Johns Hopkins Medicine
Department of Anesthesiology and Critical Care Medicine

Center for Perioperative Optimization

PREOPERATIVE ROADMAP

For Providers Requiring Anesthesia Services

November 2023

Table of Contents

KEY CONTACT INFORMATION:

Dr. Joanne Shay, Medical Director for the Center for Perioperative Optimization, ACCM
Office: 410-955-7610
Jabber: 667-776-6492
Email: jshay2@jhmi.edu

CPO Coordinator
Pager: 410-283-3510
Secure Chat: Group titled "JHOC PREOP EVALUATION

Preoperative Assessment Summary

This summary aims to provide guidance for all surgeons and proceduralists requiring anesthesia services to understand the process we advise to facilitate the best possible care outcomes for your patients. Following these guidelines will help avoid cancellations or delays the day of surgery, while optimizing perioperative outcomes. Your patients will receive the Preoperative Screening Questionnaire (Appendix A) via My Chart as soon as their surgery is posted. This will generate a risk score to direct their Preoperative Assessment, with the surgeon or PCP or with Center for Perioperative Optimization (CPO) as an Anesthesia Consult or as an Anesthesia NP/PA visit. Please encourage your patients to complete the questionnaire as soon as it populates in their MyChart to allow ample time for scheduling.

Alternatively, Direct Access or ASC schedulers for low-risk procedures may use the abbreviated scheduling tool to decide venue of surgery and need for evaluation in CPO. This abbreviated, or Short Scheduling Tool is available as a form in EPIC Procedure Pass

For all cases scheduled for surgery (or cases you are considering for surgery), please follow the following process:

1. **TRIAGE:** Completion of the Preoperative Screening Questionnaire is essential as it relates to triage of patients preoperatively regarding optimization and appropriate scheduling (OR site and Post op disposition). The Questionnaire will generate one of the below risk scores:
    - **RED:** Qualifies for In Person CPO appointment for Preoperative Evaluation*
        - Consider Anesthesia Consult appointment for those patients with multiple co-morbidities and for higher risk surgery
    - YELLOW: Qualifies for NP/PA visit (Video or In Person) for Preoperative Evaluation*
    - GREEN: Visit with PCP or Surgeon for Preoperative Evaluation**
    - *All appointments must be scheduled at least 48 hours prior to patient's surgery to allow for timely evaluation, preferably 5-10 days. For urgent add-ons please page (CORUS) the **CPO coordinator 410-283-3510 or secure chat the group "JHOC preop evaluation."**

** The Preoperative H&P is required within 30 days of surgery

2. **JHOC OUTPATIENT CASES** Please review the exclusion criteria for scheduling your patients in JHOC (Appendix B).

3. **TESTING AND INSTRUCTIONS** Follow the Preoperative Testing Guidelines to determine what laboratory studies and additional tests are required; as well as what medications to hold on the day of surgery, and NPO guidelines. When sending patients to the CPO for their preoperative assessment, the CPO practitioners will order appropriate laboratory testing. If you would like specific testing done, please include this request in the display notes of the CPO schedule and enter these orders in Epic. Please only order lab studies that you want, and not ones that you think Anesthesia will want. This will help eliminate unnecessary lab studies and minimize confusion regarding required lab work.

4. **OUTSIDE STUDIES** If outside facilities are utilized to generate lab studies, other diagnostic tests, or consultation reports, please obtain these results (including normal value ranges) and scan them into Epic so they are available for review. Additionally, the patient should be instructed to bring copies of these results with them to CPO or the OR on the day of the procedure. For every patient requiring an ECG, please inform them to obtain a copy of a previous ECG for comparisons.

5. **JHH ANESTHESIOLOGY REVIEW OF OUTSIDE EVALUATION** Patients that do not require a CPO visit may still have reports or diagnostic tests, as well as H&Ps that should be made available 72 hours prior to surgery. This will allow a review of their findings preoperatively, and determinations made regarding fitness for procedures by the assigned anesthesiologists. Please scan these documents into Epic.

Please instruct your patients that they will be contacted the day prior to their surgery (Friday for Monday surgery) by a nurse from the Preop area to update their medication list and to relay general preoperative information to your patients. Make certain your patients have valid phone numbers in Epic as to where they may be contacted during the day.

Patient Risk Stratification

Classification	Definition	Adult Example
ASA I	A normal healthy patient	Healthy, nonsmoking, no or minimal alcohol use
ASA II	A patient with mild systemic disease	Mild diseases without substantive functional limitations (current smoker, social alcohol drinker, pregnancy, obesity, well controlled DM/HTN, mild lung disease)
ASA III	A patient with severe systemic disease	Substantive functional limitations; One or more moderate to severe diseases (poorly controlled DM or HTN, COPD, BMI ≥40, active hepatitis, alcohol dependence or abuse, implanted pacemaker, moderate reduction of EF, ESRD on dialysis, history [>3 months] of MI, CVA, TIA or CAD/stents).
ASA IV	A patient with severe systemic disease that is a constant threat to life	Recent (< 3 months) MI, CVA, TIA or CAD/stents, ongoing cardiac ischemia or severe valve dysfunction, severe reduction of EF, shock, sepsis, DIC, ARD or ESRD not undergoing regularly scheduled dialysis
ASA V	A moribund patient who is not expected to survive without the operation	Ruptured abdominal/thoracic aneurysm, massive trauma, intracranial bleed with mass effect, ischemic bowel in the face of significant cardiac pathology or multiple organ system dysfunction.
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes	

Source: American Society of Anesthesiologists (2020). ASA Physical Classification System. https://www.asahq.org/standards-and-guidelines/asa-physical-status-classification-system

ASA V and VI are not seen in the outpatient setting and will not be scheduled for a CPO appointment.

Surgical Risk Stratification

- **Low Risk Surgical Procedure:** Poses minimal physiologic stress (ex. – outpatient surgery)
- **Intermediate Risk Surgical Procedure –** Medium risk procedure with moderate physiological stress and minimal blood loss, fluid shifts, or postoperative changes
- **High Risk Surgical Procedure –** High risk procedure with significant fluid shifts, possible blood loss, as well as perioperative stress anticipated. Anticipated ICU stays postoperatively
- **See Appendix I for Blood Ordering Schedule**: No blood ordered is low risk, type and screen ordered is medium risk, and type and screen for 2 or more units ordered is high risk.

Medical Conditions that may warrant an ASA III or IV status, and would benefit from a Preoperative Assessment at the CPO:

General Conditions:

- Medical condition inhibiting ability to engage in normal daily activity – unable to climb two flights of stairs without stopping (unless baseline due to medical condition - examples: hip and knee replacement surgery)
- Medical condition necessitating continual assistance or monitoring at home within the past six months
- Admission to hospital within past two months for acute or exacerbation of a chronic condition
- History of previous serious anesthesia complication or history such as malignant hyperthermia or pseudocholinesterase deficiency

Cardio-circulatory:

- History of angina, coronary artery disease or myocardial infarction
- History of unstable angina or coronary artery disease or myocardial infarction in the past 3 months
- Symptomatic arrhythmias, particularly new onset A-Fib
- Poorly controlled hypertension (systolic > 160 and/or diastolic > 100) and/or taking 3 or more antihypertensive medications
- History of congestive heart failure, including HFrEF and HFpEF
- History of significant valvular disease (aortic stenosis, mitral regurgitation, etc)
- Surgery posted for ICU post operatively and/or potential for massive transfusion protocol initiation

Respiratory:

- Asthma/COPD requiring chronic medication or with acute exacerbation and progression within past six months
- History of major airway surgery or unusual airway anatomy (History of difficult intubation in previous anesthetic)
- Upper or lower airway tumor or obstruction
- History of chronic respiratory distress requiring home ventilatory assistance or monitoring
- Home oxygen use
- For patients with long Covid-19 (PASC) or with prolonged symptoms (greater >1 month) of fatigue and dyspnea, they should be evaluated by the CPO to determine if further evaluation is necessary prior to proceeding with surgery.

Endocrine:

- Insulin dependent diabetes mellitus, including insulin pumps (Appendix F - insulin pump checklist)
- Adrenal disorders
- Active thyroid disease
- Morbid obesity

Neuromuscular:

- History of seizure disorder or other significant CNS diseases (multiple sclerosis, myasthenia gravis, etc.)
- History of myopathy or other muscular disorders (muscular dystrophy, etc.)

Hepatic/Renal/Heme:

- Any active hepatobiliary disease or compromise (hepatitis)
- End stage renal disease (dialysis)
- Severe anemias or myelodysplastic syndromes (Sickle Cell, Aplastic, etc.)

Obese/Obstructive Sleep Apnea

- BMI>35 with poor functional capacity (unable to achieve 4 METS = 2 flights of stairs or 4 city blocks)
- OSA associated with high incidence of respiratory failure post anesthesia
- Please complete the STOP-BANG scoring of your patient (Appendix D) to assess risk of OSA

Preoperative Testing Guidelines

In an effort to reduce unnecessary testing, we are recommending utilizing the following approach:

For all patients scheduled for low or intermediate risk surgery, only the following labs are necessary:

- Hb/HCT on any menstruating female. For minor procedures on healthy patients, we may be able to check Hb the morning of surgery.
- Urine pregnancy test on the morning of surgery for any menstruating female.
- ECG on any patient described above in ECG Recommendations, unless we are provided with a previous tracing within six months.
- No CxR indicated unless a history of pleural effusion or current URI with fever.
- Unless indicated by nature of surgery (I.e. neurological or vascular) No PT/INR/PTT except for patient or family history of bleeding or easy bruising. If ordering these tests, only order the PT, not PTT (reserved for patients on Heparin).
- Urinalysis and culture only if a patient is having new urinary symptoms or having urologic surgery.

This approach is only applicable for patients who have no significant comorbid conditions (ASA I or II), **and/or** LOW RISK procedures like Cataracts, superficial skin grafts, superficial biopsies, and screening colonoscopy where Local Anesthesia and Sedation (MAC) will be adequate. If General Anesthesia is anticipated (size, duration of procedure or patient unable to follow instructions), the presence of significant medical conditions may require **additional testing**, and specific guidance is provided in Preoperative Guidelines on each condition. General guidelines listed below can be used to determine appropriate preoperative tests. **To help facilitate a more efficient evaluation at the CPO visit, we recommend obtaining these tests prior to the patients visit with the CPO.**

- ***Diabetes:*** BMP; ECG for all patients with evidence of end organ damage or compromised exercise capacity. We also recommend A1C within 3 months to assess control of diabetes (see Appendix E).
- ***HTN of 5 yrs. duration and/or requiring two or more meds; or Cardiac Dx:*** CBC, BMP, ECG, consider ECHO, Stress Test, and/or Cardiac evaluation if symptoms are significant and no previous studies within one year.
- ***COPD:*** PFTs if symptoms are significant; including home O2 or shortness of breath with exertion and or any recent change in function.
- ***Anemia / Bleeding Hx:*** CBC, consider PT. Autologous/self-donors need to have Hb/Hct post donation.
- ***Liver dysfunction, Malnutrition:*** CMP, CBC. consider PT/INR.
- ***High Surgical Risk Procedures:*** CBC, CMP, consider ECHO, Stress Test, and/or Cardiac evaluation if medical condition warrants, and no previous studies within the past year.
- ***Poor Exercise Tolerance:*** CBC, CMP, ECG, PMD evaluation, Consider ECHO, Stress Test, and/or Cardiac evaluation if no previous studies within the past year.
- ***Morbid Obesity:*** CBC, CMP, ECG, Consider ECHO, Stress Test, and/or Cardiac evaluation if poor exercise tolerance, and no previous studies within the past year.
- ***End Stage Renal*** (dialysis and/or renal failure patients)**:** CBC, post hemodialysis labs, Hemoglobin and BMP at a minimum, Na/K morning of surgery. Patients stable on peritoneal dialysis do not require morning of surgery testing if previous lab values have been WNL/stable.
- ***Type & Cross/T&S*****:** must be done at Hopkins within 30 days of surgery. Must document two criteria to qualify as 30day sample at time of order:
  - no transfusions or pregnancy within past 3 months and
  - date of surgery.
  - If recent transfusion, pregnancy, or positive antibodies, will need sample updated within 72 hours of surgery.

Please refer to Appendix I for which cases require T&S. Include confirmation T&S as prompted by EPIC

Type & Cross/T&S Locations:

Johns Hopkins **Outpatient Center** – Express Testing
601 N. Caroline Street Baltimore, Maryland – 21287
Phone: 410-955-1681 | Fax: 410-614-1331
Monday – Friday: 7:00am - 5:45pm (no weekends or holidays)

Johns Hopkins Medical Laboratory **Green Spring Station**
10753 Falls Road, Pavilion II, Suite 105 Lutherville, Maryland – 21093
Phone: 410-583-2677 | Fax: 410-583-2681
Monday – Friday: 6:30am - 6:00pm (no weekends or holidays)

Johns Hopkins Medical Laboratory **White Marsh**
4924 Campbell Blvd., Suite 115 Nottingham, Maryland – 21236
Phone: 443-442-2100 | Fax: 443-442-2102
Monday – Friday: 8:00am - 6:00pm Saturday: 8:00am - 12:00pm (no holidays)

Johns Hopkins Medical Laboratory **Odenton**
1106 Annapolis Road, Suite 270 Odenton, Maryland – 21113
Phone: 410-874-1435 | Fax: 410-874-1540
Monday – Friday: 7:30am - 5:00pm Saturday: 8:00am - 12:00pm (no holidays)

Johns Hopkins Medical Laboratory **Howard County** (The Medical Pavilion at Howard County)
10710 Charter Drive, Suite G040 Columbia, Maryland – 21044
Phone: 443-546-1110 | Fax: 443-546-1112
Monday – Friday: 8:00am - 5:00pm (no weekends or holidays)

Preoperative ECGs:

All surgery: Required within 30 days only for anyone with recent changes in functional status, new or unstable angina, myocardial infarction in the past 3 months, or progressive dyspnea/shortness of breath.

- **Low risk surgery** (such as cataracts, endoscopy, superficial procedures or diagnostic angiography): None required except as noted above. If available please forward a copy of the most recent, EKG.

- **Intermediate risk surgery:** Required within 6 months for anyone with history of coronary heart disease, other significant structural heart disease such as arrhythmias, valvular disorders, peripheral vascular disease, cerebrovascular disease, insulin dependent diabetes, chronic kidney disease (creatinine > 2 mg/dL.), or extremely poor functional capacity.

- **High risk surgery:** Same as intermediate risk and also required within 6 months for anyone with anticipated ICU postop. Anyone with a history of diabetes, hypertension, morbid obesity, HIV, ESRD or poor functional capacity

Preoperative Medications

As a general rule, for patients scheduled for surgery with anesthesia, we recommend all medications should be continued on the day of surgery to be taken with a sip of water prior to coming to the hospital. Exceptions to this recommendation are summarized below:

CLASS OF MEDICATIONS	MEDICATION	RECOMMENDATIONS
SGLT2 Inhibitors	Canglifozin (Invokana), Dapagliflozin (Farxiga), Empaglifozin (Jardiance), Ertuglifloxin (Steglatro) and these meds in combined formulation with Metformin	For **all** surgeries: empagliflozin, canagliflozin, dapagliflozin should be stopped 3 days prior to surgery. For ertugliflozin it should be 4 days *if unable to hold in advance, monitor serum/urine ketones intra and post op
Oral Hypoglycemic Agents	Metformin/Glucophage Actos/ Glyburide/ Tolinase/ Avandia/ Amaryl/ all others	Hold at least 8 hours pre-op. Recommend holding am dose, day of surgery.
Diuretics	Lasix/HCTZ	Hold am day of surgery, *unless* prescribed for CHF – these patients should take their am dose of diuretics.
ACE/ARB	Lisinopril/Lotrel/Captopril/Lotensin/ Monopril/ Prinzide/ Atacand/ Benicar/ Diovan/ Avalide / Losartan	Hold am of surgery for all patients.
Insulin	Lantus, Levemir, Humulin, Novalog, Humalog, etc.	See Appendix E for recommendations regarding Insulin.
Prescription Blood Thinners	Plavix, Brilinta, Warfarin/Coumadin, Pradaxa, Xarelto, Eliquis, Effient, Aggronox, Pletal, Lovenox, etc.	Decision when to stop preop is made between the surgeon and the physician prescribing the medication.
All Herbal and Alternative Supplements		Stop all Herbal/Alternative supplements and preparations containing Vitamin E one week prior to surgery.

It is very important for patients to take their am dosage of the following commonly prescribed medications:

- Beta blockers and any antiarrhythmics such as Digoxin or Calcium Channel blockers.
- Asthmatic medications including daily, rescue and as needed inhalers, Advair, Singulair and/or steroids.
- GERD medication.
- Statins such as Lipitor, Zocor, Crestor, etc.
- Aspirin – stop as instructed by your surgeon, UNLESS you have heart stents. IF you have cardiac stents, please continue ASA 81 mg through day of surgery.
- ACE/ARB – If patient has history of hypertension difficult to manage, you should instruct the patient to not take these medications the morning of surgery; however, please bring the medication with them to the hospital in the prescription bottle.

For completed list refer to Appendix J: Medication Use Before Surgery

NPO Guidelines

ADULT FASTING INSTRUCTIONS
PLEASE READ BEFORE DAY OF PROCEDURE

Please note, patients are normally told to arrive **2 hours prior to their surgery start time**. If you have not yet been given your surgery start time, please contact your surgeon's office.

Clear Liquids

THE ONLY CLEAR LIQUIDS ALLOWED ARE:

- Water
- Gatorade®
- CLEAR Apple Juice (no pulp or cider)

NO other clear liquids allowed including alcohol

***See Exceptions Below**

STOP 1 hour before you are told to arrive at the hospital:

- You may **ONLY** have a total of 20 ounces of allowed clear liquids between midnight and 1 hour prior to your arrival
- You may **ONLY** have 8 ounces of allowed clear liquids in the last hour you are allowed to drink

---

ALL other foods and non-clear liquids

All solid food, all liquids you are unable to see through, all candy, chewing gum and mints

***See Exceptions Below**

STOP 8 hours before you are told to arrive at the hospital

*** Exceptions:**

- Patients with **End Stage Kidney Disease**, scheduled for a **kidney transplant**, have **gastroparesis** (slow emptying of the stomach) or if you are **pregnant:** CLEAR LIQUIDS MUST STOP SIX (6) HOURS BEFORE YOU ARE TOLD TO ARRIVE AT THE HOSPITAL

- If you are having surgery under the **E**nhanced **R**ecovery **A**fter **S**urgery **(ERAS)** protocol, please disregard these instructions and follow the instructions given to you by your surgeon

- If your surgeon has instructed you to stay on a clear liquid diet prior to day of surgery, follow your surgeon's instructions and avoid all food and non-clear liquids

Appendices

Appendix A: Preoperative Screening Questionnaire

Presurgical Questionnaire *(short version)*-***DRAFT pending JPOP Collaboration***

1. What is your height and weight?
2. Other than the specialist referring you for this procedure, are you being seen by your primary care physician or another physician regularly?
3. Have you been hospitalized or had an emergency visit within the last 6 months?
4. Do you take more than 5 prescription medications [not including sleeping pills or anti-anxiety medications]?
5. Do you ever use oxygen at home?
6. Have you ever been told it was difficult to place a breathing tube in your airway?
7. Do you get short of breath if you lay flat or with just one pillow for 30 minutes?
8. Do you have sleep apnea?
9. Are you on dialysis?
10. Do you use insulin for diabetes?
11. Do you have an implanted device?
    a. Insulin or other Medicine pump
    b. Gastric pacemaker
    c. Vagal Nerve stimulator
    d. Deep Brain stimulator
    e. Pacemaker
    f. Defibrillator
    g. Other
12. Have you ever been diagnosed with a bleeding or coagulation problem?
13. Have you ever been told you/your child have or are at risk for Malignant Hyperthermia or have a blood relative with Malignant Hypothermia?
14. Are you pregnant or do you think you might be pregnant?

Appendix B: Exclusionary Criterion for JHOC

These conditions preclude scheduling your outpatients in JHOC:

1. Inpatients are excluded; with the exception of those inpatients who will be discharged from the hospital prior to the OR procedure, and who will be discharged to home following their operative procedure.
2. Patients in whom there is a reasonable chance of requiring administration of blood products are excluded.
3. All ventilator dependent patients are excluded.
4. Patients with moderate to severe Pulmonary Hypertension (RVSP by echocardiogram 50mmHg or greater) are excluded.
5. Any case where the patient would require intra-operative invasive monitoring devices are excluded.
6. Patients with severe cardiac valvular heart disease, as defined by the American Heart Association, are excluded.
7. Patients with a Ventricular Assist Device (VAD) are excluded.
8. Patients receiving supplemental home oxygen therapy or who have a left ventricular ejection fraction (LVEF) <30% by echocardiogram may be scheduled if having very minor surgery; however, they must be seen in the CPO for determination of appropriateness.
9. Patients less than 15 years of age are excluded. However, exceptions may be made at the discretion of the Medical Director of Perioperative Services or designee, on a case-by-case basis, as special exceptions. Please refer to the "Child Centered Care Guidelines".
10. Patients with a BMI ≥ 50 are excluded.
11. Patients with OSA or those with a high risk of OSA will be allowed to be done in JHOC; however, if a room air trial is not successful, these patients must be transported to the main hospital PACUs for extended recovery.
12. Patients scheduled for Airway Surgery with BMI >40, significant or uncontrolled GERD, significant neuro/ musculoskeletal diseases such as MG/ muscular dystrophy/ mitochondrial diseases/ congenital airway syndromes, significant active pulmonary disease: COPD/ asthma/ pulmonary fibrosis/ home O2, active cardiac disease: CAD/ Aortic stenosis/ cardiomyopathy/ pulmonary HTN
13. Patients with an anterior mediastinal mass that is *not* a goiter are excluded.

Appendix C: Special Considerations

1. **Patients with Suspected/Confirmed Malignant Hyperthermia (MH): *Must be first case to avoid receiving triggering anesthetic residual from prior cases***. Ask patient if they have received anesthesia in the past and if they had genetic testing for MH. Suspect MH if an immediate family member has been diagnosed with MH.

2. **Patients receiving Hemodialysis:** These patients must have their dialysis done the day prior to scheduled surgery or the surgery may be canceled. If the patient's regular dialysis day falls on the day of surgery, work with the patient's dialysis center to arrange for the patient's session to be moved to the day before surgery. We are being strongly discouraged from using Sunday dialysis, since this requires a hospital admission that is now primarily being denied. If at all possible, please avoid Monday surgery on patients with a Monday dialysis schedule. In addition to the issue of the need for Sunday dialysis before Monday surgery is the similar need for routine dialysis on a holiday the day before surgery. Both dilemmas need to be worked out with the dialysis center or there must be a change in the day of surgery.

3. **Patients with Pulmonary Hypertension:** These patients should see their cardiology/pulmonary specialist preop and be seen in CPO to assess need for Cardiac Anesthesia. Please note that JHOC excludes patients with RVSP (Right Ventricular Systolic Pressure) that is greater than 50.

4. **Patients with Myasthenia Gravis:** Every attempt should be made for these patients to be first case. If not completed as first case, there should be an ICU bed available postop. They should continue their Mestinon medication the morning of surgery. Consider obtaining the most recent neurology note to determine the patient's baseline vital capacity.

5. **Patients with a Transplant having non-transplant surgery**: Assure that the patient's transplant team is aware the patient is having surgery.

6. **Patients who are Jehovah's Witnesses or who refuse blood products**: CORUS "Jehovah's Witness JHH Bloodless" to alert the team well before day of surgery for planning purposes.

7. **Patients with Sickle Cell Disease**: It is extremely important for their hematologist to be notified of any plan for surgical procedure. If they have sickle cell specialist outside of JHH, please also contact the Hopkins Sickle Cell team. If timing for surgery is urgent, contact via Corus: Hematology - JHH Adult Sickle Cell Inpatient Pager (C2033). Otherwise, email or call patient's JHH hematologist, or call the JHH Sickle Cell Center at 410-614-0676 to arrange preoperative hematology evaluation and coordinate transfusion with surgery date. Many of these patients will need simple or exchange transfusion to optimize their condition prior to surgery, these need to be timed often within 24-48 hours of their procedure.

8. **Patient with Other Hematologic Disorders (ITP, hemophilia, etc.)**: Some Hematologic diseases require specific treatments prior to surgery or on the morning of surgery before proceeding. Planning for this is extremely important so make sure patients with Hematologic disorders see their Hematologist prior to surgery for optimization and recommendations.

9. **Patients who are under the Guardianship of the Department of Social Services (DSS):** Whether pediatric or adult, these patients require separate consents for both their surgical procedure and their anesthesia. These consents require signatures from the patient's authorized DSS Representative and must be secured before the actual day of surgery. The daily adult anesthesia coordinator (667-776-6430) or pediatric coordinator (443-287-2777) should be contacted to help facilitate these consents.

10. **Patients with Implanted Devices:** All patients with pacemakers/AICDs must have their device interrogated within 6 months prior to surgery. This is NOT required if not using bovie; or using bipolar bovie (Appendix G). All patients with DBS, VNS or gastric pacemakers, please refer to (Appendix G).

11. **Any patient with a Pheochromocytoma or Paraganglioma:** These patients should all be scheduled for a CPO visit more than 48 hours prior to surgery.

12. **Any patient scheduled for HIPEC Surgery:** These patients should all be scheduled for a CPO visit more than 48 hours prior to surgery. They should have CBC, CMP, PT/INR and T&S updated within a week of surgery.

13. **Patients on Methadone:** All patients taking Methadone need to take their am dose of Methadone on the day of surgery. We strongly recommend these patients get an appointment in the Pain Clinic prior to surgery (Appendix N).

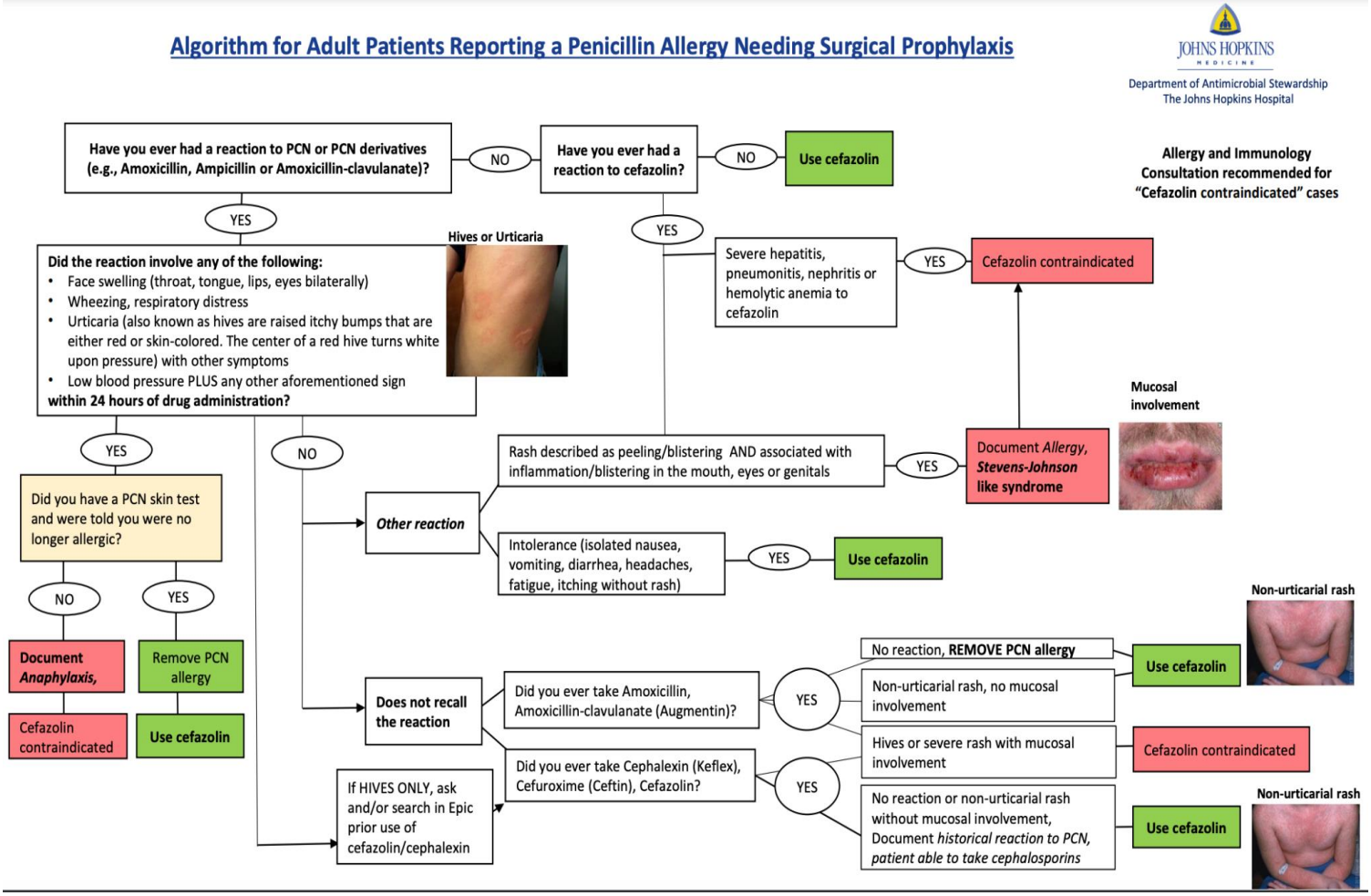
14. **Patients with Alpha-Gal Syndrome**: These patients should be evaluated in the CPO as an anesthesia consult. Obtain a thorough medication history (particularly use of Tylenol and Motrin) and recent anesthesia events.

15. **Patients with Recent Stroke/TIA**: Per the American Stroke Association, we suggest that elective noncardiac surgery be deferred at least 6 months after a prior stroke (including TIA) and possibly as long as 9 months to reduce the risk of perioperative stroke in patients undergoing noncardiac surgery. Alternatively, patients who stand to gain significant improvements in quality of life with elective surgery may consider waiting only 6 months after a prior stroke. When this is the case, it's important to document that this discussion has occurred and the reason for proceeding on the scheduled date. We will make every attempt to review the discussion with the Anesthesia scheduler and Anesthesia Coordinator as well as the anesthesiologist assigned to the case. Please schedule an anesthesia consult if a stroke has occurred <9 months ago.

Source: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000968

Appendix C: Special Considerations (continued)

Penicillin Allergy Testing Algorithm and Workflow



1. **Use the above chart to determine if a patient should be referred for Penicillin allergy testing.**
2. **Place ambulatory referral to Allergy and Immunology (may also auto populate as a BPA)**

   Questions: Please contact Antimicrobial Stewardship Program via CORUS or extension 4-7540

Appendix D: OSA Screening

Have you ever been diagnosed with Obstructive Sleep Apnea (OSA) by undergoing a sleep study or Polysomnogram?	YES	NO
If YES, were you prescribed a CPAP or a dental device?	YES	NO

If you answered YES to BOTH of the above, SKIP the following questionnaire.
Otherwise, please answer the questions below

Snoring? Do you **Snore Loudly** (louder than talking or loud enough to be heard through closed doors)?	YES	NO
Tired? Do you often feel **Tired, Fatigued, or Sleepy** during the daytime?	YES	NO
Observed? Has anyone **Observed** you **Stop Breathing** during your sleep?	YES	NO
Pressure? Do you have or are being treated for **High Blood Pressure**?	YES	NO
Body Mass Index more than 35?	YES	NO
Age older than 50?	YES	NO
Neck size large? Do you have a **Neck that Measures** more than 16 inches / 40 cm around (measure at Adam's Apple)?	YES	NO
Gender = Male?	YES	NO

Low risk of OSA: Yes to 0-2 questions

STOP-BANG SCORE **/ 8**

Intermediate risk of OSA: Yes to 3-4 questions
High risk of OSA: Yes to 5-8 questions.

CHECK if you have any of the following medical problems

- □ Asthma or COPD/Emphysema
- □ Atrial Fibrillation
- □ Heart Failure
- □ Peripheral Vascular Disease
- □ History of stroke
- □ Muscular dystrophy / Myasthenia
- □ I currently smoke
- □ I have had pain for ≥ 3 months for which I take opioid medications at least every other day

Chung F et al. Anesthesiology 2008; 108: 812-821, and Chung F et al Br J Anaesth 2012; 108:768–775.

Appendix E: Preoperative Diabetic Management

General Considerations for the Diabetic Patient:

- Schedule insulin-dependent diabetic patients early in the day (by noon). If unable, please have patient arrive at hospital by 9 am regardless of the time of their surgery. Instruct the patient to bring their Glucometer with them. The patient likely will not be able to be taken back to the PREP area any earlier but is safer to be at the hospital if they were to develop symptomatic hypo/hyperglycemia.
- Preoperative evaluation may include the level of glycemic control, i.e., by blood glucose (BG) levels and glycosylated hemoglobin A1c. Patients with an A1c > 8.5% may benefit from further evaluation prior to elective surgery to reduce surgical site infections.
- Optimal intraoperative BG level: 180 mg/dL or less
- Have the patient take BG at bedtime, if > 180 mg/dL take insulin according to patient's individualized instructions.
- Elective cases should be postponed in patients with fasting BG>400 mg/dl or in patients with significant complications of hyperglycemia such as severe dehydration, ketoacidosis, and hyperosmolar non-ketotic states. Postponing elective cases is always up to the discretion of the provider.
- **See table 1 below for guidelines regarding oral diabetic medication and non-insulin injectables**
- **See table 2 on next page for guidelines regarding insulin and insulin pump management**

Table 1 Pre-Operative Guidelines for Diabetic Oral Medications and Non-Insulin Injectables

Type of Medication (non-inclusive list)	**DAY & EVENING BEFORE Surgery**	**MORNING of Surgery**
Special Precautions – SGLT2 • *SGLT2 Inhibitors:* empagliflozin (Jardiance), canagliflozin (Invokana), dapagliflozin (Farxiga), **Ertugliflozin (Steglatro) • *SGLT2 Inhibitors in combination:* Invokamet, Xigduo XR, Qtern, Qternmet, Synjardy, Trijardy, Glyxambi, **Stegluromet, **Steglujan	**Empagliflozin, Canagliflozin, Dapagliflozin and their combinations should be stopped 3 days prior to surgery.** ****Ertugliflozin and its combinations should be stopped 4 days prior** Advise patients to check their FBS each morning and follow a strict ADA diet during this time to avoid hyperglycemia. Instruct them to reach out to their prescribing physician for guidance if they develop hyperglycemia approaching 300	Hold *If unable to stop SGLT2 inhibitor within recommended timeframe prior to surgery, monitor for euglycemic ketoacidosis, especially in major surgeries (cardiothoracic/abdominal/pelvic). Consider serum CO2, serum/plasma ketones, and/or ABG/VBG in post-op period as warranted.*
Special Precautions - Oral Agents (examples, not -inclusive) • *Biguanides:* metformin (Glucophage)* • *Sulfonylureas*: glyburide (DiaBeta, Glynase), glimepiride (Amaryl), glipizide (Glucotrol) • *Alpha glucosidase inhibitors*: acarbose (Precos), miglitol (Glyset) • *Thiazolidinediones*: pioglitazone (Actos) • *Meglitinides:* nateglinide (Starlix), repaglinide (Prandin) • *DPP-4 Inhibitors***:** Sitagliptin (Januvia), alogliptin (Nesina), saxagliptin (Onglyza), linagliptin (Tradjenta)	Continue to take. *If the patient has renal dysfunction or is likely to receive IV contrast, you may want to discontinue metformin 24-48 hours prior to surgery.	Hold
Special Precautions – GLP1 • *GLP1 analogs*: exenatide (Byetta, Bydureon), liraglutide (Victoza), dulaglutide (Trulicity), semaglutide (Ozempic), lixisenatide (Adlyxin) • *Amylin analogs*: pramlintide (Symlin)	**Daily dosing**, hold GLP-1 agonists on the day of the procedure/surgery. **Weekly dosing,** hold GLP-1 agonists a week prior to the procedure/surgery	Hold This suggestion is irrespective of the indication (type 2 diabetes mellitus or weight loss), dose, or the type of procedure/surgery. The delay in gastric emptying could be associated with an increased risk of regurgitation and aspiration during anesthesia.

Table 2 Pre-Operative Guidelines for Insulin and Insulin Pumps (non-inclusive list)

Type of Insulin	DAY & EVENING BEFORE Surgery	MORNING of Surgery
Short/rapid- acting Insulin Ex: insulin aspart (Novolog), rapid-acting aspart (Fiasp) insulin lispro (Humalog, Admelog), glulisine (Apidra), regular insulin (Novolin R, Humulin R)	Maintain usual meal plan & insulin dose.	Hold.
Intermediate-Acting Insulin (taken twice daily) Examples: Novolin-N, Humulin-N (NPH),	Take usual morning dose and 75% of the usual evening dose.	Take 50% of the usual morning dose.
Concentrated Insulin Regular U-500 Insulin (Humulin R U-500)	Maintain usual insulin dose	Take 50% of usual morning dose if AM glucose >200
Long-Acting Insulin Examples: glargine (Lantus, Basaglar), detemir (Levemir), U300 glargine (Toujeo), degludec (Tresiba) **GLP-1/Insulin Combinations** Soliqua (insulin glargine + lixisenatide), Xultophy (insulin degludec + liraglutide		
➢ **Taken once daily in the morning**	Take usual morning dose.	Take 50% of the usual morning dose.
➢ **Taken once daily in the evening**	Take 75% of the usual evening dose.	Do not take any insulin.
➢ **Taken twice daily**	Take usual morning dose and 75% of the usual evening dose.	Take 50% of the usual morning dose.
Pre-Mixed Insulins (ex. 70/30; 75/25; 50/50) (taken twice daily)	Take usual morning dose and 75% of evening dose.	Hold if fasting glucose AM of surgery is <200 OR Take 50% of the usual morning dose if glucose >200 AM of surgery
Insulin Pump *without integrated continuous glucose monitor* OR **Insulin pumps +integrated CGM and a threshold suspend for hypoglycemia feature (Medtronic 530g+Enlite, Medtronic 630 g+Guardian3, Medtronic 670g+Guardian 3 in manual mode, Tandem T-slim+Dexcom)**	Maintain usual meal plan & basal rate.	Maintain basal rate OR 1.if fasting glucose >or equal to 120mg/dL, maintain basal rate 2.if fasting glucose <120mg/dL, set temporary basal to 80%
Insulin pump + integrated CGM with hybrid closed loop technology (ex. Medtronic 670G in auto mode, Tandem + Dexcom with Control IQ)	Maintain usual meal plan and basal Rate/auto mode until NPO period Begins	During NPO period, set temp Target to 150mg/dL (8.3mM)

- ❖ <u>All patients with insulin pumps should be referred to CPO and advised to communicate with their endocrine provider for perioperative insulin recommendations that include</u>
  - ➢ Information regarding glycemic control and current insulin regimen, including basal rates, insulin:carb ratio and correction factor/insulin sensitivity factor), made available in patient's EPIC record or scanned to Media.
  - ➢ Recommendations for dosing of long-acting basal insulin injection prior to turning off pump and correction factors for hyperglycemia, in setting of cases in which pump will likely be disconnected for extended time, based on length of case and recovery from anesthesia or other indications, request
- ❖ Provide patient with <u>Perioperative Checklist for Insulin Pumps,</u> appendix F (following page)

Appendix F: Perioperative Checklist for Patients with Insulin Pumps Only

Weeks in advance of surgery:

- Discuss with your surgeon that you use an insulin pump
- Inform endocrinologist/primary diabetes prescriber of your upcoming surgery, please ask their recommendations for the following:
    1) Appropriate basal rates given your limited oral intake the day of surgery
    2) if your pump needs to be turned off for an extended period, recommended dosing for long-acting basal insulin injection to give prior to turning off your pump and correction factors for hyperglycemia
- If you use a continuous glucose monitor and will be hospitalized after surgery, please be aware that insulin dose recommendations will be made on basis of our hospital calibrated glucometers
- Please be aware that the hospital policy indicates U-100 concentration insulin should be used for any hospitalized patient with an insulin pump
- You will be able to use your home insulin at the time of admission until that insulin depletes from your pump, subsequently hospital-supplied insulin will be used

Within 8-24 hours of surgery:

- Please refill the pump reservoir, change the infusion set and replace the battery
- Ensure the infusion set or continuous glucose monitor is not near the surgical field, move if necessary

Morning of surgery:

- Bring extra set of pump supplies (infusion set, reservoir, and insulin) in addition to your glucometer and your long-acting insulin pen, if prescribed by your diabetes provider
- Take your blood sugar upon awakening, if low, okay to have apple juice, OMIT breakfast
- Please be prepared to provide information regarding your pump, settings (basal rates/boluses) and type of insulin
- To avoid any delays in the start of your procedure, please arrive no later than 9am, or earlier if directed by your surgeon's office, so that you can monitor your glucose levels in the waiting room and have access to assistance from the nursing staff in the prep area if you become hypo/hyperglycemic

Appendix G: Pacemaker/AICD Implantable Stimulators

Cardiac Pacemakers/AICD

- All patients with a Cardiac Pacemaker or AICD **must be interrogated within 6 months** prior to any surgical or interventional procedure requiring electrocautery. This means that minor procedures (like endoscopy, bronchoscopy, or other minor procedures) that do NOT use bovie are not required to be seen.
- Pacemakers and AICDs must be interrogated **within 6 months** of the procedure date.
- If the patient comes through the CPO, it is the responsibility of the Surgical MOC or OR Scheduler to arrange the Device Check for the day of the CPO appointment.
- To schedule a device check, please follow these steps
    - Email the Device Clinic at device-service@jhmi.edu
    - Include in the body of the note:
        - Pt name and Hx#
        - DOS/Time/OR Venue
        - Name of manufacturer of device
        - Surgeon's name and contact information – the Device Clinic will get the cautery information from the surgeon's office directly
        - Indication for the device (if you know)
        - Your name and phone # in case they have any questions
- Once you email them, call them directly at 5-1143 to see if and when they may be able to accommodate the patient.
- If the OR date, time or venue changes after the interrogation has been completed, you must notify the Device Clinic (5-1143) of the changes.

Vagal Nerve Stimulator (VNS) and Deep Brain Stimulators (DBS)

- For patients with a **Vagal Nerve Stimulator (VNS)—**the device needs to be turned off before surgery & then turned back on after (this is usually done on the day of surgery- turned off in pre-op & back on in recovery). This can be arranged by e-mailing Jodi Richardson. If it is an urgent case during normal business hours, please contact Jodi via CORUS (If she doesn't respond, you can contact Noelle Stewart via CORUS). If outside of normal business hours, please contact LivaNova support at 1-866-882-8804 to discuss options. Jodi will need to know the following
    - Pt name and Hx#
    - DOS/Time/OR Venue
    - Please note, we cannot accommodate surgeries done off of the East Baltimore campus.
    - The VNS also needs to be turned off/ on before & after MRI
- For patients with a **Deep Brain Stimulator (DBS**) - contact the vendor reps for the particular device. If unsure who the vendor is but know the manufacturer of the device, reach out to Pam Lowe in Dr. William Anderson's office for rep contact information

Gastric Pacemakers

- For patients with Gastric Pacemakers - Contact the patients' gastroenterologist to make them aware of upcoming surgery and to ensure there is a plan to turn the device off. If unable to contact the patient's gastroenterologist, contact Dr. Robert Bulat to request assistance with the device. **Dr. Bulat is available in the outpatient setting for CPO providers ONLY.**

Appendix H: Patients with Cardiac Stents

The Johns Hopkins Hospital Antiplatelet Bridging for Patients with Cardiac Stents

Cardiac stent patients on dual antiplatelet therapy (DAP-aspirin & antiplatelet agents) pose a clinical challenge during surgeries or invasive procedures. The risk of uncontrolled bleeding if DAP therapy is continued versus acute stent thrombosis if DAP is discontinued in the perioperative period presents a clinical dilemma. To help guide perioperative DAP therapy and improve clinical outcomes for patients with coronary stents, a JHH multidisciplinary task force has developed the following one-page decision support tool (please see below).

In addition, the CPO has agreed to assist the attending providers with perioperative management of patients on DAP therapy. If the scheduled case will occur within one week of the posting, the CPO clinic coordinator should be called (410-283-3510) or secure chat the group "JHOC preop evaluation" to facilitate a stent patient appointment.

Antiplatelet Bridging Tool for Patients with Cardiac Stents

1. Postpone Elective Procedures until minimum duration of dual antiplatelet therapy (DAP) is complete, unless DAP can be continued without interruption throughout the periprocedural period.

Minimum Duration Stent Implantation when implanted for stable CAD	
Bare Metal Stent (BMS)	**1 month**
Drug Eluting Stent (DES)	**6 months**

Minimum Duration Stent Implantation when implanted for acute coronary syndrome (unstable angina, NSTEMI or STEMI)	
Bare Metal Stent (BMS)	**12 months**
Drug Eluting Stent (DES)	**12 months**

2. High Risk Stent Thrombosis: Consult cardiology and refer to the CPO.

Consult Cardiology and Refer to PEC 14 days prior to procedure for antiplatelet management for:
Surgery required prior to minimum DAP
Any episodes of stent thrombosis

3. For urgent surgery or patient deemed high risk of thrombosis, consider intravenous antiplatelet bridge therapy and Cardiology Consult.
4. If minimum antiplatelet duration met and patient does not have high risk factors above, stop antiplatelet according to the table below:

Antiplatelet	Maximum Holding Time
Clopidogrel	5 days
Prasugrel	7 days
Ticagrelor	5 days

5. Continue low-dose aspirin (81 mg) throughout the periprocedural period for all patients, except patients at high risk for bleeding.

High Bleed Risk- Aspirin may be held for maximum of 5 days
Intracranial Procedures
Posterior Chamber of eye
Spinal Canal

6. Post-operative initiation of antiplatelet therapy should begin as soon as adequate hemostasis is achieved. Patients can be restarted on their home dual antiplatelet therapy. A loading dose of their antiplatelet can be considered.

Appendix I: Surgical Blood Order Schedule

Cardiac Surgery

Case Category	Rec
Heart or lung transplant	T/C 4U
Minimally invasive valve	T/C 4U
Revision sternotomy	T/C 4U
CABG/valve	T/C 4U
Valve	T/C 2U
Assist device	T/C 4U
Cardiac/major vascular	T/C 4U
Open ventricle	T/C 4U
CABG	T/C 2U
Cardiac wound surgery	T/C 2U
Percutaneous cardiac	T/C 2U
Pericardium	T/C 2U
Lead extraction	T/C 4U
AICD/pacemaker placement	T/S

General Surgery

Case Category	Rec
AP resection	T/C 2U
Intra-abdominal GI	T/C 2U
Whipple or pancreatic	T/C 2U
Liver resection	T/C 2U
Retroperitoneal	T/C 2U
Substernal	T/C 2U
Liver resection minor	T/S
Bone marrow harvest	T/S
Hernia – Ventral/Incisional	T/S
Hernia – Inguinal/Umbilical	No Sample
Appendectomy	No Sample
Abdomen/chest/soft tissue	No Sample
Lap. or open cholecystectomy	No Sample
Thyroid/parathyroid	No Sample
Central venous access	No Sample
Any Breast – except w/flaps	No Sample

Gynecological Surgery

Case Category	Rec
Uterus open (radical)	T/C 2U
Open pelvic	T/C 2U
Uterus/ovary open	T/S
Total vaginal hysterectomy	T/S
Hysterectomy robot/lap	T/S
Cystectomy robotic assisted	T/S
Cystoscopy	No Sample
External genitalia	No Sample
GYN cervix	No Sample
Hysteroscopy	No Sample
Superficial wound	No Sample

Neurosurgery

Case Category	Rec
Thoracic/Lumbar/Sacral fusion	T/C 4U
Spine tumor	T/C 2U
Posterior cervical spine fusion	T/C 2U
Spine Incision and Drainage	T/C 2U
Intracranial tumor / aneurysm	T/C 2U
Laminectomy/discectomy	T/S
Spine hardware removal/biopsy	T/S
ACDF	T/S
Extracranial	No Sample
Nerve procedure	No Sample
CSF/shunt procedure	No Sample

Updated Nov. 2020

Obstetrics

Case Category	Rec
Complex Cesarean (Accreta, Percreta, Previa, etc.)	T/C 4U
Repeat Cesarean	T/C 2U
Routine Primary Cesarean	T/S
Vaginal Delivery	T/S
D&C/D&E/Genetic Termination	T/S
Tubal Ligation	No Sample
Cerlage	No Sample

Orthopedic Surgery

Case Category	Rec
Thoracic/Lumbar/Sacral fusion	T/C 4U
Pelvic orthopedic	T/C 4U
Open hip	T/C 2U
Femur open (fracture)	T/C 2U
Above/below knee amputation	T/C 2U
Total hip arthroplasty	T/C 2U
Humerus open	T/S
Fasciotomy	T/S
Shoulder Incision & Drainage	T/S
Tibial/fibular	T/S
Total knee replacement	T/S
Shoulder open	T/S
Knee open	T/S
Thigh soft tissue	No Sample
Ortho external fixation	No Sample
Peripheral nerve/tendon	No Sample
Lower extremity I&D	No Sample
Hand orthopedic	No Sample
Upper extremity arthroscopy	No Sample
Upper extremity open	No Sample
Podiatry/Foot	No Sample
Hip closed/percutaneous	No Sample
Lower extremity arthroscopic	No Sample
Shoulder closed	No Sample
Tibial/fibular closed	No Sample

Otolaryngology Surgery

Case Category	Rec
Laryngectomy	T/C 2U
Facial reconstruction	T/C 2U
Cranial surgery	T/C 2U
Radical neck dissection	T/S
Carotid body tumor	T/C 2U
Mandibular surgery	T/S
Neck dissection	T/S
Mastoidectomy	No Sample
Parotidectomy	No Sample
Facial plastic	No Sample
Oral surgery	No Sample
Sinus surgery	No Sample
Thyroid/parathyroidectomy	No Sample
Suspension laryngoscopy	No Sample
Bronchoscopy	No Sample
Cochlear implant	No Sample
EGD	No Sample
External ear	No Sample
Inner ear	No Sample
Tonsillectomy/adenoidectomy	No Sample
Tympanomastoid	No Sample

Thoracic Surgery

Case Category	Rec
Esophageal open	T/C 2U
Sternal procedure	T/C 2U
Chest wall	T/C 2U
Thoracotomy	T/C 2U
Pectus repair	T/C 2U
VATS	T/S
Mediastinoscopy	T/S
EGD/FOB	No Sample
Central venous access	No Sample

Urology

Case Category	Rec
Cystoprostatectomy	T/C 2U
Urology open	T/C 2U
Nephrectomy open	T/C 2U
Lap/Robotic kidney/adrenal	T/S
RRP (open)	T/S
Percutaneous nephrolithotomy	T/S
Robotic RRP	No Sample
External genitalia/Penile	No Sample
TURP	No Sample
Cysto/ureter/urethra	No Sample
TURBT	No Sample

Vascular/Transplant Surgery

Case Category	Rec
Liver transplant	T/C 6U
Thoracoabdominal aortic	T/C 12U
Major liver resection	T/C 4U
Major vascular	T/C 4U
Exploratory lap. vascular	T/C 4U
Kidney pancreas transplant	T/C 2U
Major endovascular	T/C 2U
Above/below knee amputation	T/S
Nephrectomy/kidney transplant	T/C 2U
Organ procurement	T/C 2U
Peripheral vascular	T/C 2U
Vascular wound I and D	T/C 2U
Carotid vascular	T/S
AV fistula	T/S
Peripheral endovascular	T/S
Angio/Arteriogram	No Sample
Peripheral wound I&D	No Sample
1st rib resection/thoracic outlet	No Sample
Superficial or skin	No Sample
Foot/toe amputation/debride	No Sample
Central venous access	No Sample

If the procedure you are looking for is not on this list, then choose the procedure that most closely resembles that procedure.

*Emergency Release blood is available for ALL cases and carries a risk of minor transfusion reaction of 1 in 1,000 cases.

Appendix J: Medication Use Before Surgery

THIS LIST IS NOT ALL INCLUSIVE The decision to proceed with surgery is not always based on if a medication was taken or held on day of surgery. Utilize patient risk and urgency of scheduled surgery in your decision making.

CARDIOVASCULAR

Beta Blockers **(Metoprolol, Atenolol, Carvedilol, Nadolol, Bisiprolol, Sotolol, etc.)**

- Continue and TAKE morning of surgery

Calcium Channel Blockers **(Nifedipine, Diltiazem, Amlodipine, Verapamil, etc)**

- Continue and TAKE the morning of surgery

ACE Inhibitors **(ACEi)** and Angiotensin Receptor Blockers **(ARB) (Captopril, Lisinopril, Benazepril, Enalapril, Ramipril, Losartan, Valsartan, Irbisartan, Candasartan, etc.)**

- Continue through evening prior to surgery. HOLD morning of surgery for all patients, however, ask patient to bring the medication in the prescription bottle on morning of surgery.

Diuretics (Hydrochlorothiazide (HCTZ), Furosemide, Chlorthalidone, Amiloride, etc.)

- Continue through evening prior to surgery. HOLD morning of surgery.
- EXCEPTION: If taking for CHF, the patient should TAKE morning of surgery

Nitrates **(Imdur, Isosorbide, Nitrogylcerin Patch)**

- Continue and TAKE (or wear patch) morning of surgery

Cardiac Rhythm Medications **(Digoxin, Amiodarone, Flecanide, Quinidine)**

- Continue and TAKE morning of surgery

Other Blood Pressure Medications

- **Hydralazine**: Continue and TAKE morning of surgery
- **Clonidine**: Continue and TAKE morning of surgery
- **Blood Pressure Combination medications**: If these combinations have an ACEi or ARB as part of the combination, have patient HOLD the morning of surgery and bring with them to the hospital. All others, patients should take morning of surgery

Statins and Cholesterol Medications **(Simvastatin, Atorvastatin, Crestor, Lovastatin, Vytorin, Fenofibrate, etc)**

- Continue and TAKE morning of surgery

Appendix J: Medication Use Before Surgery (continued)

BLOOD THINNERS

Aspirin

- Patients taking Aspirin because they have a Coronary Stent should remain on Aspirin 81mg during the perioperative period and should TAKE the morning of surgery. The only exceptions are procedures that have a high risk of bleeding: Intracranial procedures; surgeries involving the Spinal Canal and Posterior Chamber of the Eye procedures. If the patient has stopped their aspirin and are not having a surgery in the Exception Category please make sure the surgeon is aware they take Aspirin 81 mg because they have a coronary stent, get their OK to restart the Aspirin and communicate that to the patient. If the patient was taking 325 mg Aspirin and stopped, have them restart at 81mg. (Appendix G)

- Patients taking Aspirin only for prophylaxis or pain, should follow instructions regarding Aspirin that they were given by their surgeon and if any questions direct them to the surgeon's office.

Prescription Antiplatelet Medications **(Plavix (Clopidogrel), Prasugrel, Ticagrelor)** (Appendix G)

- Patients should have received instructions from their surgeon and/or Cardiologist regarding when to stop preoperatively. NONE of these medications should be taken the morning of surgery unless the surgeon has specifically instructed the patient to remain on such medications (i.e. Vascular surgical procedures).

Oral Anticoagulants **(Warfarin/Coumadin, Pradaxa, Xarelto, Eliquis, etc)**

- Patients should have received instructions from their surgeon and/or PCP or Cardiologist regarding when to stop preoperatively. NONE of these medications should be taken the morning of surgery.

Low Molecular Weight Heparin **(Lovenox)**

- Stop per surgeon's instructions. HOLD morning of surgery

PULMONARY

Asthma and COPD Medication **(Singulair, and ALL inhalers)**

- Continue and TAKE the morning of surgery and bring any inhalers on day of surgery

Pulmonary Hypertension Medications **(Sildenafil, Tadalafil, Vardenafil, Flolan, etc)**

- Continue and TAKE the morning of surgery

ENDOCRINE/HORMONAL

Insulin (See Table in Appendix E; for Insulin Pumps see Appendix F)

Oral Diabetic Agents (See Table in Appendix E)

Thyroid Medications **(Synthroid (Levothyroxine), Armour Thyroid, Methimazole)**

- Continue and TAKE morning of surgery

Steroids **(Prednisone, Cortef, etc.)**

- Continue and TAKE morning of surgery

Gout Medications **(Allopurinol only)**

- Continue and TAKE morning of surgery

Appendix J: Medication Use Before Surgery (continued)

BONE AND CALCIUM DISORDER MEDICATIONS

- HOLD bisphosphonates the morning of surgery
- Parathyroid hormone, calcimimetics, calcitonin, and denosumab: TAKE morning of surgery

Aromatase Inhibitors **(Anastrozole, letrozole, etc)**

- Continue and TAKE morning of surgery

Selective Estrogen Receptor Modulators **(Tamoxifen, etc)**

- Discuss use with surgeon (increased risk for wound complication and VTE risk if continued)

CENTRAL NERVOUS SYSTEM

Alcohol antagonist **(Disulfiram, Antabuse)**

- HOLD 14 days prior to general anesthesia. Restart as soon as possible. Can cause oversedation if used with benzodiazepines. If alcohol used can cause a toxic reaction with flushing, dyspnea etc.

Anticonvulsants **(Dilantin, Tegretol, Keppra, Lamictal, Trileptal, Depakote, etc.)**

- Continue and TAKE morning of surgery

Antidepressants **(Prozac, Paxil, Zoloft, Celexa, Lexapro, Pristiq, Cymbalta, Effexor, Wellbutrin etc.)**

- Continue and TAKE morning of surgery

Antianxiety Medication **(Lorazepam, Diazepam, Alprazolam, Clonazepam)**

- Continue and TAKE morning of surgery

Antipsychotics **(Risperidal, Haldol, Geodon, Serequel, Abilify, etc)**

- Continue and TAKE morning of surgery

Lithium

- Continue and TAKE morning of surgery

Parkinson's Medications **(Sinemet (Carbadopa/Levadopa)**

- Continue and TAKE morning of surgery

Sleeping Medications

- May be taken evening before surgery if needed

ADD/ADHD Medications

- HOLD morning of surgery

Narcolepsy Medications **(Modafinil, Armodafinil, amphetamines and methylphenidate)**

- Continue and TAKE the morning of surgery.
- Notify OR schedulers of the patient and that they will continue stimulants

Opiate Antagonists

- **Naltrexone**: Hold for 48 hours prior to surgery
- **Methylnaltrexone**: Hold for 24 hours prior to surgery

GASTROINTESTINAL

Gastroesophageal Reflux (GERD) Medications **(Ranitidine, Prilosec, Nexium, Prevacid, etc.)**

- Continue and Take morning of surgery

Anti-nausea Medications **(Ondansetron, Metoclopramide, Phenergan, etc.)**

- Continue and TAKE morning of surgery

Appendix J: Medication Use Before Surgery (continued)

RENAL

Renal vitamins **(Phosphate binders, iron, erythropoietin, etc.)**

- Continue up through the day before surgery then HOLD the morning of surgery

UROLOGY/ GYNECOLOGY

Alpha-1 Adrenergic Agonists **(Flomax, Doxazosin, etc.)**

- Continue and TAKE morning of surgery

Anticholinergic Bladder Dysfunction medications AND Mirabegron **(Oxybutynin, etc,)**

- HOLD the morning of surgery

PDE-5 Inhibitors **(sildenafil, tadalafil, etc.)**

- **HOLD** for THREE DAYS prior to surgery if taken for **BPH** or **Erectile Dysfunction**
- **Continue** and TAKE the morning of surgery if used for **pulmonary hypertension**

Hormonal Medications **(Androgenic hormones, Progesterone and Estrogens)**

- Continue and TAKE morning of surgery unless otherwise directed to stop at a specific time prior to surgery by your surgeon.
- Selective estrogen receptor modulators **(SERMs; e.g. toremifene, tamoxifen, and raloxifene)** should be continued both before and on the day of surgery if taken for breast cancer prevention or treatment, but consider potential for increased wound complication and VTE risk if continued. If SERMs are taken for other indications and additional patient- or surgery-specific risk factors for VTE are present, stop SERMs at least 7 days before surgery.
- Aromatase Inhibitors **(anastrozole, exemestane, and letrozole)** should be continued both before and on the day of surgery, but consider potential for increased wound complications if continued.

Oral Contraceptives/Birth Control Pill

- Continue and TAKE morning of surgery

ANALGESICS AND PAIN MEDICATIONS

Narcotics/Opioids **(Codeine, Hydrocodone, Oxycodone, Vicodin, Percocet, Methadone, etc.)**

- Continue and TAKE morning of surgery

Neuropathic Pain Medications **(Gabapentin, Lyrica)**

- Continue and TAKE morning of surgery

NSAIDs **(Ibuprofen, Advil, Motrin, Aleve, Naprosyn, Diclofenac, Meloxicam)**

- Should be discontinued at least five days prior to planned surgery or per surgeon's direction, including topical NSAIDs such as Voltaren gel

Centrally Acting Muscle Relaxants **(Flexeril, Soma, Skelaxin, Robaxin)**

- HOLD the morning of surgery

Antispasmodics **(Baclofen, Tizanidine)**

- Continue and TAKE as needed only on morning of surgery

Appendix J: Medication Use Before Surgery (continued)

IMMUNOSUPRESSANTS/ANTI-REJECTION MEDICATIONS

Prednisone, Medrol, Tacrolimus, Cellcept, Sirolimus, etc.

- Continue and TAKE the morning of surgery

Nonbiologic DMARDs **(methotrexate, sulfasalazine, Imuran, Plaquenil, etc.)**

- Continue and TAKE the morning of surgery

Biologic DMARDs **(Rituximab, etc.)**

- Follow prescribing providers recommendation

VITAMINS/SUPPLEMENTS

Multivitamins Containing Vitamin E and Dedicated Vitamin E

- Stop two weeks prior to surgery

Dietary Supplements **(Fish Oil, COQ10, Garlic, Gingko, Ginseng, Glucosamine, Turmeric, etc.)**

- Stop two weeks prior to surgery

Weight Loss Medications **(OTC or Prescribed such as phentermine)**

- Stop four days prior to surgery.

*__Reference__: Preoperative Management of Surgical Patients Using Dietary Supplements: Society for Perioperative Assessment and Quality Improvement (SPAQI) Consensus Statement

MISCELLANEOUS MEDICATIONS

Allergy Medications **(Allegra, Claritin, Zyrtec, Sudafed)**

- TAKE if needed the morning of surgery
- Nasal Sprays (Nasacort, Flonase) and Eye Drops are okay to take
- Do **NOT** take decongestants/allergy medication containing pseudoephedrine on the day of surgery (Allegra-D, Mucinex-D, etc).

Migraine Medications

- Daily Prophylactic Medications (**Topamax, Propranolol**)
  - Continue and use morning of surgery
- As needed "triptans" (**Sumatriptan, Rizatriptan**)
  - HOLD the morning of surgery
- Calcitonin Gene Related Peptide Receptor Antagonists (**Ajovy, Emgality, Aimovig**)
  - Continue and use morning of surgery

Nicotine Cessation Products

- Nicotine Patch
  - Remove patch the day prior to surgery
  - The patient can use nicotine lozenges the day prior to surgery while the patch is off (as long as smoking/nicotine cessation is not a pre-op requirement)
- **NO** nicotine containing products should be used **the day of surgery**

Appendix K: Cannabis and Tobacco Use Considerations

Cannabis Use:

- Discourage cannabis inhalation within 72 hours of general anesthesia given the potential for long lasting heart rate effects
- To reduce the risk of perioperative myocardial infarction, consider delaying surgery for a minimum of 2 hours after cannabis smoking
- Insufficient evidence to suggest that non-smoked routes of administration adversely affect the cardiovascular system
- The respiratory effects of smoking cannabis appear to parallel those of smoking tobacco. Counsel patients on the potential risks of respiratory complications and encourage them to quit smoking any time before surgery or a minimum of 72 hours beforehand (to decrease uvular edema).
- See QR code for PowerPoint with additional information and attached references.

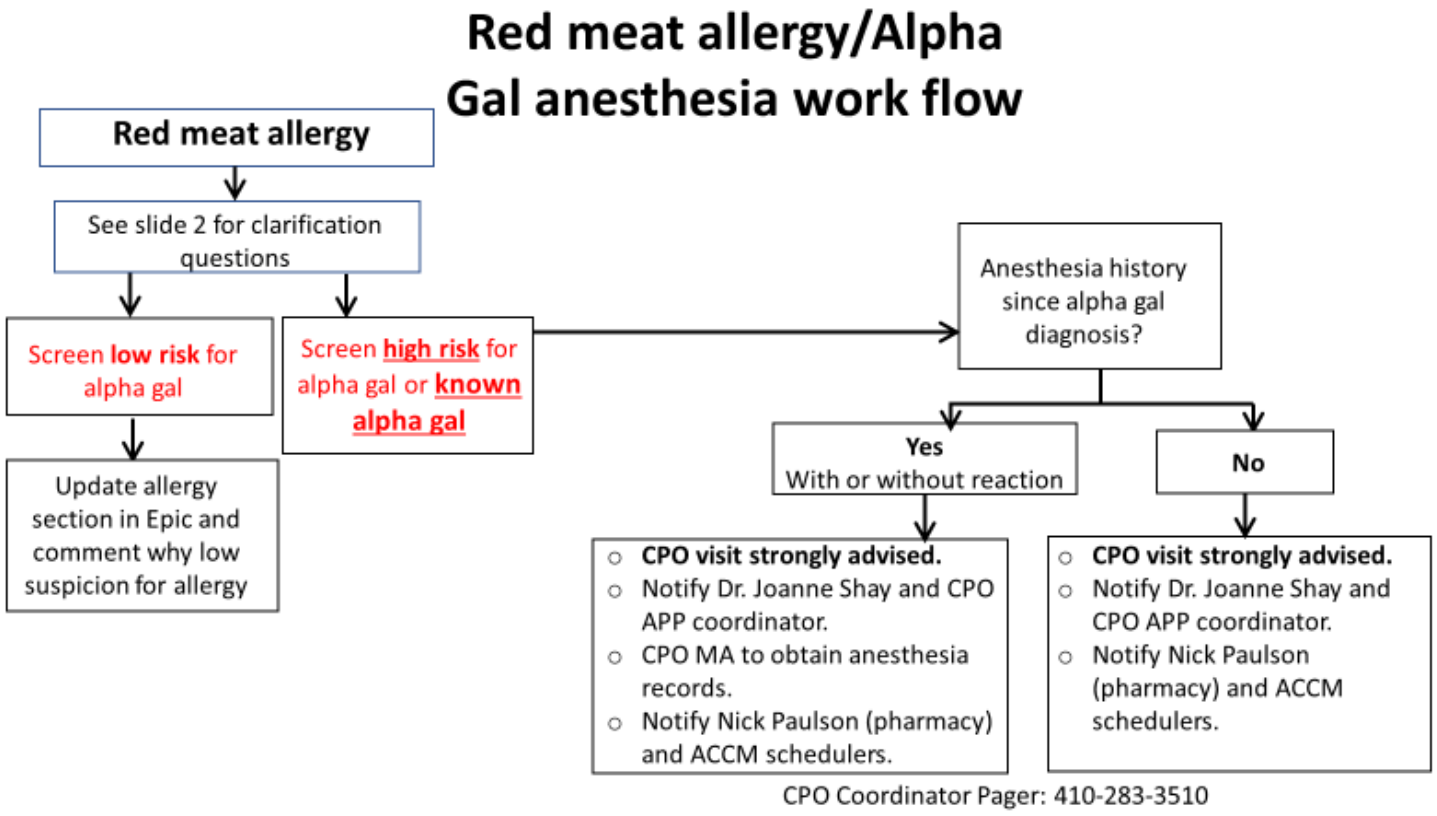
Tobacco Use:

If the patient endorses smoking nicotine, they are advised to quit smoking as soon as possible before surgery and at least one week afterwards in order to decrease the chances of a would infection or respiratory complication. Patients can be seen by their PCP for assistance quitting and/or be provided with the following number to a toll-free tobacco quit line which is a free program that assists people with quitting.

1-800-QUIT NOW/1-800-784-8669

Patients should not use inhaled nicotine products the day before or the day of surgery.

Appendix L: Red Meat Allergy/Alpha Gal Preoperative Workflow



Screening Questions to Ask:

1) Describe the allergy
   - When was it identified?
   - What was the reaction and did that include any signs of anaphylaxis i.e. rash, itching, swelling?
   - How quickly did symptoms develop after exposure to the meat products

2) Have they previously had GA, especially since the allergy developed? If so, where can we obtain these records?

3) Do they tolerate medications in a gelatin capsule? See slide 3 for medications that increase suspicion for Alpha Gal.

4) Do you continue to eat meat?

High risk = No longer able to eat red meat/completely avoids red meat due to reaction; signs of anaphylaxis; known history of Lone Star tick bite with diagnosis of alpha gal and/or new onset reaction to medications on slide 3 and/or red meat afterwards.

Alpha Gal (1).pptx

Appendix M: Elderly Medication Considerations

Potentially Inappropriate Medications (PIM) for Elderly Patients

PIM	Recommendations, Rationale
Anticholinergics ▪ Promethazine ▪ Scopolamine ▪ Hydroxyzine	• Avoid • Highly anticholinergic; clearance reduced with advanced age; risk of confusion, delirium, dry mouth, constipation, and other anticholinergic effects or toxicity. Use of diphenhydramine in situations such as acute treatment of severe allergic reaction may be appropriate.
Amiodarone	• Avoid as first-line therapy for atrial fibrillation unless the patient has heart failure or substantial left ventricular hypertrophy • May be reasonable first-line therapy in patients with concomitant heart failure or substantial left ventricular hypertrophy if rhythm control is preferred over rate control
Benzodiazepines **Short- and intermediate acting:** ▪ Lorazepam ▪ Midazolam **Long-acting:** ▪ Diazepam	• Avoid • Older adults have increased sensitivity to benzodiazepines and decreased metabolism of long-acting agents; increased risk of cognitive impairment, falls, fractures, and motor vehicle crashes in older adults. Potential of inducing or worsening delirium. May be appropriate for seizure disorders, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder.
Corticosteroids	• If needed, use the lowest possible dose for the shortest duration and monitor for delirium.
Metoclopramide	• Avoid, unless for gastroparesis with duration of use not to exceed 12 weeks except in rare cases • Can cause extrapyramidal effects, including tardive dyskinesia; risk may be greater in frail older adults and with prolonged exposure. Dopamine-receptor antagonists with potential to worsen parkinsonian symptoms

PIM	Recommendations, Rationale
Antipsychotics	• Avoid, except for use in psychiatric disease or as a short-term antiemetic. Restrict use in delirium for failure of nonpharmacologic interventions AND patient presents harm to self or others. Increased risk of stroke, cognitive decline, mortality in patients with dementia.
Pain Medications	
Gabapentin	• Reduce dose or avoid when GFR <60 • Avoid in patients with ESRD. Increased risk of oversedation.
Meperidine	• Avoid • Oral analgesic not effective in dosages commonly used; may have higher risk of neurotoxicity, including delirium, than other opioids; safer alternatives available
NSAIDs	• Avoid when GFR <30 (stage IV–V CKD) or in AKI • Use caution with repeated doses. Preferred PRN instead of scheduled. Increased risk of gastrointestinal bleeding or peptic ulcer disease, AKI and hypertension. Risks are dose-related.
Indomethacin	• Of all NSAIDS, indomethacin has the most adverse effects, including higher risk of adverse CNS effects
Skeletal Muscle Relaxants Methocarbamol, Cyclobenzaprine	• Avoid • Anticholinergic adverse effects, sedation, increased risk of fractures.

Object Drug and Class	Interacting Drug and Class	Recommendations, Risk Rationale
Opioids	**Benzodiazepines**	• Avoid. Increased risk of overdose
Opioids	**Gabapentin, pregabalin**	• Avoid; exceptions are when transitioning from opioid therapy to gabapentin or pregabalin, or when using gabapentinoids to reduce opioid dose, although caution should be used in all circumstances. Increased risk of severe sedation related adverse events, including respiratory depression and death
Anticholinergic	**Anticholinergic**	• Avoid, minimize number of anticholinergic drugs. Increased risk of cognitive decline
Corticosteroids, oral or parenteral	**NSAIDs**	• Avoid; if not possible, provide gastrointestinal protection. Increased risk of peptic ulcer disease or gastrointestinal bleeding

FLOWCODE PRIVACY.FLOWCODE.COM

(QR Code for PIM flyer)

Appendix N: Endoscopy ASC/Hospital Scheduling Criteria

ASC / HOSPITAL CRITERIA						
Medical Condition	**WM ASC**	**KN ASC**	**GSS ASC**	**Hospital**	**Cardiac Anesthesia**	**Anesthesia Consult**
GENERAL					**JHH Tues / Fri**	
BMI > 40				X		
Age 80 or older				X		
ASA 4				X		
Wheelchair bound / Limited ADL's / Quadraplegic				X		
Nursing home resident				X		
Mentally Challenged / Developmental Delay / Cognitive Impairment				X		
Recreation Drug Use				X		
ETOH Abuse	X	X	X			
Long term pain management	X	X	X			
Pregnancy				X		
Organ Transplant				X		
Difficult IV Access				X		
Cancer (Oral Chemotherapy only)	X	X	X			
Chemotherapy				X		
Medications 5 or Greater (Excluding sleeping pills or anti-anxiety pills)	X	X	X			X
ANESTHESIA / AIRWAY						
Known or Suspected Difficult Airway				X		X
Personal or Family history of malignant hyperthermia (First case of the Day)				X		X
Any difficulties with anesthesia				X		X
NEUROLOGIC						
Seizures / Epilepsy (If episode within 6 months / pt does not know)				X		X
Seizure / Epilepsy (Well-controlled)	X	X	X			
Stimulators				X		
Parkinson's				X		
Cerebral Aneurysm (Burst, clipped or coiled)	X	X	X			
Cerebral Aneurysm (secured and unsecured)				X		
CVA / Stroke – EMBOLIC (Outside of year, new baseline, unchanged)	X	X	X			
CVA / Stroke –ISCHEMIC				X		X
CVA / Stroke – HEMORRHAGIC				X		X

ASC / HOSPITAL CRITERIA						
Medical Condition	**WM ASC**	**KN ASC**	**GSS ASC**	**Hospital**	**Cardiac Anesthesia**	**Anesthesia Consult**
CARDIAC						
Stents (within 1 year, after 6 months minimum) REVASCULARIZED AND STABILIZED	**X**	**X**	**X**			
AICD				**X**		
Pacemaker	**X**	**X**	**X**			
MI within 6 months (Needs cardiac clearance from Cardiology)				**X**		**X**
Pulmonary HTN				**X**	**X**	**X**
CHF / EF <35%				**X**	**X**	
CHF / EF <50%				**X**		
Controlled HTN	**X**	**X**	**X**			
Moderate – Severe HTN				**X**	**X**	
Labile HTN (Multiple Diuretics) / Uncontrolled HTN				**X**	**X**	**X**
AFIB – STABLE ON BLOOD THINNER	**X**	**X**	**X**			
Arrhythmia > 1ST DEGREE BLOCK				**X**	**X**	
Aortic Dilation (> 4 cm)/ Sclerosis / Aneurysm				**X**		
AORTIC Stenosis				**X**	**X**	
LVAD				**X**	**X**	
Pre or Post Heart Transplant				**X**	**X**	
hospitalized or emergency visit for a heart problem within the last 3 months?				**X**		**X**
POTS (Postural Orthostatic Tachycardia Syndrome) – *will hydrate pt. day of*	**X**	**X**	**X**			
PULMONARY						
Requires oxygen supplementation or has dyspnea at rest				**X**		
Moderate - Severe OSA				**X**		**X**
Mild OSA	**X**	**X**	**X**			
Central Sleep Apnea				**X**		
Moderate COPD / Asthma (daily inhalers AND rescue inhalers)				**X**		
Lung Disease / Nodule / Mass				**X**		
Dyspnea on Exertion (DOE)				**X**		
hospitalized or emergency visit for a lung problem within the last 3 months?				**X**		**X**
Pre or Post Lung Transplant				**X**		
Needs Flolan				**X**		

ASC / HOSPITAL CRITERIA						
Medical Condition	**WM ASC**	**KN ASC**	**GSS ASC**	**Hospital**	**Cardiac Anesthesia**	**Anesthesia Consult**
RENAL						
CKD Stg I, II & III	X	X	X			
CKD Stg IV / ESRD / Dialysis				X		
Pre – Kidney Transplant				X		
Post Kidney Transplant (Stable – 1 year or greater)	X	X	X			
HEPATIC						
Hepatic Steatosis	X	X	X			
Fatty Liver / Non-Alcoholic Fatty Liver Disease	X	X	X			
Hepatitis C	X	X	X			
Cirrhosis				X		
Pre-Liver Transplant				X		
Post Liver Transplant (Stable – 1 year or greater)	X	X	X			
GASTROENTEROLOGY						
H/O Perforation				X		
C-Diff (Last case of the day)				X		
Diverticulitis (6-8 Weeks post flare)				X		
Achalasia (EGD)				X		
Achalasia - Colonoscopy	X	X	X			
ENDOCRINE						
Diabetes (Schedule before Noon)	X	X	X			
A1C > 10				X		
GLUCOSE < 300	X	X	X			
HEMATOLOGY						
Factor V Leiden				X		X
ITP *(Idiopathic Thrombocytopenic Purpura)*				X		X
TTP *(Thrombotic Thrombocytopenic Purpura)*				X		X
Sickle Cell Trait	X	X	X			
Sickle Cell				X		X
Hypercoagulable Disorder				X		X
Polycythemia Vera				X		X
Von Willebrand Disease				X		X
PROCEDURES						
Therapeutic (ERCP, Fluoro w/ dilation, Banding of varices, EUS, ESD, Enteroscopy, TIF, POEM)				X		

Appendix O: When to Contact Cardiac Anesthesia

The below information indicates when cardiac anesthesia should be contacted to see if their involvement in the surgical case is necessary. To contact the cardiac anesthesia team, please e-mail CA-consult@jh.edu.

Parameters for consulting perioperative high risk cardiovascular disease service

Pulmonary hypertension PLUS one or more of the following:

- PH specific medications other than diuretics (endothelin receptor antagonists, prostacyclin agonists, PDE5 inhibitors)
- Patients followed in the PH clinic
- TTE with moderate or severe right ventricular dysfunction
- Evidence of volume overload
- PA pressures 2/3 systemic pressures (or RVSP > 60mmHg)
- 6-minute-walk test <300m
- Cardiac index <2.4 by right heart catheterization

Congenital heart disease PLUS one or more of the following:

- History of cyanotic CHD
- Unrepaired defect
- Repaired defect with residual lesion(s)
- Right to left shunt
- Signs of heart failure

Ventricular assist device:

- Any patient with LVAD, RVAD, or BiVAD

Congestive Heart failure PLUS one or more of the following:

- On intravenous heart failure medications
- Listed for heart transplant or getting evaluated for it
- Scheduled for LVAD placement

Coronary artery disease PLUS one or more of the following:

- Ongoing active ischemia
- Myocardium at risk and unable to intervene prior to the procedure PLUS reduced systolic function or change in functional status or signs of heart failure

Valvular heart disease PLUS one or more of the following:

- Severe symptomatic valvular disease that needs intervention but cannot be performed prior to surgery. (e.g. a change in functional status, signs of volume overload, chest pain, syncope/presyncope, and new/worsening SOB/DOE)

Appendix P: Indications for Children's Center Consult

Any Patient with anesthesia management concerns

Anesthesia Related Concerns
- History of difficulty with anesthesia
- Family member with malignant hyperthermia or other significant difficulty with anesthesia

Abnormal Airway Concerns:
- Known difficult airways
- Abnormal airway anatomy or syndrome (e.g. Treacher-Collins, Goldenhar, Pierre-Robin, Cornelia de Lange, Hurler's, Hunter's)
- Obstructive sleep apnea OSA or central apnea for procedure other than tonsillectomy

Respiratory Disease
- Cystic fibrosis
- Oxygen dependent/ home CPAP/ventilator dependent
- Pulmonary hypertension
- Poorly-controlled or steroid dependent asthma
- Former premature infant with ongoing oxygen requirement or severe chronic lung disease

Neuromuscular / Orthopedic Disease
- Muscular dystrophies
- Skeletal dysplasia
- Progressive severe weakness
- Cervical spine instability/prior neck surgery/in neck brace
- Scoliosis: neuromuscular or curve >60 degrees
- Wheelchair-bound
- Significant limitation in physical activity/exercise tolerance

Neurologic Disorders
- Seizures: frequent or poorly controlled

Metabolic / Gastrointestinal Disorders
- Metabolic disorders / storage disorders (e.g. Hunter's, Hurler's, mitochondrial disorder)
- Diabetes- insulin therapy
- Morbid obesity
- Renal or Hepatic failure

Transplant-Related Concerns
- Have had or will have organ transplant

Hematologic Disease
- Hemoglobinopathy
- Sickle cell disease
- Coagulopathy

General / Other Concerns
- DSS custody/foster care
- Ethical concerns: Do-Not-Resuscitate, Jehovah's Witness for major surgery

Cardiology:

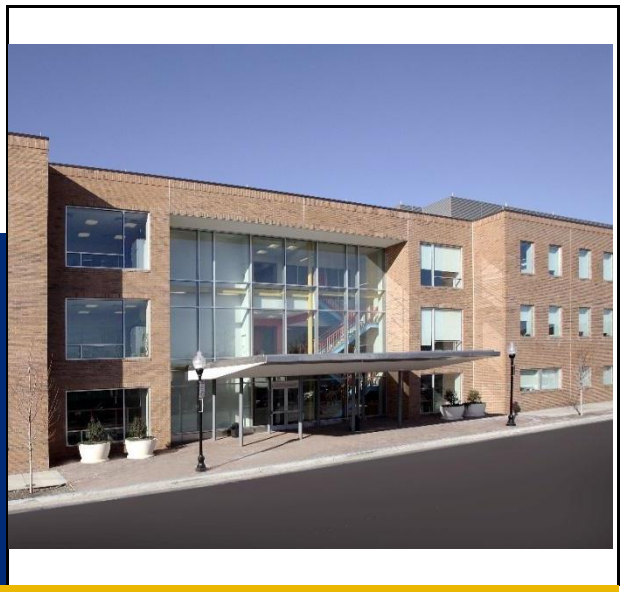
CCPO Consult:
- Consider for all patients with symptomatic or complex congenital heart disease

Cardiology consult also requested for:
- Patients with ***unevaluated or new*** heart murmur
- If patient has known congenital heart disease:
  - With ***asymptomatic ASD or VSD***, Cardiology evaluation should be within one year of procedure date
  - Complex congenital heart disease s/p cardiac surgery totally ***asymptomatic***, routine scheduled follow-up should occur prior to procedure date
- **If** patient has ***symptomatic or complex congenital heart disease***
  - Patients should be seen by cardiology *within 30 days* of procedure
  - Additionally, inform cardiologist of patient's procedure date and if patient is admitted, inform cardiology service about any child with symptomatic or complex congenital heart disease.

Please ensure cardiac consult and related tests are available in Epic

Appendix Q: Center for Perioperative Optimization Children's Center

Johns Hopkins Medicine
Department of Anesthesiology
and Critical Care Medicine



Children's Center for Perioperative Optimization

LOCATION & APPOINTMENT OFFERINGS

Location:
David M. Rubenstein Building, Lower-Level Specialty Clinic, 200 N. Wolfe St, Baltimore MD 21287

Contact Information
Dr. Sally Bitzer
sbitzer1@jhmi.edu

Dr. Joann Hunsberger
jhunsbe1@jhmi.edu

Providers
Ivor Berkowitz, MD MBA
Sally Bitzer, MD
Joann Hunsberger, MS MD
Rahul Koka, MD MPH
Joanne Shay, MD MBA
Barbara Vickers, MD MPH
Monica Williams, MD

Pediatric Anesthesia Consultation Services Details

Patient Qualifications:
- Consider consult for pediatric patients with possible anesthesia management concerns
- See supplemental material for specialty-specific guidelines, "Indications for Children's Center Perioperative Optimization Consult"
- Child is required to be present for any video visit consultations

Available Days and Hours:
- Mondays, 8:30 AM-3:00 PM
- Wednesdays, 8:30 AM-3:00 PM
- Thursdays, 8:30 AM-3:00 PM
- Friday afternoons, 8:30 PM-11:30 PM

Scheduling:
- Medical Office Coordinators schedule CCPO consult at time of procedural posting in EPIC using "JHDMR Peds Preop Eval"
- For questions regarding scheduling, call Shantina Harris at 410.955.1499 For same day appointments, page 3-3510

Appendix R: Perioperative Pain Clinic

Johns Hopkins Medicine
Department of Anesthesiology
and Critical Care Medicine

Perioperative Pain Clinic

NEW SERVICE & APPOINTMENT OFFERINGS

Johns Hopkins Hospital
601 N. Caroline Street
Neurosurgery Suite, 5th Floor
Baltimore, MD 21287

Contact Information
Patricia Shird
410-955-5608
pgorham1@jhmi.edu

Faculty
Marie Hanna, MD
Ronen Shechter, MD
Traci Speed, MD

The Department of Anesthesiology and Critical Care Medicine is pleased to announce a new service for patients at the Johns Hopkins Hospital beginning June 1, 2017. The Perioperative Pain Clinic will provide consultation service that evaluates and adjusts a patient's chronic pain management prior to surgery and manages their analgesic regimen post operatively.

We provide world class care by incorporating a multidisciplinary approach to include the **Acute Pain**, **Psychiatry**, and **Integrative Medicine** teams. We hope this service is valuable to you and your patients during this important aspect of their perioperative care.

Operational Details
Available Days: Every Thursday (excluding holidays)
Hours: 8:00 AM – 5:00 PM
Scheduling: Call Patricia Shird at 410-955-5608.
Patient Qualifications:
Patients scheduled for surgical procedures who are:

- ✔ On chronic opioids
- ✔ On partial agonist opioid buprenorphine (including Suboxone)
- ✔ In an addiction maintenance program
- ✔ On multiple illicit substances (i.e. polysubstance abuse)

Opioid naïve patients at risk of developing opioid dependence postoperatively

Appendix S: Center for Perioperative Optimization –Obstetrics

Johns Hopkins Medicine

Department of Anesthesiology
and Critical Care Medicine

Obstetrics Center for Perioperative Optimization

NEW LOCATION & APPOINTMENT OFFERINGS

Johns Hopkins Hospital

600 North Wolfe Street
Nelson 2, Suite 150
Baltimore, MD 21287

Johns Hopkins Hospital

601 N. Caroline Street
The Outpatient Center,
6th Floor
Baltimore, MD 21287

Contact Information

Jamie Murphy, MD
jmurphy@jhmi.edu

Rhonda Thomas
rthomas6@jhmi.edu

The Department of Anesthesiology and Critical Care Medicine is pleased to offer preoperative evaluation appointments for OB patients at the Johns Hopkins Hospital. We hope this service is valuable to you and your patients during this important aspect of their perioperative care.

Operational Details:
Available Days: Tuesday via Telemedicine (excluding holidays)
Hours: 8:00 AM – 5:00 PM
Scheduling: Call 410-502-3200.
Patient Qualifications:

- Pregnant and scheduled for surgery
- Complex pathologies of the spine (scoliosis, vertebral fusion, disc disease, spinal canal defects, neuropathies, and nerve disease, etc)
- Neurologic pathology (cerebral ischemia, tumor, increased intracranial pressure, cerebral vascular disease, etc)
- Cardiac disease (congenital, valvular, PHTN, cardiomyopathy, ischemic disease, arrhythmia, etc)
- Pulmonary disease (H/O PE, interstitial lung disease, severe asthma, cancer, etc)
- Morbid Obesity (OSA, equipment considerations)
- Hematologic Disorders (thrombophilia, coagulopathies, patients on anticoagulation)
- Cancer
- Abnormal placental presentations (accreta/increta/percreta)
- Airway concerns
- Fetal Therapy patients requiring specialized management (EXIT procedures)
- H/O adverse anesthetic reactions or experiences
- Pain: chronic pain, pain disorders, PTSD, and generalized concerns