

An Introduction to Anaesthesia 2019

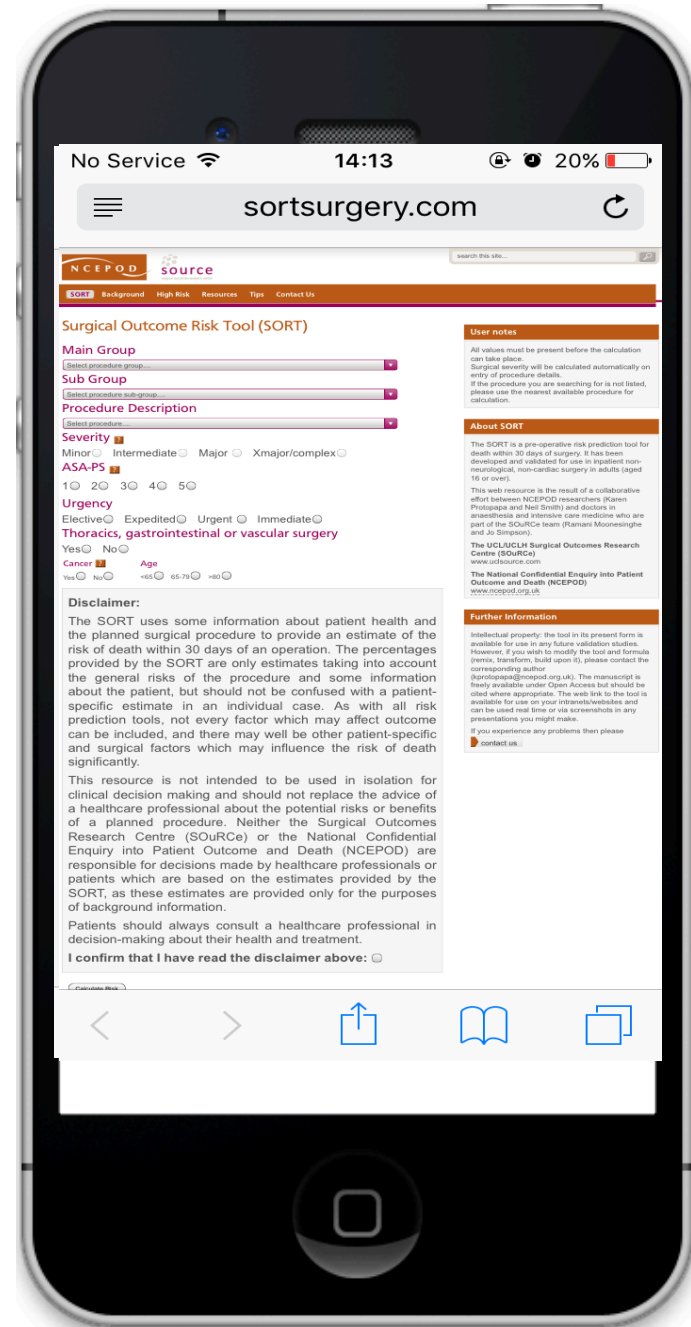
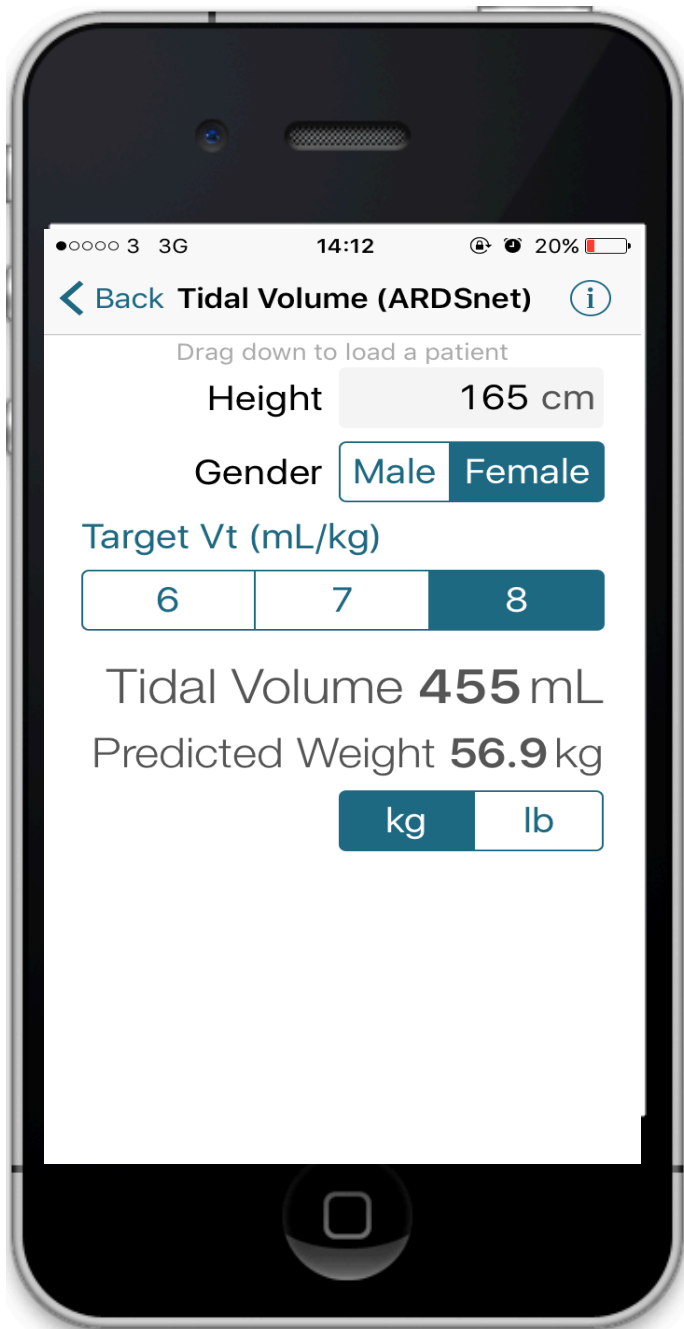
# Preoperative Assessment

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# 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

# Why pre-assessment?

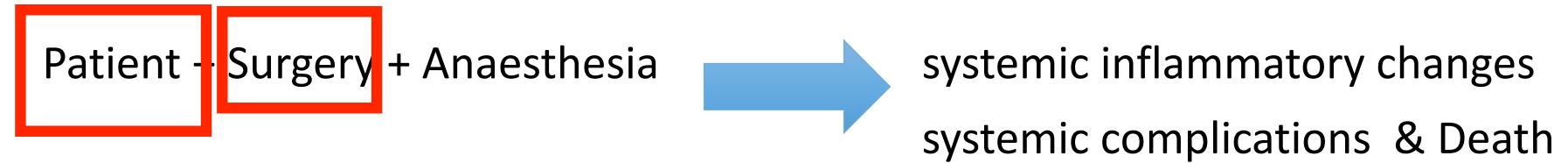
- build up patient rapport, reduce anxiety, qns
- get information about them
- tell them information
- allow patients to make informed decisions about their care
- minimise the risk of surgery
- Planning - ICU postop, warn Anaesthetists, bridging plan etc

# 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



*How Urgent?*

Lots of score systems

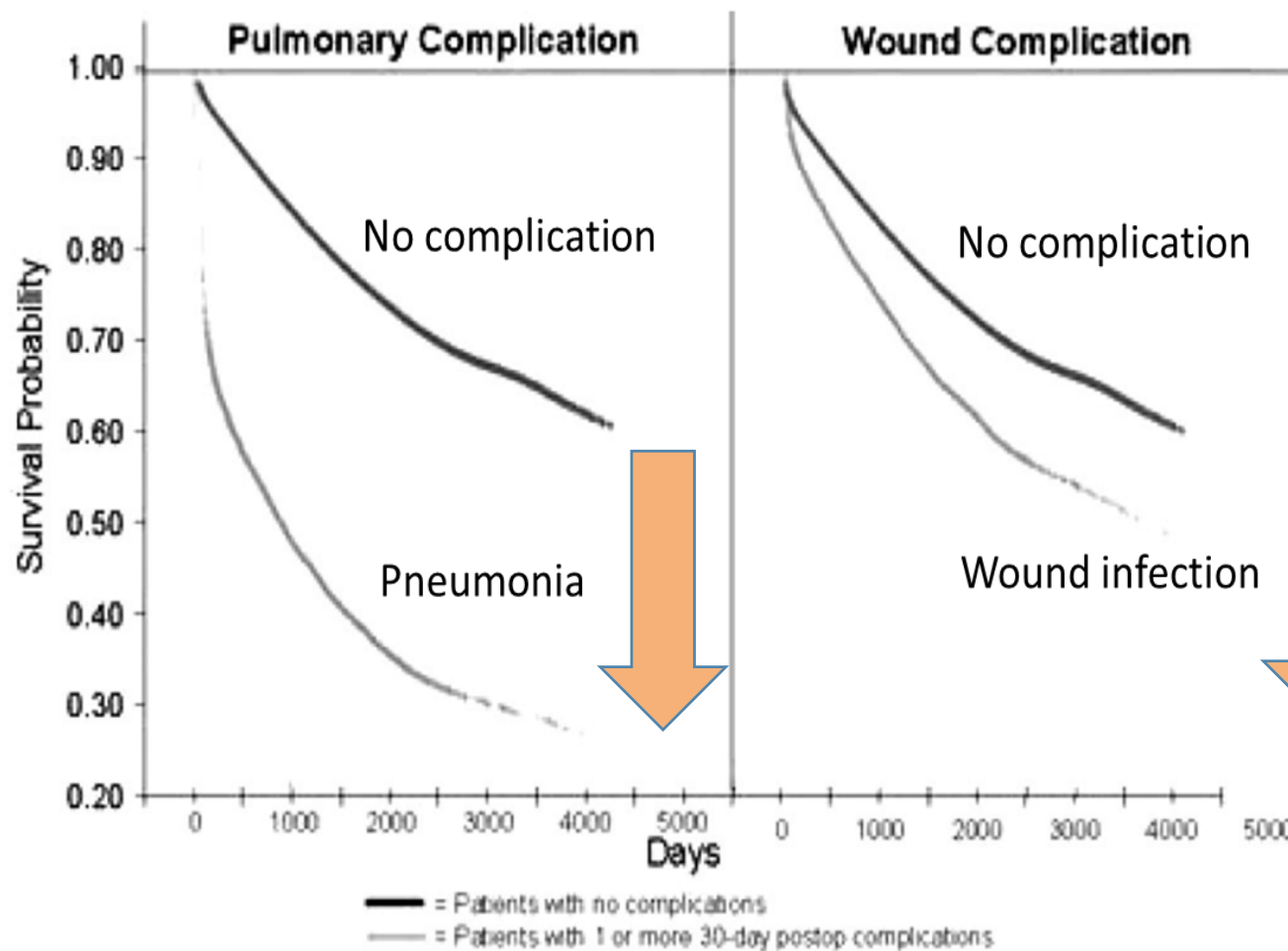
- CVS
- RS
- GI
- NS
- Infectious
- Other

# 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



# The mortality associated with postoperative complications



Persists for  
8+ years!

Khuri (2005) Annals of Surgery.

# 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	death
II – mild systemic disease	0.05%
III – severe systemic disease	0.4%
IV – incapacitating systemic disease	4.5%
V – moribund, not expected to survive	20%
VI – brainstem dead awaiting organ donation	30+%

**Doesn't include**

Type of surgery

Urgency

Anaesthesia stuff directly

**Agreement?**

E = emergency

# 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

# SORT Surgery

- **Surgical Outcome Risk Tool**
- [www.sortsurgery.com](http://www.sortsurgery.com)

A large, empty search input field with a thin blue border and a vertical cursor (I-beam) in the center.

Google Search    I'm Feeling Lucky

# 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

Reset Form Calculate Risk

**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](http://www.uclsource.com)

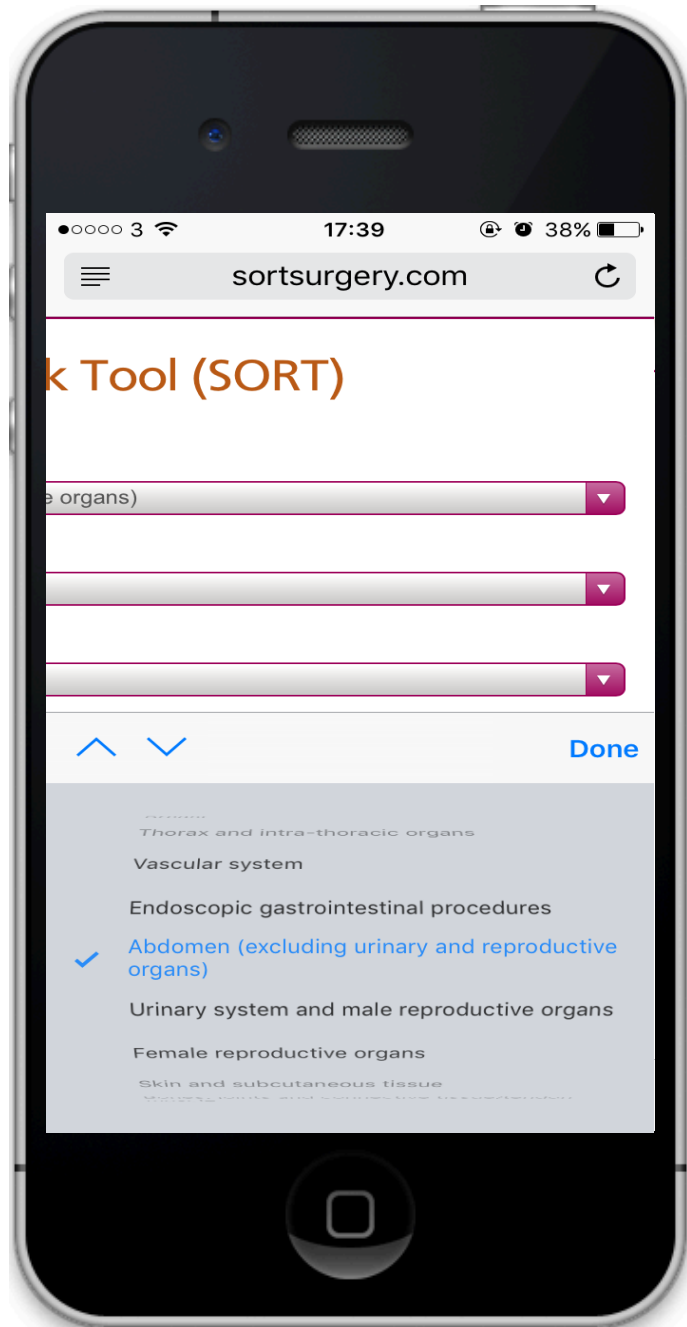
**The National Confidential Enquiry into Patient Outcome and Death (NCEPOD)**  
[www.ncepod.org.uk](http://www.ncepod.org.uk)

# SORT Surgery

- **Surgical Outcome Risk Tool** [www.sortsurgery.com](http://www.sortsurgery.com)



# SORT Surgery



# P-POSSUM

- **P**hysiological and **O**perative **S**everity **S**core for the **e**n**U**meration of **M**ortality and Morbidity.
- [www.riskprediction.org.uk](http://www.riskprediction.org.uk)

## Introduction

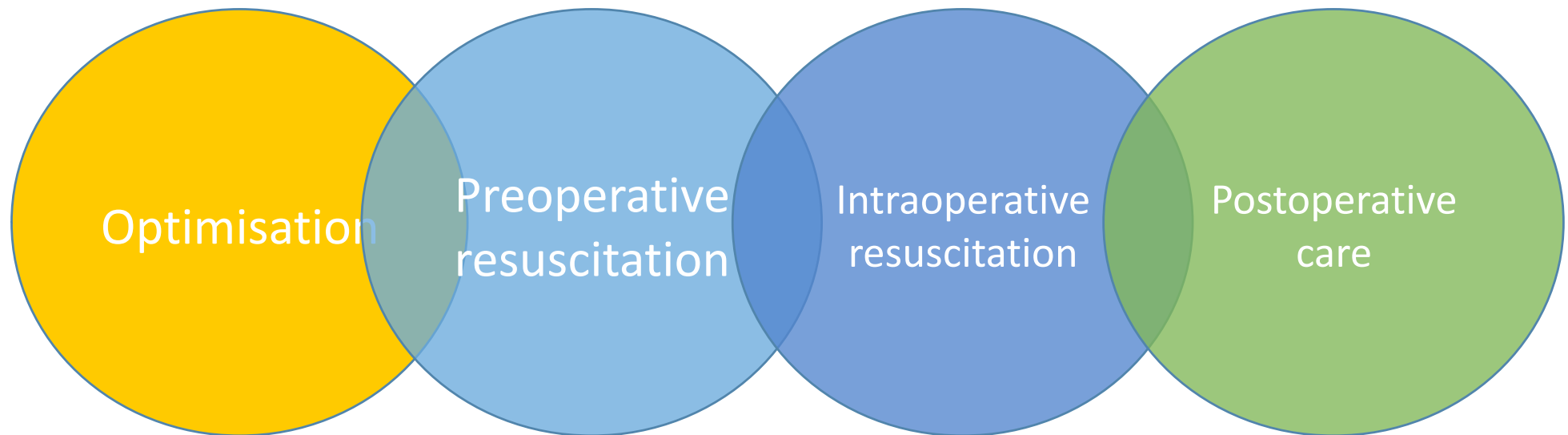
The purpose of these pages is to provide surgeons with the ability to calculate a P-POSSUM score for their **general surgical** patients online to enable them to provide further information on risk in terms of morbidity and mortality. There is also a wealth of general information on risk prediction in 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.

Physiological Parameters	
Age	< 61 yrs old
Cardiac	No cardiac failure
Respiratory	No dyspnoea
ECG	ECG normal
Systolic BP	110 - 130 mmHg
Pulse Rate	50 - 80 bpm
Haemoglobin	13 - 16 g/dl
WBC	4 - 10
Urea	<7.6
Sodium	>135 mmol/l
Potassium	3.5 - 5 mmol/l

# Reducing perioperative risk



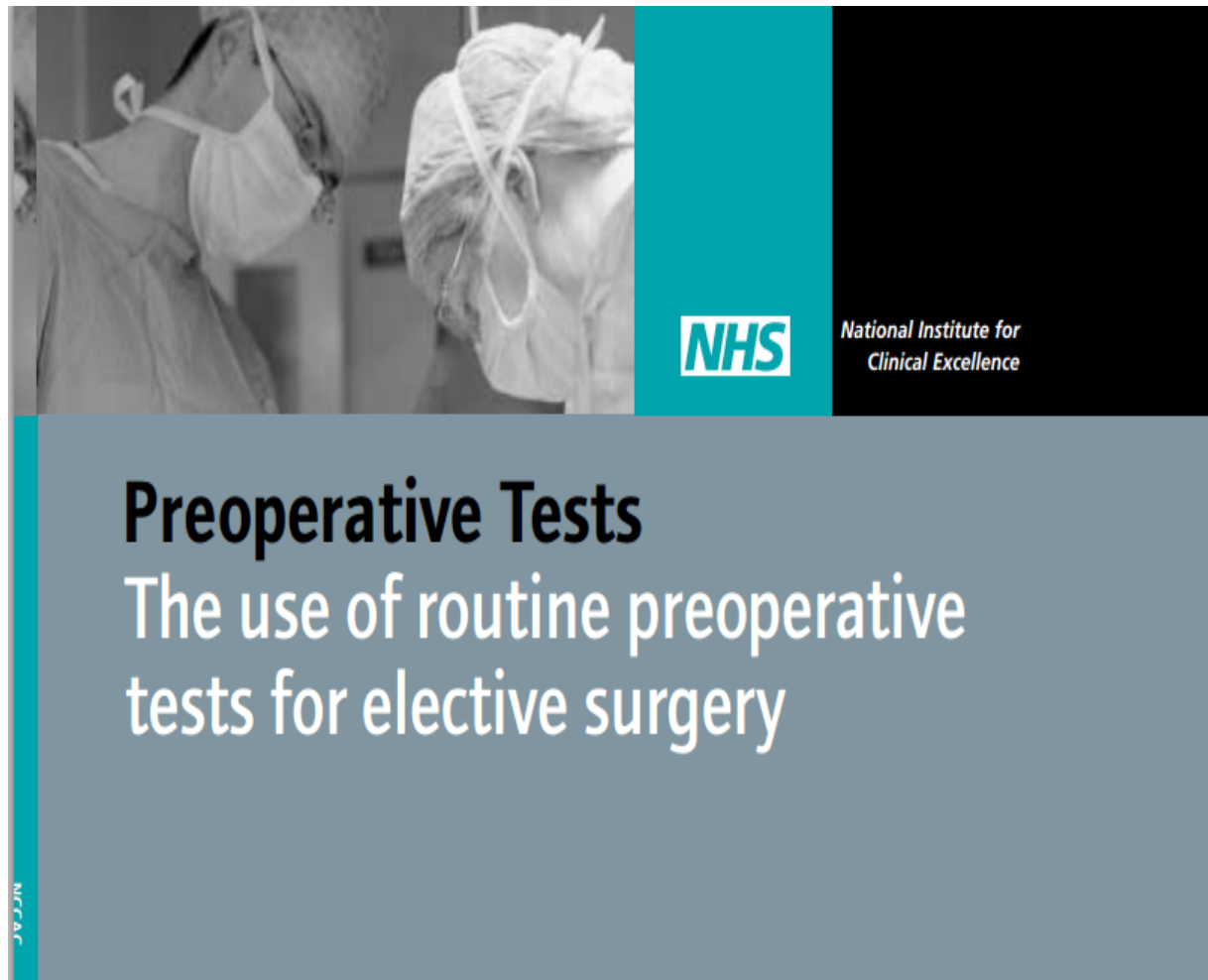
*Institutional factors*

# 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 change your management or advice?

NICE say- depends on Surgery, Age & Comorbidities

Consider

- Urine            Pregnancy    Dipstick
- Bloods        FBC    U & E    glucose, SickieDex    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’

patient

surgery

anaesthesia

urgency

# 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

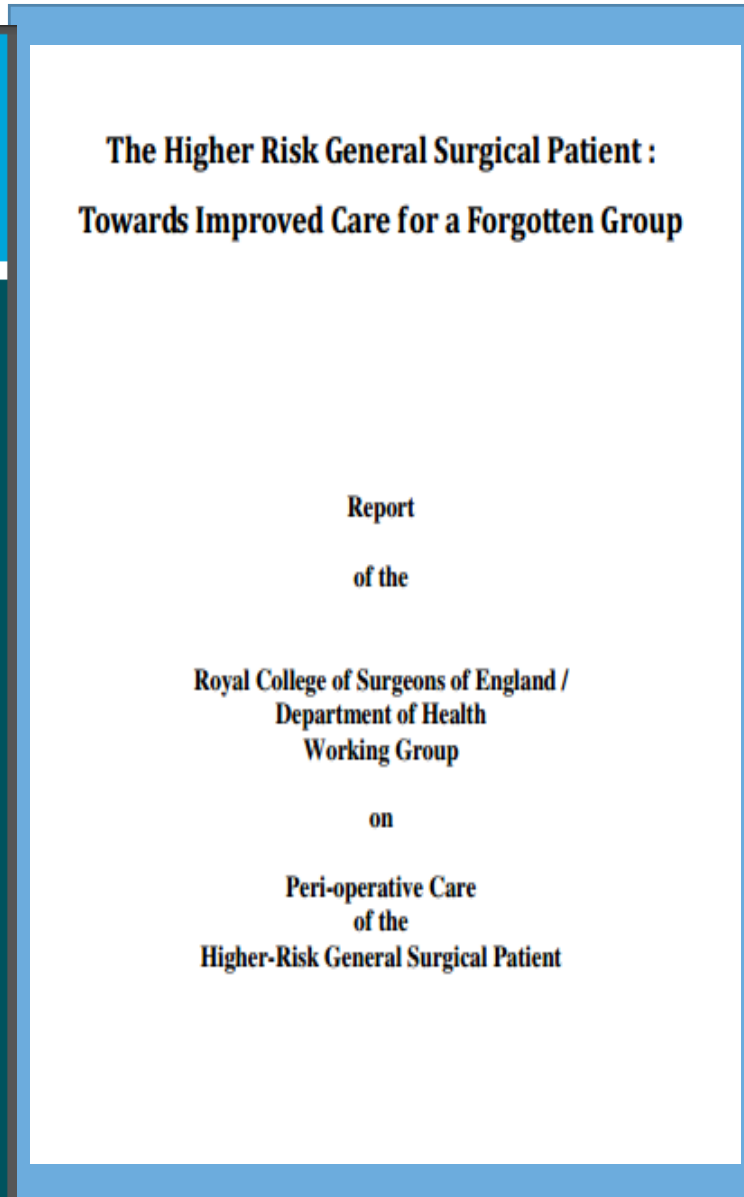
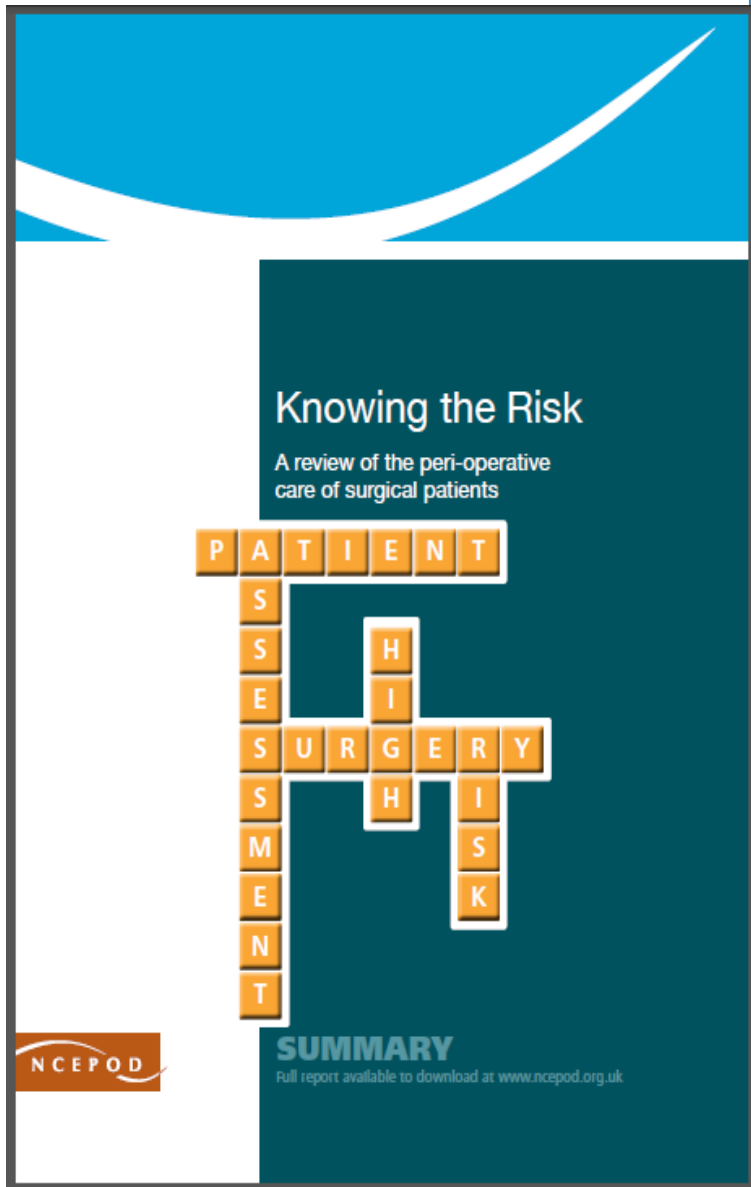
- Surgical risk versus optimisation time
- A OK?
- B Gas exchange OK? O<sub>2</sub>,
- C [Hb] <90 g/L – order blood + products!
- C Cardiac output : fluid challenges CSL
- D Drugs they're on?
- Electrolytes.
- Destination: Fit for the ward after?
- Destination: ?discuss with ICU
- Anaesthetic plan:  
'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 – practicalities
- Day of surgery – electives
- Day of surgery- Urgent



# Questions



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# Further reading: guidelines and reports

## Preoperative assessment

- ACC / AHA guidelines 2015
- NICE guidelines [www.nice.org.uk/guidance/ng45/resources](http://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

- Barnett, S., & Moonesinghe, S. R. (2011). Clinical risk scores to guide perioperative management. *Postgraduate Medical Journal*, 87(1030), 535–41.
- Khuri, S. F., Henderson, W. G., DePalma, R. G., Mosca, C., Healey, N. a., & Kumbhani, D. J. (2005). Determinants of Long-Term Survival After Major Surgery and the Adverse Effect of Postoperative Complications. , 32–48.
- Pearse, R. M., Harrison, D. a, James, P., Watson, D., Hinds, C., Rhodes, A., ... Bennett, E. D. (2006). Identification and characterisation of the high-risk surgical population in the United Kingdom. *Critical Care* (10(3), R81.

## Mechanisms of operative risk:

- Ackland, G., Grocott, M. P., & Mythen, M. G. (2000). Understanding gastrointestinal perfusion in critical care: so near, and yet so far. *Critical Care* (4(5), 269–81.

# Further reading: journal articles

## Lung protective ventilation

•Futier, E., Constantin, J.-M., Paugam-Burtz, C., Pascal, J., Eurin, M., Neuschwander, A., ... Jaber, S. (2013). A trial of intraoperative low-tidal-volume ventilation in abdominal surgery. *The New England Journal of Medicine*, 369(5), 428–37.

## Goal Directed Therapy

•Hamilton, M. a, Cecconi, M., & Rhodes, A. (2011). A systematic review and meta-analysis on the use of preemptive hemodynamic intervention to improve postoperative outcomes in moderate and high-risk surgical patients. *Anesthesia and Analgesia*, 112(6), 1392–402.

•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

•Carson, J. L., Terrin, M. L., Noveck, H., Sanders, D. W., Chaitman, B. R., Rhoads, G. G., ... Magaziner, J. (2011). Liberal or restrictive transfusion in high-risk patients after hip surgery. *The New England Journal of Medicine*, 365(26), 2453–62.

•Villanueva, C., Colomo, A., Bosch, A., Concepción, M., Hernandez-Gea, V., Aracil, C., ... Guarner, C. (2013). Transfusion strategies for acute upper gastrointestinal bleeding. *The New England Journal of Medicine*, 368(1), 11–21.