



Best Practice in Scheduling and Pre-Procedural Preparation

2015

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I. Introduction

Best Practice Scheduling and Pre-Procedural Preparation

This Best Practice of Pre-Procedural Preparation includes details on scheduling for a clinic visit and Pre-anesthesia testing. On most days at ANMC 80-90% of available operating room time is used. While there are a variety of factors that contribute to this number, more accurate assessment of the patients prior to traveling to Anchorage and an upfront plan for Pre-surgical evaluation may help to improve opportunity for access to patients who are waiting for surgery. The Surgical Services Executive Committee and the ANMC Department of Anesthesia hope this guide will help all of those involved with both clinic visit scheduling and pre-surgical evaluation to have a better understanding of the needs of the surgical patient.

Scheduling Clinic Visit to Evaluate the Need for Surgery

Accurate scheduling is essential in order to institute optimal planning for the Preadmission process as well as preventing cancellation/delays on the day of surgery. Schedule chaos prevents optimal planning, “burns out” staff and saps surgeon confidence. Included in this document is a clinic scheduling form that must be completed on the Telemedicine (Afghan) System. Under a pilot program from Medicaid, ANMC will receive reimbursement for scheduling in this manner. This is being allowed in order to attempt to better understand the goals of the referral, a basic understanding of the co-morbid diseases of the patients and to try to make optimal use of the patient’s time when on the ANMC campus.

Many patients who are having simple procedures and who have minimal co-morbidities will be able to come to ANMC and have surgery during one visit. However, for the more complex procedures in patients who have high levels of co-morbid disease, it may be necessary to evaluate the patient in the surgery clinic but also schedule time with a Hospitalist to evaluate fitness for surgery and opportunities to improve outcome and reduce length of stay. In addition it may be necessary to plan the post surgical rehabilitation. For those patients who have been deemed too complex to have a one visit process, Medicaid will pay for travel for both a pre-visit and a surgical visit. This will require more coordination and understanding the needs of the patient at the time of scheduling the clinic visit is essential.

Scheduling Operating Room Time

ANMC believes that fax or e-fax scheduling is the most optimal method to use for those services that have multiple or complex procedure lists. For others who have a relatively simple procedure dictionary, scheduling in PICIS will still be encouraged. While the fax may be preceded by a telephone call to ascertain available time, telephone scheduling alone often leads to mistakes in procedure, site(s), and length of case time. Fax Schedule and e-fax schedule should obtain all needed information and have a

complete record of demographics for admissions and necessary information for the Preadmission department nurses. Copies of the optimized fax scheduling form are provided in the scheduling section.

By utilizing computer generated times, predictability of case duration is maximized. Best practice share four common elements: more advanced preparation; improved forecasting of time needed by the individual surgeon; smart information infrastructure; and dedicated capacity to absorb variability appropriately.

Pre-Procedural Preparation

The Pre-Procedural evaluation of a patient is guided by the invasiveness of the procedure and the co-morbid conditions of the patient. This set of Best Practice guidelines is meant to provide the pre-op nurses, anesthesia providers, surgeons and their offices with the tools and process maps that can help simplify the pre-op process.

Many have written that there are no clearly defined rules for evaluation of the patient pre-procedurally. In fact, the benefit of pre-operative laboratory testing has been called into question by the fact that it has been quoted only 1/10,000 laboratory tests benefit patients while 1/2000 laboratory tests harm patients by adding further follow up testing for abnormal values. Clearly, advantages to the reduction in laboratory studies include reduction of further follow up labs but also reduction of unnecessary cost.

ANMC advocates the use of minimal pre-op lab testing. However, most anesthesia providers have a preference for laboratory studies prior to surgery which if not communicated to the nurses or office personnel preparing the patient for surgery, may result in a delay or cancellation on the morning of surgery, further driving up costs. Therefore, ANMC advocates clearly defined guidelines that the anesthesia department has agreed upon to facilitate improved communication and reduction of confusion among the various constituents.

A review of the literature will help guide a common sense approach. Schein et al (2000) published a study which included 18,000 cataract patients randomized into two groups. One group had pre-op labs and the second group did not. There was no statistical difference in outcome among the two groups. This has lent credence to the philosophy that non-invasive procedures with minimal blood loss or fluid shifts require no lab studies. In fact the ACC/AHA Guidelines stratify all procedures into 3 distinct risk groups, low intermediate and high. Based upon the use of this risk stratification, Surgical Directions has advocated the use of guidelines as outlined in section II.

Lab grids can be found within this packet (section III). Each member of the ANMC Anesthesia Department has agreed upon the lab requirements. In addition, management of the results of the tests has been agreed upon and is found in this packet as well.

The Anesthesia Department has established an NPO Policy (section V – Preoperative Fasting) in accordance with the American Society of Anesthesiologist (ASA) Practice Guidelines (*Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists. Anesthesiology. 2002; 96(4):1004-17*). It is essential these guidelines be followed by all patients – emergency surgeries are the only exception.

In addition to gathering pre-operative information, it is important to use the pre-operative period to educate our patients about smoking cessation, necessary preventive procedures and vaccinations. A grid for suggested discussions is found in this current guide. Patients are more willing to have strategic healthcare conversations in the perioperative period. Having these discussions not only increases the relevance of the pre-op process but may prevent issues for the patient which may be more serious than the one they are currently facing.

Preventative Medicine

The Smoking Cessation (section VI) and Risk Reduction Reminder (section VII) are designed to be given to patients to encourage improved health and the best outcome possible with their surgical experience.

II. Anesthesia Pre-Procedural Testing Guidelines (Order Set)

Procedural Risk Assessment

<p>Low Risk Procedures Cardiac risk < 1%</p>	<p>Cataracts, skin procedures, breast biopsies, egd, colonoscopy, some ENT procedures (ear surgeries, Tonillectomy), & some laproscopic procedures (cholecystectomy) with one or no comorbidities</p>	<p>NO LABS REQUIRED</p>
<p>Intermediate Risk Procedures Cardiac risk 1-5%</p>	<p>Abdominal procedures, thoracic procedures, THR, TKR, Prostatectomy, carotid surgery & some ENT procedures (neck dissections)</p>	<p>SD recommends labs based on comorbid disease state as outlined in lab grid</p>
<p>High Risk Procedures Cardiac risk >5%</p>	<p>Vascular and all Major Emergent Procedures: AAA, Cardiothoracic</p>	<p>Minimum labs include: EKG.CBC, Chemistries/SD recommends labs based on comorbid disease state as outlined in lab grid</p>

Intermediate and High Risk Procedures Testing Grid

	Patient Type	ECG	CBC	Chem 8	HbA1c	PT/INR	PTT	UA	Chem 14	LFTs	CXR	T&S	Urine HCG under 50
	Age over 65 years	X											
Cardiac	Cardiac Disease (MI, CHF, Pacemaker/AICD, Coronary Stents)	X	X	X									
	Hypertension	X ⁵											
	Vascular Disease (peripheral or cerebral)	X	X										
Other Co-Morbid Diseases	Pulmonary Disease (COPD, Asthma)		X								X ²		
	Renal Insufficiency		X	X									
	End Stage Renal Disease (on dialysis)	X	X	X									
	Hepatic Disease		X			X	X		X	X			
	Diabetes	X ³		X ⁶	X								
	Symptoms of UTI							X					
Medication	Chemotherapy		X ⁴										
	Diuretics			X ⁶									
	Anticoagulants (Coumadin)		X			X ⁶							
	Anitcoagulants (Heparin)						X ⁶						
	Digoxin			X									
Procedure	Intermediate Risk Procedure		X									X	
	High Risk Procedure (Cardiac or Thoracic)	X	X						X			X	
	Menstruating female												X
	Summary												

EKG: Results good for 6 months (without clinical change)
 LAB: Results good for 3 months (without clinical change)

X¹ Only if on diuretics
 X² Only if clinical picture has deteriorated or acute change in disease (not routine)
 X³ DM age >50 years or DM > 10 years duration
 X⁴ Only if actively receiving chemotherapy
 X⁵ age >50 years or HTN >10years
 X⁶ labs need to be obtained within 24 hours of surgery

III. Lab Abnormals

Purpose: To provide a standard action plan for chart review of pre-admission testing done for scheduled surgical patients. PAT will follow these guidelines for review. Surgeons and Primary Care Physicians can review labs and order any additional tests as needed, regardless of the guidelines listed below.

ABNORMAL TEST RESULTS		
TEST	PROBLEM	ACTION
Complete Blood Count:		
WBC	<3k or >12	Fax to Surgeon/PCP (Attention to Implants)
Hgb	Hgb < 10gms	Fax to Surgeon/PCP (if ≤ 8, page PCP/surgeon)
HCT	HCT < 30%	Fax to Surgeon/PCP
Platelets	< 130k or >600K	Fax to Surgeon/PCP
Metabolic Panel:		
Sodium	< 132 or >145	Fax to Surgeon/ PCP
Potassium	< 3.0 or > 5.5	Fax to Surgeon/PCP
BUN/Creatinine	BUN >45 Creatinine > 1.7	Fax to Surgeon and PCP
Calcium	< 8.0 or >10.5 (Note: Ca < 8.0 & total protein <6.0, do not send)	If going for Parathyroidectomy, no need to send abnormals. Surgeon/PCP
Magnesium	<1.7 or >2.5	Fax to PCP
Glucose	<60 or >150 <i>If diabetic</i> < 70mg > 250 or > 175 and HbA1C >9%	Fax to PCP Fax to PCP
Coag Profile:		
Prottime	< 11.6 or >14.5	Fax to Surgeon/PCP for clearance
INR	> 1.3	Fax to Surgeon/PCP for clearance
PTT	<23.5 or >36.0	Fax to Surgeon/PCP
Platelet Function Study	Epinepherine <82 or >182 ADP <59 or >123	Fax to Surgeon/PCP
Liver Enzymes:		
Bilirubin- SGOT/AST	>1.3 If on statins & > 100 If not on statins & > 43	Fax to PCP/ Surgeon for clearance
Alk PHOS GPT/ALT	If on statins > 100 If not on statins & > 56	

ABNORMAL TEST RESULTS		
TEST	PROBLEM	ACTION
Urinalysis:		
WBC	> 5	Follow up with Surgeon/PCP (obtain clearance for implants)
Leukocyte Esterase	Trace or Positive	Follow up with Surgeon/PCP (obtain clearance for implants)
Pregnancy Test:		
	Positive	Follow up with Surgeon unless known pregnancy
EKGs:		
	<p>Borderline or Abnormal that show the following:</p> <ul style="list-style-type: none"> • Acute Ischemic Changes • MI (history of MI, age undermined, cannot rule out MI) old MI requires a prior EKG more that 6 months old that shows the same findings • 2nd, 3rd degree complete heart blocks • Trifascicular blocks • ST and/or T wave elevation or inversion • Non-specific ST-T wave changes • Left bundle branch block 	Fax to Anesthesia/Cardiologist/PCP (Please get old EKG for comparison)

IV. Medications to Hold / Modify

Should I Give it or Should I Not? Holding Medications Prior to Surgery Updated July 2013

Whether or not to give medications prior to surgery is a commonly asked question that unfortunately does not always have an easy answer. There is controversy and a lack of consensus regarding which medications should be given or held prior to surgery. One of the reasons for this is that there is a lack of published literature regarding drug interactions with anesthetic agents. The other is that the decision of whether to give or hold is very patient-specific. The decision depends on the type, duration, and urgency of surgery, and the current state of the patient's medical condition(s). Following are recommendations for classes of medications that are commonly held prior to surgery and a summary table. Keep in mind that exceptions are often made based on the patient's condition (e.g., uncontrolled hypertension, poor glycemic control, a high risk of thrombosis, etc.).

Antihypertensives

In general, antihypertensives do not need to be held, with a few exceptions. This holds true especially for beta-blockers, which can be associated with a withdrawal syndrome if abruptly discontinued. Symptoms can include increased nervousness, anxiety, palpitations, nausea, vomiting, headache, and insomnia. Withdrawal effects have also been seen after the discontinuation of clonidine, methyldopa, and reserpine. Angiotensin converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), on the other hand, are often held prior to surgery. There have been published reports of hypotension when ACE Inhibitors and ARBs are used along with the induction of anesthesia. The hypotension occurred more frequently than with other classes of antihypertensives and was less likely to respond to the vasopressors ephedrine or phenylephrine.

Analgesics

Autoimmune Medications

These medications are administered to diminish a patient's immune system strength in order to reduce the immune response in patients who have rheumatoid arthritis and lupus. These drugs should be discontinued in order to reduce the risk of post operative infection.

Diet Pills

These drugs should be discontinued 2 weeks prior to surgery because of the risk of high blood pressure before and during anesthesia.

Diuretics

Patients are generally in a fasting state and at risk for hypokalemia and hypovolemia if diuretics are continued without adequate potassium supplementation and hydration. Hypokalemia can lead to an increased response to muscle relaxants, cause cardiac arrhythmias, and increase the risk of paralytic ileus. However, there is a lack of consensus regarding perioperative discontinuation of diuretics. Due to the potential for adverse effects, they are usually held the morning of surgery.

Anticoagulants

For patients undergoing procedures with minimal risk of hemorrhage (e.g., dental extractions), anticoagulation can often continue, since the benefits of thromboembolic prophylaxis may outweigh the risks of bleeding. However, in patients undergoing major surgery, such as neurosurgery, the risk of hemorrhage is unacceptable and therefore it is advisable to reverse anticoagulation. Because of reports of epidural or spinal hematoma, it is not recommended to use low molecular weight heparin in conjunction with spinal or epidural anesthesia. If the risk of thromboembolism is lower than the risk of bleeding, then warfarin should be discontinued at least 4 days prior to surgery, heparin 6 hours prior to surgery, argatroban 4 hours prior to surgery, and enoxaparin at least 12 hours before surgery. If unable to wait 4 days for the INR to return to baseline, FFP and vitamin K may be given as an antidote to warfarin.

Dabigatran is a new reversible and selective direct thrombin inhibitor anticoagulant that may be used as a substitute for coumadin. Dabigatran inhibits human thrombin and thrombin induced platelet aggregation. This medication is used in the Reduction in the risk of stroke and systemic embolism in patients with non-valvular atrial fibrillation. **There is no antidote or reversal agent for dabigatran.**

Antiplatelet Medications

The use of antiplatelet therapy in the preoperative period has generally been a relative contraindication with epidural or spinal anesthesia due to the increased risk of hematoma. Because aspirin is an irreversible inhibitor of platelet aggregation, it is recommended that aspirin or aspirin-containing products be discontinued 7 days prior to surgery. However, patients at high risk of a cardiac event (e.g., with a coronary stent), should not stop aspirin therapy. Traditional NSAIDs cause a reversible inhibition of platelet aggregation, so it is recommended that they be stopped the night before unless they have a long half-life (e.g., naproxen, oxaprozin, nabumetone). The COX-2 inhibitors do not have an effect on platelet aggregation and therefore are considered safe to give preoperatively; however, they may be associated with an increase in cardiac events. It is recommended that clopidogrel and ticlopidine be discontinued 7 and 10 days prior to elective surgery, respectively. The manufacturer recommends cilostazol be discontinued 4 days prior to surgery.

Antidiabetic Medications

Diabetic patients can face serious complications intra- and postoperatively if not managed optimally in the preoperative period. The type, time of day, length of surgery, and blood glucose need to be considered when making changes to a diabetic regimen preoperatively. Due to the usual fasting state prior to surgery, patients should be advised not to take oral hypoglycemics the morning of surgery. In general, patients receiving insulin should take their normal dose of long-acting (glargine), reduce their intermediate (NPH) by 50%, and hold their short-acting (regular) on the day of surgery. Blood glucose should be monitored preoperatively and elevated levels can be treated with rapid-acting insulin.

Herbal Medications / Dietary Supplements

Many herbal products may directly interfere with anesthetic agents or affect platelet function, thereby increasing the risk of bleeding. In one study, 22% of pre-surgical patients used herbal remedies. Up to 70% of herbal medicine users do not report taking these medications to their primary care provider. Therefore, it is imperative that a thorough medication history, including such products, be taken prior to surgery. Patients should be encouraged to bring in their bottles, since there may be additional ingredients in the supplements that have pharmacologic action. The American Society of

Anesthesiologists supports a strategy of discontinuing all herbal products 2 weeks prior to surgery when possible.

Antidepressants

In general, antidepressants do not need to be discontinued, due to the potential for drug withdrawal effects. An exception is the monoamine oxidase inhibitors (MAOIs), which have the potential to interact with meperidine and drugs used for induction of anesthesia, causing severe hypertension. It is therefore recommended that patients taking MAOIs be tapered off at least 14 days prior to surgery. If the MAOI cannot be discontinued, certain opioids should be avoided before and during surgery and should be carefully titrated after surgery. Morphine is the recommended opioid for patients taking MAOIs.

Conclusion

A thorough medication history including prescription, OTC, and dietary supplements must be performed prior to surgery. It is imperative that health care professionals review the medication list and develop an individualized plan to continue or hold each drug in the perioperative period. Health care professionals must always assess the risks versus benefits of holding medications on the surgical outcome and disease state.

The “best practice” for our clinical situation with patients coming from inside and outside of the Anchorage bowl would be to HOLD all medications **except** Beta Blockers, statins, and digoxin. Other specific medications to be held will be recommended by the Surgeon/Internal Medicine as deemed appropriate for the proposed surgery and patient’s condition.

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LGH Department of Pharmacy; Drug Information Center (Revised October 2009)

Medications Management Prior to Surgery
Revised January 2011

There is controversy and a lack of consensus regarding which medications should be given or held prior to surgery. The decision of whether to give or hold is very patient-specific. The decision depends on the type, duration, and urgency of surgery, and the current state of the patient's medical condition(s). Following is a summary table with recommendations for classes of medications that are commonly held prior to surgery. Keep in mind that exceptions are often made based on the patient's condition (e.g., uncontrolled hypertension, poor glycemic control, a high risk of thrombosis, etc.).

*For anticoagulants and antiplatelets, the risk of a cardiovascular and/or thromboembolic event must be weighed against the risk of bleeding for the specific patient and procedure. It is important to find out the indication for use, as the recommendations may be different. Check with the appropriate physician for specific instructions regarding if, when and how to stop and restart therapy. (Douketis JD, Berger PB, Dunn AD et al. American College of Chest Physicians Evidence-based clinical practice guidelines (8th edition). The perioperative management of antithrombotic therapy. CHEST supplement June 2008;133(6):299S-339S)

Drug Class	Drugs in Class	When to Hold	Reason
Antihypertensives			
Angiotensin Converting Enzyme (ACE) Inhibitors	Benazepril / amlodipine (Lotrel®) Benazepril (Lotensin®) Benazepril / HCTZ (Lotensin HCT®) Captopril (Capoten®) Captopril / HCTZ (Capozide®) Enalapril (Vasotec®) Enalapril / HCTZ (Vaseretic®) Fosinopril (Monopril®) Fosinopril / HCTZ (Monopril HCT®) Lisinopril (Prinivil®, Zestril®) Lisinopril / HCTZ (Prinzide® or Zestoretic®) Moexipril (Univasc®) Moexipril / HCTZ (Uniretic®) Perindopril (Aceon®) Quinapril (Accupril®) Quinapril / HCTZ (Accuretic®) Ramipril (Altace®) Trandolapril (Mavik®) Trandolapril/verapamil (Tarka®)	Day of surgery	Adverse hemodynamic changes during surgery (i.e. hypotension)
Angiotensin Receptor Blockers (ARB)	Candesartan (Atacand®) Candesartan/HCTZ (Atacand HCT®) Eprosartan (Teveten®) Eprosartan/HCTZ (Teveten HCT®) Irbesartan (Avapro®) Irbesartan / HCTZ (Avalide®) Losartan (Cozaar®)	Day of surgery	Adverse hemodynamic changes during surgery (i.e. hypotension)

	Losartan / HCTZ (Hyzaar®) Olmesartan (Benicar®) Olmesartan / HCTZ (Benicar HCT®) Telmisartan (Micardis®) Telmisartan/HCTZ (Micardis HCT®) Valsartan (Diovan®) Valsartan / HCTZ (Diovan HCT®)		
Renin Inhibitor	Aliskiren (Tekturna®)	Day of surgery	Hypotension during surgery

Drug Class	Drugs in Class	When to Hold	Reason
Analgesics**			
Short-acting NSAIDs	Diclofenac (Cataflam®, Voltaren®) Etodolac (Lodine®) Fenoprofen (Nalfon®) Flurbiprofen (Ansaid®) Ibuprofen (Advil®, Motrin®) Ibuprofen/Hydrocodone (Vicoprofen®) Ibuprofen/Oxycodone (Combunox®) Indomethacin (Indocin®) ketoprofen (Orudis KT®, Oruvail®) ketorolac (Toradol®) Meclofenamate (Meclomen®) Mefenamic Acid (Ponstel®) Tolmetin (Tolectin®)	Day prior to surgery	Increased risk for bleeding and renal complications
Long-acting NSAIDs	Diflunisal (Dolobid®) Etodolac (Lodine XL®) Meloxicam (Mobic®) Nabumetone (Relafen®) Naproxen (Aleve®, Anaprox®, Naprosyn®) Oxaprozin (Daypro®) Piroxicam (Feldene®) Sulindac (Clinoril®)	At least 3 days prior to surgery	Increased risk for bleeding and renal complications
Cox-2 Inhibitors	Celecoxib (Celebrex®)	At least 3 days prior to surgery	Increased risk for renal, thromboembolic complications**

Drug Class	Drugs in Class	When to Hold	Reason
Autoimmune Medications			
	Adalimumab (Humira®) Ertanercept Infliximab (Remicade)	8 weeks before surgery 2 weeks before surgery 6 weeks before surgery	

Drug Class	Drugs in Class	When to Hold	Reason
Diet Pills			
	Fenfluramine (Pondimin®) Dexfenfluramine (Redux®) Phenteramine (Adipex®, Fastin®, Oby-cap®,	2 weeks prior to surgery	

	Obenix®, Oby-triZantryl®, Lonamine®)		
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Drug Class	Drugs in Class	When to Hold	Reason
Diuretics	Acetazolamide (Diamox®) Amiloride Amiloride/Hydrochlorothiazide (Moduretic®) Bendroflumethiazide Bumetanide (Bumex®) Chlorothiazide (Diuril®) Chlorthalidone (Thalitone®) Eplerenone (Inspra®) Ethacrynic acid (Edecrin®) Furosemide (Lasix®) Hydrochlorothiazide (Microzide®, Esidrix®) Indapamide (Lozol®) Metolazone (Zaroxolyn®) Methazolamide Methyclothiazide Metolazone (Zaroxoxlyn®) Spironolactone (Aldactone®) Spironolactone/Hydrochlorothiazide (Aldactazide®) Torsemide (Demadex®) Triamterene (Dyrenium®) Triamterene / HCTZ (Dyazide®, Maxzide®)	Day of surgery	Increases the risk of hypokalemia / hypovolemia
Diuretic Combinations	Atenolol/chlorthalidone (Tenoretic®) Nadolol/bendroflumethiazide (Corzide®) Bisoprolol/hydrochlorothiazide (Ziac®) Propranolol/ hydrochlorothiazide (Inderide®) Metoprolol/hydrochlorothiazide (Lopressor HCT®)	Day of surgery	Increases the risk of hypokalemia / hypovolemia
Beta Blockers	Acebutolol (Sectral) Atenolol (Tenormin) Betaxolol (Kerlone) Bisoprolol (Zebeta) Carvedilol (Coreg) Metoprolol (Lopressor, Toprol XL) Nadolol (Corgard) Nebivolol (Bystolic) Penbutolol (Levatol) Pindolol (Visken) Propranolol (Inderal) Sotalol (Betapace)	Do NOT hold prior to surgery	Withdrawal/rebound effects if held
Digoxin	Digoxin (Lanoxin®)	Do NOT hold prior to surgery	

Statins	Atorvastatin (Lipitor) Fluvastatin (Lescol) Lovastatin (Mevacor) Pitavastatin (Livalo) Pravastatin (Pravachol) Rosuvastatin (Crestor) Simvastatin (Zocor)	Do NOT hold prior to surgery	
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Drug Class	Drugs in Class	When to Hold	Reason
Anticoagulants*			
Direct Thrombin Inhibitors*	Argatroban* Bivalirudin (Angiomax®)*	4 hours before surgery 2 hours before surgery	Increased risk of bleeding complications
Factor XA Inhibitor*	Fondaparinux (Arixtra®)*	4 days prior to surgery after discussing with physician	Increased risk of bleeding complications
Heparin (even SubQ)*	Heparin*	At least 4 hours prior to surgery*	Increased risk of bleeding complications
Low molecular weight heparin*	Dalteparin (Fragmin®)* Enoxaparin (Lovenox®)* Tinzaparin (Innohep®)*	24 hrs prior to surgery. The last preop dose should be reduced to 50% of the total daily dose (e.g., for enoxaparin 1mg/kg q12h dosing, hold PM dose day prior to surgery; if on 1.5mg/kg daily, give ½ dose day prior to surgery)*	Increased risk of bleeding; spinal or epidural hematoma
Pentosan Polysulfate Sodium	Pentosan Polysulfate Sodium (Elmiron®)	24 hours prior to surgery	Increased risk of bleeding complications
Warfarin*	Warfarin (Coumadin®)*	5 days prior to surgery*	Increased bleeding risk
Dabigatran	Dabigatran (Pradaxa®)	- Discontinue 1-2 days for CrCL ≥ 50 mL/min or 3-5 days for those with CrCL < 50 mL/min before invasive or surgical procedures - Consider discontinuation for a longer period of time in patients undergoing major surgery, spinal puncture, or placement of a spinal	

		or epidural catheter or port - There is no antidote or reversal agent for dabigatran	
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Drug Class	Drugs in Class	When to Hold	Reason
Antiplatelets*			
GPIIb/IIIa Inhibitors	Aspirin* Aspirin/acetaminophen/caffeine (Excedrin®) Aspirin/butalbital/caffeine (Fiorinal®) Aspirin/carisoprodol (Soma Compound®) Aspirin/carisoprodol/codeine (Soma compound w/ codeine®) Aspirin/dipyridamole (Aggrenox®) Aspirin/orphenadrine/caffeine (Norgesic®) Aspirin/oxycodone (Percodan®) Cilostazol (Pletal®) Clopidogrel (Plavix®)	5-10 days prior to surgery. Particular vigilance should be exercised in patients having ophthalmologic and neurosurgical procedures. However, patients with CAD should be continued on aspirin whenever possible. Patients undergoing Peripheral Vascular or Cardiac Surgery may be asked by the surgeon to continue taking aspirin until the time of surgery. 7 days prior to surgery 4 days prior to surgery 7 days prior to surgery - If Plavix is discontinued, strong consideration needs to be given to starting or continuing ASA - ASA and Plavix should be continued unless the risk of	Increased risk for bleeding complications

		bleeding is greater than the risk of Thrombosis - There is no need to discontinue ASA and Plavix for cataract surgery under topical or general anesthesia. However, if a retrobulbar block is to be used then the ophthalmologist should be consulted and Plavix discontinuation should be discussed	
	Prasugrel (Effient®)	7 days prior to surgery	
	Ticlopidine (Ticlid®)	10-14 days prior to surgery	
	Dipyridamole (Persantine®)	48 hours prior to surgery	
	Dipyridamole/Aspirin (Aggrenox®)	7 days prior to surgery	
	Abciximab (Reopro®)	36-48 hours	
	Eptifibatide (Integrilin®)	4-6 hours before surgery	

Drug Class	Drugs in Class	When to Hold	Reason
Antidiabetics			
Oral Antidiabetics	Acarbose (Precose®) Acetohexamide (Dymelor®) Chlorpropamide (Diabinese®) Glimepiride (Amaryl®) Glipizide (Glucotrol®) Glipizide/Metformin (Metaglip®) Glyburide (Micronase®, Diabeta®) Glyburide/Metformin (Glucovance®) Glimepiride (Amaryl®), Metformin (Glucophage®) Metformin/Rosiglitazone (Avandamet®) Miglitol (Glyset®) Rosiglitazone (Avandia®)	Day of surgery	Increased risk of hypoglycemia

	Pioglitazone (Actos®) Miglitol (Glyset®) Nateglinide (Starlix®) Repaglinide (Prandin®) Saxagliptin (Onglyza®) Sitagliptin (Januvia®) Tolazamide (Tolinase®) Tolbutamide (Orinase®)		
Intermediate and long acting (basal) insulin	NPH (Humulin N®, Novolin N®) NPH 70%/Regular 30% (Humulin or Novolin Mix 70/30) Lispro protamine 75%/Lispro 25% (HumaLog Mix 75/25) Aspart protamine 75%/Aspart 25% (NovoLog Mix 70/30) Detemir insulin (Levemir®) glargine insulin (Lantus®)	<u>Long-Acting</u> – normal dose day of surgery <u>Intermediate</u> – decrease dose by 50% day of surgery	Increased risk of hypoglycemia
Short and rapid-acting insulin	Aspart insulin (NovoLog®) Glulisine insulin (Apidra®) Lispro insulin (HumaLog®) Regular insulin (Humulin R®, Novolin R®)	Day of surgery	
Injectable Antidiabetics/Non-insulin	Exenatide (Byetta®) Pramlintide acetate (Symlin®)	Day of surgery	Increased risk of hypoglycemia

Drug Class	Drugs in Class	When to Hold	Reason
Hormone Therapy			
Oral Contraceptives	Multiple brands	3 weeks prior to surgery w/mod-high DVT risk or as instructed by physician	Increased risk of thromboembolism
Estrogen Replacement Therapy	Conjugated estrogens (Premarin®), other products containing estrogen	4 weeks prior to surgery w/ mod-high DVT risk	Increased risk of thromboembolism
Selective Estrogen Receptor Modulators	Raloxifene (Evista®)	1 week prior to surgery w/ mod-high risk DVT	Increased risk of thromboembolism

Drug Class	Drugs in Class	When to Hold	Reason
Herbals/Vitamins			
	Herbs with the potential to enhance bleeding: Agrimony, Angelica, Anise, Arnica, Asafoetida, Aspen, Black Haw, Bladder Wrack (Fucus), Bogbean, Boldo, Bromelain, Buchu, Capsicum, Celery, Chamomile (German and Roman), Clove, Fenugreek, Feverfew, Garlic, German Sarsaparilla, Ginger, Ginkgo Biloba, Ginseng (Panax), Horse Chestnut, Horseradish, Inositol Nicotinate, Licorice, Meadowsweet, Onion, Passion Flower, Pau d'Arco, Policosanol, Poplar,	2 weeks prior to surgery	Unknown risks with any herbal or dietary supplement; may interact with anesthetic agents and/or affect platelet function (increasing the risk of bleeding)

	Prickly Ash (Northern), Quassia, Red Clover, Senega, Sweet Clover, Sweet Woodruff, Tamarind, Tonka Beans, Vitamin E, Wild Carrot, Wild Lettuce, Willow, Wintergreen		
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Drug Class	Drugs in Class	When to Hold	Reason
Antidepressants			
Monoamine Oxidase Inhibitors	Isocarboxazid (Marplan®) Phenelzine (Nardil®) Selegiline (Emsam®) Tranylcypromine (Parnate®)	Taper off 2 weeks prior to surgery. Provide patient with specific regimen.	Possible drug interactions with pre and post-op medications; hypertensive crisis

***The risk of a cardiovascular and/or thromboembolic event must be weighed against the risk of bleeding for the specific patient and procedure. It is important to find out the indication for use, as the recommendations will be different. Check with the appropriate physician for specific instructions regarding if, when and how to stop and restart therapy. Renal and hepatic function must also be considered, as impairment will impact the elimination of these drugs.**

**** Some surgeons may use pre-op to reduce risk of post-op pain**

Continue

Discontinue

V. Pre-Operative Fasting

NPO GUIDELINES PRE-OPERATIVE FASTING

The American Society of Anesthesiologist (ASA) assigned a Task Force to review the literature and come up with Practice Guidelines for NPO status. These guidelines are listed below:

Summary of Fasting Recommendations to Reduce the Risk of Pulmonary Aspiration*	
Ingested Material	Minimum Fasting Period†
Clear liquids‡	2 hours
Breast milk	4 hours
Infant formula	6 hours
Non-human milk§	6 hours
Light meal¶	6 hours

* These recommendations apply to healthy patients who are undergoing elective procedures. They are not intended for women in labor. Following the guidelines does not guarantee complete gastric emptying.

†The fasting periods noted above apply to all ages.

‡ Examples of clear liquids include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee.

§Since non-human milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period.

¶ A light meal typically consists of toast and clear liquids. Meals that include fried or fatty foods or meat may prolong gastric emptying time. Both the amount and type of foods ingested must be considered when determining an appropriate fasting period.

Other considerations may extend the above recommendations due to increased risk for aspiration and include:

1. Need for greater scheduling flexibility
2. Clinical conditions such as obesity, pregnancy, Gerd, cholestasis, diabetes, obstructive sleep apnea, or prior difficult intubation

Source: American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists. Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists. Anesthesiology. 2002; 96(4):1004-17.

VI. Tobacco Cessation

Tobacco Cessation Instructions

As you know, there are certain health risks associated with the use of tobacco products. These effects can be particularly harmful before, during and immediately after surgery. The risks of tobacco exposure are related to the nicotine and other chemicals present in the tobacco. Nicotine in any form (gum, patches, chew, secondhand smoke, or smoke) causes blood vessel constriction which results in a delay of oxygen delivery to the healing tissues. This can cause impaired wound healing or lead to a breakdown of skin and deeper tissues, creating an open wound that takes weeks and sometimes months of care and dressing changes as well as extended hospital stays. These effects of nicotine on wounds can also make you more prone to infections.

The health risks of tobacco exposure include:

- Heart & blood vessel problems: blood clots, coronary artery disease (includes angina & heart attacks), high blood, poor blood supply to the legs, & problems with erections because of decreased blood flow to the penis.
- Cancer: especially of the lungs, mouth, larynx, esophagus, bladder, kidney, pancreas & cervix
- Poor wound healing: especially after surgery – slowing incision healing and making you more prone to postoperative infections
- Lung Problems: including emphysema & chronic bronchitis or asthma
- Problems during pregnancy: babies with low birth weight, premature labor, miscarriage, and cleft lip
- Other: decreased ability to taste & smell, harm to sperm which can contribute to infertility, loss of sight due to increased risk of macular degeneration, tooth & gum disease, wrinkling of skin.

Smokers who switch to smokeless tobacco instead of quitting tobacco completely have a number of other health risks.

- Increased risk of mouth or nasal cancer
- Gum problems, increased tooth wear & cavities

Those who are regularly around the smoke of others (Secondhand Smoke) also have increased risks:

- Heart attacks & heart disease
- Lung cancer
- Sudden & severe reactions (eye, nose, throat & lower respiratory tract)
- Children have increased risk of asthma, infections (upper respiratory, ear & pneumonia), lung damage (poor lung function), & increased incidence of Sudden Infant Death Syndrome (SIDS).

Quitting now will help you heal faster after surgery and improve your chances of recovering without complications.

You will not be able to smoke in the hospital. It would be best if you could stop smoking altogether before your surgery. If this is not possible, even a few days or weeks without cigarettes can be helpful.

Benefits of Stopping Smoking	
Time Course	
12-24 hours	Carbon monoxide levels decrease enabling more oxygen to get to the heart and other tissues; nicotine levels decrease lessening the workload on the heart
48-72 hrs	Blood can carry more oxygen; lungs can more easily clear secretions
1-2 wks	Sputum production decreases
4-6 wks	Breathing work of the lungs improves
6-8 wks	Immunity improves and body metabolism returns to normal
8-12 wks	Overall risk of complications from surgery decrease

We want you to be as healthy and safe as possible before, during and after your surgery. **Do not smoke or chew for at least 12 hours before your surgery.** The longer you are tobacco-free, the safer your surgery will be.

Stop using tobacco now! Please!

- Contact your doctor for advice and medications if you need them.
- Call a tobacco quitline: 1-800-NO-BUTTS (The California Smokers' Helpline)
- Use the Web: www.smokefree.gov

VII. Risk Reduction Reminder

The pre-procedural and recovery time after can be used as an opportunity to have preventative treatments. Cancer screening and immunization play an important role in reducing risk. Included is a grid for use in the Pre-Procedural Center. We should always remind our patients about opportunities for prevention.

Risk Reduction Reminder		
	Age	Procedure
Mammography	40	Screening Mammogram
Cervical Cancer Screening (Pap Smears)	21	Pap Smear
Colon Cancer Screening	50	Colonoscopy
Prostate Cancer Screening	50	Prostate Specific Antigen (PSA)
Cardiac Risk Reduction	50	Cholesterol Triglyceride Baseline
Zoster Vaccination	65	Zoster Vaccination

VIII. Clinic Referral Form

Alaska Native Medical Center
PreSurgical Medication Clearance Form

Necessary if Medical Clearance is needed prior to Surgery

Patient Name:		Date of Birth:	
Address:			
Phone #:			
Medical Record #:		NPI:	
Escort Name:		Escort Phone #:	
Symptom/Complaint:			
Allergies:			
Current Medications(include Dosage & Frequency):			
Planned Surgery:			
Co morbidities – Circle all that apply			
Heart	Does patient have a heart doctor? Yes/No		
	Chest pain with activity? Yes/No		
	High blood pressure > 160/95? Yes/No		
Blood Thinners	Aspirin, Coumadin, Plavix, Other: _____ _____		
Respiratory	Difficulty Breathing? Yes/No		
	Obstructive Sleep Apnea? Yes/No		
	Use CPAP at home? Yes/No **Have patient bring their unit to ANMC		
	Use Oxygen? Yes/No		How much
Diabetes	Fasting Blood Sugar >125		
	HbA1C > 7		
	Does patient take Oral hypoglycemics, Insulin, other?		
Signature/Title of Person completing top portion:			
Date:		Phone #:	
To be completed by Specialty Clinic			
Specialty Clinic:		Clinic Case Manager:	
Referral to Internal Medicine (circle one) Yes No			
Signature/Title of Person completing Clinic portion:			
Date:		Phone #:	
To be completed by Internal Medicine Clinic			
Internal Medicine Case Manager:			
Date:		Phone #:	
Medical Clearance for Surgery: (Circle One) Yes No			
Please attach medical assessment			
Internal Medicine Physician Signature:			Date:

IX. Fax Scheduling Form

(See Following Page)

Alaska Native Medical Center
Preadmission Testing (PAT)/ OR Surgery Orders

Request	Circle one: 1) New case 2) Change to existing case on date: _____	
Patient Information	Patient Name: _____	Date of Birth: _____
	Address: _____	
	MR #: _____	
	Language/Interpreter needed: _____	
	Primary phone #: _____	Secondary phone #: _____
Precert Insurance	Insurance: _____	Group #: _____
	Policy # _____	Workers comp case #: _____
Surgeon Procedure	Surgeon: _____	Assistant: _____
	Diagnosis: _____	
	Procedure: _____	
	Minutes needed: _____	
Equipment Special Needs	Patient position: _____	
	Special Equipment: _____	
	Implant request: _____	
	Radiology imaging needs: _____	
	Ancillary department needs: _____	
Anesthesia	Circle: General, MAC, Spinal, Epidural, Block: _____ Local	
Pre Operative Orders	Preop testing performed by Clinic: (Circle all that apply) Date: _____ CBC, CMP, BMP, Glucose, Potassium, HCG-urine, PT/PTT/INR (Blood Thinner Medications _____,) EKG, Chest x-ray, MRSA swab, Type & Screen, Type & Cross _____ units, autologous units _____ Other labs: _____	
	Medical Clearance process initiated, Cardiac Clearance initiated Date: _____	
	Preoperative Medications Orders; (Circle all that apply) Preop antibiotic prophylaxis order _____ Beta blocker prophylaxis order _____ Other medications: _____	
	Venous thromboembolism prophylaxis: (Circle all that apply) TEDS, Sequential compression sleeves, Medications: _____	
	Other orders: _____	
	Physician Signature: _____	Date: _____

X. Flow Chart for Pre-Surgical Pathways

