Perioperative Risk Assessment

Do patients really need to be “cleared” for the OR?

Dr. Eric Lindley
McKay-Dee Cardiology
Adjunct Assistant Professor University of Utah
Disclosures

Consultant:
    Abbott vascular
Objectives

• Review of current literature
• Dispel long held myths re: perioperative evaluation (that cost billions of dollars)
• Guidelines for perioperative risk assessment
• Managing anticoagulants and anticoagulation for surgery
• Newest data re: perioperative stroke risk
Real objective

Remove the term "Clearance" from everyone's vocabulary.

The decision to proceed with surgery is between 2 parties and 2 parties only… The surgeon and the patient.
What cardiologists think surgeons are doing...
What questions are REALLY being asked?

1. Is my patient at increased risk (compared to a “healthy” patient) for undergoing ____ procedure?

AND

2. Can anything be done to reduce that risk?
So what should the answer be?

CLEARED!!

That doesn’t answer the questions
The data

If you Google “perioperative risk assessment guidelines”
CLINICAL PRACTICE GUIDELINE

2014 ACC/AHA Guideline on Perioperative Cardiovascular Evaluation and Management of Patients Undergoing Noncardiac Surgery

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the American College of Surgeons, American Society of Anesthesiologists, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Anesthesiologists, and Society of Vascular Medicine

Endorsed by the Society of Hospital Medicine
Step-wise look at how to work up these patients

**Step 1: (the easiest of steps)**

Is the procedure urgent/emergent?
- Yes
- No

Having a Heart Attack?
- Yes
- No

Proceed with Surgery
Perioperative algorithm

**Step 2:**
Is this a Low-Risk procedure?

The 2014 Guidelines have eliminated the 3 category “low/medium/high” risk categories. It is either low-risk (<1% chance of major complications) or elevated-risk (everything else).

Proceed with surgery with no further testing!!!
Perioperative algorithm

**Step 3:**
Every other non-vascular surgery

CV risk factors?

No

Proceed to surgery
Patient scheduled for surgery with known or risk factors for CAD

Emergency Yes → Clinical risk stratification and proceed to surgery

ACS* (Step 2) Yes → Evaluate and treat according to GDMT†

No → Estimated perioperative risk of MACE based on combined clinical/surgical risk (Step 3)

Low risk (<1%) (Step 4) → No further testing (Class IIIb)

Elevated risk (Step 5) → Moderate or greater (6+ METs) functional capacity

No or unknown → Poor OR unknown functional capacity (<4 METs)

Will further testing impact decision making OR perioperative care? (Step 6)

Yes → Pharmacologic stress testing (Class IIa)

No → Coronary revascularization according to existing CPGs (Class I)

Proceed to surgery according to GDMT OR alternate strategies (noninvasive treatment, palliation) (Step 7)

No further testing (Class IIIa)

Excellent (>10 METs) → Proceed to surgery

Moderate/Good (4–10 METs) → No further testing (Class IIb)
**Step 4:**

Patient has CV risk factors

ACS NSQIP website for assessment

http://riskcalculator.facs.org
Welcome to the ACS NSQIP Surgical Risk Calculator

With this tool you can enter preoperative information about your patient to provide estimates regarding your patient’s risk of postoperative complications.

I have read the disclaimer below.

Continue

Disclaimer: The ACS Surgical Risk Calculator estimates the chance of an unfavorable outcome (such as a complication or death) after surgery. The risk is estimated based upon information the patient gives to the healthcare provider about prior health history. The estimates are calculated using data from a large number of patients who had a surgical procedure similar to the one the patient may have.

Please note the risk percentages provided to you by the Surgical Risk Calculator are only estimates. The risk estimate only takes certain information into account. There may be other factors that are not included in the estimate which may increase or decrease the risk of a complication or death. These estimates are not a guarantee of results. A complication after surgery may happen even if the risk is low.

This information is not intended to replace the advice of a doctor or healthcare provider about the diagnosis, treatment, or potential outcomes. ACS is not responsible for medical decisions that may be made based on the risk calculator estimates, since these estimates are provided for informational purposes. Patients should always consult their doctor or other health care provider before deciding on a treatment plan.
72 yo female who needs a knee replacement. She can walk up a flight of stairs before her knee hurts. She is an insulin dependent Type 2 diabetic and is morbidly obese. She takes 81mg ASA, Lisinopril 20mg, Carvedilol 12.5mg BID, and Atorvastatin 40mg.
The Surgical Risk Calculator from ACS NSQIP is used to estimate the risk of various complications during and after a surgical procedure. The procedure described is Arthroplasty, knee, condyle and plateau, medial AND lateral compartments with or without patella resurfacing (total knee arthroplasty). The risk factors include:

- 65-74 years
- Diabetes (Insulin)
- HIV
- Class 2 Obese

### Outcomes

<table>
<thead>
<tr>
<th>Event</th>
<th>Your Risk</th>
<th>Average Risk</th>
<th>Chance of Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Complication</td>
<td>4.0%</td>
<td>3.8%</td>
<td>Average</td>
</tr>
<tr>
<td>Any Complication</td>
<td>4.7%</td>
<td>4.4%</td>
<td>Average</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>0.2%</td>
<td>0.2%</td>
<td>Below Average</td>
</tr>
<tr>
<td>Cardiac Complication</td>
<td>0.2%</td>
<td>0.2%</td>
<td>Above Average</td>
</tr>
<tr>
<td>Surgical Site Infection</td>
<td>0.8%</td>
<td>0.7%</td>
<td>Above Average</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>1.1%</td>
<td>0.8%</td>
<td>Above Average</td>
</tr>
<tr>
<td>Vascular Thromboembolus</td>
<td>1.1%</td>
<td>1.3%</td>
<td>Below Average</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>0.2%</td>
<td>0.1%</td>
<td>Above Average</td>
</tr>
<tr>
<td>Readmission</td>
<td>3.2%</td>
<td>3.1%</td>
<td>Average</td>
</tr>
<tr>
<td>Return to OR</td>
<td>0.8%</td>
<td>0.9%</td>
<td>Average</td>
</tr>
<tr>
<td>Death</td>
<td>0.1%</td>
<td>0.1%</td>
<td>Below Average</td>
</tr>
<tr>
<td>Discharge to Nursing or Rehab Facility</td>
<td>31.0%</td>
<td>23.2%</td>
<td>Above Average</td>
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</tbody>
</table>

**Predicted Length of Hospital Stay:** 3 days

### How to Interpret the Graph Above

- **Your Risk:** The risk of the individual patient
- **Average Patient Risk:** The average risk for the population
- **Your % Risk:** The percentage risk compared to the average

### Surgeon Adjustment of Risks

This will need to be used infrequently, but surgeons may adjust the estimated risks if they feel the calculated risks are underestimated. This should only be done if there is a reason for the increased risks was NOT already entered into the risk calculator.

1 - No adjustment necessary

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In summary, the Surgical Risk Calculator provides a detailed analysis of potential complications and their probabilities for a specific surgical procedure, helping surgeons and patients understand the risks involved.
Create a report to keep: Select how you would like to get the report.

I would like my report:
(You may select both options)

☐ E-mailed to me
☐ Save or Print Report (PDF)

The report will take a few seconds to create. Please be patient.

Finish

Disclaimer:
The information contained in this report is privileged patient health information, and may be subject to protection under the law, including the Health Insurance Portability and Accountability Act of 1996 (HIPAA). The ACS is not responsible for ensuring that this information is transmitted or stored in a secure environment.
<table>
<thead>
<tr>
<th>Serious complication</th>
<th>death</th>
<th>cardiac arrest</th>
<th>myocardial infarction</th>
<th>pneumonia</th>
<th>Renal injury</th>
<th>PE/DVT, return to the OR</th>
<th>Serious infection</th>
<th>unplanned intubation</th>
<th>UTI</th>
<th>wound disruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACE = 0.3%</td>
<td></td>
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</tbody>
</table>
**Perioperative algorithm**

**Step 4:**

Patient has CV risk factors

ACS NSQIP website for assessment

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If MACE is <1% proceed with surgery with no further testing
Step 5:

ACS NSQIP website for assessment
http://riskcalculator.facs.org

MACE risk >1%

Functional Assessment
Step 6: Functional Assessment

Quick Guide to 4 METs

- Golf
- House work
- 1 flight of stairs
- Walking for 100m at ≥ 3mph

Proceed with surgery without further testing
Step 7:

Cannot achieve 4 METs

Perioperative algorithm

Stress testing with imaging modality (MPI most well validated)

Treat per current guidelines including revascularization if indicated (unclear if this changes perioperative risk at all)

Remember how we got here:
- Not a low risk procedure
- CV risk factors
- MACE risk ≥ 1%
- Cannot vacuum
RN: Dr. Smith, next week you have Mr. Jones scheduled for a cholecystectomy. He is a 55-yr-old with HTN and on metformin for DMII.

Dr. Smith: Just get a nuc and get him scheduled for surgery.

Nuc ➔ Positive

Cath’ed ➔ 70% PDA Type A lesion, FFR of 0.76, DES placed

No Cholecystectomy for a minimum of 6 preferable 12 months

4 months later gets severe cholecystitis and has perc-drain for 2 months at home and IV abx for 2 weeks with home health
Quick and Dirty Summary Slide

- Emergency
- No workup proceed
- Patient can go up 2 flights
  - proceed
- Everyone else needs a bit more thought
Antiplatelet/Anticoagulants

- Rare surgery require no ASA
- Neurosurg
- If a patient is on antiplatelet, need a cardiology consult prior to surgery
- Do not stop without discussion with Rx'ing team/physician

Anticoagulation/Antiplatelet requires some thought, there is no one right answer for all and RARELY is “Bridging” the answer

DO NOT USE ENOXAPARIN OR NOAC TO “BRIDGE” ANTIPLATELET
Myths we have dispelled

1- Every patient needs an EKG
2- Most patients need an echo
3- Most cardiac patients need a stress test
4- Asymptomatic cardiac patients benefit from stress testing
5- Antiplatelet agents need to be stopped before surgery
6- Enoxaparin (LMWH) can be used to bridge antiplatelet agents
7- All patients on anticoagulants need bridging anticoagulation
8- Cardiologist/PCP can “clear” patients for surgery
What’s new in periop evaluation

• Appropriate use criteria for stress testing
• Use of NOAC’s to bridge Warfarin
• Association of migraine and CVA
What Should a perioperative assessment note contain?

1. Patient X (is/is not) at elevated risk of a perioperative cardiovascular complication because of ______.

2. There (is/is not) a cardiovascular contraindication for elective, non-cardiac surgery.

3. The following test (should/should not) be done prior _______.

Summary

- Perioperative risk assessment is a multidisciplinary evaluation with the goal of minimizing risk of adverse outcomes
- Rarely do patients benefit from costly diagnostic testing
- A step-wise approach to risk assessment exists
- Patients on anticoagulation and/or antiplatelet agents require special attention
- Consults should provide clear expectations/goals/plan to referring provider and patients
Thank You