





Peri-procedural Management Summary Chart

Procedure	Category	Coags	BMP	CBC	Antibiotics	Suggestions
Ablation Procedure - Liver	2	x		x	x	Unasyn 1.5-3g IV, Ceftriaxone 1g, Vancomycin 1g
Ablation Procedure - Renal	3	x	x	x	x	Ceftriaxone 1g, Unasyn 1.5-3g IV
Ablation Procedure - Bone	2	x		x	x	Cefazolin 2g, Clindamycin 600mg
Abscess Drainage	2	x		x	x	Ceftriaxone 1g, Ampicillin-sulbactam 3g IV, Cefotetan 1-2g IV
Angiogram - Diagnostic	2	x	x	x	x	Cefazolin 2g, Clindamycin 600mg
Angiogram - Therapeutic with Bland Embolization - Trauma	2	x	x	x	x	Cefazolin 2g + Metronidazole 500mg, Clindamycin 600mg + Gentamicin 1.5 mg/kg
Angiogram - Therapeutic with Bland Embolization - UAE	2	x	x	x	x	Cefazolin 2g, Clindamycin 600mg + Gentamicin 1.5 mg/kg
Angiogram - Therapeutic with Bland Embolization - GI Bleed	2	x	x	x	x	Cefazolin 2g, Clindamycin 600mg
Angiogram - Hepatic Chemoembolization and SIRT routine	2	x	x	x	x	Cefazolin 2g + Metronidazole 500mg, Ampicillin-sulbactam 3g, see chart
Angiogram - Hepatic Chemoembolization and SIRT complex	2	x	x	x	x	Moxifloxacin 400mg PO starting 3 days prior to the procedure and continuing for 17 days post
Angiogram - Pulmonary	2	x	x	x		
Biliary Tube - Initial Insertion	3	x	x	x	x	Zosyn 3.375g, Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Biliary Tube - Check (tube injection)	1				x	Zosyn 3.375g, Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Biliary Tube - Exchange	1	x	x	x	x	Zosyn 3.375g, Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Biopsy - Superficial (thyroid, lymph node)	1					
Biopsy - Deep (liver, lung, retroperitoneal)	2	x		x		
Biopsy - Bone	2	x	x	x		
Biopsy - High Risk (Renal)	3	x		x		
Biopsy - Transrectal	2	x	x	x	x	Cipro 500mg PO BID for 3 days start day prior to biopsy
Biopsy - Transjugular Liver Biopsy	2	x		x		
Breast Biopsy - core or vacuum biopsy	1					
Cholestostomy Tube - Placement	2	x		x	x	Zosyn 3.375g, Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Cholestostomy Tube - Exchange	1	x		x	x	Zosyn 3.375g, Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Denver Shunt Placement	2	x	x	x	x	Ceftriaxone 1g, Levaquin 500mg, consider continuing 5-7 days
Dialysis - Fistulogram/Graftogram with treatment	1				x	Ancel 2g IV, Clindamycin 600mg IV
Dialysis - Declot (Thrombectomy or Thrombolysis)	1				x	Ancel 2g IV, Clindamycin 600mg IV
Dialysis - Tunnelled Catheter Placement/conversion to tunneled	2	x		x	x	Ancel 2g IV, Clindamycin 600mg IV
Dialysis - Tunnelled Catheter Exchange	2	x	x	x	x	Ancel 2g IV, Clindamycin 600mg IV
Dialysis - Temporary Catheter Insertion	1	x		x		
Dialysis - Temporary Catheter Exchange	1					
Dialysis - Temporary Catheter Removal	1	x		x		
Fiducial Marker Placement	2	x		x	x	Cefazolin 2g, Clindamycin 600mg, site dependant
Foreign Body Retrieval	2	x		x		
G or J Tube - Initial Placement push technique	2	x		x		
G or J Tube - Initial Placement pull technique	2	x		x	x	Ancel 1-2g, Vancomycin 1g, clindamycin 600mg, cefoxitin 1-2g
G or J Tube - Exchange or Re-Insertion	1					Ancel 1-2g, Vancomycin 1g, clindamycin 600mg, cefoxitin 1-2g
IVC Filter - Placement or Removal	1	x	x	x		
Kyphoplasty	2	x	x*	x	x	Ancel 2g IV, Clindamycin 600mg IV
Lumbar Puncture and Myelogram	2					
Musculoskeletal procedure - arthrogram, aspiration, etc	1					
Nephrostomy Tube - Placement	3	x	x	x	x	Cefazolin 2g IV, Ceftriaxone 1g IV, Ampicillin-sulbactam 3g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Nephrostomy Tube - Nephrostogram or Removal	1					
Nephrostomy Tube - Routine Exchange	1	x		x	x	No antibiotic necessary unless concern fore infection then as per insertion
Nephrostomy Tube - Complex exchange, possible re-access	1/2	x	x	x	x	Cefazolin 2g IV, Ceftriaxone 1g IV, Ampicillin-sulbactam 3g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Nephro-Ureteral Stent - Placement	2	x		x	x	Cefazolin 2g IV, Ceftriaxone 1g IV, Ampicillin-sulbactam 3g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Nephro-Ureteral Stent - Routine Exchange	1	x		x	x	No antibiotic necessary unless concern than as per insertion
Nephro-Ureteral Stent - Complex Exchange, possible re-access	1/2	x	x	x	x	Cefazolin 2g IV, Ceftriaxone 1g IV, Ampicillin-sulbactam 3g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Nephro-Ureteral Stent - Study	1					
Paracentesis	1					
Pleurex Catheter Placement	2	x			x	Ancel 2g IV, Clindamycin 600mg IV
PICC line Insertion	1					
Port - Placement	2	x		x	x	Ancel 2g IV, Clindamycin 600mg IV
Port - Removal	2	x	x	x		
Port Check and Catheter Injection	1					
Supra Pubic Tube - Placement	2	x		x	x	Cefazolin 2g IV, Ceftriaxone 1g IV, Ampicillin-sulbactam 3g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Supra Pubic Tube - Exchange	1					No antibiotic necessary unless concern then as per insertion
Tenkoffogram - possible manipulation	2	x		x	x	Cefazolin 2g, Clindamycin 600mg
Thoracentesis	1	x		x		
TIPS Transjugular Intrahepatic portosystemic shunt	3	x	x	x	x	Ceftriaxone 1g, Unasyn 1.5-3, Clindamycin 600mg IV + Gentamicin 1.5mg/kg
Uterine Artery Embolization	2	x	x	x	x	cefazolin 2g IV, Clindamycin 600mg IV + Gentamicin 1.5mg/kg, Unasyn 1.5-3g IV,
Uterine Artery Embolization with hydrosalpinx	2	x	x	x	x	Above + Doxycycline 100mg PO x 7 days
Venogram - mapping study	1					
Venous Embolization	1	x	x	x	x	Cefazolin 2g, Clindamycin 600mg
Venogram - lower extremity	1	x	x	x		Cefazolin 2g, Clindamycin 600mg
Coags = PT, INR, PTT						
***Any case NOT requiring coags/CBC must have negative screening questionnaire for coagulopathy						
***Any patient with known or suspected liver disease or taking coumadin should undergo PT and INR prior to procedure						
***Any patient on heparin should undergo PTT or ACT prior to procedure						
***Lab Values should be checked on all patients regardless if ordered/mandated by IR						
***Any case with anesthesia or sedation get BMP						
***Antibiotics in comments column are typical choices and may vary upon physician preference, patient characteristics, and culture results						

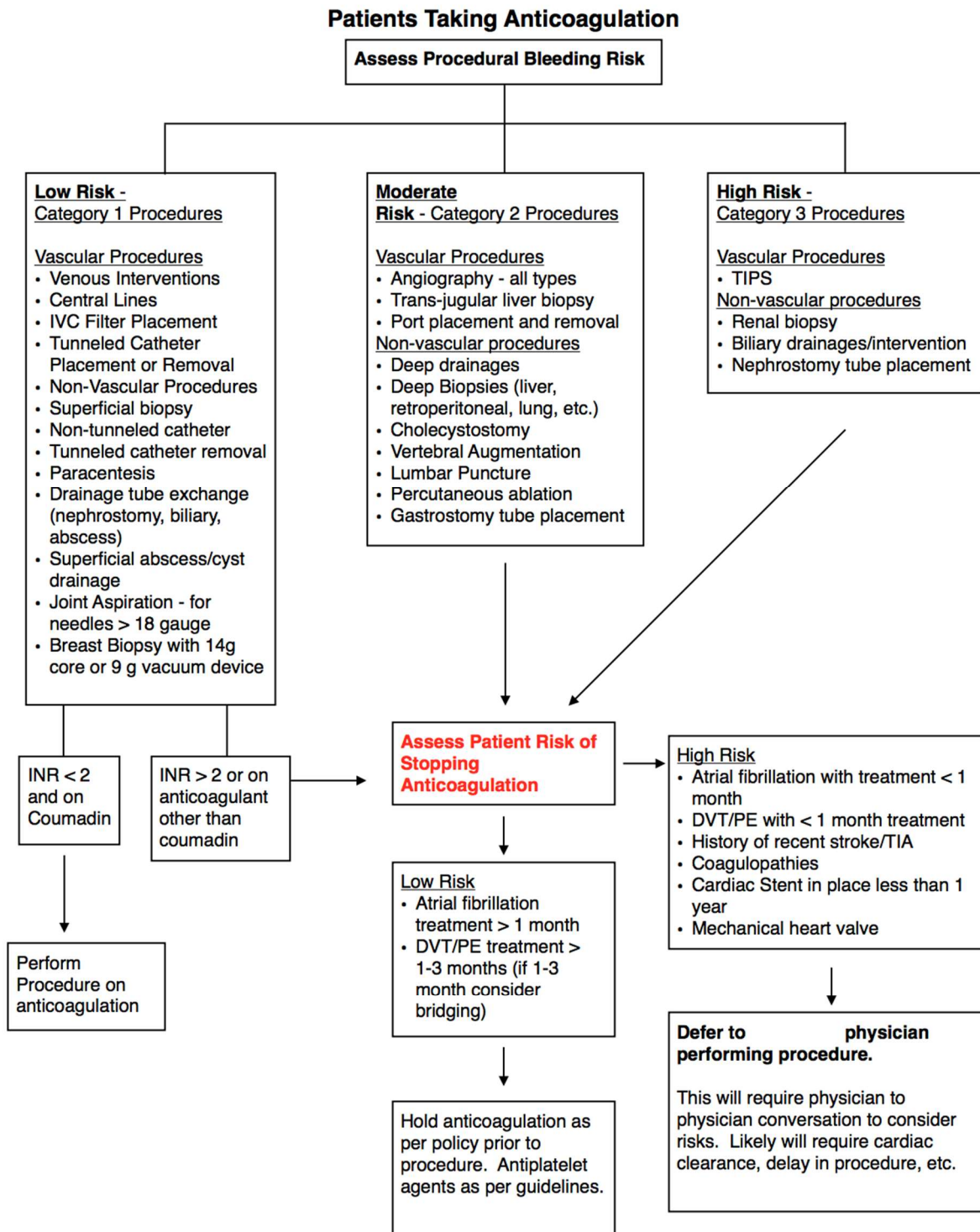
Pre-Procedure and Peri-Procedural Anticoagulation Management (10-30-17)



Peri-Procedural Management of Anticoagulation and Antiplatelet Agents

The Following chart summarizes general guidelines for management of anti-platelet and anti-coagulant medications prior to a planned procedure. It should be pointed out that these summarize general guidelines and that each patient needs to be considered on an individual basis and all clinical factors and risk factors need to be considered in light of these more general guidelines. Peri-procedural

management of medications are ultimately at the discretion of the physician performing the proposed



procedure.

Procedure	INR	Platelets	ASA	Anti-Platelet	Anticoag
<u>Category 1 Procedures -</u> Procedures with Low Risk of Bleeding <u>Vascular Procedures</u> <ul style="list-style-type: none"> • Venous interventions (note if DVT than see exclusions) • Central Line Removal • IVC Filter Placement • Tunneled catheter placement <u>Non-Vascular Procedures</u> <ul style="list-style-type: none"> • Superficial biopsy (thyroid, etc.) • Non-tunneled catheter • Tunneled catheter removal • Paracentesis • Drainage tube exchange (nephrostomy, biliary, abscess) • Superficial abscess/cyst drainage • Joint Aspiration - for needles ≥ 18 gauge 	≤ 2.0	$\geq 50,000$	Do not withhold	Withhold 5 days	Possibly Withhold
<ul style="list-style-type: none"> • Breast Biopsy with 14 g core or 9 g vacuum device or FNA 	≤ 2.0	$\geq 50,000$	Withhold 5 days	Withhold 5 days	Possibly Withhold

<p><u>Category 2</u> - Procedures with Moderate Risk of Bleeding</p> <p><u>Vascular Procedures</u></p> <ul style="list-style-type: none"> • Angiography - all types • Trans-jugular liver biopsy • Port placement and removal <p><u>Non-vascular procedures</u></p> <ul style="list-style-type: none"> • Deep drainages • Deep Biopsies (liver, retroperitoneal, lung, etc.) • Cholecystostomy • Vertebral Augmentation • Lumbar Puncture and myelogram • Percutaneous ablation • Gastrostomy tube placement 	≤ 1.5	$\geq 50,000$	Withhold 5 days	Withhold 5 days	Possibly Withhold
<p><u>Category 3</u> - Procedures with Significant Risk of Bleeding</p> <p><u>Vascular Procedures</u></p> <ul style="list-style-type: none"> • TIPS <p><u>Non-vascular procedures</u></p> <ul style="list-style-type: none"> • Renal biopsy • Biliary drainages/intervention • Nephrostomy tube placement 	≤ 1.5	$\geq 50,000$	Withhold 5 days	Withhold 5 days	Possibly Withhold

<u>Exclusions and Possible Exclusions</u> (Pre-procedure coagulation testing not required) <ul style="list-style-type: none"> • Dialysis graft/fistulogram • IVC Filter Removal and on anticoagulation • PICC Placement • Peripheral venography • Venous interventions in the setting of DVT • Arthrography or joint lavage - < 18g needles (if \geq 18 g needle follow Category 1 Procedure recommendations) • FNA Breast Biopsy 	N/A	N/A	Do not withhold	Do not withhold	Do not withhold
---	-----	-----	-----------------	-----------------	-----------------

* For tube changes and dialysis interventions, labs within 3 months are acceptable unless interim change in therapy (eg, initiation of anticoagulation)

** These guidelines may be waived in certain circumstances on a case-by-case basis by the physician performing the procedure.

***** Medical Clearance -**

If patient is taking anti-platelet agent (other than aspirin), they will need clearance from prescribing physician to stop.

- Clopidogrole (Plavix)
- ticagrelor (Brilinta)
- prasugrel (Effient)
- dipyridamole
- dipyridamole/aspirin (Aggrenox)
- ticlodipine (Ticlid)
- eptfibatide (Integrilin)

Any patient who is taking aspirin:

- Prescribed by physician for coronary stent or stroke will need clearance.
- Patient is taking for general cardiovascular risk reduction does not need clearance.

Medication	T 1/2	Category 1/2 procedures	Category 3 procedures	Elderly and Significant Renal Impairment (GFR < 50)
Clopidogrel (Plavix)	30 min (active metabolite)	Withhold 5 days prior	Withhold 5 days prior	No renal adjustment
Aspirin	3 hrs	Do not withhold	Withhold 5 days prior	No renal adjustment
Ticagrelor (Brilinta)	9 hrs	Withhold 5 days prior	Withhold 5 days prior	No renal adjustment
Prasugrel (Effient)	7 hrs	Hold 7 days prior to procedure	Hold 7 days prior to procedure	No renal adjustment
Ibuprofen (Motrin/Advil)	2 hrs	Do not withhold	Withhold 24 hrs	N/A
Excedrin		Do not withhold	Withhold 5 days	N/A
Naproxen (Aleve)	12-17 hrs	Do not withhold	Withhold 2-3 days	N/A
Nabumetone (Relafen)	22 hrs	Do not withhold	Withhold 10 days	N/A
Warfarin (Coumadin)	20-60 hrs	<u>If procedure in ≥ 5 days:</u> Hold 5 days prior and recheck INR <u>If procedure in 1-5 days:</u> Hold and recheck INR <u>If emergent:</u> Hold and check INR, correct INR	<u>If procedure in ≥ 5 days:</u> Hold 5 days prior and recheck INR <u>If procedure in 1-5 days:</u> Hold and recheck INR <u>If emergent:</u> Hold and check INR, correct INR	No renal adjustment
Enoxaparin (Lovenox)	4.5 hr	Hold 1 day prior (may hold evening dose if BID regimen)	Hold 1 day prior (may hold evening dose if BID regimen)	No renal adjustment
Rivaroxaban (Xarelto)	5-9 hrs	Hold 24 hrs prior to procedure	Hold 36 hrs prior to procedure	Hold longer for renal impairment

Apixiban (Eliquis)	8-11 hrs	Hold 24 hrs prior to procedure	Hold 36 hrs prior to procedure	No renal adjustment
Dabigatran (Pradaxa)	12-17 hrs	Hold 2-3 days if CrCl \geq 50mL/min Hold 3-5 days if CrCl \leq 50mL/min or for Lumbar puncture	Hold 2-3 days if CrCl \geq 50mL/min Hold 3-5 days if CrCl \leq 50mL/min or for Lumbar puncture	Hold longer for renal impairment
Un-fractionated Heparin (Heparin Drip)	1.5 hrs	Hold 4-6 hrs prior, check PTT	Hold 6 hrs prior, check PTT	No renal adjustment
Vitamin E		Do not withhold	Do not withhold	n/a
Avastin		Hold 14 days pre & post arterial procedures	Hold 14 days pre & post arterial procedures	n/a
Effient (Prasugrel)		Hold 7 days prior to procedure	Hold 7 days prior to procedure	n/a
Arixtra (Fondaparinux)		Hold 2-3 days if CrCl \geq 50mL/min Hold 3-5 days if CrCl \leq 50mL/min	Hold 2-3 days if CrCl \geq 50mL/min Hold 3-5 days if CrCl \leq 50mL/min	Renal adjustment as noted
Abciximab (Reopro)		Hold 1 day	Hold 1 day	
Aggrenox (ASA/DipyridamoleER)		Do not withhold	Hold 5 days prior to procedure	
Persantine (Dipyridamole)		Hold 5 days prior to procedure	Hold 5 days prior to procedure	
Oral Diabetic Medications		Hold day of procedure & 48 hours following contrast		

References:

1. Indravadan J. Patel, MD et al. Consensus Guidelines for Periprocedural Management of Coagulation Status and Hemostasis Risk in Percutaneous Image-guided Interventions. J Vasc Interv Radiol 2012; 23:727-736



2. Cook, Brian W. MD. Anticoagulation Management. Seminars in Interventional Radiology Vol 27, Num 4 2010
3. Crockett, Matthew T. et al. The Novel Oral Anticoagulants: An Update for the Interventional Radiologist. American Journal of Roentgenology. 2012;199: W376-W379
4. Gonsalves, Wilson I. et al. The New Oral Anticoagulants in Clinical Practice. Mayo Clin Proc May 2013;88(5):495-511
5. Taslakian, Bedros et al. Patient Evaluation and Preparation in Vascular and Interventional Radiology: What Every Interventional Radiologist Should Know. Cardiovasc Intervent Radiol (2016) 39:489-499