

## **Interdisciplinary Simulation Based Training For The Operating Room Team - A Systematic Review**

General Topics / Education

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### **Background**

The interprofessional nature of the surgical environment poses unique challenges surrounding patient safety, often due to lapses in non-technical skills. Dysfunctional teamwork dynamics and communication breakdowns within the operating room team are prominent factors giving rise to preventable adverse incidents, including surgical delays and technical inaccuracies. We sought to explore the effects of multidisciplinary simulation on operating room team performance, as well as barriers to program implementation. Incorporating the most recent evidence, a comprehensive systematic review was performed.

### **Objectives**

With recent, large scale, high fidelity simulation-based OR training studies being conducted, we sought to provide a comprehensive and thorough review of the literature. Previous reviews are outdated, have small numbers of included studies, lack methodological quality and fail to incorporate the three crucial members of the OR multidisciplinary team – nurses, anaesthetists and surgeons. To bridge this gap, we aimed to better understand the training program and assessment tools utilised, as well as participant perceptions of the simulation training provided.

### **Study Design & Methods**

A systematic literature search was conducted from January 2003 to October 2023 utilising the following databases: EMBASE, Ovid Medline, ERIC, Cochrane Library, CINAHL and Web of Science. All included studies trained and assessed the surgical multidisciplinary team with simulation based scenarios in the operating room. Studies were quality assessed and themes identified were grouped into categories, which were analysed further for subthemes.

### **Results**

Seventeen articles met the inclusion/exclusion criteria and were included in the review. A total of 1137 healthcare staff participated in the simulated OR training programs across studies. The majority of participants were surgeons (n = 379), followed by nursing (n = 355). 240 anaesthetists participated along with 163 other staff ranging from operating department practitioners, technologists, midwives, healthcare support workers, critical care practitioners and perfusionists. The six main themes identified were technical skills, communication, teamwork, patient safety, simulation fidelity and barriers to implementing multidisciplinary simulation based training.

## **Conclusions**

Simulation-based multidisciplinary training for operative teams improves both technical and non-technical skills. Integrating surgeons, anaesthetists and nurses into the training programs allows for improved team cohesion, more effective communication as well as boosting teamwork scores. Major barriers to multidisciplinary simulation are cost and staff availability, which may be mitigated by salvaging consumable supplies and coordinating professional development days with study leave. Technical and non-technical skills should be trained and assessed simultaneously using standardised checklists. In situ training improves simulation fidelity and has the capability of highlighting logistic weaknesses within the surgical environment itself.