Peri-Procedure Management of Antiplatelet Therapy

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

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PRESENTATION
(Inpatient or Outpatient)

EVALUATION

MANAGEMENT PRE- AND POST-PROCEDURE

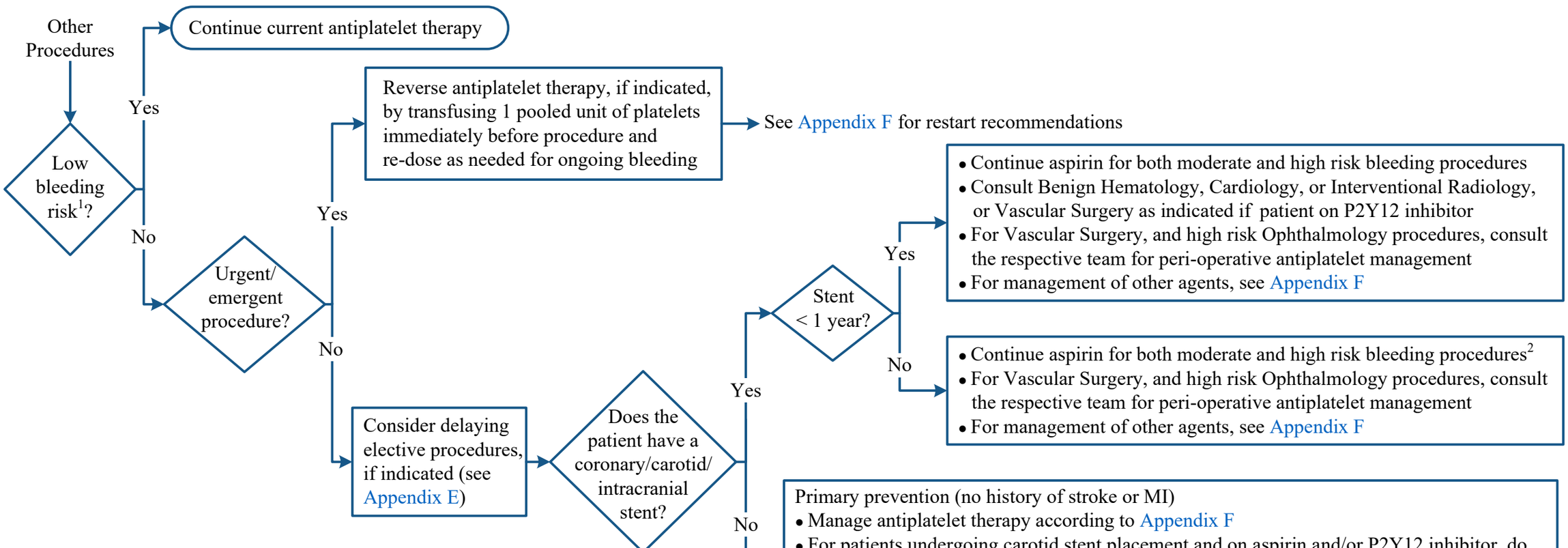
Patient on antiplatelet therapy scheduled for procedure[1]

- Interventional spine and pain procedures **or** Regional anesthesia (neuraxial and peripheral nerve procedures including lumbar puncture) **or** Neurosurgery procedures → Urgent/emergent procedure?
  - Yes → Reverse antiplatelet therapy, if indicated, by transfusing 1 pooled unit of platelets immediately before procedure and re-dose as needed for ongoing bleeding
    - See Appendix B for restart recommendations after an interventional spine and/or spine procedure
    - See Appendix C for restart recommendations after regional anesthesia (neuraxial and peripheral nerve procedures including lumbar puncture)
    - See Appendix D for restart recommendations after neurosurgery procedures
  - No → Consider delaying elective procedures, if indicated (see Appendix E)
    - See Appendix B to determine bleeding risk and management of antiplatelet therapy for interventional spine and pain procedures
    - See Appendix C for management of antiplatelet therapy for regional anesthesia (neuraxial and peripheral nerve procedures including lumbar puncture)
    - See Appendix D to determine bleeding risk and management of antiplatelet based on bleeding risk for neurosurgery procedures
- Other procedures, see Page 3

[1] For patients on anticoagulant therapy, see the Peri-Procedure Management of Anticoagulants algorithm

Peri-Procedure Management of Antiplatelet Therapy

MANAGEMENT PRE- AND POST-PROCEDURE



ASCVD = atherosclerotic cardiovascular disease
CAD = coronary artery disease
CV = cardiovascular
CVD = cardiovascular disease
MI = myocardial infarction
PVD = peripheral vascular disease

[1] See Appendix A for Procedural Bleeding Risks based on type of procedure
[2] If patient on monotherapy with a P2Y12 inhibitor for secondary prevention or history of coronary/intracranial/ carotid stent > 1 year ago, consider holding P2Y12 inhibitor as recommended (see Appendix F) and initiating aspirin while the P2Y12 inhibitor is on hold. If needed, consult appropriate service depending on indication for P2Y12 inhibitor prior to holding.

Department of Clinical Effectiveness V9
Approved by the Executive Committee of the Medical Staff on 10/18/2022

Peri-Procedure Management of Antiplatelet Therapy

APPENDIX A: Procedure Bleeding Risk

Note: For patients who have other risk factors for bleeding (*e.g.,* recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
General Procedures		
• Regional anesthesia (neuraxial and deep peripheral nerve procedures) including lumbar puncture (see Appendix C)	• Bone marrow aspiration and biopsy • Venous port placement	• Ommaya reservoir puncture
Breast Surgical and Breast Radiology Procedures		
• All OR Breast Surgical procedures	• Vacuum assisted breast biopsies (MRI/stereotactic)	• Core biopsy of breast and/or axillary level 1 nodal basin • Fine needle aspiration of breast, axillary nodal basins, internal mammary, and/or supraclavicular lymph nodes • Image guided pre-operative localization of the breast and axillary level 1 nodal basin • Breast punch biopsy in clinic
Cardiology Procedures		
• Coronary intervention • Endomyocardial biopsy • Implantable cardioverter-defibrillator/pacemaker lead extraction • Left atrial appendage occlusion device • Pericardiocentesis	• Diagnostic coronary angiography via femoral access • Electrophysiology testing and/or ablation • Pacemaker or defibrillator placement • Right heart catheterization • Supraventricular tachycardia ablation • Transvenous atrial fibrillation ablation	• Arterioventricular node ablation • Coronary artery angiography (radial approach) • Internal cardiac defibrillator implantation battery change • Permanent pacemaker implantation battery change
Dental Procedures		
• Alevolar surgery (bone removal) • Apicoectomy (root removal) • Complex dental procedure/multiple tooth extraction • Reconstructive dental procedures	• Endodontic (root canal) procedures • Peridontal surgery, abscess incision • Up to 2 tooth extractions	• Dental hygiene • Minor dental procedures
Dermatologic Procedures		
N/A	N/A	• Dermatologic procedures • Mohs Center procedures

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Peri-Procedure Management of Antiplatelet Therapy

APPENDIX A: Procedure Bleeding Risk - continued

Note: For patients who have other risk factors for bleeding (*e.g.*, recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
Gastroenterology Procedures		
• Biliary or pancreatic sphincterotomy and/or dilation • Cystogastrostomy • Endoscopic hemostasis • Endoscopic submucosal dissection (ESD, endoscopic mucosal resection (EMR) or other polypectomy • Endoscopic ultrasound with fine needle aspiration • Full thickness resection • Percutaneous endoscopic gastrostomy (PEG) placement • Pneumatic or bougie dilation • Therapeutic balloon-assisted enteroscopy • Treatment of varices • Tumor ablation by any technique	• Barrett's esophagus ablation • Colonoscopy with biopsy • Diagnostic balloon-assisted enteroscopy • Endoscopic retrograde cholangiopancreatography (ERCP) with stent and/or biopsy • Esophageal or enteral stent • Gastroscopy with biopsy • Sigmoidoscopy with biopsy	• Capsule endoscopy • Colonoscopy without biopsy • Diagnostic esophagogastroduodenoscopy (EGD) • Endoscopic retrograde cholangiopancreatography (ERCP) diagnostic • Endoscopic ultrasound without fine needle aspiration • Push enteroscopy without biopsy • Sigmoidoscopy without biopsy
Gynecology Oncology Procedures		
• All other Gynecology Oncology procedures	• Cold knife conization (CKC)/loop electrosurgical excision procedure (LEEP) • Superficial wide local excisions	• Colposcopy • Dilatation and curettage • Endometrial biopsy • Exam under anesthesia • Hysteroscopy • Insertion/Removal of intrauterine device • Laser ablation of the cervix/vulva/vagina • Vulvar/vaginal/cervical biopsies
Head and Neck Surgery Procedures		
• All other Head and Neck Surgery procedures	N/A	• Flexible nasopharyngeal laryngoscopy (when performed outside of the OR)

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APPENDIX A: Procedure Bleeding Risk - continued

Note: For patients who have other risk factors for bleeding (*e.g.,* recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
Interventional Radiology Procedures		
• Ablations: solid organs, bone, soft tissues, lung • Angiography with arterial intervention (*e.g.,* angioplasty) with access size > 6 French • Aortic stent graft • Catheter directed thrombolysis (arterial and venous) • Gastrostomy, jejunostomy tube placement • Intrathecal chemotherapy • Lung interventions: biopsy, fiducial placement, intratumoral injection, and drainage (parenchymal) • Percutaneous embolectomy, thrombectomy • Portal vein embolization and stenting • Solid organ biopsies, fiducial placement, and intratumoral injection (*e.g.,* liver, prostate, cervical) • Solid organ drainage: nephrostomy, biliary, cholecystostomy • Spine procedures: vertebroplasty, kyphoplasty (see Appendix B) • Transjugular intrahepatic porto-systemic shunt (TIPS) • Venous interventions (intrathoracic, intracranial)	• Carotid stent placement • Catheter exchange < 6 weeks from initial placement (*e.g.,* biliary, nephrostomy, abscess, gastrostomy, jejunostomy) • Deep, non-organ biopsy, fiducial placement, and intratumoral injection • Diagnostic angiography, with access size up to 6 French • Non-organ drainage (*e.g.,* abdominal or retroperitoneal abscess) • Non-tunneled chest tube placement (pleural space) • Thoracentesis • Trans-arterial embolotherapy • Transjugular liver biopsy • Tunneled central venous catheter placement • Tunneled drainage catheter placement or removal • Venous interventions (peripheral) • Venous port placement	• Catheter exchange > 6 weeks from initial placement (*e.g.,* biliary, nephrostomy, abscess, gastrostomy, jejunostomy) • Diagnostic angiography (radial approach) • Intraperitoneal catheter placement • Inferior vena cava filter placement or retrieval • Non-tunneled central line placment or removal • Paracentesis • Superficial (*e.g.,* lymph nodes, thyroid) or palpable mass biopsies, fiducial placement, and intratumoral injection • Superficial abscess drainage • Tunneled central venous catheter removal • Venous port removal
Neuro-Oncology Procedures		
• Paraspinal, Diaphragm Electromyography (EMG) • Lumbar puncture (see Appendix C)	• Deep muscle (gastrocnemius, infraspinatus, supraspinatus) EMG	• Superficial muscle EMG
Neuroradiology Procedures		
• Lumbar puncture (see Appendix C) • Solid organ biopsies	• Deep, non-organ biopsy	• Superficial or palpable mass biopsies

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APPENDIX A: Procedure Bleeding Risk – continued

Note: For patients who have other risk factors for bleeding (*e.g.,* recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
Ophthalmic Procedures		
• Eye plaque brachytherapy • Orbital surgery/major eyelid surgery/lacrimal surgery/ eye removal/orbital removal • Posterior eye surgery • Scleral buckle	• Conjunctival surgery • Descemet's stripping endothelial keratoplasty (DSEK) • Glaucoma procedures (*i.e.,* trabeculectomy) • Minor eyelid or pericular surgery • Penetrating keratoplasty	• Cataract surgery • Intravitreal injection of pharmacologic agent • Vitreoretinal surgery (except scleral buckle)
Orthopedic Procedures		
• Arthroplasty • Carpal tunnel repair • All other OR Oncologic Orthopedic procedures	• Arthroscopy • Shoulder, foot, and ankle tendon repair	• Joint or soft tissue injections
Plastic Surgery Procedures		
• All OR Plastic Surgery procedures	N/A	N/A
Pulmonary Procedures		
• Diagnostic bronchoscopy with endobronchial biopsy • Diagnostic bronchoscopy with endobronchial ultrasound-guided transbronchial needle aspiration • Diagnostic bronchoscopy with transbronchial biopsy • Pleuroscopy, pleural biopsy • Therapeutic bronchoscopy with endobronchial tumor destruction, stenosis relief, management of hemoptysis	• Bronchial or tracheal stent placement • Chemical pleurodesis • Non-tunneled chest tube placement (pleural space) • Thoracentesis • Tracheostomy • Tunneled pleural catheter placement or removal	• Diagnostic bronchoscopy airway exam without biopsy • Diagnostic bronchoscopy with bronchoalveolar lavage without biopsy

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APPENDIX A: Procedure Bleeding Risk – continued

Note: For patients who have other risk factors for bleeding (*e.g.,* recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
Surgical Oncology		
• All other OR Surgical Oncology procedures • Complex central line placement (subclavian or internal jugular vein vascular device placement) • Complex dialysis/apheresis catheter placement	• Diagnostic laparoscopy (if any open procedures are planned or possible, procedure would be considered high risk) • Incision and drainage • Non-complicated central line placement (subclavian or internal jugular vein vascular device placement) • Non-complicated dialysis/apheresis catheter placement (subclavian or internal jugular vein) • Superficial wide local excision • Tunneled central venous catheter removal • Venous port placement or removal	• Femoral vein vascular access device placement • Non-tunneled central venous catheter exchange or removal
Thoracic and Cardiovascular Surgery Procedures		
• All OR Thoracic and Cardiovascular Surgery Procedures • Endoscopic mucosal resection (EMR) • For other high bleeding risk procedures, see Pulmonary Procedures section on Page 7	• Pericardial window • For other moderate bleeding risk procedures, see Pulmonary Procedures section on Page 7	• Diagnostic esophagogastroduodenoscopy (EGD) • For other low bleeding risk procedures, see Pulmonary Procedures section on Page 7
Urology Procedures		
• All OR Urology procedures • Prostate biopsy • Solid organ fiducial placement	N/A	• Cystoscopy without bladder resection

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APPENDIX A: Procedure Bleeding Risk – continued

Note: For patients who have other risk factors for bleeding (*e.g.,* recent bleeding event, thrombocytopenia) consider utilizing the management recommendations for high risk bleeding procedures.

High Bleeding Risk	Moderate Bleeding Risk	Low Bleeding Risk
Vascular Access and Procedures Team		
• Complex central line placement (subclavian or internal jugular vein vascular device placement) • Complex dialysis/apheresis catheter placement • Lumbar puncture (see Appendix C)	• Non-complicated central line placement (subclavian or internal jugular vein vascular device placement) • Non-complicated dialysis/apheresis catheter placement (subclavian or internal jugular vein)	• Femoral vein vascular access device placement • Non-tunneled central venous catheter exchange or removal • Paracentesis • Peripherally inserted central catheter (PICC) placement • Tunneled central venous catheter removal • Venous port removal
Vascular Surgery Procedures		
• All open and hybrid Vascular Surgery procedures • Consult with Vascular Surgery for peri-operative antiplatelet management	N/A	N/A

Peri-Procedure Management of Antiplatelet Therapy

APPENDIX B: Procedure Bleeding Risk and Management of Antiplatelet Therapy for Interventional Spine and Pain Procedures

Procedure Bleeding Risk

High Risk Bleed:	Moderate Risk Bleed[1]:	Low Risk Bleed[1]:
• Spinal cord stimulation trial and implant • Dorsal root ganglion stimulation • Intrathecal catheter and pump implant • Vertebral augmentation (vertebroplasty and kyphoplasty) • Percutaneous decompression laminotomy • Epiduroscopy and epidural decompression • Peripheral nerve stimulator trial and implant (for locations close to critical vessels or highly-invasive procedures) • Intrathecal injections • Epidural blood patch • Paravertebral blocks • Radiofrequency- and cryo-ablations of peripheral nerves (for locations close to critical vessels or highly-invasive procedures) • Radiofrequency- and cryo-ablations of sympathetic ganglia	• Interlaminar and transforaminal epidural steroid injections • Cervical facet medial branch nerve blocks • Radiofrequency ablation of the cervical facet joints • Intradiscal procedures (cervical, thoracic, lumbar) • Sympathetic blocks (stellate, thoracic, splanchnic, celiac, lumbar, hypogastric) • Trigeminal and sphenopalatine ganglia blocks • Cervical intra-articular injections • Trans-nasal sphenopalatine ganglion block • Injections at ligaments and tendons • Radiofrequency- and cryo-ablations of peripheral nerves (for locations not close to critical vessels and low-invasive procedures)	• Peripheral nerve blocks with no catheter placement (excluding trigeminal nerve blocks) • Peripheral nerve blocks with catheter placement (for locations not close to critical vessels and low-invasive procedures) • Peripheral joints and musculoskeletal injections • Trigger point injections including piriformis injection • Sacroiliac joint injection and sacral lateral branch blocks • Thoracic and lumbar facet medial branch nerve block • Radiofrequency ablations of thoracic and lumbar facet joints • Peripheral nerve stimulator trial and implant (for locations not close to critical vessels and low-invasive procedures) • Pocket revision and implantable pulse generator/intrathecal pump replacement

[1] Patients with high risk of bleeding [*e.g.*, old age, history of bleeding tendency, concurrent uses of other anticoagulants/antiplatelets, liver cirrhosis or advanced liver disease, advanced renal disease, and patients on vascular endothelial growth factor (VEGF) inhibitor therapy] undergoing low- or moderate-risk procedures should be treated as moderate or high risk, respectively

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Peri-Procedure Management of Antiplatelet Therapy

APPENDIX B: Procedure Bleeding Risk and Management of Antiplatelet Therapy for Interventional Spine and Pain Procedures - continued

Management of Antiplatelet Therapy for Interventional Spine and Pain Procedures based on Bleeding Risk

Note: Consult proceduralist if patient has recently (within the past 10 days) taken full dose thrombolytic medication (altepase).

	Low Risk		Moderate Risk		High Risk	
	Hold Recommendations Prior to Procedure	**Restart Recommendations After Procedure**	**Hold Recommendations Prior to Procedure**	**Restart Recommendations After Procedure**	**Hold Recommendations Prior to Procedure**	**Restart Recommendations After Procedure**
Nonsteroidal anti-inflammatory drugs (NSAIDs)	No restrictions for any NSAID	No restrictions for any NSAID	No restrictions for any NSAID	No restrictions for any NSAID	Diclofenac 1 day Etodolac 2 days Ibuprofen 1 day Indomethacin 2 days Ketorolac 1 day Meloxicam 4 days Nabumetone 6 days Naproxen 4 days Oxaprozin 10 days Piroxicam 10 days	24 hours
Aspirin Aspirin/Dipyridamole (Aggrenox®)	No restrictions	No restrictions	No restrictions[1,2]	24 hours if therapy is held	Primary prevention: 7 days Secondary prevention[2]	24 hours
Clopidogrel (Plavix®)	No restrictions	No restrictions	5 days[2]	24 hours	5 days[2]	24 hours
Prasugrel (Effient®)	No restrictions	No restrictions	7 days[2]	24 hours	7 days[2]	24 hours
Ticagrelor (Brilinta®)	No restrictions	No restrictions	5 days[2]	24 hours	5 days[2]	24 hours
Cilostazol	No restrictions	No restrictions	No restrictions	No restrictions	48 hours	24 hours
Dipyridamole	No restrictions	No restrictions	No restrictions	No restrictions	48 hours	24 hours
Cangrelor (Kengreal®)	No restrictions	No restrictions	3 hours	24 hours	3 hours	24 hours
Vorapaxar (Zontivity®)	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology

[1] Consideration should be given to the discontinuation of aspirin for certain moderate-risk procedures, including interlaminar cervical epidural steroid injections (ESIs) and stellate ganglion blocks, where specific anatomical configurations may increase the risk and consequences of procedural bleeding

[2] If patient is on aspirin, aspirin/dipyridamole and/or P2Y12 inhibitor for **secondary prevention** or **history of coronary/carotid/intracranial stent**, decision to hold antiplatelet therapy should be made after discussion with Benign Hematology, Cardiology, Interventional Radiology, Vascular Surgery or other appropriate service depending on indication for antiplatelet therapy

APPENDIX C: Management of Antiplatelet Therapy for Regional Anesthesia (neuraxial and deep peripheral nerve procedures, including lumbar puncture)

Note: Consult proceduralist if patient has recently (within the past 10 days) taken full dose thrombolytic medication (altepase).

Medication	Hold Recommendations Prior to Catheter Insertion	Management While Epidural Catheter in Place	Restart Recommendations After Catheter Removal
Aspirin	May be given without time restrictions	May be given	May be given without time restrictions
NSAIDs	May be given without time restrictions	May be given	May be given without time restrictions
Aspirin/dipyridamole (Aggrenox®)	24 hours	Do not give unless approved by Acute Pain service	6 hours
Dipyridamole	24 hours		6 hours
Clopidogrel[1] (Plavix®)	5 days		6 hours
Cilostazol	2 days		6 hours
Prasugrel[1] (Effient®)	7 days		6 hours
Ticagrelor[1] (Brilinta®)	5 days		6 hours
Cangrelor (Kengreal®)	3 hours		6 hours
Vorapaxar (Zontivity®)	Consult Cardiology		Consult Cardiology

NSAID = nonsteroidal anti-inflammatory drug

[1] If patient on P2Y12 inhibitor for **secondary prevention** or **history of coronary/intracranial/carotid stent**, decision to hold antiplatelet therapy should be made after discussion with Benign Hematology, Cardiology, Interventional Radiology, Vascular Surgery or other appropriate service depending on the indication for antiplatelet therapy

APPENDIX D: Procedure Bleeding Risk and Management of Antiplatelet Therapy for Neurosurgery Procedures

Procedure Bleeding Risk

High Risk Bleed:	Moderate Risk Bleed:	Low Risk Bleed:
• All other neurosurgery cranial and spinal procedures	• Ommaya reservoir placement/removal • Intraventricular catheter (EVD) placement/removal • Steriotactic biopsy • Lumbar drain placement/removal • Gamma knife procedures[1] • Extradural skull base procedures • Ventriculoperitoneal (VP) shunt placement/removal	• Ommaya reservoir tap • Ventriculoperitoneal (VP) shunt tap

[1] P2Y12 inhibitors may be continued especially for patients with a high risk for thromboembolism. Consult with Neurosurgery prior to procedure.

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APPENDIX D: Procedure Bleeding Risk and Management of Antiplatelet Therapy for Neurosurgery Procedures - continued

Management of Antiplatelet Therapy for Neurosurgical Procedures based on Bleeding Risk

Note: Consult proceduralist if patient has recently (within the past 10 days) taken full dose thrombolytic medication (altepase). Restart recommendations after neurosurgical procedures are based on hemostasis being established.

	Low Risk		Moderate Risk		High Risk	
	Hold Recommendations Prior to Procedure	**Restart Recommendations After Procedure**	**Hold Recommendations Prior to Procedure**	**Restart Recommendations After Procedure**	**Hold Recommendations Prior to Procedure**	**Restart Recommendations After Procedure**
Nonsteroidal anti-inflammatory drugs (NSAIDs)	No restrictions for any NSAID	No restrictions for any NSAID	No restrictions for any NSAID	No restrictions for any NSAID	Diclofenac 1 day Etodolac 2 days Ibuprofen 1 day Indomethacin 2 days Ketorolac 1 day Meloxicam 4 days Nabumetone 6 days Naproxen 4 days Oxaprozin 10 days Piroxicam 10 days	7 days
Aspirin Aspirin/Dipyridamole (Aggrenox®)	No restrictions	No restrictions	No restrictions	No restrictions	7 days[1]	Primary prevention: 4-8 weeks Secondary prevention: 7 days
Clopidogrel (Plavix®)	No restrictions	No restrictions	5 days[1,2]	3-5 days	5 days[1]	7 days
Prasugrel (Effient®)	No restrictions	No restrictions	7 days[1,2]	3-5 days	7 days[1]	7 days
Ticagrelor (Brilinta®)	No restrictions	No restrictions	5 days[1,2]	3-5 days	5 days[1]	7 days
Cilostazol	No restrictions	No restrictions	No restrictions	No restrictions	1-2 days	7 days
Dipyridamole	No restrictions	No restrictions	No restrictions	No restrictions	1-2 days	7 days
Cangrelor (Kengreal®)	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology
Vorapaxar (Zontivity®)	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology	Consult Cardiology

[1] If patient is on aspirin, aspirin/dipyridamole and/or P2Y12 inhibitor for **history of coronary/carotid/intracranial stent < 1 year ago**, decision to hold antiplatelet therapy should be made after discussion with Benign Hematology, Cardiology, Interventional Radiology, Vascular Surgery or other appropriate service depending on indication for antiplatelet therapy

[2] If patient on monotherapy with a P2Y12 inhibitor for **secondary prevention** or **history of coronary/intracranial/carotid stent > 1 year ago**, consider holding P2Y12 inhibitor as recommended and initiating aspirin while the P2Y12 inhibitor is on hold. If needed, consult appropriate service depending on indication for P2Y12 inhibitor prior to holding.

APPENDIX E: Recommendations for Delaying Elective Procedures

Medical Condition	Delay Elective Surgery
Balloon angioplasty	14 days
Bare-metal stent placement	30 days[1]
Drug-eluting stent placement	6 months[1]
Ischemic stroke	1 month[2]

[1] Consult Cardiology for further recommendations as indicated
[2] Consult Neurology for further recommendations as indicated

APPENDIX F: Management of Antiplatelet Therapy for Other Procedures

See Appendix B for Procedure Bleeding Risk and Management of Antiplatelet Therapy for Interventional Spine and Pain Procedures
See Appendix C for Management of Antiplatelet Therapy for Regional Anesthesia (neuraxial and deep peripheral nerve procedures, including lumbar puncture)
See Appendix D for Procedure Bleeding Risk and Management of Antiplatelet Therapy for Neurosurgery Procedures

Note: For patients on Vorapaxar (Zontivity®) or Cangrelor (Kengreal®), consult Cardiology for peri-procedure management

	Procedure Bleed Risk	Day -7	Day -6	Day -5	Day -4	Day -3	Day -2	Day -1	Day of Procedure	Day +1	Day +2
Aspirin[1,2]	Moderate	No hold needed prior to procedure							-	-	-
	High	Hold 7 days prior to procedure	→							Resume 24 hours after procedure	-
Aspirin/Dipyridamole (Aggrenox®)[1,2]	Moderate	No hold needed prior to procedure							-	-	-
	High	Hold 7 days prior to procedure	→							Resume 24 hours after procedure	-
Clopidogrel (Plavix®)[3,4]	Moderate/High	-	-	Hold 5 days prior to procedure	→					Resume 24-48 hours after procedure	
Cilostazol	Moderate	No hold needed prior to procedure							-	-	-
	High	-	-	-	-	-	Hold 1-2 days prior to procedure	→		Resume 24 hours after procedure	-
Dipyridamole	Moderate	No hold needed prior to procedure							-	-	-
	High	-	-	-	-	-	Hold 1-2 days prior to procedure	→		Resume 24 hours after procedure	-
NSAIDs	Moderate/High	No hold needed prior to procedure							-	-	-
Prasugrel (Effient®)[3,4]	Moderate/High	Hold 7 days prior to procedure	→							Resume 24-48 hours after procedure	
Ticagrelor (Brilinta®)[3,4]	Moderate/High	-	-	Hold 5 days prior to procedure	→					Resume 24-48 hours after procedure	

[1] If patient is on aspirin for **primary prevention**, hold as recommended
[2] If patient undergoing carotid stent placement, do NOT hold aspirin or P2Y12 inhibitor prior to procedure
[3] If patient is on a P2Y12 inhibitor for **history of coronary/intracranial/carotid stent placed < 1 year ago**, decision to hold antiplatelet therapy should be made after discussion with Benign Hematology, Cardiology, Intervention Radiology, Vascular Surgery or other appropriate service depending on the indication for antiplatelet therapy prior to holding. For all other indications, hold P2Y12 inhibitor if patient also on aspirin.
[4] If patient on monotherapy with a P2Y12 inhibitor for **secondary prevention** or **history of coronary/intracranial/carotid stent > 1 year ago**, consider holding P2Y12 inhibitor as recommended above and initiating aspirin while the P2Y12 inhibitor is on hold. If needed, consult appropriate service depending on indication for P2Y12 inhibitor prior to holding.

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SUGGESTED READINGS - continued

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