



# ONE MINUTE CARDIOLOGY

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## PRE-OPERATIVE CARDIAC EVALUATION

The American Heart Association and American College of Cardiology recently released their updated perioperative cardiac risk assessment and management guidelines. Although the document covers a wide range of clinical scenarios as well as intra and post-operative periods, this summary will focus on the pre-operative evaluation and management of patients undergoing elective, non-cardiac procedures.

As in previous guidelines, the extent of pre-operative assessment is guided by the likelihood of perioperative major adverse cardiac events (MACE), as determined by the combination of intrinsic surgical risk and patient characteristics. For example, a patient with multiple cardiac risk factors undergoing ophthalmologic surgery would still have a low predicted MACE (<1%). The American College of Surgeons has developed a simplified risk calculator incorporating clinical and surgical variables which can be downloaded as an Excel spread sheet from [www.surgicalriskcalculator.com](http://www.surgicalriskcalculator.com). Although ophthalmologic procedures are not specifically listed in the calculator, using the “skin” category is reasonable. **Patients with a calculated risk <1% do not require additional testing prior their elective surgical procedures.**

If the calculated risk exceeds 1%, the next step is to determine functional capacity. Being able to engage in activities exceeding 4 METS is the magic cut off here. At least 4 METS is generally required for: climbing a flight of steps, walking up a hill, engaging in yard work, playing golf, bowling, dancing, and doubles tennis. If the patient can perform these types of activities (or more vigorous ones), proceeding to surgery without additional testing is also advocated.

In patients with MACE >1% and poor (<4 METS) or unknown/unclear functional capacity, proceeding to cardiac stress testing is recommended – IF the result will alter care. For example, an 85 year old female with known coronary disease, reduced renal function and limiting back arthritis may not necessarily be willing to undergo coronary angiography and bypass surgery prior to her planned cholecystectomy. It should be noted that the role of percutaneous coronary interventions in reducing perioperative risk is uncertain and drug eluting stents should be avoided if surgery is at all time-sensitive.

A few other highlights from the guideline regarding elective non-cardiac surgeries:

1. Surgery should be delayed at least 14 days after angioplasty, 30 days after implantation of a bare metal stent, and 365 days after implantation of a drug eluting stent.
2. A pre-operative echocardiogram is reasonable in patients with clinically suspected moderate or greater degrees of valvular stenosis or regurgitation, and in patients with dyspnea, history of LV dysfunction, or history of heart failure.
3. A routine preoperative 12-lead EKG is NOT recommended for patients undergoing very low risk procedures (irrespective of their underlying health issues). For all others, a pre-op EKG is considered reasonable.
4. Beta blockers should be continued in patients already on the medications. In patients with ischemia on stress testing or multiple risk factors for CAD, it is reasonable to start them pre-operatively. But if you’re going to start them, start them at least 1 day before surgery. Do NOT start on day of procedure.
5. Antiplatelet agent use perioperatively is generally driven by bleeding risk related to the procedure. Whenever possible, patients who are on antiplatelet agents for cardiovascular disease should stay on their antiplatelet agents. If these must be discontinued, they should be restarted as soon as possible after the procedure.

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