



## **The Effect of a Modified World Health Organization Surgical Safety Checklist on Postoperative Complications in a Tertiary Hospital in Iran**

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### **Dear editor-in-Chief**

Problems of surgical care have become a main cause of mortality and morbidity throughout the world. In 2004, the total amount of important surgery was an estimated almost one operation annually for every 25 human beings alive (1, 2). This is a large number with significant results for public health (2). Even though noticeable improvements in surgical safety knowledge, at least half of the events happen during surgical care (3, 4). In May 2004, WHO accepted the creation of an alliance to make better than before patient safety globally and WHO Patient Safety was started the following October. For the first time, heads of agencies, policy-makers and patient groups from around the world came together to develop achieving of the goal of "First, do no harm" and to decrease the unfavorable events of unsafe health care. The goal of WHO Patient Safety is to help patient safety policy and practice. Making tools for improvement of patient safety including surgical safety checklist was one of their actions. Additionally these attempts could save millions of lives by improving basic health care. Surgical care is consisting of many different parts and involves dozens of

steps, which must be improved for individual patients. In order to reduce unnecessary loss of life and serious problems, operating teams have 10 basic, essential objectives in any surgical case, which the WHO safe surgery guidelines support. "Ten essential objectives included: Objective 1: The team will operate on the right patient at the correct site, Objective 2: The team will use ways known to prevent harm from administration of anesthetics, while keep safe the patient from pain, Objective 3: The team will realized and effectively make plans for life-threatening loss of airway or respiratory functions, Objective 4: The team will recognize and effectively prepare for risk of high blood loss, Objective 5: The team will stay away inducing an allergic or not favorable medicine reaction for which the patient is known to be at noticeable risk, Objective 6: The team will continuously use ways known to reduce the risk for surgical site infection, Objective 7: The team will prevent inadvertent retention of instruments and sponges in surgical wounds, Objective 8: The team will secure and accurately identify all surgical specimens, Objective 9: The team will effectively

exchange critical information for the safe carry out of the operation, Objective 10: Hospitals and public health systems will start routine surveillance of surgical capacity, number and results". Considering these 10 objectives, WHO surgical safety checklist covered 3 surgical stages –before anesthesia, immediately before an incision, and before moving the patient to a recovery room- respectively SINE IN, TIME OUT and SIGN OUT parts (1).

The Checklist should be changed to account for differences in hospitals as shown their series of actions and the attitudes of their operating rooms. Modification of the Checklist should be done seriously. Surgeons and anesthesiologists should be taken part in the modification process (1). Tabriz Imam Reza Hospital is a referral and the largest specialty and subspecialty hospital in Northwest of Iran. Considering benefits of WHO surgical safety checklist 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 for application in this hospital and determine the efficacy of this modified checklist in patient care.

The First stage of this investigation was cross-sectional study which carried out in June 2012, in Tabriz Imam Reza Hospital, tertiary teaching and referral and the largest hospital in Northwest of Iran in order to modify WHO checklist, After modifying checklist, we performed before-after study to determine effect of a modified checklist implementation on postoperative complications. General surgery assistants are one of main members of operating room in this hospital and they always present in operating room, so they helped us in implementing checklist. We collected data by visiting patients and completing designed specific forms. There was no statistically significant difference among patients' demographic characteristics and comorbidities in 2 periods of study.

The incidence of any complications in pre intervention period was 30%, but this rate in post intervention period was 12% and this difference between 2 periods of study was statistically significant ( $P$  value=0.002).

After implementing of the modified surgical safety checklist, we found out complications decreased by 58%, this decline was similar to the study conducted in Shiraz, Faghigi Hospital in which complications decreased 57% after implementing of WHO surgical safety checklist and also our results was similar to the study by Haynes in which Inpatient complications occurred in 11.0% of patients at baseline and in 7.0% after introduction of the checklist ( $P < 0.001$ ) (5,6).

Implementing a modified WHO surgical safety checklist, which was based on general surgeons and anesthesiologist's opinion and adapted to the hospitals conditions led to decreasing postoperative surgical complications. WHO surgical safety checklist is a simple and useful tool for surgical care quality improvement and implementation this checklist help to improve patients' safety, one of the key components of clinical governance.

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