Pediatric cardiology

Background

Pediatric cardiology is a subspecialty of pediatrics focusing on the diagnosis and treatment of heart problems in infants, children, and young adults. According to the American Heart Association (AHA), pediatric cardiologists are physicians who have completed training in pediatrics with subsequent training in pediatric cardiology.

According to the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Pediatrics (ABP), a minimum of three years of graduate medical education is necessary to train a physician in the field of pediatrics. The candidate must then complete a three-year fellowship program in the subspecialty of pediatric cardiology.

The program must provide fellows with an understanding of normal and abnormal cardiovascular disease and prepare them to provide optimal care and consultation for pediatric patients with cardiovascular disease.

For certification in pediatric cardiology by the ABP, physicians must first pass a written examination in general pediatrics given by the ABP. They must then pass a written examination in pediatric cardiology. The American Osteopathic Association (AOA) and the American Osteopathic Board of Pediatrics (AOBP) do not offer subspecialty certification in pediatric cardiology.

Involved specialties

Pediatric cardiologists

Positions of specialty boards

ABP
The ABP offers subspecialty certification in pediatric cardiology. To receive certification by the ABP for any subspecialty, physicians must meet the following requirements:
➤ Be certified in general pediatrics by the ABP and maintain certification in general pediatrics
➤ Have a current, unrestricted license to practice medicine
➤ Provide verification of training
➤ Meet the scholarly activity/research requirements
➤ Provide evidence of meaningful accomplishment in research
In addition to the requirements above, the following are also required for certification in pediatric cardiology by the ABP:

➤ Completed training in pediatric cardiology in a program accredited by the ACGME or the Royal College of Physicians and Surgeons of Canada (for all physicians who entered training on or after January 1, 1965)
  – Fellows who entered training before January 1, 1988, can apply for admission on the basis of completing a two-year of pediatric cardiology fellowship program
  – Fellows beginning part-time training after January 1, 1988, may complete the required training on a part-time basis not to exceed six years

➤ Submitted a Verification of Competence Form completed by the program director

➤ The fellow must meet the criteria stated in either the “Principles Regarding the Assessment of Scholarly Activity” or “Principles Regarding the Assessment of Meaningful Accomplishment in Research” as described in the General Criteria for Certification in the Pediatric Subspecialties
  – Fellows who began training after July 1, 2004, must meet requirements for scholarly activity

➤ Passed the subspecialty certification examination

Regarding dual pediatric subspecialty certification, if a physician is certified in one subspecialty, he or she can become eligible to take another subspecialty examination after completing two years of additional training, of which at least one year must be broad-based clinical training. If the individual was not required to meet the meaningful accomplishment in research or scholarly activity requirement for certification for the first subspecialty, he or she must meet the meaningful accomplishment in research or scholarly activity requirement during the second fellowship training period.

An individual or program director may petition the credentials committees of two pediatric subspecialties with a proposal for a four- or five-year integrated training program that would meet the eligibility requirements for certification in both subspecialties. This petition must be approved before subspecialty training begins or early in the first year of subspecialty training. Guidelines for dual subspecialty training may be obtained from the ABP or can be found on the ABP website.

Regarding subspecialty “fast-tracking,” a subspecialty fellow who has demonstrated accomplishment in research (e.g., by receiving a PhD in a field relevant to the subspecialty), either before or during residency, may have a part of the training requirement waived. The subspecialty program director may petition the sub-board (either before the beginning of training or during the first year of training) to waive the research requirements or the scholarly activity requirement, and to reduce the length of subspecialty training by as much as one year.
A subspecialty fellow who receives a waiver by the sub-board must complete at least two years of training in the subspecialty with at least one year of broad-based clinical training.

Candidates for fast-tracking must have satisfactorily completed three core years of pediatrics or approved combined pediatrics and other specialty training in an accredited program in the United States or Canada. This pathway is also available to candidates who have satisfactorily completed at least three years of non-accredited general pediatrics training (e.g., overseas) and qualified for a waiver of one year of general pediatrics training through the Policy Regarding Individuals with Non-accredited Training.

**AOBP**

The AOBP does not offer subspecialty certification in pediatric cardiology.

### Positions of societies, academies, colleges, and associations

**AAP, ACC, AHA**

The American Academy of Pediatrics (AAP), American College of Cardiology (ACC), and the AHA published a joint statement on their recommendations for fellowship training in pediatric cardiology. The statement, which was originally published in 2005, was reaffirmed by the AAP, ACC, and AHA in 2009. According to the AAP, ACC, and AHA, the goals of training in pediatric cardiology are to acquire the expertise required to provide high-quality care to children with cardiovascular disease, the academic skills to allow for meaningful scholarly contributions to the specialty, and the capacity for ongoing self-education beyond formal training.

The 36-month core training requirements recommended by the joint panel include experience in the following:

- Three to six months of general inpatient care
- Four to six months of echocardiography and imaging
- Three to four months of cardiac catheterization
- Two to three months of electrophysiology
- Two to four months of cardiac intensive care
- Zero to two months of adult congenital heart disease
- 12–18 months of research

**ACOP**

Although the American College of Osteopathic Pediatricians (ACOP) publishes manuals about the basic standards for residency training in some subspecialties, it
has not published a manual for pediatric cardiology and does not publish specific guidelines regarding the delineation of clinical privileges for pediatric cardiology.

**ACGME**

In its *Program Requirements for Fellowship Training in Pediatric Cardiology*, the ACGME states that residency training programs in pediatric cardiology should integrate ACGME competencies into the curriculum.

With regard to patient care, residents must be competent in:

➤ Taking medical histories and performing physical examinations. Examinations should include taking a family history, which is a critical aspect of evaluating pediatric patients with suspected cardiovascular disease.

➤ Noninvasive techniques including the following:
  - Clinical diagnosis, with special emphasis on radiology, electrocardiography, echocardiography, exercise testing, ambulatory electrocardiography, and MRI. Each fellow should perform and interpret at least 300 pediatric echocardiography studies.
  - Interpretation of electrocardiograms (ECG), ambulatory ECG monitoring studies, and exercise stress testing with ECG monitoring.

➤ The indications for and limitations of the following invasive techniques:
  - Diagnostic cardiac catheterization
  - Selective angiocardiography
  - Electrophysiologic testing
  - Therapeutic catheterizations
  - Pacemaker implantation

➤ The indications, contraindications, complications, and interpretation of the following resuscitation techniques:
  - Pericardiocentesis
  - CPR
  - Mechanical ventilation
  - Cardioversion
  - Temporary pacing

➤ Technical and other skills including knowing how to use relevant electronic equipment, recording devices, and other equipment necessary to perform cardiac catheterization, echocardiography, ambulatory ECG monitoring, and electrophysiologic studies.
  - Fellows should also have a basic understanding of implantable pacemaker and cardioverter defibrillator function, and the interrogation and programming of these devices
  - The program must instruct the fellows in radiation safety fundamentals

➤ Preoperative and postoperative care of patients with both closed and open cardiac surgery.
Pediatric cardiology

With regard to medical knowledge, residents must:

➤ Have instruction in embryology and anatomy of the normal heart and vascular system, clinical morphologic correlations, and potential deviations from normal

➤ The program should teach normal and abnormal cardiovascular and cardiopulmonary physiology and metabolism, and the fundamentals of cardiovascular pharmacology, including mechanisms of drug action, therapeutic indications, and side effects

➤ Receive instruction in cardiovascular pathology that includes structured educational experiences to examine various types of congenital cardiovascular anomalies

➤ Participate in courses, seminars, workshops, and/or laboratory experience that provide an appropriate background in basic cardiac physiology, cardiac pharmacology, and other fundamental disciplines related to the heart and cardiovascular system

➤ Attend multidisciplinary conferences on physiology, pharmacology, neonatology, anesthesiology, critical care, cardiothoracic surgery, cardiac radiology (such as MRI), and adult cardiology

Position of accreditation bodies and regulatory agencies

CMS

CMS has no formal position concerning the delineation of privileges for pediatric cardiology. However, CMS’ Conditions of Participation (CoP) define a requirement for a criteria-based privileging process in §482.22(c)(6) stating, “The bylaws must include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to individuals requesting privileges.”
§482.12(a)(6) states, “The governing body must assure that the medical staff bylaws describe the privileging process. The process articulated in the bylaws, rules or regulations must include criteria for determining the privileges that may be granted to individual practitioners and a procedure for applying the criteria to individual practitioners that considers:

➤ Individual character
➤ Individual competence
➤ Individual training
➤ Individual experience
➤ Individual judgment

The governing body must ensure that the hospital’s bylaws governing medical staff membership or the granting of privileges apply equally to all practitioners in each professional category of practitioners.”

Specific privileges must reflect activities that the majority of practitioners in that category can perform competently and that the hospital can support. Privileges are not granted for tasks, procedures, or activities that are not conducted within the hospital, regardless of the practitioner’s ability to perform them.

Each practitioner must be individually evaluated for requested privileges. It cannot be assumed that every practitioner can perform every task, activity, or privilege specific to a specialty, nor can it be assumed that the practitioner should be automatically granted the full range of privileges. The individual practitioner’s ability to perform each task, activity, or privilege must be individually assessed.

CMS also requires that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

CMS’ CoPs include the need for a periodic appraisal of practitioners appointed to the medical staff/granted medical staff privileges (§482.22[a][1]). In the absence of a state law that establishes a time frame for the periodic appraisal, CMS recommends that an appraisal be conducted at least every 24 months. The purpose of the periodic appraisal is to determine whether clinical privileges or membership should be continued, discontinued, revised, or otherwise changed.

The Joint Commission

The Joint Commission has no formal position concerning the delineation of privileges for pediatric cardiology. However, in its Comprehensive Accreditation Manual for Hospitals, The Joint Commission states, “The hospital collects information regarding each practitioner’s current license status, training, experience, competence, and ability to perform the requested privilege” (MS.06.01.03).
In the introduction for MS.06.01.03, The Joint Commission states that there must be a reliable and consistent system in place to process applications and verify credentials. The organized medical staff must then review and evaluate the data collected. The resultant privilege recommendations to the governing body are based on the assessment of the data.

The Joint Commission introduces MS.06.01.05 by stating, “The organized medical staff is responsible for planning and implementing a privileging process.” It goes on to state that this process typically includes:

- Developing and approving a procedures list
- Processing the application
- Evaluating applicant-specific information
- Submitting recommendations to the governing body for applicant-specific delineated privileges
- Notifying the applicant, relevant personnel, and, as required by law, external entities of the privileging decision
- Monitoring the use of privileges and quality-of-care issues

MS.06.01.05 further states, “The decision to grant or deny a privilege(s) and/or to renew an existing privilege(s) is an objective, evidence-based process.”

The EPs for standard MS.06.01.05 include several requirements as follows:

- The need for all licensed independent practitioners who provide care, treatment, and services to have a current license, certification, or registration, as required by law and regulation
- Established criteria as recommended by the organized medical staff and approved by the governing body with specific evaluation of current licensure and/or certification, specific relevant training, evidence of physical ability, professional practice review data from the applicant’s current organization, peer and/or faculty recommendation, and a review of the practitioner’s performance within the hospital (for renewal of privileges)
- Consistent application of criteria
- A clearly defined (documented) procedure for processing clinical privilege requests that is approved by the organized medical staff
- Documentation and confirmation of the applicant’s statement that no health problems exist that would affect his or her ability to perform privileges requested
- A query of the NPDB for initial privileges, renewal of privileges, and when a new privilege is requested
- Written peer recommendations that address the practitioner’s current medical/clinical knowledge, technical and clinical skills, clinical judgment, interpersonal skills, communication skills, and professionalism
- A list of specific challenges or concerns that the organized medical staff must evaluate prior to recommending privileges (MS.06.01.05, EP 9)
A process to determine whether there is sufficient clinical performance information to make a decision related to privileges

A decision (action) on the completed application for privileges that occurs within the time period specified in the organization’s medical staff bylaws

Information regarding any changes to practitioners’ clinical privileges (updated as they occur)

The Joint Commission further states, “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” (MS.06.01.07).

In the EPs for standard MS.06.01.07, The Joint Commission states that the information review and analysis process is clearly defined and that the decision process must be timely. 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 criteria must be consistently applied and directly relate to the quality of care, treatment, and services. Ultimately, the governing body or delegated governing body has the final authority for granting, renewing, or denying clinical privileges. Privileges may not be granted for a period beyond two years. Criteria that determine a practitioner’s ability to provide patient care, treatment, and services within the scope of the privilege(s) requested are consistently evaluated.

The Joint Commission further states, “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” (MS.08.01.03).

In the EPs for MS.08.01.03, The Joint Commission says there is a clearly defined process facilitating the evaluation of each practitioner’s professional practice, in which 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.

**HFAP**

The Healthcare Facilities Accreditation Program (HFAP) has no formal position concerning the delineation of privileges for pediatric cardiology. The bylaws must include the criteria for determining the privileges to be granted to the individual practitioners and the procedure for applying the criteria to individuals requesting privileges (03.01.09). Privileges are granted based on the medical staff’s review of
an individual practitioner’s qualifications and its recommendation regarding that individual practitioner to the governing body.

It is also required that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

Privileges must be granted within the capabilities of the facility. For example, if an organization is not capable of performing open-heart surgery, no physician should be granted that privilege.

In the explanation for standard 03.01.13 related to membership selection criteria, HFAP states, “Basic criteria listed in the bylaws, or the credentials manual, include the items listed in this standard. (Emphasis is placed on training and competence in the requested privileges.)”

The bylaws also define the mechanisms by which the clinical departments, if applicable, or the medical staff as a whole establish criteria for specific privilege delineation.

Periodic appraisals of the suitability for membership and clinical privileges is required to determine whether the individual practitioner’s clinical privileges should be approved, continued, discontinued, revised, or otherwise changed (03.00.04). The appraisals are to be conducted at least every 24 months.

The medical staff is accountable to the governing body for the quality of medical care provided, and quality assessment and performance improvement (03.02.01) information must be used in the process of evaluating and acting on re-privileging and reappointment requests from members and other credentialed staff.

**DNV**

Det Norske Veritas (DNV) has no formal position concerning the delineation of privileges for pediatric cardiology. MS.12 Standard Requirement (SR) #1 states, “The medical staff bylaws shall include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to those individuals that request privileges.”

The governing body shall ensure that under no circumstances is medical staff membership or professional privileges in the organization dependent solely upon certification, fellowship, or membership in a specialty body or society. Regarding the Medical Staff Standards related to Clinical Privileges (MS.12), DNV requires specific provisions within the medical staff bylaws for:

➤ The consideration of automatic suspension of clinical privileges in the following circumstances: revocation/restriction of licensure; revocation, suspension, or probation of a DEA license; failure to maintain professional liability insurance
as specified; and noncompliance with written medical record delinquency/deficiency requirements

➤ Immediate and automatic suspension of clinical privileges due to the termination or revocation of the practitioner’s Medicare/Medicaid status

➤ Fair hearing and appeal

The Interpretive Guidelines also state that core privileges for general surgery and surgical subspecialties are acceptable as long as the core is properly defined.

DNV also requires a mechanism (outlined in the bylaws) to ensure that all individuals provide services only within the scope of privileges granted (MS.12, SR.4).

Clinical privileges (and appointments or reappointments) are for a period as defined by state law or, if permitted by state law, not to exceed three years (MS.12, SR.2).

Individual practitioner performance data must be measured, utilized, and evaluated as a part of the decision-making for appointment and reappointment. Although not specifically stated, this would apply to the individual practitioner’s respective delineation of privilege requests.

**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. The core privileges and accompanying procedure list are not meant to be all-encompassing. They define the types of activities, procedures, and privileges that the majority of practitioners in this specialty perform. Additionally, it cannot be expected or required that practitioners perform every procedure listed. Instruct practitioners that they may strikethrough or delete any procedures they do not wish to request.

**Minimum threshold criteria for requesting core privileges in pediatric cardiology**

**Basic education:** MD or DO

**Minimum formal training:** Successful completion of an ACGME- or AOA-accredited residency in pediatrics, followed by successful completion of an ACGME-accredited fellowship in pediatric cardiology.

AND/OR

Current subspecialty certification or active participation in the examination process (with achievement of certification within [n] years) leading to subspecialty certification in pediatric cardiology by the ABP.
**Required current experience:** Inpatient or consultative services for at least 50 patients, reflective of the scope of privileges requested, during the past 12 months or successful completion of an ACGME- or AOA-accredited residency or clinical fellowship within the past 12 months.

**References**

If the applicant is recently trained, a letter of reference should come from the director of the applicant’s training program. Alternatively, a letter of reference may come from the applicable department chair and/or clinical service chief at the facility where the applicant most recently practiced.

**Core privileges in pediatric cardiology**

Core privileges in pediatric cardiology include the ability to admit, evaluate, diagnose, consult, and provide comprehensive care to newborns, infants, children, and adolescents presenting with congenital or acquired cardiovascular disease and disorders of the heart and blood vessels. Physicians also may provide care to patients in the intensive care setting in conformance with unit policies. They should also be able to assess, stabilize, and determine the disposition of patients with emergent conditions consistent with medical staff policy regarding emergency and consultative call services. The core privileges in this specialty include the procedures on the attached procedures list and such other procedures that are extensions of the same techniques and skills.

Core procedures, which are types of activities/procedures/privileges that the majority of practitioners in this specialty perform, include but are not limited to the following:

- Performance of history and physical exam
- Ambulatory EKG monitoring studies
- Cardioversion
- Diagnostic right- and left-heart cardiac catheterization
- Electrocardiography and echocardiography interpretation
- Exercise testing with EKG monitoring
- Intracardiac electrophysiologic studies
- Pericardiocentesis and thoracentesis
- Selective angiocardiology
- Transthoracic echocardiography

**Special requests in pediatric cardiology**

In addition, the following noncore privileges may be requested:

- Transesophageal echocardiography
- Administration of sedation and analgesia
Reappointment

To be eligible to renew privileges in pediatric cardiology, the applicant must demonstrate competence and an adequate volume of experience (100 patients) with acceptable results, reflective of the scope of privileges requested, for the past 24 months based on results of ongoing professional practice evaluation and outcomes. Evidence of current physical and mental ability to perform privileges requested is required of all applicants for renewal of privileges.

In addition, continuing education related to pediatric cardiology should be required.

For more information

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Healthcare Facilities Accreditation Program
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