

WakeMed Perioperative Services:
Outpatient Preoperative Medication Guidelines – 2020

ANTIHYPERTENSIVES			
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®) 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
Beta Blockers	Acebutolol (Sectral) Atenolol (Tenormin) Betaxolol (Kerlone) Bisoprolol (Zebeta) Carvedilol (Coreg)	Do NOT hold prior to surgery	Withdrawal/rebound effects if held

	Metoprolol (Lopressor, Toprol XL) Nadolol (Corgard) Nebivolol (Bystolic) Penbutolol (Levatol) Pindolol (Visken) Propranolol (Inderal) Sotalol (Betapace)		
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	
Clonidine	Clonidine (Catapres®)	Do NOT hold prior to surgery	Withdrawal/ rebound effects if held
Digoxin	Digoxin (Lanoxin®)	Do NOT hold prior to surgery	
Diuretics	Acetazolamide (Diamox®) Amiloride Amiloride/Hydrochlorothiazide (Moduretic®) Bendroflumethiazide Bumetanide (Bumex®) Chlorothiazide (Diuril®) Chlorthalidone (Thalitone®) Eplerenone (Inspra®) Ethacrynic acid (Edecrin®) Furosemide (Lasix®) Hydrochlorothiazide (Microzide®, Esidrix®) Indapamide (Lozol®) Metolazone (Zaroxolyn®) Methazolamide Methyclothiazide Metolazone (Zaroxoxlyn®) Spironolactone (Aldactone®) Spironolactone/Hydrochlorothiazide (Aldactazide®) Toremide (Demadex®) Triamterene (Dyrenium®) Triamterene / HCTZ (Dyazide®, Maxzide®)	HOLD day of surgery	Increases the risk of hypokalemia / hypovolemia

Revised 5/22/20

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

Revised 5/22/20

			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 if neuro/ spine/ ophthalmologic surgery.	Increased risk of bleeding complications
Anti-Platelet Drugs	Clopidogrel (Plavix®) Prasugrel (Effient®) Ticagrelor (Brilinta®) Ticlopidine (Ticlid®) Cilostazol (Pletal®) Dipyridamole (Persantine®) Dipyridamole/Aspirin (Aggrenox®)	Do NOT discontinue without explicit instructions from prescribing physician! Must be documented by prescribing physician on form N-372 (Request for Preoperative Cardiac Evaluation) HOLD 4 days preop HOLD 2 days preop HOLD 7 days preop	Increased risk of bleeding complications
Short-acting NSAIDs	Diclofenac (Cataflam®, Voltaren®) Etodolac (Lodine®) Fenoprofen (Nalfon®)	HOLD day prior to surgery	Increased risk for bleeding and renal complications

Revised 5/22/20

	Flurbiprofen (Ansaid®) Ibuprofen (Advil®, Motrin®) Ibuprofen/Hydrocodone (Vicoprofen®) Ibuprofen/Oxycodone (Combunox®) Indomethacin (Indocin®) ketoprofen (Orudis KT®, Oruvail®) ketorolac (Toradol®) Meclofenamate (Meclomen®) Mefenamic Acid (Ponstel®) Tolmetin (Tolectin®)		
Long-acting NSAIDs	Diflunisal (Dolobid®) Etodolac (Lodine XL®) Meloxicam (Mobic®) Nabumetone (Relafen®) Naproxen (Aleve®, Anaprox®, Naprosyn®) Oxaprozin (Daypro®) Piroxicam (Feldene®) Sulindac (Clinoril®)	At least 3 days prior to surgery	Increased risk for bleeding and renal complications
Cox-2 Inhibitors	Celecoxib (Celebrex®) Nabumetone (Relafen)	At least 3 days prior to surgery	Increased risk for renal, thrombo-embolic complications

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®)	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.

	Propoxyphene/Acetaminophen (Darvocet®) Propoxyphene/Aspirin (Darvon®) Tapentadol (Nucynta)		
Opioid Agonist/ Antagonists	Buprenorphine/Naloxone (Suboxone®) Buprenorphine patch (Butrans®) Naltrexone (Vivitrol, ReVia, Depade)	Should be transitioned to alternative medication 1-2 weeks prior to elective surgery by the prescribing physician.	May cause difficulty with postoperative pain control, high opioid requirements.
Topical local Anesthetic	Lidocaine patch	Continue	
Skeletal Muscle Relaxant	Carisoprodol Soma Metaxalone (Skelaxin)	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		
Short-Acting Insulin	Regular Insulin (Humulin, Novolin) Insulin Aspart (Novolog) Insulin Glulisine (Apidra) Insulin Lispro (Humalog)	See Diabetes Instructions	
Intermediate-Acting Insulin	Insulin NPH (Humulin N, Novolin N) Humulin 70/30 Humalog 50/50 Humalog 75/25 Novolin 70/30 Novolog 70/30		
Long-Acting Insulin	Insulin Glargine (Lantus, Toujeo) Insulin Detemir (Levemir) Insulin Degludec (Tresiba)		
Non-Insulin Injections	Exenatide (Byetta®, Bydureon) Linagliptin (Tradjenta) Pramlintide (Symlin®) Liraglutide (Victoza®) Dulaglutide (Trulicity)		
Oral Diabetic Drugs	Alogliptin (Nesina®) Alogliptin/Pioglitazone (Oseni®) Linagliptin (Tradjenta®) Metformin		

Revised 5/22/20

	Pioglitazone (Actos®) Rosiglitazone (Avandia®) Saxagliptin (Onglyza®) Saxagliptin/Metformin ER (Kombiglyze XR®) Sitagliptin (Januvia®) Sitagliptin/Metformin ER (Janumet®)		
SGLT 2 inhibitors	Canagliflozin (Invokana) Dapagliflozin (Farxgia) Empagliflozin (Jardiance) Ertugliflozin (Steglatro)	Hold 3 days prior to surgery. (Hold Ertugliflozin 4 days prior) Have patient monitor glucose closely once medications are discontinued	Discontinuing lowers risk of ketoacidosis intra/postoperatively

- First, would advise patients that stopping these for such a short time should not cause a dramatic change in glucose.
- If patients see an increase of 50 pts or greater to contact pcp for advisement.
- If glucose fluctuates greatly to begin with, would have patient contact PCP if 2 or more consecutive glucose of >200.
- Have pt check glucose a minimum of 2 times daily.

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®)	Do NOT hold prior to surgery	Risk of withdrawal if stopped abruptly

	Sertraline (Zoloft®) Strattera (Atomoxetine®) Desvenlafaxine (Pristiq, Khedezla)		
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	
Acetylcholinesterase 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	
ADHD Drugs (Stimulants)	Dextroamphetamine (Adderall®) Lisdexamfetamine (Vyvanse®) Dexmethylphenidate (Focalin®) Methylphenidate (Ritalin®, Metadate®, Concerta®, Daytrana patch®)	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®)	May take night before	

Revised 5/22/20

	Eszopiclone (Lunesta®)	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
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.
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

-**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**- 10 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
Celery	Inositol Nicotinate	Tiratricol
Chamomile (German and Roman)	Japanese apricot	Tonka Beans
Chinese prickly ash	Jiaogulan	Turmeric
Cinchona	Krill oil	Vanadium
Clove	Kudzu	Vinpocetine
Cod liver oil	Licorice	Vitamin E
Coltsfoot	Meadowsweet	Wild Carrot
Danshen	Melatonin	Wild Lettuce
Deertongue	Methoxylated flavones	Willow Bark
DHA (docosahexaenoic acid)	Nattokinase	Wintergreen
Dong quai	Onion	Yarrow
EPA (eicosapentaenoic acid)	Palm oil	
Epimedium	Pantethine	
Evening primrose oil	Passion Flower	
Evodia	Pau d'Arco	

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