

## Pre-operative

### Pre-referral considerations:

1. Patient and type of surgery
2. Complete patient history
3. Physical exam
4. ECG
5. Patient
  - a. **Exercise tolerance** - Good Prognosis is an individual able to do >4-10 Mets i.e. can do heavy work around the house, climb 2 flights of stairs without limitations
  - b. **Clinical Risk Factors** - h/o Congestive Heart Failure, Myocardial Infarction within the last 6 months, serum Creatinine >2.0, Diabetes mellitus uncontrolled, severe Aortic Stenosis, advanced age (>70), prior Cerebral Vascular Attack/Peripheral vascular disease, syncope, and emergent surgery
  - c. Look for **signs on exam** of Congestive heart failure-JVP distention/S3 gallop, abnormal vital signs, or signs of PVDx. on exam
  - d. **Review ECG for Q waves, Frequent PVC's, signs of LVH, rhythm other than NSR.**
6. **Type of surgery helps to define risk with general/spinal anesthesia (typically the same risk for both)**
  - a. Low risk surgery: skin, eye, appendectomy, cholecystectomy, breast, Endoscopic, etc.
  - b. Moderate risk surgery: Carotid endarectomy, Head and Neck, Intraperitoneal, Orthopedic, prostate, etc.
  - c. High risk surgery: Emergent major operations, Peripheral Vascular Surgery, Aortic and other major vascular surgery, intrathoracic, major intra-abdominal, prolonged procedures with large fluid shifts, blood loss, or both
7. If no clinical risk factors, no pre-operative cardiovascular testing is needed
8. If individual is at moderate risk 1-5% or high risk >5% assess functional status through Metabolic Equivalents (METs). If greater than 4 METs (vigorous housekeeping climbs 2 flights of stairs, scrubbing floors or lifts heavy objects) may proceed with surgery without testing

### Red flags:

1. Consider imaging, alternate referral or emergent referral

### Lab Studies: Required and Recommended

1. Per ASA



### **Testing Studies: Required and Recommended**

1. Who needs pre-operative testing
  - a. Patients with at least one clinical risk factor and poor or unknown functional capacity, who require intermediate-risk or high risk surgery
  - b. Patients with three or more clinical risk factors and poor (<4 METS) or unknown functional capacity, who require high risk surgery
  - c. If low MET evaluation or if unable to assess MET's and decision would impact perioperative care proceed with pharmacologic stress testing
2. What stress test should be done
  - a. Routine Exercise Treadmill Test if no contraindication. ie. LBBB, LVH and strain, paced rhythm, Q waves, Severe Aortic Stenosis; and can exercise w/o significant limitations on the treadmill
  - b. Exercise or Dobutamine Stress Echo: Abnormal ECG w/ significant ST-T abnormality, LVH and strain pattern
  - c. Exercise or Chemical Nuclear Stress Test: LBBB, Paced rhythm, prior infarct or Cardiomyopathy patient, HOCM, Severe Aortic Stenosis

### **What to avoid ordering: to avoid unnecessary testing**

1. No consult for eye surgeries, colonoscopy or EGD
2. No need to repeat testing or consult if no change in symptoms and most recent tests less than 12 months old
3. Stress testing is not indicated in the perioperative patient solely because of the surgery if there is no other indication
4. Resting echocardiography is not indicated in the perioperative patient unless there is another indication, such as to evaluate valve function in patients with a murmur or left ventricular systolic function in patients with HF or dyspnea of unknown cause
5. As with echocardiography and stress testing, we do not recommend 24-hour ambulatory monitoring for perioperative diagnostic or prognostic purposes if it is not otherwise indicated