ELECTIVE HIGH RISK SURGERY Torbay Hospital Dr John Carlisle

We categorise the postoperative level of care (0, 1, 1.5, 2, 3) a patient is likely to need before admission for scheduled surgery. We calculate the temporary increase in monthly mortality caused by surgery to determine the level of care after surgery using a calculator developed with national population survival data. Predicted 30-day mortality of >1% is the basis for postoperative HDU care.

This calculation is supplemented by: previous unexpected or prolonged level 1.5 care, specific organ dysfunction, for instance renal impairment with multiple antihypertensive medicines. These patients are likely to benefit from continuous blood pressure monitoring, arterial lactate sampling and vasopressor infusion. For example:

An 80 year-old lady is scheduled for primary hip arthroplasty. She had an acute coronary syndrome seven years ago. Her fitness is ¾ her expected, with impaired gas exchange from COPD. She has renal impairment (eGFR 28) and takes two antihypertensive medicines. Hip replacement will increase her monthly mortality from 9 in 1000 to 18 in 1000, an absolute increase of 9 in 1000 (0.9%), less than our threshold of >1% for level 1.5 postoperative care. However, we plan for level 1.5 care due to her renal impairment and antihypertensive drugs.

An 83 year-old man is scheduled for a cholecystectomy. He has heart failure after an acute coronary event. His fitness is 60% his predicted. Surgery will increase his monthly mortality from 24 in 1000 to 28 in 1000 (2.4%): we plan level 1.5 postoperative care.

A 90 year-old man is having a repeat cystoscopy. His monthly mortality without surgery is 33 in 1000 (3.3%), which will increase to 36 in 1000 after a cystoscopy (relative increase 0.3%). We plan for day surgery and same day discharge.

Swart M, Carlisle JB, Goddard J.Using predicted 30 day mortality to plan postoperative colorectal surgery care: a cohort study. BJA: 104; 100-04

<https://doi.org/10.1093/bja/aew402>

ELECTIVE TKR and THR and 1.5 Care Torbay Hospital Dr Mike Swart

**Driver for change**

In 2014 we decided to admit all our elective surgical patients having major surgery with a predicted 30 day mortality of > 1% to a level 2 or 3 critical care bed. The predicted 30 day mortality was determined by a prediction model that used age, type of surgery, comorbidities, and aerobic fitness.

Cancelations on the day of surgery because there was no critical care bed 17 per month.

**Intervention**

In June 2015 we converted a two-bed bay on an elective orthopaedic ward to provide level 1.5 care. Level 1.5 care was from orthopaedic ward nurses who were given additional training in the use of arterial lines, interpretation of arterial blood gases and the use of metaraminol, amioderone and magnesium sulphate. Medical cover was provided by the ITU medical team.

**Outcome**

4 years latter 1000 patients treated. No cardiac arrest calls or deaths in the level 1.5 care unit. 40% received a vasopressor (metaraminol). 5% received amioderone or magnesium sulphate to treat AF. Length of stay 1-2 days.

Cancelations on the day of surgery 1-2 per month.

Consider putting the following graphic into section 4 to describe the patients environment.

