



Harmonized

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### Authorizing Prescriber(s)

Lakeridge Health (LH) - Surgeons  
LH – Anesthesiologists

### Authorized to Whom

Nurses working in the Pre-Surgical Screening Clinic and Day Surgery department who have the knowledge, skill, judgement and appropriate training to perform pre-operative screening and testing.

### Co-implementers:

- Medical Laboratory Assistants/Technologists (MLA/T) employed at LH who have the knowledge, skill and judgement to perform/collect ECG, blood and other samples as selected on the pre-surgical screening testing table/grid under this directive.
- Phlebotomists employed at LH who have the knowledge, skill and judgment to draw blood samples by venipuncture for laboratory tests as selected by the nurse from the pre-surgical screening testing table/grid under this directive.
- Medical Radiation Technologists (MRT[R]) employed at LH who have the knowledge, skill and judgement to perform diagnostic imaging as selected by the nurse from the Pre-surgical screening testing table/grid under this directive.

### Patient Description/Population

Adult patients 18 years of age or older requiring pre-surgical screening.

### Order and/or Procedure

These procedures are not presented in sequential order; any one of or combination of the procedures below may be performed by a nurse. Refer to the [Order Table](#), Pre-operative Testing Grid ([Appendix A](#)), Minor / Major Surgical Classifications ([Appendix B](#)), and refer to the *Maximum Surgical Blood Ordering Schedule Policy (MSBOS)*.

The authorized implementer will:

1. Review the patient's history, including Best Possible Medication History (BPMH).
2. Use the patient's history and surgical classification to select the corresponding laboratory and/or diagnostic tests according to the pre-operative testing grid ([Appendix A](#)). **Note:** surgeon is Most Responsible Practitioner (MRP).



3. Determine Minor / Major Surgical Classification ([Appendix B](#)).
4. Enter required testing into the electronic ordering system.
5. Ensure testing is completed during the pre-surgical screening visit or day of surgery as indicated.
6. Abnormal diagnostics and/or laboratory results will be reported to the surgeon booked to perform the surgical procedure for review.
7. Abnormal results will also be flagged in the pre-operative package for the Anesthesiologist and forwarded to the family physician.
8. Patients who are scheduled for hemodialysis shall have their preoperative bloodwork drawn in hemodialysis post dialysis treatment before their date of surgery.

### Indications to the Implementation of the Directive

Any adult patient (18 years of age or older) receiving in-person pre-surgical screening for a surgical procedure and/or on the morning of surgery where previous testing was not completed.

### Contraindications to the Implementation of the Directive

This directive must not be implemented in any of the following circumstances:

- The patient or Substitute Decision Maker (SDM) refuses to consent to the procedure(s).
- Existence of procedure specific contraindications as noted in the Pre-Operative Testing Grid [Order Table](#).
- Urgent or emergently scheduled surgical procedures.
- Patients less than 18 years of age.
- Any patient that has been seen in the Pre-Surgical Screening Clinic (PSS) within the last 6 months, laboratory/diagnostic testing results are within normal limits and there are no changes in the medical status of the patient

### Consent

The nurse implementing the medical directive must obtain consent if the patient is capable of providing it. If a person or SDM refuses treatment, contact the MRP or delegate immediately to determine plan of care.

### Documentation Requirements

In addition to standard documentation practices, the nurse implementing this medical directive must document the following in the patient's health record:

- The name of this medical directive.
- The procedure that was completed.
- The name of the implementer.
- The date and time (unless documenting electronically).
- Legible signature of implementer (including credentials).



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## Adult Pre-Operative Testing Grid – Medical Directive

Medical Advisory Committee Approved: 27OCT2020

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For example, July 20, 2017 1000, 12 Lead ECG selected as per Pre-Operative Testing Grid Medical Directive, B. Smith RRT

**OR**

July 20, 2017 2200 creatinine, Na, K, Cl, CO<sub>2</sub> selected as per Pre-Operative Testing Grid Medical Directive, K. Smith RN

### Review/Evaluation Process

This medical directive will be reviewed every two years by the surgical program.

### Related Documents

Maximum Surgical Blood Ordering Schedule Policy. Lakeridge Health.

### References

Choosing Wisely Implementation Guide: A Beyond the Mask Project (2017)  
<https://choosingwiselycanada.org/perspective/beyond-the-mask/>

Choosing Wisely Canada ([www.choosingwiselycanada.org](http://www.choosingwiselycanada.org)). Five things physicians and patients should question.

College of Nurses of Ontario (2020). Authorizing Mechanisms. Retrieved from:  
[https://www.cno.org/globalassets/docs/prac/41075\\_authorizingmech.pdf](https://www.cno.org/globalassets/docs/prac/41075_authorizingmech.pdf)

Maximum Surgical Blood Order Schedule Policy. Lakeridge Health.

Ontario Regional Blood Coordinating Network Maximum Surgical Blood Order Schedule (MSBOS) –Development Tool Version: 1. Retrieved from  
<http://transfusionontario.org/en/cmdownloads/msbos-development-tool/>

Ontario Pre-Operative testing grid, Endorsed by the Ontario Guidelines Advisory Committee. [www.gacguidelines.ca](http://www.gacguidelines.ca) (2020).



\*\*\*This table must **not** be used independently apart from the Medical Directive\*\*\*

**Order Table:** Pre-Operative Testing Grid Order Table

**Co-morbidities/Health History**

Order	Indication	Contraindication	Notes (Optional)
1. Creatinine, Na, K, Cl, CO2	Patients with history of: <ul style="list-style-type: none"> <li>• hypertension</li> <li>• renal disease</li> <li>• adrenal disease</li> <li>• pituitary disease</li> <li>• major systemic endocrine disease</li> </ul>	Patient does not have a history as identified in the indications  Creatinine, Na, K, Cl, CO2 within 6 months of pre-surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
2. CBC	All major surgeries  Patients with history of: <ul style="list-style-type: none"> <li>• anemia</li> <li>• bleeding disorders</li> <li>• active bleeding</li> <li>• active malignancy</li> <li>• major cardiovascular disease</li> <li>• cancer diagnosis</li> </ul>	Patient does not have a history as identified in the indications  CBC within 6 months of pre-surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
3. CBC, G&S	Surgical procedures as per the <i>Maximum Surgical Blood Ordering Schedule Policy (MSBOS)</i>	Patients who are not having surgical procedures classified under MSBOS  CBC within 6 months of pre-surgical screening appointment  G&S within 28 days of surgery	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible



Order	Indication	Contraindication	Notes (Optional)
4. Creatinine, Na, K, Cl, CO <sub>2</sub> , glucose	Patients with a history of diabetes (Type 1 and/or 2)	Patient does not have a history of diabetes  Creatinine, Na, K, Cl, CO <sub>2</sub> , glucose within 6 months of pre- surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
5. Albumin, ALT, Bilirubin, INR, aPTT	Patients with history of bleeding disorders, liver disease, alcohol consumption and/or malnutrition: <ul style="list-style-type: none"> <li>• Hemophilia A, B</li> <li>• Factor II, V, VII, X or XII</li> <li>• Von Willebrand’s disease</li> <li>• Cirrhosis,</li> <li>• Hepatitis A, B, C, D, &amp;E</li> <li>• Infectious Mononucleosis</li> <li>• Sudden Weight Loss</li> <li>• Anorexia/Malabsorption</li> <li>• Women who consume 2 or more alcoholic beverages per day</li> <li>• Men who consume 3 or more alcoholic beverages per day</li> </ul>	Patient does not have a history of bleeding disorders, liver disease, alcohol consumption and/or malnutrition  Albumin, ALT, Bilirubin, INR, aPTT within 6 months of pre-surgical screening appointment  Patients who do not consume alcoholic beverages  Women who consume less than 2 alcoholic beverages per day  Men who consume less than 3 alcoholic beverages per day	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible



## Adult Pre-Operative Testing Grid – Medical Directive

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Order	Indication	Contraindication	Notes (Optional)
6. Sickle Cell	Patients with a history of sickle cell anemia  Ethnicity indicators: patients from: <ul style="list-style-type: none"><li>• West Central Africa</li><li>• Saudi Arabia</li><li>• East Central India</li><li>• Southern Italy</li><li>• Northern Greece</li><li>• Southern Turkey</li><li>• African American</li><li>• Caribbean</li></ul>	Patient does not have a history of sickle cell anemia and/or does not meet ethnicity indications	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible



**Medications:**

<b>Order</b>	<b>Indication</b>	<b>Contraindication</b>	<b>Notes (Optional)</b>
1. Creatinine, Na, K, Cl, CO2	Patients prescribed: <ul style="list-style-type: none"><li>• digoxin</li><li>• lithium</li><li>• diuretics</li><li>• ACE-I</li><li>• ARB</li><li>• history of electrolyte abnormalities</li></ul>	Creatinine, Na, K, Cl, CO2 within 6 months of pre-surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
2. Creatinine, Na, K, Cl, CO2, glucose	Patient history of systemic steroid use within 6 months	Patient not prescribed steroids	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible



**Diagnostics:**

Order	Indication	Contraindication	Notes (Optional)
1. 12 Lead ECG	Patient 70 years of age or older  Patients with diagnosed history of: <ul style="list-style-type: none"> <li>• cardiac disease</li> <li>• peripheral vascular disease</li> <li>• cerebral vascular disease</li> <li>• pulmonary vascular disease</li> <li>• equal to or more than 2 of the following risk factors:               <ul style="list-style-type: none"> <li>○ Hypertension</li> <li>○ Chronic kidney disease</li> <li>○ Diabetes mellitus</li> <li>○ Obstructive sleep apnea</li> <li>○ BMI greater than 35</li> </ul> </li> </ul>	Patient does not meet criteria as per indications  ECG completed within 6 months of pre-surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
2. CXR PA + Lateral	Symptoms of active lower respiratory infection otherwise not indicated for routine pre-operative evaluation  Symptomatic Cardiac disease	Patient does not meet criteria as per indications  CXR completed within 6 months of pre-surgical screening appointment	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible





**Morning of Surgery:**

<b>Order</b>	<b>Indication</b>	<b>Contraindication</b>	<b>Notes (Optional)</b>
1. Glucose	History of Diabetes AND on oral glycemc or insulin	Patient does not meet criteria as per indications	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
2. INR & aPTT	Use of anticoagulant drugs	Patient does not meet criteria as per indications	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible
3. Urine B-HCG	Urine B-HCG testing for all pre-menopausal women	Patient does not meet criteria as per indications  Patient refusal  Previous Hysterectomy	Abnormal diagnostics and/or laboratory results will be reported to the ordering prescriber.  Explain to the patient and/or SDM when possible



Appendix A – Lakeridge Health Pre-Operative Testing Grid

	CBC	G&S	Creat	Na, K, Cl, CO2	Gluc	ALT, Bilirubin	INR & PTT	Alb	hCG	Sickle Cell	ECG	CXR
Surgical procedure on Group and Screen List (refer to *MSBOS)												
All major surgery												
History of anemia, bleeding disorder and/or active bleeding. Major cardiovascular disease (i.e. Exercise tolerance of METS 3 or less, see table below). Cancer diagnosis. Age over 70. Excludes minor surgeries refer to minor/major surgery list (Appendix B)												
History of renal, adrenal, pituitary or major systemic endocrine disease.												
Use of digoxin, lithium, diuretics, ACE-I or ARB. History of electrolyte abnormality.												
History of diabetes.												
History of systemic steroid use within 6 months.												
History of bleeding disorder, liver disease or malnutrition. Alcohol use greater than 2 drinks/d for woman or greater than 3 drinks/d for men												
Age over 70. Diagnosed History of cardiac disease, peripheral, cerebral or pulmonary vascular disease. Equal to or more than 2 of the following risk factors (HTN, CKD, DM, OSA, BMI above 35).												
Symptoms of active lower respiratory infection otherwise not indicated for routine preoperative evaluation Symptomatic cardiac disease												
Patients with ethnicity- West Central Africa, Saudi Arabia, East Central India, Southern Italy, Northern Greece, Southern Turkey, African American, Caribbean.												

\*Maximum Surgical Blood Order Schedule

Valid time frame G&S 28 days

Sickle Cell – Lifetime

All other BW / CXR / ECG 6 months

Last updated Sept 28, 2020



Appendix A – Lakeridge Health Pre-Operative Testing Grid (cont'd)

	Gluc	INR& PTT	Urine B-HCG
<b>Morning of Surgery:</b> History of Diabetes AND on oral glycemc or insulin.			
<b>Morning of Surgery:</b> Use of anticoagulant drugs			
<b>Morning of Surgery:</b> Urine B-HCG testing for all pre-menopausal women (Only exceptions: patient refusal or previous hysterectomy).			

If there is any doubt regarding appropriate preoperative testing, please notify the scheduled anesthesiologist for the day of surgery for guidance.

Please avoid ordering repeat testing (and include current test results) if a patient has had recent similar testing and there are no new changes to the patient’s health or therapies. Refer to Pre-operative Testing Grid Medical Directive

Metabolic Equivalent (METs) Table: Estimated energy requirements per activity

Activity screen- Can you....?

- 1 MET- 3 MET’s Walk a block or two on level ground at 2.3 to 4.8 km/hour?  
Do light work around the house (dishes, dusting, sweeping)?
- 4 MET’s- 10 MET’s Climb a flight of stairs or walk up a hill?  
Walk on level ground at 6.4 km/hour  
Run a short distance?

<sup>1</sup>Modified from Hlatky et. al (11), copyright 1989, with permission from Elsevier, and adapted from Retcher et al (12).



**Appendix B - Major and Minor Surgery Common Examples**

For reference only, not inclusive of all major and minor surgeries

<b>ENT &amp; Oral Surgery</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Tonsillectomy and/or adenoidectomy</li> <li>Septoplasty, turbinectomy &amp; rhinoplasty</li> <li>Pharyngeal or laryngeal biopsy or minor excision by laser or other means</li> <li>Middle ear surgery, mastoidectomy, cochlear implantation</li> </ul>	<ul style="list-style-type: none"> <li>Endoscopic sinus surgery</li> <li>Small resections/benign &amp; malignant masses, done on an ambulatory basis (i.e. mandibular tori, brachial cleft cyst, small tongue cancer)</li> <li>Thyroidectomy</li> <li>Tooth extraction</li> </ul>	<ul style="list-style-type: none"> <li>Maxillary/mandibular osteotomy</li> <li>Laryngectomy</li> </ul>	<ul style="list-style-type: none"> <li>Resection of large benign or malignant mass and/or lymph node dissection requiring overnight stay in hospital, with or without reconstructive surgery.</li> </ul>
<b>General Surgery</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Breast lumpectomy/ mastectomy with or without lymph node dissection</li> <li>Hemorrhoidectomy</li> </ul>	<ul style="list-style-type: none"> <li>Inguinal/umbilical hernia repair by laparoscopic or open approach.</li> <li>Laparoscopic cholecystectomy</li> </ul>	<ul style="list-style-type: none"> <li>Mastectomy with immediate tissue reconstruction, with/ without lymph node biopsy or axillary dissection</li> <li>Laparoscopic/ open repair/ resection of stomach, small bowel, colon, liver, pancreas, spleen, adrenals or liver</li> </ul>	<ul style="list-style-type: none"> <li>Open cholecystectomy</li> <li>Large open incisional, epigastric or ventral hernia repairs.</li> </ul>
<b>Gynaecology</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Dilation and curettage</li> <li>Diagnostic hysteroscopy, laparoscopy</li> <li>Transvaginal tape insertion</li> <li>Transvaginal pelvic floor surgery (i.e. anterior &amp; posterior repair)</li> </ul>	<ul style="list-style-type: none"> <li>Endometrial ablation by thermal balloon</li> <li>Tubal ligation</li> <li>Laparoscopy- limited endometriosis</li> </ul>	<ul style="list-style-type: none"> <li>Hysterectomy and/or adnexal surgery (any approach)</li> <li>Gynecology pelvic dissections</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopy for extensive endometriosis</li> <li>Abdominal pelvic floor surgery</li> </ul>
<b>Ophthalmology</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Cataract extraction and oculoplastic procedures</li> </ul>		<ul style="list-style-type: none"> <li>Retinal Surgery</li> </ul>	
<b>Orthopedic Surgery</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Arthroscopic surgery including ACL repair</li> <li>Routine hardware removal, not for infection</li> </ul>	<ul style="list-style-type: none"> <li>Tendon surgery</li> <li>Bunionectomy</li> <li>Disectomy</li> </ul>	<ul style="list-style-type: none"> <li>Knee, hip, shoulder or elbow joint replacement</li> <li>Hardware removal or revision for infection or failure</li> </ul>	<ul style="list-style-type: none"> <li>Amputation</li> <li>Spinal laminectomy and/or fusion</li> </ul>
<b>Plastic Surgery</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Carpal tunnel release</li> <li>Dupuytren's contracture release</li> <li>Major and minor tendon surgery</li> <li>Small rotational flaps and skin grafts</li> <li>Lipoma excision</li> </ul>	<ul style="list-style-type: none"> <li>Cosmetic breast surgery</li> <li>Basal cell carcinoma resection</li> <li>Reduction mammoplasty and other surgery for benign breast disease</li> </ul>	<ul style="list-style-type: none"> <li>Free flap reconstruction</li> <li>Panniculectomy</li> </ul>	
<b>Thoracic Surgery</b>			
<b>Minor</b>		<b>Major</b>	
<ul style="list-style-type: none"> <li>Bronchoscopy</li> </ul>		<ul style="list-style-type: none"> <li>EBUS</li> <li>Mediastinoscopy</li> <li>Hiatal hernia repair (thoracoscopic or open)</li> </ul>	<ul style="list-style-type: none"> <li>Resection of lung, esophagus or mediastinal mass (thoracoscopic or open)</li> </ul>



Appendix B - Major and Minor Surgery Common Examples (cont'd)

For reference only, not inclusive of all major and minor surgeries

<b>Urology</b>		
<ul style="list-style-type: none"> <li>• Cystoscopy, Ureteroscopy, Renoscopy for stone, structure or biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrocele and varicocele excision</li> <li>• Vasectomy</li> <li>• Circumcision</li> </ul>	<ul style="list-style-type: none"> <li>• Resection of bladder or prostate tumor (transurethral or open)</li> <li>• Resection of kidney/ureter (laparoscopic or open)</li> <li>• Resection of testis (trans scrotal or abdominal)</li> </ul>

Last Updated February 10, 2020

