant tachycardia and accessory pathway modification, atrial tachycardia and atrial flutter, AV junctional ablation and modification, and ventricular tachycardia ablation
– Implantation of cardioverter/defibrillators and pacemakers, including a minimum of 25 initial ICD and 50 pacemaker procedures, device programming including at least 100 interrogations, noninvasive programmed stimulation for arrhythmia induction through the device, defibrillation threshold testing, and final prescription of antitachycardia pacing and defibrillation therapies

➤ Fellows must have formal instruction, clinical experience, and demonstrated competence in the interpretation of the following:
  – Activation sequence mapping recordings
  – Invasive intracardiac electrophysiology studies, including endocardial electrogram recording
  – Relevant imaging studies, including chest radiography
  – Tilt testing
  – ECGs and ambulatory ECG recordings
  – Continuous in-hospital ECG recordings
  – Advanced electrocardiographic methods of risk stratification
  – Stress test ECG recordings
  – Transtelephonic ECG readings

*ABIM* The American Board of Internal Medicine (ABIM) offers certification in CCEP. Applicants must meet the following minimum criteria:
➤ Have been previously certified in internal medicine by the ABIM
➤ Maintain a current underlying certificate of cardiovascular disease by the ABIM
➤ Have satisfactorily completed the requisite training
➤ Have demonstrated clinical competence in the care of patients
➤ Have met the licensure and procedural requirements
➤ Have passed the secure exam for that discipline

Candidates who were previously admitted to the examination through the practice pathway and have not yet achieved certification will continue to be admitted to future CCEP exams. Such
candidates must continue to meet the ABIM’s requirements for licensure and professional standing and document that their commitment to CCEP involves at least 50% of their professional time and effort.

Candidates first applying for certification in CCEP in 1998 and thereafter must meet the following training requirements:
- Three years of cardiovascular disease fellowship training, including 24 months of clinical training, in an ACGME-accredited program.
- One additional year of acceptable training in CCEP completed July 1, 1992, or after.
- Each year since completion of training, commitment of at least 50% of professional time and effort to CCEP, including balanced experience in a variety of clinical settings. Settings may include but are not limited to the electrophysiology laboratory (serving as the primary operator or as an assistant closely involved with data collection and analysis), emergency department, coronary care unit, OR, and follow-up clinic.

CCEP training taken July 1, 1998, and thereafter must be accredited by the ACGME. Training undertaken prior to July 1, 1998, must meet the following criteria:
- The CCEP training must be conducted in a program that is accredited for training in cardiovascular disease by the ACGME. Training in CCEP must include clinical activity either as the primary physician or as a consultant for/to patients with cardiac arrhythmias. The training must be supervised by a qualified electrophysiologist. The training should provide a balanced experience in a variety of clinical settings, including but not limited to the electrophysiology laboratory, emergency department, coronary care unit, OR, and follow-up clinic.
- The program must be structured to permit the development of requisite procedural and technical skills, which are the learned manual skills and the associated technical aspects necessary to perform diagnostic and therapeutic procedures. Successful mastery of these essential skills also includes an understanding of the indications for electrophysiologic study, contraindications and complications, and the ability to monitor and interpret the results.
- Within the four years of training required for certification in both cardiovascular disease and CCEP, three years must be clinical, of which 12 months must be in electrophysiology.
To ensure credible confirmation of proficiency in certain procedural techniques, candidates must perform a minimum of 150 intracardiac procedures in at least 75 patients, of which 75 are catheter ablations (including postdiagnostic testing) and 25 are initial ICD implantations (including programming). Participation in diagnostic EP studies (including mapping) is necessary, as is implantation and programming of pacemakers. The candidate may serve as a primary operator or as an assistant closely involved with data collection and analysis.

The ABIM further states that performance of the required minimum number of procedures is not a guarantee of proficiency. The board will seek substantiation from the training program director that the candidate acquired the requisite skills and is competent to provide comprehensive and specialized medical care in the field of CCEP.

**AOBIM**

The American Osteopathic Board of Internal Medicine (AOBIM) offers examination for the certification of added qualifications to diplomates with additional training in CCEP. To be eligible for examination in this subspecialty field, an applicant must be a diplomate of the AOBIM in cardiology and must have satisfactorily completed 12 months of an AOA-approved training program in CCEP.

To be eligible to receive certification in cardiology from the AOA through the AOBIM, the applicant must meet all of the following minimum requirements:

- Be a diplomate of the AOBIM in internal medicine.
- Have completed three years of AOA-approved subspecialty training in cardiology. Candidates with two years of subspecialty training will be eligible for examination if the training was completed prior to September 1, 1993.
- Have an unrestricted, unchallenged, valid license to practice in the state where his or her practice is conducted.
- Be a member in good standing of the AOA for a continuous period of at least two years immediately prior to the date of certification.
- Be able to show evidence of conformity to the standards set in the *Code of Ethics* of the AOA if requested.
- Demonstrate clinical competence in the practice of cardiology, documented by the program director by means of the program director’s report form.

**IBHRE**

The International Board of Heart Rhythm Examiners (IBHRE), formerly NASPExAM, sets a standard of excellence for cardiac
arrhythmia professionals. Its exam is recognized as the highest benchmark of professional competency in cardiac pacing, defibrillation, and electrophysiology.

Based in Washington, DC, the organization is an independent entity under the auspices of the HRS. IBHRE has ongoing efforts to update the exam content to reflect changes in modern medicine and requires its physician board members to retake the examination every 10 years.

The Joint Commission

The Joint Commission (formerly JCAHO) has no formal position concerning the delineation of privileges for CCEP. However, in its Comprehensive Accreditation Manual for Hospitals, the Joint Commission states (MS.4.10), “The hospital collects information regarding each practitioner’s current license status, training, experience, competence, and ability to perform the requested privilege.”

In the rationale for MS.4.10, The Joint Commission states that there must be a reliable and consistent process in place to process applications and verify credentials. The organized medical staff then reviews and evaluates the data collected. The resultant privilege recommendations to the governing body are based on the assessment of the data.

The Joint Commission further states (MS.4.20), “The organized medical staff reviews and analyzes information regarding each requesting practitioner’s current licensure status, training, experience, current competence, and ability to perform the requested privilege.”

In the elements of performance for standard MS.4.20, The Joint Commission says that the information review and analysis process is clearly defined. The organization, based on recommendations by the organized medical staff and approval by the governing body, develops criteria that will be considered in the decision to grant, limit, or deny a request for privileges.

The Joint Commission further states (MS.4.40), “Ongoing professional practice evaluation information is factored into the decision to maintain existing privilege(s), to revise existing privileges, or to revoke an existing privilege prior to or at the time of renewal.”

In the elements of performance for MS.4.40, The Joint Commission says that there is a clearly defined process that facilitates
the evaluation of each practitioner’s professional practice, where the type of information collected is determined by individual departments and approved by the organized medical staff. Information resulting from the ongoing professional practice evaluation is used to determine whether to continue, limit, or revoke any existing privilege.

**CRC draft criteria**

The following draft criteria are intended to serve solely as a starting point for the development of an institution’s policy regarding this practice area.

**Minimum threshold criteria for requesting core privileges in CCEP**

- **Basic education**: MD or DO
- **Minimum formal training**: Applicants must be able to demonstrate successful completion of an ACGME- or AOA-approved residency program in cardiology followed by completion of an accredited training program in CCEP.
- **Required previous experience**: The applicant must be able to demonstrate that he or she has successful performed at least 150 intracardiac procedures during the past 12 months, or demonstrate the successful completion of a hospital-affiliated accredited residency, special clinical fellowship, or research within the past 12 months.

**References**

A letter of reference must come from the director of the applicant’s CCEP training program. Alternatively, a letter of reference regarding competence may come from the head of cardiology or CCEP at the institution where the applicant was most recently affiliated.

**Core privileges in CCEP**

Core privileges include the ability to admit, evaluate, treat, and provide consultation to acute and chronically ill patients of all ages, except as specifically excluded from practice, with a variety of heart rhythm disorders including but not limited to sinus node dysfunction, AV and intraventricular block, and supraventricular and ventricular tachyarrhythmia; clinical conditions of unexplained syncope; aborted sudden cardiac death; palpitations; WPW syndrome and long QT syndrome; care of patients in the cardiac care unit, ER, or other intensive-care settings before and after an electrophysiologic procedure; and care of patients with temporary and permanent pacemakers, postoperative arrhythmias, and ICDs. Clinical cardiac electrophysiologists assess, stabilize, and determine the disposition of patients with emergent conditions consistent with medical staff policy regarding emergency and consultative call services.
Core privileges in CCEP include but are not limited to the following procedures:

- Insertion and management of automatic ICDs
- Insertion of permanent pacemakers, including single/dual chamber and biventricular
- Interpretation of activation sequence mapping recordings, invasive intracardiac electrophysiologic studies, including endocardial electrogram recording and imaging studies
- Interpretation of results of noninvasive testing relevant to arrhythmia diagnoses and treatment
- Pacemaker programming/reprogramming and interrogation
- Performance of therapeutic catheter ablation procedures

**Reappointment**

Reappointment should be based on unbiased, objective results of care according to the organization’s quality assurance mechanisms.

Applicants must be able to demonstrate that they have maintained competence by documenting that they have successfully performed at least 150 intracardiac procedures annually during the reappointment cycle, with acceptable results in the privileges requested for the past 24 months based on results of ongoing professional practice evaluation and outcomes.

In addition, continuing education related to CCEP should be required.

**For more information**

For more information regarding this practice area, contact:

Accreditation Council for Graduate Medical Education  
515 North State Street, Suite 2000  
Chicago, IL 60610-4322  
Telephone: 312/755-5000  
Fax: 312/755-7498  
Web site: www.acgme.org

American Board of Internal Medicine  
510 Walnut Street, Suite 1700  
Philadelphia, PA 19106-3699  
Telephone: 215/446-3500 or 800/441-2246  
Fax: 215/446-3633  
Web site: www.abim.org
Clinical cardiac electrophysiology
Practice area 118

American College of Cardiology
Heart House
2400 N Street
Washington, DC 20037
Telephone: 202/375-6000
Fax: 202/375-7000
Web site: www.acc.org

American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611
Telephone: 800/621-1773 or 312/202-8000
Fax: 312/202-8200
Web site: www.do-online.org

American Osteopathic Board of Internal Medicine
1111 W 17th Street
Tulsa, OK 74107-1898
Telephone: 918/561-1267
Web site: www.acoi.org

Heart Rhythm Society
1400 K Street, NW, Suite 500
Washington, DC 20005
Telephone: 202/464-3400
Fax: 202/464-3401
Web site: www.hrsonline.com

International Board of Heart Rhythm Examiners
1400 K Street NW, Suite 500
Washington, DC 20005
Telephone: 202/464-3400
Fax: 202/464-3401
Web site: ibhre@hrsonline.org

The Joint Commission
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
Telephone: 630/792-5000
Fax: 630/792-5005
Web site: www.jointcommission.org
Privilege request form
Clinical cardiac electrophysiology

In order to be eligible to request clinical privileges in CCEP, an applicant must meet the following minimum threshold criteria:

➤ Basic education: MD or DO

➤ Minimum formal training: Applicants must be able to demonstrate successful completion of an ACGME- or AOA-approved residency program in cardiology followed by completion of an accredited training program in CCEP.

➤ Required previous experience: The applicant must be able to demonstrate that he or she has successful performed at least 150 intracardiac procedures during the past 12 months, or demonstrate the successful completion of a hospital-affiliated accredited residency, special clinical fellowship, or research within the past 12 months.

➤ References: A letter of reference must come from the director of the applicant’s CCEP training program. Alternatively, a letter of reference regarding competence may come from the head of cardiology or CCEP at the institution where the applicant was most recently affiliated.

➤ Core privileges: Core privileges include the ability to admit, evaluate, treat, and provide consultation to acute and chronically ill patients of all ages, except as specifically excluded from practice, with a variety of heart rhythm disorders including but not limited to sinus node dysfunction, AV and intraventricular block, and supraventricular and ventricular tachyarrhythmia; clinical conditions of unexplained syncope; aborted sudden cardiac death; palpitations; WPW syndrome and long QT syndrome; care of patients in the cardiac care unit, ER, or other intensive-care settings before and after an electrophysiologic procedure; and care of patients with temporary and permanent pacemakers, postoperative arrhythmias, and ICDs. Clinical cardiac electrophysiologists assess, stabilize, and determine the disposition of patients with emergent conditions consistent with medical staff policy regarding emergency and consultative call services.

Core privileges in CCEP include but are not limited to the following procedures:
- Insertion and management of automatic ICDs
- Insertion of permanent pacemakers, including single/dual chamber and biventricular
- Interpretation of activation sequence mapping recordings, invasive intracardiac electrophysiologic studies, including endocardial electrogram recording and imaging studies
- Interpretation of results of noninvasive testing relevant to arrhythmia diagnoses and treatment
- Pacemaker programming/reprogramming and interrogation
- Performance of therapeutic catheter ablation procedures

➤ Reappointment: Reappointment should be based on unbiased, objective results of care according to the organization’s quality assurance mechanisms.
Applicants must be able to demonstrate that they have maintained competence by documenting that they have successfully performed at least 150 intracardiac procedures annually during the reappointment cycle, with acceptable results in the privileges requested for the past 24 months based on results of ongoing professional practice evaluation and outcomes.

In addition, continuing education related to CCEP should be required.

I understand that by making this request I am bound by the applicable bylaws or policies of the hospital, and hereby stipulate that I meet the minimum threshold criteria for this request.

Physician’s signature: __________________________________________________________

Typed or printed name: _________________________________________________________

Date: __________________________________________________________________________