Risk prediction

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The key to managing patients e ff ectively is the identification and accurate quantification of the risk, and subsequent measures taken to minimise it. Realistic estimates of risk are the cornerstone of informed patient consent and shared decision making. The patient and the surgeon may choose a less extensive or even a non-surgical option when the risks of the definitive procedur e are deemed to be too high or unacceptable. The Royal College of Surgeons of England has recommended that patients who are predicted to have >5% mortality risk should have active consultant input in all stages of their management. Surgical procedures in those with predicted mortality of >10% should be conducted under the direct supervision of a consultant surgeon or anaesthetist, unless the consultants are satisfied with the seniority and com petence of the sta ff managing these patients. Moreover, those with a mortality >10% should be managed in the critical care facility postoperatively . The identification of patients who will benefit the most from these interventions is important, not only for the improvement of outcomes but also for the e ff ective allo cation of resources. A number of scoring systems have been developed over the years with the aim of identifying high-risk patients (Table 21.9 American Society of Anesthesiologists system The ASA scoring system is widely used. Although not designed to be used as a risk prediction score, it has a quantitative association with the predicted percentage of postoperative Lee Goldman , b. 1948, Dean of Health Sciences and Medicine, Columbia University , New Y ork, NY , USA, since 2006. He developed his index in 1977. mortality (Table 21.10). However, it does not account for the patient's age or the nature of the surgery and the term 'systemic disease' in ASA grading introduces an element of 'subjectivity'. Examples of each physical status added in 2015 aim to reduce this. The POSSUM score The POSSUM (Physiologic and Operative Severity Score for the enUmeration of Mortality and Morbidity) and its modi - fications (P-POSSUM, CR-POSSUM) are used to predict all-cause mortality in postoperative critical care patients as well as non-cardiac morbidity . - -).

Scores predicting morbidity ASA APACHE-II Revised Cardiac Risk Index (RCRI) Veltkamp score VA respiratory failure score VA pneumonia prediction index ACS NSQIP surgical risk score POSSUM P-POSSUM W orld TABLE 21.10 Operative mortality by American Society of Anesthesiologists (ASA) grade. ASA Description 30-day grade mortality (%) 0.1 Healthy I 0.7 Mild systemic disease, no functional II limitation 3.5 Severe systemic disease, de /f_i nite III functional limitation 18.3 Severe systemic disease, constant IV threat to life 93.3 Moribund patient unlikely to survive 24 V hours with or without operation – Emergency operation E From Boyd and Jackson (2005).

Lee's Revised Cardiac Risk index (RCRI) uses objective indices based on weighted scores pertaining to surgery and comor bidity . This stratifies cardiac risk but is not designed to predict mortality (Table 21.11). ACS NSQIP score The American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) surgical risk score estimates the chance of a complication or death after surgery for more than a thousand di ff erent surgical procedures. It compares the patient's risk with an average person's risk. It is a Web-based tool done preoperatively . The risk is

calculated based on surgical procedure and 19 patient-specific preoper ative risk factors.

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