Goal Directed Perfusion

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Cardiac surgery is a high-risk procedure performed by a multidisciplinary team using complex tools and technologies. Efforts to improve cardiac surgery safety have been ongoing for more than a decade, yet the literature provides little guidance regarding best practices for identifying errors and improving patient safety. This focused review of the literature was undertaken as part of the FOCUS initiative (Flawless Operative Cardiovascular Unified Systems), a multifaceted effort supported by the Society of Cardiovascular Anesthesiologists Foundation to identify hazards and develop evidence-based protocols to improve cardiac surgery safety. Hazards were defined as anything that posed a potential or real risk to the patient, including errors, near misses, and adverse events. Of the 1438 articles identified for title review, 390 underwent full abstract screening, and 69 underwent full article review, which in turn yielded 55 meeting the inclusion criteria for this review. Two key themes emerged. First, studies were predominantly reactive (responding to an event or report) instead of proactive (using prospective designs such as self-assessments and external reviewers, etc.) and very few tested interventions. Second, minor events were predictive of major problems: multiple, often minor, deviations from normal procedures caused a cascade effect, resulting in major distractions that ultimately led to major events. This review fills an important gap in the literature on cardiac surgery safety, that of systematically identifying and categorizing known hazards according to their primary systemic contributor (or contributors). We conclude with recommendations for improving patient outcomes by building a culture of safety, promoting transparency, standardizing training, increasing teamwork, and monitoring performance. Finally, there is an urgent need for studies that evaluate interventions to mitigate the inherent risks of cardiac surgery. (Anesth Analg 2011;112:1061–74)
ISO 31000 Risk Management

- a) Creates value
- b) Integral part of organizational processes
- c) Part of decision making
- d) Explicitly addresses uncertainty
- e) Systematic, structured and timely
- f) Based on the best available information
- g) Tailored
- h) Takes human and cultural factors into account
- i) Transparent and inclusive
- j) Dynamic, iterative and responsive to change
- k) Facilitates continual improvement and enhancement of the organization

Principles (Clause 3)

Mandate and commitment (4.2)

Design of framework for managing risk (4.3)

Continual improvement of the framework (4.6)

Implementing risk management (4.4)

Monitoring and review of the framework (4.5)

Process (Clause 5)

Establishing the context (5.3)

Risk assessment (5.4)

Risk identification (5.4.2)

Risk analysis (5.4.3)

Risk evaluation (5.4.4)

Risk treatment (5.5)

Communication and consultation (5.2)

Monitoring and review (5.6)

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1. **Transparency.** Seek to develop a local culture of safety in which speaking up is the norm. Ask frontline providers about problems and create a blameless reporting system to capture errors and close loops so near misses do not compound on each other. Communicate lessons learned and safety updates via routine dispatches throughout the organization.

2. **Teamwork.** Develop good teamwork and communication by fostering a shared mental model of goals and procedures. Implement tools to improve teamwork and systems to facilitate familiarity and standardized communication patterns.

3. **Technical work.** Seek to improve task performance by regularly updating skills, especially in the use of tools and technology. Develop a system to audit individual and group task performance and identify individuals requiring additional supervision and training. Streamline routines and the technical workflow to reduce process errors.
Consensus Statement

ISMICS Consensus Conference and Statements of Randomized Controlled Trials of Off-Pump Versus Conventional Coronary Artery Bypass Surgery

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CONSENSUS STATEMENTS

1. OPCAB and CCAB are not significantly different with regard to 30-day mortality [1.5% vs 1.5%; OR, 0.92 (0.74–1.14); \( P = 0.45 \); LOE A].\(^{12,14,15,19–52}\) This finding was not significantly influenced by heterogeneity (\( I^2 = 0% \)) or by publication bias (\( P = 0.17 \)). Furthermore, there was no interaction of either age or diabetes on the relative effects of OPCAB and CCAB with respect to 30-day morality.

2. OPCAB and CCAB are not significantly different with regard to 1-year mortality [4.8% vs 4.7%; OR, 1.02 (0.86–1.14); \( P = 0.81 \); LOE A].\(^{14,15,21,26,28,30,32,35,39,41,42,51,53–55}\) This finding was not significantly influenced by heterogeneity (\( I^2 = 0% \)) or publication bias (\( P = 0.57 \)).

3. OPCAB may be associated with increased mortality beyond 1 year (median follow-up, 5 years) compared to CCAB [14.3% vs 11.1%; OR, 1.25 (95% CI, 1.01–1.79); \( P = 0.04 \); LOE A].\(^{21,27,29,41,42,56–58}\) This finding was not significantly influenced by heterogeneity (\( I^2 = 0% \)) or publication bias (\( P = 0.6 \)). Most of the studies (n = 7)
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