

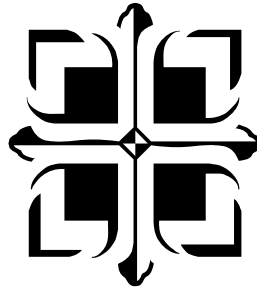
# **Interventional Cardiology Fellowship Program**



**PROGRAM DIRECTOR: Dr. Steven Laster**

**University of Missouri – Kansas City School of Medicine and the  
Mid America Heart Institute of Saint Luke’s Hospital**

# Interventional Cardiology Fellowship Training Program



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## Section I. Program Requirements for the Interventional Cardiology Fellowship Program

### I. Educational Program

- A. Interventional cardiology encompasses the special knowledge and skill required for cardiologists to care for patients receiving cardiac interventional procedures. Interventional cardiology is the practice of techniques that improve coronary circulation and alleviate valvular stenosis.
- B. The subspecialty educational program in interventional cardiology functions as an integral component of the accredited subspecialty residency in cardiovascular disease at UMKC and is organized to provide training and experience at a sufficient level for the resident to acquire the competency of a specialist in the field.
- C. During training in interventional cardiology, the resident's clinical experience will include opportunities to diagnose, select therapies, perform interventional procedures, and manage and judge the effectiveness of treatment(s) for inpatients and outpatients with chronic coronary artery disease, acute coronary syndromes, and valvular heart disease. The resident will be given opportunities to assume continuing responsibility for both acutely and chronically ill patients to learn the natural history of these cardiac conditions.
- D. The interventional cardiology program is accredited for one year of training. All applicants entering interventional cardiology must have completed an Accreditation Council for Graduate Medical Education (ACGME)-accredited cardiovascular disease program or its equivalent.
- E. The principles enumerated in the Program Requirements for Residency Education in Internal Medicine and the General Information Section of the Program Requirements for Residency Education in the Subspecialties of Internal Medicine are also applicable to training in this subspecialty.

### II. Faculty

Steven B. Laster, MD – Director, Interventional Fellowship Program

Barry D. Rutherford, MD

Lee V. Giorgi, MD

Warren L. Johnson, MD

Paul Kramer, MD

Kenneth C. Huber, MD – Medical Director, CV Lab

William C. Daniel, MD

Steven P. Marso, MD

Randall C. Thompson, MD

J. Aaron Grantham, MD

John A. Spertus, MD – Director, Cardiovascular Education and Outcomes Research

Ben D. McCallister, MD – Endowed Chair and Director, Cardiovascular Research

Interventional faculty responsible for clinical training are either board certified or board eligible in interventional cardiology. There are nine key clinically active interventional cardiology faculty members (clinically active being defined as a minimum of 75 interventions performed per year). Also available are faculty with expertise in clinical research, cardiac surgery, radiation safety, hematology, pharmacology, adult congenital heart disease and vascular medicine.

### **III. Facilities and Resources**

- A. The Mid America Heart Institute of Saint Luke's Hospital is the sole clinical site for the fellowship training program. It has modern clinical inpatient ambulatory care and research facilities necessary to meet the overall education goals and objectives of this training program. The Mid America Heart Institute has 8 catheterization labs and does over 1700 percutaneous coronary interventions per year.
- B. Outpatient follow-up of patients is provided in the offices of the interventional cardiology attendings as well as in the weekly interventional fellow's clinics.
- C. Located at the Mid America Heart Institute of Saint Luke's Hospital are separate cardiac care units (CCU), cardiac surgical intensive care units and ambulatory care clinics.
- D. Cardiac surgery is available at the primary training site.

### **IV. Specific Program Content**

#### *A. Clinical Experience*

- Residents will have clinical experiences that provide the opportunity to acquire knowledge of the indications, contraindications, risks, limitations, sensitivity, specificity, predictive accuracy, and appropriate techniques for evaluating patients with a variety of cardiac disease disorders, including but not limited to:
  - chronic ischemic heart disease
  - acute ischemic syndromes
  - valvular heart disease
- Residents will have the opportunity to acquire experience in the management of the bleeding complications associated with percutaneous intervention, including but not limited to:
  - bleeding after thrombolytic usage
  - heparin usage
  - glycoprotein IIb/IIIa inhibitor usage
- Residents will have clinical experiences involving:

- consultation
  - care of patients in the cardiac care unit, emergency department, or other intensive care settings
  - care of the patient before and after interventional procedures
  - outpatient follow-up of patients treated with drugs, interventions, devices, or surgery
- The program will provide sufficient experience for the residents to acquire knowledge in clinical decision making, including but not limited to:
- a. The role of randomized clinical trials and registry experiences in clinical decision making.
  - b. The clinical importance of complete vs incomplete revascularization in a wide variety of clinical and anatomic situations.
  - c. Strengths and limitations, both short- and long-term, of percutaneous vs surgical and medical therapy for a wide variety of clinical and anatomic situations related to cardiovascular disease.
  - d. Strengths and limitations, both short- and long-term of differing percutaneous approaches for a wide variety of anatomic situations related to cardiovascular disease.
  - e. The role of emergency coronary bypass surgery in the management of complications of percutaneous intervention.
  - f. The use and limitations of intra-aortic balloon counterpulsation (IABP) and other hemodynamic support devices (as available).
  - g. Strengths and weaknesses of mechanical vs. lytic approach for patients with acute myocardial infarction.
  - h. The use of pharmacologic agents appropriate in the postintervention management of patients.
  - i. Strengths and limitations of both noninvasive and invasive coronary evaluation during the recovery phase after acute myocardial infarction.
  - j. Understanding the clinical utility and limitations of valvuloplasty of both the mitral and aortic valves.
  - k. The assessment of plaque composition and response to intervention.

B. *Technical and Other Skills*

- To become proficient in interventional cardiology, residents will have the opportunity to acquire a broad-based knowledge of interventions. Toward that end, residents will have opportunities to acquire skill in the interpretation of:
  - a. coronary arteriograms
  - b. ventriculography
  - c. hemodynamics
  - d. intravascular ultrasound
  - e. Doppler flow and intracoronary pressure monitoring
- Each resident will have opportunity to acquire skill in the performance of a minimum of 250 coronary interventions, to include the following: [NOTE: A single coronary intervention is defined as all coronary interventions performed during one hospitalization.]
  - Management of mechanical complications of percutaneous intervention, including but not limited to:
    1. coronary dissection
    2. thrombosis
    3. spasm
    4. perforation
    5. "slow reflow"
    6. cardiogenic shock
    7. left main trunk dissection
    8. cardiac tamponade
    9. peripheral vessel occlusion, and retained components
    10. pseudoaneurysm
  - Femoral and brachial/radial cannulation of normal and abnormally located coronary ostia
  - Application and usage of balloon angioplasty, stents, and other commonly used interventional devices

- Use of adjunctive imaging techniques such as intravascular ultrasound, angiography, coronary flow reserve, and pressure measurement
- Resident experience will meet the following criteria:
- Participation in preprocedural planning, including the indications for the procedure and the selection of the appropriate procedure or instruments
  - Performance of the critical technical manipulations of the procedure
  - Substantial involvement in post-procedure care
  - Supervision by teaching faculty responsible for the procedure
- Residents also will have opportunities to acquire skill in the following:
- Use of antiarrhythmic drugs, including knowledge of pharmacokinetics and pharmacodynamics related to acute ischemic events occurring during and after interventional cardiac procedures
  - Cardiopulmonary resuscitation
  - Advanced cardiac life support
  - Use of thrombolytic and antithrombolytic agents
  - Use of vasoactive agents for epicardial and microvascular spasm

### C. *Formal Instruction*

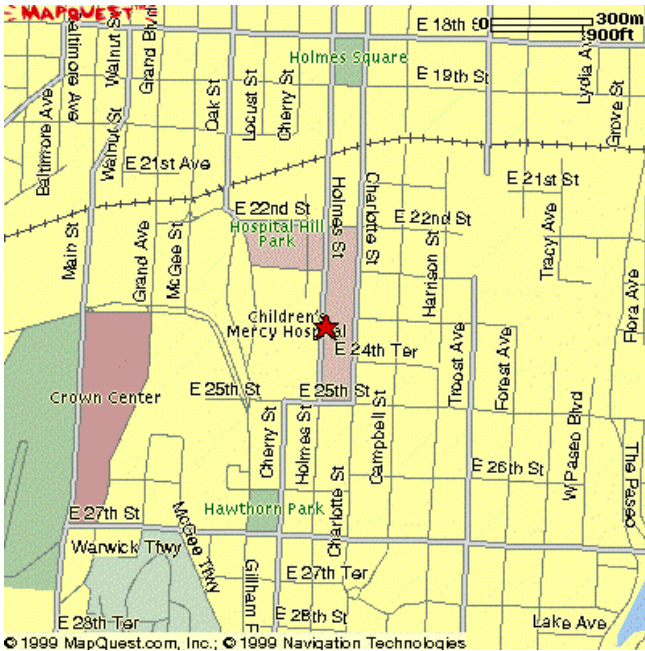
The program will provide instruction and opportunities to acquire knowledge in the following:

- Role of platelets and the clotting cascade in response to vascular injury
- Pathophysiology of restenosis
- Strengths and limitations of various animal models used to evaluate the problem of restenosis in humans
- Role and limitations of gene transfer and therapy for treatment of restenosis
- Physiology of coronary flow and detection of flow-limiting conditions
- Detailed coronary anatomy
- Radiation physics, biology, and safety related to the use of x-ray imaging equipment
- Critical analysis of published interventional cardiology data in laboratory and clinical research
- Role of randomized clinical trials and registry experiences in clinical decision making

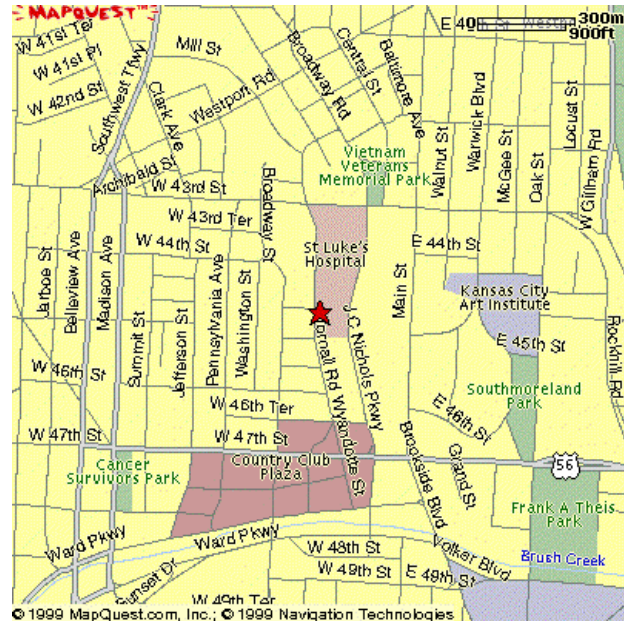
## Section II. The Mid America Heart Institute

The Cardiovascular Education Office of Saint Luke's Hospital, in conjunction with Hospital Hill Health Services Corporation, and the Mid America Heart Institute of Saint Luke's Hospital, organizes and administers the Interventional Cardiology Fellowship. Hospital Hill is located at 2411 Holmes Road, and Saint Luke's and the Mid America Heart Institute is located at 4401 Wornall Road.

Truman Medical Center/Hospital Hill



Saint Luke's Hospital



All interventions are done at the Mid America Heart Institute of Saint Luke's Hospital.

## **Center of Excellence**

Each year the Mid America Heart Institute cares for more than 10,000 patients with cardiovascular disease. About 50 percent of these patients come from outside the Kansas City area. The Mid America Heart Institute of Saint Luke's Hospital has been recognized for its world-class expertise in the diagnosis and treatment of heart disease.

For several decades, Saint Luke's Hospital has served as a major referral center for cardiac patients. Today, the Mid America Heart Institute has become one of the largest and most successful in the country, providing a scope of service and expertise that has made it a recognized leader in the fight against heart disease.

## **Pioneers**

The Mid America Heart Institute performs over 1,700 balloon angioplasties per year. Specialists on staff at the Mid America Heart Institute pioneered the use of balloon angioplasty for multivessel and complex cases and were the first world-wide to apply it as a dramatic life-saving intervention to stop heart attacks in progress.

## **Availability**

In order to meet any type of cardiac emergency, surgical and medical staff are available around the clock, 24 hours a day, seven days a week. The Spirit of Kansas City Life Flight, the hospital's air ambulance system, is available to transport emergency cases to the Mid America Heart Institute 24 hours a day.

## **Expertise**

The technology offered by the Mid America Heart Institute is complemented by the expertise of an internationally recognized medical team that includes specialists in the areas of balloon angioplasty, open heart surgery, transplantation, cardiac electrophysiology and cardiac imaging. Skilled nursing and support staff completes the team, providing patients with dedicated care. Saint Luke's has also recently opened cardiac home care services to care for those patients awaiting transplants or who need specialized care in their homes.

Because of the extensive and unique scope of the services provided throughout the Mid America Heart Institute, the professional staff also includes specialists not found at other area hospitals. These include transplant surgeons and cardiologists who provide care for the hospital's heart transplant patients; cardiac anesthesiologists who provide the special anesthesia services important during open heart surgery; interventional cardiologists, who specialize in performing procedures such as balloon angioplasties, coronary lasers, stents and arthrectomies; and electrophysiologists who treat cardiac arrhythmias.

## **Research**

As an internationally recognized cardiac center, the Mid America Heart Institute of Saint Luke's Hospital has access to the very latest technology and is frequently involved in clinical research of investigational equipment, drugs and techniques. For example, the excimer laser, the rotablator and the coronary artery stent, innovative devices developed to help open clogged arteries, were first in our region approved for investigational use at the Mid America Heart Institute by the Food and Drug Administration (FDA).

These types of investigational studies conducted at the Mid America Heart Institute contribute to national efforts to evaluate new devices and medications for treatment of heart disease. Original clinical research into heart disease and treatment is also conducted by Mid America Heart Institute physicians and is routinely presented at national cardiology and cardiovascular surgery conferences and is published in a variety of scientific journals. This clinical research is supported by one of the world's largest and most sophisticated databases.

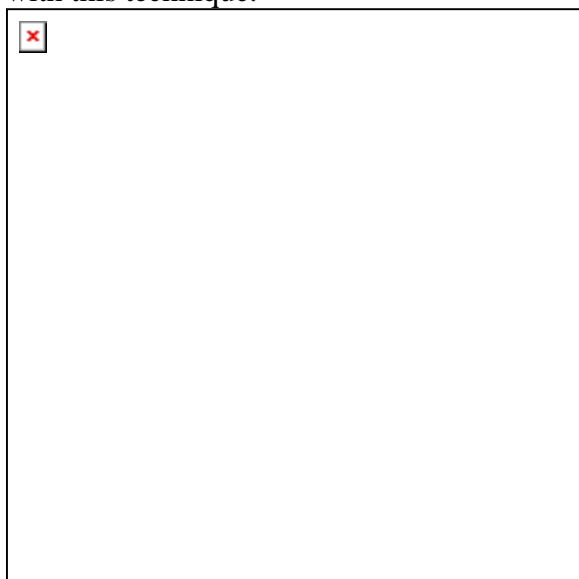
## **Education**

Medical staff at the Mid America Heart Institute serve as faculty for cardiac conferences throughout the world. The cardiovascular physicians also serve as faculty for the School of Medicine at the University of Missouri-Kansas City, as Saint Luke's Hospital is a primary teaching hospital for the University. The Mid America Heart Institute offers a residency program in thoracic surgery, a cardiology fellowship program affiliated with UMKC and fellowships in nuclear cardiology, echocardiography, interventional cardiology, electrophysiology and preventive cardiology.

## **Interventional Cardiology at the Mid America Heart Institute**

The Mid America Heart Institute (MAHI) interventional cardiology program provides "around-the-clock" state-of-the-art diagnostic and therapeutic heart and vascular care. The first cardiac laboratory at Saint Luke's Hospital was started in 1961. The cardiac laboratory has subsequently evolved to one of the world's largest with 8 procedure rooms equipped with the latest imaging and monitoring technology. Cardiologists are skilled in all areas of interventional cardiology in addition to coronary angioplasty, including the use of stents, rotabators, atherectomy, lasers, intracoronary radiation and mitral valvuloplasty techniques.

Dr. Geoffrey Hartzler and colleagues performed the first coronary angioplasty to treat a heart attack associated with an occluded coronary artery in 1980 at a time when thrombolytic therapy (clot buster) was the only accepted method of opening the infarct artery. The procedure is now accepted worldwide as the preferred treatment for an acute myocardial infarction, if the patient can be rapidly transferred to a major cardiac center. MAHI has one of the world's largest experiences in acute MI management, having treated over 3,000 patients with this technique.



The cardiologists at MAHI have also perfected techniques for complex and multi-vessel angioplasty and are internationally known because of their many training courses for cardiologists.

Over the past 20 years, numerous other technologies have been developed and refined by MAHI cardiologists in collaboration with colleagues in industry and at other centers. Currently, there is active research in the newest techniques of intracoronary radiation, stents, laser, atherectomy, intracoronary imaging, and concomitant drug therapies.

MAHI cardiologists were also the first in the Kansas City region to implant an endovascular graft in collaboration with their surgical colleagues to treat a patient with an abdominal aortic aneurysm. Recently, they were the first cardiologists in the region to treat a severe carotid artery stenosis with angioplasty followed by implantation of a carotid stent.

### **Procedures and Volumes**

The highly experienced team of interventional cardiologists at MAHI performs approximately 3,500 cardiac catheterizations, and 1,700 coronary angioplasty procedures per year. Seventy percent of the patients receive an intracoronary stent, often guided by intravascular ultrasound techniques. MAHI cardiologists utilize other adjunctive technology including directional atherectomy, intracoronary laser and rotablater therapy, and balloon valvuloplasty. Over 500 cardiac biopsies and nearly 500 peripheral vascular interventions are performed yearly.

The invasive cardiac laboratories are staffed by an experienced group of cardiologists, some with international reputations. Staff privileges require board certification in both internal medicine and cardiovascular diseases. Interventional cardiologists receive periodic reports of their outcomes data and re-credentialing requirements require that they exceed national standards set by the American Heart Association and the American College of Cardiology for both volume and results. Data is collected that allows monitoring of outcomes to help assure the highest possible quality care for MAHI's patients. Although the cardiac laboratory has a high volume of procedures, the focus is on the patient and attention to each individual. Dedicated technicians, nurses, physicians and supporting staff, address their unique needs. One of the nation's first centralized specialized nursing units (15 beds) was developed at MAHI to improve the monitoring and aftercare following coronary angioplasty and other interventional and invasive procedures.

### **RESEARCH**

MAHI cardiologists started a cardiovascular database in 1980 and now have one of the world's largest data registries of cardiac procedures with over 26,000 coronary angioplasties. Procedural data can be correlated with patient demographics, procedural and in-hospital results, complications and long-term results. Most recently, data is collected on quality of life outcomes, functional status, cost effectiveness, and health economics.

Because of the research program, MAHI interventional cardiologists have the newest therapies often months or years before they become available to general cardiologists. A number of the guide wires, catheters and balloons used for coronary angioplasty were developed at MAHI in collaboration with industry colleagues. Recent research has studied the use of intracoronary radiation, which has shown promise in the treatment of patients with multiple episodes of restenosis after PTCA or intracoronary stent placement. MAHI is the only center in the Kansas City region qualified and approved for this highly technical and complex therapy.

Intracoronary radiation is an application of the highest level of radiation therapy research and requires a broad radiation license from the Nuclear Regulatory Commission. There is close collaboration with radiation therapy colleagues and a dedicated radiation physicist who is on the cardiovascular laboratory staff.

MAHI is one of the few national centers selected to study the effect of light activated chemical therapy for atherosclerosis and percutaneous transmyocardial laser revascularization (PTMR). PTMR, a procedure in which multiple holes are drilled into the heart from a laser catheter inserted into the heart's cavity may be effective to increase new blood supply to the heart for patients who are not technically suitable for coronary bypass surgery or coronary angioplasty and who are severely symptomatic with recurrent chest pains.

### **EDUCATIONAL ACTIVITIES**

The interventional cardiology staff has played a prominent national role in the training of interventional cardiologists since 1985. Over 10,000 cardiologists have attended interventional cardiology symposiums directed by MAHI cardiologists; teaching complex, multivessel angioplasty, as well as basic skills. The interventional cardiology courses are well known because of live case demonstrations which have been transmitted directly from the MAHI cardiovascular laboratories to educational conference sites such as the annual American College of Cardiology meeting in Atlanta, Scripps Clinic in California and MAHI courses in Hawaii. The Interventional Fellowship Program at MAHI is one of the oldest and most respected in the country. Distinguished alumni include Drs. Paul Tierstein and Gregg Stone

## Section III. Application to the Fellowship Program

### **Fellowship Selection Criteria**

All applicants will complete an application form. This data will be compiled and submitted to the Office of Cardiovascular Education of the Mid America Heart Institute and will be reviewed by the selection committee. This committee will consist of both interventional faculty and interventional fellows. This committee will screen applicants based on academic achievement, level of experience, written letters of recommendation and proficiency demonstrated in the cath lab and clinical and/or basic science research experience.

The fellowship selection committee will select which applicants to interview. Once the interview date is determined, applicants will be notified and must arrange for transportation and housing. The interview will include a meeting with the program director, a meeting with representative faculty members, and a meeting with the fellows, etc. During the interview, the resident will be advised about salary, vacation, professional leave, sick leave, professional liability insurance, hospital and health insurance benefits, call rooms, meals on call or on duty, parking, laundry, etc. At the end of the specified interview period, the committee objectively evaluates each candidate and prepares a list of applicants in rank order based on motivation, performance, intelligence, interpersonal skills, research accomplishments, and maturity. The rank order list will be forwarded to the NRMP prior to the published deadline.

### **Evaluation**

Fellows are evaluated by the faculty bi-annually. Fellows also have the opportunity to evaluate the program bi-annually. See an example of the evaluation forms in Appendix 1.

### **Promotion**

The interventional fellowship is a one-year training program. Fellow promotion will follow the guidelines listed in the resident contract. Fellows will be advanced to the next level of training based on satisfactory completion of requirements and satisfactory performance based on their evaluations. Fellows who are not reappointed as a result of poor performance may utilize the grievance process. Residents will be notified of non-reappointment at the earliest possible time.

### **Dismissal**

Fellow dismissal will follow the guidelines listed in the Fellow contract. Specifically, the decision to dismiss the fellow will be based on performance evaluations, satisfactory academic performance, and compliance with institutional rules and regulations. In the event of poor performance, the fellow should be given an opportunity for remediation. This may involve appointment of a mentor, additional reading, or performance of additional procedures.

A fellow who fails to obtain or maintain required licensure or comply with rules and regulations, or who exhibits significantly severe unprofessional behavior may be subject to dismissal without remediation. In the event of the decision to terminate a resident for academic reasons, for failure to maintain licensure, comply with rules/regulations, or for unprofessional behavior, an opportunity to utilize the grievance procedure provided as an addendum to the resident contract will be offered. In the event a resident is suspended for more than 30 days

or dismissed, the Council on Graduate Medical Education must be notified. The Council on Graduate Medical Education will review all information obtained during the grievance procedure, and will make recommendations to the respective institution/employer regarding adjudication of the matter, specifically determining if the grievance procedure was fair, appropriate, and that the grievance procedure was followed correctly. If a resident is terminated, a final termination evaluation will be completed by the Program Director, including the dates of training and a summary of the resident's performance.

### **Application**

Applications can be requested in writing through the Office of Cardiovascular Education at Saint Luke's Hospital. Please specify "Interventional Cardiology Fellowship Application" in your request.

Dr. Steven Laster  
Attn: Cris Loomis *[cloomis@saint-lukes.org](mailto:cloomis@saint-lukes.org)*  
Office of Cardiovascular Education  
MAHI-5, Saint Luke's Hospital  
4401 Wornall Road  
Kansas City, MO 64111

Application information will soon be available on-line. The deadline for applications is September 1st of the year preceding the fellowship program. Applicants are required to complete the application form and submit 3 letters of recommendation, one of which should be from the cath lab director or cath lab attending that has worked most closely with you. Applicants are selected based on the strength of their clinical background, demonstrated proficiency/skill in the catheterization laboratory, and clinical and basic science research experience.

### **Interviews**

Fellows are selected for interviews based on criteria outlined above and are chosen by an interview committee comprised of the fellowship director, interventional faculty members, and current interventional fellows. Interviews are generally conducted July - September of the year preceding the fellowship program.

### **Websites:**

[www.mahi.org/cveducation](http://www.mahi.org/cveducation) and [www.umkc.edu](http://www.umkc.edu)

Interventional fellowship information will be available online soon. Please check back often for updates.

## Section IV. Responsibilities of the Interventional Fellows

### **Clinical**

#### ***Catheterization Laboratory:***

The vast majority of the trainees' time is spent in the catheterization laboratory and in follow-up care of patients who have undergone invasive procedures. Fellows will obtain experience in both coronary and peripheral interventions, as well as valvuloplasty. It is anticipated that each interventional fellow will participate in at least 400 coronary and 100 peripheral interventional procedures. Extensive experience will be obtained in the basics of coronary intervention, complex percutaneous coronary intervention (PCI), infarct PCI, and the use of multiple devices such as coronary stents, rotational atherectomy, eximer laser, directional coronary atherectomy, and brachytherapy. Fellows will also use both intravascular ultrasound and coronary flow/pressure wires and be able to use the information in clinical decision-making in the cath lab. Peripheral vascular interventions are to include angioplasty and stenting of aortic, iliac, femoral, infrapopliteal, renal, subclavian and carotid arteries. Exposure to endovascular repair of abdominal aortic aneurysms will also be obtained.

Prior to each procedure, each fellow is expected to review patient history and pertinent laboratory data, examine the patient and review prior angiograms. The interventional attending and fellow then discuss the proposed intervention, including its rationale, objectives, technique, equipment and potential complications. All procedures are performed under the direct supervision of the attending interventional staff physician. Fellows are expected to make post-procedure rounds on their patients and follow them throughout their hospital stay until dismissal.

#### ***Procedure Log:***

Fellows are responsible for maintaining an accurate procedure log detailing the date of procedure, name of the patient, type of intervention, devices used primary operator and complications. Please see Appendix 3. The procedure log will be reviewed biannually by the fellowship director to assure that procedure guidelines are being met.

#### ***Inpatient Consultations:***

Trainees will also be asked to perform consultations on inpatients and emergency room patients, inpatients being considered for both elective and emergency percutaneous coronary and peripheral interventions. All patient evaluations will be reviewed with an interventional staff-attending physician.

#### ***Call:***

Fellows will share call so that they are available to perform and assist in the performance of after hours emergency procedures. Experience in performance of infarct PCI will in part come from the on-call cases. Fellows will also be asked to assist in the recruitment of patients into research studies that involve treatment of patients with acute myocardial infarction and acute coronary syndromes

#### ***Outpatient Clinics:***

Fellows are required to attend an Interventional Cardiology Clinic held in the Medical Education Clinic. The clinic is held weekly and attracts patients with both coronary and peripheral vascular disease, in which

percutaneous interventions are being considered. Patients are seen by the Interventional Fellow and then presented to the Clinic Attending.

### ***Fellowship Evaluation:***

Fellows are required to evaluate and rate the fellowship program bi-annually by completing an evaluation form. (See Appendix 4) These are reviewed by the faculty and constructive comments and suggestions are discussed to allow for improvement/changes in the program's curriculum.

## **Conferences**

### ***Interventional Cardiology Conference (monthly)***

The following topics will be covered during the year. These core lectures are held in conjunction with our monthly angiography conference and as part of Cardiovascular Grand Rounds.

- Role of platelets and the clotting cascade in response to vascular injury
- Pathophysiology of restenosis
- Strengths and limitations of various animal models used to evaluate the problem of restenosis in humans
- Role and limitations of gene transfer and therapy for treatment of restenosis
- Physiology of coronary flow and detection of flow-limiting conditions
- Detailed coronary anatomy
- Radiation physics, biology, and safety related to the use of x-ray imaging equipment
- Critical analysis of published interventional cardiology data in laboratory and clinical research
- Role of randomized clinical trials and registry experiences in clinical decision making
- Peripheral vascular disease
- Valvuloplasty
- Complications of PCI

### ***Basic Science Conference in Cardiology (monthly)***

This is a combined conference with the general cardiology and interventional cardiology fellowships.

### ***Research Conference (monthly)***

Interventional and General cardiology fellows meet with clinical and research staff to discuss various research topics. There are also weekly working meetings for the interventional fellows with interventional staff to discuss progress in the planning and execution of their individual research projects. (See Research below)

### ***Journal Club (monthly)***

A joint conference with general cardiology and interventional cardiology fellows to discuss recent significant manuscripts that are relevant to cardiology and interventional cardiology.

### ***Morbidity and Mortality Conference (monthly)***

Held monthly at Cardiovascular Grand Rounds and attended by fellows and staff, interventional fellows present and discuss procedural complications and patient outcomes.

### ***Cardiovascular Grand Rounds (weekly)***

Weekly cardiovascular grand rounds are required as part of the interventional cardiology fellowship curriculum. These conferences are attended by cardiology staff and cardiovascular surgeons, and allow for frequent interaction between the two disciplines in a conference setting. The Cardiovascular surgeons bring cases to Grand Rounds for presentation and discussion on a monthly basis.

### ***Angiography Conference (bi-monthly)***

This conference is held for general cardiology and interventional cardiology fellows to review the basics of angiography, interesting diagnostic and interventional cases as well as complications. Core curriculum lectures for the interventional fellows are given at the conference as well.

## **Research**

Saint Luke's Hospital and UMKC have the luxury of affording the cardiology fellows extensive exposure in cardiovascular research. It is expected that all fellows devote time throughout their training to cardiovascular research. All fellows are expected to complete a research project during their fellowship on a topic relevant to interventional cardiology. This research project will provide the background for interpreting the future clinical trials and publications.

It is expected that each fellow will select a mentor to do his/her research projects with. Each research project will demand that the fellow identify an area of interest, develop and justify a hypothesis within this area, design a research project to address this project, and conduct this research proposal, and analyze and report this research project. Each fellow is expected to submit at least one abstract and one manuscript throughout their training program.

To supplement the research training, a monthly research conference will require the active participation of all fellows. In addition, the research infrastructure of the Mid America Heart Institute is well suited to provide support in study design, data management, and bio-statistical analysis.

Appendices

I. Evaluation Form

*Interventional Cardiology Fellowship Evaluation Form*  
*Saint Luke's Hospital/Mid America Heart Institute - UMKC School of Medicine*  
**Interventional Cardiology Fellowship Program**

**Period: July-Dec 2000/Jan-June 2001 (circle one)**

Evaluator: \_\_\_\_\_

Fellow: \_\_\_\_\_

**Rank: 5 = Outstanding/Excellent**  
**4 = Very Good**  
**3 = Good**  
**2 = Fair**

**1 = Marginally Acceptable**  
**0 = Unsatisfactory**  
**\* = Not Observed**

1.	History Taking	5	4	3	2	1	0	*
2.	Physical Examination	5	4	3	2	1	0	*
3.	Case Presentation	5	4	3	2	1	0	*
4.	Record Keeping	5	4	3	2	1	0	*
5.	Patient Management	5	4	3	2	1	0	*
6.	Fund of Knowledge and Scholarship	5	4	3	2	1	0	*
7.	Competence in Performance of Right/Left Heart Catheterization	5	4	3	2	1	0	*
8.	Competence in Interpretation of Hemodynamic Data	5	4	3	2	1	0	*
9.	Competence in Performance/Interpretation of Coronary Arteriography	5	4	3	2	1	0	*
10.	Competence in Performance/Interpretation of Peripheral Angiography	5	4	3	2	1	0	*
11.	Competence in Insertion of Swan Ganz Catheters and Temporary Pacemakers	5	4	3	2	1	0	*
12.	Competence in Placement of Intra-aortic Balloon Pump	5	4	3	2	1	0	*
13.	Competence in Performance of Percutaneous Intervention	5	4	3	2	1	0	*
14.	Competence in Performance of Peripheral Interventions	5	4	3	2	1	0	*
15.	Overall Clinical Competence	5	4	3	2	1	0	*
16.	Patient/Physician Relationships	5	4	3	2	1	0	*

II. Application Form

**APPLICATION FOR INTERVENTIONAL CARDIOLOGY FELLOWSHIP**  
**MID AMERICA HEART INSTITUTE - UNIVERSITY OF MISSOURI**  
**KANSAS CITY SCHOOL OF MEDICINE**

---

(Please print or Type)

NAME: \_\_\_\_\_  
(Last) (First) (Middle)

DATE OF BIRTH: \_\_\_\_\_ CITIZENSHIP: \_\_\_\_\_

PLACE OF BIRTH: \_\_\_\_\_

CURRENT ADDRESS: \_\_\_\_\_

WORK ADDRESS: \_\_\_\_\_

HOME PHONE: ( ) \_\_\_\_\_ WORK PHONE: ( ) \_\_\_\_\_

PAGER: ( ) \_\_\_\_\_ E-MAIL: \_\_\_\_\_

CARDIOLOGY FELLOWSHIP: \_\_\_\_\_

INTERNSHIP/RESIDENCY: \_\_\_\_\_

MEDICAL SCHOOL: \_\_\_\_\_  
CITY/STATE/COUNTRY

BOARD ELIGIBLE IN: \_\_\_\_\_

BOARD CERTIFIED IN: \_\_\_\_\_ DATE: \_\_\_\_\_

A. REFERENCES:

(NOTE: Please have these individuals send separate letters of reference to Steven B. Laster, M.D., 4401 Wornall Road, MAHI-5, Kansas City, Missouri 64111) One of the letters should be from your cath lab director or cath lab attending that has worked closely with you.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

B. CATH LAB EXPERIENCE:

Please list number of diagnostic and interventional procedures during fellowship and expected number by completion of fellowship.

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Fellowship Evaluation

*Saint Luke's Hospital/Mid America Heart Institute - UMKC School of Medicine*  
**Interventional Cardiology Fellowship Program**  
**Fellows Rating of Interventional Program**

**Period: July-Dec 2000/Jan-June 2001 (circle one)**

Fellow: \_\_\_\_\_

- A. Has the Interventional Fellowship met your expectations/needs?
- B. List the strengths and weaknesses of the program.
- C. List the types of procedures that you performed, the total number for each and the number as primary operator. Are there any aspects of your interventional training that could be improved upon for future fellows?
- D. Describe your research experience and how this could be improved.

**OVERALL EVALUATION: (please circle one)**

<b>Superior</b> <b>1</b>	<b>Good</b> <b>2</b>	<b>Average</b> <b>3</b>	<b>Poor</b> <b>4</b>
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**ATTENDING PHYSICIAN EVALUATION:**

_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
_____	<i>Superior</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>

