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Henry Ford Providence Hospital

Interventional Cardiology Fellowship Program

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Campus Locations

Henry Ford Southfield Hospital
16001 W 9 Mile Rd
Southfield, MI 48075

Henry Ford Novi Hospital
7601 Grand River Ave
Novi, MI 48374

Interventional Faculty



Patrick
Alexander, M.D.*



Mahmoud
Assaad, M.D.*



Shukri
David, M.D.

Not Pictured

Maher
Elder, M.D.*

Not Pictured

Dustin
Feldman, M.D.



Nitin K.
Gupta, M.D.*



Bischan
Hassunizadeh, M.D.*



Herman
Kado, D.O.*



Ashok
Kondur, M.D.*



Stephen
Lynch, M.D.*

Not Pictured

Tamam
Mohamad, M.D.



Charles
Nino, M.D.



Wassim
Nona, M.D.

Not Pictured

Fadi
Saab, M.D.*



Marcel
Zughaib, M.D.*

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**Denotes those with training and expertise in peripheral vascular intervention*

Background

- The Interventional Cardiology (IC) program at Henry Ford Providence Hospital (formally Providence Hospital, St. John Providence Hospital, Ascension Providence Hospital) is a 1-year rigorous program designed to develop the skills necessary for Level III training in coronary intervention, peripheral vascular intervention, and limited scope of structural heart interventions.
- The IC program was started in 2003 and has graduated 42 interventional fellows to date with a 98% board pass rate.
- Accepted IC fellows will have completed 3 years of general cardiovascular fellowship in an ACGME-approved program to be eligible for consideration of the 1-year IC position.

Educational Goals

The goals of the IC program are design to provide the interventional fellow with the opportunity to gain an advanced level of knowledge and confidence in the following areas of interventional cardiology through didactic and hands on training.

- Coronary/peripheral angiography and intervention to include the indications for procedure and/or interventions, limitations of the procedure, along with potential risk and complications.
- Interpretation of hemodynamic and angiographic data
- Arterial and venous access site techniques
- Appropriate use and selection of various catheters for coronary and peripheral vascular angiography/intervention.
- Management of patients with complex cardiovascular disease in regards to clinical decision-making.
- Management of complications of coronary and vascular interventions to include; vessel dissection, thrombosis, spasm, perforation, no reflow, cardiogenic shock, cardiac tamponade, pseudoaneurysm, and retained components
- Selection of patients for both percutaneous coronary and vascular procedures along with selection of various treatment modalities (listed below).
    - Percutaneous balloon angioplasty (conventional, cutting, Shockwave)
    - Stent placement within various vascular beds (coronary, saphenous vein graft, renal arterial, carotid, aortoiliac, lower extremity peripheral arterial)
    - Intravascular imaging (Intravascular ultrasound, Optical coherence tomography)
    - Coronary flow assessment
    - Atherectomy (rotational, orbital, laser)
    - Thrombectomy
    - Left ventricular support device (intra-aortic balloon pump, Right/Left ventricular Impella) placement and management.

The intervention fellow is also expected to participate in research and scholarly activity with at least 1 self-generated research or quality improvement project along with regular literature and journal review and attending scholarly conferences.

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Cardiovascular competency

The interventional fellow will be evaluated on the 6 general competencies promulgated by the ACGME and endorsed by the ABIM*

1. Medical Knowledge
2. Patient Care and Procedural Skills
3. Practice-Based Learning and Improvement
4. Systems-Based Practice
5. Interpersonal and Communication Skills
6. Professionalism

Interventional requirements

Coronary artery intervention

A minimum of 250 coronary interventional procedures is required after one year of interventional cardiology training in order to be eligible for level III training

- 200 percutaneous coronary intervention
- 50 additional coronary, peripheral, vascular, or structural heart procedures
- 25 or more coronary physiology assessments
- 25 or more intracoronary imaging procedures

Peripheral vascular intervention

- 100 diagnostic and 50 peripheral arterial interventions (half as primary operator)
- 25 carotid interventions (13 as primary operator)
- 20 endovascular aortic aneurysms
- 20 peripheral venous interventions
- Pulmonary embolism procedure (thrombolysis, thrombectomy) volume are not yet established. Competency will be assessed on an individual basis and determined by the program director.

Structural heart intervention

- 50 transcatheter aortic valve interventions (25 as primary operator)
- 20 transcatheter mitral edge-to-edge repairs
- 15 atrial septal defect closures
- 12 patent foramen ovale closures
- 10 left atrial appendage closures
- 5 mitral balloon valvuloplasty

*A detailed explanation can be reviewed from the 2023 ACC/AHA/SCAI Advanced Training Statement on Intervention Cardiology. Bass et al. JACC 2023. Vol. 18. No.14:1386-1438.

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Interventional Fellow Responsibilities

- Evaluate patients referred for diagnostic cardiac catheterization and peripheral angiography which includes obtaining informed consent, a careful history and physical examination, along with review of any labs and/or cardiovascular testing available prior to performing the procedure(s).
- Perform the necessary procedure and/or intervention with the cardiovascular attending physician along with continued management post procedure and throughout the hospitalization with a clearly documented treatment and plan entered into the patient's record daily.
- Providing clear and accurate discharge instructions post intervention to include review and optimization of all cardiac or pertinent medications along with lifestyle and risk factor modification and referral to appropriate programs such as cardiac/peripheral vascular rehab and counselling for tobacco use.

The interventional fellow will gain expertise in the following during his/her one-year fellowship training.

- Determining the appropriate access site approach as it pertains to each case in patients presenting for cardiac catheterization and/or peripheral angiography/intervention.
- Obtaining and understand the hemodynamic data from right and left cardiac catheterization procedures to include cardiac output (CO), cardiac index (CI), cardiac power output (CPO) calculation, pulmonary artery pulsatility index (PAPi), valvular gradients, and intracardiac shunt assessment.
- Obtaining diagnostic coronary angiograms using appropriate catheter(s) in order to provide the necessary information for decision making and risk-benefit of coronary intervention
- Determining which lesions should be evaluated further with coronary imaging (IVUS, OCT) or physiologic coronary flow assessment.
- Determining the method and/or strategy for specific coronary and peripheral vascular interventions along with selection of appropriate equipment and devices.
- Understand the risk associated with specific percutaneous revascularization procedures along with the necessary precautions and action plan during and after each procedure.

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Conferences and Didactics

The interventional fellow(s) are expected to attend and participate/present in the various conferences that are held either weekly or monthly. A near perfect attendance record is a prerequisite for graduation. The current conferences consist of the following:

- Interventional case conference. Performed weekly with review of coronary, peripheral vascular, and structural cases along with brief didactic review of the literature as it pertains to the cases being reviewed
- Vascular case conference. Performed monthly with presentation of various peripheral vascular cases along with review of indicated treatment and intervention techniques.
- STEMI conference. Performed monthly with review of the preceding month's STEMI activations focusing on appropriateness of patient selection, time to intervention, procedural decision making, and overall care of the critically ill cardiac patient.
- Cardiovascular Grand Rounds. Performed biweekly with up-to-date education on broad range of topics for cardiovascular professionals and features both internal speakers and distinguished visiting faculty.
- Interventional Board Review. Performed monthly with review of board-style questions and explanations from ACC CathSAP.
- Morbidity-Mortality Review. Quarterly detailed review of select cases within the cardiovascular department in which significant morbidity and/or mortality occurred.
- TAVR conference. Performed weekly with multidisciplinary team review of upcoming transcatheter aortic valve implantation procedures.

Intervention Journal Club

Occurs monthly (3rd Wednesday) were a specific interventional study and/or topic is selected by the fellow and is presented at an off-site establishment. A detailed analysis and review of the study and/or topic is presented to the audience which consist of attending cardiologist, cardiothoracic surgeons, and fellows. This is followed by group discussion pertaining to relevance and clinical importance of the study.

Off-site conferences and Workshops

The interventional fellow may choose to attend select off site educational conferences and industry workshops as long as they do not interfere or conflict with his/her fellowship training.

Required Modules for Graduation

- Assigned AMA-GCEP modules (may vary year to year).
- Medical Ethics for fellows that are new to the institution.

Duty Hours and Procedure Logs

- The interventional fellow shall not exceed 80 hours per week
- A log of duty hours is required by each interventional fellow and is kept electronically in the www.new-innov.com which should be completed on a weekly basis. During your one-on-one meeting with the fellowship director the fellow will need to furnish these logs to make sure the ACGME guidelines are met.
- Procedure log is required and reviewed biannually by the fellowship director to assure that the procedure guidelines are being met. The log should include the name of the patient, type of intervention, primary operator, devices used, and complications.

Interventional Call Schedule and Moonlighting

After hour STEMI call is shared between the interventional fellows and senior cardiology fellows. The interventional fellow typically covers two weekend calls per month along with additional coverage throughout the week days totaling 8 to 9 call days per month (may vary at times).

The interventional fellow will gain experience in the treatment of

- acute coronary syndrome with primary PCI of the infarct related vessel along with
- treatment of ventricular arrhythmias associated with acute MI as well as
- recognition and treatment of cardiogenic shock.

Moonlighting is discouraged given the rigorous nature of the program along with need to comply with the set forth work hour restrictions.

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Outpatient Clinic Responsibility

Weekly attendance in the interventional cardiology clinic is required by each interventional fellow.

- Patients are seen by the fellow and then presented to the clinic attending physician.
- All aspects of the case are reviewed including pertinent diagnostic testing (ECGs, echocardiograms, stress testing) followed by discussion regarding appropriateness of further invasive coronary and/or peripheral evaluation.
- Post coronary or vascular interventional procedures are seen by the fellow especially if he/she was involved in the interventional procedure to assess response to therapy along with potential late occurring complications.

Research and Scholarly Activity

The interventional fellows are expected to devote time throughout their training to cardiovascular research with completion of at least 1 peer reviewed publication on a topic relevant to interventional cardiology.

A monthly research conference will be held were the interventional fellow will identify an area of interest, develop and justify a hypothesis, and design a research project to test the hypothesis, along with proper analysis and presentation of the data. Each fellow is expected to submit at least one abstract and one manuscript throughout their training program.

The interventional fellow is also expected to assist in the recruitment of patients into various research studies and clinical trials within interventional cardiology.

Fellowship Evaluation

Individual performance is monitored carefully during the Interventional Cardiology Fellowship to ensure the interventional fellow acquires adequate knowledge and develop the appropriate technical skills to meet the program expectations.

- Program director evaluations are performed bi-annually
- Supervising faculty evaluations are performed quarterly

The completed faculty evaluations are available to you electronically via New Innovations (www.new-innov.com).

Additionally, the interventional fellow will have the opportunity to complete an evaluation of the faculty as well as the program to confirm that your educational needs are being met.

Reading Material and Online references

Suggested Textbooks

- King, Spencer B. *Interventional Cardiology*. McGraw-Hill Companies, 2007
- Baim, Donald S. *Grossman's Cardiac Catheterization, Angiography, and Intervention*. 7th Edition., Lippincott Williams Wilkins, 2006.
- Patel, Tejas. *Patel's Atlas of Transradial Intervention: The Basics*. Sea Script Company, 2007
- Nguyen, Thach. Practical Handbook of Advanced Interventional Cardiology. 3rd Edition., Blackwell Futura, 2008.
- Creager, Mark A. Vascular Medicine. 2nd Edition., Elsevier Saunders, 2013.

Online resources

- American College of Cardiology (www.acc.org)
- Society for Cardiovascular Angiography and Intervention (www.scai.org)
- Endovascular Today (www.evtoday.com)

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