

## TRAINING STATEMENT

# Task Force 8: Pediatric Cardiology Fellowship Training in Research and Scholarly Activity



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## 1. INTRODUCTION

### 1.1. Document Development Process

The Society of Pediatric Cardiology Training Program Directors (SPCTPD) board assembled a Steering Committee that nominated 2 chairs, 1 SPCTPD Steering Committee member, and 6 additional experts from a wide range of program sizes, geographic regions, and subspecialty focuses. Representatives from the American College of Cardiology (ACC), American Academy of Pediatrics (AAP), and American Heart Association (AHA) participated. The Steering Committee member was added to provide perspective to each Task Force as a “nonexpert” in that field. Relationships with industry and other entities were not deemed relevant to the creation of a general cardiology training statement; however, employment and affiliation information for authors

and peer reviewers are provided in [Appendixes 1 and 2](#), respectively, along with disclosure reporting categories. Comprehensive disclosure information for all authors, including relationships with industry and other entities, is available as an [online supplement](#) to this document.

The writing committee developed the document, approved it for review by individuals selected by the participating organizations ([Appendix 2](#)), and addressed their comments. The final document was approved by the SPCTPD, AAP, and AHA in February 2015 and approved by the ACC in March 2015. This document is considered current until the SPCTPD revises or withdraws it.

### 1.2. Background and Scope

There has been substantial scientific progress relevant to pediatric cardiology in the 10 years since the last training guidelines for research were published (1). The prior guidelines and a National Institutes of Health (NIH) expert panel stressed that there remains a critical need for advancement and application of new knowledge in a breadth of disciplines relevant to the field (2). These guidelines begin with the principle that there is a compelling need to train pediatric cardiology fellows to develop new knowledge and to translate research findings into practice. Because research skills are relevant to all those trained in our field, it is essential to develop both core skills and knowledge to allow the realization of meaningful research that is matched to the trainee’s interests. Different pathways and training schedules must be considered to address the specific needs of each trainee with guidance from mentors. A discussion with each trainee early in fellowship may facilitate

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training pathways for those interested in advanced research training. Training of pediatric cardiology fellows requires that the sponsoring division and institution have appropriate resources for training fellows in research. As noted in a prior version of these guidelines, expertise and mentorship in a variety of scientific disciplines relative to pediatric cardiology are essential.

Although sufficient resources and dedicated time are critical to success, the expertise and commitment of the mentor is 1 of the most important elements of research training (3). The training program must ensure that trainees gain experience and develop career pathways with the advice and support of appropriate mentors from throughout the institution. Just as a program needs to have sufficient clinical volume to support a trainee, so too does a fellowship require an adequate number of well-qualified, established faculty mentors to ensure a successful research training experience. Early in the training fellowship, a faculty member, usually a pediatric cardiologist with extensive experience in research, should provide an overview of the research training including a list of potential mentors.

Once a trainee has identified their mentor, the Scholarship Oversight Committee (SOC) will assist in monitoring the trainee's progress. There are several key ingredients to successful mentorship (4,5), including: 1) a sensible matching process designed to link mentor/mentee according to shared research goals; 2) jointly established and realistic expectations, including timelines that are understood clearly by both parties; 3) a written contract or agreement between the mentor/mentee that identifies key skill development needs and objectives and signifies a commitment on both parties to dedicate the time and effort required to meet the other's expectations; 4) the allocation of specific time for regular mentor/mentee meetings; 5) an ongoing evaluation/feedback process that serves both parties; and 6) respect for sex and/or ethnic differences.

In most cases, it is advantageous for the mentor to be an established researcher rather than junior faculty. An established investigator may be better able to identify pitfalls and obstacles in study design, and an associate or full professor often has more stable resources to ensure successful completion of a project. However, in some cases, young faculty may do particularly well in mentoring roles. It is recommended that when a junior faculty member is assigned as a mentor, he or she should be paired with a more senior investigator to serve as co-mentors.

### 1.3. Levels of Expertise—Core and Advanced

In this statement, we discuss core training for all fellows enrolled in a traditional 3-year pediatric cardiology fellowship and advanced training for fellows who wish to

embark on a career in pediatric cardiology research. Core training is required for all trainees and is intended to ensure that fellows acquire the knowledge base and skills necessary to become a pediatric cardiologist able to conduct research and participate in scholarly activity. Advanced training guidelines are recommended for fellows who wish to commit a large part of their career to research.

## 2. PROGRAM RESOURCES AND ENVIRONMENT

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### 2.1. Types of Research

For the field of pediatric cardiology to advance and address key questions in the coming decades, it is critical to carry out various types of research. Accordingly, the fellowship research programs should allow trainees to obtain structured training in a number of established or evolving disciplines. Most training programs have emphasized 3 primary avenues for research: 1) basic research in imaging sciences; molecular, cellular, and developmental biology; physiology; structural biology; genetics; genomics; proteomics; and biomarkers research; 2) patient-oriented research, including clinical trials, epidemiological studies, population-based studies, behavioral science, outcomes research, quality and safety research, biomedical ethics, medical informatics, and application of imaging technologies; and 3) translational research that bridges the gap by turning laboratory findings into new drugs, devices, or procedures, or bedside-to-bench studies that apply clinical observations to develop fundamental mechanistic studies. However, there are a number of emerging fields that may overlap with the 3 core approaches, yet increasingly require specialized skills or training. These fields include clinical cardiovascular genetics, health services studies, educational research, and health economics. By developing expertise in these fields, the next generation of pediatric cardiologists will be best equipped to address critical challenges.

### 2.2. General Expectations

The resources needed to foster a meaningful research training experience are considerable. Institutions should not underestimate the financial commitment and breadth of expertise that are needed to successfully fulfill these obligations.

### 2.3. Personnel

First and foremost, a training program needs a committed fellowship director. A fellowship director takes on many responsibilities in the fellowship program, so it may be valuable to designate a faculty member to oversee the research training. However, in some cases, the fellowship director may have the time, expertise, and interest to

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