Safer surgery journal articles
(short version)

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Contents

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Purpose of this document

This document includes the short version of the Health Quality & Safety Commission New Zealand's repository of selected research papers on safer surgery.

The long version is available on the Commission website:

https://www.hqsc.govt.nz/our-programmes/safe-surgery-nz/publications-and-resources/publication/4343/

Introduction

The World Health Organization Surgical Safety Checklist (SSC) was introduced to operating rooms (ORs) in the late 2000s as an important patient safety measure. More recent evidence highlights the mutually reinforcing roles of checklist use along with enhanced multidisciplinary teamwork, briefing and debriefing practices, effective communication techniques, and multidisciplinary simulation training. Teamwork has many efficiency and safety benefits other than just preventing sentinel errors: it is the antithesis of bullying and harassment.

This document provides the evidence base for using these practices as well as evidence-based approaches to implementation.

Summary of the evidence presented below

The WHO SSC has been evaluated in longitudinal studies using pre- and post-implementation comparisons, in studies of between-hospital comparisons and in a stepped-wedge cluster randomised controlled trial (RCT). Safety benefits have been reported across surgical specialties and in acute and elective care. Systematic reviews of safety checklist use in the OR reveal substantial benefits in terms of improving patient outcomes.

Research evidence, including systematic reviews, indicates a connection between surgical multidisciplinary team training and improved knowledge, team processes and outcomes. Team training was found to improve OR processes, including: reduced incorrect surgical counts; more timely antibiotic administration, deep vein thrombosis (DVT) prophylaxis, and beta-blockade; reduced technical and procedural errors and increased compliance with briefings, checklists and time out. Team training has also been shown to enhance OR efficiency, including turnover time, cases starting on time and reduced delays. Evidence suggests that teamwork training can also: improve teamwork processes in the OR and staff attitudes towards safety; reduce communication errors and improve scores for communication between team members. However, not all studies demonstrated the effectiveness of team training. It appears that high-quality comprehensive programmes are important.

There is good evidence to support the use of surgical briefings and debriefings to reduce patient harm. Staff should foster effective briefings and handovers at every opportunity. Briefings and debriefings can reduce unexpected delays and improve communication and teamwork (see *Checklists, Briefings and Debriefings: An evidence summary*, Health Quality and Safety Commission 2016).

Systematic reviews have found that briefings:

- improve team attitudes towards safety

- decrease unexpected delays

- reduce communication failures between team members by two-thirds

- reduce the rate of non-routine surgical events by 25 percent

- effectively surface potential surgical safety hazards

- enhance the timely administration of prophylactic antibiotics and preoperative venous thromboembolism (VTE) prophylaxis

- increase efficiency
- reduce staff perception of risk and increase their sense of team collaboration
- reduce disruptions to surgery.

The Veterans Health Administration (VHA) medical team training programme showed that compliance with briefings related directly to patient mortality.

Failures in information transfer and communication adversely affect patient care, and evidence reviews underscore the importance of effective communication strategies. There are a number of tools available to improve communication in the surgical suite. Following the Commission's Proof of Concept project, the following communication tools were identified to be rolled out to district health boards (DHBs): call-outs, closed-loop communication, the two-challenge rule and ISBAR (identify, situation, background, assessment, recommendation).

Closed-loop communication has been shown to enhance the speed of critical actions. Checklist- or proforma-based interventions can help in surgical handoffs or handovers. ISBAR is included in the guidelines of some professional organisations. Barriers and enablers to speaking up are largely modifiable, and this may include training senior staff to 'hear' concerns more clearly.

Systematic reviews of multidisciplinary team simulations identify them as an opportunity for system-level improvement and to help address issues like hierarchy. Simulation training helps improve crisis resource management skills, including attitudes, teamwork and communication, with possible transfer to the clinical setting and indications of improved patient outcomes. In New Zealand, a comprehensive simulation course has been associated with improved teamwork scores in the ORs at two large hospitals.

The World Health Organization Surgical Safety Checklist and safer surgery (in reverse chronological order)

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Team training and safer surgery

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