

# Individualised Risk Assessment for Colorectal Surgery

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### INTRODUCTION

#### WHY?

Individualised risk assessment is important for shared decision making<sup>1</sup> and is a legal requirement. Based on preoperative risk assessment further pre-operative investigations or optimisation could be pursued, the intra-operative anaesthetic plan for interventions could be tailored and post-operative resources could be allocated more effectively. Clinical judgment ('It's going to be difficult this one') is important, but on its own is not a reliable predictor of adverse outcomes and an objective evaluation is recommended<sup>2</sup>.

An NCEPOD report titled 'Knowing the risk' had a striking take-home message: the great need for a 'UK wide system that allows rapid and easy identification of patients who are at high risk, and that these people should be recognised as such and managed appropriately'<sup>3</sup>. In March 2010, the consenting patient in the NCEPOD cohort was recorded as having been given an estimate of mortality in only 37 (7.5%) cases.

We have come a long way since then. Nationally, 67% of PQIP patients had an individualised risk assessment in Year 1, with the percentage for York being 81%. Based on the premise that undertaking clinical risk prediction should be a key tenet of safe high-quality patient care<sup>4</sup>, a drive for excellence has set a new target at 100% compliance by building individualised risk assessment into the pre-assessment pathway.

#### HOW?

Individualised risk assessment is usually divided into qualitative (low risk, high risk) and quantitative (a percentage expressing mortality and/or morbidity) and is achieved by either using risk calculators (e.g. SORT, P-POSSUM, NELA, NSQIP) or functional testing (Cardiopulmonary Exercise Testing, Duke's activity status, Frailty Evaluation).

At York Teaching Hospital an individual's risk is stratified as normal, intermediate or high based on CPET (Figure 1): a York CPET score of 0 or 1 signifies normal risk (mortality 1%), 2 is intermediate risk (mortality 3%), and 3 represents high risk (mortality 9%). The risk stratification is based on the variation around the 1.8% overall cohort mortality for major abdominal surgery (non-vascular), lower than the reported national average<sup>5</sup>.

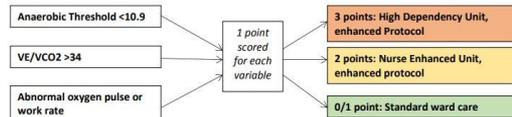


Figure 1. The criteria for risk stratification used at York Teaching Hospital are Anaerobic Threshold, ventilatory efficiency (VE/VC02) and an abnormal 'oxygen pulse' (VO2/HR) or oxygen uptake to work rate ratio (VO2/workrate)<sup>6</sup>.

Simple steps such as reinforcement and active encouragement to surgeons and anaesthetists have boosted our compliance with individualised risk assessment to 100% for the last 4 months.

### METHODS

PQIP was established in 2016 by NIAA HSRC to look at perioperative care in hospitals across UK, with currently 100 hospitals having joined. From the following year the participating sites were given access to a live dashboard of their results along with quarterly and annual reports. There is a continuous data collection effort, reaping palpable results.

Tools, guides and direct support from PQIP team are provided to make the most of data. Therefore, our data was easily accessible and analysable from the PQIP Dashboard. An Excel file of the monthly rates of risk assessment was generated from the PQIP dashboard and Excel software was utilised to produce our graph (Figure 2).

### CONCLUSIONS

By reinforcement and active encouragement to surgeons and anaesthetists, at York hospital we have seen our compliance with individualised risk assessment increase to 100% for the last 4 months, a performance we strive to maintain.

#### Future developments:

- 3-monthly PQIP updates to surgical, anaesthetic teams
- Presentations at local surgical safety and quality meetings to maintain 100% risk assessments.
- Extend CPET risk stratification to patients under 55 years.

### RESULTS

We set out to improve our risk stratification to include 100% of our major high risk operations. To achieve this ambition we presented PQIP data at clinical governance and surgical safety and quality meetings. Surgeons and anaesthetists were encouraged to have a frank discussion about individualised risk with patients and to document this risk. Three monthly updates were released to all members of the MDT. A visible improved has occurred, with 100% compliance for the past 4 months.

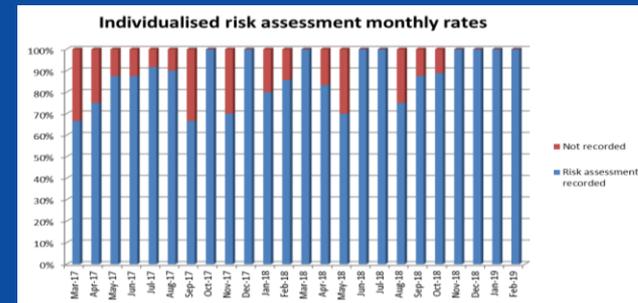


Figure 2. Rates of recorded individualised risk assessments for patients recruited into PQIP at York Hospital during the past 2 years. The blue bars represent individualised risk assessment (qualitative, quantitative or both).

### REFERENCES

1. King's Fund. Making Shared Decision-Making a Reality. No decision about me without me. London, 2011.
2. Stones J, Yates D. Clinical risk assessment tools in anaesthesia. *Br J Anaesth Edu* 2019; 19(2): 47-53.
3. National Confidential Enquiry into Patient Outcome and Death (NCEPOD). Knowing the Risk - A review of the peri-operative care of surgical patients. London, 2011.
4. Moonesinghe SR, Mythen MG, Das P, Rowan KM, Grocott MPW. Risk stratification tools for predicting morbidity and mortality in adult patients undergoing major surgery: qualitative systematic review. *Anesthesiology* 2013; 119: 959-81.
5. York Preoperative Risk Stratification Model. Available from <https://www.yorkperioperativemedicine.nhs.uk/health-professionals/perioperative-care/preoperative-care/preoperative-stratification/> (Accessed 1 April 2019).
6. Wilson JRT. Cardiopulmonary Exercise Testing Summary Sheet. Available from <https://www.yorkperioperativemedicine.nhs.uk/secm3filer/?id=84> (Accessed 1 April 2019).

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York Hospital Perioperative Medicine Group  
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