

Management Guidelines for Patients Having \* **ELECTIVE** \* Invasive Procedures in Medical Imaging

HIGH RISK	STANDARD RISK	LOW RISK
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**\*\* CAUTION \*\***

Patient at risk for THROMBOTIC EVENTS may require consultation for bridging anticoagulation therapy (eg. PROSTHETIC HEART VALVES, VENOUS THROMBOEMBOLISM, ATRIAL FIBRILLATION WITH PRIOR STROKE)

Premature discontinuation of anti-platelet drugs in patients with CORONARY STENTS may precipitate acute stent thrombosis

**Do not stop anticoagulation in these patients without consultation**

**HIGH RISK PROCEDURES**

HIGH RISK	Anticoagulant / Antiplatelet MEDS	Discontinue Yes*/ No	Timing of LAST dose BEFORE procedure*	Timing of FIRST dose AFTER day of procedure*
<div style="border: 1px solid yellow; padding: 5px; margin-bottom: 10px;">                     INR ≤ 1.3    Platelets &gt; 80 x 10<sup>9</sup>/L                      Inpatients    72 hours                      Outpatients   2 weeks                 </div> <p><b>VASCULAR</b></p> <ul style="list-style-type: none"> <li>TIPS</li> <li>Arterial interventions &gt;7Fr access</li> </ul> <p><b>NON-VASCULAR</b></p> <p><b>Abdominal Procedures</b></p> <ul style="list-style-type: none"> <li>Renal core biopsy</li> <li>PCNL/Nephrostomy</li> <li>Biliary drainage (PTBD)</li> <li>Complex thermal ablation – liver, kidney, lung, MSK</li> </ul> <p>NOTE: Specialized Neurovascular Procedures are excluded, including carotid stenting, and intra-cranial embolization</p>	<ul style="list-style-type: none"> <li>aspirin (ASA), low dose (81 mg)</li> </ul>	No		
	<ul style="list-style-type: none"> <li>clopidogrel (Plavix®)</li> <li>aspirin, non-low dose</li> <li>ticagrelor (Brilinta®)</li> </ul>	Yes	- 8 days	Day + 1 or + 2
	<ul style="list-style-type: none"> <li>prasugrel (Effient®)</li> </ul>	Yes	- 8 days	Day + 1 or + 2
	<ul style="list-style-type: none"> <li>NSAIDs</li> </ul>	Yes	- 4 days	Day + 1
	<ul style="list-style-type: none"> <li>warfarin (Coumadin®)</li> </ul>	Yes	- 6 days <span style="color: red;">CHECK INR 24 hrs prior</span>	Day + 1
	<ul style="list-style-type: none"> <li>subcutaneous heparin (prophylactic)</li> </ul>	Yes	- 8 hrs prior	Day 0 (evening)
	<ul style="list-style-type: none"> <li>low molecular weight heparin (LMWH)</li> </ul>	Yes	prophylactic: > 12 hrs prior therapeutic: > 24 hrs prior	Day + 1 Day + 2 or + 3
	<ul style="list-style-type: none"> <li>(IV) unfractionated heparin &gt; <span style="color: red;">REQUIRES PTT</span></li> </ul>	Yes	infusion to stop 4 hrs prior (goal: PTT ≤ 43 s)	12 hrs after
	<ul style="list-style-type: none"> <li>dabigatran (Pradaxa®)</li> </ul>	Yes	GFR >50: - 3 days GFR ≤50: - 5 days	Day + 2 or + 3
	<ul style="list-style-type: none"> <li>rivaroxaban (Xarelto®)</li> <li>apixaban (Eliquis®)</li> </ul>	Yes	- 3 days	Day + 2 or + 3
	<ul style="list-style-type: none"> <li>fondaparinux (Arixtra®)</li> </ul>	Yes	prophylactic: > 24 hrs therapeutic: > 48 hrs	Day + 1 Day + 2 or + 3

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**STANDARD RISK PROCEDURES**

<p><b>STANDARD RISK</b></p> <p>INR ≤ 1.5 Platelets &gt; 50 x 10<sup>9</sup>/L                      Inpatients 72 hours                      Outpatients 30 days</p>	<p><b>Anticoagulant / Antiplatelet MEDS</b></p>	<p><b>Discontinue *Yes/ No</b></p>	<p><b>Timing of LAST dose BEFORE procedure*</b></p>	<p><b>Timing of FIRST dose AFTER Day of procedure*</b></p>
<p><b>VASCULAR</b></p> <ul style="list-style-type: none"> <li>Angiography/arterial intervention up to 7 Fr access, including diagnostic neuroangiography</li> <li>Central venous interventions</li> <li>Uterine fibroid embolization</li> <li>Transjugular liver biopsy</li> <li>Tunneled CVC/Port/Hickman</li> </ul> <p><b>NON-VASCULAR</b></p> <p><b>Abdominal/Thoracic Procedures</b></p> <ul style="list-style-type: none"> <li>Intraabdominal, chest wall, pleural or retroperitoneal abscess drainage, core biopsy</li> <li>Diagnostic or therapeutic thoracentesis or paracentesis</li> <li>Gastrostomy/gastrojejunostomy</li> <li>Percutaneous cholecystostomy</li> <li>Lithotripsy (ESWL/ISWL)</li> <li>Lung biopsy</li> <li>Uncomplicated thermal ablation – liver, kidney, MSK, lung</li> <li>Core biopsy - prostate</li> <li>Transabdominal liver biopsy</li> <li>Fallopian tube recanalization</li> </ul> <p><b>MSK/Spine Procedures</b></p> <ul style="list-style-type: none"> <li>Lumbar puncture, epidural injection, facet block, rhizotomy, nerve root block</li> <li>Vertebroplasty/kyphoplasty</li> <li>Spine biopsy, paraspinal injection</li> <li>Extremity/MSK core biopsy</li> </ul>	<ul style="list-style-type: none"> <li>aspirin (ASA), any dose</li> </ul>	<p>No</p>		<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>clopidogrel (Plavix®)</li> <li>ticagrelor (Brilinta®)</li> </ul>	<p>Yes</p>	<p>- 6 days</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>prasugrel (Effient®)</li> </ul>	<p>Yes</p>	<p>- 8 days</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>warfarin (Coumadin®)</li> </ul>	<p>Yes</p>	<p>- 6 days CHECK INR 24 hrs prior</p>	<p>Day 0 (evening)</p>
	<ul style="list-style-type: none"> <li>subcutaneous heparin (prophylactic)</li> </ul>	<p>Yes</p>	<p>- 8 hrs prior</p>	<p>Day 0 (evening)</p>
	<ul style="list-style-type: none"> <li>low molecular weight heparin (LMWH)</li> </ul>	<p>Yes</p>	<p>prophylactic: &gt; 12 hrs therapeutic: &gt; 24 hrs</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>(IV) unfractionated heparin &gt; <b>REQUIRES PTT</b></li> </ul>	<p>Yes</p>	<p>Infusion to stop 4 hours prior (goal: PTT ≤ 50 s)</p>	<p>6 hrs after</p>
	<ul style="list-style-type: none"> <li>dabigatran (Pradaxa®)</li> </ul>	<p>Yes</p>	<p>GFR &gt;50: - 2 days GFR ≤50: - 3 days</p>	<p>Day + 2</p>
	<ul style="list-style-type: none"> <li>rivaroxaban (Xarelto®)</li> <li>apixaban (Eliquis®)</li> </ul>	<p>Yes</p>	<p>- 2 days</p>	<p>Day + 2</p>
	<ul style="list-style-type: none"> <li>fondaparinux (Arixtra®)</li> </ul>	<p>Yes</p>	<p>prophylactic: &gt; 24 hrs therapeutic: &gt; 48 hrs</p>	<p>Day + 1 Day + 2</p>

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**LOW RISK PROCEDURES**

<p><b>LOW RISK</b></p> <p>Confirm INR ≤ 2.0 if known or suspected liver disease</p>	<p><b>Anticoagulant / Antiplatelet MEDS</b></p>	<p><b>Discontinue Yes*/ No</b></p>	<p><b>Timing of LAST dose BEFORE procedure if discontinuing</b></p>	<p><b>Timing of FIRST dose AFTER day of procedure*</b></p>
<p><b>VASCULAR</b></p> <ul style="list-style-type: none"> <li>Dialysis access or peripheral venous interventions, including varicocele embolization</li> <li>IVC filter placement/removal</li> <li>PICC insertion</li> <li>Uncomplicated catheter/line exchange/removal</li> <li>Diagnostic venography</li> </ul>	<ul style="list-style-type: none"> <li>aspirin (ASA), any dose</li> </ul>	<p>No</p>		
	<ul style="list-style-type: none"> <li>clopidogrel (Plavix®)</li> <li>ticagrelor (Brilinta®)</li> </ul>	<p>Possible to continue</p>	<p>- 6 days</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>prasugrel (Effient®)</li> </ul>	<p>Possible to continue</p>	<p>- 8 days</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>warfarin (Coumadin®) &gt; <b>RECOMMEND INR ≤ 2.0</b></li> </ul>	<p>Possible to continue</p>	<p>- 4 days <b>CHECK INR 24 hrs prior</b></p>	<p>Day 0 (evening)</p>
<p><b>NON-VASCULAR</b></p> <ul style="list-style-type: none"> <li>Catheter exchange or removal (GU, biliary, abscess)</li> <li>Superficial abscess drainage</li> <li>Core biopsy - breast</li> <li>Peripheral joint injection or aspiration</li> <li>GI tract stenting (colon, esophagus)</li> <li>Hysterosalpingography</li> </ul>	<ul style="list-style-type: none"> <li>subcutaneous heparin</li> <li>low molecular weight heparin (LMWH) – prophylactic</li> </ul>	<p>No</p>		
	<ul style="list-style-type: none"> <li>low molecular weight heparin (LMWH) – therapeutic</li> </ul>	<p>Possible to continue</p>	<p>&gt; 24 hrs</p>	<p>Day + 1</p>
<p><b>Superficial Aspiration / Biopsy (FNAB)</b></p> <ul style="list-style-type: none"> <li>Breast</li> <li>Extremities</li> <li>Lymph nodes</li> <li>Thyroid</li> </ul>	<ul style="list-style-type: none"> <li>(IV) unfractionated heparin</li> </ul>	<p>Possible to continue</p>	<p>Infusion to stop 4 hrs prior</p>	<p>4 hrs</p>
	<ul style="list-style-type: none"> <li>dabigatran (Pradaxa®)</li> </ul>	<p>Possible to continue</p>	<p>GFR &gt;50: - 2 days GFR ≤50: - 3 days</p>	<p>Day + 1</p>
	<ul style="list-style-type: none"> <li>rivaroxaban (Xarelto®)</li> <li>apixaban (Eliquis®)</li> </ul>	<p>Possible to continue</p>	<p>- 2 days</p>	<p>Day + 1</p>
<p><b>NOTE: Most LOW risk procedures do not require the discontinuation of anticoagulation/antiplatelet therapy.</b></p>	<ul style="list-style-type: none"> <li>fondaparinux (Arixtra®)</li> </ul>	<p>Possible to continue</p>	<p>prophylactic: &gt; 24 hrs therapeutic: &gt; 48 hrs</p>	<p>Day + 1</p>

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## Booking Clerk Script:

- “You are booked for a: \_\_\_\_\_ procedure in Medical Imaging.  
If you are on any blood thinner medication, you must ask your Ordering Physician for instructions on discontinuing and resuming your medications”.
- We ask that you contact your doctor for more details on this, as we have faxed this info to them.
- If you don't discuss this with your doctor, your procedure may be cancelled.

### Please Note:

- Patients on anti-inflammatory medications (NSAIDs) such as the following: (Advil® [ibuprofen], Voltaren®, Celebrex®) may **continue** taking them, except for HIGH RISK procedures.
- Please inform your Ordering Physician if you are taking supplements as these may affect blood test results.

### References

1. SIR Journal of Vascular Radiology 2009; 20:S240-S249 – Consensus Guidelines for Periprocedural management of Coagulation Status and Hemostasis Risk in Percutaneous Image-guided Interventions
2. Canadian Journal of Cardiology 2011; 27:S1-S59 – The Use of Antiplatelet Therapy in the Outpatient Setting: Canadian Cardiovascular Society Guidelines
3. Department of Hematology, VCHA, 27 Jan 2015 – Recommendations for the Interruption of Anticoagulation or Anti-platelet Therapy for Elective Invasive Procedures or Surgery

### External links to online version

[http://www.vch.ca/403/7676/?program\\_id=2148](http://www.vch.ca/403/7676/?program_id=2148)

[http://www.fraserhealth.ca/find\\_us/services/our\\_services?program\\_id=8647](http://www.fraserhealth.ca/find_us/services/our_services?program_id=8647)

### Intranet links to online version

[http://vhnet/programs\\_services/diagnostic\\_imaging/medical\\_imaging\\_modalities/angiography/page\\_33891.htm](http://vhnet/programs_services/diagnostic_imaging/medical_imaging_modalities/angiography/page_33891.htm)

[http://fhpulse/clinical\\_support\\_services/mi\\_and\\_nm/Pages/RegionalGuidelines.aspx](http://fhpulse/clinical_support_services/mi_and_nm/Pages/RegionalGuidelines.aspx)

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