“Knowing the Risk”
NCEPOD report 9/12/11

Carol J. Peden BSC, MB ChB, MD, FRCA, FFICM, MPH
Royal United Hospital, Bath
Up to 25,000 surgical deaths per year
5–10% of surgical cases are high risk
79% of deaths occur in the high risk group
Overall care not good in more than half of cases
Deficiencies in assessment, monitoring and fluid management
Low critical care utilization
Morbidity, and resource consumption
We need to actively identify this high risk group and target resources at them
We must assess and document the risk and inform patients!
Identification and characterization of the high-risk surgical population in the United Kingdom.  
*Pearse R. M. et al.*  *Critical Care* 2006

**High risk group**
- 12.5% of procedures  
  84% of deaths

<15% to ICU
- ICU median stay 1.6d  
- 41% of deaths after ICU discharge  
- 1% discharged for palliative care

**Patients admitted to ICU from ward 40% mortality**
High Risk Surgery Outcomes

- 35% of high risk patients admitted to critical care
- Of those who died only 49% went to critical care
- Only 25% of deaths occurred in critical care
- All elective cardiac surgery patients go to critical care – mortality 3.5%

*Jhanji et al Anaesthesia 2008*
Are we finally at a tipping point?
So where are the deficiencies we can act on to improve care?
Structure, Process, Outcome

Structure

- Pre-assessment clinic
  - 16% no pre-assessment clinic
  - 17% no surgical pre-assessment
  - Elective patients not seen
    - 30d mortality 4.8% v.0.7%

- Operating theatres –Emergency theatre
  - 72.5% in hours; 83.2% out of hours –access?
  - 20% of non-elective patients delayed

- PACU facilities
  - 82.8% ventilatory support and ongoing management
  - But 60% only in an emergency for up to 6 hours

- Critical care outreach team –66%
Policies in place for key perioperative processes?

Policy in place does not mean effective implementation, most health care resources run at 60–80% reliability

Hypothermia management –
  ◦ 66% have a policy
Monitoring and fluid management in “high risk” patients

- 26.6% arterial catheter
- 14.2% had a central venous catheter
- 4.7% had cardiac output monitoring
- Advisors considered intra-operative monitoring inadequate in 10.6% patients; this group had a threefold increase in mortality (20.5%)
- 13% of patients did not get fluid in line with GIFTASUP guidelines

Is this good enough?
If you were a high risk patient what would you want?
OESOPHAGEAL DOPPLER MONITORING (ODM)

ODM is a minimally invasive technology used by anaesthetists during surgery to assess the fluid status of the patient and guide the safe administration of fluids and drugs.

In March 2011, NICE published guidance on the use of ODM, recommending it for patients undergoing major or high-risk surgery and certain other surgical patients. Despite a comprehensive evidence base, uptake of this technology has been poor across the NHS. Full adoption of this technology across the NHS is forecast by NICE to benefit over 800,000 patients and generate net financial savings of over £400m. Current information suggests that these technologies are used for less than 10% of applicable patients.

- We will launch a national drive to get full implementation of ODM, or similar fluid management monitoring technology, into practice across the NHS.
How good are we as anaesthetists at defining risk?

- 20% of patients prospectively “high risk”
- Advisors reviewing data felt risk slightly lower
- Patient factors considered most important in determining risk
- Use of Lee scoring system – Lee class III or more 14.6% “high risk”
- So the clinicians with the patient in front of them estimate an increased risk
- But do they act on it and are they right?
Critical Care Admission

- 1167/17,295 patients went straight to critical care (6.7%)
- Think about it ..... 
  - 2/3 patients overweight
  - 1/3 non-elective
  - 20% judged high risk
  - 20% ASA 3 or more
  - 9.8% intra-op complication with a mortality of 13.2%
- And yet ..... 
  - In only 2.1% of cases did the anaesthetist judge the post-op location not ideal!
  - 31 low risk patients died on ward with no critical care
  - Advisors judged 8.3% of patients should have had higher level of care this group had a 3x increased mortality
Determinants of Long –Term Survival After Major Surgery and the Adverse Effect of Postoperative Complications


“The occurrence of a 30 day postoperative complication is more important than preoperative patient risk and intraoperative factors in determining the survival after major surgery in the VA. Quality and process improvement in surgery should be directed toward the prevention of postoperative complications”.

NCEPOD 26% of cases had postoperative complications affecting outcome
Death is not the only outcome!
Could greater investment in post-operative care be cost effective?
So how do we do better?

- Measurement
- Set standards
- Quality improvement
- Research
Emergency Surgery
Standards for unscheduled surgical care

Guidance for providers, commissioners and service planners

February 2011

Dr Carol Peden and Dr Bob Winter of the Intensive Care Society said:

“If we are to operate on high risk patients then it is essential that we provide the right level of care for them after their surgery. There must be an appropriate number of critical care beds to manage these patients in the most cost effective and efficient way. Only by doing this will we be able to reduce the postoperative mortality. All age groups of critically ill patients would benefit from these standards being followed, but the most high-risk elderly and frail patients will do so most of all.”
Poor NHS care puts lives of emergency surgery patients 'at risk'

Report finds that delays in finding operating theatre spaces lead to deaths while only one in three receives critical aftercare

Sam Jones and agencies
guardian.co.uk, Thursday 29 September 2011 09.02 BST
Article history

The Royal College of Surgeons report found a patient's chance of survival after a critical operation varied widely between NHS hospitals. Photograph: Christopher Furlong/Getty Images

The Higher Risk General Surgical Patient
Towards Improved Care for a Forgotten Group

The Royal College of Surgeons of England and Department of Health
What the “Higher Risk General Surgery Patient” report says:

- Mortality is high
- Recognise and measure the problem
- All patients with a > 10% risk of death should be admitted to critical care

Standardise care based on objective measures

>10% mortality risk admit to critical care
The End of Surgery Bundle
C.J. Peden, R. Resar. IHI.

To be completed by anaesthetist during final 30 minutes of surgery to establish fitness for extubation and post-operative destination based on risk

- ABG taken (lactate or base deficit) and analysed
- Temperature measured and recorded
- Reversal of muscle relaxants assessed with nerve stimulator
- Documentation of ongoing fluid needs
- Risk score the patient
The Driver Diagram: Tells us everything in the system that we need to work on to reach our aim

Primary Drivers: Tells us the BIG categories of work needed to reach our aim

Secondary Drivers: the changes we need to make to complete the Primary Driver

Change Package: what we actually have to do to make the changes work
Improving Outcomes for High Risk Surgical Patients

Decrease:
- Mortality
- Complications
- Cost

Preoperative Care
- Preoperative assessment
- Patient information/consent
- Risk assessment
- Optimization
- SCIP measures
- WHO Surgical checklist
- Optimal monitoring
- “Damage limitation” surgery
- Location based on P–POSSUM

Intraoperative Care
- Pain management
- Fluid management
- Physiotherapy
- Delirium management

Service Organisation
- Strategies other than surgery
- Palliative Care
- Patient and family involvement

Postoperative Care

End of Life Care

How A Regional Collaborative Of Hospitals And Physicians In Michigan Cut Costs And Improved The Quality Of Care

David A. Share1,*, Darrell A. Campbell2, Nancy Birkmeyer3, Richard L. Prager4, Hitinder S. Gurm5, Mauro Moscucci6, Marianne Udow-Phillips7 and John D. Birkmeyer8

Health Affairs 2011; 30:636-645

2500 fewer Michigan surgical patients with complications
$20,000,000 savings
We know what to do.....
We have **will** and **ideas**

- Venous thrombo-prophylaxis
- Pre-operative assessment
- Sepsis management
  - Surviving sepsis care bundles
- Peri-operative fluid management
- Dynamic Monitoring of cardiac output
- Communication and handover
Caring to the End NCEPOD 2009

- Clinically important delay in first review by a consultant
- Poor communication between and within clinical teams in 13.5%
- 16.9% of patients not expected to survive at admission, no discussion of treatment limitation
- Poor fluid and electrolyte management
- Failure of audit and critical incident reporting
- Neglect of VTE and antibiotic prophylaxis
NCEPOD 2010 and 2011
The High Risk Surgical Patient

• Could do better
• Delays are associated with poor outcome
• “Ongoing need for Level 2 and 3 care to support major surgery in the elderly”
• Post-operative renal failure an issue
In Summary

- This report confirms that we are right to be concerned about the management of the high risk surgical patient
- Risk assessment is key
- Increased investment and critical care utilisation urgently needed
- We should standardise the standardisable
- Deliver reliable care
- Goal – Less death, morbidity and cost
NCEPOD 2011...the “tipping point” for the high risk surgical patient?

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.”

Margaret Mead US Anthropologist
“I have been impressed with the urgency of doing. Knowing is not enough; we must apply. Being willing is not enough; we must do.”

Leonardo da Vinci