

WakeMed Perioperative Services:

Outpatient Preoperative Medication Guidelines – 9/2024

ANTIHYPERTENSIVES/ANTIARRHYTHMICS			
Drug Class	Drugs in Class	When to Hold	Reason
Angiotensin Converting Enzyme (ACE) Inhibitors	Benazepril / amlodipine (Lotrel) Benazepril (Lotensin) Benazepril / HCTZ (Lotensin HCT) Captopril (Capoten) Captopril / HCTZ (Capozide) Enalapril (Vasotec) Enalapril / HCTZ (Vaseretic) Fosinopril (Monopril) Fosinopril / HCTZ (Monopril HCT) Lisinopril (Prinivil, Zestril) Lisinopril / HCTZ (Prinzide or Zestoretic) Moexipril (Univasc) Moexipril / HCTZ (Uniretic) Perindopril (Aceon) Quinapril (Accupril) Quinapril / HCTZ (Accuretic) Ramipril (Altace) Trandolapril (Mavik) Trandolapril/verapamil (Tarka)	HOLD Day of Surgery *EXCEPTION- DO NOT HOLD FOR CATARACT SURGERY	Potential Hypotension intra-op risk
Angiotensin Receptor Blockers (ARB)	Azilsartan (Edarbi) Candesartan (Atacand) Candesartan/HCTZ (Atacand HCT) Azilsartan medoxomil and chlorthalidone (Edarbyclor) Eprosartan (Teveten) Eprosartan/HCTZ (Teveten HCT) Irbesartan (Avapro) Irbesartan / HCTZ (Avalide) Losartan (Cozaar) Losartan / HCTZ (Hyzaar) Olmesartan (Benicar) Olmesartan / HCTZ (Benicar HCT) Telmisartan (Micardis) Telmisartan/HCTZ (Micardis HCT) Valsartan (Diovan) Valsartan / HCTZ (Diovan HCT)	HOLD Day of Surgery	Potential Hypotension intra-op risk

	Sacubitril / Valsartan (Entresto)		
Beta Blockers	Acebutolol (Sectral) Atenolol (Tenormin) Betaxolol (Kerlone) Bisoprolol (Zebeta) Carvedilol (Coreg) Metoprolol (Lopressor, Toprol XL) Nadolol (Corgard) Nebivolol (Bystolic) Penbutolol (Levatol) Pindolol (Visken) Propranolol (Inderal) Sotalol (Betapace)	Do NOT hold prior to surgery	Withdrawal or rebound effects if held
Calcium Channel Blockers	Amlodipine (Norvasc) Clevipidine (Cleviprex) Diltiazem (Cardizem) Felodipine (Plendil) Isradipine (Dynacirc) Nicardipine (Cardene) Nifedipine (Procardia, Adalat) Nimodipine (Nimotop) Verapamil (Calan, Covera-HS, Verelan)	Do NOT hold prior to surgery	
Digoxin	Digoxin (Lanoxin)	Do NOT hold prior to surgery	
Tikosyn	Dofetilide (Tikosyn)	Do NOT hold prior to surgery	
Non-selective MAO Hydralazine	Hydralazine (Apresoline)	Do NOT hold prior to surgery	
Anti-anginal	Isosorbide (IMDUR)	Do NOT hold prior to surgery	
Alpha 1 Blocker	Prazosin (Minipress) Tamsulosin (Flomax) Cardura (doxazosin)	Do NOT hold prior to surgery	
Dronedarone	Dronedarone (Multaq)	Do NOT hold prior to surgery	
Flecainide	Flecainide (Tambocor)	Do NOT hold prior to surgery	
Midodrine	Midodrine (Proamatine)	Do NOT hold prior to surgery	
Desmopressin (DDAVP)	Desmopressin (DDAVP)	Do NOT hold prior to surgery	

Diuretics	Acetazolamide (Diamox) Amiloride Amiloride/Hydrochlorothiazide (Moduretic) Bendroflumethiazide Bumetanide (Bumex) Chlorothiazide (Diuril) Chlorthalidone (Thalitone/Hygroten) Eplerenone (Inspra) Ethacrynic acid (Edecrin) Furosemide (Lasix) Hydrochlorothiazide (Microzide, Esidrix) Indapamide (Lozol) Metolazone (Zaroxolyn) Methazolamide Methyclothiazide Metolazone (Zaroxolyn) Spironolactone (Aldactone) Spironolactone/Hydrochlorothiazide (Aldactazide) Torsemide (Demadex) Triamterene (Dyrenium) Triamterene / HCTZ (Dyazide, Maxzide)	HOLD day of surgery	Increases the risk of hypokalemia / hypovolemia
Statins	Atorvastatin (Lipitor) Fluvastatin (Lescol) Lovastatin (Mevacor) Pitavastatin (Livalo) Pravastatin (Pravachol) Rosuvastatin (Crestor) Simvastatin (Zocor)	Do NOT hold prior to surgery	
RESPIRATORY MEDICATIONS			
Drug Class	Drugs in Class	When to hold	Reason
Bronchodilators	Albuterol (ProAir, Proventil, Ventolin) Albuterol/Ipratropium (Duoneb, Combivent) Formoterol/Budesonide (Symbicort) Formoterol/Mometasone (Dulera) Ipratropium (Atrovent) Levalbuterol (Xopenex) Salmeterol (Serevent) Salmeterol/Fluticasone (Advair)	Use on day of surgery	

Inhaled Steroids	Beclomethasone (QVAR) Flunisolide (AeroBid) Fluticasone (Flovent) Mometasone (Asmanex) Triamcinolone (Asmacort)	Use on day of surgery	
ANTICOAGULANTS			
Drug Class	Drugs in Class	When to hold	Reason
Direct Thrombin Inhibitors	Dabigatran (Pradaxa)	Do not discontinue without consulting prescribing physician	Increased risk of bleeding complications. No spinal or epidural within seven days of last dose.
Factor XA Inhibitor	Fondaparinux (Arixtra) Apixaban (Eliquis) Rivaroxaban (Xarelto)	Do not discontinue without consulting prescribing physician	Increased risk of bleeding complications.
Heparin SQ	Heparin SQ	At least 4 hours prior to surgery	Increased risk of bleeding complications
Low molecular weight heparin	Dalteparin (Fragmin) Enoxaparin (Lovenox)	24 hrs prior to surgery if on full anticoagulant dose (1 mg/kg), 12 hrs prior to surgery if on DVT prophylaxis dose (0.5 mg/kg)	Increased risk of bleeding; No spinal or epidural within 12 hrs of prophylaxis dose (0.5 mg/kg) and 24 hrs of therapeutic dose (1 mg/kg)
Warfarin	Warfarin (Coumadin)	Do not discontinue without consulting prescribing physician	Increased bleeding risk.
Aspirin (and Aspirin-containing drugs)	Aspirin Aspirin/acetaminophen/caffeine (Excedrin) Aspirin/butalbital/caffeine (Fiorinal) Aspirin/carisoprodol (Soma Compound) Aspirin/carisoprodol/codeine (Soma compound w/ codeine) Aspirin/dipyridamole (Aggrenox) Aspirin/orphenadrine/caffeine (Norgesic) Aspirin/oxycodone (Percodan)	If no history of CAD or stroke: Discontinue 5-10 days prior to surgery, especially for ophthalmologic and neurosurgical procedures. Patients with hx of CAD or stroke: Continue Aspirin, including day of surgery if at all possible. Need to consult with surgeon	Increased risk of bleeding complications

		if neuro/ spine/ ophthalmologic surgery.	
Anti-Platelet Drugs	<p>Clopidogrel (Plavix)</p> <p>Prasugrel (Effient)</p> <p>Ticagrelor (Brilinta)</p> <p>Ticlopidine (Ticlid)</p>	<p>Do NOT discontinue without explicit instructions from prescribing physician! Must be documented by prescribing physician on form N-372 (Request for Preoperative Cardiac Evaluation)</p>	<p>Increased risk of bleeding complications</p>
	<p>Cilostazol (Pletal)</p> <p>Dipyridamole (Persantine)</p> <p>Dipyridamole/Aspirin (Aggrenox)</p>	<p>HOLD 4 days preop</p> <p>HOLD 2 days preop</p> <p>HOLD 7 days preop</p>	
Short-acting NSAIDs	<p>Diclofenac (Cataflam, Voltaren)</p> <p>Etodolac (Lodine)</p> <p>Fenoprofen (Nalfon)</p> <p>Flurbiprofen (Ansaid)</p> <p>Ibuprofen (Advil, Motrin)</p> <p>Ibuprofen/Hydrocodone (Vicoprofen)</p> <p>Ibuprofen/Oxycodone (Combunox)</p> <p>Indomethacin (Indocin)</p> <p>ketoprofen (Orudis KT, Oruvail)</p> <p>Ketorolac (Toradol)</p> <p>Meclofenamate (Meclomen)</p> <p>Mefenamic Acid (Ponstel)</p> <p>Tolmetin (Tolectin)</p>	<p>HOLD day prior to surgery</p>	<p>Increased risk for bleeding and renal complications</p>
Long-acting NSAIDs	<p>Diflunisal (Dolobid)</p> <p>Etodolac (Lodine XL)</p> <p>Meloxicam (Mobic)</p> <p>Nabumetone (Relafen)</p> <p>Naproxen (Aleve, Anaprox, Naprosyn)</p> <p>Oxaprozin (Daypro)</p> <p>Piroxicam (Feldene)</p> <p>Sulindac (Clinoril)</p>	<p>At least 3 days prior to surgery</p>	<p>Increased risk for bleeding and renal complications</p>

Cox-2 Inhibitors	Celecoxib (Celebrex) Nabumetone (Relafen)	At least 3 days prior to surgery	Increased risk for renal, thrombo-embolic complications
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OPIOID PAIN MEDICATIONS

Drug Class	Drugs in Class	When to hold	Reason
Long-Acting Opioids	Fentanyl Patch (Duragesic) Hydromorphone SR (Exalgo) Methadone (Dolophine) Morphine SR (MS Contin, Kadian, Avinza) Morphine SR/Naltrexone (Embeda) Oxycodone SR (Oxycontin) Oxymorphone (Opana ER)	Do NOT hold prior to surgery	Discontinuation may result in opioid withdrawal and difficulty with postoperative pain control.
Short-Acting Opioids	Hydrocodone Hydrocodone/Acetaminophen (Hycet, Lorcet, Lortab, Norco, Vicodin, Zydone) Hydrocodone/Ibuprofen (Vicoprofen) Hydromorphone (Dilaudid) Hydromorphone ER (Exalgo) Morphine Oxycodone (Roxicodone) Oxycodone/Acetaminophen (Percocet, Endocet, Roxicet) Oxycodone/Aspirin (Percodan, Endodan) Propoxyphene/Acetaminophen (Darvocet) Propoxyphene/Aspirin (Darvon) Tapentadol (Nucynta)	Do NOT hold prior to surgery Switch patient from Aspirin and Ibuprofen containing drugs one-week preop.	Discontinuation may result in opioid withdrawal and difficulty with postoperative pain control.
Opioid / Antagonists	Buprenorphine/Naloxone (Suboxone) Buprenorphine patch (Butrans) Naltrexone (Vivitrol, ReVia, Depade)	Have Pt discuss with prescribing/contracted provider. Advise pt pain control will be difficult post-op	
Topical local Anesthetic	Lidocaine patch	Continue	
Skeletal Muscle Relaxant	Carisoprodol Soma Metaxalone (Skelaxin) Tizanidine (Zanaflex)	Continue	

STEROID AND IMMUNE MEDICATIONS

Drug Class	Drugs in Class	When to hold	Reason
Steroids	Prednisone Methylprednisolone (Medrol)	Do NOT hold prior to surgery	Adrenal insufficiency

THYROID MEDICATIONS			
Drug Class	Drugs in Class	When to hold	Reason
Thyroid hormone	Levothyroxine (Synthroid, Levoxyl) Dessicated thyroid (Armour Thyroid)	Do NOT hold prior to surgery	
DIABETES MEDICATIONS			
Drug Class	Drugs in Class		
Oral Diabetic Drugs	Acarbose Alogliptin (Nesina) Alogliptin/Pioglitazone (Oseni) Metformin Glimepiride (Amaryl) Glipizide (Glucotrol) Glyburide (Micronase, DiaBeta) Linagliptin (Trajenta) Nateglinide (Starlix) Pioglitazone (Actos) Repaglinide (Prandin) Rosiglitazone (Avandia) Saxagliptin (Onglyza) Saxagliptin/Metformin ER (Kombiglyze XR) Sitagliptin (Januvia) Sitagliptin/Metformin ER (Janumet)	See diabetes instructions	
Rapid-Acting Insulins	Afrezza (inhaled insulin) Regular Insulin (Humulin, Novolin) Insulin Aspart (Novolog) Insulin Glulisine (Apidra) Insulin Lispro (Humalog)	See Diabetes Instructions	
Intermediate and Insulin Combinations	Insulin NPH (Humulin N, Novolin N) Humulin 70/30 Humalog 50/50 Humalog 75/25 Novolin 70/30 Novolog 70/30	See diabetes instructions	
Long-Acting Insulin	Insulin Glargine (Lantus, Toujeo) Insulin Detemir (Levemir) Insulin Degludec (Tresiba) Basaglar	See diabetes instructions	
Combined Insulin & GLP-1 Products	Insulin degludec & liraglutide (Xultophy) Insulin glargine & lixisenatide (Soliqua)	See diabetes instructions	

Combined GLP-1 and GIP Agonist	Tirzepatide (Mounjaro, Zepbound TM)	Hold one week prior to procedure	These medications slow gastric emptying thus increasing the likelihood of pulmonary aspiration.
Long Acting GLP-1	Semaglutide (Ozempic, Wegovy) Semaglutide (Rybelsus: oral) Dulaglutide (Trulicity) Exenatide ER (Bydureon)	Hold one week prior to procedure	These medications slow gastric emptying thus increasing the likelihood of pulmonary aspiration.
Short Acting GLP-1	Exenatide (Byetta, Bydureon) Lixisenatide (Adlyxin) Liraglutide (Victoza, Saxenda) Pramlintide (Symlin)	If daily dosing, take usual dose	
SGLT2 Inhibitors	<p>Canagliflozin (Invokana) Dapagliflozin (Farxgia) Empagliflozin (Jardiance) Ertugliflozin (Steglatro) Empagliflozin and metformin (Synjardy and Synjardy XR)</p> <p>There are multiple combination drugs on the market. Consider the main ingredient if it involves combination drugs follow directions for the SGLT-2 ingredient.</p> <p>Instructions for monitoring glucose once SGLT-2 medication held:</p> <p>Stopping these medications for such a short time should</p>	<p>Hold 3 days prior to surgery</p> <p>Canagliflozin (Invokana) Dapagliflozin (Farxgia) Empagliflozin (Jardiance)</p> <p>Hold 4 days prior to surgery</p> <p>Ertugliflozin (Steglatro)</p> <p>Have patient monitor glucose closely once medications are discontinued</p>	Discontinuing lowers risk of ketoacidosis intra/postoperatively

	<p>not cause a dramatic change in glucose (blood sugar).</p> <ul style="list-style-type: none"> • Please check your glucose (blood sugar) a minimum of 2 times daily • If you see an increase of 50 points or greater contact your primary care provider (PCP) for treatment advice • If glucose is greater than 200 more than once, contact PCP. 		
CNS AGENTS			
Drug Class	Drugs in Class	When to hold	Reason
Benzodiazepines	Alprazolam (Xanax) Chlordiazepoxide (Librium) Diazepam (Valium)	Do NOT hold prior to surgery	Risk of withdrawal if stopped abruptly; potential for additive effects
Antidepressants- Monoamine Oxidase (MAO) Inhibitors	Isocarboxazid (Marplan) Phenelzine (Nardil) Tranylcypromine (Parnate) Rasagiline (Azilect) Selegiline patch (Emsam)	Taper off 2 weeks prior to surgery if possible OK to continue Discontinue at least 10 days prior to surgery if possible	Drug interactions (e.g., ephedrine, meperidine, methadone, tramadol), which could cause a hypertensive crisis.
Antidepressants – SSRIs and SNRIs	Citalopram (Celexa) Duloxetine (Cymbalta) Escitalopram (Lexapro) Fluoxetine (Prozac) Fluvoxamine (Luvox) Paroxetine (Paxil) Sertraline (Zoloft) Strattera (Atomoxetine) Desvenlafaxine (Pristiq, Khedezla)	Do NOT hold prior to surgery	Risk of withdrawal if stopped abruptly

Antidepressants- Other	Amitriptyline (Elavil) Bupropion (Wellbutrin) Desipramine (Norpramin) Doxepin (Sinequan) Imipramine (Tofranil) Mirtazapine (Remeron) Nefazodone (Serzone) Nortriptyline (Pamelor) Trazodone (Desyrel)	Do NOT hold prior to surgery	Risk of withdrawal if stopped abruptly
Lithium	Lithium (Eskalith, Lithonate)	Do NOT hold prior to surgery	
Acetyl- cholinesterase Inhibitors (for Alzheimer's)	Donazepil (Aricept) Galantamine (Razadyne) Rivastigmine (Exelon) Tacrine (Cognex)	Do NOT hold prior to surgery	No documented interaction with anesthesia medications
Anticonvulsants	Carbamazepine (Tegretol) Clonazepam (Klonopin) Felbamate (Felbatol) Gabapentin (Neurontin) Levetiracetam (Keppra) Lamotrigine (Lamictal) Oxcarbazepine (Trileptal) Phenytoin (Dilantin) Pregabalin (Lyrica) Primidone (Mysoline) Tiagabine (Gabitril) Topiramate (Topamax) Valproic Acid (Depakote) Zonisamide (Zonegran)	Do NOT hold prior to surgery	
Stimulants	Dextroamphetamine (Adderall) Lisdexamfetamine (Vyvanse) Dexmethylphenidate (Focalin) Methylphenidate (Ritalin, Metadate, Concerta, Daytrana patch) Modafinil (Provigil)	Do NOT hold prior to surgery	No documented interaction with anesthesia medications
ADHD Drugs (non-stimulant)	Guanfacine (Intuniv)	Do NOT hold prior to surgery	Risk of rebound hypertension if withheld.
Sleep Aids	Zolpidem (Ambien) Eszopiclone (Lunesta)	May take night before surgery	
Restless legs	Ropinirole (Requip) Pramipexole (Mirapex)	Continue	

REFLUX MEDICATIONS			
Drug Class	Drugs in Class	When to Hold	Reason
Proton Pump Inhibitors	Esomeprazole (Nexium) Lansoprazole (Prevacid) Omeprazole (Prilosec) Pantoprazole (Protonix) Rabeprazole (Aciphex)	Do NOT hold prior to surgery	Reflux prevention
Histamine H2 blockers	Cimetidine (Tagamet) Famotidine (Pepcid) Nizatidine (Axid) Ranitidine (Zantac)	Do NOT hold prior to surgery	Reflux prevention
Particulate Antacids	Gaviscon Maalox	HOLD day of surgery	Risk of particulate aspiration
Carafate	Carafate (Sucralfate)	HOLD day of surgery	
OTHER DRUGS			
Drug Class	Drugs in Class	When to Hold	Reason
Appetite Suppressant (Diet Drug)	Phentermine (Adipex, Suprenza) Phentermine / Topiramate (Qsymia)	Discontinue at least 7 days preop!	Risk of hypotension that is unresponsive to treatment.
Contrave (Naltrexone and Bupropion) weight loss drug	Contrave (Naltrexone and Bupropion)	Hold for 48 hours	Naltrexone can inhibit opioids
Immunosuppression	Hydroxychloroquine (Plaquenil) Remicade (Infliximab) Humira (Adalimumab) Methotrexate (Otrexup, Xatmap, Rasuvo, Trexall)	Surgeon discretion	Risk of post op infection
NMDA Receptor Agonist	Spravato (esketamine)	Do NOT hold prior to surgery	
Other Medical patches	Estrogen patch Nicotine patch	Continue	
Herbal Supplements	See list	Discontinue at least one-week preop	Risk of bleeding, blood pressure problems, slow awakening from anesthesia, etc.

Anticoagulants as relates to minimum time safe for spinal (some of the more popular not a complete list of all on the market):

Eliquis- 3 days

ASA- No restrictions

Pletal- 2 days

Plavix- 5-7 days no recommended

Pradaxa- 5 days for CrCl 30-49; 4 days CrCl 50-79; 3 days CrCl 80 or better. If needed in a timeframe less than 3 days, consider ECT

Lovenox- therapeutic 24 hrs; Qday or BID dose 12 hrs

Effient- 7-10 days

Xarelto- 3 days

Brilinta- 5-7 days

Ticlid- 3 days

Coumadin- 5 days and normal INR

Herbals and Dietary Supplements with the Potential to Increase Bleeding

Agrimony	Fenugreek	Peony
Andrographis	Feverfew	Policosanol
Angelica	Fish oil	Poplar
Anise	Flaxseed	Prickly Ash (Northern)
Arnica	Forskolin	Quassia
Asafoetida	Forsythia	Red Clover
Aspen	Garlic	Resveratrol
Bilberry	Gamma linolenic acid	Safflower
Black Haw	German Sarsaparilla	Saw palmetto
Bladder Wrack (Fucus)	Ginger	Sea buckthorn
Bogbean	Ginkgo Biloba	Selenium
Boldo	Ginseng (Panax, Siberian)	Senega
Borage	Green tea	Serrapeptase
Bromelain	Guggul	Swallowroot
Buchu	Holy basil	Sweet Clover
Burdock	Honeysuckle	Sweet Vernal grass
Capsicum	Horse Chestnut	Sweet Woodruff
Carrageenan	Horseradish	Tamarind
(NEW)	Inositol Nicotinate	Tiratricol
CBD oil (both THC/nonTHC)??	Japanese apricot	Tonka Beans
Celery	Jiaogulan	Turmeric
Chamomile (German and Roman)	Krill oil	Vanadium
Chinese prickly ash	Kudzu	Vinpocetine
Cinchona	Licorice	Vitamin E
Clove	Meadowsweet	Wild Carrot
Cod liver oil	Melatonin	Wild Lettuce
Coltsfoot	Methoxylated flavones	Willow Bark
Danshen	Nattokinase	Wintergreen
Deertongue	Onion	Yarrow
DHA (docosahexaenoic acid)	Palm oil	
Dong quai	Pantethine	
EPA (eicosapentaenoic acid)	Passion Flower	
Epimedium	Pau d'Arco	
Evening primrose oil		
Evodia		

It is recommended that patients discontinue herbal supplements at least one week prior to surgery.