

**University Nebraska Medical Center
Section of Cardiology
Interventional Cardiology Fellowship**

DESCRIPTION OF THE ROTATION

The interventional cardiovascular service is an outpatient and inpatient service. The major focus is the inpatient service. This inpatient service is based exclusively at the Nebraska Health System (NHS) consisting of the combined University and Clarkson Hospitals. The one and half year old cardiac catheterization laboratory is located in the Clarkson Hospital building. There are two intensive care units and three telemetry units at the Nebraska Health System. The interventional fellowship includes two full-time academic interventional cardiologists and two clinically appointed private practice interventional cardiologists. The interventional fellows training is provided by the full complement of interventional faculty members. The interventional service consists of one to two academic staff attending physicians each day, an interventional fellow and a cardiovascular fellow assigned to the catheterization laboratory. Patients are referred to the interventional service from the inpatient ward services. These are patients on the cardiology primary service or those on other services who are being followed with cardiology in consultations. Some patients are admitted to the interventional inpatient service. These include patients referred initially as outpatients who undergo an interventional procedure requiring a minimum of an overnight hospitalization. The interventional procedure may have been electively scheduled in a patient with known coronary artery disease or ad hoc following a diagnostic catheterization. Patients requiring longer hospitalization and more intensive care are admitted to the primary cardiology service. There is also a significant number of patients referred from the Omaha VA Medical Center either as inpatient transfers or scheduled outpatients. The VA invasive case manager and cardiology case manager at NHS coordinate the transfer and follow-up care. The patients are admitted to one of three telemetry units (7N, 8N, and 5W) or one of two intensive care units. Patients rounds are twice a day. The first time is in the morning prior to starting in the catheterization laboratory. The second is in the afternoon prior to catheterization conference. Rounds generally last 30 to 60 minutes.

All patients are seen by the attending and interventional fellow prior to the procedure. The history, physical examination, laboratory data, electrocardiograms, chest x rays and prior catheterization studies are reviewed by the attending and interventional fellow. The indications, methods and potential outcomes of the procedure are discussed with the interventional fellow. The cardiovascular catheterization fellow is allowed to participate in most but not all of the interventional cases. A history and physical is dictated for the outpatient or inpatient transfers by the interventional fellow. The attending writes a pre-procedure note on all patients. The discharge summary for patients on the interventional service is preformed by the interventional fellow. The case manager is responsible for coordinating discharge planning. The number of patients undergoing interventional procedures averages 3 to 4 per day. The outpatient service is based at the Omaha VA Medical Center. This clinic is staffed one half day per week by the interventional attending, interventional fellow and VA invasive case manager. The primary purpose is for follow up care of VA patients who have undergone interventional procedures in the Nebraska Health System or other outside facilities. Most of the remaining patients seen in the clinic are for follow up care having undergone coronary bypass surgery. The average number of patients seen in clinic is eleven.

The interventional fellow is also very active in the cases performed by the clinical appointed private

practice members who are an integral part of the interventional fellowship program. The fellow participates in the care of these patients, hospitalized at the Nebraska Health System, in the same manner as the other interventional faculty.

RESPONSIBILITY OF INTERVENTIONAL FELLOW

The interventional fellow is responsible for all aspects of care for patients admitted to the interventional service and of the care related to the procedure of those patients assigned to the primary cardiology service or other services. The fellow will discuss all aspects of the planned care for the patients with the appropriate faculty member and is expected to be on rounds twice daily with the attending which averages 3 to 4 patients per day. He/she will attend the daily catheterization conference. The fellow is required to actively participate in a research project. One day a week will be assigned for research time. Call is one week a month exclusively at the Nebraska Health System. The interventional fellow does not make rounds on the weekends. The interventional fellow will participate in the interventional clinic for one half day per week at the Omaha VA Medical Center on Tuesday mornings.

SUPERVISION

All patients undergoing interventional procedures are seen and examined by the interventional fellow and interventional attending prior to the procedure. Every aspect of the patient's care including pre-procedure planning, peri-procedure considerations and post-procedure care are discussed with the interventional fellow. The interventional attending is present during all interventional procedures. He/she will see the patients following the procedure with the interventional fellow.

The interventional fellow meets with every attending on a one on one basis regarding each case. This is a teaching forum by which the fellow may ask questions to the supervisory physicians. Supervisory physicians are also available on call for the interventional service when the interventional fellow needs assistance.

INTERVENTIONAL FELLOW TEACHING/SUPERVISION OF OTHER FELLOWS

The interventional resident will present at the catheterization conference on a scheduled basis. These conferences are attended by faculty and residents. They will also present a conference two times a year to the Division of Cardiology. The interventional fellow will not be responsible for teaching other subspecialty or internal medicine residents.

PATIENT ASSIGNMENT

Patients requiring percutaneous revascularization are assigned to the Interventional Cardiology Program through several mechanisms. Most of the diagnostic catheterizations are performed by interventional attendings. Patients may be identified at the time of catheterization and undergo adhoc percutaneous revascularization after discussion with the referring physician. Other patients may be referred following the recommendation of the cardiology group at the daily catheterization and cardiac surgeons.

COMMUNICATION SYSTEMS

The interventional fellow meets with every attending on a one on one basis regarding each case. This is a teaching forum by which the fellow may ask questions to the supervisory physicians. Supervisory physicians are also available on call for the interventional service when the interventional fellow needs assistance.

FELLOW'S TEACHING RESPONSIBILITIES

The interventional resident will present at the catheterization conference on a scheduled basis. These conferences are attended by faculty and residents. They will also present a conference two times a year to the Division of Cardiology. The interventional fellow will not be responsible for teaching other subspecialty or internal medicine residents.

Interventional fellow will be responsible for the care of patients undergoing interventional procedures. This will include the evaluation and planning prior to the procedure, peri-procedure management, and post-procedure care. They will be responsible exclusively to the interventional service.

Fellows in the three year program will provide care for those patients assigned to the interventional fellow.

The interventional fellow will also be on call for the interventional service, as designated. The interventional fellow will be directly accountable to the interventional attendings at each institution. The interventional fellow will be responsible for the outpatient clinic duties at the Omaha VA Medical Center.

The interventional cardiology fellow will be responsible for those patients assigned to the interventional service. This will include pre-procedure, peri-procedure and post-procedure care. The fellows in the three year cardiovascular fellowship will be responsible for the care of those patients not seen by the interventional fellow. The interventional attendings will supervise the interventional fellow.

The interventional fellow will not be responsible for patients that are treated by non-interventional program attendings.

The interventional fellow may give written or verbal order on their patients. They should countersign all verbal orders within 24 hours.

DISCHARGE

All discharges are to be done in a timely fashion. Discharge summaries are required by Medical Records and are usually done by the house staff. A discharge summary must be completed within 24 hours of discharge. Care should be taken to plan the appropriate and correct follow-up, noting the condition at discharge. Referring physicians should receive copies of records. It is important that **all** the referring physicians receive copies, particularly the primary care/Internal Medicine physician.

HOSPITAL RECORDS

The hospital chart is a medical and legal document and allows for exchange of specific communication about the patients. We hope that your entries will be accurate, legible and respectful of the rights and privacy of the patient and other medical personnel. Carefully documented medical need for hospitalization will help to avoid difficulty with utilization review. In the same regard, do not indicate that the patient is ready for discharge until the day he/she actually leaves.

PERFORMANCE OF PROCEDURES

On all of the cardiology services, the fellow and staff discuss the clinical history, physical, examinations, and other objective data on all patients. The differentials are discussed as well as the treatment and

follow-up plans. All procedures are conducted with the staff present. If there are invasive procedures, the staff and fellow are both scrubbed in and the supervising faculty instructs or observes the fellow performed the procedure. After hours on all, the fellow will discuss patients with the faculty over the phone. If both feel comfortable with the plan, the faculty may not see the patient until the next day. If there is any question or the fellow requests the faculty to come in to see the patient, the faculty on call is required to come into the hospital.

The patient's attending physician must be notified before informed consent is obtained from the patient or the appropriate individual representing the patient.

Level of qualifications for procedures are as listed below.

PROCEDURES

		PGY1	PGY 2	PGY 3	PGY 4
1.	Left Heart Catheterization	x	x	x	x
2.	Right Heart Catheterization	x	x	x	x
3.	Vascular Closure				x
4.	Intra Aortic Balloon pumps	x	x	x	x
5.	Right Heart Biopsies	x	x	x	x
6.	Stent placement				x
7.	Brachtherapy				x
8.	Endocardial biopsy	x	x	x	x
9.	Rotational Atherectomy (Rota Blator)				x
10.	Swan Ganz catheter placement	x	x	x	x
11.	Balloon angioplasty				x
12.	Transthoracic Echo (TTE)	x	x	x	x
13.	Transesophageal Echo (TEE)			x	
14.	Dobutamine/Pharmacologic stress echo (DSE)	x	x	x	x
15.	Exercise echo	x	x	x	x
16.	Exercise treadmill (ETT)	x	x	x	x
17.	Pericardiocentesis	x	x	x	x
18.	Contrast echocardiography	x	x	x	x
19.	Holter/Event recorder	x	x	x	x
20.	Transeptal Catheterization				x
21.	Cardioversion (CV)	x	x	x	x
22.	Temporary pacemakers	x	x	x	x
23.	Permanent pacemaker	x	x	x	x
24.	ICD implantation	x	x	x	x
25.	Electrophysiology studies (EPS)				x
26.	Head-Up Tilt Table (HUTT)	x	x	x	x
27.	EP ablation				x
28.	Extraction of PM leads				x
29.	Extraction of ICD leads				x
		PGY1	PGY 2	PGY 3	PGY 4
30.	Pacemaker Implantation (New)	x	x	x	x
31.	Pacemaker Generator Exchange	x	x	x	

32.	BiVent Pacemaker Implantation	X
33.	AICD Implantation (New)	X
34.	AICD Generator Exchange	X
35.	BiVent AICD Placement	X
36.	Intravascular Ultrasound	X
37.	PTCA	X
38.	Fractional Flow Reserve	X
39.	Percutaneous Transuminal Valvuloplasty	X