



SURGERY2.0: A NEW WAY TO IMPROVE QUALITY AND SAFETY IN (BARIATRIC) SURGERY

CASTELLANI RL.^a, VENNERI F.^b, CAFARELLA G.^c, ZAMPIERI N.^d

^a General surgeon and referent for clinical risk and patient safety at Emergency and Surgical Dpt., Pederzoli Hospital-Peschiera del Garda, Verona ITALY

^b General surgeon and clinical risk manager at Azienda USL Toscana Centro, Firenze ITALY,

^c Cardiothoracic surgeon and referent for patient safety at Ospedale Monaldi - Azienda dei Colli, Napoli ITALY,

^d Pediatric Surgeon and referent for patient safety at Woman and Child Hospital Azienda Ospedaliera Universitaria Integrata, Verona ITALY

BACKGROUND-INTRODUCTION-AIMS

The operating room, in the same way of emergency department and intensive care unit, is a complex and high risk setting in hospitals. It is estimated that globally, each year, 234 million operations are performed with a resulting 1 million deaths and about 7 million with adverse events/disabling complications worldwide¹.

In the case of adverse events (AE) in operating room (OR), generally at least two of the team members are involved and the root cause analysis shows a lack of non-technical skills resulting in mishaps of human error including leadership, communication, situation awareness, problem solving and decision making².

In a proactive view of clinical risk, we focused on surgical outcome before and after human factor training through crew resource management (CRM)³

MATERIALS AND METHODS

International literature has been analyzed on crew resource management training adapted for the operating room and designed to decrease human errors by improving non-technical skills.

Key words chosen for the online research through PubMed were: ergonomics, surgical outcome, situation awareness, decision making, communication, teamwork, and leadership. More recent literature is based both on observational studies and on case-control group study.

RESULTS

International literature shows a better surgical outcome after CRM training.

One study, on all, titled "Association between implementation of a medical team training program and surgical mortality"⁴ supports the evidence. This is a retrospective study with a contemporaneous control group conducted by Veterans Health Administration (VHA) on a national level. 74 out of 108 facilities experienced a CRM medical training program for operating room personnel. They were trained to work as a team (operating room closed!), challenging each other to identify risks, conducting pre-op briefing, post-op debriefing, completing checklists and implementing communications strategies especially in care transition. The training included 2 months of preparation, a 1 day conference and 1 year of quarterly coaching interviews. Data was obtained from VHA Surgical Quality Improvement Programme (VASQUIP) during fiscal years 2006-2008 and the analysis included 182,409 sampled procedures from 108 facilities that provide care to veterans. VASQUIP provided reliable, valid, risk adjusted procedures (complexity, comorbidities, sociodemographics) and observed the 30-day mortality rate after non-cardiac surgery. The goal of the study was to analyse surgical mortality in the facilities after CRM training compared with their baseline mortality rate and the facilities without training.

The 74 facilities with CRM training experienced an 18% reduction in annual mortality rates compared with 7% of not trained facilities, demonstrating that the decline of risk-adjusted surgical mortality rate was 50% greater in the training group.

DISCUSSION

More than 15 years have passed since the publication of *To Err is Human* (1999,USA)⁵ which revealed that up to 98,000 hospital deaths occur in the U.S.A as a result of preventable medical errors⁶ due to mishap in human factors (HF). The report, by clearing medical error from self-referential, put quality of care and patient safety firmly in hospital policies and political agendas. A lot of actions worldwide have since been introduced (checklists, care bundles, funding, etc.) to improve quality and safety, but it's difficult to know if, consequently, the error rate has declined. In modern hospitals, care is delivered by teams. Teams are continuously split between technical skills (TS) and non-technical skills (NTS), even if their university education is unbalanced toward TS⁷. The root cause analysis of AE⁸ in hospitals shows a lack in NTS. NTS are variable, measurable by reliable⁹ tools (Oxford-NOTECHS¹⁰, ANTS, NOTSS, SPLINTS, T-NOTECHS etc.), refer to Ergonomics, which is science of HF, and their training on the CRM model adapted for OR-Teams improves surgical outcomes as confirmed in scientific literature. So, the only actual way to prevent error and improve outcome is to become a surgeon/team 2.0, a sort of upgrade to an ergonomical vision by stratifying on TS, NTS and clear risk knowledge. The organisations where Crew Resource Management, adapted for health systems, is properly integrated into clinical, educational (also by simulation) and management systems provide greater opportunities to give quality and safety care with a better outcome¹¹. This is arguably an improvement. The question remains, is it the top one achievable¹²?

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