The American Journal of Surgery (2015) 209, 682-688

The American Journal of Surgery®

Clinical Science

Design and validation of the surgical ward round assessment tool: a quantitative observational study

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KEYWORDS:
Assessment;
Training;
Simulation;
Ward round;
Surgery

Abstract

BACKGROUND: Ward round skills are essential for the best management of surgical inpatients, but assessment of their quality has received inadequate attention. This study aims to design and validate the surgical ward round assessment tool (SWAT).

METHODS: We used modified Healthcare Failure Mode and Effects Analysis to develop the SWAT by identifying ward round steps. We assessed the validity of the SWAT using simulated and real surgical ward rounds.

RESULTS: The Healthcare Failure Mode and Effects Analysis identified 30 ward round steps that were developed into the SWAT. Nineteen surgeons completed simulated surgical ward rounds. Eight fully trained surgeons scored significantly higher than 11 trainee surgeons when assessed with the SWAT ($P = .001$). On average, the participants thought the realism of the simulation was good. Forty-four surgeons completed real surgical ward rounds. Fifteen experts scored significantly higher than 29 trainee surgeons when assessed with SWAT ($P = .001$). Inter-rater reliability was .85 to .89, respectively.

CONCLUSIONS: The SWAT can be used to assess the quality of task-based and nontechnical surgical ward round skills.

Ward rounds are sequential, semistructured, bedside meetings of health care workers with patients. They are ubiquitous in surgical inpatient care and are used to make regular clinical assessments and management decisions. They are crucial for diagnosis, monitoring treatment, and ensuring postoperative recovery. They are also opportunities to communicate information, coordinate the team, and teach.[1]

This project was funded by the General Medical Council, UK, and the Academy of Medical Royal Colleges, UK. This article reflects authors' views only, based on the research at Imperial College London, UK. This article reflects authors' views only, based on the research at Imperial College London, UK.

K.A. received funding from The Urology Foundation.

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Manuscript received January 5, 2014; revised manuscript July 22, 2014

0002-9610/$ - see front matter © 2015 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.amjsurg.2014.08.017

It is generally accepted that ward rounds must be performed well to ensure high-quality patient care. Ward rounds can be complex and demanding and, in addition to clinical acumen, require nontechnical skills including decision making, teamwork, situation awareness, leadership, communication, and professionalism, which are not necessarily acquired during medical training. Medical students have been shown to be deficient in the skills necessary to conduct competent ward rounds.[2] Published opinions state that qualified surgeons require assessment in nontechnical ward round skills to ensure their competence.[3] However, there is no literature describing the assessment of nontechnical skills in the context of surgical ward rounds. By designing a validated tool for the assessment of surgical ward round tasks and nontechnical skills, the quality of training, assessment, and delivery of surgical ward rounds might be improved.

Proactive risk assessment has previously been used to investigate aspects of health care processes in surgical wards, but no study has systematically assessed risk in surgical ward rounds by identifying and prioritizing the most hazardous failures, which allows a targeted intervention to be designed that might more effectively reduce preventable patient harm and improve health care quality.[4–6]

The aim of this study was to design and validate a surgical ward round assessment tool (SWAT). The objectives were to (1) design the SWAT based on a systematic proactive risk assessment of surgical ward rounds; and (2) validate the SWAT using simulated and real surgical ward rounds.

Methods

This project was conducted in 3 phases. Phase 1: a systematic proactive risk assessment of surgical ward rounds using modified Healthcare Failure Mode and Effects Analysis (HFMEA)[4,7,8]; phase 2: design of SWAT; and phase 3: validation of the SWAT using simulated and real surgical ward rounds.

Setting

The research was conducted at the largest National Health Service Trust in the United Kingdom and included 3 acute hospitals and their surgical services. A research ethics committee approved the study.

Phase 1: modified HFMEA

Observations. We used the formal method of modified HFMEA described by Anderson et al[4] to proactively risk assess surgical ward rounds. One of the study authors (O.A.), who is a postgraduate trainer of the HFMEA technique, trained 2 of the other researchers. These 2 researchers observed and independently recorded the activities that patients and health care workers engaged in on surgical ward rounds during randomly distributed hour-long sessions. This continued until saturation occurred, that is, no new activities were observed and the observers were in 100% agreement. The researchers then made a process flow diagram.

Modified HFMEA team. We assembled a multidisciplinary modified HFMEA team. The participants consisted of key stakeholders including 2 fully trained surgeons, 2 trainee surgeons, 2 nurses, and a patient, all with first-hand experience of surgical ward rounds. The team was supplemented with 2 expert members with first-hand and research experience of surgical ward rounds and 1 expert in modified HFMEA who facilitated the team.

Generation of failures. We generated failures through surgical ward round literature reviews, observations, interviews with patients and health care workers, brainstorming sessions by members of the project, and a focus group session with the modified HFMEA team. This ensured that all potential failures were detected through a triangulated approach. The modified HFMEA team validated the surgical ward round process flow diagram and failures.

Hazard scoring. We gave a lecture to all participants to explain the modified HFMEA risk rating procedure. Participants rated the effects of each failure on three 4-point scales: frequency, severity, and detectability; the frequency of harm resultant from errors, the maximum potential severity of harm associated with errors, and the detectability, which was the chance that harm could be prevented after the error occurred (Table 1). Ratings were decided through consensus within the team according to modified HFMEA guidelines.[8] We multiplied the 3 ratings together to give hazard scores. To prioritize, we classified failures with the highest 25% of hazard scores as critical and ensured that these were targeted through the design of the SWAT.

Table 1 Modified HFMEA risk ratings (Anderson et al[4])

Score	Severity	Frequency	Detectability
4	Death	>1 per year	Remote
3	Disability	1 to 2 years	Low
2	Increased stay	2 to 5 years	Moderate
1	None of the above	>5 years	High

We multiplied risk ratings of severity, frequency, and detectability of each failure to give a hazard score.
HFMEA = Healthcare Failure Mode and Effects Analysis.