



What Laboratory Tests Are Required for Ambulatory Surgery?

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Keywords

- Preoperative testing • Ambulatory surgery • Laboratory testing
- Preoperative evaluation • Low-risk surgery

Key points

- Current indications for preoperative testing represent a synthesis of expert opinion, and are not based on a sufficient number of adequately powered and controlled trials.
- Abnormal preoperative test results are considered in many cases of questionable clinical significance, and have not been shown to predict adverse outcomes.
- Elimination of routine testing and more selective use based on patient history and physical examination has been shown to decrease cost without detriment to patient care.

INTRODUCTION

Ambulatory, or same-day, surgery is being used with increasing frequency because of the significant cost savings and increased convenience for patients and health care providers. At present, more than 60% of surgical procedures in North America are performed in the ambulatory setting [1–5]. Ambulatory surgical procedures are performed in patients with no medical problems or those with stable chronic medical illnesses. The procedures are generally less than 1 to 2 hours in duration, and have minimal blood loss, low complication rates, and minimal expected postoperative care. Examples include inguinal hernia repair, umbilical hernia repair, breast biopsy, partial or total mastectomy,

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hemorrhoidectomy, and arthroscopy. With improvements in surgical and anesthetic techniques, the patient and procedure selection criteria for ambulatory surgery are rapidly expanding, and more patients with multiple preexisting medical conditions are candidates. As the indications for ambulatory surgery have evolved, evidence-based recommendations regarding preoperative testing have lagged. Clear indications for testing in the ambulatory surgery setting have not been defined.

Preoperative testing may be used as part of the screening process, in addition to physician assessment with a comprehensive history and physical examination, to guide appropriate patient selection and optimize perioperative care. Commonly ordered preoperative tests include chest radiograph (CXR), electrocardiography (ECG), hemoglobin/complete blood count (Hb/CBC), creatinine, electrolytes, liver function tests (LFTs), albumin, and coagulation parameters.

There is a broad spectrum of operative factors and patient characteristics that may prompt preoperative testing. Operative factors that are potential indications for testing include expected blood loss greater than 500 mL, prolonged anesthesia time, and high procedure complexity. This article discusses preoperative testing as it applies to ambulatory surgery, so these operative factors do not apply and are not discussed. Potential indications for preoperative testing in the ambulatory setting include extremes of age, symptoms, personal risk factors for disease (eg, smoking, alcohol, family history), and the presence of specific acute and chronic disease processes. For the purposes of this discussion, “routine” preoperative testing is defined as testing in the absence of specific indications.

PREOPERATIVE LABORATORY TESTING: GOALS, BENEFITS, AND RISKS

The goal of preoperative testing is to detect abnormalities that might adversely affect outcomes. In the case of known chronic medical conditions, preoperative testing can be used to assess the current status of disease. Examples include creatinine, potassium, and bicarbonate levels in patients with chronic kidney disease; HbA_{1c} to assess long-term diabetic control; or ECG in patients with heart disease to assess for interval changes from a known baseline. Preoperative testing in asymptomatic or healthy patients has the potential to detect undiagnosed disease processes that may put patients at increased risk for perioperative complications. However, such screening should be reserved for populations at high risk for a specific condition (eg, ECG screening in asymptomatic patients with multiple cardiac risk factors) to avoid high costs and potentially high false-positive rates when the pretest probability of a specific condition is low.

Preoperative testing allows for correction of suspected or unsuspected abnormalities that might adversely affect anesthetic or surgical outcomes. Findings that place patients at higher risk for specific complications allow for optimization of a patient’s preoperative health status and establishment of perioperative

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