Perioperative Medicine:

Today and Tomorrow

Rupert Pearse

Professor of Intensive Care Medicine

Queen Mary University of London

Barts and The London
Queen Mary's School of Medicine and Dentistry

Peri-Operative Medicine....

Prevention and treatment of harm resulting from the tissue injury of surgery [and anaesthesia]


SPRINGFIELD
GENERAL HOSPITAL
COME FOR THE SURGERY,
STAY FOR THE COMPLICATIONS

Estimate of the global volume of surgery in 2012: an assessment supporting improved health outcomes

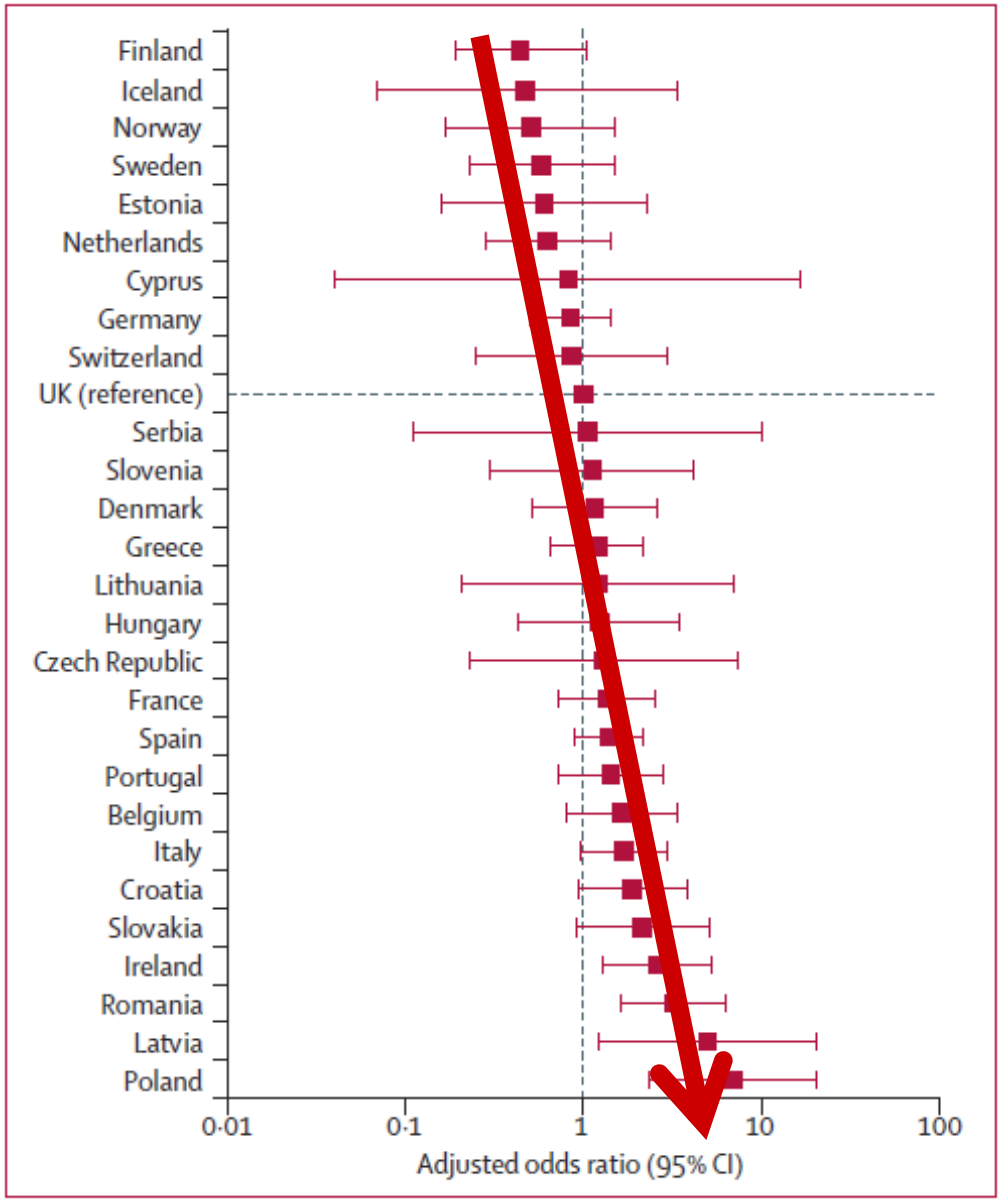
Thomas G Weiser*, Alex B Haynes*, George Molina, Stuart R Lipsitz, Micaela M Esquivel, Tarsicio Uribe-Leitz, Rui Fu, Tej Azad, Tiffany E Chao, William R Berry, Atul A Gawande

An estimation of the global volume of surgery: a modelling strategy based on available data

Thomas G Weiser, Scott E Regenbogen, Katherine D Thompson, Alex B Haynes, Stuart R Lipsitz, William R Berry, Atul A Gawande

Lancet 2008; 372: 139–44

- **310 million surgical procedures worldwide**
- **True mortality rate is not known**
- **3 million deaths each year**



International variation in adjusted mortality risk

Odds ratios adjusted for country, urgency of surgery, grade of surgery, surgical procedure, age, ASA score, metastatic disease and cirrhosis in a two level binary logistic regression model with patient at the first level and hospital at the second.

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What is a post-operative complication?

Complication or Consequence..?

Complication

- Wound infection
- Pneumonia
- Myocardial injury
- Pulmonary embolism
- Stroke
- Acute kidney injury

Consequence

- Inflammation
- Respiratory impairment
- Pain
- Immobility
- Confusion
- Organ dysfunction

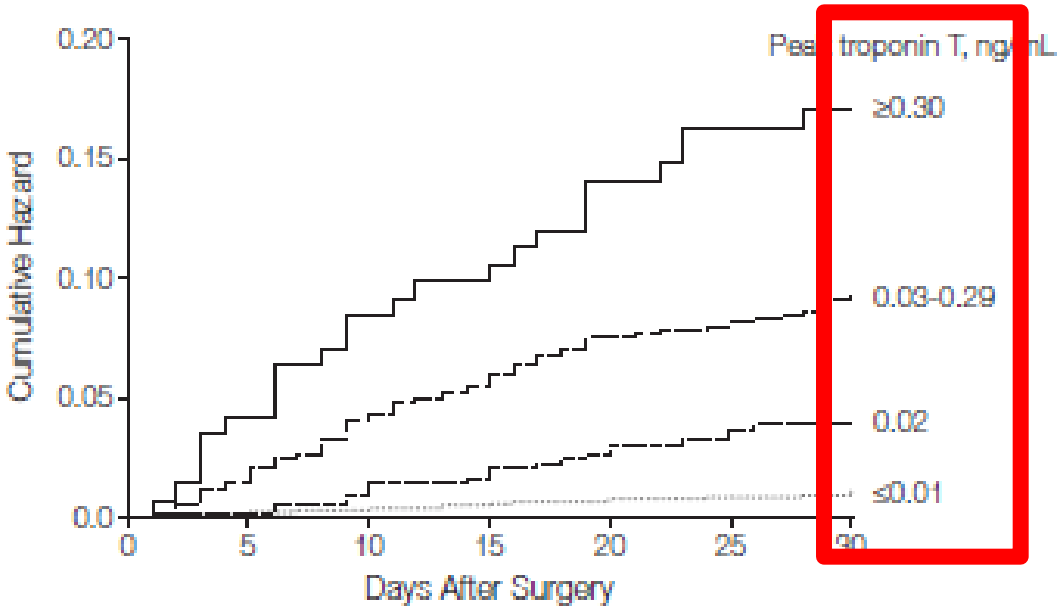
Acute harm is characterised by inflammation

Inflammation causes acute organ injury

- Acute kidney injury
- Acute lung injury
- Myocardial injury
- Polyneuropathy & myopathy
- Delirium

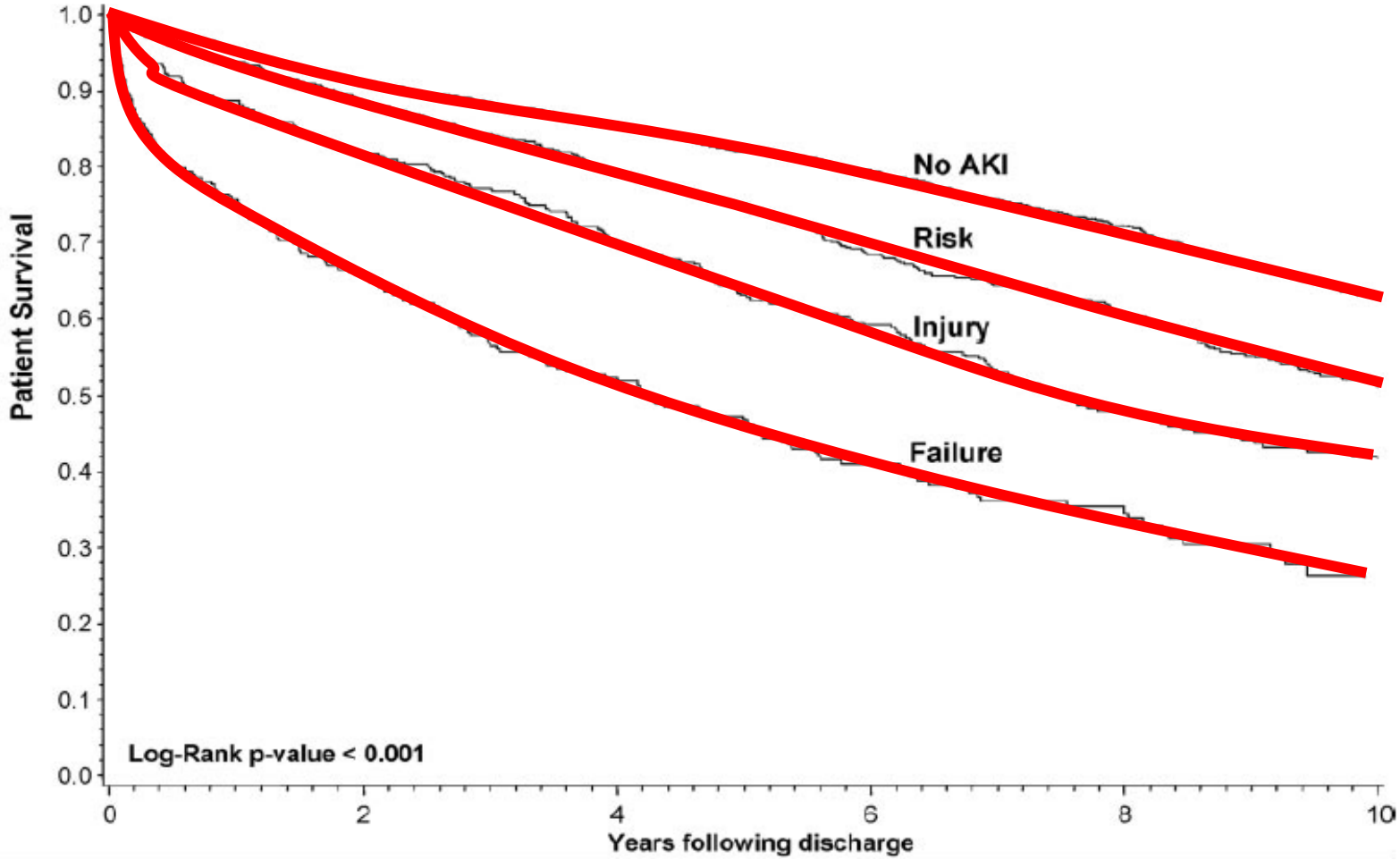
Association Between Postoperative Troponin Levels and 30-Day Mortality Among Patients Undergoing Noncardiac Surgery

The Vascular Events In Noncardiac Surgery Patients Cohort Evaluation (VISION) Study Investigators



No. at risk

Peak troponin T, ng/mL							
≥0.30	142	136	129	127	121	118	117
0.03-0.29	1121	1103	1075	1058	1036	1030	1018
0.02	494	492	489	485	480	477	473
≤0.01	13376	13348	13300	13271	13250	13230	13209



Acute Kidney Injury and long-term mortality after cardiac surgery

Hobson C et al. *Circulation* 2009;119: 2444

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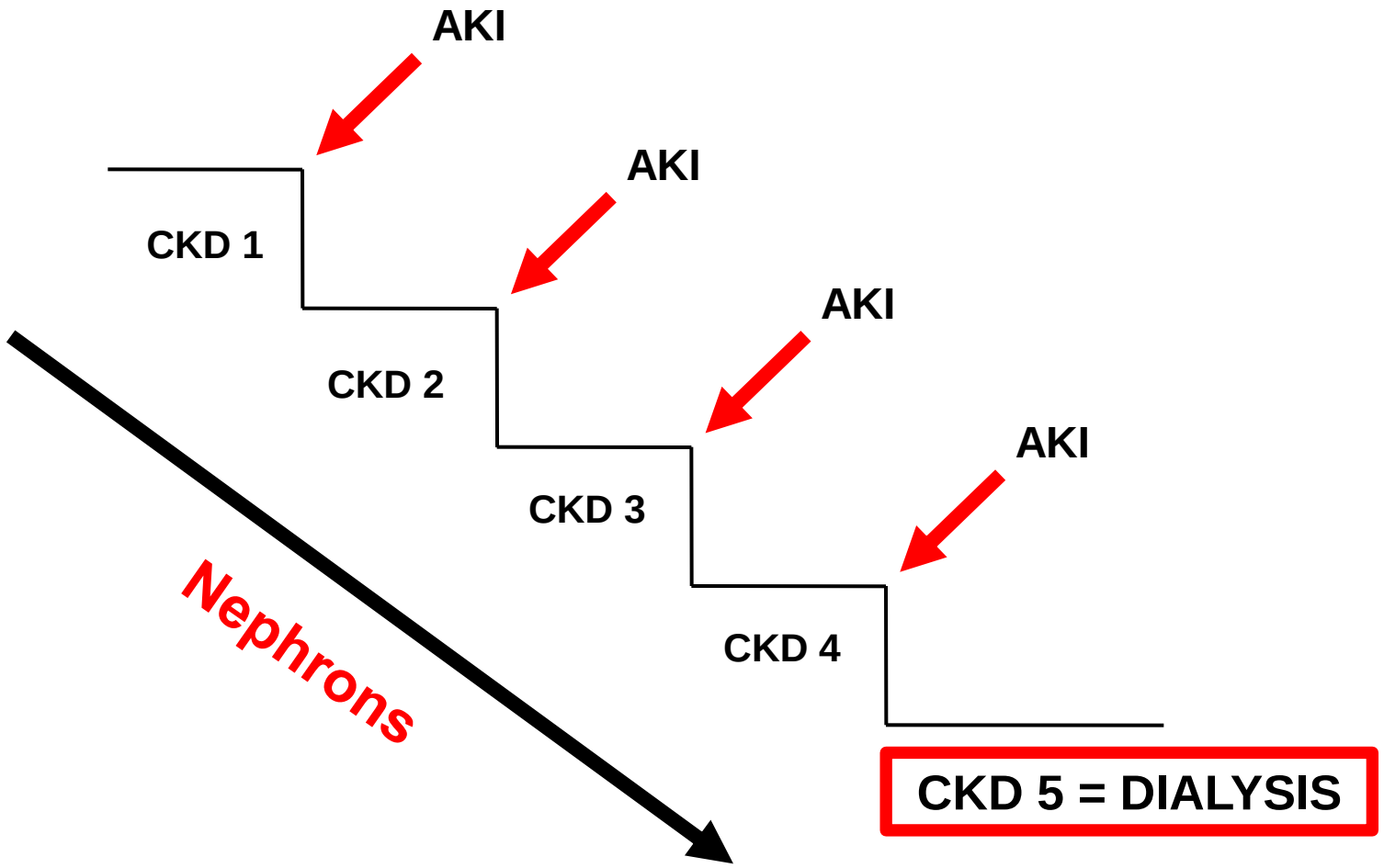

Acute Kidney Injury:
A key cause of Chronic Kidney Disease

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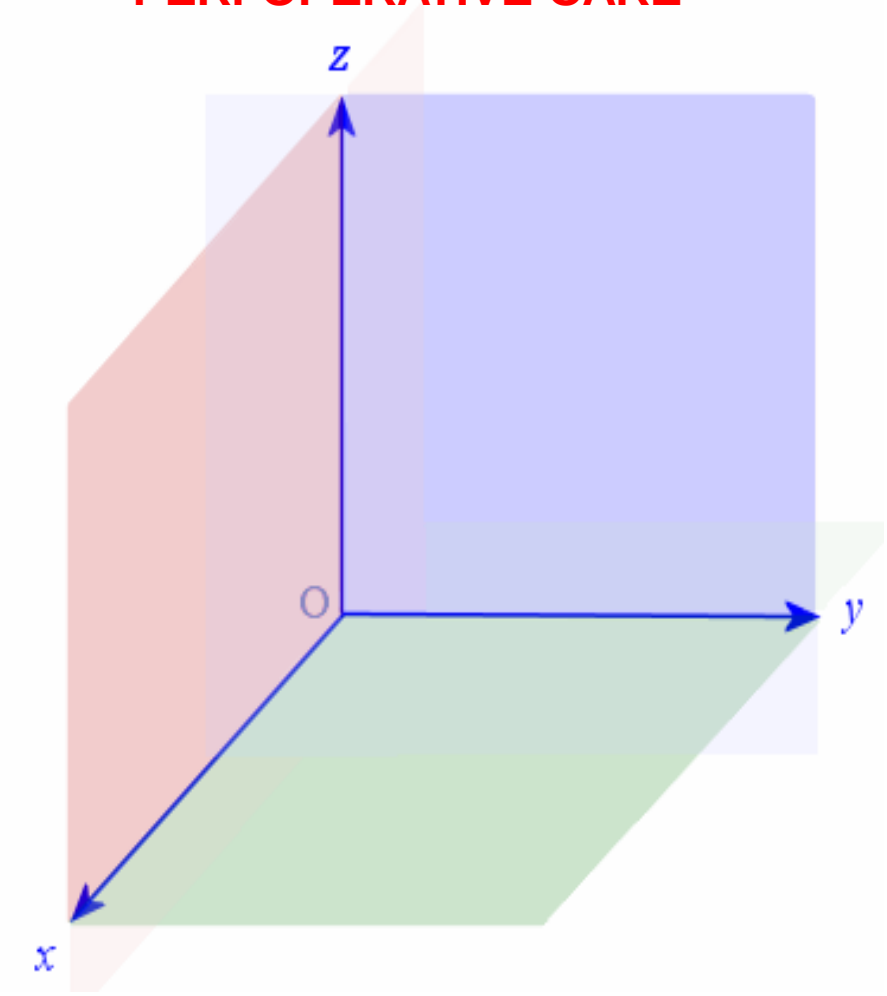
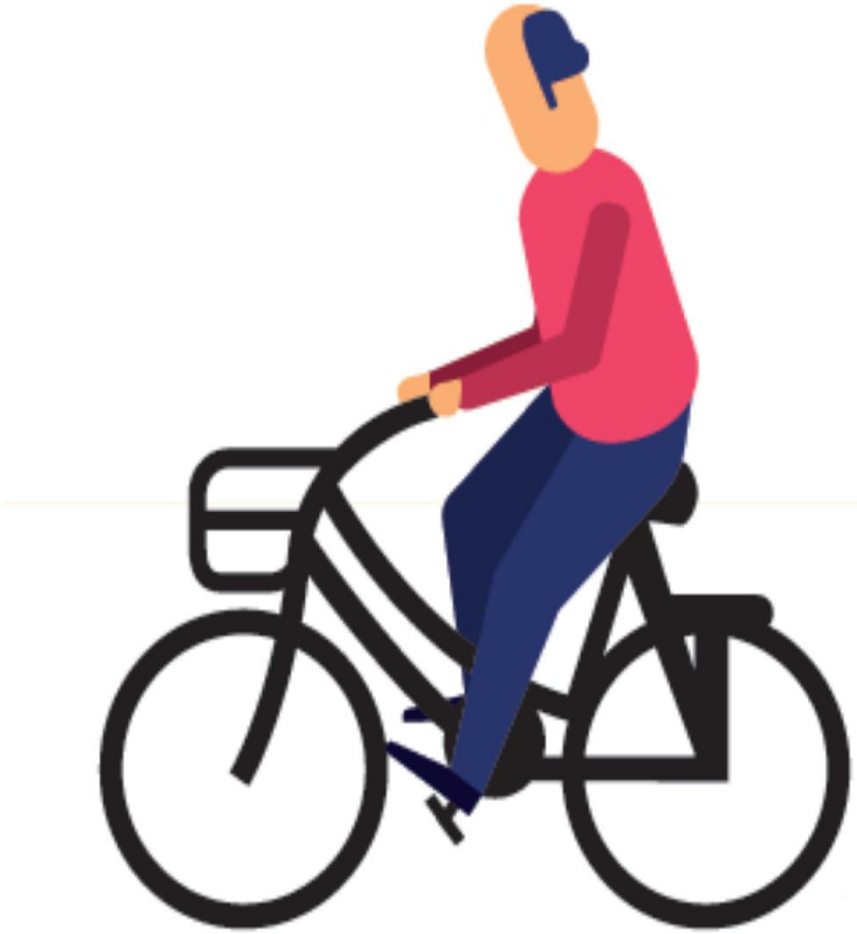
PERI-OPERATIVE CARE



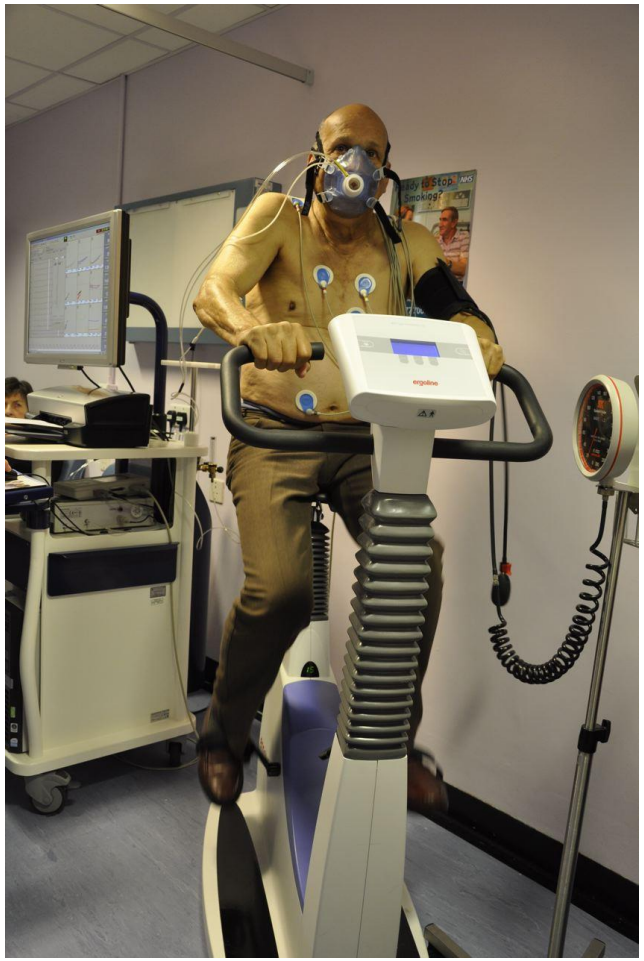
PATIENT

SURGERY

Influencing post-operative complications



Before surgery

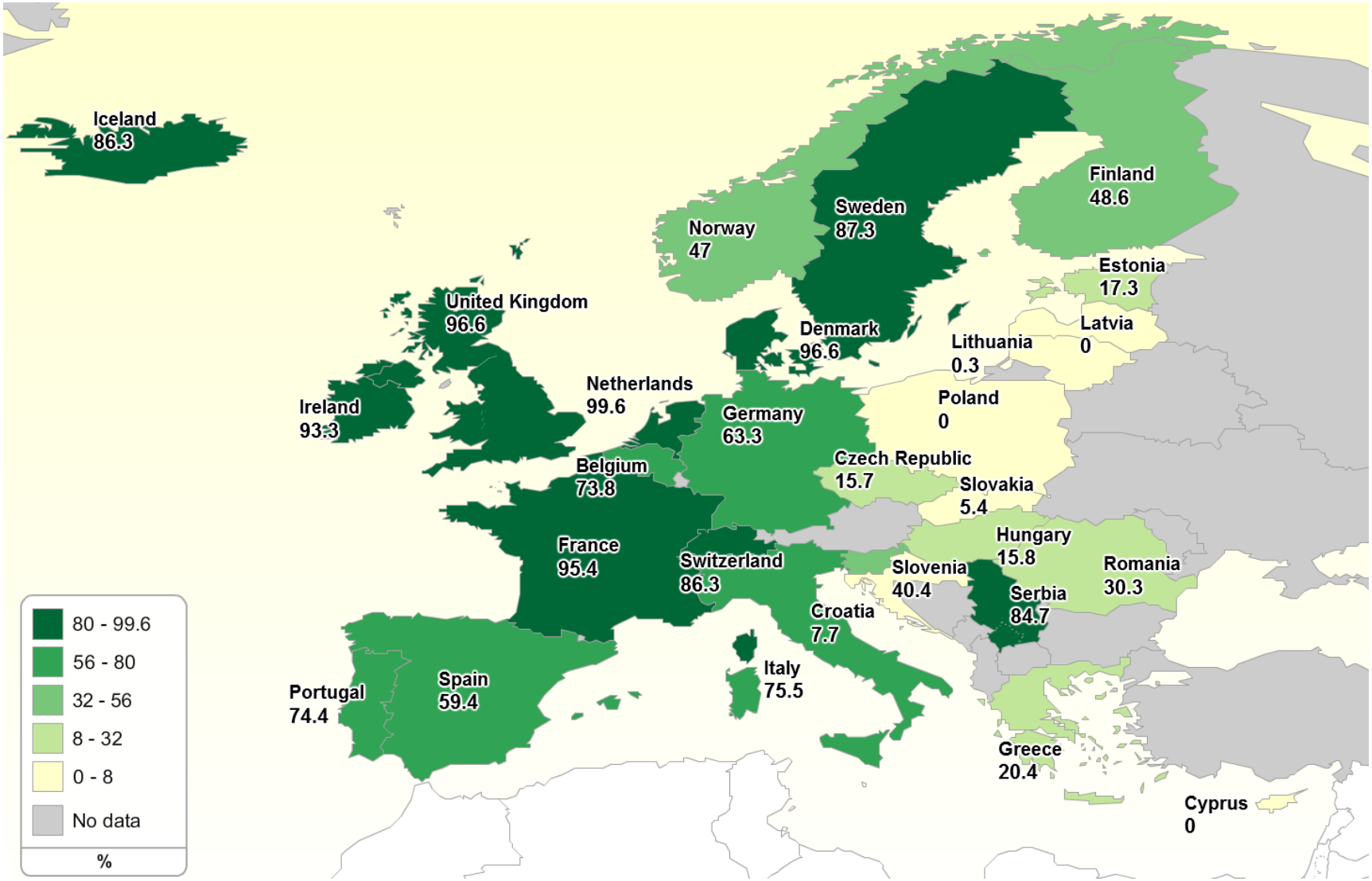


Can we predict poor surgical outcomes?

Patient Blood Management

Shander A et al. *Brit J Anaesth* 2012; 109: 55-68.

During surgery



Use of surgical checklists across Europe

Jammer I et al. Brit J Anaesth 2015; 114: 801-7.

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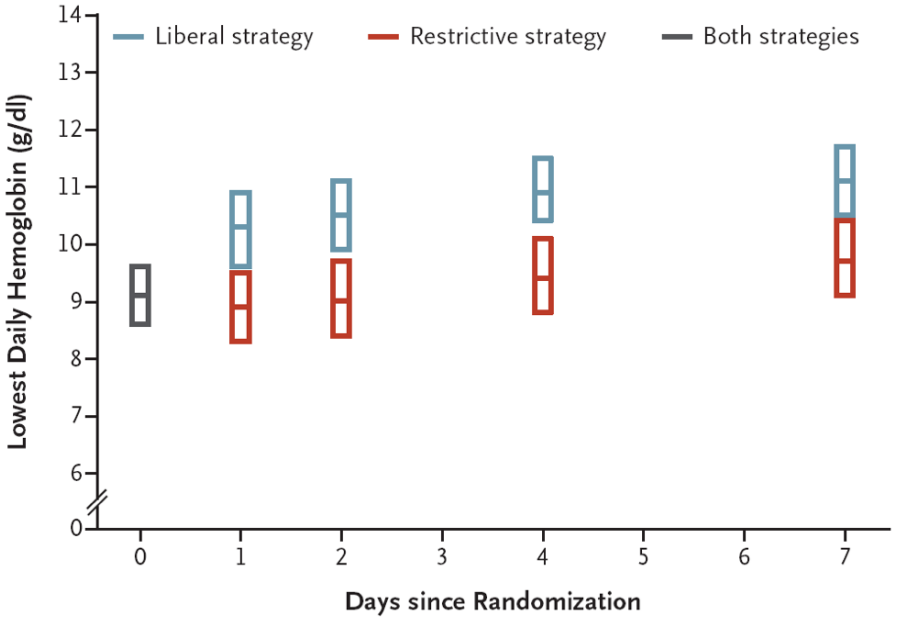
Restrictive transfusion in hip fracture surgery



30-Day Period

	Liberal Strategy (N = 1007)	Restrictive Strategy (N = 1009)	Odds Ratio (99% CI)	Absolute Risk Difference (99% CI)
	no./total no. (%)			*percentage points*
Death or inability to walk independently	459/995 (46.1)	481/1000 (48.1)	0.92 (0.73 to 1.16)	−2.0 (−7.7 to 3.8)
Inability to walk independently	407/995 (40.9)	438/1000 (43.8)		
Death	52/995 (5.2)	43/1000 (4.3)	1.23 (0.71 to 2.12)	0.9 (−1.5 to 3.4)

Carson JL et al. *NEJM* 2011; 365: 2453-62

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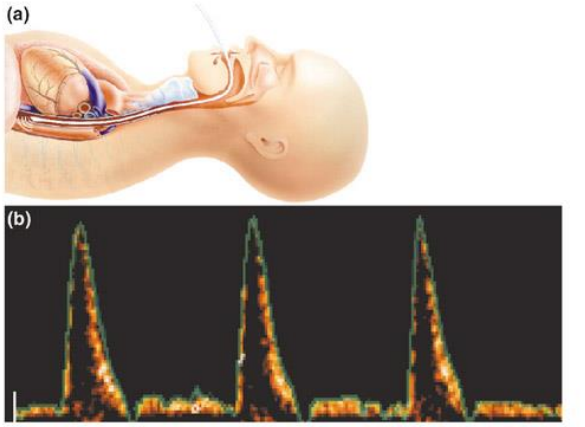

Critical Care

Minimally invasive measurement of cardiac output

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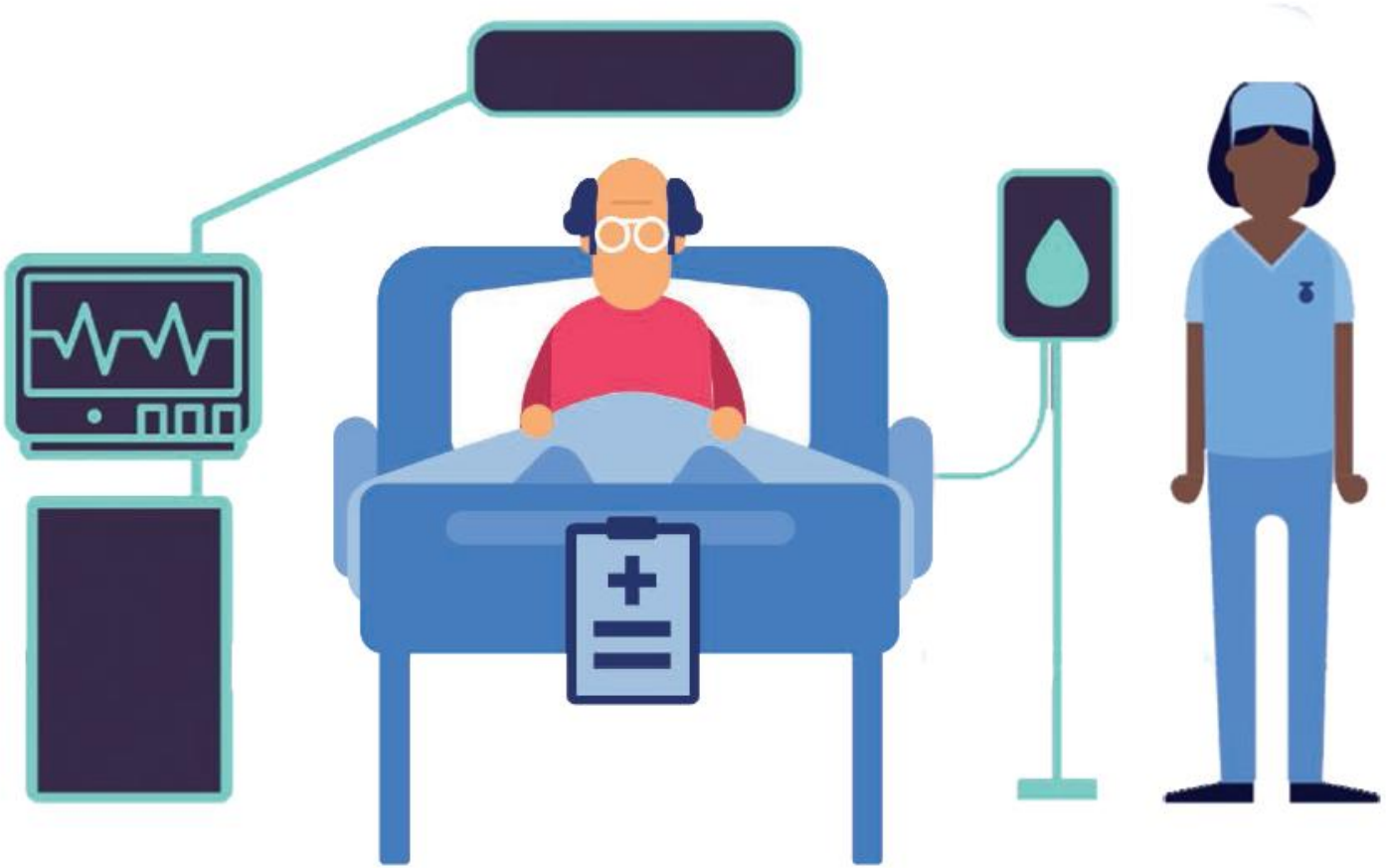

Early after surgery

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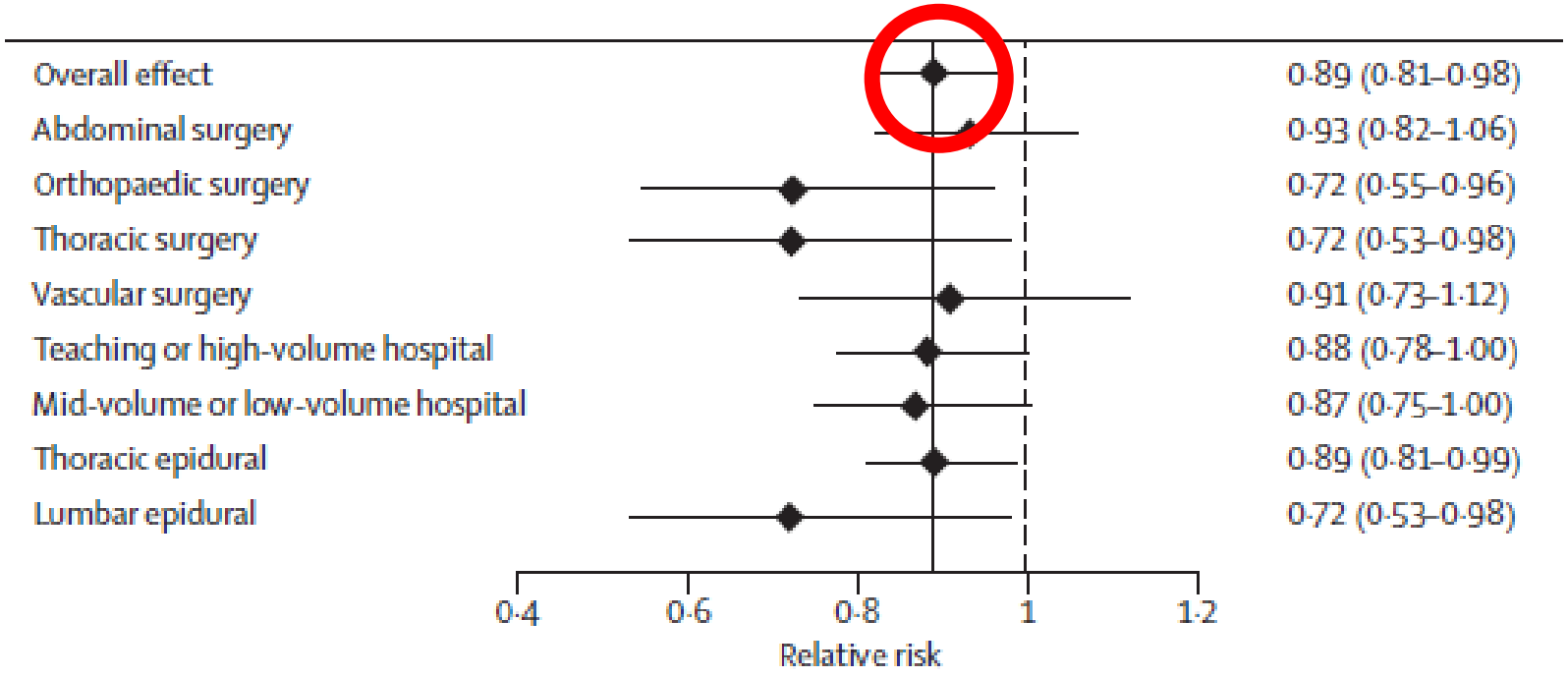
Epidural anaesthesia and survival after intermediate-to-high risk non-cardiac surgery: a population-based cohort study

Duminda N Wijeysundera, W Scott Beattie, Peter C Austin, Janet E Hux, Andreas Laupacis

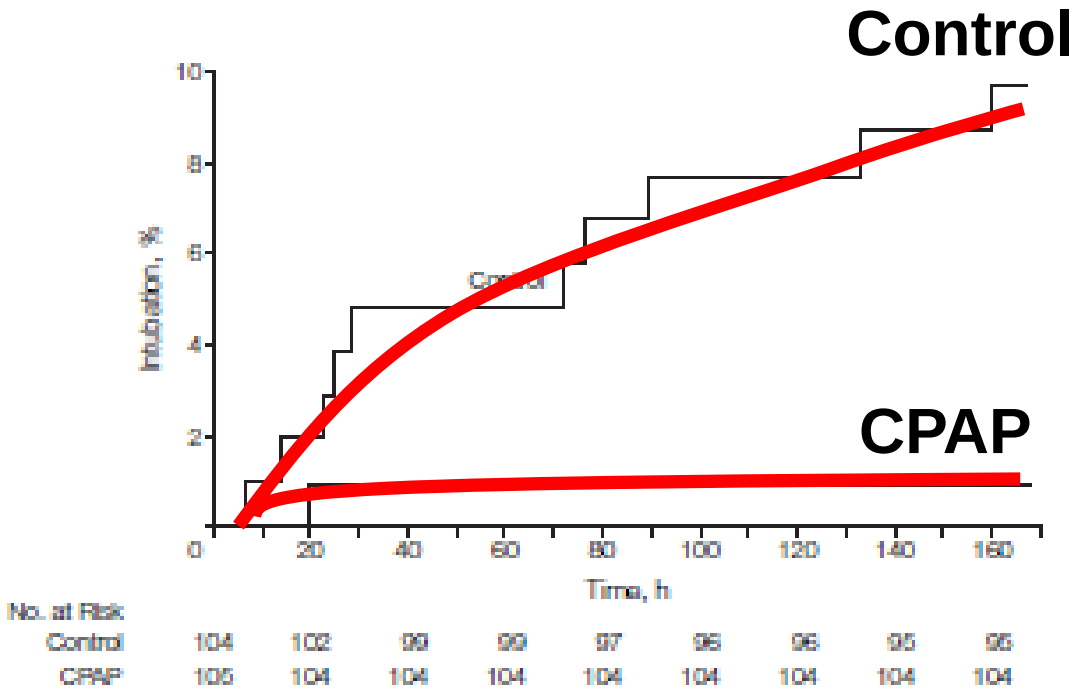


Lancet 2008; 372: 562-9.

Continuous Positive Airway Pressure for Treatment of Postoperative Hypoxemia

A Randomized Controlled Trial

Squadrone V et al. JAMA 2005; 293: 589-95.



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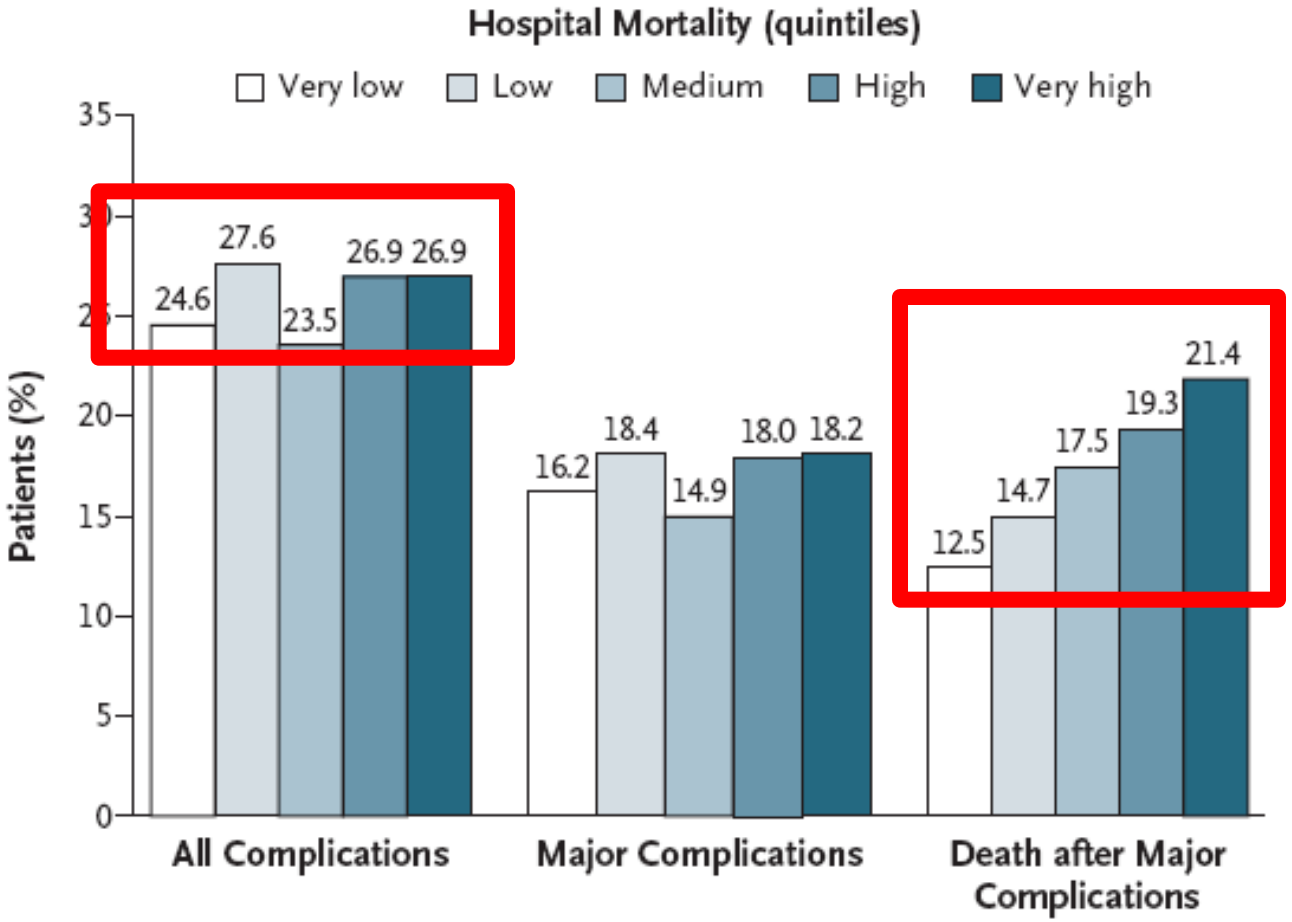

Surgical death rates vary widely but complication rates are similar

Ghaferi A. N Engl J Med 2009; 361: 1368-75.

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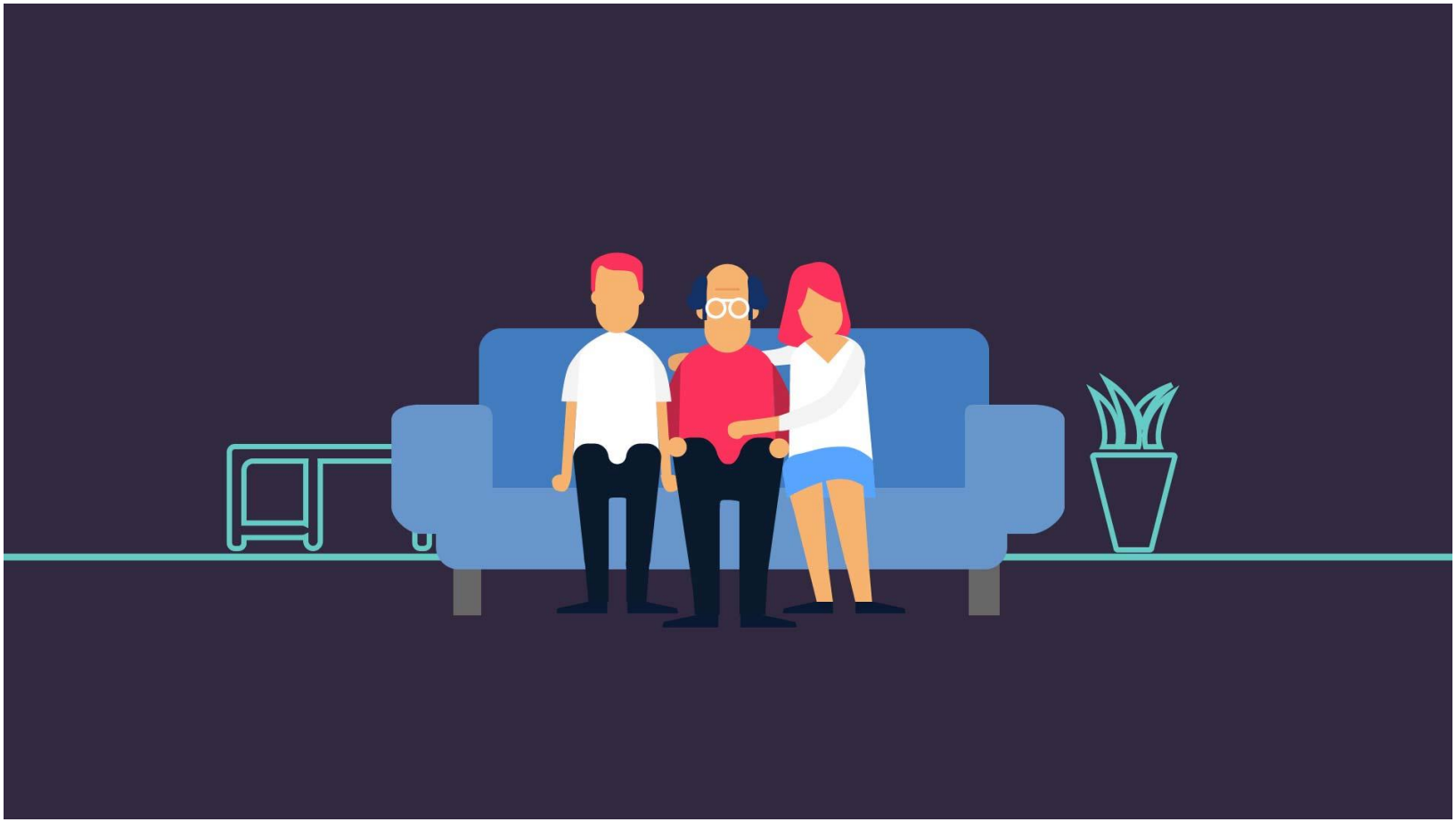
BMJ

BMJ 2013;346:f2424 doi: 10.1136/bmj.f2424 (Published 28 May 2013)

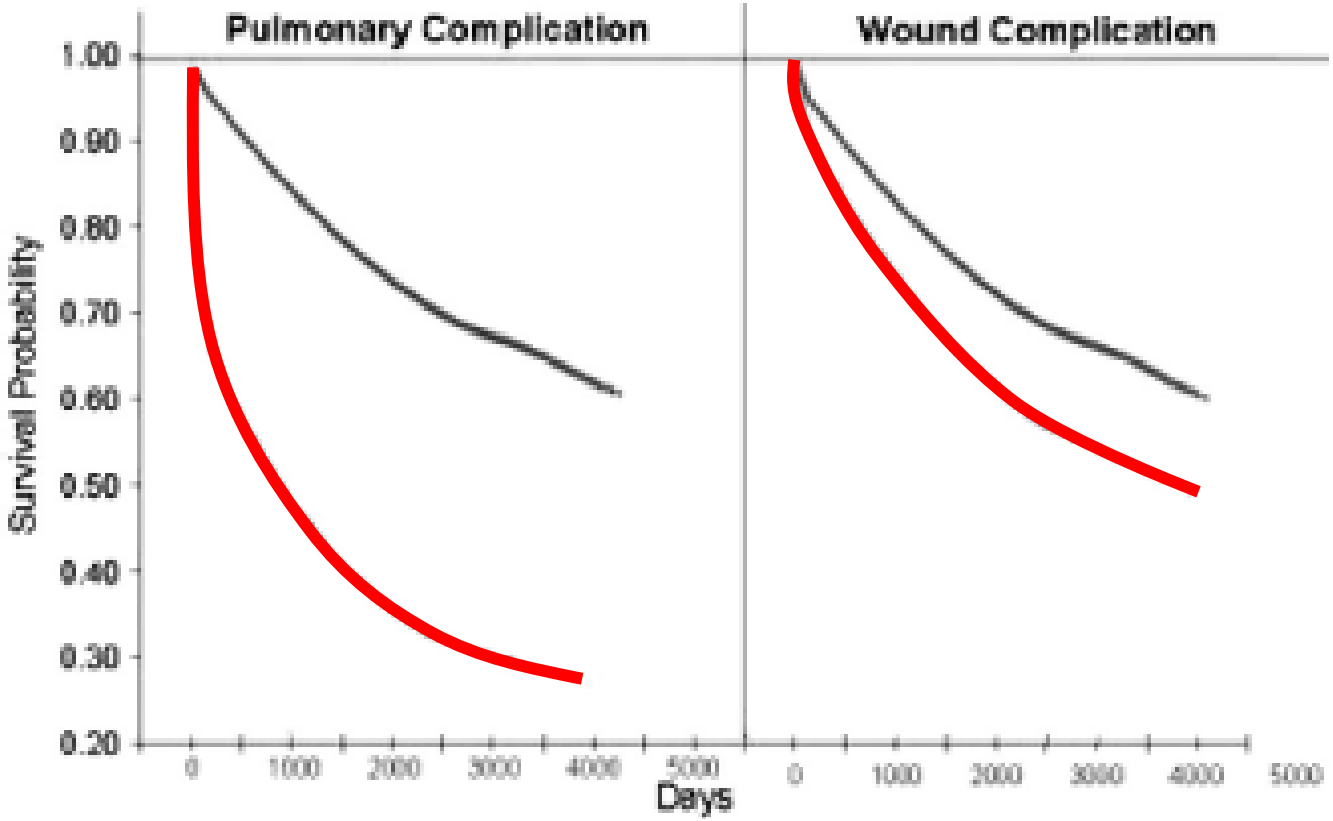
RESEARCH

Day of week of procedure and 30 day mortality for elective surgery: retrospective analysis of hospital episode statistics

More NHS patients die following surgery on a Friday



Later after surgery



Complications decrease long-term survival

Khuri et al. *Ann Surg* 2005; 242: 326–343

Surgery as a sentinel event...

- First contact with doctor
- Co-morbid disease
- Secondary prevention

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28 June 2013 Last updated at 07:55

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Surgeon data: 'Historic' move for NHS

By Nick Triggle
Health correspondent, BBC News

The first wave of new performance data for individual surgeons in England is being published in what is being hailed as a historic moment for the NHS.

Only heart surgeons have published individual performance data so far

Vascular surgeons have become the first of a new group of nine specialities to publish the information, including death rates.

It appears on the **NHS Choices website**. The other groups will follow in the coming weeks.

But the move has been overshadowed by some surgeons refusing to take part.

They were able to do this because of data protection laws, although earlier this month Health Secretary Jeremy Hunt warned that those refusing to take part would be publicly named.

Just six out of nearly 500 vascular surgeons, who specialise in procedures on the arteries and veins, including stents, have opted out.

But NHS Choices states none of the six had results outside the normally expected range.

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'Pick your consultant' data released

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NHS publishes surgical mortality data

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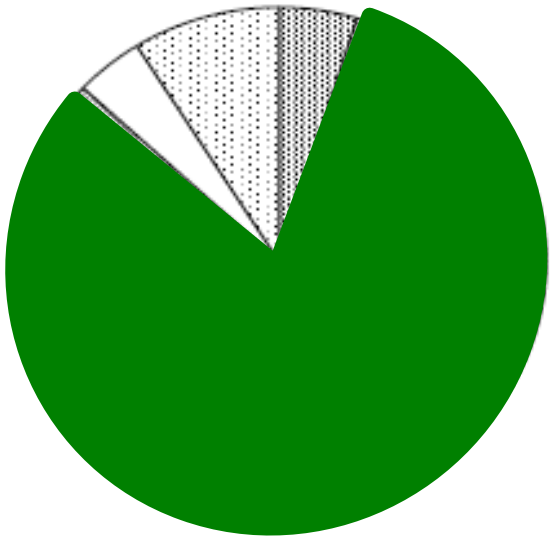
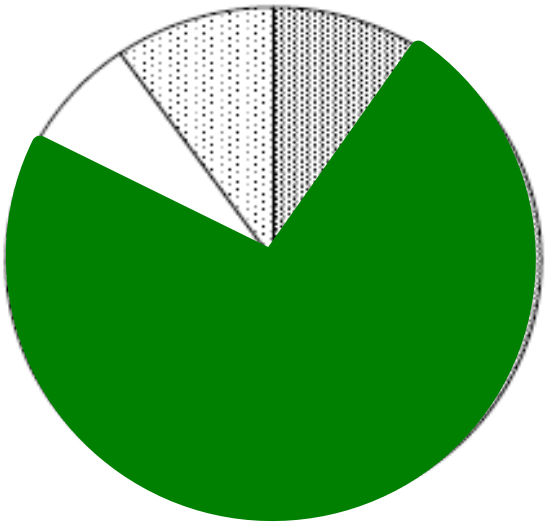
Hips



Knees

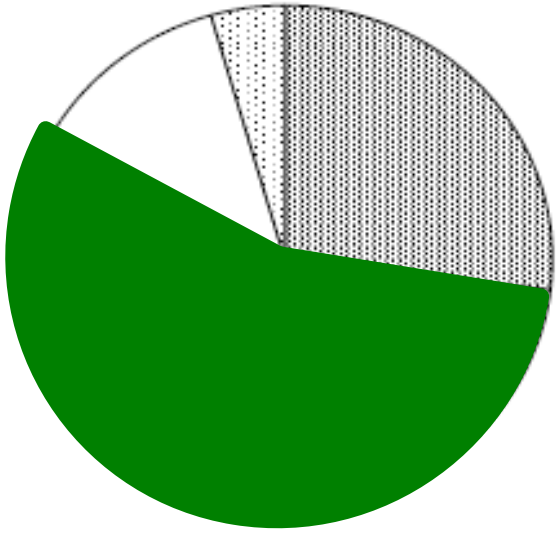


Quality of Life after surgery in the UK

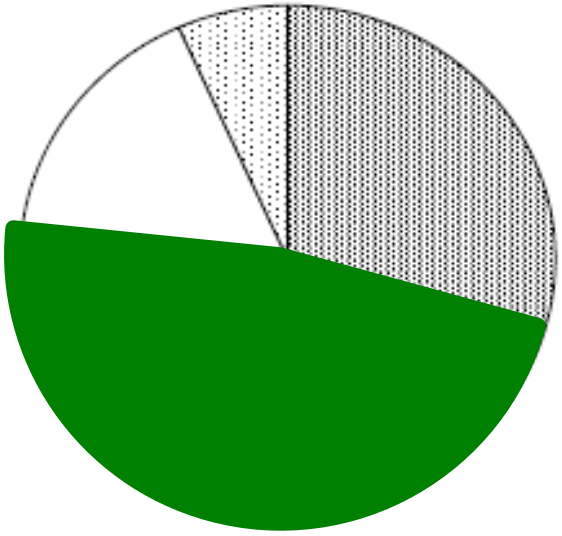
Devlin N et al

Govt. report

Veins



Hernias



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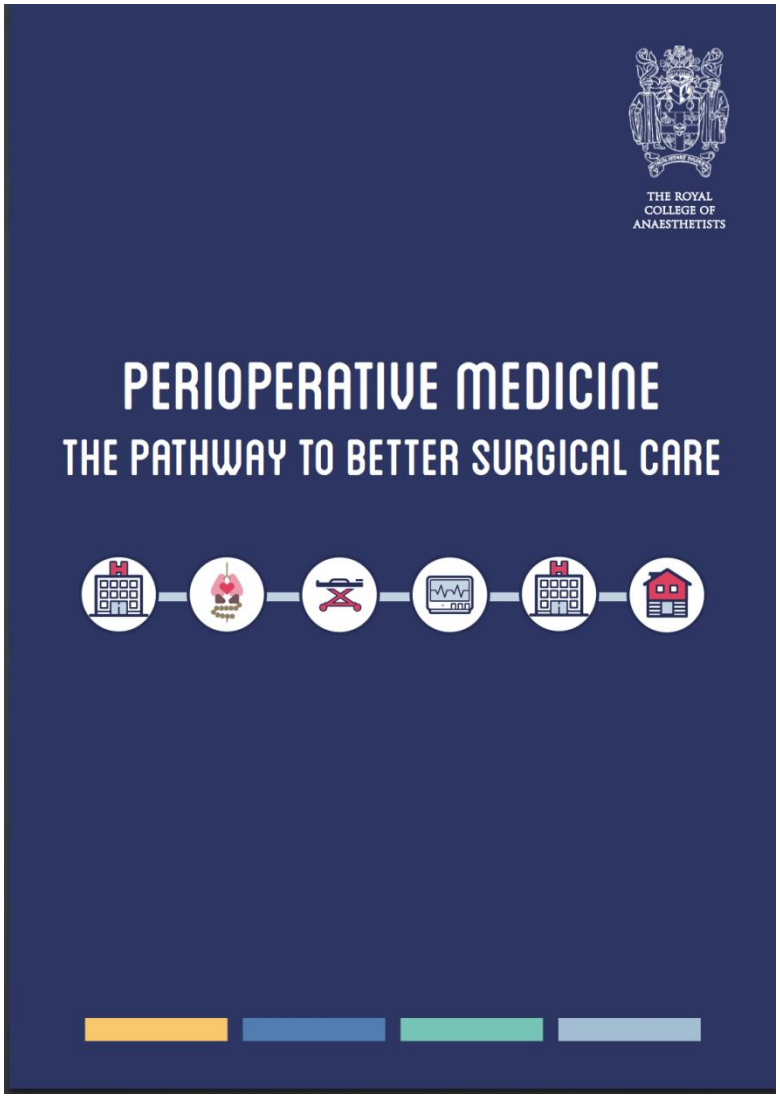

BEFORE SURGERY

Major surgery may trigger a deterioration in long-term illness and delay patient recovery. We must use the time between the decision to perform surgery, and the procedure itself to assess the needs of individual patients, and to optimise treatment of long-term disease. There are many examples that show how we modify perioperative care to the benefit of both the patient and the healthcare system.

DURING SURGERY

Safe surgery is one of the greatest successes of modern healthcare. The challenge of care during surgery is now to improve the quality of patient care, as well as preventing medical error. The presence of an experienced anaesthetist supported by a multi-disciplinary team, provides an opportunity for the delivery of treatments which need significant medical input, without disrupting the surgical care pathway.

EARLY AFTER SURGERY

Surgeons are increasingly diversified in their technical expertise, whilst care of acute and long-term medical disease is ever more sophisticated. It is no longer realistic to expect surgeons to have an in-depth knowledge of recent advances in the management of patients with complex needs, who develop acute medical problems. Improving the quality of care early after surgery represents a major challenge.

LATER AFTER SURGERY

As we work to ensure patients recover quickly and return home early after surgery, primary and secondary care services will need to work more closely together to address the needs of surgical patients with long-term disease. Even several months after they return home, complex patients need ongoing care from experts who understand the impact of major surgery on long-term health.

www.rcoa.ac.uk/periopmed/animation

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Last chance for questions....