

# ASSESSMENT OF RISK

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Despite more comorbid patients presenting for surgery, the perioperative mortality has decreased significantly over the last half century, especially in resource-rich countries. In a published systematic review in *The Lancet* by Bainbridge (2012), perioperative mortality has declined from 10603 per million (95% confidence interval [CI] 10423–10784) in the 1970s to 1176 per million (95%CI 1148–1205) in the 1990s to 2000s ( $P < 0.0001$ ). However, there remains a subgroup of patients who are at higher risk of morbidity and mortality after surgery. Patients who have a predicted mortality  $\geq 5\%$  should be considered as 'high risk'. It is estimated that, although the high-risk group accounts for less than 15% of all surgical procedures, they contribute to more than 80% of all perioperative deaths in UK. What causes these patients to be at a high risk of death and complications after surgery? After surgery tissue destruction, blood loss, fluid shifts and changes in temperature, pain and anxiety result in increased demands for oxygen delivery to the tissues. This demand increases from an average of 220 mL/min/m at rest to 170 mL/min/m in the postoperative period. Most patients meet this increase in demand by increasing their cardiac output and tissue oxygen extraction. Patients who are unable to meet these demands, as a result of a limited cardiorespiratory reserve, are at a risk of oxygen debt. Occult hypovolaemia resulting from fluid shift or blood loss can further impair oxygen delivery. Splanchnic vasoconstriction to compensate for this may result in gut ischaemia. Those with coronary or cerebrovascular disease are also at a higher risk of myocardial ischaemia or stroke.

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Revision #1

Created 2025-12-31 15:10:48 UTC by Omar Ayman

Updated 2025-12-31 15:10:48 UTC by Omar Ayman