DHMC DIAGNOSTIC RADIOLOGY
VIR PROGRAM MANUAL
AND ANGIO ON-CALL PEARLS
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ORIENTATION HIGHLIGHTS

1. On your first day on the service, arrive at seven am, in scrubs. Introduce yourself and make sure Marie (the scheduler) has your beeper number. Over the first week, you will become familiar with the routine; morning rounds, consenting patients, the focused physical exam. You should learn how to set up an angio table, basic functions of the controls, review sterile technique, and knot tying. Learn the basics of the pre-operative work-up: the template for the pre-procedure note, standard pre-procedure / pre-sedation orders, and essentials of the consent.

2. Organization of the day begins the day before. The next day’s schedule is posted in eD-H. Your responsibilities include writing the pre-op note (template in eD-H), obtaining consent, and writing the pre-procedure orders. Please ask the attending if there are any questions about risks to discuss for the consent or any particular lab values of interest. Read up on the procedure the night before. Scrub in for the procedure. Write the procedure note (see templates) after the procedure and follow-up the patient the next day. READ up on the technical aspects of the procedure. Be ready to present your patient at daily morning rounds at 7:15 am. The first case begins at 7:30 am.

3. The first Wednesday of the month will be staff meeting, the second will be fellow lecture, and the fourth will be Morbidity and Mortality conference.

4. Continuity over weeknights and weekends is important. A single resident or fellow must be on call each day. Verbal or written sign-outs should be given to the resident or fellow on call each day as well as Friday. If a weekend call results in a case to be done the following Monday, the resident or fellow on call over the weekend should communicate to those staffing the service Monday am.

5. All consults must be reviewed with an Interventional attending.

6. Dictations: Perform promptly, always include a precise INDICATION (signs and symptoms), detail of what was done—including images taken, and a statement as to whether the attending was present or not. There are templates for most of the procedures. A single note may be written as the procedure note and then used as the formal report (email the eD-H procedure note to “VIRreports” and it will be entered into IDX).

7. Be the nicest and most helpful person in the hospital to all patients and referring docs. Be solid.

DHMC: Dartmouth-Hitchcock Medical Center is located on Rte 120 between Lebanon and Hanover. The address is One Medical Center Drive, Lebanon, NH 03576. The angio section and Radiology Department are on the third floor at the north end of the hospital. Call 603-650-8575 to get the IR lab. Scheduling is through Marie or one of the IR schedulers.
CHAPTER 1: INFORMATION FOR NEW RESIDENTS AND FELLOWS

THINGS TO DO BEFORE STARTING YOUR VIR ROTATION
a. Read this manual
b. Get a username and password for PACS, IDX, and eD-H. These electronic systems are used to access patient lab data, prior radiology studies, and to dictate your reports.
c. Practice tying surgical knots – this simple skill is vital; we rely on you to suture catheters securely.

FIRST DAY ON THE SERVICE
a. Arrive for orientation at 7:00 AM sharp
b. Wear scrubs and white coat
c. Bring eye protection.

DO’S AND DON’TS

Do
a. know your patients well. This includes knowing their vital signs, tube outputs, past history and VIR history.
b. ask what you can do to help; pitch in wherever possible
c. admit when you don’t know something.

Don’t
a. alter or improvise the facts of a case because you failed to check or cannot remember every detail. Even little slips seriously undermine our confidence in you. If you forgot to check something, just say so. We’re all human.
b. argue with a referring physician about the indications for a procedure before you have seen the patient. Get the facts and tell them you will need to discuss the case with your attending.
c. be discourteous to referring physicians. A little ill will can undermine years of relationship building. You are expected to be polite at all times, regardless of the response on the other end of the phone. If the discussion becomes tense, raise the discussion to an attending level.
f. reject a request before discussing it with the attending.
CHAPTER 2: DAILY SCHEDULE

PATIENT ROUNDS

Our responsibility to patients and referring services does not end when the patient leaves our department. Whether a patient is on the VIR service or is admitted to someone else, we are responsible for follow-up on every procedure we perform. This means regular visits to the bedside as outlined below, with notes placed in eD-H. A standard “SOAP” note is recommended (follow the template in eD-H in the Radiology section, inpatient subsection).

Patients on the VIR service: All Vascular and Interventional inpatients must be seen and the visit documented with a note in the chart every day.

Patients on other services: Different types of procedures require different lengths of follow-up. Here are some general guidelines. When follow-up has been completed, specify in your last note that VIR is “signing off” the case.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Typical F/U Period</th>
<th>Purpose of Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Angiography</td>
<td>1 day (if anticoagulated, 5 days)</td>
<td>check for puncture site complications; changes in distal pulses.</td>
</tr>
<tr>
<td>Vascular interventions</td>
<td>As above, or until the response to therapy is documented (by ultrasound or clinical course), whichever is later</td>
<td>verify anticipated outcome; assist in planning additional treatment if necessary</td>
</tr>
<tr>
<td>Central Venous Access</td>
<td>1 day</td>
<td>check that the line is working, wound site clean and dry</td>
</tr>
<tr>
<td>Gastrostomy tubes</td>
<td>Daily x 3, and then at day 10</td>
<td>check for signs of ileus, peritonitis, tube function, general patient condition. Day 10 release stay sutures.</td>
</tr>
<tr>
<td>Drainage catheters</td>
<td>daily x 1 wk, then q od until discharge / tube removed</td>
<td>Follow tube output, WBC count, Temp, general patient condition</td>
</tr>
<tr>
<td>With Complication</td>
<td>By telephone or in person at 1, 2, 8, 16 hrs post-procedure. Continue daily notes until any related issues have been resolved.</td>
<td>Assure that adequate treatment or monitoring is instituted. Contribute to primary team management.</td>
</tr>
</tbody>
</table>

MORNING CONFERENCES

The general schedule is shown below but you are not expected to attend all of these every week, please consult the monthly staffing/call/conference schedules posted in the reading room for variations. Residents are expected to also attend all Departmental noon conferences.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>7am</td>
<td>Vascular Conf (Aud A)</td>
<td>GI Tumor Board (rad onc conf rm)</td>
<td>Neuro Conf</td>
<td>GI Conf (Aud G)</td>
</tr>
<tr>
<td>8:00am</td>
<td></td>
<td></td>
<td>VIR conference</td>
<td></td>
</tr>
</tbody>
</table>

VIR Didactic fellow lecture: second Wednesday from 8:00-9:00 AM in the VIR conference room. Formal lectures on various topics given by VIR staff and VIR fellows.
VIR Sectional meeting: Physicians, technical staff, nursing staff meet to discuss announcements, upcoming events/projects/research, equipment issues/acquisitions, staffing, billing issues. First Wednesday of the month.

VIR M&M: Monthly morbidity and mortality conference is held fourth Wednesday of the month, in the Angio Conference Rm. Discuss details surrounding the complication and research the literature to assess how best to avoid or treat the complication.

MORNING WORK ROUNDs

IR morning work rounds begin at 7:15am. Patients should be available for consent/exam at 7am, and then by the end of rounds the first patients should be in the angio suites, ready to go. The residents and fellows are expected to have obtained and reviewed all the pertinent information for patients including history, labs and imaging studies. A pre-procedure note should have been entered in eD-H the day before for the scheduled patients (leaving physical and ASA assessments for when the patient arrives). The assigned resident / fellow will briefly summarize the history and indication for the planned procedure. This 30 second summary should also discuss any contraindications for the procedure such as anticoagulation, bacteremia, etc. Annotations must be made on the board for issues that impede patient flow such as lack of consent, isolation, and blood-borne pathogens.

The attending “Doctor of the Day” will ask about “add-ons”. These include calls made to the on-call fellow, late faxes, etc. The add-ons will need to be assigned to residents or fellows, so be ready to volunteer. If you know that one of your patients will need to be brought down for a follow-up procedure, it is the best to make this known the day prior.

The second portion of VIR work rounds is a review of all inpatients being followed by the service. Each brief (1 minute) summary should include:

1. Overall condition: improving, stable, worse. If worse, why?
2. Signs and symptoms of infection. Note temps of 38.5 in a normal host or 38.0 in a compromised host are usually considered significant and should be mentioned.
3. Puncture site complications: hematoma, bleeding, pseudoaneurysm or change in distal pulses.
4. Tube output: especially if output is not following the expected trend.
5. Pertinent lab values: e.g. culture results for abscess drainage.

REMEMBER, brevity is essential to effective communication.

WORKFLOW

Procedures begin at 7:30am. Workflow is tracked on the large white board in the Angio Suite.

ADD-ONS

The schedule in VIR is constantly changing and usually 20-50% of the cases will be added-on to the schedule during the day. When you are contacted for an add-on, you should approach this as a request for consultation rather than simply taking an order. Avoid the temptation to argue with the referring physician about the need for the requested procedure but rather collect the following information on an intake sheet:

a. Patient’s name and location
b. Problem we are asked to evaluate
c. Brief history, include whether the patient is hemodynamically stable
d. NPO status, anticoagulation
e. Name and beeper number of the referring physician and attending.

Tell the referring physician that someone from our service will visit the floor shortly to evaluate the patient. Depending on the request, you might inform the referring physician about the next steps in the process.

a. Having recent labs (PT, platelets, creatinine) will facilitate our evaluation
b. Restricting the patient’s diet (no solids for 6-8 hrs, no liquids for 2-3 hrs) will facilitate any procedure that requires sedation
c. If the patient cannot provide consent, has the team established who usually handles these decisions? What is the best way of contacting that person?

d. Remind the referring physician to tell the patient about the planned procedure.

e. Let them know the patient will be placed on the ‘pending’ list, and we will get back with specifics.

Your next steps are:

a. Usually a brief interaction with an IR attending, e.g., “Got a request for a tunneled catheter on a patient named John Wayne on 3E, I'm going to go work it up, OK?” This interaction is particularly important on very busy days and in the mid/late afternoon (1-4PM) since the attendings may wish to triage requests and have you devote your time to another task or defer non-emergent cases to the next day’s schedule. The attending may also tell you to hand it off to another resident or fellow. Avoid the temptation to regurgitate everything you just learned in your phone conversation with the referring physician, if the attending wants details beyond the basics of who, what, and when, he will ask you for them.

b. If the procedure is to be done that day, make sure there is an order in eDH, go see the patient as soon as possible, obtain consent, write the pre-procedure note.

c. If the patient is to be postponed to the next day, add the case to the next day’s schedule (let the scheduler know there is an order in eDH, and that it should be put on the next day, per attending X). Remember to inform the patient and the referring physician about the postponement.

PATIENT WORK-UPS

The “work-up” is the consult which most often takes the form of a pre-procedure note (including sedation documentation), consent, and pre-procedure orders.

A. Inpatient vs. outpatient work-ups.

For the outpatients, either an H & P signed by DHMC admitting attending within 30 days must be in eDH, or our pre-procedure note must include the components of an H & P. If there is a note in eDH, all that is required is an update (within 24 hours of the procedure).

Inpatients will have a complete H & P on the chart, and the pre-procedure note takes the form of a consult or Focused H & P (that is required prior to conscious sedation). Templates are found in eD-H under inpatient or outpatient progress notes, titled “VIR pre-procedure note.” Or “IRPRE” The key elements are:

Indication (for procedure)
Proposed procedure
Presenting Dx / Chief complaint
Pertinent past medical / surgical history
Significant family history
Allergies (particularly to anesthetic or contrast)
Current Medications
Pertinent Review of Systems
Pertinent Physical Exam: include Mallampati score, heart, lungs, abdomen; ASA score
Assessment / Plan:
  indications and contraindications
  problem being treated
  anticipated procedure and potential variations
  minimal/moderate sedation or GA
  statement that consent was obtained
B. Consent

The procedure, its alternatives and potential complications must be discussed with the patient. Essentially all procedures carry the following risks and it is often useful to address a patient's fears regarding the procedure by outlining how we will minimize these risks during the procedure.

<table>
<thead>
<tr>
<th>Risk</th>
<th>How minimized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Local anesthetic and sedation</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Review of coagulation parameters, and for femoral artery punctures, the importance of keeping the leg flat.</td>
</tr>
<tr>
<td>Infection</td>
<td>The procedure is treated as minor surgery; prophylactic antibiotics are given where appropriate; patient to keep hands away from sterile field.</td>
</tr>
<tr>
<td>Allergy to medications</td>
<td>Review of allergies</td>
</tr>
</tbody>
</table>

An example of the consent portion:
The risks, benefits and alternatives were discussed with him. Risks include but are not limited to pain, bleeding, infection, damage to blood vessel, pneumothorax and allergy to medications. He understands and wishes to proceed. He indicated his understanding by signing the consent form.

Notes on consent:
1. Telephone consent requires a witnesses (either a fellow/resident/nurse)
2. Signed consent for interventional procedures is valid as long as the patient’s condition and procedure have not changed. An informed consent is valid for 8 months.
3. If surgical consent is incomplete and the patient has been premedicated for the procedure, the ultimate decision regarding proceeding is up to the attending physician. Careful documentation of this is required in the progress notes.
4. Emergency consent requires two physician signatures, one of whom can be from the service performing the procedure. Discussion between attendings is recommended.

C. Preprocedure orders

It is important that patients have running IVs; heplocks are not sufficient. Antibiotics are administered prior to the following procedures as listed in the table. The Appendix contains a more complete listing of antibiotic choices that includes substitutions in patients who are allergic to penicillins derivatives and cephalosporins.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Antibiotic and Dose</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunneled catheter or port</td>
<td>Cefazolin 1gm IVPB</td>
<td>Minimize chance of immediate infection by skin flora</td>
</tr>
<tr>
<td>Cholangiograms in liver transplant patients and biliary procedures</td>
<td>Cefazolin 1gm IVPB and Metronidazole 500 mg IVPB</td>
<td>Minimize chance of cholangitis and peritonitis</td>
</tr>
<tr>
<td>Abscess drainage</td>
<td>Dependent on abscess type – usually already being treated with antibiotics.</td>
<td>Minimize consequences of bacteremia which commonly occurs</td>
</tr>
<tr>
<td>Genitourinary procedures</td>
<td>Ciprofloxacin 500 mg PO or 400 mg IVPB</td>
<td>Minimize consequences of bacteremia which commonly occurs</td>
</tr>
<tr>
<td>Chemoembolization</td>
<td>Ceftriaxone 1 gm IVPB</td>
<td>Minimize rate of abscess formation</td>
</tr>
</tbody>
</table>
Note: All prophylactic antibiotics (except vancomycin) should be given to the patient immediately before the procedure so that blood levels are maximized during the procedure. Vancomycin must infuse over 60 minutes and should be started 45 minutes before the patient is called for.

PROCEDURES

This manual will not delve into details of individual procedures but will instead address universal issues. An overview of each procedure may be obtained from a text such as the Handbook of Interventional Radiologic Procedures by Kandarpa and Aruny.

Cap, mask and gown: we have adopted the policy that a cap and mask are required for all cases that require a sterile tray.

Universal precautions: Every procedure risks contact with blood or potentially infectious body fluids. Universal precautions are therefore required for all cases. You will need to obtain eye protection and must use it on every case.

Sharps: Needles, scalpels and other sharps must not be recapped. During procedures, place them point down in the red "sharp box". DO NOT RECAP SHARPS OR LEAVE THEM LYING ON THE PROCEDURE TRAY.

Orders: It is common to give a number of verbal orders during the case for drugs such as versed, fentanyl, and antibiotics. These orders will appear in eDH to be signed at the end of the case.

Procedure Note: If a full note (also used as final report) is not done, at least a short procedure note must be entered into eD-H (see post-procedure note Template) within an hour of case completion. Example:

<table>
<thead>
<tr>
<th>7/1/2001</th>
<th>VIR PROCEDURE NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0900</td>
<td>Procedure: Abd and LE angio; left ext iliac stent placement</td>
</tr>
<tr>
<td>Operators:</td>
<td>Jones, Smith</td>
</tr>
<tr>
<td>Meds:</td>
<td>1gm Ancef, 1mg Versed, 50 microgm Fentanyl</td>
</tr>
<tr>
<td>Access:</td>
<td>Lt CFA using 7Fr sheath</td>
</tr>
<tr>
<td>Contrast:</td>
<td>250cc Visipaque</td>
</tr>
<tr>
<td>Fluoro time:</td>
<td>21 min</td>
</tr>
<tr>
<td>Complications:</td>
<td>None</td>
</tr>
<tr>
<td>Preliminary Findings</td>
<td>1. Focal 90% stenosis left ext iliac with associated 30mm mean pressure gradient. Stented primarily and dilated to 7mm with no residual gradient</td>
</tr>
<tr>
<td></td>
<td>2. Min L SFA disease; 3 vessel runoff</td>
</tr>
<tr>
<td></td>
<td>3. 30% stenosis right ext iliac with no pressure gradient</td>
</tr>
<tr>
<td></td>
<td>4. Min R SFA disease, 3 vessel runoff</td>
</tr>
</tbody>
</table>

Procedure note templates are available for most procedures in eDH. Notes may be typed directly into the patient’s electronic medical record. These notes are then transferred into IDX as the final report. The IDX signature queue should be reviewed and reports signed at least at the end of every day.

Post-procedure Orders: All patients that have skin punctures or leave with devices in them should have post-procedure orders written. There are pre-printed orders for Angiography, Uterine Artery Embolization, and Chemoembolization.

Routinely:
Please check puncture (drain/catheter) site for bleeding or hematoma and check vital signs q 15’ x 4 then q 30’ x 2. Then q 60 min x 1.
In case of bleeding, apply direct pressure and notify Angio.
Bed rest with (R/L arm / leg) at (rest / flat) x two hours.

DICTATION AND CODING

A post-procedure note must be written on every procedure, and be placed in eD-H before the day’s end.
Templates are available for most procedures.

The dictated reports for VIR procedures fulfill two functions. First, these reports are a means of communicating details of the procedure, findings and the follow-up plan to the referring physician. Second, these reports serve as supporting documents for the charges submitted to the third party payer. Coding is the process of selecting the appropriate CPT-4 codes that are then used to generate a professional bill. VIR coding is complex because almost every procedure results in two paired CPT-4 codes. Two codes are needed to describe the work of doing the procedure (procedural codes) and interpreting the resulting images (supervision and interpretation codes). Generally, each selective catheterization results in an additional pair of CPT codes.

Professional coders select the appropriate codes in most procedures, but the dictating physician is responsible for providing the information used in this process. While you are not expected to code your cases, you must dictate reports in a manner that clearly justifies the billed codes. In particular: why you did it (indication in terms of diagnosis or signs and symptoms) and what exactly you did. The latter requires explicit description of catheter position at each step of the case. Fellows should familiarize themselves with the coding materials included in the appendix (as you will presumably be responsible for coding your own cases after fellowship).

When on the imaging rotation, you may dictate most of your reports.
In the Lanier dictation system, it is important to dictate according to the following order using this report structure:

<table>
<thead>
<tr>
<th>Step</th>
<th>Item</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accession number</td>
<td>Used by the transcriptionist to bring up patient record. The accession number must be given first or else the transcription simply waits until you get to it and must backtrack to enter or confirm the other information</td>
</tr>
<tr>
<td>2</td>
<td>Patient name</td>
<td>Used to confirm the header information</td>
</tr>
<tr>
<td>3</td>
<td>Physicians</td>
<td>Your name, assisting resident/fellow, attending name</td>
</tr>
<tr>
<td>4</td>
<td>Indication:</td>
<td>Critical that you give an ICD-9 code or describe the indication appropriately. Indicating that a PICC line was placed for ‘infection’ is inadequate, while ‘left foot ulcer’ is appropriate. (Specific signs and symptoms are preferred.) When choosing the ICD-9 code/indication pick the one that represents why you are doing the procedure. For example, cervical cancer often leads to ureteral obstruction and then to bilateral percutaneous nephrostomies (PCNs). These PCNs need to be periodically changed. The correct indication for these PCN changes is ureteral obstruction not cervical ca. This information is best gathered at the time of the procedure (when the chart is available, rather than trying to reconstruct later).</td>
</tr>
<tr>
<td>5</td>
<td>Procedure vs. Findings vs. Impression</td>
<td>Separate into sections what was done (procedure—including medications given) from what was found/seen (objective findings) from what you think it means (impression).</td>
</tr>
</tbody>
</table>
PREPARING FOR TOMORROW’S CASES

Tomorrow’s preliminary schedule will be posted on the board at the end of the day. That “attending of the day” or fellow should coordinate who will do what (fellow, resident, NP), and then that person will be responsible for making sure that the case is ready to go; do the work-up, present the case at morning rounds, and be primary operator or first assistant on that case. A pre-procedure note (see eD-H Template) should be entered and signed the day prior to the procedure. (The PE and ASA score will be added prior to the procedure for outpatients.) Inpatients should be consented the day before the procedure.

Additional cases will be added to this preliminary schedule in three different ways.

<table>
<thead>
<tr>
<th>Add-on method</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Postponed cases</td>
<td>These cases should be added to the scheduling board along with the initials of the resident or fellow who is responsible for working up the case</td>
</tr>
<tr>
<td>2 Planned follow-up procedures on VIR inpatients (ex. Tube checks, exchanges)</td>
<td>These cases should be added to the scheduling board along with the initials of the resident or fellow who is following the patient</td>
</tr>
<tr>
<td>3 Calls to lab / new orders in eD-H (add-ons).</td>
<td>The tech or nurse will place the requisition on consent clip on board, or write patient name/info on small white board. Residents and Fellows should check for these periodically. It is important that you double-check the procedure date and location at the top of the scheduling sheet. Work-up the patient, discuss it with an attending, and it will get prioritized.</td>
</tr>
</tbody>
</table>

Calling outpatients and working up inpatients.

Outpatients need to be worked up the day before their procedure. This work-up begins by reviewing the requisition form and notes in eD-H for details regarding the scheduled procedure. Junior residents should quickly learn to formulate plans for straightforward procedures but should consult senior residents, fellows and attendings for assistance with more complex procedures. Prior exams should be reviewed and a plan for the upcoming procedure worked out. This should be done prior to their presentation at morning rounds.

All outpatients who will receive conscious sedation must be called the day before their procedure. This is usually performed by the nurses. This call serves to:

1. Confirm appointment time and location
2. Review the patient’s history and indications for the planned procedure
3. Review the patient’s medications (anti-coagulants) and allergies (need to premedicate)
4. Confirm that patients who will receive sedation have arranged transportation home by a responsible adult. The new sedation guidelines do not permit patients to go home by public transportation or cab.
5. Confirm that patients who will receive sedation abide by the NPO guidelines (no solids for 6-8 hrs, no clear liquids for 2-3 hrs). The NPO guidelines are included in the appendix.
6. Discuss the planned procedure with the patient. This discussion will often include the risks, benefits and alternatives of the procedure. Patients often appreciate reasonable estimates of how long the procedure will take so that they can make transportation arrangements (estimate generously). Answering machines – if you are unable to reach a patient, do not leave a message on an answering machine since such messages can compromise patient confidentiality.
Inpatients for tomorrow’s schedule. The assigned residents or fellows are responsible for formulating treatment plans and these plans should be discussed with an attending unless the plan is straightforward. Inpatients should be worked up before the morning rounds (with consents and pre-procedure orders written).

UPDATING AND TROUBLESHOOTING TOMORROW’S SCHEDULE
The fellow and resident are responsible for updating and troubleshooting the next day’s schedule. Special attention is paid to cases that are in the first slots of the schedule. These patients will be called for at 7:00AM automatically. IF THE PATIENT IS NOT READY FOR ANY REASON, IT MUST BE MOVED OUT OF THE FIRST SLOT AND EVERY EFFORT SHOULD BE MADE TO REPLACE IT WITH AN APPROPRIATE CASE. Often simple inpatient cases that are completely worked up are good first cases. That these should be called early for ‘first case’ should be communicated to the technical staff the evening prior.

CHAPTER 3: BEING ON CALL
CALL SCHEDULE
One fellow or resident is on-call at all times. The on call fellow’s beeper must be left on at all times.

Both the resident and fellow should stay until at least 5:00 PM on weekdays to cover any late cases that are added on and also to be available to work up cases added to the next day’s schedule.

WEEKEND CALL
Continuity over the weekend is crucial.

The on-call fellow is responsible for checking the fax for requisitions and working up these cases prior to Monday morning.

CHAPTER 4: GUIDELINES FOR COMMON WORK-UPS
 CENTRAL VENOUS CATHETERS
Consult written as note in chart

HPI: Why is catheter needed? How many lumens needed? How long will catheter be needed?
PMH: Any conditions which will affect catheter placement. Renal insufficiency (on dialysis or headed there) is contraindication to subclavian vein access.
PSH: Prior central venous catheters? If so, when and where? Prior catheters increase the likelihood of scar and thrombosis. Prior surgery of neck or subclavian region?
Allergies: If there is an allergy to one of drugs which will be used during the procedure (Ex. Contrast, antibiotic, versed, fentanyl, etc) ascertain the nature of the “reaction” and when it occurred. A childhood rash from penicillin is not automatic indication for vancomycin. A cephalosporin such as Ancef is often appropriate for patients labeled as penicillin allergic.
Meds: Review med list paying particular attention to anticoagulants
Physical exam:
General condition: NAD or deathly ill?
Vitals: Recent fevers? Bacteremia and sepsis are contraindications to placing a long term (Hickman) catheter. Check weight in obese patients since 325 lbs is the table limit.
Head, neck and upper extremities: Examine patient for scars from prior catheters and signs of central venous occlusion such as arm/neck swelling and dilated superficial veins. Assess skin integrity since we will want to avoid placing catheters adjacent to wounds/rashes.

Airway (Mallampati score) pulmonary, cardiac and abdomen (required for sedation form)

ASA:

Labs: Review the coagulation parameters to determine if patient falls outside accepted limits. If so, discuss this issue with an attending and formulate a plan. Borderline cases may still be considered acceptable.

Imaging: Review prior pertinent imaging studies

Assessment/Plan: Review indications for central venous catheter and propose an appropriate treatment plan (E.g., “Plan to place DL tunneled hemodialysis catheter using imaging guidance”).

Consent: consent the patient for placement of a catheter into a large vein of the neck or chest using xray and ultrasound guidance. Risks include: pain, bleeding, infection, damage to the vessel, damage to adjacent structures and allergy to medications.

Preprocedure orders:
1. Pt scheduled for central venous cath placement by VIR on ___ Date ___.
2. Diet order (Consult NPO guidelines but in general: NPO after midnight, except for medication with sips of water)
3. Void on call to radiology
4. IV with long extension tubing and 3-way stopcock (fluids per HO). Note: Heplock is not acceptable, it must be a running IV and prefer IV be placed on same side as catheter will be placed.
5. Transport to VIR by stretcher
6. Antibiotics (required for all tunneled catheters). Most patients receive 1gm Ancef IVPB on call. Patients with severe prior reaction to penicillin will need to receive 1gm Vancomycin IVPB over 1 hour. Inpatients need to have Vancomycin administered on the floor prior to their procedure. Outpatients needing vancomycin should be instructed to arrive 90 minutes before their scheduled procedure (ex. 7:30 for 9AM port) so that Vancomycin can be slowly infused.

GASTROSTOMY TUBES

HPI: Why is catheter needed (nutrition vs. decompression)? How long will catheter be needed?

PMH: Any conditions which will affect catheter placement. Severe reflux and gastroparesis often require GJ tube.

PSH: Prior abdominal surgery, esp gastric surgery? If so, when and where?

Allergies: If allergy to one of drugs which will be used during the procedure (E.g., Contrast, antibiotic, versed, fentanyl, etc) ascertain the nature of the “reaction” and when it occurred.

Meds: Review med list paying particular attention to anticoagulants and steroids. Chronic steroid use is an indication for T-tac placement since these patients heal slowly.

Physical exam:

General condition: NAD or deathly ill?

Vitals: Recent fevers? (bacteremia and sepsis are contraindications to placing a Gtube). Check weight in obese patients since 325 lbs is the table limit.

Abdomen: Examine patient for scars from prior catheters and surgeries. Assess skin integrity since we will want to avoid placing catheters adjacent to wounds/rashes. Assess patient for ascites.

Airway, pulmonary, cardiac (required prior to sedation)

Labs: Review the coagulation parameters to determine if patient falls outside accepted limits. If so, discuss this issue with an attending and formulate a plan.

Imaging: Review prior pertinent imaging studies for ascites or gastric surgery
Assessment/Plan: Review indications for gastrostomy and propose an appropriate treatment plan (E.g., “Plan to place gastrostomy tube for enteral feeding.”).

Consent: consent the patient for placement of a feeding tube using x-ray guidance. Risks include: pain, bleeding, infection, damage to adjacent structures and allergy to medications. Discuss each risk and how we will strive to minimize each (E.g., Sedation for pain, sterile procedure for infection, imaging guidance to avoid damage, etc).

Preprocedure orders:
1. Pt scheduled for G-tube placement by VIR on ___ Date ___.
2. NPO after midnight
3. Void on call to radiology
4. IV with long extension tubing and 3-way stopcock (fluids per HO). Note: Heplock is not acceptable, it must be a running IV.
5. Transport to VIR by stretcher
6. Place NG tube and connect to low intermittent suction

Post Procedure Percutaneous Gastrostomy Tube Placement Orders
1. VS and check epigastric tube site for bleeding/hematoma q 15 min X 4; q 30 min X 2; q 1 hr X 2.
2. May begin tube feeding at 50 cc NS / hr after 8 hours if bowel sounds have returned.
3. Change dressing QD/prn, clean site with soap and water QD /prn
4. Stay sutures should be removed after 10 days by RN or MD.
5. Call VIR for T> 99.5, redness, swelling, drainage or bleeding at gastrostomy site

ANGIOGRAMS
Consult written as note in chart

HPI: Why is angiography needed (claudication, limb threatening ischemia, diagnostic dilemma, etc)? What is the location, duration and severity of symptoms?

PMH: Cardiac risk factors: Tobacco, diabetes, hypertension, hypercholesterolemia, coronary artery disease, carotid artery disease

PSH: Prior vascular surgery procedures? CABG? Carotid endarterectomy?

Allergies: If allergy to one of drugs which will be used during the procedure (E.g., Contrast, antibiotic, versed, fentanyl, etc) ascertain the nature of the “reaction” and when it occurred.

Meds: Review med list paying particular attention to anticoagulants, antihypertensive and steroids. Aspirin is not considered an anticoagulant and aspirin is indicated for any patient over 40. Many patients have concomitant renal artery stenosis and it is important to know the number of antihypertensives and degree of blood pressure control when contemplating renal artery intervention. Chronic steroid use is a contraindication to angioplasty/stent.

Physical exam:

General condition: NAD or deathly ill?

Vitals: Blood pressure, Heart rate and rhythm, temp. Check weight in obese patients since patients over 440 lbs are a problem.

Airway, pulmonary, cardiac – required for sedation

Abdomen: Examine patient for scars from prior catheters and surgeries.

Extremities: Check and record pulses: femoral, popliteal, DP, PT using the following 4 point scale. Assess and record axillary and radial pulses in any patient with diminished/absent femoral pulses
<table>
<thead>
<tr>
<th>Score</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>++++</td>
<td>Markedly increased – ex. Pseudoaneurysm</td>
</tr>
<tr>
<td>+++</td>
<td>Increased – aortic regurg or hypertensive</td>
</tr>
<tr>
<td>++</td>
<td>Normal</td>
</tr>
<tr>
<td>+</td>
<td>Diminished but palpable</td>
</tr>
<tr>
<td>0</td>
<td>Not palpable – use a doppler and record if present by Doppler</td>
</tr>
</tbody>
</table>

Labs: Review the coagulation parameters to determine if patient falls outside accepted limits. If so, discuss this issue with an attending and formulate a plan. Above normal creatinine discussion with the attending, most often we will elect to hydrate the patient with normal saline at 100-200cc/hr. Review vascular lab studies. Record ABI in your note. Note if vascular lab predicts proximal or distal disease.

Imaging: Review prior angiograms, MRA, etc

Assessment/Plan: Summarize findings and make prediction about level and extent of disease (inflow, outflow, runoff). Determine indication for angiography and formulate plan for the procedure (access site, probability of percutaneous intervention, etc)

Consent: consent the patient for insertion of catheter into artery and injection of x-ray contrast. Also consent all patients for possible angioplasty/stent placement and infusion of medicine to dissolve blood clot. Risks include: pain, bleeding, infection, damage to blood vessel and allergy to medications. If axillary access is a possibility also include risk of stroke and damage to nerves in the arm. If embolization is a possibility, also include risk of tissue ischemia and damage to nontarget tissues. Discuss each risk and how we will strive to minimize each (ex. Sedation for pain, sterile procedure for infection, imaging guidance to avoid damage, etc).
APPENDICES

1. COAGULATION PARAMETERS

VASCULAR PROCEDURES

Arterial:
- Elective: INR < 1.75, Platelets > 80,000
  - Stop heparin 4 hours before procedure
- Emergent: INR < 2.75, Platelets > 50,000

Venous:
- INR < 1.75, Platelets > 50,000
  - Turn off heparin when patient is called for.

NONVASCULAR INTERVENTIONAL PROCEDURES

All procedures: INR < 1.75, Platelets > 80,000
  - Stop heparin 4 hours before procedure

CENTRAL VENOUS CATHETERS

- Temporary CVC: INR < 3.25, Platelets > 25,000
- Tunneled Catheter or Port: INR < 2.25, Platelets > 50,000

For any coagulation parameters outside of these guidelines please consult with an attending staff.

2. ANTIBIOTIC PROPHYLAXIS FOR VASCULAR AND INTERVENTIONAL PROCEDURES

1. Routine diagnostic and therapeutic vascular procedures. No antibiotic prophylaxis necessary

2. Percutaneous abscess drainage.
   a. Patients should already on intravenous antibiotics. The antibiotics should be continued through the procedure. Appropriate antibiotics should then be selected on the basis of cultures taken from the abscess cavity.
   b. Patients not currently on intravenous antibiotics: Selection of antibiotics for these patients should be handled in consultation with the housestaff or attending physician. If questions arise, infectious disease consultation can be obtained. Subsequent antibiotics should be selected on the basis of the cultures taken from the abscess cavity.

3. Biliary procedures – appropriate antibiotics coverage can be broken into three categories:
   a. Routine patients: Zosyn 3.375 mg IVPB.
   b. In patients that are penicillin allergic, but cephalosporin tolerant – Vancomycin 1 gm IVPB plus Ancef 1 g IV and Metronidazole 500 mg IV.
   c. In penicillin allergic and cephalosporin allergic patients – Aztreonam 1 gm IVPB plus Metronidazole 500 mg IVPB plus Vancomycin 1 gm IVPB.

4. Genitourinary procedures.
   - Cefazolin (Ancef) 1 gm IVPB when the patient is on the table in Radiology. Aztreonam 1 gm IVPB is to be substituted in the cephalosporin-allergic patient.

5. Patients with special circumstances (e.g., prosthetic heart valves, arteriovenous malformations, etc.) will be handled on a case-by-case basis with infectious disease consultation if appropriate.

NOTE

All prophylactic antibiotics (except Vancomycin) should be given to the patient when they are on the table in the radiology department. Maximum blood levels should be present during the procedure. Vancomycin must infuse over 60 minutes and therefore should be started 45 minutes before patient is called for.

3. APPROACH TO THE CONTRAST MEDIA (CM) REACTOR PATIENT

I. Informed consent for any and all risks involved (written informed consent optional).
   A. A most important first step is careful consultation and documentation with the clinician and the patient regarding the indication(s) for the repeat contrast material assisted procedure. If diagnostic or therapeutic options exist which do not involve intravascular contrast media, these should be carefully explored. Consider CO2 contrast.

II. Proposed pretreatment protocol for use of contrast media.
   A. Start large bore intravenous line.
   B. Benadryl 50 mg IV*, 5-10 minutes prior to injection. (Oral or IV administration of Benadryl is optional).
   C. Corticosteroids
      1. See premedication protocols under online policies posted on the Intranet.
   D. Monitor patient appropriately during study.

III. We use low osmolar contrast media (eg: visipaque) for all patients.


4. CHARGES AND DICTATIONS FOR HOLDING AREA OR BEDSIDE PROCEDURES
   We do not charge patients for removal of G-Tubes, etc., unless extra effort is involved. An example of such extra effort would be fluoroscopic assistance for PICC removal. Even though we do not charge patients, an addendum should still be added to their most recent VIR report indicating that the catheter has been removed.

5. NPO GUIDELINES

Unless the patient is otherwise fluid-restricted, oral hydration should be encouraged for 24 hours prior to intravenous contrast. If moderate sedation is contemplated, the moderate sedation guidelines apply, unless the patient is undergoing a procedure that requires a longer fasting period.

<table>
<thead>
<tr>
<th>Ingested Material</th>
<th>Minimum Fasting Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Liquids:</td>
<td>2 hours</td>
</tr>
<tr>
<td>Breast Milk:</td>
<td>4 hours</td>
</tr>
<tr>
<td>Infant Formula:</td>
<td>6 hours</td>
</tr>
<tr>
<td>Non-human Milk:</td>
<td>6 hours</td>
</tr>
<tr>
<td>Light Meal:</td>
<td>6 hours</td>
</tr>
</tbody>
</table>

NOTES: These recommendations apply to healthy patients who are not undergoing elective procedures. They are not intended for women in labor. Following the guidelines does not
guarantee a complete gastric emptying has occurred. The fasting periods noted above apply to all ages. Examples of clear liquids include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee. Since non-human milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period. A light meal typically consists of toast and clear liquids.


**Procedure Specific Fasting Guidelines**

If the patient is also contemplated to receive moderate sedation, the fast should start at the times recommended in the moderate sedation fasting guidelines unless procedure specific guidelines are stricter.

<table>
<thead>
<tr>
<th>NPO after MN: G/GJ</th>
<th>Clear Liquids Only after MN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubes</td>
<td>TIPPS w/o general anesthesia</td>
</tr>
<tr>
<td>TIPPS w/ general</td>
<td>Chemoembolization</td>
</tr>
<tr>
<td>Anesthesia</td>
<td>Biliary procedures</td>
</tr>
<tr>
<td></td>
<td>UFE</td>
</tr>
</tbody>
</table>

6. **PREPROCEDURE ORDERS**

1. Patient on schedule for ____________ in Interventional Radiology (x58757) on (date) at (time).
2. NPO except for medications with sips of water, starting (time).
3. If the patient is insulin dependent, call HO for insulin orders.
4. Patient to have IV running. IV fluids: ______________________
5. Labs: __________________________
6. Antibiotics: ______________________
7. _____ signature and printed name, beeper number

7. **BASIC VIR CODING FOR RESIDENTS**

Although coding will be done by others, you need to understand the basics and take responsibility for making sure that your dictation supports the billed codes and that the submitted requisitions reflect the work performed.

Interventional procedures are typically billed using two types of codes. Procedural codes reflect the work done in manipulating needles, catheters, guidewires, etc and are often termed “surgical codes”. The supervision and interpretation codes (S&I codes) reflect the work done in acquiring and interpreting images. Since the vast majority of radiology exams (ex. CTs, plain films, MRs, etc) centers around acquiring and interpreting images, most radiologists focus on S&I codes. However, procedural codes have much greater reimbursement than S&I codes.

**CODING CENTRAL VENOUS ACCESS**
The codes used for the majority of central venous access procedures are listed below. Procedures are coded using a series of codes which roughly correspond to various CPT codes.

### Procedural (“Surgical”) Codes

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>CPT 2000 Description</th>
<th>IDX RAD description found on requisition</th>
<th>RVU</th>
</tr>
</thead>
<tbody>
<tr>
<td>36489</td>
<td>Place central venous catheter (subclavian, jugular, or other vein) e.g. for central venous pressure, hyperalimentation, hemodialysis or chemotherapy; percutaneous, over age 2.</td>
<td>PL CTR VEN CATH</td>
<td>2.51</td>
</tr>
<tr>
<td>36533</td>
<td>Insertion of implantable venous access device, with or without subcutaneous reservoir</td>
<td>PORT PLMT</td>
<td>8.96</td>
</tr>
<tr>
<td>36535</td>
<td>Removal of implantable venous access device, and/or subcutaneous reservoir</td>
<td>PORT REMOVAL</td>
<td>4.41</td>
</tr>
</tbody>
</table>

### Supervision and Interpretation (S&I) Codes

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>CPT 2000 Description</th>
<th>IDX RAD Description</th>
<th>RVU</th>
</tr>
</thead>
<tbody>
<tr>
<td>76942</td>
<td>Ultrasonic guidance for needle biopsy, radiological supervision and interpretation</td>
<td>SONO GuidedAccess</td>
<td>1.03</td>
</tr>
<tr>
<td>76003</td>
<td>Fluoroscopic localization for needle biopsy or fine needle aspiration</td>
<td>Fluoro GD BX/ASP</td>
<td>0.83</td>
</tr>
<tr>
<td>76000</td>
<td>Fluoroscopy (separate procedure) up to one hour physician time</td>
<td>INS VEN ACC, S&amp;I</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### CODING ARTERIOGRAMS

The procedural codes for angiography can be very complex and most of this topic is beyond the scope of this manual. Simply put, the codes reflect the amount of work used to position a catheter in various vessels in an average patient. Most arteriograms start with a catheter in the aorta via the femoral artery and this work generates a nonselective catheter code. In some cases, a catheter is subsequently used to select a branch of the aorta. This work generates a selective catheter code.

#### ARTERIOGRAM PROCEDURAL CODES

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>RVU</th>
</tr>
</thead>
<tbody>
<tr>
<td>36200</td>
<td>Introduction of cath into aorta – from femoral, axillary or brachial puncture</td>
<td>5.11</td>
</tr>
<tr>
<td>36215</td>
<td>First order selection, above the diaphragm</td>
<td>7.18</td>
</tr>
<tr>
<td>36216</td>
<td>Second order selection, above the diaphragm</td>
<td>8.09</td>
</tr>
<tr>
<td>36217</td>
<td>Third order or higher selection, above the diaphragm</td>
<td>9.75</td>
</tr>
<tr>
<td>36218</td>
<td>Additional second or higher order selection with a vascular family, above the diaphragm</td>
<td>1.58</td>
</tr>
<tr>
<td>36245</td>
<td>First order selection, below the diaphragm</td>
<td>7.54</td>
</tr>
<tr>
<td>36246</td>
<td>Second order selection, below the diaphragm</td>
<td>8.23</td>
</tr>
<tr>
<td>36247</td>
<td>Third order or higher selection, below the diaphragm</td>
<td>9.73</td>
</tr>
<tr>
<td>36248</td>
<td>Additional second or higher order selection with a vascular family, below the diaphragm</td>
<td>1.60</td>
</tr>
</tbody>
</table>

When dictating reports, it is critical to describe the starting point (right or left common femoral artery) and the position of the pigtail catheter’s tip. These catheters are commonly positioned into the ascending thoracic aorta, descending thoracic aorta, suprarenal abdominal aorta, suprarenal aorta and distal infrarenal aorta.

When selective work is performed, it is crucial to precisely describe where the catheter tip was positioned.
You must avoid vague statements such as “right iliac artery” (do you mean common, internal or external iliac artery?) or “hepatic artery” (you mean common, proper or right/left hepatic artery?). If the procedure involves selecting multiple branches, you must explicitly report each selective catheterization.

The supervision and interpretation (S&I) codes for arteriography reflect what portions of the vascular tree were studied by DSA. Your reports need to include descriptions which support the S&I codes billed.

### ARTERIOGRAM SUPERVISION AND INTERPRETATION CODES

<table>
<thead>
<tr>
<th>CPT</th>
<th>MIR</th>
<th>Short Description</th>
<th>RVU</th>
</tr>
</thead>
<tbody>
<tr>
<td>75605</td>
<td></td>
<td>Thoracic aortogram</td>
<td>1.14</td>
</tr>
<tr>
<td>75650</td>
<td></td>
<td>Arch – nonselective</td>
<td>1.49</td>
</tr>
<tr>
<td>75625</td>
<td></td>
<td>Abdominal aortogram</td>
<td>1.14</td>
</tr>
<tr>
<td>75630</td>
<td></td>
<td>AIF done from suprarenal aorta through the feet without moving the catheter.</td>
<td>1.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The usual MIR practice of imaging the legs from a distal aortic flush run,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>moving the catheter up to the suprarenal aorta and imaging the abdominal aorta,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>generates two codes (abd aorta and bilateral extremities).</td>
<td></td>
</tr>
<tr>
<td>75710</td>
<td></td>
<td>Extremity, Unilat</td>
<td>1.14</td>
</tr>
<tr>
<td>75716</td>
<td></td>
<td>Extremity, Bilat</td>
<td>1.31</td>
</tr>
<tr>
<td>75722</td>
<td></td>
<td>Renal, Selective, Uni (includes aortic flush as well as the selective renal angio)</td>
<td>1.14</td>
</tr>
<tr>
<td>75724</td>
<td></td>
<td>Renal, Selective, Bil (includes aortic flush as well as bilateral selective renal angio)</td>
<td>1.49</td>
</tr>
<tr>
<td>75726</td>
<td></td>
<td>Visceral, each vessel (includes aortic flush as well as visceral run – ex. SMA, celiac, etc)</td>
<td>1.14</td>
</tr>
<tr>
<td>75736</td>
<td></td>
<td>Pelvic angio selective (used only when selecting internal iliac arteries)</td>
<td>1.14</td>
</tr>
<tr>
<td>75741</td>
<td></td>
<td>Pulmonary, Unilateral</td>
<td>1.31</td>
</tr>
<tr>
<td>75743</td>
<td></td>
<td>Pulmonary, Bilateral</td>
<td>1.66</td>
</tr>
<tr>
<td>75774</td>
<td></td>
<td>Additional selective study after basic angio</td>
<td>0.36</td>
</tr>
<tr>
<td>SAMPLE REPORT</td>
<td>BILLABLE EVENTS</td>
<td>CODE</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Typical Renal Donor</td>
<td>The skin over the right CFA was infiltrated with 1% lidocaine. This vessel was accessed and a guidewire passed centrally. A 5Fr pigtail catheter was positioned in the suprarenal aorta and DSA images were recorded in multiple projections. At the end of the procedure, the catheter was removed over a guidewire and pressure held at the right groin until hemostasis was achieved.</td>
<td>Nonselective aortic cath Abdominal aortogram</td>
<td>36200 75625</td>
</tr>
<tr>
<td>Typical AIF</td>
<td>The skin over the right CFA was infiltrated with 1% lidocaine. This vessel was accessed and a guidewire passed centrally. A 5Fr pigtail catheter was positioned in the distal abdominal aorta and stepping DSA exam of the lower extremities performed. The catheter was then advanced into the suprarenal aorta and DSA images of the abdominal aorta were recorded. At the end of the procedure, the catheter was removed over a guidewire and pressure held at the right groin until hemostasis was achieved.</td>
<td>Nonselective aortic cath Bilat extremity angio Abdominal aortogram</td>
<td>36200 75716 75625</td>
</tr>
<tr>
<td>Typical Mesenteric</td>
<td>The skin over the right CFA was infiltrated with 1% lidocaine. This vessel was accessed and a guidewire passed centrally. A 5Fr pigtail catheter was positioned in the supraceliac aorta and DSA images were recorded in both the AP and left lateral projections. This catheter was then exchanged for a 6Fr sheath. The celiac artery was then selected using a C-2 catheter and DSA images obtained. The SMA was selected using a C-2 catheter and DSA images obtained in multiple projections. The IMA was selected using a SOS catheter and DSA images recorded. At the end of the procedure, the catheter was removed over a guidewire and pressure held at the right groin until hemostasis was achieved.</td>
<td>Since the later selective codes include the work of the nonselective aortic catheter placement, do not bill the nonselective code. Since the later visceral angios include the flush aortogram, do not bill for the abdominal aortogram First order selection, visceral angio First order selection, visceral angio. First order selection, visceral angio.</td>
<td>36245, 75626 36245, 75626 36245, 75626</td>
</tr>
</tbody>
</table>