PROTOCOL
Pre-Admission Anesthesia Protocol

This Protocol is Applicable to the following sites:

Corewell Health Big Rapids Hospital, Corewell Health Gerber Hospital, Corewell Health Grand Rapids Hospitals (Blodgett Hospital, Butterworth Hospital, Helen DeVos Children's Hospital), Corewell Health Greenville Hospital, Corewell Health Ludington Hospital, Corewell Health Medical Group West, Corewell Health Pennock Hospital, Corewell Health Reed City Hospital, Corewell Health South (Niles, St. Joseph, and Watervliet Hospitals; Corewell Health Medical Group South; Applicable Corewell Health South Regional Sites), Corewell Health Zeeland Hospital, Outpatient/Physician Practices (CHW)

Applicability Limited to: N/A

Reference #: 9812

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Effective Date: 04/21/2024

Functional Area: Clinical Operations, Nursing

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1. **Purpose:** To outline the management of pre-operative testing orders and medical clearance.

2. **Definitions:**
   a. Poor functional capacity: a score of less than 4 when using the M-DASI or MET Scale
   b. Decrease in functional capacity: A change in metabolic equivalent of task that equals greater than two points decrease on the MET scale. Example: Patient scores a 6 on the MET scale but reports a previous activity score of 8 or above.
   c. Healthy patient: Patient has no comorbidities
   d. Unhealthy patient: Patient has at least ONE comorbidity
   e. Comorbidity: Simultaneous presence of a systemic disease in addition to the medical condition bringing the patient to the system currently (example: finger fracture AND diabetes type 2)

f. Unstable Comorbidity: Comorbidity that have new or worsening symptoms related to the systemic problem. (Example: coronary heart disease with new or worsening angina or shortness of breath)
g. Surgical Optimization: Optimization of chronic health issues prior to surgery, to minimize the risk of postoperative complication, decrease length of stay in the hospital, reduce unplanned readmissions, and enhance the patient's overall health prior to surgery.

3. **Abbreviations:**
    a. AAA- Abdominal Aortic Aneurysm
    b. ACEI- Angiotensin-Converting Enzyme Inhibitor
    c. ARB- Angiotensin-Receptor Blocker
    d. BMP- Basic Metabolic Panel
    e. BS- Blood sugar
    f. CBC- Complete Blood Count
    g. CMP- Complete Metabolic Panel
    h. DOS- Day of Surgery
    i. DOD- Doctor of the day
    j. EKG- Electrocardiogram
    k. HCG/UCG- Human Chorionic Gonadotropin/Urine Chorionic Gonadotropin
    l. H&H- Hemoglobin and hematocrit
    m. MAC-Monitored Anesthesia Care
    n. M-DASI - Modified Duke Activity Status Index
    o. MET-Metabolic Equivalents of Task
    p. MST-Malnutrition Screening Tool
    q. PAT-Pre-Admission Testing
    r. PCP- Primary Care Provider
    s. SO-Surgical Optimization
    t. T&S- Type and Screen
4. **Protocol Inclusion Criteria**
    a. All adult patients (patients 18 years of age and older) undergoing anesthesia within surgical services at a Corewell Health facility.
5. **Protocol Exclusion Criteria**
    a. Procedural sedation
    b. Anesthesia outside of Surgical Services
    c. Anesthesia administered for GI Endoscopy procedures
    d. Pediatric patients (patients less than 18 years of age)
6. **Protocolized Medications**
    a. Protocolized Medications
    b. Protocolized Orders
7. **Responsibility:**
    a. Registered Nurse (RN), Surgeon, Anesthesia Providers, Surgical Optimization Providers
8. **Protocol Information:**
    a. This protocol allows a Registered Nurse to:
        i. Order specific tests for patients coming to a Corewell Health facility for surgery and select procedures, preoperatively
        ii. Instruct patients on medication discontinuation for specific medications preoperatively
        iii. Gives the RN guidance on when to refer the patient for additional medical evaluation preoperatively.

9. **Protocol Order Details**
   All protocol orders will be placed using the "Nursing Pre-Procedure Anesthesia Protocol" order set and signed using order mode "Per Protocol: NO Cosign Required."

10. **Protocol Interventions**
    a. Preoperative Testing: A preoperative order will be implemented after the patient has been assessed and the appropriate patient diagnosis and surgical procedure have been correlated with the appropriate diagnostic work as identified on the Preoperative Anesthesia Testing Grid (see Appendix B).
        i. Prior to procedures completed within surgical services that will require anesthesia, the team will gather assessment data and medication history from the patient.
        ii. The RN, using the assessment data, will compare patient information with the specified criteria defined on the Preoperative Anesthesia Testing Grid.
        iii. Upon correlation of criteria with the Preoperative Anesthesia Testing Grid, any outstanding laboratory work or EKG will be identified and documented on the task list in the electronic health record. Outstanding tests will be ordered on or before the day of service (DOS) using the name of the provider who ordered the "preoperative anesthesia protocol". The communication type is "protocol no co-sign required".
        iv. The RN should only exclude tests from the above if a provider has documented a specific exception to the protocol in their note.
        v. Deviations will be reviewed by anesthesia prior to case start time.
    b. Preoperative Patient Medication Instructions: The RN, using the assessment data and medication history received from the patient/caregiver, will instruct the patient/caregiver on preoperative medication adherence per anesthesia guidelines as outlined in Appendix D. These instructions will be used for all patients who will receive anesthesia, regardless of risk status.
        i. If the patient reports that conflicting instructions have been given from the surgeon or primary care physician, the RN will notify the Anesthesia Provider for the site; designated as Doctor of the Day (DOD), Anesthesia in Charge (AIC), or First Call Anesthesiologist for direction.
        ii. If patient arrives day of surgery and has not taken the beta blocker, calcium channel blocker, anti-arrhythmic, anti-anginal, and/or anticonvulsant within 24 hours or has not held the Angiotensin-Converting Enzyme Inhibitor (ACEI) or Angiotensin-Receptor Blocker (ARB), the RN will notify the assigned Anesthesia Provider.
            1. This point may be bypassed if there is a documented reason, and the Anesthesia Provider approves.
    c. Need for Medical Evaluation: The RN will identify clinical risk factors and assess function capacity using the M-DASI Scale. If patient meets the definition of poor functional capacity, the nurse should request that the surgeon order medical evaluation prior to the day of the procedure.
    d. For criteria related to Automatic Referral for Surgical Optimization (SO) at the Surgical Optimization Center, please see Appendix E.

11. Documentation:

a. Assessment data gathered to inform protocol use
b. Care provided under the direction of the protocol
c. Patient verbal response to the new orders and medication directions
d. Patient/Caregiver teaching

12. Revisions

Corewell Health reserves the right to alter, amend, modify or eliminate this protocol at any time without prior written notice and in compliance with *Administrative Policy: Policy and Procedure Structure, Standards and Management*.

Protocol Superseded and Replaced: This protocol supersedes and replaces the following policies as of the effective date of this protocol: CPOL-IPR-D-385-PERI

13. References

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14. Protocol Development and Approval

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Keywords

Anesthesia, Pre-procedure assessment, Presurgery, Preop Anesthesia Testing, surgery, surgical, testing, PPP, PAT, preanesthesia, testing

Appendix A

Surgical Predictors of Increased Risk

Surgical risk is the aggregate factors that the procedure has on the patient unrelated to the patient's medical condition. These factors include, but are not limited to, level of invasiveness, duration, blood loss, anesthesia, fluid requirements, patient positioning (prone procedures are higher risk), and intraoperative and postoperative physiologic distress.

Medium/High Risk

- Emergent major operations, particularly in patients older than 75 years
- Cardiac surgeries
- Major vascular surgeries (AAA, carotid endarterectomy, aortic stent grafts)
- Prolonged duration (greater than 3 hours) with anticipated large blood loss, fluid shift, or use of cell savers (examples: radical hysterectomy, radical cystectomy or nephrectomy, major spine, cardiovascular procedures). **NOTE:** Breast and plastics are typically excluded from procedures with large blood loss or fluid shift.
- Craniotomy
- Total Joint Procedures
- Head and neck surgery
- Thoracic and abdominal surgery
- Prostate surgery, including radical
- Spine procedures
- Breast reconstruction
- **NOTE:** Procedures that are considered low risk, but also require general anesthesia should be treated as medium risk

Low Risk

- Percutaneous extremity peripheral vascular
- Endoscopic procedures, peripheral (excludes shoulder/hip)
- Superficial procedures, such as breast, carpal tunnel, cosmetic plastic
- Procedures that are completed under MAC Anesthesia and do not have a skin incision (i.e. cystoscopy, hysteroscopy, etc.)

Minimal Risk

- Cataract
- Local anesthesia

Testing Based on Risk and Comorbidities

- All procedures will require a pregnancy test as indicated in Pregnancy Testing for Surgical Patients policy.
- PT/INR required within 48 hours for all procedures where patient is unable to hold coumadin.

	Healthy (No comorbidities)	**Unhealthy (one or more comorbidities)**
Minimal Risk	No additional testing required.	No additional testing required.
Low Risk	No additional testing required.	Refer to Preoperative Anesthesia Testing Grid **ONLY** if any **unstable** (new or worsening) comorbidities exist. **Exception:** HgbA1C is not required for patients undergoing a procedure that does not have a skin incision (example: cystoscopy or hysteroscopy).
Medium/High Risk	Refer to Preoperative Anesthesia Testing Grid.	Refer to Preoperative Anesthesia Testing Grid.

Appendix B

Preoperative Anesthesia Testing Grid

		CBC w/diff (6 mo)	PT/PTT/INR (6 mo)	BMP-lytes, Creat/BUN (6 mo)	BS DOS	HCG/UCG	T&S (72 hours) **	HgbA1C (90 days)	4-PLEX Swab
Disease Specific	Undefined History of Bleeding	X	X						
	Anemia	X							
	Thrombocytopenia	X							
	Cardiovascular Disease/MI/CAD/CHF/ Arrhythmia/Vascular Disease	X		X					
	Malignancies/Rad Tx/Chemo w/in past 6 months	X							
	Hepatic Disease	X	X	*CMP	X				
	Diabetes			X	X			X	
	Endocrine Disorder			X					
	Renal Failure/Insufficiency (Dialysis H&H and BMP within 24 hours, after last run and prior to procedure).			X					
	Sickle Cell Anemia Disease	X	X				X		
	Premenopausal					X			
	Current Respiratory Illness								X
Med Specific	ACE's or ARB's			X					
	Diuretics			X					
	Coumadin		PT/INR						
	Non-steroid Immunosuppressant	X							
Surgery Specific	C-Section	X					X		
	Surgery > 3 hours	X		X			X		
	Vascular Surgery						X		

*Any boxes that have writing rather than an "X" should be followed, rather than the column heading.
**Refer to the Crossmatch Policy for variations in this timeframe.

I. Preoperative EKGs and Cardiac Device Management

A. All Surgeries (low, medium, and high risk)

Required within 30 days only for anyone with recent changes in functional status, new or unstable angina, or progressive dyspnea. Please request the most recent evaluation by the provider and the most recent EKG to place in the patient's file.

B. Additional Requirements for Medium & High-Risk Surgery

Required within 6 months for anyone with:

- Poor functional capacity with METs < 4
- All Major Vascular Surgery
- Any surgery with anticipated postoperative ICU admission
- CAD
- CHF (systolic or diastolic)
- Uncontrolled HTN
- Cardiac arrhythmias
- Pacemakers or ICDs
- Structural heart disease such as valvular disorders
- CAD "equivalents" including:
    - Previous MI -regardless of time of MI
    - Insulin dependent DM*
    - CVA/TIA -regardless of time of CVA/TIA
    - CKD with Creatinine > 2 or ESRD
    - Peripheral arterial or cerebrovascular disease
- History of moderate to severe pulmonary disease
- HIV

NOTE: Patient age is not a criterion for obtaining a preoperative EKG.

C. Interrogation of Cardiac Devices

- Permanent Pacemaker (PPM) require interrogation within 12 months
- Implantable Cardiac Defibrillators require interrogation within 6 months

*EKG is not needed for patients who are low risk and would only be bumped up for general anesthesia and Insulin Dependent Diabetes.

Appendix C
Explanation of Pre-operative Anesthesia Testing Grid

Undefined History of Bleeding: Any patient with a known coagulopathy (does not form clots normally) or bleeding tendency; including, but not limited to hemophiliacs, patients with factor deficiencies, or low platelet count.

Anemia: Any patient with current anemia (treated or untreated) including, but not limited to low hemoglobin, low iron, or B12 deficiency.

Thrombocytopenia: Any patient with a known diagnosis of thrombocytopenia.

CV disease/MI/CAD/CHF/Arrythmia/Vascular disease: Any patient with cardiovascular disease including, but not limited to, previous cardiac surgery, angioplasty, coronary stent or intervention, or myocardial infarction (MI), congestive heart failure (CHF), abdominal aortic aneurysm (AAA), coronary artery disease (CAD), arteriosclerotic heart disease (ASHD), peripheral vascular disease (PVD), or valve disease. **Exception:** Mitral valve prolapses

ACE/ARBS: Any patient currently on an ACE or ARB antihypertensive medication.

Diuretics: Any patient currently on any diuretic medications. *If K+ level is abnormal, order electrolytes DOS.

Malignancies/Radiation treatment/Chemotherapy w/in past 6 mo: Any patient with a history of malignancy, radiation treatment or chemotherapy within the past 6 months. **Exception:** minor skin lesions.

Hepatic disease: Any patient with active or chronic liver disease including, but not limited to liver failure, cirrhosis, or hepatitis C. **Exclusion:** Hepatitis that has been treated and resolved, hepatomegaly and/or hepatic steatosis.

Diabetes: Any patient with diabetes (diet controlled, oral or insulin controlled). **Exception:** HgbA1C is not required for patients undergoing a procedure that does not have a skin incision (example: endoscopy with biopsy).

Endocrine Disorder: Any patient with an endocrine disorder including, but not limited to Graves' disease, hypothyroid, adrenal, or pituitary disorders.

Renal failure/Insufficiency/Dialysis: Any patient with acute renal failure/insufficiency including, but not limited to glomerulonephritis or polycystic kidney disease. Dialysis patients should have labs completed after last run of dialysis but prior to surgery.

Coumadin: Any patient taking warfarin should receive a PT/INR minimally 3 days after stopping the medication, but prior to surgery. ***If** abnormal, repeat prior to surgery. Patients not stopping coumadin prior to their procedure will also require a PT/INR within 48 hours for low risk and above.

Premenopausal: All menstruating premenopausal persons require a urine pregnancy test. A serum test may be ordered within 24-72 hours of procedure if patient is auric. **Exception**: please refer to the Pregnancy Testing for Surgical Patients policy.

Current Respiratory Illness: Any patient (pediatric or adult) with current respiratory symptoms including but not limited to runny nose, cough, nasal congestion, sore throat. These patients will receive 4-PLEX Swab when needed for bed placement. NOTE: this should not be completed for patients who are outpatient or who will be admitted to a private inpatient room.

Sickle Cell Anemia Disease: Any patient with sickle cell anemia or hemoglobinopathy including, but not limited to, thalassemia minor. This does not include sickle cell trait.

Non-steroid Immunosuppressant: Any patient taking non-steroidal immunosuppressant or disease modifying anti-rheumatic drugs such as Enbrel or Humira.

C-Section: If a patient is undergoing a C-section.

Surgery Greater than 3 hours: Any patient undergoing a prolonged procedure greater than 3 hours anticipated to be associated with large fluid shifts and/or blood loss.

Appendix D

Medication Grid

Medication Class	Generic Name	Brand Name	Recommendations	Clinical Considerations
Cardiovascular				
Alpha 2 Antagonist	Clonidine	Catapres	Take DOS	Abrupt withdrawal could cause rebound hypertension. Note: Also used for behavior in ADHD
	Guanfacine	Tenex		
Angiotensin Converting Enzyme Inhibitors (ACE-I) & Angiotensin II Receptor Blockers (ARBs)	Benazepril	Lotensin	Hold DOS	Continuation may cause or exacerbate hypotension and bradycardia
	Captopril	Capoten		
	Enalapril	Vasotec		
	Fosinopril	Monopril		
	Lisinopril	Zestril		
	Moexipril	Univasc		
	Perindopril	Univasc		
	Quinapril	Accupril		
	Ramipril	Altace		
	Trandolapril	Mavik		
	Azilsartan	Edarbi		
	Candesartan	Atacand		
	Eprosartan	Teveten		
	Irbesartan	Avapro		
	Losartan	Cozaar		
	Olmesartan	Benicar		
	Telmisartan	Micardis		
	Valsartan	Diovan		
	Valsartan-Sacubitril	Entresto	Hold for 24 hours; the night before and morning of surgery	
Direct Renin Inhibitor	Aliskiren	Tekturna	Hold DOS	Continuation may cause or exacerbate hypotension and bradycardia
Beta Adrenergic Blocking Agent (Beta-Blockers)	Acebutolol	Sectral	Take DOS	May decrease systemic vascular resistance and blood pressure (peripheral vasodilation).
	Atenolol	Tenormin		
	Betaxolol	Kerlone		
	Bisoprolol	Zebeta		
	Carvedilol	Coreg		
	Metoprolol	Lopressor Toprol XL		
	Nadolol	Corgard		
	Nebivolol	Bystolic		
	Penbutolol	Levatol		
	Pindolol	Visken		
	Propranolol	Inderal		
	Timolol	Blocadren		
	Sotalol	Betapace	Hold Morning of Surgery	Non-selective Beta Blocker as well as a class II and Class III

				antiarrhythmic; can prolong QT interval
Calcium Channel Blockers	Amlodipine	Norvasc	Take DOS	May decrease systemic vascular resistance and blood pressure (peripheral vasodilation).
	Diltiazem	Cardizem, Cartia		
	Felodipine	Plendil		
	Isradipine	DynaCirc		
	Nicardipine	Cardene		
	Nifedipine	Procardia		
	Nislodipine	Sular		
	Verapamil	Calan, Covera		
Loop Diuretics	Bumetanide	Bumex	Hold DOS	
	Ethacrynic Acid	Edecrin		
	Furosemide	Lasix		
	Torsemide	Demadex		
Thiazide Diuretics	Chlorthalidone	Hydroton Thalitone	Hold DOS	
	Hydrochlorothiazide	Hydrodiuril Microzide		
	Hydrochlorothiazide/Amiloride	Moduretic		
	Hydrochlorothiazide/Triamterene	Maxide		
	Hydrochlorothiazide/Spironolactone	Aldactazide		
	Indapamide	Lozol		
	Metalozone	Zaroxolyn		
Potassium Sparing Diuretics	Amiloride	Midamor	Hold DOS	
	Amiloride/hydrochlorothiazide	Moduretic		
	Spironolactone	Aldactone		
	Spironolactone w/hydrochlorothiazide	Aldactazide		
	Triamterene	Dyrenium		
	Eplerenone	Inspra		
Carbonic Anhydrase Inhibitors	Acetazolamide	Diamox	Hold DOS	
	Methazolamide	Neptazane		
Anti-arrhythmic Agents	Digoxin	Lanoxin	Take DOS	
	Quinidine			
	Amiodarone	Pacerone Cordarone		
	Disopyramide	Norpace		
	Dofetilide	Tikosyn	Hold DOS	Class III Anti-Arrhythmic, can prolong QT interval
Anti-Hyperlipidemic "Statins" HMG Co-A Reductase Inhibitors	Atorvastatin	Lipitor	Take DOS	
	Fluvastatin	Lescol		
	Lovastatin	Mevacor		
	Pitavastatin	Livalo		
	Pravastatin	Pravachol		
	Rosuvastatin	Crestor		

	Simvastatin	Zocor		
	Omega -3 Ethyl esters	Vascepa Lovaza	Hold 7 days	
CHF-Cardiomyopathy Use				
HCN Channel Blocker	Ivabradine	Corlanor	Take DOS	
Guanylate Cyclase Stimulator	Vericiguat	Verquvo	Take DOS	
SGLT2 Inhibitor	Dapagliflozin All other "-flozins" used for heart failure	Farxiga	Hold 3 days prior to surgery	Diabetic agent also used for heart failure
Cardiac Amyloidosis Drug	Tafamidis Meglumine	Vyndaqel Vyndamax	Take DOS	A neuropathy Rx that is now marketed for treatment of cardiac amyloidosis
Vasodilators – Nitrates	Nitroglycerin		Take DOS	Adverse effects may include hypotension
	Isosorbid dinitrate	Isordil		
	Isosorbide mononitrate	Imdur, Ismo		
Vasodilators	Apresoline	Hydralazine	Take DOS	
	Minoxidil	Loniten		
Pulmonary HTN & Pulmonary Arterial HTN				
Phosphodiesterase-5 (PDE-5) Inhibitors	Sildenafil	Revatio	Take DOS for **Pulmonary HTN**	
Endothelin Receptor Blockers	Ambrisentan	Letairis	Take DOS	
	Macitentan	Opsumit		
Endocrine/Metabolic Agents: Anti-Diabetic Agents				
Insulin (including insulin with GLP-1 receptor agonists combination injectables)			Direct to Prescriber for Instructions	
Oral Anti-hyperglycemics				
Sulfonylureas	Glimepiride	Amaryl	Hold DOS	Sulfonylureas increase the risk of hypoglycemia
	Glipizide	Glucotrol		
	Glyburide	Diabeta		
	Tolbutamide	Orinase		
Non-sulfonylureas	Metformin	Glucophage	Hold DOS	Metformin increases risk of lactic acidosis
	Pioglitazone	Actos		
	Rosiglitazone	Avandia		
	Acarbose	Precose		
	Miglitol	Glyset		
	Repaglinide	Prandin		
	Nateglinide	Starlix		

DDP-4 Inhibitors "gliptins"	Sitagliptin	Januvia	Hold DOS	
	Alogliptin	Nesina, Vipidia		
	Saxagliptin	Onglyza		
	Linagliptin	Tradjenta		
SGLT2 Inhibitors	Canagliflozin	Invokana	Hold 3 days before surgery	Surgery does not need to be cancelled if late contact with patient. Instruct to hold at time of screening.
	Dapagliflozin	Farxiga		
	Empagliflozin	Jardiance		
	Ertugiglozin	Steglatro	Hold 4 days before surgery	
Non-Insulin Injectables				
GLP-1 Receptor Agonists	Exenatide	Byetta Bydureon	Hold one dose prior to surgery. If on daily dosing, hold dose on DOS; if on weekly dosing, hold a minimum of 7 days prior.	**If late at time of contact with patient, contact anesthesia to determine if the patient needs to be rescheduled.**
	Semaglutide	Ozempic		
	Liraglutide	Saxenda (branded for obesity treatment) Victoza		
	Pramlintide	Symlin		
	Dulaglutide	Trulicity		
	Lixisenatide	Adlyxin		
	Rybelsus	Semaglutide	HOLD DOS	
Glucocorticoids (Steroids)				
Oral Steroids	Dexamethasone	Decadron	Take DOS	
	Prednisone	Prednisone		
Inhaled Steroids	Beclomethasone	Beconase		
	Budesonide	Pulmicort		
	Flunisolide	Aerobid		
	Fluticasone	Flovent		
	Mometasone	Asmanex		
	Triamcinolone	Aristocort		
Intranasal Steroids	Fluticasone	Flonase		
	Mometasone	Nasonex		
Thyroid-Parathyroid Medication	Levothyroxine	Synthroid	Take DOS	If thyroid or parathyroid surgery—defer to endocrinologist and surgeon for instructions
	Thyroid	Armour Thyroid		
	Liothyronine	Cytomel		
	Methimazole	Tapazole		
	Cinacalcet	Sensipar		
Sex Hormones				
Oral Contraceptives	Various		Take DOS	Though these medications may increase VTE risk, it would require a hold of 2 weeks to significantly mitigate this. They should not be held without first having a thorough discussion of risks
Estrogen Replacement	Estrogens/Conjugated (Equine)	Premarin		

				and benefits with the prescribing provider. VTE risk mitigation strategies can be considered as appropriate
Hormone Therapy Drugs (SERMS)	Raloxifene	Evista	Hold 72 hours prior to surgery if used for osteoporosis. Take DOS if used for breast cancer prevention.	
	Tamoxifen	Nolvadex	Take DOS	Surgeon and oncologists may advise to hold 72 hours.
Gonadotropin-Releasing Hormone	Leuprolide	Lupron	Take DOS	If Lupron is prescribed for bladder cancer, defer to surgeon and prescribing provider
	Elagolix	Orlissa		
Central Nervous System				
Anti-convulsants	Phenytoin	Dilantin	Take DOS	Abrupt withdrawal may induce adverse effects including seizures
	Valproic Acid	Depakote		
	Carbamazepine	Tegretol		
	Topiramate	Topamax		
	Lacosamide	Vimpat		
	Lamotrigine	Lamictal		
	Levetiracetam	Keppra		
	Gabapentin	Neurontin		
	Phenobarbital	Luminal		
	Pregabalin	Lyrica		
Anit-Parkinsonian Agents	Entacapone	Comtan	Take DOS	Abrupt withdrawal adverse effects may include Parkinson symptoms and neuroleptic malignant syndrome. -NOTE: Giving Metoclopramide (Reglan) to pts with Parkinson's can worsen their symptoms.
	Benztropine	Cogentin		
	Levadopa (inhaled)	Inbrija		
	Pramipexole	Mirapex		
	Rolpinirole	Requip		
	Levodopa/Carbidopa	Sinemet		
	Tolcapone	Tasmar		
	Trihexyphenidyl			
Anti-Parkinson Agents MAOI-B	Selegiline oral	Eldepryl	Take DOS; notify medical director of anesthesia	Abrupt withdrawal adverse effects may include Parkinson symptoms and neuroleptic malignant syndrome. Hypertension risk if
	Rasagiline	Azilect		

				given with sympathomimetic agents (example: ephedrine, phenylephrine, and dopamine). Potential for drug-drug interaction with meperidine resulting in serotonins syndrome (hypertension, hypotension, agitation, hyperthermia, tachycardia, hyperreflexia and seizures.
Cholinergic Agonists	Cevimeline	Exovac	Hold the day before surgery; eye drops can be taken DOS	
	Pilocarpine	Salagen		
Anti-Alzheimer Agents Cholinesterase Inhibitors	Donepezil	Aricept	Take DOS	Potential for increased muscle relaxation effects with succinylcholine Potential for decreased muscle relaxation effects with non-depolarizing neuromuscular blockers (i.e., rocuronium, cisatracurium, vecuronium)
	Rivastigmine	Exelon		
	Galantamine	Razadyne		
	Memantine	Namenda		
Antipsychotics	Aripiprazole	Abilify	Take DOS	Withdrawal symptoms may include psychiatric symptoms, nausea, vomiting, and abdominal pain. Adverse effects may include hypotension, arrhythmia, and QT
	Clozapine	Clozaril		
	Ziprasidone	Geodon		
	Haloperidol	Haldol		
	Paliperidone	Invega		
	Lithium	Lithobid		
	Risperidone	Risperdal		
	Quetiapine	Seroquel		
	Olanzapine	Zyprexa		
Antianxiety Agents (benzodiazepines)	Alprazolam	Xanax	Take DOS	Abrupt withdrawal may include agitation, hypertension, and seizures. Adverse effects may include hypotension and additive
	Clordiazepoxide	Librium		
	Diazepam	Valium		
	Lorazepam	Ativan		
	Oxazepam	Serax		
Anti-depressants				
	Isocarboxazid	Marplan		

Mono Amine Oxidase Inhibitors (MAOI) – A and B	Tranylcypromine	Parnate	Continue preoperatively and take DOS	Use MAOI Safe Anesthesia for these patients
	Selegiline Transdermal Patch*	Emsam		
Tricyclic Agents	Amitriptyline		Take DOS	Adverse effects may include hypotension and arrhythmias
	Amoxapine	Ascendin		
	Clomipramine	Anafranil		
	Desipramine	Norpramin		
	Doxepin	Sinequan		
	Imipramine	Tofranil		
	Nortriptyline	Pamelor		
	Protriptyline	Vivactil		
Selective Serotonin Reuptake Inhibitors (SSRI)	Citalopram	Celexa	Take DOS	Abrupt withdrawal may cause nausea, salivation and sweating. Drug-drug interactions with methylene blue may result in serotonin syndrome.
	Escitalopram	Lexapro		
	Fluoxetine	Prozac		
	Fluvoxamine	Luvox		
	Paroxetine	Paxil		
	Sertraline	Zoloft		
	Vilazodone	Viibryd		
Serotonin Receptor Modulators	Vortioxetine	Trintellix Brintellix	Take DOS	
	Atomoxetin	Strattera		
Miscellaneous Antidepressants/SNRI's/SSRA's	Nefazodone	Serzone	Take DOS	
	Trazodone	Desyrel		
	Maprotiline	Ludiomil		
	Mirtazapine	Remeron		
	Bupropion	Wellbutrin		
	Venlafaxine	Effexor		
	Desvenlafaxine	Pristiq		
	Milnacipran	Savella		
	Duloxetine	Cymbalta		
Anti-Migraine "Triptans"	Almotriptan	Axert	Hold DOS	Drug-drug interactions between serotonin agonist "triptans" and common perioperative medications (e.g., ondansetron, methylene blue) may result in serotonin syndrome.
	Eletriptan	Relpax		
	Frovatriptan	Frova		
	Naratriptan	Amerge		
	Rizatriptan	Maxalt		
	Sumatriptan	Imitrex		
	Zolmitriptan	Zomig		
Neuromuscular Stimulant	Pyridostigmine	Mestinon	Take DOS	Instruct patient to take the next dose in original Rx bottle. Potential for muscarinic adverse effects (nausea, diarrhea and increased salivation)

Anorexiants/Weight loss drugs	Phentermine	Adipex	Hold 7 days prior to surgery	If late contact, may need to be rescheduled, contact anesthesia
	Orlistat	Alli, Xenical	Hold DOS	
	Diethylpropion	Tenuate	Hold DOS	
	Naltrexone/bupropion	Contrave	Take DOS	
Attention Deficit Disorder Agents	Amphetamine/ dextroamphetamine	Adderall	Hold DOS	May cause hypertension and arrhythmia
	Methylphenidate	Concerta		
	Lisdexamfetamne dimesylate	Vyvanse		
	Guanfacine (alpha2Aadrenergic receptor agonist)	Intuniv		Adjunct Treatment for ADHD behavioral problems, not a stimulant. May take if patient does not do well off of it.
Gout Medications	Colchicine	Colcrys, Mitigare	Take DOS	If patient has renal or GI dysfunction, contact anesthesia for direction
	Allopurinol	Zyloprim		
	Febuxostat	Uloric		
	Lesinurad	Zurampic		
	Pegloticase	Krystex		
	Probenecid	Col-Benemid		
Aminosalicylates for Inflammatory Bowel Disease	Mesalamine	Asacol Apriso Canasa Delzicol Lialda Pentasa Rowasa	Hold DOS	If patient has concerns, refer to surgeon and prescribing provider for instruction
	Sulfasalazine	Azulfidine Sulfazine		
	Balsalazide Olsalazine	Colazal Dipentum		
Analgesics				
NSAIDS to include short half life, long half life, and Cox 2 Inhibitors	Any		As directed by surgeon	
Quinolines	Hydroxychloroquine	Plaquenil	As directed by surgeon	
Disease Modifying anti-rheumatoid drugs (DMARDs)	Methotrexate	Rheumatrex	As directed by surgeon	Continuing DMARDs perioperatively requires both considering what surgery is being done and assessing the risks versus benefits for that individual patient. Using context and judgement, the
	Leflunomide	Arava		
	Tofacitinib	Xeljanz		

				surgeon should decide to hold or continue DMARDs based on available guidelines with input obtained from the prescribing provider if appropriate and necessary.
Phosphodiesterase Inhibitor	Apremilast	Otezla	Hold DOS	
Opioid Agonist	Tramadol	Ultram	Take DOS as needed	Abrupt withdrawal may cause nausea, vomiting, anxiety, seizures
	Methadone		Take DOS	
Opioid Antagonist or Opioid antagonist/agonist	Buprenorphine/Naloxone	Suboxone	Refer to prescribing provider	
	Buprenorphine	Many		
		Butrans Patch		
	Naltrexone tablets	ReVia		
	Naltrexone Injection	Vivitrol Injection (Intramuscular)		
	Pentazocine/naloxone	Talwin NX		
	Pentazocine	Talwin		
Medical Marijuana			**Inhaled:** do not smoke after 12am on the day of surgery **Edibles:** stop the night prior to surgery as with food (per Fasting Times policy)	
Respiratory Agents				
Anticholinergics	Ipratroprium Inhaler	Atrovent	Take DOS	
	Ipratropium/Albuterol	Combivent		
	Tiotropium	Spiriva		
Beta- Agonists	Albuterol	Proventil	Take DOS	
	Formoterol/Mometasone	Combivent		
	Formoterol/Mometasone	Dulera		
	Levalbuterol	Xopenex		
	Salmeterol	Serevent		
	Sameterol/Fluticasone	Advair		
	Sameterol/Budesonide	Symbicort		
Xanthine Derivative	Theophylline	Theodur	Take DOS	
	Montelukast	Singulair	Take DOS	
	Zafirlukast	Accolate		

Leukotriene Receptor Antagonists	Zileuton	Zyflo		
Antihistamines	Diphenhydramine	Benadryl	Take DOS	
	Loratidine	Claritin		
	Fexofenadine	Allegra		
	Cetirizine	Zyrtec		
	Chlorpheniramine	Chlor-Trimeton, Coricidin		
	Meclizine	Antivert		
Decongestants	Oxymetazoline	Afrin, Dristan, Vicks Sinex	May take if needed	
	Pseudoephedrine	Sudafed		
	Phenylephrine	Sudafed PE		
Expectorants	Guaifenesin	Mucinex or other brands	Hold DOS	
Gastrointestinal Agents				
Histamine 2 Receptor Antagonists (H2 RA's)	Famotidine	Pepcid Zantac Zantac 360	Take DOS	
	Nizatidine	Axid		
Proton Pump Inhibitors (PPI's)	Esomeprazole	Nexium	Take DOS	
	Dexlansoprazole	Dexilant		
	Lansoprazole	Prevacid		
	Omeprazole	Prilosec		
	Pantoprazole	Protonix		
	Rabeprazole	Aciphex		
GI Stimulant	Metoclopramide	Reglan	Take DOS	
Other GI Rx	Sucralfate	Carafate	Hold DOS	
		Mylanta Tums		
Urologic				
Anticholinergics	Tolterodine	Detrol	Take DOS	
	Oxybutinin	Ditropan		
	Darifenacin	Enablex		
	Trospium	Sanctura		
	Fesoterodine	Toviaz		
	Flavoxate	Urispas		
	Solifenacin	Vesicare		
Urologic Analgesics	Phenazopyridine	Pyridium, AZO	Refer to Surgeon	
	Phenyl Salicylate	Urised		
BPH Rx	Tamsulosin	Flomax	Take DOS	
	Finasteride	Proscar		
Erectile Dysfunction (ED)	Sildanafil	Viagra	Hold for 72 hours for ED; Take DOS for Pulmonary	
	Tadalafil	Cialis		
	Vardenafil	Levitra		

			Hypertension	
MISC				
Smoking Cessation Products	Varenicline	Chantix	Take DOS	
	Bupropion	Zyban		
Muscle Relaxants	Carisoprodol	Soma	Hold DOS	If concerns with holding, refer patient to surgeon.
	Baclofen	Lioresal		
	Cyclobenzaprine	Flexeril		
	Metaxalone	Skelaxin		
	Tizanadine	Zanaflex		
Antibiotics/Antivirals	Various		Refer to surgeon and prescribing provider	
Anti-Rejection Rx			Take DOS	
Retinoids	Isotretinoin	Accutane Absorica, others	Hold DOS	
	Soriatane	Acituetin		
Anti-Herpetic	Valacylovir	Valtrex	Take DOS	
	Acyclovir	Zovirax		
	Famciclovir	Famvir		
Nutrients/Nutritional Supplements	Multivitamin		Hold 7 days	
	Vitamin E/Fish Oil containing supplements			
	Prenatal Vitamin		Hold DOS	
Herbals/Supplements			Hold for 1-2 weeks **NOTE:** Dialysis patients with prescribed supplements should continue and only hold DOS.	Examples: ECHINACEA, EPHEDRA, FEVERFEW, GBL (Gamma Butyrolactone) , GHB (Gamma-hydroxybutyric acid), GARLIC, GINKGO, GINSENG, GOLDENSEAL, KAVA-KAVA, LICORICE, SAW PALMETTO, ST. JOHN'S WORT, FISH OIL, VALERIAN, Turmeric
Immunomodulators: **-**Immunosuppressants -Biologic Response Modifiers -Antineoplastic -Agents/Monoclonal -Antibodies			Refer to surgeon and prescriber	

Hematologics: -Anticoagulants -Heparins -Direct XA Inhibitors -Vitamin K Antagonist -Direct Acting Oral Anticoagulant (DOAC) -Misc. other Anticoagulants -Antiplatelets			Refer to surgeon and prescriber	
Ophthalmic Agents			Refer to surgeon and prescriber	

Appendix E
Referrals to Surgical Optimization Center – Medical Clearance Criteria

I. The RN will review a risk report in the EHR for patient specific risk level (minimal risk, low risk, intermediate risk, and high risk).
   a. If the patient risk score is "intermediate risk" or "high risk" and:
      i. The patient has a CHWMG PCP or does not have an identified PCP the PAT RN will place a referral to the Surgical Optimization (SO) for optimization
      ii. The patient has a PCP outside of CHWMG, the PAT RN will contact the surgeon to place a referral to the PCP or SO for optimization.
   b. If the patient risk score is "minimal risk" or "low risk" AND has one of the criteria outlined below which is considered unstable, the PAT RN will reach out to the surgeon's office to recommend medical clearance.

Criteria for Automatic Referrals (with NO or LOW Risk)

Cardiac or Vascular Risk Factors
- Coronary artery disease – history of MI, heart bypass surgery, cardiac stents, PTCA or angina
- Cardiac pacemaker or implantable cardiac device (ICD)
- Atrial fibrillation and/or other cardiac arrhythmias
- Cardiac valve replacement/disease, rheumatic fever, or heart murmur
- Congestive heart failure – current history or symptoms, or cardiomyopathy
- Peripheral vascular disease and/or stents

Endocrine
- Diabetes, HgbA1c of ≥ 7.5
- Obesity with BMI ≥ 40
- Malnutrition, albumin ≤3.5

Pulmonary, Hepatic, or Renal
- Lung problems – pulmonary hypertension, COPD, severe/uncontrolled asthma, recent pneumonia, chronic dyspnea, or hypoxemia
- Obstructive sleep apnea - OSA not regularly using CPAP or not well controlled on CPAP, or no dx of OSA but a STOP-BANG of 4 or higher.
- Kidney disease or kidney failure – eGFR ≤45
- Liver disease – chronic hepatitis, cirrhosis, fatty liver. MELD score 10 or above and/or Child-Pugh Class B or C.

Vascular or Neurologic
- Stroke or TIA within the last 9 months
- Blood clots in the legs or lungs (DVT, PE), or other blood clotting disorders
- Neurological diseases – Parkinson's disease, epilepsy, stroke, multiple sclerosis, Alzheimer's, myasthenia gravis

Medication Use
- Blood thinning medications such as heparin, low molecular weight heparins (ie. enoxaparin, fondaparinux), direct oral anticoagulants (ie. rivaroxaban, edoxaban, apixaban, dabigatran), warfarin, antiplatelet agents (ie. aspirin, ticagrelor, clopidogrel, prasugrel)
- Chronic immunosuppression due to medications
- Chronic steroid use – any patient on prednisone of greater than or equal to 5mg daily or equivalent
- Chronic narcotic use – greater than or equal to 60 MME

Other
- Chronic or debilitating disease requiring recent hospitalization
- Anemia – iron deficiency anemia, sickle cell anemia, pernicious anemia, Hgb less than or equal to 13
- Personal or family problems with anesthesia – malignant hyperthermia or severe nausea/vomiting
- History of difficult intubation or other known anesthesia complication