GO PUBLIC!

SANTA CLARA VALLEY MEDICAL CENTER
Hospital & Clinics

Valley Specialty Center
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scvmc.org

Interventional Radiology Referral Guidelines

Interventional Radiology Clinic Location:	Hospital, Building M 1st floor 751 S. Bascom Ave.
Interventional Radiology Hold Room – Staging & Recovery area	
VMC Phone:	(408) 885-2510
Scheduling Phone:	(408) 793-4247
Alt Scheduling Phone:	(408) 793-2530
Interventional Radiology Clinic Fax:	(408) 885-4456

This information is designed to aid practitioners in making decisions about appropriate medical care. These guidelines should not be construed as dictating an exclusive course of treatment. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institutional type of practice.

E-CONSULT DISCLAIMER:

E-consults are based on the clinical data available to the reviewing provider, and are furnished without benefit of a comprehensive evaluation or physical examination. All advice and recommendations must be interpreted in light of any clinical issues, or changes in patient status, not available to the reviewing provider. The ongoing management of clinical problems addressed by the e-consult is the responsibility of the referring provider. If you have further questions or would like clarifications regarding e-consult advice, please contact the reviewing provider. If needed, the patient will be scheduled for an in-office consultation.

All URGENT consultations require provider-to-provider communication (VMC operator or resident pager 408-236-0625). If your patient has a medical emergency, please direct them to the closest emergency room for expedited care.

*****Referring Provider Recommendations – How to Expedite your IR Requests/contact IR*****

Enter an IR ambulatory referral order. Describe the desired service in detail. Enter the reason for exam. See the attachment regarding the choices on the order.

PCPs and other specialists should enter the ambulatory referral order and procedure desired but not specific procedure orders, e.g. lymph node biopsy requested, but do not place order for lymph node biopsy.

If discussion required:

1) Use HL staff messaging, preferred if not urgent
2) Contact the IR consult resident at 408-236-0625
3) IR staff attendings:
    a. Harry Morrison
    b. Ajit Nair
    c. Alex Penn (starts 7/17)
    d. Richard Silberstein
    e. Jeffrey Sung
4) Consider designating a coordinator (RN) who can interface with the IR service.

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****REFERRALS TO BE DIRECTED TO CLINICS OTHER THAN IR****

LYMPHADENOPATHY/THYROID MASS LARGE AND PALPABLE – Refer to FNA Clinic

1. If lymphadenopathy/thyroid mass is large and palpable, please refer to FNA clinic instead of IR.

LYMPH NODES NOT OBVIOUS ON PALPATION AND BREAST CANCER SUSPECTED – Refer to Breast imaging

1. If the lymph nodes are not obvious on palpation and breast cancer is within the differential diagnosis (axillary LA), then consider referring to breast imaging instead of IR.

MASS OF LUNG, MEDIASTINUM, OR PLEURA SUSPICIOUS FOR PRIMARY MALIGNANCY BASED ON IMAGING FINDINGS – Refer to Pulmonary Medicine

1. Consider referral to pulmonary medicine instead of IR. There are multiple methods to obtain diagnostic tissue for masses in the chest. At weekly pulmonary conference, the pulmonologists present such cases. IR and thoracic surgery are present. Management decisions including how to obtain diagnostic tissue are decided at these meetings.

MASS IN THE PANCREAS, BILE DUCT, OR LIVER CONCERNING FOR PRIMARY MALIGNANCY – Refer to GI

1. Consider referral to gastroenterology instead of IR. Biopsy of pancreatic and bile duct masses is often safest from an endoscopic ultrasound approach. HCC is an imaging diagnosis. GI is involved in coordination of care for these patients. IR participates in monthly liver tumor board meeting where care of patients with HCC is discussed.

MASS IN THE KIDNEY, GREATER THAN 3CM IN SIZE – Refer to Urology

1. Consider referral to urology if greater than 3 cm in size. Large RCC tumors are often resected without a preceding biopsy. Recommend referral to IR if less than 3 cm in size. These tumors are frequently benign and biopsy by IR methods is usually the best option.

NEW MASS IN PATIENT WITH KNOWN MALIGNANCY AND CONCERN FOR METASTATIC DISEASE – Refer to Medical Oncology

1. Consider referral to medical oncology instead of IR. Patients such as these are discussed in weekly tumor board meeting. Often additional imaging work-up is needed to find the safest lesion for biopsy. Medical oncology is best positioned to manage the findings.

SUSPECTED INFECTED FLUID COLLECTION – Refer to ED for admission

1. Patients with a fluid collection suspected to be infected in the peritoneal cavity, retroperitoneum, pleural space or within a solid organ should be sent to ED for admission. IR will see these patients as consultants.

****PROCEDURES NOT REQUIRING IR VISIT PRECEDING****

PROCEDURES WITH LOW-RISK OF BLEEDING, EASILY DETECTED AND CONTROLLABLE

NON-VASCULAR:
DRAINAGE CATHETER EXCHANGE (abscess catheter, biliary, nephrostomy)
PARACENTESIS
SUPERFICIAL ABSCESS DRAINAGE
SUPERFICIAL ASPIRATION AND BIOPSY (superficial lymph node, thyroid)
THORACENTESIS

VASCULAR:
CENTRAL LINE REMOVAL
DIALYSIS ACCESS INTERVENTIONS
PICC LINE PLACEMENT
VENOGRAPHY

1. **Background**
    a. Includes these diagnostic/therapeutic procedures:
        i. **Nonvascular**
            1. Drainage catheter exchange (abscess catheter, biliary, nephrostomy)
            2. Superficial abscess drainage
            3. Superficial aspiration and biopsy (superficial lymph node, thyroid)
                a. Excludes intrathoracic or intraabdominal sites
            4. Paracentesis
            5. Thoracentesis
        ii. **Vascular**
            1. Central line removal
            2. Dialysis access interventions.
            3. PICC line placement
            4. Venography

2. **Pre-referral evaluation and treatment**
    a. **See Category 1: Procedures with Low Risk of Bleeding, Easily Detected and Controllable**
    b. Testing
        i. **Order INR, if none within the last month AND meets criteria below:**
            1. **patient on warfarin OR**
            2. **known or suspected liver disease OR**
            3. **known bleeding diathesis OR**

4. **easy bruising OR**
5. **recent chemotherapy**

ii. **Please indicate in assessment and plan of attached clinic notes whether or not pre-procedure INR is necessary.**

c. Management

i. Coagulation management

1. Contact Protime clinic for patients on warfarin to titrate dose to INR within the threshold on the date of the scheduled procedure encounter (< or = 2.0).
2. Plavix, Aspirin, NSAIDS – Do not withhold
3. LMWH (low-molecular-weight heparin) – instruct patient to withhold one dose prior to procedure (at least 12 hours)

ii. Imaging

1. All relevant imaging must be uploaded into PACS. Please assist/instruct patient to obtain imaging materials (xrays, CD, etc.) to take to the VMC Imaging Library. Main Hospital Radiology desk on 1st floor can provide directions once on VMC campus.

iii. Orders

1. **Order "Ambulatory referral to Interventional Radiology" ONLY. DO NOT ORDER PROCEDURES.**
    a. Indicate Reason for exam – e.g., what procedure is desired, (e.g. for superficial lymph nodes include size, laterality and location as per recommendation of the imaging report) you want biopsied.
    b. **Do Order tests**

3. Indications for referral

a. Do not refer

i. If lymphadenopathy/thyroid mass is large and palpable, please refer to FNA clinic instead of IR.

ii. If the lymph nodes are not obvious on palpation and breast cancer is within the differential diagnosis (axillary LA), then consider referring to breast imaging instead of IR.

iii. If the quantity of pleural/abdominal fluid is small, contact IR before ordering procedure to confirm that fluid is accessible by IR. Please email an IR attending or page IR at 408-236-0625.

4. Please include the following with your referral

a. **Results of relevant imaging and copies of imaging are required.**

******PROCEDURES FOR WHICH INTERVENTIONAL RADIOLOGY WILL ARRANGE A PRECEDING CLINIC VISIT******

****PROCEDURES WITH MODERATE RISK OF BLEEDING****

NON-VASCULAR:
ALL INTRA-ABDOMINAL BIOPSIES EXCEPT RENAL BIOPSY
CHEST WALL ABSCESS DRAINAGE OR BIOPSY
GASTROSTOMY TUBE: initial placement
LUNG BIOPSY
PERCUTANEOUS CHOLECYSTOSTOMY
RADIOFREQUENCY ABLATION: straightforward
SPINE PROCEDURES (epidural injection, facet block, kyphoplasty, lumbar puncture, vertebroplasty)
TUNNELED PERITONEAL DRAINAGE CATHETER PLACEMENT
TUNNELED PLEURAL DRAINAGE CATHETER PLACEMENT

VASCULAR:
ANGIOGRAPHY, arterial intervention with access size up to 7F
CHEMOEMBOLIZATION
IVC FILTER PLACEMENT
IVC FILTER REMOVAL (common femoral vein puncture)
SUBCUTANEOUS PORT DEVICE
TRANSJUGULAR LIVER BIOPSY
TUNNELED CENTRAL VENOUS CATHETER
UTERINE FIBROID EMBOLIZATION
VENOUS INTERVENTIONS

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1. **Background**
    a. Includes these diagnostic/therapeutic procedures:
        i. **Nonvascular**
            1. All intra-abdominal biopsies except renal biopsy

2. Chest wall abscess drainage or biopsy
    a. Intra-abdominal and retroperitoneal abscesses/deep abscess drains generally not placed on ambulatory patients. These patients can get very sick after drain placement.
3. Gastrostomy tube: initial placement
4. Lung biopsy
5. Percutaneous cholecystostomy
6. Radiofrequency ablation: straightforward
7. Spine procedure (epidural injection, facet block, kyphoplasty, lumbar puncture, vertebroplasty)
8. Tunneled peritoneal drainage catheter placement
    a. Palliative end of life procedures for patients and metastatic disease
9. Tunneled pleural drainage catheter placement
    a. Palliative end of life procedures for patients and metastatic disease

ii. **Vascular**

1. Angiography, arterial intervention with access size up to 7F
2. Chemoembolization
3. IVC filter placement
    a. Rare to place IVC filters for ambulatory patients. Patients needing IVC filters are generally sick
4. IVC filter removal (common femoral vein puncture)
5. Subcutaneous port device
6. Transjugular liver biopsy
7. Tunneled central venous catheter
8. Uterine fibroid embolization
9. Venous interventions

2. Pre-referral evaluation and treatment

a. **See Category 2: Procedures with Moderate Risk of Bleeding**
b. Testing

i. **Order INR for all patients**

1. **If none within the last month, this is absolutely required for patients meeting below criteria:**
    a. **patient on warfarin OR**
    b. **known or suspected liver disease OR**
    c. **known bleeding diathesis OR**
    d. **easy bruising OR**
    e. **recent chemotherapy**
2. If ambulatory order unsuccessful, IR providers may order STAT during procedure, depending on procedure

ii. **Order Anti Xa level for patients receiving IV unfractionated heparin**
iii. **Order platelet level for all patients**

c. Management
   i. Coagulation management
      1. Contact Protime clinic for patients on warfarin to titrate dose to INR within the threshold on the date of the scheduled procedure encounter (< or = 1.5).
      2. Plavix – Instruct patient to withhold 5 days before procedure
      3. Aspirin – Instruct patient to withhold 5 days before procedure
      4. NSAIDS – Instruct patient to withhold 2 days before procedure
      5. LMWH (low-molecular-weight heparin) – instruct patient to withhold one dose prior to procedure (at least 12 hours)
      6. Subcutaneous heparin – instruct patient to withhold for 6 hours prior to procedure
   ii. Imaging
      1. All relevant imaging must be uploaded into PACS. Please assist/instruct patient to obtain imaging materials (xrays, CD, etc.) to take to the VMC Imaging Library. Main Hospital Radiology desk on 1st floor can provide directions once on VMC campus.
   iii. Orders
      1. **Order "Ambulatory referral to Interventional Radiology" ONLY. DO NOT ORDER PROCEDURES.**
         a. Indicate Reason for exam – e.g., what procedure is desired and clinical evidence to support
         b. **Do Order tests**

3. **Indications for referral**
4. **Please include the following with your referral**
   a. **Results of relevant imaging and copies of imaging are required.**

PROCEDURES WITH SIGNIFICANT BLEEDING RISK, DIFFICULT TO DETECT OR CONTROL

NON-VASCULAR:
BILIARY INTERVENTIONS (new tract)
NEPHROSTOMY TUBE PLACEMENT
RADIOFREQUENCY ABLATION: complex
RENAL BIOPSY

VASCULAR:
TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT

1. **Background**
    a. Includes these diagnostic/therapeutic procedures:
        i. **Nonvascular**
            1. Biliary interventions (new tract)
            2. Nephrostomy tube placement
            3. Radiofrequency ablation: complex
            4. Renal biopsy
        ii. **Vascular**
            1. Transjugular intrahepatic portosystemic shunt

2. **Pre-referral evaluation and treatment**
    a. **See Category 3: Procedures with Significant Bleeding Risk, Difficult to Detect or Control**
    b. Testing
        i. **Order INR for all patients**
        ii. **Order Anti Xa level for patients receiving IV unfractionated heparin**
        iii. **Order platelet level for all patients**
        iv. **Order hematocrit for all patients**
    c. Management
        i. Coagulation management
            1. Contact Protime clinic for patients on warfarin to titrate dose to INR within the threshold on the date of the scheduled procedure encounter (< or = 1.5).
            2. Plavix – Instruct patient to withhold 5 days before procedure
            3. Aspirin – Instruct patient to withhold 5 days before procedure
            4. NSAIDS – Instruct patient to withhold 2 days before procedure
            5. Fractionated heparin – instruct patient to withhold two doses prior to procedure (24 hours)
            6. Subcutaneous heparin – instruct patient to withhold for 6 hours prior to procedure

ii. Imaging
    1. All relevant imaging must be uploaded into PACS. Please assist/instruct patient to obtain imaging materials (xrays, CD, etc.) to take to the VMC Imaging Library. Main Hospital Radiology desk on 1st floor can provide directions once on VMC campus.
iii. Orders
    1. **Order "Ambulatory referral to Interventional Radiology" ONLY. DO NOT ORDER PROCEDURES.**
        a. Indicate Reason for exam – e.g., what procedure is desired and clinical evidence to support
        b. Do Order tests

3. **Indications for referral**
4. **Please include the following with your referral**
    a. **Results of relevant imaging and copies of imaging are required.**

SPECIAL CATEGORY: PROCEDURES WITH LOW RISK OF BLEEDING. ANTICOAGULATION IMPORTANT FOR PROCEDURE SUCCESS

VASCULAR:
IVC FILTER REMOVAL (Internal jugular vein puncture)

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1. **Background**
    a. Includes these diagnostic/therapeutic procedures:
        i. **Vascular**
            1. IVC filter removal (Internal jugular vein puncture)

2. **Pre-referral evaluation and treatment**
    a. **See Special Category: Procedures with Low Risk of Bleeding. Anticoagulation important for procedure success**
    b. Testing
        i. **Order INR for all patients**
        ii. **Order platelet level for all patients**
        iii. **Order hematocrit level for all patients**
    c. Management
        i. Coagulation management
            1. Contact Protime clinic for patients on warfarin to titrate dose to INR goal, >3.0 for removal

2. Plavix – Instruct patient to withhold 5 days before procedure
3. Aspirin – Instruct patient to withhold 5 days before procedure
4. NSAIDS – Instruct patient to withhold 2 days before procedure

ii. Imaging
1. All relevant imaging must be uploaded into PACS. Please assist/instruct patient to obtain imaging materials (xrays, CD, etc.) to take to the VMC Imaging Library. Main Hospital Radiology desk on 1st floor can provide directions once on VMC campus.

iii. Orders
1. **Order "Ambulatory referral to Interventional Radiology" ONLY. DO NOT ORDER PROCEDURES.**
    a. Indicate Reason for exam – e.g., IVC filter removal procedure desired and clinical evidence to support

3. **Indications for referral**
4. **Please include the following with your referral**
    a. **Results of relevant imaging and copies of imaging are required.**

Category 1: Procedures with Low Risk of Bleeding, Easily Detected and Controllable

Procedures	Pre-procedure Laboratory Testing	Management
Nonvascular Drainage catheter exchange (biliary, nephrostomy, abscess catheter) Paracentesis Superficial abscess drainage Superficial aspiration and biopsy (excludes intrathoracic or intraabdominal sites): thyroid, superficial lymph node Thoracentesis **Vascular** Central line removal Dialysis access interventions PICC line placement Venography	**INR:** Routinely recommended for: 1) patients receiving warfarin anticoagulation, 2) known or suspected liver disease, 3) known bleeding diathesis, 4) easy bruising or 5) recent chemotherapy. 6) Not needed if patient does not meet above criteria. **Anti Xa level:** Not routinely recommended for patients receiving intravenous unfractionated heparin. **Hematocrit:** Not routinely recommended **Platelet count:** Not routinely recommended	**INR:** Correct above 2.0 (e.g., FFP, vitamin K) **Anti Xa:** No consensus **Hematocrit:** No recommended threshold for transfusion **Platelets:** Transfusion recommended for counts <50,000/UL (Transfuse at time of procedure: • 2 units for 30,000 to 50,000 • >2 units for <30,000) **Plavix:** Do not withhold **Aspirin:** Do not withhold **NSAIDS:** Do not withhold **DDAVP:** Not indicated **Low-molecular-weight heparin (therapeutic dose):** Withhold one dose before procedure (at least 12h) **Heparin drip:** Hold 2-3h

Category 2: Procedures with Moderate Risk of Bleeding

Procedures	Pre-procedure Laboratory Testing	Management
Nonvascular All intra-abdominal biopsies except renal biopsy Chest wall, Intraabdominal, or Retroperitoneal abscess drainage or biopsy Gastrostomy tube: initial placement Lung biopsy Percutaneous cholecystostomy Radiofrequency ablation: straightforward Spine procedures (vertebroplasty, kyphoplasty, lumbar puncture, epidural injection, facet block) Tunneled peritoneal drainage catheter placement Tunneled pleural drainage catheter placement **Vascular** Angiography, arterial intervention with access size up to 7 F Chemoembolization IVC filter placement IVC filter removal (common femoral vein puncture) Subcutaneous port device Transjugular liver biopsy Tunneled central venous catheter Uterine fibroid embolization Venous interventions	**INR:** Routinely recommended for: 1) patients receiving warfarin anticoagulation, 2) known or suspected liver disease, 3) known bleeding diathesis, 4) easy bruising or 5) recent chemotherapy. 6) Not needed if patient does not meet above criteria. Attempt to order if patient does not meet criteria. If ambulatory order unsuccessful, IR providers may order STAT during procedure visit depending on procedure. **Anti Xa level:** Recommended in select patients receiving intravenous unfractionated heparin **Hematocrit:** Not routinely recommended **Platelet count:** routinely recommended	**INR:** Correct above 1.5 (e.g., FFP, vitamin K) **Anti Xa:** Stop or reverse heparin for values >0.15 (ordered selectively at discretion of operator) **Hematocrit:** No recommended threshold for transfusion **Platelets:** Transfusion recommended for counts <50,000/UL (Transfuse at time of procedure: • 2 units for 30,000 to 50,000 • >2 units for <30,000) **Plavix:** Withhold for 5d before Procedure.* **Aspirin:** Withhold for 5d before procedure.* **NSAIDS:** Withhold for 2d before procedure.* ** **Use DDAVP** to reverse anti-platelet effects of Plavix, aspirin, and NSAIDS, for urgent and emergent procedures **Low-molecular-weight heparin (therapeutic dose):** Withhold at least 12h before procedure. **Heparin drip:** Hold 2-3h (Check anti Xa if known to be supratherapeutic or in renal failure (threshold <0.015)) **Subcutaneous heparin:** Withhold for 6h before procedure. **Uremia:** Use DDAVP for patients treated two or fewer times by hemodialysis.

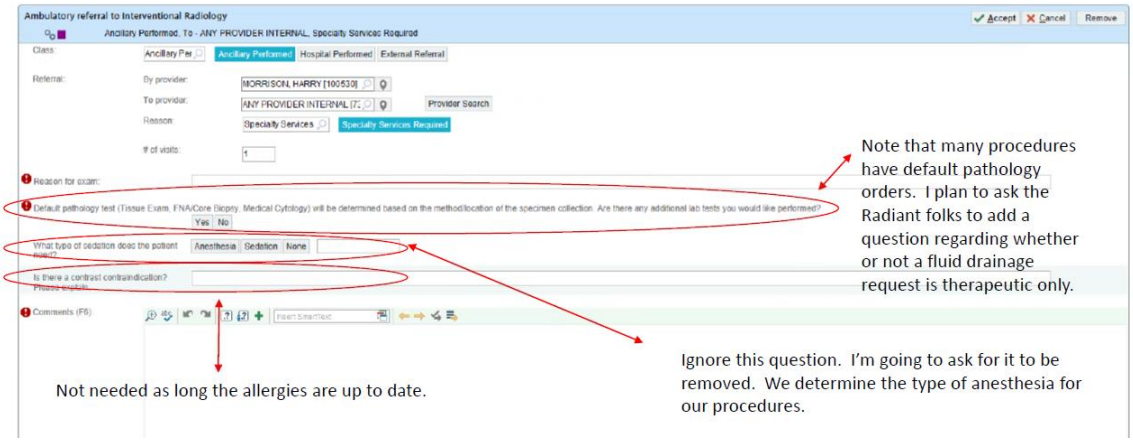
Category 3: Procedures with Significant Bleeding Risk, Difficult to Detect or Control

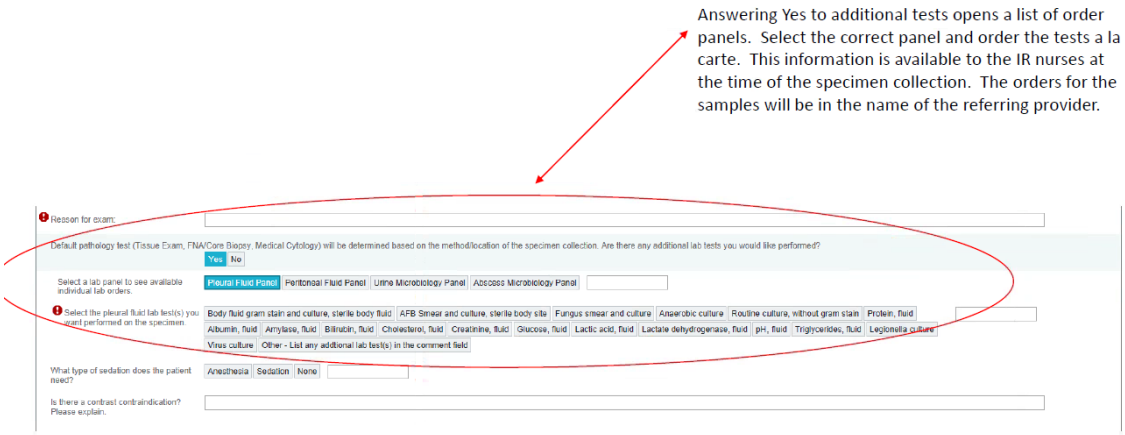
Procedures	Pre-procedure Laboratory Testing	Management
Vascular Transjugular intrahepatic portosystemic shunt **Nonvascular** Biliary interventions (new tract) Nephrostomy tube placement Radiofrequency ablation: complex Renal biopsy	**INR:** Routinely recommended **Anti Xa level:** Recommended in select patients receiving intravenous unfractionated heparin **Hematocrit:** Routinely recommended **Platelet count:** Routinely recommended	**INR:** Correct above 1.5 (e.g., FFP, vitamin K) **Anti Xa:** Stop or reverse heparin for values >0.15 (ordered selectively at discretion of operator **Hematocrit:** No recommended threshold for transfusion **Platelets:** Transfusion recommended for counts <50,000/UL (Transfuse at time of procedure: • 2 units for 30,000 to 50,000 • >2 units for <30,000) **Plavix:** Withhold for 5d before Procedure.* **Aspirin:** Withhold for 5d before procedure.* **NSAIDS:** Withhold for 2d before procedure.* ****Use DDAVP** to reverse anti-platelet effects of Plavix, aspirin and NSAIDS, for urgent and emergent procedures **Fractionated heparin:** withhold for 24 h or up to two doses **Heparin drip:** Hold 2-3h and check Anti Xa (threshold < 0.15) **Subcutaneous heparin:** Withhold for 6h before procedure. **Uremia:** Use DDAVP for patients treated two or fewer times by hemodialysis

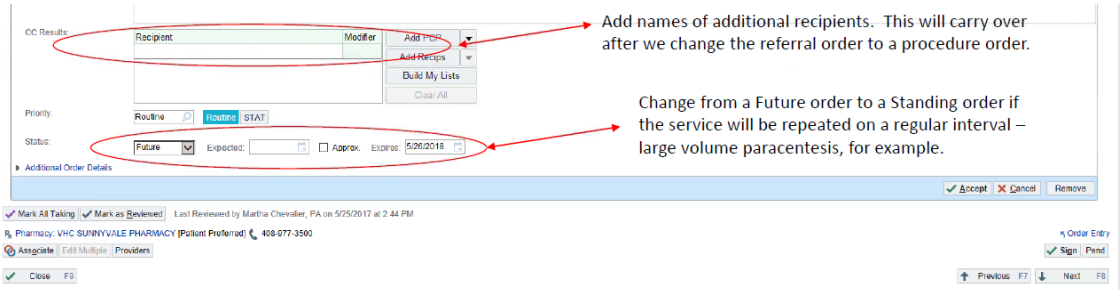
Special Category: Procedures with Low Risk of Bleeding. Anticoagulation Important for Procedure Success.

Procedures	Pre-procedure Laboratory Testing	Management
Vascular IVC filter removal (Internal jugular vein puncture)	**INR:** Routinely recommended **Anti Xa level:** Not routinely recommended in patients receiving intravenous unfractionated heparin infusion. **Hematocrit:** Routinely recommended **Platelet count:** Routinely recommended	**INR:** > 3.0 threshold for removal. Consider rescheduling if above. **Anti Xa:** Do not check **Hematocrit:** No recommended threshold for transfusion **Platelets:** Transfusion recommended for counts <50,000/UL (Transfuse at time of procedure: • 2 units for 30,000 to 50,000 • >2 units for <30,000) **Plavix:** Withhold for 5d before procedure.* **Aspirin:** Withhold for 5d before procedure.* **NSAIDS:** Withhold for 2d before procedure.* **DDAVP:** Not indicated **Low-molecular weighted heparin:** Do not withhold **Heparin drip:** Do not withhold **Subcutaneous heparin:** Do not withhold.

Screenshots of Orders:







Revisions:

- May 2017, content and formatting
- Oct 2017, formatting