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Research Article

Opinions of Anesthesiologists and Surgeons about World Health Organization Surgical Safety Checklist in a Tertiary hospital in Iran, 2012

Mahasti Alizadeh^a, Hossein Jabbari Bayrami^a, Maryam Baradaran^a, Reza Movassaghi Gargari^b, Ramin Azhough^c

a: Community Medicine Department, Tabriz University of Medical Sciences, Tabriz, Iran

b: Department of Anesthesiology, Imam Reza Hospital, Tabriz University of Medical Sciences, Tabriz, Iran

c: Department of General Surgery, Imam Reza Hospital, Tabriz University of Medical Sciences, Tabriz, Iran

Correspondence

Maryam Baradaran
Department of Community Medicine
Faculty of medicine
Tabriz University of Medical Sciences
Tabriz, Iran
Postal code: 5166614766
Tell: +98-411-3364673
Email: maryam_baradaran@hotmail.com

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Abstract

Purpose: The aim of this study was determine the opinions of clinicians in order to modify the surgical safety checklist(SSC) to make it compatible for use in hospitals of Iran.

Methods: In a cross-sectional study, the views of surgeons and anesthesiologists of the main teaching hospital in Tabriz -Imam Reza Hospital- were taken by a form attached to the main checklist. The participants in this study were asked to write their opinions on each item of the checklist based on the environment of the hospital. The opinions were classified and analyzed.

Results: Most of the anesthesiologists(87.5%) and some of the surgeons (18%) recommended to change the fourth item of sign-in part. They suggested using vital sign and base monitoring instead of pulse oximetry. Three of the physicians added the "Internal Medicine Consultation" and "output monitoring" to the Critical Events Anticipation item. Hemorrhage, vomiting, nausea, and hemodynamic disorders were added to the key concerns of recovery and management item by 75% of anesthesiologists.

Conclusion: It is better to modify the Surgical Safety Checklist based on the local needs and facilities of each hospital. Surgeons and anesthesiologists in an Iranian teaching hospital suggested adding some items to each part of SSC.

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Introduction

Overload of major surgeries has significant implications for public health. Since the case mix is so different, the rates of death and complications after surgery are difficult to be compared. In industrialized countries, the rate of major complications has been occurred in 3–22% of inpatient surgical procedures, and the death rate is about 0.4 - 0.8% [1]. Approximately, half of the adverse events in these studies were avoidable. Studies in developing countries suggest a death rate of 5–10% occurring in major surgeries. Infections and other postoperative complications are also a serious concern worldwide [1-9].

Despite high improvements in the knowledge of safety in surgery, at least half of the adverse events occur during surgical care. Nearly seven million patients suffer from significant surgical complications each year, one million of whom die during or immediately after surgery. Accordingly, Surgical safety has emerged as a major global public health concern [1]. In May 2004, the world health organization (WHO) approved the

creation of an alliance to improve patient safety globally; WHO Patient Safety was launched the following in October. For the first time, heads of agencies, policy-makers and patient groups from all over the world gathered together to improve the accomplishment of the goal of "First, do no harm" and to reduce the adverse events of unsafe health care. The goal of WHO Patient Safety is to help patient safety policy and practice. Designing tools for improvement of patient safety including surgical safety checklist was one of their actions. These efforts could save millions of lives by improving basic health care [4]. The Checklist should be modified to account for differences among hospitals according to their processes and the culture of their operating. Modification of the Checklist should be done critically. Surgeons, anesthesiologists, and nurses should be involved in the modification process [9]. Tabriz Imam Reza hospital is a referral and the largest specialty and subspecialty hospital in Northwest of Iran. Considering WHO surgical safety checklist advantages and importance of clinical governance which patients safety is one of its key components, we decided to modify WHO surgical safety checklist to fit with Tabriz Imam

Reza hospital conditions.

Methods

The study was performed in Tabriz Imam Reza hospital, a tertiary teaching, referral and the largest hospital in Northwest of Iran. It has three main general surgery operation units and almost all kinds of general surgery operations are done in this hospital. Eight anesthesiologists and eleven surgeons are the main directors of operating rooms in different shifts in a year. These 19 academic members took part in this study. The first edition of WHO Surgical Safety Checklist which is available (free to download) [10] was used in this study. The surgeons and anesthesiologists were asked to read the Checklist and suggest any change considering the environment of Imam Reza hospital in order to make the Checklist compatible with the local needs. A sheet including an explanation about WHO Surgical Safety Checklist along with all items of checklist with a blank space after each item was given to the surgeons and anesthesiologists, so that they could write their recommendations about each item. Besides, one of the authors (M.B) interviewed the participants and recorded their ideas and the causes of their modified items on the Checklist. The opinions were classified and analyzed after confirming by an interview with the respondents.

Results

The main directors of operating rooms in Imam Reza hospital are eight anesthesiologists and eleven surgeons who are academic members of Tabriz University of Medical Science with an average of 12 years experience in their jobs. They all participated in study. All of participants were male with mean age of 46 years. The opinions of the general surgeons and anesthesiologists on 19 items of the World Health Organization (WHO) surgical safety checklist were analyzed by the researcher. The frequency of recommendations has been shown in Table 1.

Seven anesthesiologists and two surgeons recommended to change the item 4 of "before induction of anesthesia" part, as follow: "changing pulse oximeter to vital sign and base monitoring". Just one of the anesthesiologists and two surgeons recommended to change the third and fourth items of "before skin incision" part by adding these two statements: "Is there any internal medicine and anesthesiologist's consultation in the records?" and "Is there urine output monitoring?". Six anesthesiologists recommended to change the fifth item of "before patient leaves operating room" part by adding the following items to it: hemorrhage, nausea, vomiting and hemodynamic disorders. None of the anesthesiologists and surgeons agreed to change the other items of this checklist. The recommendations have been shown in Table 2, 3.

Table 1. Items which were recommended to change

| Items | Participants | | |
|-----------------------------|--------------|-------------------|------------------|
| | Surgeons | Anesthesiologists | All participants |
| Forth item of Sign In part | 2(18.2%) | 7(87.5%) | 9(47.4%) |
| Third item of Time Out part | 2(18.2%) | 1(9.1%) | 3(15.8%) |
| Forth item of Time Out part | 2(18.2%) | 1(9.1%) | 3(15.8%) |
| Fifth item of Sign Out part | 0 | 6(75%) | 6(31.6%) |

Table 2. Numbers of items in each part of checklist ("before induction of anesthesia", "before skin incision" and "before patient leaves operating room") were recommended to change

| | Sign In | Time Out | Sign Out | total |
|-----------------------|---------|----------|----------|--------|
| Numbers of items | 7 | 7 | 5 | 19 |
| recommended to change | 1(14%) | 2(28%) | 1(20%) | 4(21%) |

Discussion

The world health organization (WHO) surgical safety checklist was established to reduce the number of postoperative complications and deaths across the world [7]. WHO published a comprehensive implementation manual that needs modification to adapt with local practice, cautioning against making the checklist overly complex [8]. This study was the first phase of implementing the WHO surgical safety checklist in Tabriz Imam Reza hospital. However, there was a need to modify some items of the checklist before implementing it based on the opinions of main service providers in operating rooms. Surgeons and anesthesiologists have reached consensus on changing 4 out of 15 items of checklist. Although three participants recommended changing the 3rd and 4th items of "before skin incision" section, we left them without any change. Seven anesthesiologists and two surgeons recommended the change of 4th item of "before induction of anesthesia" part. Due to the fact that it was not basic change, the concept of the item remained the same, and more than half of responders accepted to make the changes, so we did it. Six anesthesiologists recommended adding some options to fifth item of "before patient leaves operating room" part, since these options made the item more simple and explicit, adding them seemed useful. Operating room surgical safety checklist which is modified form of Johns Hopkins and WHO surgical safety checklist was

developed by OR Team Communication Project. In this checklist, some items for example "patient positioning and support, warmers" were added to "before induction of anesthesia" part and "glycemic control/beta blockers" and "DVT prophylaxis (heparin\boots and stockings)" were added to "before skin incision" part of checklist. Overall, it has 25 items and three parts as well as WHO surgical safety checklist [10]. In UK, modification of the checklist has been done by the addition of a team brief at the start of surgery, ideally with a debrief at the end of the session (NPSA; five steps to safer surgery), and preoperative team briefs are now used by 66% of trusts in England [8]. In our study, modification of checklist has been done by using the opinions of anesthesiologists and surgeons of Tabriz Imam Reza hospital to adapt with general surgery operations. Now, there are more than 4000 hospitals in 122 countries that have registered as users of WHO checklist, covering more than 90% of world's population, with 1790 hospitals actively performing the checklist. The WHO checklist has been presented as a major innovation in medicine; the challenges to introduce changes in the safety culture in the operating room are significant. Therefore, effective performance of checklist requires individual clinicians to adapt to a changing safety culture [5]. On the other hand, checklists are not the last step toward promoting surgical quality. Checklists will not eliminate the variation in the surgeons inherent skill and the proficiency conferred by operation overload and experience [2]. A study

which evaluated the effectiveness of checklists in the prevention of surgical complications concluded that the surgical checklist was a simple method, and there is evidence for its effectiveness in clinical use. Clinicians are encouraged not only to customize it to local settings and needs but also to modify it for different hospitals [5]. Using the WHO checklist on patients who are awake, for example, in obstetric surgery, has led to this question that what if it would cause additional stress for the patient. Reassuringly, one study in an obstetric unit found the reverse to be true [8]. A cohort study in Utrecht concluded implementation of WHO surgical safety checklist decreased in-hospital 30-day mortality, although the effect depended crucially on checklist compliance [6]. More effective implementation of surgical safety checklist is expected to be done by local checklist modification, however, it needs good team working and communicating. First, operation room staff should know a clear rationale for checklist implementation. Communicating the benefits demonstrated in the pilot study and portraying the checklist as aligned with institutional values would be helpful.

Second, they should know about proper techniques for checklist use. It includes describing best practices, such as multidisciplinary participation and reading as opposed to relying on memory, and directly addressing staff concerns. Team education via multimedia presentation and meaningful discussion is also useful. So, WHO surgical safety checklist impact on patient's outcome is likely to vary with each hospital implementation process. It needs more actions and further research to implement WHO surgical safety checklist effectively [3]. This study was part of a project to evaluate the implementation of Surgical safety Checklist in Tabriz Imam Reza hospital. The next phase of this research is to get the viewpoints of operating room nurses and general surgery residents and after a focus group discussion, we are going to implement the modified version in the hospital and then evaluate it.

Table 3. Recommendations about items of World Health Organization (WHO) surgical safety

| Items recommended to change | Content of items | Recommendations |
|-----------------------------|--|--|
| Forth item of Sign In part | Is the pulse oximeter on the patient and functioning? | Instead of pulse oximeter 1. vital sign monitoring 2. base monitoring |
| Third item of Time Out part | Has antibiotic prophylaxis been given within the last 60 minutes? | This item is better to remove because of anaphylactic shock and sensitivity to antibiotics |
| Forth item of Time Out part | Anticipated Critical Events (To Surgeon): <ul style="list-style-type: none"> • What are the critical or non-routine steps? • How long will it take for each case? • What is the anticipated blood loss? | It is better to add these options to this item: <ol style="list-style-type: none"> 1. Are there any internal medicine and anesthesiology consultations in the records? 2. Is there urine output monitoring?(in particular operations) |
| Fifth item of Sign Out part | What are the key concerns for recovery and management of this patient? | It is better to add these options to this item: <ol style="list-style-type: none"> 1. Hemorrhage 2. Vomiting and nausea 3. Hemodynamic disorders |

Conclusion

World Health Organization (WHO) surgical safety checklist is simple and efficient tool to reduce postoperative complications and improve the safety of surgery. In this study we modified WHO surgical safety checklist based on surgeons' and anesthesiologists' views to fit with Tabriz Imam Reza hospital condition. Some changes on two items of checklist were done without changing the concept of these items. It is expected to contribute to the safety and wellbeing of patients.

Conflict of interests: The authors declare no conflict of interest.

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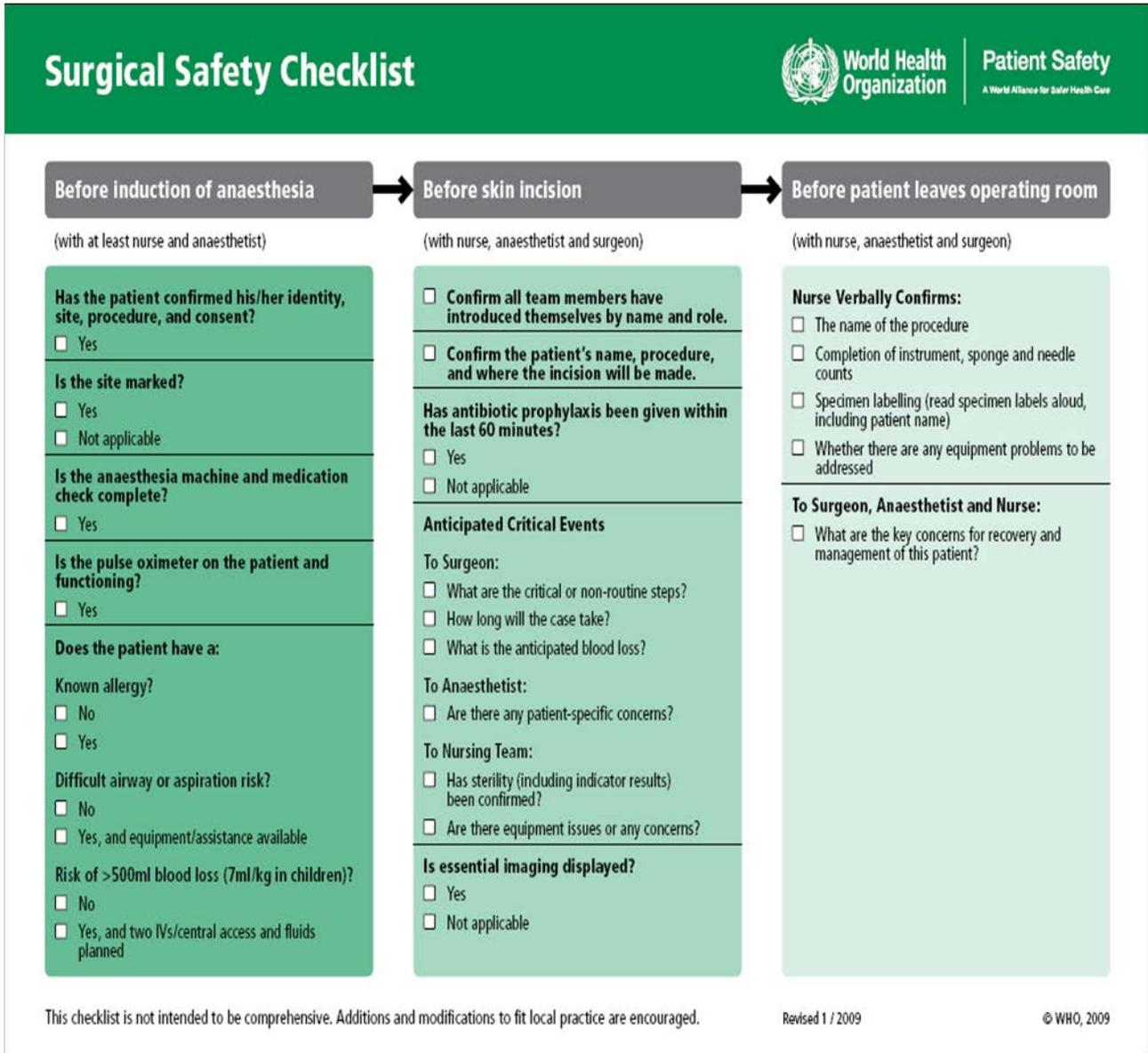


Figure 1. World Health Organization Surgical Safety Checklist