

Preoperative Lab Tests for Patients Undergoing Elective Surgery

- The Surgical Risk Score and Patient Risk Score (ASA Class) shall determine the specific indications for Pre-Op testing. Age alone is not an indicator for testing.
- Patients with complex or uncommon surgical or medical conditions, may require additional testing.
- Lab tests within **3 months** are acceptable, unless acute process. Serum K+ or iStat **day of surgery** if on dialysis or diuretics and testing is indicated.
- CXR and EKG within **6 months** is acceptable, unless acute process.
- For specific testing parameters see Step I, II, III, and IV.

Step I: Find the Surgical Risk Score

| Risk of Procedure | Types of surgeries | Examples |
|--|--|---|
| Low (<1% cardiac risk) | Breast surgery (minor) Cataract/eye Dental Diagnostic cardiac catheterization Endoscopic procedures (Diagnostic) ENT procedures Gynecologic (minor) Orthopedic (minor) Plastic surgery Superficial procedures Urologic (minor) | Breast: all breast surgeries except extensive reconstruction (Oncologic) Gastrointestinal: uncomplicated umbilical/Inguinal Hernia. Gynecologic minor: Hysteroscopy, D&C, elective salpingectomy Orthopedic minor: Arthroscopic/diagnostic & Carpal Tunnel Release, ORIF of non-major joints. Major Joint ORIF's include Humerus, Femur, and Tibia. Superficial procedures: Mohs, skin, Porta-cath placement Urologic minor: Cystoscopy, lithotripsy ENT minor: Ear tubes, tonsillectomy |
| Moderate (1-5% cardiac risk) | Breast surgery (minor) Gynecologic (moderate) Head and Neck Intraperitoneal (inside body cavity) Intrathoracic (inside the chest) Neurological/Spine surgery Oncologic general surgery (major) Orthopedic-(Major) Pulmonary, kidney/liver transplant Urological (major) | Breast: Extensive reconstruction (Oncologic) Gastrointestinal: Bowel resection, Ostomy revisions/removal. Gynecologic moderate: total hysterectomy Urologic major: Nephrectomy, Prostate Surgery. Orthopedic Major: Total joints. ORIF Major Joints (Femur, Humerus, Tibia), IM Nail Hip |
| High (>5% cardiac risk) | Carotid Endarterectomy Aortic/major vascular surgery peripheral vascular surgery | CABG, valve replacement, Cardiac pacemaker, AICD, Aorta-Bifemoral Bypass, AV shunt (if general anesthesia is required). |

Step II: Labs Based on the Surgical Risk Score

Low:

- Testing not indicated.

Moderate:

- CBC, BMP, (PT, PTT if bleeding risk- see table page 2 under Step III).

High:

- CBC, CMP, T&S, EKG, (PT, PTT if bleeding risk- see table page 2 under Step III).

Step III: Labs Based on Medical History

| | H/H | CBC | BMP | CMP | PT/INR PTT | TSH | T&S | T&C | UA | Urine HCG (POCT) | EKG | CXR |
|---|-----|-----|-----|-----|---------------|-----|-----|-----|----|------------------------|-----|---|
| DISEASE STATES | | | | | | | | | | | | |
| Alcohol Abuse > or equal to 2 drinks/day | | X | X | | | | | | | | X | |
| Anemia Hemoglobin < 10 | | X | | | | | | | | | | |
| Autoimmune Disease Rheumatoid Arthritis, Systemic Lupus Sjogren's Disease, Myasthenia Gravis, Multiple Sclerosis (M.S.), Type I Diabetes, Job Syndrome, Crohn's Disease | | X | X | | | | | | | | | (Only if suspected active process) X |
| Bleeding history Factor V, Protein S, Protein C, thrombocytopenia | | X | | | X | | | | | | | |
| Cardiovascular (CV) Disease HTN, High Cholesterol, CAD, CHF, Chest pain, palpitations, irreg. HR, ICD/Pacer, Pulm. HTN. | X | | | X | | | | | | | X | (Only if active CHF symptoms) X |
| Cerebrovascular Diagnosis/Disease Stroke (CVA), Parkinson's Disease, Mini stroke (TIA), | | X | X | | | | | | | | X | |
| Diabetes Mellitus Type I or II | | | X | | | | | | | | X | |
| Hepatic (Liver) Disease Cirrhosis, Hepatitis, Hepatic failure | | X | | X | X | | | | | | | |
| Malignancy Active Cancer | | X | | | | | | | | | | (Malignancy in thorax or active process) X |
| Morbid Obesity BMI > 40 | | | X | | | | | | | | X | |
| Poor exercise Tolerance Shortness of breath with going up a flight of stairs or walking around the block. | | X | X | | | | | | | | X | |
| Pregnancy Screening Childbearing females age 10-55. Hx of Hysterectomy and no menses in 3 yrs are exempt. Preg test must be within 48 hrs of surgery | | | | | | | | | | X | | |
| Pulmonary (Lung) Disease COPD, Asthma, recent bronchitis or smoking >20pk yr (in last yr) | X | | X | | | | | | | | X | (Only if suspected active process) X |
| Renal (Kidney) Disease Any stage, Dialysis | | X | X | | | | | | | | X | |
| Suspected UTI | | | | | | | | | X | | | |
| Vascular Disease PVD, AAA, PAD, Atherosclerosis, embolism | | X | X | | X | | | | | | | |

III. Surgeries with anticipated blood loss > 500cc where T&S is indicated at minimum.

The following list includes, but is not limited to surgeries with anticipated blood loss >500cc, where Type & Screen is indicated at a minimum.

- **Vascular:**
 - Aortic aneurysm repair
 - Aortic dissection
 - Aorta-iliac femoral bypass
 - Endarterectomy of aorta or large (i.e.) femoral artery
 - Axillary/femoral bypass
 - Femoral-popliteal bypass
- Open Hysterectomy (does not include laparoscopic/vaginal)
- Nephrectomy
- Spine surgery:
 - Anterior/posterior
 - Thoracic
 - Multi-level
- Splenectomy
- Adrenalectomy
- Pancreatectomy
- Total Hip Revisions
- Bowel Resections

Cardiothoracic:

- Any surgery requiring cardiopulmonary bypass
 - Annuloplasty
 - CABG
 - Valve Replacement or Repair
- Laser Lead removal
- Mediastinoscopy
- Lung: Pneumonectomy, lobectomy

Patients with a history of blood transfusion:

Type and Screen needs to be completed within **2 days** before outpatient surgery as they are at high risk for positive antibodies. Patients with positive antibodies will automatically be cross-matched for 2 units PRBC. If antibodies are found day of surgery, this will potentially delay the surgery as it takes hours to get the blood prepared.

Patients with no history of blood transfusion:

Type and Screen can be completed within **8 days** before outpatient surgery.

References:

Adapted from *L. R. Pasternak: Screening Patients- Strategies and Studies*. In *Ambulatory Anesthesiology- A problem-oriented approach*. Ed. By Kathryn McGoldrick. Williams and Wilkins 1995.

American Society of Anesthesiologists. Standards and Guidelines. Retrieved from:
<https://www.asahq.org/standards-and-guidelines>

Preanesthesia Evaluation of the Surgical Patient, Vol. 6, No. 2, Pg. 4, Table 2; SCIP guidelines from John C. Lincoln and feedback from Physician Collaboration Committee of Pre-Surgery project.

Preoperative evaluation. National Guideline Clearinghouse.www.guideline.gov

Perioperative Services Osborn Campus 2014 Surgery Resource Book

