INTERVENTIONAL RADIOLOGY ANTICOAGULATION GUIDELINES

***If the patient is on anti-platelet agents or anti-coagulation, please plan for holding these agents per these guidelines.**

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LOW BLEEDING RISK	**HIGH** BLEEDING RISK
	Hold **ALL** anticoagulation and antiplatelet medications for:
Abscess drainage, superficial	Arterial interventions: Sheath ≥7 Fr: Renal, Pelvic, Mesenteric, Aortic, CNS,
Arterial interventions: Peripheral, embolization (UFE, PAE, gonadal, GAE/MSK, Y90/TACE), Sheath ≤ 6 Fr Diagnostic angio – No hold Interventions: **Prefer anticoagulation hold**, **not mandatory**	Ablations Bone, lung, solid organs (kidneys, liver, spleen, adrenals, gallbladder, pancreas), soft tissue
Biopsy: superficial Palpable lesion, lymph node, soft tissue, breast, thyroid, superficial bone (extremities and bone marrow aspiration)	Biopsy: Solid Organ + Deep non-organ Kidney, liver, spleen, adrenals, gallbladder, pancreas. Spine, axial bone, intra-abdominal, retroperitoneal, pelvic compartment
Catheter Exchanges Abscess, Biliary, Gastro, Gastro-Jejun, Nephrostomy	IVC filter removal: complex **Provider will need to decide if anticoags should be continued
Chest tube placement	Spine procedures Kyphoplasty, vertebroplasty, epidural injections, facet joint cervical spine
Facet joint injections and medial nerve blocks Thoracic and Lumbar	Urinary tract interventions New nephrostomy tube placement, ureteral stent through new access, ureteral dilation, stone removal
Fistulogram + Interventions	Hold anticoags and prefer to hold antiplatelet agents however if unstable/urgent case then may proceed at providers discretion:
Injections MSK, joint, peripheral nerve blocks, trigger points inc. piriformis	Biliary interventions Cholecystostomy tube, Int/Ext biliary drain, stent
IVC Filter placement and simple removal	Lumbar puncture, Lumbar drains
Sacral lateral branch blocks and SI joint injections	TIPS (Transjugular intrahepatic portosystemic shunt)
Thoracentesis & Paracentesis	No need to hold antiplatelet agents (Aspirin, Plavix, Brillinta, Effient) for:
Transjugular liver biopsy	Abscess drainage, deep Lung, abdominal, pelvic, retroperitoneal
Ureteral stent placement in existing access	Gastro- and GastroJejunostomy tube placement
Venography, Peripheral and Pelvis Diagnostic, Interventions	Genicular Nerve Ablation

Adapted from: Patel IJ, Rahim S, Davidson JC, et al. Society of interventional radiology consensus guidelines for the periprocedural management of thrombotic and bleeding risk in patients undergoing percutaneous image-guided interventions--part I and II. J Vasc Interv Radiol 2019; 30:1168-1184.

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Tunneled and non-tunneled catheter placement/removal (Dialysis, Ports, Pleural, Abdominal, other CVCs). **Prefer anticoagulation hold**, **not mandatory**	Portal vein interventions
	Thrombolysis, catheter directed DVT, PE, Portal vein
	Venous interventions Intrathoracic and CNS

NECESSARY LABS

LOW BLEEDING RISK	**HIGH** BLEEDING RISK
No need for PT/INR *Exceptions:* If on Warfarin: **order INR**, goal <3 If on unfractionated heparin or high risk of bleeding: Check aPTT +/- INR Arterial interventions: **INR**: INR ≤ 1.8 for femoral access, INR ≤ 2.2 for radial access	**Order PT/INR** Goal INR ≤ 1.8 for **ALL** pts. *May need to bridge warfarin if can't be off anticoagulation*
No need for CBC *Exceptions:* Prior hx of sig bleeding and/or low platelets Will need platelets if <20 K/uL	**Order CBC** Goal Plt. Count ≥50 K/uL (if less then transfuse)

MEDICATION MANAGEMENT

MEDICATION	**LOW** BLEEDING RISK	**HIGH BLEEDING RISK**
Warfarin (Coumadin)	Target INR ≤ 3.0 *Restart: same day after proc. Completion if bridging*	**Hold 5 days prior** Target INR ≤ 1.8, reverse if emergent case *Restart: Day after proc. completion, if high thrombosis risk or reversed INR then bridge with LMWH*
Aspirin	Do not withhold	**Hold 5 days prior to proc**. *Restart: Day after proc. completion*
Clopidogrel (Plavix)	Do not withhold	**Hold 5 days prior to proc**. *Restart: 75mg - 6 hrs. after proc. completion* *300-600mg – 24 hrs. after proc. completion*
Ticagrelor (Brilinta)	Do not withhold	**Hold 5 days prior to proc**. *Restart: Day after proc. completion*
Prasugrel (Effient)	Do not withhold	**Hold 7 days prior to proc**. *Restart: Day after proc. completion*
Cilostazol (Pletal)	Do not withhold	**Do not withhold**
Apixaban (Eliquis)	Do not withhold	CrCl ≥ 50 mL/min **Hold 4 doses prior** (2 days) CrCl < 50 mL/min **Hold 6 doses prior** (3 days) *Restart: 24 hrs. after proc. completion*

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Betrixaban (Bevyxxa)	Do not withhold	**Hold 3 doses** (3 days) *Restart: 24 hrs. after proc. completion*
Edoxaban (Savaysa)	Do not withhold	**Hold 2 doses** (2 days) *Restart: 24 hrs. after proc. completion*
Rivaroxaban (Xarelto)	Do not withhold	CrCl ≥ 30 mL/min **Hold 2 doses prior** (1 day) CrCl < 30 mL/min **Hold 3 doses prior** (1.5 days) *Restart: 24 hrs. after proc. completion*
Dabigatran (Pradaxa)	Do not withhold	CrCl ≥ 50 mL/min **Hold 4 doses prior** (2 days) CrCl < 50 mL/min **Hold 8 doses prior** (4 days) *Restart: 24 hrs. after proc. completion*
MEDICATION	**LOW BLEEDING RISK**	**HIGH BLEEDING RISK**
Argatroban (Acova)	Do not withhold	**Hold 4 hrs. prior to proc**. *Restart: 6 hrs. after proc. completion*
Bivalirudin (Angiomax)	Do not withhold	**Hold 4 hrs. prior to proc**. *Restart: 6 hrs. after proc. completion*
Heparin, unfractionated	Do not withhold	IV: Hold for 6 hrs prior to proc. SubQ: Hold 6 hrs prior to proc. *Restart: 8 hours after proc. completion*
Heparin, low-molecular weight Enoxaparin (Lovenox) Dalteparin (Fragmin)	Do not withhold	Enoxaparin: **Prophylactic: Hold 1 dose prior to proc**. **Therapeutic: Hold 2 doses or 24 hours prior to proc**. Dalteparin: Hold 1 dose prior to proc. *Restart: 12 hrs. after proc. completion*
Fondaparinux (Arixtra)	Do not withhold	CrCl ≥ 50 mL/min **Hold 3 days prior** CrCl < 50 mL/min **Hold 5 days prior** *Restart: 24 hrs. after proc. completion*
Cangrelor (Kengreal)	**Hold 1 hr. prior to procedure** *Restart: ASAP, discuss with cardiology*	
Aspirin/dipyradmole (Aggrenox)	Do not withhold	**Hold 5 days prior to proc**. *Restart: Day after proc. completion*
Short acting NSAIDs Ibuprofen, Diclofenac, Ketoprofen, Infomethacin, Ketorolac	Do not withhold	**Hold 24 hours prior**
Intermediate-acting NSAIDs Naproxen, Sulindac, Diflunisal, Celecoxib	Do not withhold	**Hold 24 hours prior**
Long-acting NSAIDs Meloxicam, Nabumetone, Piroxicam	Do not withhold	**Hold 24 hours prior**

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Abciximab (ReoPro)	**Hold 24 hrs. prior to proc** *Restart: ASAP, discuss with cardiology*
Epitifibatide (Integrilin) **Tirofiban** (Aggrastat)	**Hold 24 hrs. prior to proc** *Restart: ASAP, discuss with cardiology*

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