

Research Rotation  
Cardiology Fellow Curriculum  
Penn State Milton S. Hershey Medical Center

OVERVIEW

The cardiovascular fellow, during his/her three years as a fellow, will:

- Find a mentor who will assist him/her in the choosing of a project
- Develop and complete a research project
- Write up the results of the research
- Submit for publication the research project

Although the minimum requirement is one project, fellows are strongly encouraged to spend additional time in research projects. Efforts will be made to provide additional training (and additional one or two years) to fellows with serious interest in research who demonstrate ability and interest.

Penn State University offers a ~~Master's level~~ ~~as Master's level~~ program for persons interested in pursuing an academic career. Penn State College of Medicine's master's degree program in Public Health Sciences (formerly Health Evaluation Sciences) includes graduate-level coursework in biostatistics, epidemiology, and health services research. This degree program provides the knowledge and insight required in health related research. For fellows who demonstrate ability and interest, every effort will be made to allow them to pursue this avenue of education.

Formatted: Font: Times New Roman, 12 pt,  
Font color: Auto

EDUCATIONAL GOALS

The cardiovascular fellow will

- Become more knowledgeable about the scientific method (developing a hypothesis based on a reading of background literature, developing methods ~~of approaching a specific problem to test hypotheses~~, doing the planned research ~~to obtain relevant data~~, examining the data to determine if ~~it confirms or denies~~ the hypothesis ~~is true or not~~)
- Become more knowledgeable about the reading of scientific literature
  - Learn to ~~more~~ critically examine the literature ~~and to determine if the appropriate controls were used~~
  - Learn about methods of testing used in the literature
- Become ~~more~~ knowledgeable about statistical methods of analysis of data
  - Learn ~~what the~~ limitations and applicability of ~~statistical~~ tests in various data sets
- Develop skills related to the research project (the specific skills will vary, depending upon the project chosen)

- Develop communication skills by the writing up of the project and by presenting information about the project in oral presentations

#### TRAINING OBJECTIVES

- To develop skills in interpreting and critically examining the scientific literature about a given problem (**Medical Knowledge**)
- To develop skills in the performing of a given research project; skills include ~~the designing of a project~~ experimental design, the collection of data, the analysis of data, and the writing up of the experiment)
- To develop skills in communication of research data to scientists and peers (**Interpersonal and Communication Skills, Professionalism**)
- To develop an understanding of the issues concerning scientific integrity and ethical conduct (**Professionalism**)

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman, Not Bold, Condensed by 0.15 pt

Formatted: Font: Times New Roman, Not Bold

Formatted: Bullets and Numbering

Formatted: Font: Times New Roman

#### PRINCIPLE TEACHING METHODS

- The fellow's mentor will oversee the fellow's progress. The mentor-student relationship will be utilized as the main teaching method.

#### EVALUATION METHODS

- The research mentor will utilize a standardized evaluation process to assess the performance of the cardiac resident. A written evaluation of the cardiac fellows' performance on the research elective will be made yearly. The mentor will evaluate each fellow according to the ACGME general competencies including: patient care (when applicable), medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice.

#### EDUCATIONAL CONTENT

The fellow will during the first year of the training program choose a mentor. During the first year, with the assistance of the mentor, the fellow will develop a hypothesis-driven research project. The fellow will read appropriate background literature about the problem, develop a hypothesis, and then write up a proposal that will include background literature, a hypothesis, methods of approaching the problem, methods of analyzing the data, and limitations of the project.

The fellow will have a minimum of two protected months to work on the project.

Resources for statistical assessment of the data will be provided.

### BIBLIOGRAPHY

~~Do we need this? I have no knowledge of what might be appropriate here.~~

Formatted: Font: Times New Roman

Formatted: Normal

Formatted: No underline

Formatted: Font: Times New Roman