Training Program Description
Interventional Cardiology
Brigham and Women's Hospital/West Roxbury Veterans Administration Medical Center
2009-2010

Updated May 18, 2009

I. Mission and Overview

The mission of the Interventional Cardiology Training Program at Brigham and Women's Hospital/West Roxbury Veterans Administration is to train the future leaders in the field of Interventional Cardiology. The goals of the program are to:

1. *provide high-quality clinical training in interventional cardiology and develop competent and independent practitioners in the field of interventional cardiology*
2. *provide a broad didactic educational experience in interventional cardiology via a core curriculum lecture series and case review sessions with faculty*
3. *provide an exposure to clinical investigation in interventional cardiology by promoting hypothesis generation and exploration using existing interventional cardiology databases at Brigham and Women's Hospital with the ultimate goals of abstract submission, presentation at a national meeting, and publication in a peer-reviewed journal*
4. *promote technological advancements in the field through participation in clinical trials of novel devices and pharmacotherapies for use in percutaneous cardiovascular interventions*
5. *promote an environment of self-evaluation and practice improvement through participation in quality improvement conferences and quality improvement programs*

The interventional cardiology training program (ICTP) at Brigham and Women's Hospital (BWH) is a one-year training program that is fully accredited by the Accreditation Council for Graduate Medical Education (ACGME). The program's most recent review by the resident review committee (RRC) of the ACGME was in November 2006, and the program was fully accredited through November 2011.

The program is approved to train five residents per year (ACGME refers to fellows or trainees as "residents"). During the year, the residents will be trained to become fully competent practitioners in the discipline of interventional cardiology. The residents will also gain exposure to peripheral vascular angiography and intervention as well as intervention for structural heart disease,

however a second year of training will be required to obtain credentials for interventional treatment of peripheral vascular disease as well as to gain further exposure to structural heart disease.

The residents will receive their training at BWH and the West Roxbury Veteran's Administration Medical Center (VA). BWH is a 700-bed tertiary care hospital providing the full range of cardiovascular services. There are five cardiac catheterization laboratories, two of which are fully equipped for the performance or peripheral vascular procedures. An average of 1200 percutaneous coronary intervention (PCI) procedures are performed per year at BWH.

All inpatient and outpatient cardiovascular care at the BWH occurs in the Shapiro Cardiovascular Center. The Shapiro Center is a state of the art facility that opened in August of 2008. All cardiovascular diagnostic testing occurs in the Center and all cardiovascular inpatients are cared for on the 6th through 10th floors. The Coronary Care Unit is located on the ninth floor, east side.

The West Roxbury Veteran's Administration Medical Center (VA) is located eight miles from BWH in the West Roxbury section of Boston (See Section V). The center is the tertiary cardiovascular referral center for all Veteran's Administration medical centers in Northern New England. There are two dedicated cardiac catheterization laboratories and one room that can be used as a catheterization laboratory as well as an electrophysiology laboratory. Approximately 300 PCI procedures are performed per year at this center. In addition, there is an active peripheral vascular disease program as well. The center provides a full range of cardiovascular services with the exception of heart transplantation. There is an active cardiac surgery program on-site.

The training program is directed by Pinak B. Shah, M.D. Scott Kinlay, M.D. serves as the local director of the training program at the VA. The program coordinator is Pat Allen.

The 12-month training program is divided into 26 two-week rotations as follows (See Section III):

BWH catheterization laboratory	13 rotations
VA catheterization laboratory	6.5 rotations
Research	6.5 rotations (includes 3 one-week vacation periods)

At any given time, two residents will be in the catheterization laboratory at BWH, one will be in the catheterization laboratory at the VA, and one will be on research rotation. Each resident will also participate in an ambulatory care experience one half-day per week as part of the Interventional Clinic at BWH. The rotation schedule will be constructed by the program director with priority given to requested vacation periods.

The call will average every fourth night except during weeks when a resident is on vacation where the call will average every third night. The resident will take call every fourth weekend which will begin at 6pm on Friday night and end at 7am on Monday morning. The resident will be on call for both BWH and the VA.

II. Clinical Faculty

A. BWH: Core Faculty

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B. Brigham and Women's Hospital: Adjunct Faculty

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Clifford Berger, M.D.
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Brockton, MA

Vikas Desai, M.D.
Charles River Medical Associates
Natick, MA

Mandeep S. Dhadly, M.D.
Harvard Vanguard Medical Associates
Boston, MA

Mark I. Furman, M.D.
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C. West Roxbury Veteran's Administration Medical Center

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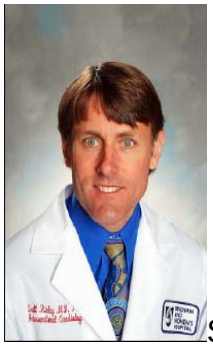 Scott Kinlay, M.B.B.S., Ph.D.

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III. The Brigham and Women's Hospital Rotation (BWH)

A. Goals and Objectives of the BWH Rotation

The goals and objectives of the BWH rotation are organized around the development of the core competencies put forth by the ACGME. The competencies are listed below along with a description of the competency as well as the means to develop and evaluate the competency by the interventional cardiology training program at BWH.

I. Medical Knowledge

Definition: Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate sciences and the application of this knowledge to patient care. Residents are expected to demonstrate and investigatory and analytic thinking approach to clinical situations and know and apply the basic and clinically supportive sciences which are appropriate to their discipline.

The trainee will be expected to continually improve on their medical knowledge base during the course of the year, both with independent study as well as through participation in section activities. Medical knowledge will be developed using the following resources and activities:

1. BWH ICTP Core Curriculum which will be updated yearly and transferred to a shared network drive at the commencement of training (T:\CCLSCH). The curriculum is a comprehensive outline of interventional cardiology that the trainee should be familiar with by the end of the training.
2. BWH ICTP e-Library which will also be will be updated yearly and transferred to a shared network drive at the commencement of training (T:\CCLSCH). The e-Library contains critical literature that shapes interventional cardiology practice.
3. A comprehensive didactic series including a core curriculum lecture series, case presentations, quality assurance conferences, and cardiovascular division wide conferences.
4. Presentations at Interventional Cardiology conferences and at the Cardiovascular Division Clinical Conference.
5. Attendance at national fellows' meetings including the SCAI Fellows Course and CRF Fellows Course.

Medical knowledge will assessed using a self-assessment examination that will be administered at the start of training. This examination will allow the trainee to identify areas of weakness that will need to be developed during the course of the year. The examination will be administered again at the end of the year to assess progress.

II. Patient Care

Definition: Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to 1. communicate effectively and demonstrate caring and respectful behaviors when interaction with patients and their families 2. gather essential and accurate information about their patients 3. make informed decisions about diagnostic and therapeutic interventions based on patient information, preferences, up-to-date scientific evidence, and clinical judgment 4. develop and carry out patient management plans 5. counsel and educate patient and their families 6. use information technology to support patient care decisions and patient education 7. perform competently all medical and invasive procedures considered essential for the area of practice 8. provide health care services aimed at preventing health problems and maintaining health 9. work with health care professionals, including those from other disciplines, to provide patient focused care.

Residents entering the program are expected to have achieved competency in diagnostic right and left heart catheterization during their general cardiovascular disease training. The resident will begin assisting with PCI immediately upon starting their training. During rotations at BWH, the resident will be expected to perform the pre-procedure evaluation of all patients scheduled for a planned PCI.

Pre-procedural evaluation includes:

1. Performance of a thorough history, physical examination, review of pertinent laboratory data and testing, and determination of the appropriateness of the procedure
2. Providing a thorough explanation of the reasons for the procedure, risks and alternatives to the procedures, and expectations of the outcomes with the patient and family
3. Obtaining informed consent for the procedure
4. Writing an admission note using the standard template
5. Writing any required pre-procedural orders
6. Assessing airway and suitability for conscious sedation and determine the need for pre-procedure anesthesia consultation
7. Assessing the suitability for any ongoing clinical trials
8. Entering pre-procedure information into the PCI database prior to the start of the case
9. Discussing with the attending the indications for the procedure, planned access site, and approach to the procedure from pharmacological and technical standpoints.

Intra-procedural patient care: during the first part of the year, the resident will obtain access (if not already obtained during the diagnostic procedure) and

perform intubation of the coronary artery with the guiding catheter, and take initial angiograms with attention paid to obtaining the appropriate working view for optimal procedure performance. During the PCI, the resident will then take the position at the back of the table where they will learn manipulation the guidewire and guidewire management during device exchanges (most procedures are performed with over-the-wire equipment rather than rapid exchange). As their skills improve during the course of the year, the resident will then take the position at the front of the table where they will perform device delivery and manipulation. At the conclusion of the procedure, the resident will discuss access site management with the attending and will perform device closure of the access site if applicable.

By the end of the year, the resident will be expected to have gained technical expertise in the following areas:

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1. Access site selection
    - Radial
    - Brachial
    - Femoral
2. PCI equipment selection
    - Guiding catheter
    - Coronary guidewires
    - Adjunctive devices
    - Balloon selection
    - Stent selection
3. PCI angiographic view selection and interpretation
4. guide catheter intubation
5. guidewire manipulation
6. balloon angioplasty
7. coronary stenting
8. thrombectomy (suction catheters, rheolytic thrombectomy
9. rotational atherectomy
10. distal protection (proximal occlusion, distal occlusion, and filters)
11. vascular access closure device selection and use

The resident will perform nearly 300 PCI procedures during the course of the year with a minimum of 200 procedures performed as the primary operator.

The resident will be expected to provide post-procedure care which includes:

1. Recognition, assessment, and treatment of post-procedure complications
2. Writing necessary post-procedure orders
3. Discussion of procedural findings, instructions, and expectations with patient, family members, and referring physician or housestaff caring for patient

4. Daily follow-up post-procedure to assess for access site complications and to ensure appropriate post-procedure therapy is being administered
5. Communication with physicians caring for the patient both in the inpatient and outpatient setting.

III. Practice based learning and improvement

Definition: Residents must be able to evaluate and their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Residents are expected to 1. analyze practice experience and perform practice based improvement activities using a systematic methodology 2. obtain and use information about their own population of patients and the larger population from which their patients are drawn 3. locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems 4. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness 5. use information technology to manage information, access on-line medical information, and support their own education 6. facilitate the learning of students and other health care professionals

This competency will be achieved through the following mechanisms:

1. Monthly Quality Assurance (Morbidity and Mortality) Conferences: All trainees are required to attend all conferences and will be the primary presenter for three of the conferences. During the conferences, the trainee will discuss key cases with a faculty member that raise an area where care can be improved to improve overall outcomes for our patients. The trainee will be expected to use literature to develop protocols that will lead to fewer complications and improved procedural outcomes.
2. Journal Club: Trainees will be required to attend a monthly journal club and present at three of the journal clubs. A recently published article that has potential to change standard of care will be chosen by the trainee and a faculty member. The article will be discussed in detail with a critical appraisal of the data discussed and recommendations for changes in clinical practice that may improve patient outcomes.

IV. Systems based practice

Definition: residents must demonstrate an awareness of and responsiveness to the larger context of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to 1. know how types of medical practice and delivery systems differ from one

another, including methods of controlling health care costs and allocating resources 2. practice cost-effective health care and resource allocation that do not compromise the quality of care 3. advocate for quality patient care and assist patients in dealing with system complexities 4. partner with health care managers and health care providers to assess and coordinate.

The resident is expected to be present and an active participant/leader at the daily cardiac catheterization scheduling conference. All patients presenting to the catheterization laboratory that day are presented at the conference with physicians, nurses, and technical staff. The resident will be expected to present the patient, reasons for their planned procedure, special procedural equipment that will be necessary, and any potential complications that should be anticipated given the patient's pre-morbid condition. This conference is a necessary exercise in order to improve patient care in the catheterization laboratory, reduce complications, improve flow through the catheterization laboratory, and enhance a team approach to patient care.

The resident will also improve their understanding of systems based practice by providing continued care (from an interventional cardiology standpoint) for patients during their hospitalization. In particular, the resident will be expected to play an active role in ensuring that patients will have access to medications at the time of discharge given the potential complications that may occur to post-interventional patients who do not take their medications. Residents will also be expected to ensure appropriate post-hospital discharge follow up and will coordinate follow up services if necessary.

V. Professionalism

Definition: residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse population. Residents are expected to 1. demonstrate respect, compassion, and integrity 2. demonstrate a commitment to ethical principles 3. demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Professionalism of the BWH ICTP trainees will be assessed by meeting the following expectations:

1. Timely arrival on a daily basis with sufficient time in the morning to pre-assess patients prior their procedure
2. Concise presentations at the morning "board rounds" to alert staff to any particular issues regarding a patient that will be presenting to the catheterization laboratory.
3. Timely completion of orders after a catheterization procedure and discussion of the case with the PA, house officer, or attending physician that will be assuming care of the patient

4. Timely completion of catheterization reports
5. Courteous and cooperation with catheterization all laboratory staff and colleagues
6. Professional interactions with patients, family members, and referring physicians
7. Participation and successful completion of the mandatory Partners professionalism course

VI. Interpersonal and Communication Skills

Definition: Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information with patients, their families, and health professionals. Residents are expected to 1. communicate effectively with patients, families, and the public, as appropriate across a broad range of socioeconomic and cultural backgrounds 2. communicate effectively with physicians, other health professionals, and health related agencies 3. work effectively as a member or leader of a health care team or other professional group 4. act in a consultative role to other physicians and health professionals and 5. maintain comprehensive, timely, and legible medical records.

Interpersonal and communication skills will be developed by the following mechanism:

1. Participation in the Partners course in public speaking
2. Presentations at the cardiac catheterization conference as well as the cardiovascular division clinical conference
3. Communication with patients, families, medical staff participating in patient care, and referring physicians

B. A Standard Day

During the BWH rotation, the residents will be expected to arrive to the hospital no later than thirty minutes prior to board rounds. At a minimum, at least one resident will need to be present during board rounds where the cases for the day are discussed. The on-call resident should be the fellow present. If the on-call resident is at the VA, then the post-call resident will be at board rounds. If the designated resident cannot attend board rounds, the resident will be responsible for designating a colleague to be present. Board rounds are held in front of the main scheduling monitor in the catheterization laboratory and the timing of the rounds is as follows:

Monday	7:45 AM
Tuesday	8:45AM
Wednesday	7:45 AM
Thursday	7:45 AM
Friday	8:15 AM

If a first case is a known elective outpatient PCI, the interventional resident will be expected to arrive early enough to evaluate the patient and obtain consent. Any other patients who are planned for PCI that day should be seen by the resident on the floors where a pre-procedure evaluation can be performed and consent can be obtained. The resident is also encouraged to evaluate patients who have a high likelihood of requiring PCI (acute coronary syndrome patients, patients with positive exercise tolerance tests, etc.). Once the above is completed, the resident will be expected to make rounds on the prior day's patients who underwent PCI. Priority will be given to patients who are cared for on services other than the Interventional Service. It is vital that these patients have their access sites evaluated and any access site issues be dealt with if necessary. Further, the resident will be expected to review post-PCI antithrombotic/antiplatelet therapy and make suggestions if necessary. The resident is expected to leave a note in the patient's chart and discuss any PCI related issues with the attending who performed the case. The resident should continue to see their patients (or designate a colleague) until any PCI related issues have resolved.

After the completion of morning rounds, the resident will be expected to be in the catheterization laboratory or within close distance. There needs to be two residents available at all times. If a resident cannot be available, that resident will need to arrange coverage with another resident. If this is not possible, the resident should discuss with the program director so that alternative arrangements can be made for coverage i.e. physician assistant coverage.

While in the catheterization laboratory, the resident can observe diagnostic cases and certainly participate in diagnostic cases if they wish. They are encouraged to discuss management decisions with the attending. If PCI is opted for, the resident will scrub into the procedure and perform the procedure with the attending.

At the conclusion of the procedure, a decision will be made between the attending and the resident as to the appropriate service for the patient to be cared for. If the patient is already on an inpatient service, the patient will be returned to that service unless the clinical condition of the patient requires that the patient go to a different service. For outpatients, the patients will either be discharged to home, admitted to the interventional service, or one of the inpatient cardiology services covered by housestaff (B-team, CCU, Harvard Vanguard Service, or Lown Service). In any case, the resident will be required to enter post-procedure orders in the clinical information system (BICS) and call the resident/fellow that will be caring for the patient to provide a sign-out. If the patient is going to the Interventional Service, the resident will contact the PA on the service to provide verbal sign-out. The resident will also enter a written sign-out in BICS.

The interventional cardiology resident is ultimately responsible for the disposition of the access sheaths (see below). The interventional resident will also be the first call for any post-procedural problems that may arise while the patient is in the recovery room. If the resident is occupied in a procedure, he/she may request that at co-resident or PA be called; however, if another individual is not available, the resident may be asked to leave the procedure to assess the patient.

It will be left to the interventional cardiology residents to decide how they wish to divide the interventional cases for the day. If a given resident has a relationship with a patient (either from a prior procedure or from clinic), that resident should perform the PCI procedure. Otherwise, it is expected that the residents will alternate. The program director reserves the right to assign procedures to residents to ensure that the distribution of the number and types of cases is relatively equal.

The distribution of cases during the work-day is managed by a "flow manager". The flow manager often receives phone calls from the emergency ward for patients who need to be considered for emergent catheterization. The flow managers may ask an interventional cardiology resident to go to the emergency department for rapid evaluation and triage of these patients to the catheterization laboratory if necessary. For cases that are not clearly in need of urgent catheterization, the case should be discussed with the catheterization laboratory attending assigned to the case. If the decision is made not to proceed with catheterization, the emergency ward staff needs to be alerted. If the patient is still felt to have a cardiac issue, the patient can be seen by the consult service assigned to the emergency ward or be admitted to the appropriate cardiology service.

The residents are required to remain at the hospital until all cases are completed for the day. The post-call resident will be given the opportunity to leave early if the call night was particularly busy. This decision will be made by the program director in order to maintain compliance with the ACGME duty hour rules. The on-call resident should stay the latest. If the on-call resident is the resident at the VA, then one of the BWH residents will stay until the cases are done. If the resident on the research rotation is the on-call resident, this resident will check with the BWH residents at 5pm to determine if he/she will need to go to the catheterization laboratory to help finish the cases. Prior to leaving, the residents should review the schedule for the following day to determine if any inpatients will be undergoing PCI. If so, those patients should be seen and consent obtained. In general, the regular work-day cases are completed between 5:00 PM and 6:00 PM/

C. Physician Assistants and Flow Managers

The catheterization laboratory at BWH is fortunate to be staffed by an industrious, capable, and affable group of physician assistants:

Matthew Galvin, PA-C
Christopher Liu, PA-C, Chief Physician Assistant
Kevin Mullen, PA-C
Kate Poulin, PA-C
Holly Rand, PA-C
Lisa Samson, PA-C
Leigh Teittenen, PA-C

The PA's play multiple invaluable roles in the cardiac catheterization laboratory including:

- Pre-procedural work-ups and consenting when a general cardiology or interventional cardiology resident is not available
- Diagnostic catheterization when a general cardiology resident is not available
- Percutaneous coronary intervention when an interventional cardiology resident is not available
- Removal of sheaths and intra-aortic balloon pumps; primary responsibility for sheath/IABP removal outlined below, it is not assumed that a PA is always available for access site management
- Management of the Interventional Cardiology Service
- Training of new general cardiology and interventional cardiology residents in the flow of the catheterization, use of reporting systems (pre-procedure and post-procedure patient follow up), writing of orders, required paperwork, etc.

The flow manager is an R.N. whose job is to ensure that flow of patients in and out of the catheterization laboratory is as seamless as possible. They are given control of the schedule and in conjunction with the Doctor of the Day, can determine which attendings and residents will be responsible for cases. The flow manager can ask a resident to evaluate a patient on the floors or in the emergency ward who may need an emergent procedure. The flow manager can be reached between the hours of 7:00 AM and 6:00 PM on weekdays on a dedicated mobile phone: 617-966-0620.

There is a single flow manager at any given time. They are:

Keith Dezan, R.N.
Brenda Diconza, R.N.
Susan Herman, R.N.
Marc Malcolm, R.N.

D. Call at BWH

The resident will take call from home. The resident will be on call for both BWH and the VA. The frequency of off-hours cases is much less at the VA; nevertheless, should simultaneous cases at both institutions occur, the resident will give priority to the VA case and the BWH case will be covered by the attending and a tech/PA.

The on-call interventional resident will also be available to assist the evening PA with any issues that arise in the recovery room (typically accomplished via telephone, however on-site evaluation is expected if medically necessary).

Below is the policy for activating the catheterization laboratory for emergency cases.

Brigham and Women's Hospital
Myocardial Infarction Communication and Paging Protocols

Frederic S. Resnic, MD
November 2, 2007
Version 1.0

The following describes the specific responsibilities of all parties in the communication regarding patients presenting with STEMI or for emergent transfers from outside institution (emergency departments) to the BWH cardiac catheterization laboratory. The six scenarios reviewed below are:

1. Unambiguous STEMI presenting to BWH ED
    a. During cath lab work hours
    b. During cath lab off-hours (nights/weekends)
2. Direct to cath lab transfers from outside institutions
    a. During cath lab work hours
    b. During cath lab off-work hours
        i. Call from OSH ED to BWH ED
        ii. Call from OSH ED to BWH cath lab

1. Unambiguous STEMI presenting to BWH ED

- ED Attending initiates Group 24 (Code STEMI) page, which goes to the CCL Flow Manager.

b) During the Cath Lab Work hours (daytime):

- Flow sends the CCL Interventional Fellow (IF) or physician assistant to the ED to assess the patient.

- Interventional Fellow (IF) calls CCL Flow Manager to confirm patient is appropriate (no contraindications), and to confirm that the procedure room is ready to accept the patient.
- Upon confirmation between IF and Flow manager, the patient is transported to CCL.
- CCL procedure room RN has calls ED for nursing report or will expect to receive it upon arrival to CCL.

c) During off hours (nights/weekends/holidays):

- Off Hours*:*
  - ED Attending initiates Group 24 page
  - CCL IF goes directly to ED upon arrival to BWH to assess patient
  - Cath Lab RN will call ED NIC- #5-6413 when CCL team in place.
  - The cath lab team is considered ready when the procedure nurse, attending physician and one technologist has arrived and the room check is complete

2. Direct to Cath lab transfers from outside hospitals (OSH)

b) During daytime work hours:

- Any direct to cath transfers are called directly to flow manager- using the 14AMI pager.
- The Flow Manager initiates group 66 page and notify the ED NIC of incoming direct to lab transfer.
- Patient will be transferred directly to the CCL or the cardiovascular recovery room (CVRR), based on flow manager triage, utilizing EMS and security escort.
- In the rare case that there is no room available for the patient, the Flow Manager will take the appropriate steps to place the patient in the ED by communicating with the ED NIC before the patient arrives.

c) **During off-hours (nights or weekends).**

i) OSH calls the ED Attending to transfer AMI patient – just say yes policy

- The ED MD calls the cath lab attending, using pager 1-4-AMI to discuss the case and confirm disposition (to cath lab versus CCU or telemetry).
- The CCL Attending makes the decision to activate the call team and initiates group 26 and group 66 pages. The CCL attending physician may delegate these responsibilities to the IF.
- The patient is expected to go to the ED unless the CCL team is known to be ready and available for the patient.

- When the cath team is in place:
  - The CCL MD/IF will call the ED Attending.
  - The interventional fellow will proceed to the ambulance bay.
  - The CCL RN will call security at # 2-6565 and tell security that the cath team is in place and the patient should be brought down to L2.
  - If Security does not hear from the CCL RN, security will escort the patient to the ED until the cath team arrives.

ii) OSH calls Cath lab attending for emergent transfer

Note: this scenario occurs only off-hours, as this is handled in scenario 2a for daytime cases.

- CCL MD gets a call from OSH ED (typically via 1-4-AMI) for an emergent catheterization transfer case.
- CCL MD initiates page 26 (cath team) and group 66 (security) pages.
- CCL MD notifies ED MD of transfer. In addition, the CCL Attending will give the ED MD an ETA for CCL team to be ready.

When CCL team arrives and is in place:

- The CCL MD will call the ED attending to notify the ED that the cath team is ready.
- The interventional fellow proceeds to the ambulance bay.
- The RN will call security at # 2-6565 and tell security that the cath team is in place and the patient should be brought down to L2
- If Security does not hear from CCL RN, security will escort the patient to the ED until the cath team arrives.

Note: If the CCL team is not in place upon patient arrival to BWH, the ED will assume care of the patient until the CCL team arrives.

GROUP PAGES

Group 24: CODE STEMI- Initiated by BWH ED Attending only. Received by:

- CCL on call team- RN, RT, CVT
- Nurse Administrator
- IF on call
- 1-4AMI (FLOW-day) (Attending-off hours)
- ***Interventional Resident must go directly to the emergency room to evaluate patient, obtain consent, and assist in preparing patient for transport to the cardiac catheterization laboratory***

Note: As of December 3, 2008, the CODE STEMI system can be activated by the interventional fellow for cases that are emergent but are not necessarily STEMI. This system allows for the team to be called-in as a group to a voice-mail line that is checked by the page operator after 5 minutes; thus avoiding the need for multiple folks to call back to the fellow or attending. Please make sure that when you activate the lab you call the page operator and specifically request that a code STEMI page be sent including the additional information of:

a. What the actual emergency is (if not a STEMI) - examples: Emergent TPW, emergent cath, NSTEMI, etc.
b. The patient name and location - if the patient is a transfer please give the hospital name
c. Who is activating the lab (Pallav Garg), along with you phone number if anyone really needs to contact you.

The attending/fellow should call the page operator about 5-10 minutes after the page to determine that they have checked the voice-mail and that all members of the team are on their way in. If there is someone who hasn't responded, the page operator will automatically page that person, but it is essential that the attending double check by calling into the page operator.

Group 66: Security Escort available 24/7. Received by:

- Bob Donaghue
- Security Code Pager
- 1st and 2nd Nurse Administrator

E. Catheterization/PCI Access Site Care

Arterial and Venous Sheaths:

The last assistant to care for the patient in the catheterization laboratory (resident or PA) is responsible for removal of the arterial/venous sheaths if a closure device is not used. If the resident is going to be occupied for a prolonged time during the period when the sheath is to be removed, it is acceptable for the resident to ask the recovery room staff, a co-resident, or a PA to assist with sheath removal. However, it cannot be assumed that sheath removal will occur without a direct conversation between the resident performing the procedure and another member of the support staff. An order must be written (electronic or by hand) if a recovery room staff member is to remove a sheath.

Intra-aortic Balloon Pumps (IABP):

If the IABP is placed by the catheterization laboratory, the catheterization laboratory is responsible for removing the IABP in the CCU. The ultimate responsibility falls on the assistant (PA, diagnostic resident, interventional resident) who placed the IABP. If it is the weekend/off hours, the interventional fellow on call will be responsible for removal of the device. The interventional resident may request the CCU resident to remove the IABP if he/she cannot do it in a timely fashion. However, the ultimate responsibility falls on the interventional resident.

If the balloon pump was placed outside of the BWH catheterization laboratory (i.e. placed at an outside hospital), the responsibility for removal of the balloon pump will be on the CCU resident. However, the CCU resident may ask the interventional resident or PA to assist with removal if he/she does not feel comfortable with the task.

Percutaneous Ventricular Assist Device (PVAD):

De-cannulation of the Tandem Heart device will be performed by the attending who placed the device (or faculty designee) and the resident who placed the device.

Our current guidelines for sheath removal are below:

Arterial Sheaths

ACT < 160 seconds
6F or 7F sheath
-Manual compression for 20-30 min.

8F sheath
No llb/llla inhibitors
-Manual compression for 20-30 min

llb/llla inhibitors
-Manual compression for 20-30 min. If hemostasis is not obtained:
-Femostop for 30 min at High pressure* then,
-Turn Femostop down to 60mmHg for 30 min.

Venous Sheath

ACT < 180 seconds

- 7F or smaller
  Manual compression for 10-15 minutes

*High Pressure is defined as the highest pressure attainable while still able to palpate/doppler a distal pulse.

-Must have adequate hemostasis at the conclusion of manual compression prior to placing femostop.
-If persistent pulsatile bleeding at the end of any stage, repeat that stage.
-If there is any question regarding potential hematoma formation, remove the femostop, and apply manual pressure and reassess.

F. The Interventional Service

The Interventional Service is an integral part of the function of the catheterization laboratory and serves the purpose of caring for low to moderate complexity patients who are referred to BWH to undergo cardiac catheterization procedures. The service is run by the faculty rounder for the week and one or more members of the physician assistant team. The primary PA for the Interventional Service on any given day can be paged on beeper 37657, a "virtual" beeper number that gets transferred to the responsible physician/PA. Patients may be admitted to the service directly from the cardiac catheterization laboratory (at the discretion of the attending physician) or they may be transferred from an outside hospital/emergency ward onto the service for catheterization the following day. While no formal criteria exist as to what patients can be admitted to the service, patients on the service are generally those who are expected have a relatively short length of stay.

During the weekdays, patients on the service will be cared for by the PA's. In the evenings, first calls on the patients will go to the Specialty Service Moonlighter covering the service. However for significant issues off hours, calls may then go to the interventional cardiology resident on call for that evening. Therefore, it is important that the on-call resident receive sign-out on the patients from the PA covering the service prior to leaving the hospital. The resident will be responsible for seeing the patient if urgent evaluation is required and discussing the case with the faculty rounder for the week and the physician who performed the procedure.

On Saturdays, any patients on the Interventional Service will be rounded on by the PA and discussed with the attending. If any patients will be staying into Sunday, the interventional cardiology resident on call will receive sign out from the PA during the day on Saturday. The PA then signs the service out to the GMS Moonlighter who covers the service until 5:45 PM on Saturday. At that point, the GMS moonlighter signs the service out to the Specialty Service Moonlighter who covers the service from 5:45 PM on Saturday to 8:00 AM on Sunday.

On Sunday, the interventional resident on call will meet the Specialty Service Moonlighter in front of the Au Bon Pain in the main lobby to receive sign out on the interventional service patients. At this point, the interventional resident should ensure that beeper 37657 (catheterization PA beeper) is transferred to him/herself. After rounding on these patients, the interventional resident will page the attending on call to discuss the patients. The catheterization laboratory faculty attending on call for Sunday will be seeing these patients. The interventional resident is to update the sign out in BICS then page the GMS moonlighter to sign the service over to them. Beeper 37657 should be transferred to this person as well. Like Saturdays, the Subspecialty Moonlighter takes over the service at 5:45 PM until Monday morning at 8AM when the service is transferred back to a catheterization laboratory physician assistant.

Below is the policy put forth by Marcy Carty, M.D., director of the moonlighting program at BWH:

Weekend and Weeknight Interventional Fellow Floor Coverage Responsibilities and Logistics

Saturday: You will be paged by the weekend PA and given signout on any patients remaining on the service. You only need to come in for urgent medical issues. The PA will have rounded and left a note. The GMS moonlighter covers after the PA leaves until 5:45p. The Specialty Services Moonlighter covers from 5:45p-8a (Sun).

Sunday 8 AM: You must come in and meet the Specialty Services Moonlighter in the Eppinger Conference Room in the Department of Medicine administrative office (behind the Tower Elevators) at 8am to receive signout. At this point, the Interventional Service beepr (37657) should be signed out to you. After rounding, leaving a note, and updating the BICS signout (or completing discharge orders) on each patient, page the GMS moonlighter and meet them to handoff the printed signout. Sign the Interventional Service pager (37657) out to the GMS moonlighter. The GMS moonlighter covers until 5:45p. The Specialty Services Moonlighter covers from 5:45p-8a (Mon). If you are going to be in a case at 8am, page the moonlighter prior to 8am and have them give signout to the GMS moonlighter until you are able to get it.

Weekend Admits:
Admissions to the Interventional Service over the weekend are rare but do occur. These admissions will be the responsibility of the fellow or the Subspeciality moonlighter depending on what time the patient arrives to the floor. If the patient arrives to the floor between 8 AM and 5:45 PM, the admission (history and physical and admission orders) will be the responsibility of the interventional fellow. If the patient arrives to the floor between 5:45 PM and 8AM, the admission will be the responsibility of the Subspeciality moonlighter (regardless of what time the fellow may have heard about the admission). If the fellow hears of an admission between the hours of 5:45PM and 8AM, the fellow must contact the Subspecialty moonlighter to inform them of the admission. In any case, the cath lab attending on call needs to be notified of the admission after the patient has been evaluated.

Weeknights:
The on call Interventional Fellow and late PA must communicate in the evening to review patients on the Interventional Service and any potential issues. The on call IF will need to call the Specialty Service Moonlighter to notify them about any patient admitted to the Interventional Service after the late PA has left for the night.

How to locate the correct moonlighter from the main screen in BICS:

L-Patient List Options
C-Coverage List
D-Display/Print schedule
On the "Display/Print Schedule" page make sure the dept listed is "Medicine" and then scroll down to "Daily Moonlighting 08-09" and hit enter.
Highlight the correct month and hit enter.
Scroll across the screen until you've found the Subspecialty or GMS moonlighter and then scroll down to the correct date to find your moonlighter.

G. Resident Workspace

Each resident will be given a cubicle as well as a personal computer based at the cubicle for the course of the year. The resident's cubicles are located in the CDIC administration offices on L2 adjacent to the cardiac catheterization laboratory.

IV. The VA Rotation

VA Cardiac Catheterization Laboratory

Diagnostic and Interventional Fellows Handbook

July 2008

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1.0 Contents

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2.0 Summary

The VA Cath Lab rotation provides you with a more independent experience than the larger teaching hospitals, but this comes with increased responsibility for the tasks required of you.

Your objectives are to increase your cognitive skills, technical skills and communication skills and organizational skills in cardiac catheterization and percutaneous interventions.

You are expected to attend the morning review of the cath patients, "work up" your patients before they arrive at the lab, and consent patients before they are on the cath table.

You are expected to hand over the patient to your colleagues on the team looking after the patient and communicate a clear plan for their care.

You are expected to complete your reports on the day of catheterization or your cath privileges will be withdrawn. Since many VA patients are not managed by Cardiologists, your reports should be written in a way that a non-cardiologist or nurse can understand. Please avoid abbreviations and interpret the report for them.

You are expected to see and examine your patients on the day after catheterization (diagnostic cases by Diagnostic Fellows, and interventional cases by Interventional Fellows). This helps the cath lab satisfy its quality assurance requirements and improves patient care.

Finally, you are expected to enjoy your time at the VA. If you are having problems, talk to me or your Training Supervisor so that we can make it the rewarding experience it should be.

3.0 VA Cardiology Service Overview

The VA Cardiology Service changed in June 2008 to two Cardiology ward teams with an open CCU. These teams admit on alternate days, accepting patients through the ER, transfers from other hospitals, and Same Day Cath patients.

The Same Day Cath patients come from the local area and VA clinics in upper New England. Patients may be referred from Cardiologists, Internists or Nurse Practitioners and need various levels of work-up prior to Catheterization. Some patients may have their Cath cancelled if it is not indicated or if they need more workup. These patients will be discussed briefly during the 8am meeting. We have two nurse practitioners who are attached to the admitting team on most days. The nurse practitioners may work up some of the more straightforward Same Day Cath patients (previously called CAPE patients) to help get the Cath cases ready.

The Cardiology teams are called at the end of a diagnostic case to discuss the findings and decide whether intervention is indicated. The decision is up to the teams looking after the patients and not the Interventional Cardiology team. Naturally, our recommendations are very important. Patients with multivessel disease may require the input of the Cardiac Surgeons and they will come up after the diagnostic case when asked to provide their perspective. The decision to intervene is often multidisciplinary and always involves the Cardiology team.

4.0 Objectives of the VA Cath Lab Rotation

The Interventional Cardiology Rotation at the VA Boston Healthcare System, West Roxbury is an extension of the BWH training program and all residents are required to participate in the BWH training program while at the VA. The goals and objectives of the VA rotation in relation to the ACGME Core Competencies are summarized below.

4.1 Medical Knowledge

Trainees will improve their cognitive skills associated with catheterization and interventional cardiology by continuing to attend the didactic teaching activities at the BWH in addition to case learning at the VA Cath Lab. These include:

1. Attendance at the BWH Core Curriculum Lecture Series
2. Attendance at the weekly BWH Interventional Cardiology Conference that includes case presentations, didactic lectures and quality assurance presentations
3. Attendance at the weekly BWH Clinical Cardiology Conference

In addition, each trainee is expected to participate in VA teaching, including:

1. Attendance at the weekly VA Clinical Cardiology Conference

2. Reviewing each catheterization case with the VA Attending and participate in the education of junior trainees.

Medical knowledge will be assessed at the start and end of the training year as outlined in page 10 of the BWH Objectives.

4.2 Patient Care

Trainees will be expected to participate in pre-cath, post-cath care and acquire the technical skills required to be a proficient and safe Interventional Cardiologist as outlined on page 11 of the BWH Objectives. These include:

1. Careful pre-cath assessment of the patients history and physical findings and other ancillary tests.
2. Ensure the patient gives written informed consent to the procedure.
3. Writing any pre-procedural orders
4. Discuss with the Attending the procedure including access details
5. Write and complete the full cardiac catheterization report prior to review by the Attending

The technical skills that the trainee is expected to learn are outlined on page 12 of the BWH Objectives, and include expertise in left and right heart catheterization, as well as intervention using a variety of access techniques and interventional techniques.

4.3 Practice Based Learning and Improvement

Trainees will be evaluated in conjunction with their BWH training. They will be expected to attend the practice based learning programs at the BWH outlined on page 13, including:

1. The monthly quality assurance meeting
2. The Journal Club

In addition, they will participate in the quality assurance meetings at the VA.

4.4 Professionalism

Trainees are expected to follow the Professionalism Objectives outlined on page 14 of the BWH Objectives, including demonstrating timely arrival at the VA, concise summaries of patient data and results to the referring physicians, and timely completion of the post-cath orders and cath reports.

4.5 Interpersonal Communication Skills

Trainees are expected to respect co-workers including nurses, PAs, and the clinical teams who refer patients to the cath lab. Trainees are also expected to demonstrate empathy with patients and patient's families. In all of these interactions, careful and specific communication of requests, and details of the procedures are required.

5.0 Expected Duties

5.*1* *Morning "Running of the Board"*

These occur each morning at 8:00 am (8:30 am on Friday) in the Cath Lab. The Cardiology, Consult and Same-Day Cath Teams run through the list of Cath patients.

5.*2* *Identify and Work Up Patients*

One of your roles is to communicate pertinent details of the patient to your medical and nursing colleagues in the Cath Lab. For this reason you will be asked to know your patient: What is their clinical story? Do they have abnormal lab results or physical findings? Can they lie flat for an hour? Are they capable of understanding the procedure? These questions help us to delineate whether catheterization is appropriate now or ever, and help prepare for possible adverse events (e.g. contrast nephropathy, pulmonary edema, or worse). Make sure you talk to the Cath Lab nurses about the patient. They know the system better than anyone and can alert you to issues you haven't considered. Make sure you discuss the patient with the Cath Lab Attending and your Fellow.

5.*3* *Consent of Patients*

Where possible consent the next patient before they arrive in the cath lab or at least when they arrive. The consent process is not just the signature. Consent means that the patient (or guardian) understands the procedure and its risks, is willing to go ahead with it, and signs the form. A nurse or someone else needs to witness your consent process.

Consent is documented in the computerized electronic record CPRS using the iMedConsent program under "Tools" in the CPRS program. This can be started on any computer in the VA hospital and saved for signing once the patient reaches the Cath Lab. Portable notebooks in the cath lab have electronic signature pads for recording the signatures of the patient, the consenter, and a nurse witness.

5.*4* *The H&P Note*

An H&P Note must be written, signed, and accessible in the CPRS/GUI Note system before any invasive procedure, including cath is started. This H&P note is

entered by the Cardiology team and must be completed within 30 days of the planned procedure (or new one is required). This is a JHACO requirement. The nurses monitor this and are required to block the start of a procedure until the H&P note is visible. If the note isn't visible call the Fellow of the team looking after the patient and get them hassle their team to complete the note and sign it so that we can see it.

5.5 The Hand-Off to the Team

This is a **crucial part** of the care of any patient and is recognized as one of the key failings in many cases of malpractice litigation. You are expected to make sure that the team looking after the patient understands what you found, what you did (e.g. stent and what type), and that they understand the plan for future care (e.g. plavix for 1 month, 12 months, call me if they have chest pain, urgent CABG, CABG before discharge, etc).

5.6 Follow-up of Patient In-Hospital Outcomes

Increasingly, clinical practice requires us to assess the quality of our care. Quality assurance aims to assess care and identify unsatisfactory care so that changes can be made to improve care. Diagnostic Fellows are expected to visit patients who had diagnostic caths the previous day and Interventional Fellows are expected to do the same for all patients having interventions the previous day.

All patients must have a short 3-5 line report in GUI the next day documenting the patient's condition, vitals, groin, Hct, Cr, and check that plavix and aspirin are charted in the medications. There are several reasons why you are asked to do this at the VA. Occasionally post-cath orders (including aspirin and plavix) are deleted if a patient has a bed allocated after the orders were written. Also, some of our patients are looked after by medical teams and house-officers who have little experience in the complications of cath. Your involvement will help identify the late retroperitoneal hemorrhage, the sub-acute closure or other complications that will lead to rapid corrective therapy.

5.*7 Reports*

Since February 2008 all Cath reports are entered through the Cath Lab GE Centricity program by the Interventional Fellow. The Interventional Fellow should train the Diagnostic Fellow on entering diagnostic only reports, but should supervise these closely to ensure they explain the findings in a clear and unabbreviated manner. Remember, many VA patients are managed by non-Cardiologists and nurses who may not be familiar with abbreviations that we use.

The report elements have explanation marks for essential items in the report. These include, Indications, History (risk factors, prior cath, PCI, CABG), Hemodynamic conclusions, Coronary anatomy, Interventions, Post cath recommendations and

Summary. Tom Sabin from Information Resources will educate you on how to complete these.

Make sure that the four major coronary arteries are described (e.g. Left main – vessel normal, LAD – minor irregularities, LCx – 70% stenosis, RCA – minor irregularities). Don't leave one of these blank if they were normal, but rather indicate that they were normal.

Make sure the type of stent is documented, and make sure the length of plavix is clearly described. Look at the draft Report document once you are done and ask yourself does it describe the cath findings and what to do with the patient. If you can't interpret what happened or the recommendations then you need to edit the Report before closing it for the Attending to review. Ask me for help if you need it.

6.0 The VA Cath Technique

Cardiac catheterization is associated with small but definite risks related to arterial damage and embolization. In order to prevent these complications, we ask you to adopt the VA Cath Technique, which the Interventional Fellows and Attendings will encourage (a.k.a. enforce). These are designed to minimize complications and are described below.

6.1 Insertion of sheath

After inserting the arterial sheath, the wire and dilator will be removed and the sheath flushed immediately with 10ml of heparinized saline. Always make sure blood can be withdrawn before flushing forward as this may indicate that the sheath tip is against the artery wall and forward flushgin could cause a dissection. The wire will **not** be left in for femoral artery angiography, this will be done at the end of the case.

6. 2 Use of Gauze wipes

Dry gauze will be used for cleaning the skin during access only, and then discarded. Only wet gauze wipes will be used for wiping wires and catheters as dry gauze can leave small pieces of cotton on the wire.

6.3 Catheter insertion

The JL catheter will be advanced into the ascending aorta under fluoroscopy and the wire removed with fluoroscopy confirming the catheter is proximal to the left main artery.

6.4 Manifold flushing

After removing the wire from a catheter, the manifold will be connected and;

- 5-10ml of blood withdrawn from the catheter and discarded.
- The manifold will be flushed forward with saline without delay, but no more than 2 times. The objective is to remove air and thrombus from the catheter and fill it quickly with heparinized saline. Multiple flushing to obtain a

pristine clear manifold is unnecessary and only delays filling the catheter with heparinized saline and risking thrombus formation in the catheter.
- The syringe will then be filled with contrast (after a small withdrawl to ensure no air in the manifold)

6.5 Catheter exchanges

The catheter will be removed to the abdominal aorta (i.e. much lower than we used to do) and the wire used to straighten the catheter in the abdomen.
- The wire and catheter will be removed as one unit.
- The wire will be wiped with wet gauze, dipped in the bowl of hep-saline and loaded into the next catheter. (Do not wipe wires with dry gauze).
- The side arm of the femoral sheath will be flushed between each catheter change to avoid clotting the sheath.
- After connecting the catheter to the manifold, flush quickly as explained in 4. above.

6.6 IMA selection

The origin of the great vessels off the aorta are sometime difficult to located in patients with unfolded arches, extensive atheroma, or the elderly. Therefore the following protocol will be used.
- The patient will receive 2-3,000 Units of heparin IV.
- The J-wire will be used to advance a 5F IMA catheter into the ascending aorta.
- The wire will be removed and the manifold flushed as indicated above.
- Counterclockwise rotation will be used to select the left subclavian artery and a small puff of contrast used to confirm engagement of the subclavian artery. Keep the catheter pointing towards the arm to avoid engaging the vertebral artery.
- A J-wire will be used to gently select the subclavian artery. If there is any difficulty the Interventional Fellow or Attending will take over the case and consider using an angled hydrophilic wire

6.7 Arterial closure devices

Infection of arterial closure devices usually requires a surgical operation to remove the device and is something we want to avoid. Infection control at the VA recommends the following to avoid this complication:
- At the end of the case, the access site will be re-prepped with chlorhexidine
- The operators will put new gloves over their old gloves
- The closure device will be deployed
- A large bandaid type of dressing will be used rather than an occlusive plastic dressing
- The femoral artery pulse below the device and the pedal pulses will be rechecked for any changes. Duplex ultrasound will be used to assess the groin if there the pulses are lost or significantly diminished.

In general, Diagnostic Fellows can use the Angioseal device for closing the femoral artery if they are inserviced, but the Perclose and Starclose devices should only be used by Interventional Fellows.

7.0 Draconian Steps

Your performance is assessed on cognitive, technical, interpersonal skills and organizational ability. We are required to rate you on these skills during your VA rotation. We understand that delays occur when we are busy, but incomplete reports or follow-up notes **will be reflected in your evaluations**.

8.0 Are You Experienced?

The VA rotation provides you with a more independent experience than the larger teaching hospitals, and an opportunity to play a role that more closely resembles the Cardiology Specialist you will become. These benefits require greater responsibility from you. It goes without saying to take note of any recommendation by the nurses, cleaners or any of the other VA Cath Lab staff. They generally have more experience in the cath lab than you (and many of the Attendings!) and although they don't seek it, they deserve your respect. If you are troubled by something, talk to me, the other Attendings, or your Training Supervisor. The VA Rotation is an enjoyable one – are you (VA) experienced?

Scott Kinlay, June 2008

9.0 Appendix

9.1 *Contrast Induced Nephropathy Prophylaxis at the VA*

We have attempted to simplify CIN prophylaxis at the VA by letting the nurses run the show. Although the benefits of N-acetyl-cysteine (Mucomyst) and the Na-Bicarb IV fluid regimen are debated, these are the most accepted regimens employed in most labs around the country in one form or another.

At the VA, the Pharmacy will dump several bags of NaBicarb in the cath lab each day. The Cath Lab Nurses will routinely start this on all patients coming to the lab who have one of the following:

1. sCr > 1.5,
2. eGFR < 60,
3. Any proteinuria.

The good news is you don't have to chart a thing, it will be included in the cath lab medication sheet. Patients with florid heart failure may need a Lasix chaser so keep an eye on that.

V. The Research Rotation

A. Goals and Objectives of the Research Rotation

The goals and objectives of the Research Rotation are designed around the core competencies put forth by the ACGME.

I. Medical Knowledge

Definition: Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate sciences and the application of this knowledge to patient care. Residents are expected to demonstrate and investigatory and analytic thinking approach to clinical situations and know and apply the basic and clinically supportive sciences which are appropriate to their discipline.

The resident will pursue investigation of a specific area in interventional cardiology and thereby enhance their medical knowledge of that particular area. They will be expected to have a firm understanding of the background literature relevant to their area of investigation.

II. Patient Care

Definition: Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to 1. communicate effectively and demonstrate caring and respectful behaviors when interaction with patients and their families 2. gather essential and accurate information about their patients 3. make informed decisions about diagnostic and therapeutic interventions based on patient information, preferences, up-to-date scientific evidence, and clinical judgment 4. develop and carry out patient management planes 5. counsel and educate patient and their families 6. use information technology to support patient care decisions and patient education 7. perform competently all medical and invasive procedures considered essential for the area of practice 8. provide health care services aimed at preventing health problems and maintaining health 9. work with health care professionals, including those from other disciplines, to provide patient focused care.

There will be no direct patient care during the research rotation with the exception of call, occasional cath lab coverage when residents are in clinic, and maintenance of the ambulatory experience. The patient care objectives for this clinical activity is as described for those respective rotations.

III. Practice based learning and improvement

Definition: Residents must be able to evaluate and their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Residents are expected to 1. analyze practice experience and perform practice based improvement activities using a systematic methodology 2. obtain and use information about their own population of patients and the larger population from which their patients are drawn 3. locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems 4. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness 5. use information technology to manage information, access on-line medical information, and support their own education 6. facilitate the learning of students and other health care professionals

Based on the outcomes of their investigations, the resident will be expected to synthesize their findings into an abstract for submission for presentation at a national meeting. The ultimate goal will be for publication. The data obtained from their investigation will be used by the resident to help formulate practice protocols to improve patient outcomes and reduce complications in the catheterization laboratory at Brigham and Women's Hospital/West Roxbury Veterans Administration and worldwide.

IV. Systems based practice

Definition: residents must demonstrate an awareness of and responsiveness to the larger context of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to 1. know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources 2. practice cost-effective health care and resource allocation that do not compromise the quality of care 3. advocate for quality patient care and assist patients in dealing with system complexities 4. partner with health care managers and health care providers to assess and coordinate.

The resident will be expected to use available resources (i.e. catheterization laboratory databases) to look at questions that may have potential to improve patient outcomes in the catheterization laboratory. In particular, the catheterization laboratory at Brigham and Women's Hospital has a specific investigative interest in reducing complications such as bleeding and vascular complications and improving timely and cost-effective care in the catheterization laboratory.

V. Professionalism

Definition: residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a

diverse population. Residents are expected to 1. demonstrate respect, compassion, and integrity 2. demonstrate a commitment to ethical principles 3. demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

The resident will be expected to uphold the highest standards in investigative integrity. The resident will adhere to the rules set forth by the Institutional Review Board for appropriate recruitment of subjects for research and will provide an extensive discussion to the patient and family regarding any risks, benefits, and alternatives to research participation. The resident will ensure validity of data and analyses submitted for peer-review.

VI. Interpersonal and Communication Skills

Definition: Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information with patients, their families, and health professionals. Residents are expected to 1. communicate effectively with patients, families, and the public, as appropriate across a broad range of socioeconomic and cultural backgrounds 2. communicate effectively with physicians, other health professionals, and health related agencies 3. work effectively as a member or leader of a health care team or other professional group 4. act in a consultative role to other physicians and health professionals and 5. maintain comprehensive, timely, and legible medical records.

The resident will be expected to present their findings in a concise and effective manner at research symposia. The resident will be expected to discuss their area of investigation and findings in an intelligent fashion and respond to any questions regarding their work appropriately.

B. Description of the Research Rotation

The residents of the Interventional Cardiology Training Program at BWH will be given three rotations of time to pursue research interests. Those residents entering the program with prior research experience and on-going projects will be encouraged to continue their research endeavors provided that it is logistically feasible to do so (i.e. mentors and laboratory within easy reach of BWH).

Those residents without on-going research endeavors will be assigned a project at the beginning of the academic year. The cardiac catheterization laboratory at BWH collects significant data on every patient undergoing a procedure. This data can be queried and exploratory analyses can be performed. In addition, access is available to the ACC-NCDR catheterization registry database. A third source of data for analyses is from the HEART study at BWH which is a longitudinal follow-up program out to one year after PCI of all patients undergoing PCI at BWH.

At the beginning of the academic year, the resident can submit proposals of analyses they wish to perform. Drs. Shah and Resnic will identify exploratory analyses to be performed and assist with data and statistical analysis for those residents who do not have a planned project. The resident will then perform a background literature search and construct and abstract with the goal of submitting the abstract for the American College of Cardiology or Society of for Cardiac Angiography and Intervention meetings held in the spring. The submission date for this meeting is generally in September. During the course of the year, the resident will prepare a manuscript for submission to a cardiology journal.

The catheterization laboratory is also involved in numerous multi-center clinical trials. Each resident will be expected to select one or more of these studies to be a co-investigator. The resident will be responsible for screening, consent, procedural care, and follow-up for patients participating in their trial. This experience will give the resident vital experience clinical trial administration, a necessary skill for academic interventional cardiologists. Prior to participating in clinical trials, the resident will be required to complete the CITI course and examination in the performance of clinical research at Harvard Medical School.

A list of on-going research projects and clinical trials will be provided by each resident and progress of these projects will be assessed by Dr. Shah.

During the research rotation, the resident will spend their time at a pre-designated site if they have an on-going research project, or can spend their time at their work-space to work on newly assigned research projects. There will be call during the research rotations and the resident on the research rotation will be asked at times to provide half day coverage during clinic times when clinical residents will be away from the catheterization lab.

All vacations will be scheduled during the research rotation.

VI. The Interventional Residents Clinic

A. Goals and Objectives of the Interventional Residents Clinic

The goals and objectives of the Research Rotation are designed around the core competencies put forth by the ACGME.

I. Medical Knowledge

Definition: Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate sciences and the application of this knowledge to patient care. Residents are expected to demonstrate and investigatory and analytic thinking approach to clinical situations and know and apply the basic and clinically supportive sciences which are appropriate to their discipline.

The trainee will be expected to continually improve on their outpatient interventional cardiology medical knowledge base during the course of the year, both with independent study as well as through participation in section activities. Medical knowledge will be developed using the following resources and activities:

1. BWH ICTP Core Curriculum which will be updated yearly and transferred to a shared network drive at the commencement of training.
2. BWH ICTP e-Library as previously described
3. Didactic series as previously described
4. Attendance at national fellows meetings as previously described

II. Patient Care

Definition: Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to 1. communicate effectively and demonstrate caring and respectful behaviors when interaction with patients and their families 2. gather essential and accurate information about their patients 3. make informed decisions about diagnostic and therapeutic interventions based on patient information, preferences, up-to-date scientific evidence, and clinical judgment 4. develop and carry out patient management planes 5. counsel and educate patient and their families 6. use information technology to support patient care decisions and patient education 7. perform competently all medical and invasive procedures considered essential for the area of practice 8. provide health care services aimed at preventing health problems and maintaining health 9. work with health care professionals, including those from other disciplines, to provide patient focused care.

The resident will be expected on outpatient patient care issues that are particularly unique to outpatient interventional cardiology including:

1. Evaluation of symptoms of coronary ischemia
2. Diagnostic testing for ischemia
3. Initial medical therapy for presumed coronary artery disease
4. Determination of need for invasive evaluation (i.e. cardiac catheterization)
5. Pre-procedure vascular assessment
6. Post-procedure vascular assessment
7. Post-procedure medical therapy
   a. anti-platelet therapy
   b. lipid lowering therapy
   c. anti-hypertensive therapy
8. Surveillance for progression of CAD and post-procedure testing

III. Practice based learning and improvement

Definition: Residents must be able to evaluate and their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Residents are expected to 1. analyze practice experience and perform practice based improvement activities using a systematic methodology 2. obtain and use information about their own population of patients and the larger population from which their patients are drawn 3. locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems 4. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness 5. use information technology to manage information, access on-line medical information, and support their own education 6. facilitate the learning of students and other health care professionals

This competency will be achieved through the following mechanisms:

1. Monthly Quality Assurance (Morbidity and Mortality) Conferences as previously described
2. Journal Club as previously described

IV. Systems based practice

Definition: residents must demonstrate an awareness of and responsiveness to the larger context of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to 1. know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources 2. practice cost-effective health care and resource allocation that do

not compromise the quality of care 3. advocate for quality patient care and assist patients in dealing with system complexities 4. partner with health care managers and health care providers to assess and coordinate.

The resident will improve their understanding of systems based practice by providing continuity of care from the outpatient clinic, to the catheterization laboratory, the inpatient setting, and back to the ambulatory setting. In particular, the resident will be expected to play an active role in ensuring that patients will have access to necessary medications important for post-interventional care and secondary prevention.

V. Professionalism

Definition: residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse population. Residents are expected to 1. demonstrate respect, compassion, and integrity 2. demonstrate a commitment to ethical principles 3. demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Professionalism of the BWH ICTP residents during the ambulatory experience will be assessed by meeting the following expectations:

1. Timely arrival to the ambulatory session
2. Concise presentations of patients to faculty preceptor
3. Timely completion dictations of office notes and letters to referring physicians
4. Compulsive follow-up on any ordered tests and communication of the results of such testing with the patient and referring physician
5. Courteous and cooperative attitude with ambulatory support staff
6. Professional interactions with patients, family members, and referring physicians
7. Participation and successful completion of the mandatory Partners professionalism course

VI. Interpersonal and Communication Skills

Definition: Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information with patients, their families, and health professionals. Residents are expected to 1. communicate effectively with patients, families, and the public, as appropriate across a broad range of socioeconomic and cultural backgrounds 2. communicate effectively with physicians, other health professionals, and health related agencies 3. work effectively as a member or leader of a health care team or other professional

group 4. act in a consultative role to other physicians and health professionals and 5. maintain comprehensive, timely, and legible medical records.

Interpersonal and communication skills will be developed by the following mechanisms:

1. Participation in the Partners course in public speaking
2. Formal presentations of ambulatory patients to faculty preceptors
3. Communication with patients, families, medical staff participating in the patient's care

B. Description of the Ambulatory Experience

Each resident will maintain a continuity clinic one half-day session per week. Two residents will have their clinic on Monday morning and two residents will have their clinic on Wednesday morning. The resident will be expected to evaluate at least two new patients and six return patients during their sessions. The new patients scheduled for the clinic will be patients who have chest pain, need pre-operative risk assessment, have positive functional studies, or are otherwise being referred for cardiac catheterization procedures. The return patients will include patients who have undergone catheterization procedures for assessment of complications. General cardiology patients may also be scheduled into the residents clinics should a need arise for an urgent evaluation. All patients will be specifically assigned to the resident, not to the precepting faculty member for the day.

After the evaluation of each patient, the resident will present the patient to the preceptor with a plan for evaluation and therapy. Both preceptor and resident will then see the patient again. The resident will dictate a full note using the e-scription dictation system and will be responsible for editing their note in the Partners Longitudinal Medical Record (LMR) system. Detailed instructions on the use of the dictation service and LMR have been included in **Appendix I.** Also included is a suggested template for new patient office notes and follow-up office notes.

The preceptors for the Monday sessions will rotate between Drs. Shah, Mauri, and Croce. The preceptors for the Wednesday sessions will rotate between Drs. Welt and Resnic.

The residents are not expected to have sessions during vacation weeks or during weeks away for educational conferences. These sessions will be cancelled at the start of the academic years. Any other cancellation of sessions will need to be approved by the program director. A total of six sessions for the year can be cancelled for any reason without expectation for make-up of the session. Any cancellations beyond six will need to be made up by the resident.

VII. Didactics

The Cardiovascular Division at Brigham and Women's Hospital has a weekly conference schedule covering all subspecialties of cardiovascular medicine. There are three conferences per week in which the residents of the training will be expected to participate:

Tuesday Weekly 7:30 AM- Division Clinical Conference/Morbidity and Mortality
Location: Bornstein Amphitheater

This is the key weekly conference for the division. On a given week, two sections within the division of cardiovascular medicine are selected to give a 30-minute case based presentation with the intent of providing an update on a timely topic within that subspecialty. Approximately six times per year, the cardiac catheterization laboratory is scheduled to make a presentation and the interventional cardiology resident may be asked to prepare a presentation with an attending.

Once per month, this conference serves as the divisional morbidity and mortality conference, which the interventional cardiology resident is expected to attend and participate if applicable.

Wednesday Weekly 7:00 AM- Core Curriculum Lecture

A faculty member will meet with the trainees to discuss a core topic in interventional cardiology.

Thursday Monthly 6:30 PM- Journal Club

Once per month, the interventional cardiology residents and faculty members will hold a journal club. The resident and attending assigned to present at this conference will choose the study to be discussed ahead of time and the relevant materials will be distributed electronically prior to the meeting. The resident will present the study and open the discussion.

Friday Weekly 7:00 AM- Cardiac Catheterization Conference

One Friday per month (12 per year) is devoted to the cardiac catheterization laboratory morbidity and mortality. During this conference, cardiac catheterization laboratory procedural statistics are presented and discussed, Also, all patients who undergo a cardiac catheterization procedure and suffer an adverse outcome (whether procedure related or not) are discussed in detail to identify areas for patient care improvement that may be implanted to prevent further adverse outcomes. The resident in conjunction with a faculty member will organize and present this conference on a rotating basis.

The remaining conferences for the year will be divided between case presentation conferences and focused topic presentations. During presentation of cases, the resident assigned to present cases will select cases from the prior weeks that pose interesting decision making challenges and/or technical challenges. The resident will be responsible for presenting the case and initiating discussion among attendants regarding management of the case.

During the focused topic presentations, the resident will be expected to present two cases that raise a particular topic (i.e. STEMI, chronic total occlusions, etc.). At the end of the case presentation, the resident will present no more than five slides summarizing the key data regarding some aspect of the topic discussed. The topics will be assigned by the program director.

One Friday conference time period per month will be set aside for the interventional cardiology faculty meeting. The residents will not attend this meeting but attempts will be made to schedule lectures by members of the BWH cardiovascular division during this time period. These lectures will be less directly related to interventional cardiology and more geared towards medical management of interventional cardiology patients. Topics will include evidence based strategies for the treatment of acute coronary syndromes and lipid management in patients with coronary artery disease.

Attendance will be taken at all conferences and attendance logs will be reviewed to ensure that the residents are attending conference. The resident at the VA is also expected to attend at least the Friday morning conference at BWH. The New Innovations residency management system (www.new-innov.com) is used to record attendance.

The schedule for the catheterization conference and the resident assignments will be determined and distributed by the program director prior to the start of the academic year. The schedule for the interventional cardiology conferences for the 2009-20010 academic year is located on the shared drive (T:\CCLSCH)**.**

VIII. Schedule 2009-2010

The rotation schedule is constructed by the program director after soliciting vacation requests and other requests for time off from the trainees. The schedule will be finalized by the end of April prior to the start of the next academic year. The final schedule will be located on the Partners Intranet shared drive T:\CCLSCH.

At BWH, there is a separate schedule for faculty which can be found on the shared drive in the Partners Intranet T:\CCLSCH. On this schedule will be the faculty call schedule, rotation schedule, interventional fellow's clinic schedule, and the interventional service rounding schedule. The VA faculty schedule can also be found at this location.

For last minute changes to the call schedule, an email should go to Nancy Brodrick (nbrodrick@partners.org) and the flow managers indicating the change. Additionally, the telecommunications department should be notified by email at oncalledits@partners.org (or group email PHS On Call Edits) thereby ensuring the electronic paging system is up to date.

For minor changes in the call schedule made several weeks ahead of time, an email needs to be sent to Nancy Brodrick so that the schedule on the shared drive can be updated.

For major changes in the schedule (i.e. switching whole weeks or rotations), this request needs to be discussed with the program director. Once approved, an email describing the change needs to be sent to Nancy Brodrick to update the shared drive.

A copy of the call schedule for AY 2009-2010 is located on the shared drive T:\CCLSCH.

IX. Self-Assessment

A self-assessment exam will be given to each trainee as the start of the year. The exam will be reviewed and graded and returned with explanations for each question. The purpose of the exam will be to alert the trainee to areas in interventional cardiology in which an improvement in fund of knowledge is necessary. The exam will be re-administered in the April prior to graduation to ensure that there has been improvements in overall fund of knowledge and to help the trainee assess areas requiring further study.

X. Curriculum

The Brigham and Women's Hospital Interventional Cardiology Training Program Core Curriculum is a comprehensive outline of all aspects of interventional cardiovascular medicine. The trainee should become familiar with all elements of the curriculum during the course of the year. Key resources for learning include:

CathSAP III- ACC/SCAI

Donald S Baim, Ed. Grossman's Cardiac Catheterization, Angiography, and Intervention, 7th Edition. Philadelphia: Lippincott, Williams, and Wilkins, 2006.

Interventional Fellows Institute (www.interventionalfelllowsinstitute.com)

www.tctmd.com

Copies of key publications will also be placed in the BWH Interventional Cardiology Literature Library which will be accessible through Partners Intranet.

Elements of the curriculum will be stressed during Friday morning meetings and Tuesday afternoon meetings during which lectures from Interventional Fellows Institute will be reviewed by Dr. Shah and the trainees.

XI. Evaluations of Residents, Faculty, and Program

At the conclusion of each quarter, each resident will be evaluated by each faculty member. The evaluations will be based on the resident's performance in each of the core competencies during their clinical rotations, research rotations, and ambulatory sessions. The core competencies are provided at the end of this section and will be reviewed with both faculty and residents at the start of the academic year. The residents will also have an opportunity to evaluate each of the faculty members. The New Innovations system (www.new-innov.com) will be used for evaluation solicitation and management. Copies of the evaluations that the faculty will complete for each resident and that each resident will complete for the faculty are provided at the end of this section.

Semiannually (November and April), the resident will be evaluated using a global evaluation tool created by Dr. Shah. A copy of this tool is provided at the end of this section. The resident will be examined during their initial assessment of a PCI patient with attention paid to history and physical, description of procedure and expectations, and obtaining of informed consent. The evaluation will continue into the catheterization laboratory with a focus on procedural planning, procedural skills, and medical decision making. The resident will also be evaluated on their post-procedural management of the patient.

The resident will also be evaluated on a semi-annual basis by the flow-managers/physician assistants as these are the catheterization staff members that have the greatest interaction with the residents. The residents will be evaluated on their professionalism and reliability in their interactions with members of the catheterization laboratory staff. A copy of this evaluation tool is provided at the end of this section. Residents will also be evaluated by their co-residents and by a selected patient on a semiannual basis.

The program director will meet with each resident at the end every quarter. The goal of this meeting will be to review evaluations, review procedure logs, discuss ongoing research projects, and discuss future goals (further fellowship training, employment). Goals of the next quarter will be set in each of these areas. During the meetings at the end of the second and fourth quarter, results of the global evaluation and the flow manager evaluations will also be discussed. The resident will have the opportunity to express any personal or systemic concerns they have with the training program. A summary of this meeting will be dictated for the resident's review, and the summary will be filed.

The program director will also review the residents' anonymous evaluations of the faculty members with the faculty members on a quarterly basis. Any specific issues will be discussed with the faculty member.

The program in general will undergo a monthly review during a meeting between the residents, program director, and program coordinator. This meeting will

occur between 8:00 AM and 8:15 AM after the conference on the last Friday of each month. Specific issues pertaining to training that the residents may have will be discussed and plans for correction will be formulated. Minutes from this meeting will be drafted, circulated, and filed.

During the last faculty meeting in December and June, the program will be reviewed between the program director, the remainder of the faculty, and the program coordinator. Any specific issues pertaining to the training program or particular residents and their development will be discussed and plans for correction will be formulated. Minutes from this meeting will be drafted, circulated, and filed.

At the conclusion of the academic year, the program director will write a letter for each resident documenting their performance during the course of the year. An assessment will also be given by the faculty as to the ability of the resident to embark on a career in interventional cardiology.

BI-ANNUAL GLOBAL PROCEDURAL EVALUATION OF INTERVENTIONAL CARDIOLOGY RESIDENTS

Resident's Name: _____

Evaluator's Name: _____ Evaluation Date_____ / _____ / _____

In evaluating the fellow's performance, use as your standard the level of knowledge, skills and attitudes expected from the clearly satisfactory fellow at this stage of training. **For any component that needs attention or is rated a 4 or less, please provide specific comments and recommendations on the back of the form.** Be as specific as possible, include reports or critical incidents and/or outstanding performance. Global adjectives or remarks, such as "good fellow," do not provide meaningful feedback to the resident.

PRE-PROCEDURE EVALUATION

1. HISTORY Fails to perform thorough historical evaluation of the patient and does not integrate historical data obtained to predict outcome of procedure	**Unsatisfactory** 1 2 3 **Satisfactory** 4 5 6 **Superior** 7 8 9	Takes a careful and thorough history of the patient, adequately assesses indications for procedure. Effectively uses history to predict outcome of procedure
2. PHYSICAL EXAM Performs a cursory examination without attention paid to critical cardiac findings such as heart failure. Does not perform a thorough vascular exam which affects outcome of procedure.	**Unsatisfactory** 1 2 3 **Satisfactory** 4 5 6 **Superior** 7 8 9	Performs thorough exam with an emphasis on the cardiovascular system. In particular, adequately assesses heart failure status, potential valvular abnormalities. Also performs through vascular exam with attention to potential access sites.
3. ASSESSMENT AND PLAN Fails to integrate subjective and objective information to form a sound diagnostic and therapeutic plan.	**Unsatisfactory** 1 2 3 **Satisfactory** 4 5 6 **Superior** 7 8 9	Integrates history, physical exam, and objective data to perform a comprehensive assessment of the patient with regards to procedures required and potential therapeutic options.
4. INFORMED CONSENT Provides only a cursory description of the procedure, and fails to discuss risks, benefits, and alternatives. Does not incorporate comorbidities to adjust risk.	**Unsatisfactory** 1 2 3 **Satisfactory** 4 5 6 **Superior** 7 8 9	Provides a thorough description of the procedure as well as the potential risks of the procedure for the patient. Adjusts risk according to comorbidities. Describes benefits and alternatives.

5. PROCEDURAL PLANNING Fails to institute necessary pre-procedural and intra-procedural therapies and does not adequately select access site and procedural equipment.	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Integrates history, physical exam, and assessment and plan to choose appropriate pre-procedure and intra-procedure pharmacotherapy as well as selection of access site and equipment.
6. OVERALL PROFESSIONALISM Behaves negatively or indifferently towards patient and staff; does not consider age, gender, and cultural issues in dealings with patients.	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates respect, compassion, and integrity, to patients and staff. Operates in an ethical fashion. Sensitive to age, gender, and cultural issues of the patient.
7. INTERPERSONAL INTERACTION AND COMMUNICATION SKILLS Lacks effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers
8. PATIENT CARE Effective patient care skill are lacking, resident does not provide compassionate, appropriate, or effective treatment of health problem	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Resident provides exceptional patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

Comments

INTRA-PROCEDURE EVALUATION		
1. DIAGNOSTIC CATHETERIZATION Shows sub-standard technical competence in all phases of diagnostic catheterization including access, catheter engagement, and manifold management	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Shows superior technical competence in all phases of diagnostic catheterization including access, catheter engagement, and manifold management
2. DATA INTERPRETATION Sub-standard skills at hemodynamic and angiographic interpretation. Fails to integrate information with clinical scenario	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Superior skills at interpreting hemodynamic and angiographic data and applying date to clinical scenario
3. CLINICAL DECISION MAKING Fails to use clinical information and catheterization data to formulate a safe and effective treatment plan	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Effectively uses clinical information and catheterization data to formulate a treatment plan that optimizes patient safety and treatment efficacy
4. PCI PROCEDURAL PLANNING Provides only a cursory description of the procedure, and fails to discuss risks, benefits, and alternatives. Does not incorporate comorbidities to adjust risk	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Uses medical and technical knowledge to select anticoagulation/antithrombotic strategy and effectively chooses PCI equipment taking into consideration technical challenges the case may pose
5. TECHNICAL SKILLS Skill level below expectations in terms of guide manipulation, guidewire manipulation, use of adjunct devices, and balloon/stent delivery	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates skills beyond level of training in terms of guide engagement, guidewire manipulation, adjunct device use, and balloon/stent delivery
6. POST-PCI ASSESSMENT Insufficient evaluation of post-PCI result; lacks systematic approach at identifying post-PCI complications such as dissections, under deployed stents, and perforations	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Utilizes an effective and systematic approach at identifying complications post-PCI such as guide dissections, edge dissections, under deployed stents, and wire perforations

7. INTRAPROCEDURAL COMPLICATION RECOGNITION AND MANAGEMENT Lacks insight into recognition and management of intraprocedural complications such as hypotension, arrhythmias, no-reflow, perforations	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Fully prepared to predict, recognize, and manage complications during the procedure including hypotension, arrhythmias, no-reflow, and perforations
8. MEDICAL KNOWLEDGE Fund of knowledge below that expected for level of training. Lacks knowledge base to effectively plan procedure and optimize outcomes	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates a fund of knowledge of interventional cardiology well beyond level of training. Is able to apply this knowledge for procedural planning and optimization of PCI outcomes
9. OVERALL PROFESSIONALISM Behaves negatively or indifferently towards patient and staff; does not consider age, gender, and cultural issues in dealings with patients	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates respect, compassion, and integrity, to patients and staff. Operates in an ethical fashion. Sensitive to age, gender, and cultural issues of the patient
10. INTERPERSONAL INTERACTION AND COMMUNICATION SKILLS Lacks effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers
11. PATIENT CARE Effective patient care skill are lacking, resident does not provide compassionate, appropriate, or effective treatment of health problem	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Resident provides exceptional patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

Comments

POST-PROCEDURE EVALUATION		
1. EXPLANATION OF RESULTS/FINDINGS Unable to effectively findings/results effectively to patients and family. Unable to utilize a manner of speaking easy for patients to understand	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Communicates findings/results effectively to patients and family; utilizes manner of speaking that is easy for patient and family to understand
8. PATIENT CARE **2. PAIN ASSESSMENT** Effective patient care skill are lacking, resident does not provide compassionate, appropriate, or effective treatment of health problem Does not attempt to assess and treat post-procedural pain, ignores complaints of patient	**Unsatisfactory** **Satisfactory** **Superior** **Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9	Resident provides exceptional patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health Very sensitive to patient's level of comfort; attentive to evaluation and treatment of post-procedure pain
3. POST-PCI MEDICAL THERAPY Does not prescribe appropriate therapies post-PCI, is unaware of evidence base for therapies that should be utilized	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Utilizes evidence based medicine to effectively prescribe therapies shown to be of benefit to post-PCI patients
4. DISCHARGE PLANNING Fails to see patient at time of discharge; does not spend adequate time discussing expectations, precautions, medications, and post-procedure follow-up	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Discusses with patient at time of discharge expectations, precautions, importance of medications and arranges post-procedure follow-up
5. MEDICAL KNOWLEDGE Fund of knowledge below that expected for level of training. Lacks knowledge base to effectively plan procedure and optimize outcomes	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates a fund of knowledge of interventional cardiology well beyond level of training. Is able to apply this knowledge for procedural planning and optimization of PCI outcomes
6. OVERALL PROFESSIONALISM Behaves negatively or indifferently towards patient and staff; does not consider age, gender, and cultural issues in dealings with patients	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates respect, compassion, and integrity, to patients and staff. Operates in an ethical fashion. Sensitive to age, gender, and cultural issues of the patient
7. INTERPERSONAL INTERACTION AND COMMUNICATION SKILLS Lacks effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Demonstrates effective communication skills that leads to effective treatment and teaming with patients, staff, and other healthcare providers

Comments

Evaluator's Signature _____ Date _____

EVALUATION INTERVENTIONAL CARDIOLOGY RESIDENT BY STAFF

Trainee's Name: _____

Evaluator's Name: _____ Evaluators Role: RN / PA / Other _____

Evaluation Date_____ / _____ / _____

In evaluating the residents performance, use as your standard the level of knowledge, skills and attitudes expected from the clearly satisfactory fellow at this stage of training. **For any component that needs attention or is rated a 4 or less, please provide specific comments and recommendations on the back of the form.** Be as specific as possible, include reports or critical incidents and/or outstanding performance. Global adjectives or remarks, such as "good fellow," do not provide meaningful feedback to the resident.

1. INTERPERSONAL /COMMUNICATION SKILLS: Does not establish minimally effective therapeutic relationships with pts and families; fails to build relationships through listening, narrative or nonverbal skills; does not provide education or counseling to pts, families or colleagues	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Establishes a highly effective therapeutic relationship with patients and families; demonstrates excellent relationship building through listening, narrative and nonverbal skills; excellent education and counseling of patients, families and colleagues; always interpersonally" engaged.
2. PROFESSIONALISM Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of pts, families, colleagues; irresponsible behavior	**Unsatisfactory** **Satisfactory** **Superior** 1 2 3 4 5 6 7 8 9	Always demonstrates respect, compassion, integrity, honesty; teaches/role models responsible behavior; total commitment to self-assessment; willingly acknowledges errors; always considers needs of patients, families, colleagues

Comments

Evaluator's Signature _____ Date _____

XII. Procedure Logs

All procedures performed by a resident at BWH can be easily searched using the catheterization laboratory reporting system (Witt). A similar database system at the VA can also be used to search procedures performed at the VA. However, each resident will be encourage to keep their own procedure log that will allow for easier tracking of procedural specifics (adjunctive devices used, interesting management decisions, complications, etc.) A suggested excel template will be emailed to each resident prior to the start of training. The procedural logs will be reviewed by Dr. Shah with the resident during the quarterly reviews.

XIII. Duty Hours

The common program requirements of the ACGME state that the in-hospital work week can be no longer than 80 hours and the resident must receive one full day off in seven. These requirements may be met over a four-week period. Furthermore, a resident cannot participate in continuous patient care for a period of greater than 24 hours and there should be a full 10 hours off between standard work shifts. An important goal of the interventional cardiology training program at BWH is to uphold these standards put forth by the ACGME. The structure of the call schedule and work-week is such that it is highly unlikely that a resident will be in the hospital for greater than 80 hours per week. The average frequency of full weekend call is one in four weekends. Therefore, during a given four week period, the resident should get six full days off per week. All call is taken from home and the interventional resident will not be the first call physician for any patient within the hospital. Should the unlikely situation arise that a resident has performed 24 hours straight of patient care, the resident will be relieved of his/her duties for the remainder of the day and Dr. Shah will assign any remaining patient care duties of that resident to a colleague or a PA.

As of July of 2007, the New Innovations system will be used by the residents to track duty hours. The residents will receive email reminders to complete their duty hour entries. The program coordinator will periodically scan the duty hour logs on New Innovations to ensure timely completion as well as to monitor for any violations of duty hour policies.

XIV. Vacation, Conferences, and Time Off

Each resident will be given three weeks of vacation for the academic year. The vacations will start from the Saturday of the weekend and end on the Sunday of the weekend after. There will be no clinical responsibilities during these time periods. Prior to the start of the academic year, the resident will have the opportunity to choose times that they would like to have off for vacation. The program director will make every effort to provide at least the first two choices for time off.

There are two fully funded conferences during the course of the year designed for interventional residents:

SCAI Interventional Fellows Course, December 2009
CRF Interventional Fellows Course, April 2010

All residents will be given time to travel to these conferences with coverage provided. This time will not count toward vacation time. In addition, the resident will be given time to travel to other conferences (Transcateheter Therapeutics, American College of Cardiology/i2 Summit, American Heart Association) at which any of their original research will be presented.

All invitations for travel to interventional cardiology related meetings need to be cleared with the program director prior to the resident committing to the travel.

It is understood that all interventional cardiology residents will need unexpected time away from training for other personal and professional matters. The program will make every effort to grant such requests. All requests for additional time off will need to be discussed with the program director so that coverage arrangements can be made.

XV. What Happens After Graduation?

Throughout the course of the year, the program director will be in discussions with the resident regarding future plans. In recent years, may trainees have elected to pursue further interventional training in peripheral and structural interventions. There is an option for a second year of training at Brigham and Women's Hospital under the leadership of Dr. Andrew Eisenhauer. There are two positions per year for this position of which there is generally at least one position available for a graduate of the interventional cardiology training program. All interested trainees are encouraged to apply to this program during the fall of their coronary intervention year. There are additional training programs in Boston in peripheral vascular disease (Massachusetts General Hospital and Caritas St. Elizabeth's Medical Center) and in structural interventions (Massachusetts General Hospital) that interested trainees will be encouraged to apply for.

For those interested in going into practice (either private practice or academic practice), the program director and members of the faculty will provide advice for trainees regarding how to find opportunities and how to assess which opportunities best match the trainee's interest. Advice will also be given regarding negotiating for the position.

XVI. Recent Program Graduates

2009

Kevin Bainey, M.D.	Clinical Interventional Cardiology Fellow and Clinical Trials Research Fellow McMaster University Hamilton, Ontario 2009-2011
Sripal Bangalore, M.D.	Clinical Trials Research Fellow Harvard Clinical Research Institute Boston, MA 2009-2010
Pallav Garg, M.B.B.S	Vascular Medicine Fellowship Massachusetts General Hospital 2009-2010
Thomas Todoran, M.D.	Vascular Medicine Fellowship Brigham and Women's Hospital 2009-2010

2008

Kevin Croce, M.D.	Staff Interventional Cardiologist Brigham and Women's Hospital 2008-present
Jean-Francois Dorval, M.D.	Vascular Medicine Fellowship Brigham and Women's Hospital 2008-2009
	Staff Interventional Cardiologist Vancouver General Hospital Vancouver, BC, Canada 2009-present
Marc Krichavsky, M.D.	Vascular Medicine Fellowship Brigham and Women's Hospital 2008-2009
	Staff Interventional Cardiologist Northwestern University Medical Center Chicago, IL 2009-present
Sahil Parikh, M.D.	Vascular Medicine Fellowship Massachusetts General Hospital 2008-2009

	Staff Interventional Cardiologist Case Western Reserve 2009-present
Klaus Tiroch, M.D.	Staff Interventional Cardiologist Herz Centrum, Munich Germany 2008-present

2007

Cathy Jeon, M.D.	Interventional Cardiologist Brockton Cardiology Associates 2007-2008
	Staff Interventional Cardiologist Lahey Clinic/Beverly Hospital 2008-present
Faisal Khan, M.D.	Staff Interventional Cardiologist Caritas St. Elizabeth's Medical Center 2007-present
Timothy Lee, M.D.	Research Fellow with Paul Ridker, M.D. 2007-2009
	Interventional Cardiologist Birmingham, AL 2009-present
Ashvin Pande, M.D.	Vascular Medicine Fellowship Brigham and Women's Hospital 2007-2008
	Staff Interventional Cardiologist Caritas St. Elizabeth's Medical Center 2008-2009
	Staff Interventional Cardiologist Boston Medical Center 2009-present

Appendix I LMR Instructions

Preferred Dictation Templates for Outpatient Notes

1. New Patient- Consult from another MD

Doctor Doctor, M.D.
3 Main Street
Anywhere, MA 22222 (please try to dictate MD's address whenever possible)

Dear Dr. Doctor,

Thank you for your kind referral of Patient Patient to the Shapiro Cardiovascular Center at Brigham and Women's Hospital. I saw him in consultation with Dr. Cath Lab Faculty in the Interventional Clinic for the diagnosis of diagnosis. We know you know his history well, but please allow us to summarize his history for our records.

As you know…(summarize HPI)

His past medical history is notable for (list all relevant diagnoses).

His present medications include….

His allergies include drug which gives him a reaction.

His social history…include where they live, marital status, kids, profession, exercise habits, tobacco use, and anything else that is relevant. This is a convenient place to put family contact and phone numbers.

His family history is notable for…focus on cardiac diseases.

Reivew of systems…please include two systems. Convenient ones are cardiac (no chest pain, PND, orthopnea, dyspnea, etc..) and musculoskeltal (he takes statin and has no myalgias or arthralgias). Include any other relevant systems and if there are no more, say all other negative.

On physical exam….include all vitals including weight, and full PE.

The EKG in the office shows ….describe and compare to any priors.

In the next paragraphs, report results of any relevant tests, particularly cardiac tests if not already mentioned in the PCI.

In summary, Mr. Patients has symptoms and test results. We are concerned about diagnosis….explain yourself and dictate a concise differential diagnosis, and plan of action. Include the fact that you will contact the patient with any test results and describe any further tests that you will order. Thank the referring MD for the opportunity to participate in the patient's care.

Sincerely,

You.

Please cc copies of the letter to all relevant physicians caring for the patient.

2. New Patient- self referral rather than from another MD

Dear Dr. Doctor,

I had the opportunity to meet Mr. Patient Patient in the Shapiro Cardiovascular Center at Brigham and Women's Hospital. I saw him in the Interventional Clinic with Dr. Cath Faculty. Mr. Patient has referred himself to us for further evaluation of diagnosis.

The rest is as above.

3. Return Visit

Dear Dr. Doctor,

I saw Mr. Patient in follow-up in the Shapiro Cardiovascular Center at Brigham and Women's Hospital. I saw him with Dr. Cath Lab Faculty in the Interventional Clinic. As you know, we are seeing him in follow up for the diagnoses of diagnoses….complete HPI.. Include you review of systems here i.e. he denies chest pain, PND, orthopnea, etc.

His present medications include…

On physical examination

The EKG in the office shows….when compared to prior tracings….

In summary, he is doing well and the plan is…

Appendix II Graduate Trainee Adverse Action Process Policy

GRADUATE TRAINEE ADVERSE ACTION PROCESS

1. "Adverse action" includes any of the following actions by the Hospital/training program: revocation or suspension of a right or a privilege; censure; written reprimand; imposition of a fine; required performance of public service or of a course of education; counseling or monitoring arising out of the filing of a complaint or a formal charge reflecting on the Graduate Trainee's competence to practice medicine.

The following actions are also included, only if related to the Graduate Trainee's competence to practice medicine or to a complaint or allegation regarding any violation of law, regulation or bylaw: restriction or non-renewal of a right or a privilege; denial of a right or privilege; resignation; leave of absence; withdrawal of an application; termination or non-renewal of a contract, or non-promotion to the next level of training.

2. Adverse action may be taken for due cause which shall include, but is not limited to, any of the following reasons:
(a) professional incompetence, or conduct that might be inconsistent with or harmful to good patient care or safety, lower than the standards of the Medical/Professional Staff, or disruptive to Hospital operations;
(b) conduct which calls into question the integrity, ethics or judgment of the Graduate Trainee, or which could prove detrimental to the Hospital's patients, employees or operations;
(c) violation of the bylaws or policies and procedures of the Professional/Medical Staff, the Hospital or Harvard Medical School;
(d) misconduct in science; and
(e) failure to perform duties.

3. Allegations of Misconduct in Science
Any allegation of misconduct in science pertaining to a Graduate Trainee shall not be governed by the procedures described here, but shall be addressed and resolved pursuant to the process set forth in the Bylaws of the Medical/Professional Staff and/or applicable policies.

4. Initiation of Adverse Action
The adverse action process may be instituted by the relevant Department Chair/Service Chief. The Department Chair/Service Chief shall give written notice of the action or proposed action and the reason for it to the affected Graduate Trainee. The Graduate Trainee shall also be notified of his/her right to a hearing as described below, in the event the Department Chair/Service Chief recommends one or more of the following adverse actions: revocation or suspension of a right or privilege; non-renewal of the Graduate Trainee agreement or non-promotion to the next level of training; and, if related to professional competence or a complaint or allegation regarding a law, regulation or bylaw, the restriction, reduction, or non-renewal of a right or privilege.

In the event that the adverse action is one which does not entitle the Graduate Trainee to a hearing, the action of the Department Chair/Service Chief shall be the final decision of the Hospital/training program in the matter.

5. Hearing Procedure
(a) In the event that the proposed adverse action is one which entitles the Graduate Trainee to a hearing, the Graduate Trainee shall also be advised of his/her right to appear with counsel and to introduce witnesses or evidence, subject to the limitations set forth in section (d) below. The Graduate Trainee shall have thirty days after such notice to request a hearing. Failure to do so shall constitute a waiver. In the event that the Graduate Trainee does not make a timely request for a hearing, the action of the Department Chair/Service Chief shall be the final decision of the Hospital/training program in the matter.
(b) If the Graduate Trainee requests a hearing, the Director of Graduate Medical Education shall appoint a hearing committee which shall consist of not less than three persons. One member shall be a Graduate Trainee. No person who has actively participated in the initiation of the adverse action or proposed action shall be appointed to the hearing committee.

(c) The Department Chair/Service Chief whose adverse action or proposed action occasioned the hearing or his/her designee shall have the initial obligation to present evidence in support of the action or proposed action. Thereafter, the Graduate Trainee requesting the hearing shall have the burden of providing by clear and convincing evidence that the action or proposed action was arbitrary or capricious, or unsupported by substantial evidence.
(d) The hearing need not be conducted strictly according to rules of law relating to the examination of witnesses or the presentation of evidence. The hearing committee shall consider such evidence as reasonable persons are accustomed to rely on in the conduct of serious affairs. The hearing committee may take notice of any general, technical, medical or scientific fact within the specialized knowledge of the committee, and shall decide all other procedural matters not specified in this policy. The Graduate Trainee may not retry, and the hearing committee and the Hospital/training program may rely on and accept as true, any finding of fact contained in a final decision by the applicable licensing, certifying or regulatory authority, or by Harvard Medical School in any investigation it conducts, provided the Graduate Trainee was a party to the proceeding in which the finding of fact was made.
(e) The hearing committee shall issue a written report of its findings of fact and recommendations concerning what adverse action(s), if any, should be taken by the Hospital. A copy shall be sent to the affected Graduate Trainee, the Director of Graduate Medical Education, the Chief Medical Officer and the relevant Department Chair/Service Chief.

6. Appellate Review

The Graduate Trainee or the Department Chair/Service Chief may request that the Board of Trustees conduct an appellate review of the matter, or the Board may conduct a review on its own initiative. The Board may provide for such review by a Board committee appointed for the purpose. If neither the Graduate Trainee nor the Department Chair/Service Chief request appellate review, and the Board does not decide to conduct such review on its own initiative, the decision of the hearing committee shall be the final decision of the Hospital/training program in the matter.

The proceedings of the Board of Trustees or Board appellate review committee shall be based on the record of the hearing, the report of the hearing committee and any written response which the affected Graduate Trainee and the relevant Department Chair/Service Chief wish to make. At the sole discretion of the Board of Trustees or Board appellate review committee, it may also consider new or additional information. If it does so, it shall share this information with the affected Graduate Trainee, the Department Chair/Service Chief and the hearing committee and give them the opportunity to respond.

The Board of Trustees or Board appellate review committee shall issue its decision in writing. A copy shall be sent to the affected Graduate Trainee, the Director of Graduate Medical Education, the Chief Medical Officer and the relevant Department Chair/Service Chief(s). It shall be the final decision of the Hospital in the matter.

7. Summary Adverse Action

The relevant Department Chair/Service Chief or his/her designee with the concurrence of the Chief Medical Officer, if available, may make an immediate summary suspension or take other immediate summary adverse action whenever such action is deemed necessary to maintain acceptable standards of care, safety, operation, integrity or ethics at the Hospital/training program. The person effecting such adverse summary action shall send a written report of such action and the reason(s) thereof to the Graduate Trainee involved, the Director of Graduate Medical Education and the Chief Medical Officer within three days of taking action. The Graduate Trainee may request review of this action within thirty days.

Upon such request the Director of Graduate Medical Education shall appoint a committee to review the summary suspension or other action. Within fourteen days of the Graduate Trainee's request, the committee shall decide whether the action appears to be substantiated by fact and is reasonable and should be continued in force, or whether it should be lifted. The committee shall send prompt written notice of its decision to the Graduate Trainee involved, the relevant Department Chair/Service Chief, the Director of Graduate Medical Education and the Chief Medical Officer.

Appendix III Graduate Trainee Leave Policy

GRADUATE TRAINEE LEAVE POLICY

General Note:
Since each Graduate Trainee must meet certain education requirements as defined by the program, ACGME and/or by the applicable American Board of Medical Specialties, the Graduate Trainee may be required by his/her Chief(s) or training program director to make up missed time upon returning from any leave prior to advancing to the next level of training and/or prior to completion of the training program. In such cases restoration of the Graduate Trainee's previous position beyond the term of the original appointment and provision of salary during the "make up" period are at the discretion of the Chief(s); the Hospital is not required to extend the period of training to accommodate this.

Whenever the need for leave is foreseeable, the Graduate Trainee will make a reasonable effort to schedule the leave so as not to unduly burden the program, and give notice no fewer than thirty (30) days before the leave is to begin. If the nature of the leave requires that the leave begin in fewer than thirty days, the Graduate Trainee will give notice as soon as is practicable. A Graduate Trainee should give the training program director notice as far in advance as possible regarding planned parental leave or family medical leave; six months (confidential) notice is requested for planned leave after the birth of a child, in order to facilitate appropriate scheduling.

Appropriate medical documentation and clearance must be provided to the Chief upon reasonable request.

I. Vacation Time

Each Chief shall determine the amount of annual paid vacation time to which Graduate Trainees in his/her department are entitled. The minimum entitlement is ten (10) working days annually. Vacation time must be used within the academic year.

II. Sick Time

A Graduate Trainee is entitled to twelve (12) paid sick days annually upon matriculation, to be used solely for illness significant enough to interfere with the performance of duty. Unused sick days may accrue to a maximum of sixty (60) days, but they may not be "cashed in".

III. Family and Medical Leave

A Graduate Trainee may request up to twelve (12) weeks of leave for any of the following reasons:

(a) Family medical leave: taken in order to care for a spouse, child or parent with a serious health condition. (A "serious health condition" is an illness, injury, impairment or physical or mental condition that involves either inpatient care or continuing treatment by a health care provider.)

(b) Personal medical leave: taken because of a serious health condition that makes the individual unable to perform the functions of his/her position.

(c) Parental leave: taken in the event of childbirth or placement of a child for adoption or foster care.

IV. Additional Provisions Relating to Family and Medical Leave

- Upon return from an approved family or medical leave of absence, the Graduate Trainee will be restored to the position left.
- If enrolled at the time of commencement of an approved family leave, the Hospital will maintain the Graduate Trainee's health and other insurance coverage at the same levels and cost to the individual during the period of leave.
- If an intermittent or partial leave (i.e., a reduced work schedule) is requested, the Chief and/or training program director may alter the Graduate Trainee's work schedule in order to accommodate the leave.

V. Personal Leave of Absence

Chiefs may on occasion, in accordance with the bylaws of the Professional Staff, grant a leave of absence to a Graduate Trainee for any form of extended illness or disability or for other compelling reasons (i.e., personal leave of absence). Such leave must be requested in writing with maximal advance notice prior to the requested leave date.

VI. Salary Continuance

Salary will be continued as follows:

- Family medical leave: Graduate trainees may use vacation time, but *not* accrued sick time, for family medical leave. Salary will be continued only in *exceptional* circumstances, at the discretion of the Chief.
- Personal medical leave: The Graduate Trainee must use any accrued sick time while on personal medical leave. At the discretion of the Chief, the Graduate Trainee may use vacation time while on personal medical leave in order to provide salary continuance. An additional period of salary continuance may be given at the discretion of the Chief up to a maximum of ninety (90) days. (Long term disability insurance may apply after that period of time.)
- Parental leave: Graduate trainees who have delivered a child are eligible for salary continuance for a period of up to eight weeks following childbirth, and are not required to use any accrued sick or vacation time during the leave. Graduate trainees requesting leave in the case of adoption or paternity will have salary continuance at the discretion of the Chief. For any parental leave, vacation time may be used to provide or extend a period of paid leave up to a maximum of twelve weeks.
- Personal leaves of absence: Graduate trainees may use vacation time, but *not* accrued sick time, for personal leave. Salary will be continued only in *exceptional* circumstances, at the discretion of the Chief.

Appendix IV Graduate Trainee Moonlighting Policy

GRADUATE TRAINEE MOONLIGHTING POLICY
Policy regarding professional activities outside the scope of the educational program

> **Note:** Those sections of this policy highlighted in ***bold italics*** apply specifically to graduate trainees in programs accredited by the ACGME (Accreditation Council for Graduate Medical Education).

This policy addresses professional activities that you may undertake as a physician that are outside the scope of your graduate medical education program, hereinafter referred to as "moonlighting".

As a graduate trainee, your training experience and responsibilities must have your highest professional priority at all times. All clinical trainees must be available, alert and fully responsive and responsible for all of their clinical and training activities at the Hospital(s); no activities outside the scope of the training program should interfere with these learning opportunities and their attendant service responsibilities.

Given the clear priority of training, the leadership of each program decides whether its training requirements are compatible with any professional activities outside the scope of the training program. The Chief of Service has the right to prohibit all types of moonlighting for his/her trainees.

Activities outside the scope of the training program:
Work within the institution (as well as at other health care institutions) is considered moonlighting if it is not part of your residency or fellowship program and is therefore optional and separately paid. This definition pertains even if the work is supervised by attending physicians and even if it is identical to activities that are part of your residency or fellowship program.

Moonlighting cannot be required of you by your program director or Chief of Service.

If you wish to engage in such activities and your Chief does not prohibit participation in such additional professional activities, you **must** accomplish the following steps:
1. You **must** obtain a full Massachusetts medical license.

2. Prior to accepting any moonlighting responsibilities, you **must** submit to your Chief and/or program director in writing a letter listing the institutions for moonlighting activities, the scope of the proposed activities and the maximum number of hours (per week and per month) of proposed moonlighting (template provided below).
3. You **must** receive from the Chief and/or program director a signed copy of the letter, indicating permission to proceed.
   - It is the responsibility of the moonlighting trainee to update this letter (and have it signed again by the Chief and/or Program Director) when necessary to reflect proposed changes to the number of hours spent in moonlighting activities and/or the sites where moonlighting occurs.
   - ***It is the responsibility of the program director to ensure that a copy of this letter is kept in your file, as required by the ACGME.***
   - No outside professional activities may be undertaken during the weekday hours of 8:00 a.m. to 6:00 p.m. (except during vacation periods) without the express written permission of the Chief and/or program director.
4. You **must** arrange for your own malpractice insurance to cover professional activities outside the educational program through: (a) the institution at which you will be moonlighting; (b) Promutual; or (c) extension of your CRICO insurance, which may be approved in specific circumstances as described below.

If you are permitted to engage in professional activities described as moonlighting, you should be aware that the effect of these activities upon your performance in the training program will be monitored; any adverse effects may lead to withdrawal of permission to moonlight by your training program director or Chief of Service.

You should be aware that, under Massachusetts Board of Registration in Medicine regulations, you will be required to list on your Hospital re-appointment application form all health care facilities at which you have provided any patient care over the previous three years.

Please note: In addition to the parameters outlined in this policy, **most residents and fellows employed on a J-1, H-1B or O-1 visa are <u>ineligible</u> to moonlight or have further restrictions imposed by the Immigration and Naturalization Service (INS) and must abide by their policies.** See last section below for details.

<u>Authorized use of CRICO Malpractice Insurance</u>:
You are generally covered for malpractice through the Controlled Risk Insurance Company (CRICO) **only** for activities performed within the scope of your formal training program at the Massachusetts General Hospital, the Brigham and Women's Hospital and defined affiliates. CRICO will extend coverage in some specified circumstances. You must refer to the CRICO Insurance Manual for details and must comply with the required procedures for extending coverage.

<u>PGY-1 and -2 Residents:</u> CRICO will **<u>not</u>** extend malpractice insurance for PGY-1 or PGY-2 interns/residents.

PGY-3 Residents: If your Chief/program director authorizes you to moonlight, you may request that your CRICO malpractice insurance cover such professional activities outside the scope of the educational program.

Moonlighting within the Harvard medical system: CRICO coverage requires that there is an exchange of letters between the Chief of Service at the institution where the resident is scheduled for malpractice insurance and the Chief of Service where the resident plans to moonlight.

Moonlighting outside the Harvard medical system: The following additional criteria articulated by CRICO must be met:

1. There must be an exchange of permission letters between the Chiefs of Service at the training institution and the moonlighting site(s);
2. A moonlighting waiver form and checklist must be signed by your Chief "for each rotation during which extended coverage is requested";
3. You may moonlight "only during research rotations, subspecialty rotations and other rotations with lighter clinical call. Residents who moonlight during research rotations must remain on the schedule of insured physicians maintained by the Named Insured";
4. You "may not moonlight in an emergency room outside the Harvard medical system unless enrolled in the Harvard Affiliated Emergency Medicine Residency Program. If a resident is enrolled in this program, the guidelines stipulated for fellows will apply.";
5. You "may not exceed the maximum number of hours per week that the [resident's] hospital has defined….";
6. You must fully complete and sign the "3rd year resident" waiver form and complete the application procedure as defined in the CRICO Insurance Manual.

PGY-4 (and above) Residents:
As above for PGY-3 residents, except that numbers 2, 3 and 6 under "Moonlighting outside the Harvard medical system" do not apply.

Fellows: CRICO insurance coverage may be extended to fellows for services outside the scope of their hospital training, within or outside of the Harvard medical system, with the express written approval of the Chief of Service as evidenced on the appropriate waiver form. Additional criteria apply for fellows moonlighting in emergency rooms outside of the Harvard medical system; please consult the CRICO Insurance Manual for details.

Note: The above requirements apply only to moonlighting at Massachusetts hospitals. CRICO may cover moonlighting outside of Massachusetts in some circumstances; please check the CRICO Insurance Manual for details.

Moonlighting information for International Medical Graduates **(Holders of F-1, J-1, H-1B or O-1 Visas):**

- F-1—Practical Training: Eligible to moonlight.
- J-1—Exchange visitor: Activity and/or compensation outside the defined parameters of the approved residency or fellowship training program is **not** permitted.

- H-1B: Employer-specific and limited to the position and duties included in the employer's application to INS. The H-1B visa application may include services provided at multiple locations, provided that the application includes mention of said multiple locations. Employment with a separate employer (i.e., most moonlighting) exceeds a typical H-1B application. An outside employer who wishes to employ a "moonlighter" **must** file an application with INS to employ the resident or fellow.
- O-1—Alien of Extraordinary Ability: See restrictions described for the H-1B visa.

mplate Letter Between Graduate Trainee Requesting Moonlighting Privileges and the Program Director or Chief

r Dr. _____ (Chief) and Dr. _____ (Program Director):

e: _____

reby request permission to engage in professional activities outside the scope of my residency/fellowship training program , "moonlighting"). Specifically, I request permission to work at the following health care facilities:

te: include "home" institution/s, if applicable)

_____

_____

_____

_____

ll limit the hours of moonlighting to a maximum of 60 per month, and will not allow my "duty hours" (i.e., the sum of time nt in the training program **plus** time moonlighting) to exceed limits set by the program director ***and by the ACGME and the diology RRC. The RRC duty hours requirements include: less than 80 hours per week.*** I recognize that the dency/fellowship program is my highest professional priority and I will not let additional professional activities interfere with . I have read and understand the Partners Graduate Trainee Moonlighting Policy and will abide by it.

cerely,

gned by Graduate Trainee) (Date)

proved by: _____
ief and/or Program Director) (Date)

required by the ACGME, the program director must ensure that a copy of this letter is kept in the trainee's file.

Appendix V Graduate Trainee Redress of Grievance Policy

GRADUATE TRAINEE REDRESS OF GRIEVANCE POLICY

1. Grievances pertaining to the training program, faculty or work environment should first be directed to the training program director in writing, and copied to the Service Chief and the Director of Graduate Medical Education. If the Graduate Trainee prefers to request advice about a possible grievance prior to or in lieu of directing a complaint to the training program director, s/he should contact the Director of Graduate Medical Education (DGME) or the Associate Director of GME (ADGME).

2. A written response to the grievance should be provided by the training program director within two weeks. If no response is received or if the response is not satisfactory to the Graduate Trainee, the Graduate Trainee should contact the Director or Associate Director of Graduate Medical Education. The DGME (or ADGME) will meet with the Graduate Trainee and the training program director if further information is needed, and will present the issue to either the Hospital-based GME Committee or the Partners Education Committee for resolution.

Appendix VI Guidelines for Supervision of Interventional Cardiology Residents

Brigham and Women's Hospital
Department of Medicine, Cardiovascular Division
Interventional Cardiology Fellowship Program

Policy re: Clinical Trainee Supervision

Interventional Cardiology Trainees will treat patients at Brigham and Women's Hospital and the West Roxbury Veteran's Administration Hospital only under the supervision of attending physicians in the specialty of interventional cardiology. Each patient will be assigned an attending physician of record who will be responsible for the care of the patient during their interventional procedure. The attending physician of record will also be responsible to determine and implement the appropriate level of supervision of the trainee.

Patients will be notified of the name of the attending staff physician responsible for their care. Patients will also be notified that clinical fellows will participate in their care and will be supervised by staff physician(s).

Fellows are encouraged to seek advice and input from their attending staff physician.

The supervising physician's involvement will be documented in the medical record.

Appendix VII Duty Hours Policy

Brigham and Women's Hospital
Department of Medicine, Cardiovascular Division
Interventional Cardiology Training Program

Policy re: Duty Hours for Interventional Cardiology Trainees

All Interventional Cardiology trainees will adhere to the Institutional Policy re duty hours. Duty hours will include:

- All patient care activities, both inpatient and ambulatory, whether scheduled or not, and include time if a trainee is called in from home
- Administrative activities related to patient care
- Scheduled academic activities

Interventional Cardiology fellows will not exceed 80 hours per week, averaged over a four-week period.

Interventional Cardiology fellows will have at least one day (24 hours) off in seven, averaged over a four week period.

Interventional Cardiology fellows will have 10 hours off between regular scheduled shifts.

Interventional Cardiology fellows will not be scheduled to work in excess of 24 consecutive hours.

The Program Director will monitor the frequency of extended shifts, moonlighting activity, and urgent patient care requiring the clinical fellow to return to the hospital during call from home.

The Interventional Cardiology Fellows should report any pattern of excessive duty hours to the Program Director or Department Chief.