Preoperative Assessment

Dr Rob Stephens
Consultant in Anaesthesia
UCL Hospitals
Tidal Volume 455 mL
Predicted Weight 56.9 kg
Contents

• Preoperative assessment vs day of surgery assessment
• Why do we pre-assess patients?
• **Quantifying** perioperative risk
• **Reducing** perioperative risk
• Seeing **elective patients** on the day
• Seeing **emergency patients** before surgery
• Questions
Preoperative assessment vs day of surgery assessment

• Preop Assessment Clinics
  • Assessment, tests, Lots of information gathered & given
  • PMHx, DHx, Allergies ? Ok for day surgery
  • Triage- some patients see a Dr
  • 7x more likely to die if not done

• Day of surgery assessment
  • All Patients before coming to theatre
  • Brief, patient stressed
  • Essentials

Knowing the Risk NCEPOD
Why pre-assessment?

• build up patient rapport, reduce anxiety, qns
• get information about them
• tell them information
• allow patients to make informed decisions about their care
• minimise the risk of surgery
• Planning - ICU postop, warn Anaesthetists, bridging plan etc
Perioperative risk

=The chance of death and/or complications around the time of surgery 30 days

• Death during surgery is uncommon
• But many people have complications after surgery
• Why- specific biological mechanisms are unknown.
  ...Oxygen delivery, leakage of gut bacteria, immune changes, blood clotting, autonomic dysfunction, cardiac damage
Perioperative risk

Patient + Surgery + Anaesthesia → systemic inflammatory changes → systemic complications & Death

How Urgent?

Lots of score systems

CVS
RS
GI
NS
Infectious
Other
Complications = Postoperative morbidity

- Postoperative morbidity affects up to 50% of postoperative patients (POMS) = complications
- Complication rate ~ 7x chance of dying

- For patients who develop a postop complication:
  - Total care costs ↑
  - Length of stay ↑
  - Suffering

Khan, 2006; J Gen Int Med
The mortality associated with postoperative complications persists for 8+ years!

Predicting perioperative risk

- Individual risk vs population risk?
- Patient / Surgical / Hospital based factors
- ASA
  - ‘SORT’ surgery
  - ‘POSSUM’
- Lees revised risk score (cardiac risk)
- Cardio pulmonary exercise testing – individual fitness
ASA physical status
American Society Anesthesiology

I – healthy, non smoker/drinker 0.05%
II – mild systemic disease, not affecting function 0.4%
III – severe systemic disease that limits function 4.5%
IV – incapacitating systemic disease, life threatening 20%
V – moribund, not expected to survive without surgery 30+%
VI – brainstem death awaiting organ donation

Doesn’t include death
type of surgery
urgency
Anaesthesia stuff directly
Agreement?

E = emergency
Predicting perioperative risk

• Individual risk vs population risk?
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• ASA
• ‘SORT’ surgery
• ‘POSSUM’
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SORT Surgery

• Surgical Outcome Risk Tool
• www.sortsurgery.com
Surgical Outcome Risk Tool (SORT)

Main Group
- Abdomen (excluding urinary and reproductive organs)

Sub Group
- Large intestine

Procedure Description
- Laparoscopic colostomy and stoma formation (including revision)

Severity
- Minor
- Intermediate
- Major
- Xmajor/complex

ASA-PS
- 1
- 2
- 3
- 4
- 5

Urgency
- Elective
- Expedited
- Urgent
- Immediate

Thoracics, gastrointestinal or vascular surgery
- Yes
- No

Cancer
- Yes
- No

Age
- <65
- 65-79
- >80

Risk: 0.86%

User notes
All values must be present before the calculation can take place. Surgical severity will be calculated automatically on entry of procedure details. If the procedure you are searching for is not listed, please use the nearest available procedure for calculation.

About SORT
The SORT is a pre-operative risk prediction tool for death within 30 days of surgery. It has been developed and validated for use in inpatient non-neurological, non-cardiac surgery in adults (aged 16 or over).

This web resource is the result of a collaborative effort between NCEPOD researchers (Karen Protopapa and Neil Smith) and doctors in anaesthesia and intensive care medicine who are part of the SOuRCe team (Ramani Moonesinghe and Jo Simpson).

The UCL/UCLH Surgical Outcomes Research Centre (SOuRCe)
www.uclsource.com

The National Confidential Enquiry into Patient Outcome and Death (NCEPOD)
www.ncepod.org.uk
SORT Surgery

• Surgical Outcome Risk Tool  www.sortsurgery.com
SORT Surgery
P-POSSUM

- Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity.
- www.riskprediction.org.uk
Introduction

The purpose of these pages is to provide surgeons with the ability to calculate a P-POSSUM score for their general surgical patients online to enable them to provide further information on risk in terms of morbidity and mortality. There is also a wealth of general information on risk prediction in surgery – this area of the site is constantly being updated and it is worth checking back on a regular basis.

Calculate a P-POSSUM Score

Choose a value in each category that matches your patient from the drop down lists in both the physiological and operative parameters tables below. Default values (the lowest score) are shown for each category. Simply submitting the form as it is without changing the values (i.e. a young fit patient having a minor operation) still gives a % risk for morbidity and mortality. This illustrates that even in the modified P-POSSUM formula used in this application still overestimates risk in low risk groups. The more 'risky' the procedure the more accurate is the predicted risk calculated below.

<table>
<thead>
<tr>
<th>Physiological Parameters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>&lt; 61 yrs old</td>
</tr>
<tr>
<td><strong>Cardiac</strong></td>
<td>No cardiac failure</td>
</tr>
<tr>
<td><strong>Respiratory</strong></td>
<td>No dyspnkea</td>
</tr>
<tr>
<td><strong>ECG</strong></td>
<td>ECG normal</td>
</tr>
<tr>
<td><strong>Systolic BP</strong></td>
<td>110 - 130 mmHg</td>
</tr>
<tr>
<td><strong>Pulse Rate</strong></td>
<td>50 - 80 bpm</td>
</tr>
<tr>
<td><strong>Haemoglobin</strong></td>
<td>13 - 16 g/dl</td>
</tr>
<tr>
<td><strong>WBC</strong></td>
<td>4 - 10</td>
</tr>
<tr>
<td><strong>Urea</strong></td>
<td>&lt;7.6</td>
</tr>
<tr>
<td><strong>Sodium</strong></td>
<td>&gt;135 mmol/l</td>
</tr>
<tr>
<td><strong>Potassiuim</strong></td>
<td>2.5 - 5 mmol/l</td>
</tr>
</tbody>
</table>
Reducing perioperative risk

Institutional factors
Reducing perioperative risk: ‘optimisation’

- Good Preassessment: Hx Examination Ix
- Treatment of acute illnesses
- ‘Optimisation’ of chronic illnesses
- What is ‘optimal’ – balance with surgical risk e.g. coagulation
- Cardiac: American (AHA/ACC)
- Anaemia, polycythaemia and [Hb]
- Fitness vs deconditioning
- Specialist review
- Planning of timing of surgery, intra+ and postoperative care
- ‘Enhanced recovery’
Reducing perioperative risk: ‘optimisation’

Pre-assessment guidelines
Preoperative Tests

Will they chance your management or advice?
NICE say- depends on Surgery, Age & Comorbidities

Consider

• Urine  Pregnancy  Dipstick
• Bloods  FBC  U & E  glucose, SickleDex  Other
• ECG  Risk Factors >65  Major surgery
• X-Ray  CXR only if new problems
• Special  ECHO CPET
Practical guide to preoperative assessment

- Go to preoperative assessment clinics,
  - make own decisions and
  - discuss these with a consultant
  - Talk with patients- what are their concerns?
- How/will these tests will change management?
  - especially if it delays surgery / expensive / painful
- Read the guidelines: Preoperative Tests NICE 2016
- Try calculating the risks
  - SORT and POSSUM for each patient
Practical guide to day of surgery assessment 1

• Introduce yourself! Develop your own chat. Avoid technical terms.
• “have you ever had an anaesthetic before”
• Don’t forget Hx Exam Investigations Mx
• What’s the surgery? ‘Major’?
• Functional assessments > 1-2 Flight stairs or more
• Day surgery? ‘24 hr rules’
Practical guide to day of surgery assessment 2

- Pain postop - chat – Paracetamol / NSAID / Opioids
- Discuss & Document Common / Likely things
  - Pain cannula N & V throat Transfusion
  - Blocks ICU Mobility/Exercises
- Normal Drugs today? (Diabetes /ACE I/Anticoagulation/CVS)
- Drink 2 hrs Food 6hrs water sips until surgery
Practical guide to day of surgery assessment 3

Plan

• Does the risk of surgery outweigh the benefits? Alternatives
• General anaesthesia or local anaesthesia?
• **Airway** – What type
  - Intubate? Emergency airway
  - Is a ‘rapid sequence intubation’ required?
• **Breathing.** Ventilation modes and settings.
• **Circulation.** Lines: Bleeding/ Art/CVP? Cardiac output monitor.
• **Drugs** Analgesia. Systemic or regional.
• **Postoperative** care. Decision before operation. Feeding.
Practical guide to preoperative resuscitation
Urgent or emergency case assessment

Don’t forget the basics
• Hx / Exam / Investigations / Mx.
• 1 Flight stairs?
• What’s the surgery? Urgency?
• Risk chat + tact + kindness
• What does the patient expect/ want?
Practical guide to preoperative resuscitation
Urgent or emergency case assessment

- Surgical risk versus optimisation time
- A OK?
- B Gas exchange OK? O₂,
- C [Hb] <90 g/L – order blood + products!
- C Cardiac output: fluid challenges CSL
- D Drugs they’re on?
- Electrolytes.
- Destination: Fit for the ward after?
- Destination: ?discuss with ICU
- Anaesthetic plan:
  ‘Two big drips and a tube?’
- Discussion with the patient again
Reducing perioperative risk: intraoperative resuscitation

- Lung protective ventilation – Futier 2013
- Optimise fluid balance (goal directed therapy?)
- Electrolytes and coagulation.
Reducing perioperative risk: Postoperative care

All patients with a predicted mortality of 10% should be cared for in critical care.

Patients that didn’t go to preassessment

7x chance of death
Summary

• Preassessment vs Day of surgery
• Risk Scores- ASA  SORT  P-POSSUM
• Reducing perioperative risk
• Preoperative Tests  UBEXS
• Preassessment – practicalites
• Day of surgery – electives
• Day of surgery- Urgent
Questions

robcmstephens@googlemail.com
Further reading: guidelines and reports

Preoperative assessment
• ACC / AHA guidelines 2015
• NICE guidelines www.nice.org.uk/guidance/ng45/resources
• SORT surgery and POSSUM

UK Reports
• Knowing the risk – NCEPOD
• The higher risk surgical patient: towards improved care for a forgotten group – The Royal College of Surgeons.
• National Audit Projects – The Royal College of Anaesthetists
Further reading: journal articles

Quantifying perioperative risk


Mechanisms of operative risk:

Further reading: journal articles

Lung protective ventilation


Goal Directed Therapy


• Grocott M, Dushianthan, A., Ma, H., Mg, M., Harrison, D., & Rowan, K. (2013). Perioperative increase in global blood flow to explicit defined goals and outcomes following surgery. Cochrane review.

Transfusion targets
