

# **WHO surgical safety checklist**

Karin Sharafi, Uco: 336101

[Karinsharafi@hotmail.com](mailto:Karinsharafi@hotmail.com)

Public health – VLZ9X1c

## **Introduction**

Ever since the WHO established a surgical safety checklist, research has showed a significant reduction in terms of mortality and other postoperative complications (1).

Year 2008, The World Health Organisation (WHO) created a Surgical Safety Checklist for the operating rooms in order to improve the patient's safety as much as possible (2). "The aim of the checklist harness political commitment and clinical will to address important safety issues, including inadequate and poor communication among team members" (3).

The WHO checklist is used as a tool for hospitals and clinicians who would like to improve the safety in their operation rooms. Not only does it provide safety for the patients, but it also minimizes the number of deaths and complications that could have been avoided by following the WHO checklist.

The checklist is run by a person in the operating room which will be responsible for performing the safety checks found on the list, step by step. This can be fulfilled by a circulating nurse, anaesthesiologist or any other clinician participating in the operation. The checklist should always be performed verbally, loudly and clearly.

The WHO Surgical Safety Checklist is divided into three different parts. Each part corresponds to a specific time during the normal flow of a surgical procedure (3).

The checklist starts with a stage called *Sign In* (4). This is the check point before induction of anaesthesia. The surgeon together with the anaesthesiologist will consult with the patient

about his or her procedure. It is very important at this stage to assure that the patient has understood and agreed with the planned procedure, site of procedure that has been marked and confirmed his or her identification. This can be achieved by asking the patient to sign that he or she has received all necessary information concerning the operation. Also an overview of the patient's risks that may be emphasized during the surgery, such as blood loss, allergic reactions and airway difficulties will be done, and each team member will introduce her or himself by name and role in the operating room (3). As this stage is completed we enter the second stage, called *Time out* (4). This is an important checkpoint right before the surgical incision.

Once again patient's identification will be confirmed together with type of procedure and site of incision. This will guarantee for hundred percent that it is the correct person for the correct surgery. Furthermore, the team will provide a small review of their plan for the operation together with the conformation of prophylactic antibiotics administration that was administrated within the previous 60 min. The surgeon will as a final review critical or unexpected steps that may occur during the surgery together with operative duration, anticipated blood loss and any other patient specific concerns that should be mentioned (3).

As the operation reaches its end, we enter the stage called *Sign out* (4). This is immediately after wound closure while patient is still in the operating room. A completion of sponges and count of instruments, together with labelling of any surgical obtained specimen will be done.

The team will also evaluate the performed operation and the key concerns for patient's future recovery and management.

By following these three-step surgical safety checkpoints, a safe surgery can be assured. Not only for the patient, but also for the working team (3).

In a multicentre study, "the WHO checklist was found to reduce both post-operative morbidity and mortality" (5, 6).

Although the checklist is developed as a helpful guidance for the physicians, in numerous specialities, numeral doctors have not been willing to adopt to the checklist (5). Also, being able to motivate the staff to use the WHO checklist, especially the surgeons, appears to be very challenging. According to them, "Some items have indeed been considered so irrelevant that there is no need for a check" (5).

In 2009, when the checklist had been used for a year, a significant reduction in mortality and in other postoperative complications was seen (1, 7). "Since then, the checklist has been adopted by more than 3,900 hospitals in 122 countries, representing more than 90 % of the world's population" (1, 7). The WHO surgical safety checklist was evaluated as a study in eight hospitals in different parts of the world. The results by introducing the WHO surgical safety checklist, hospitals showed "a statistically significant relative reduction of mortality. In major surgeries by 47 %, from 56 in 3733 cases (1.5 %) to 32 in 3955 cases (0.8 %) and a statistically significant relative reduction of major morbidity by 36 %, from 411 in 3733 cases (11 %) to 288 in 3955 cases (7 %)" (4, 8).

A year after the WHO checklist was introduced to two Swedish hospitals, 93 % of the treating staff specified that they noticed an increase in patients' safety (4, 9). In an additional study in Finland, a significant improvement was seen in their knowledge of the task and names of team members. There was also an improvement concerning awareness of patient's history, identity, allergies and medication. Critical cases were also more often debated among surgeons and anaesthesiologists (4, 10). In the United Kingdom, where WHO checklist is officially required, only two-thirds of all National Health Service hospitals used the checklist in their operations (4, 11). In France, at the Hospital Belle-Isle in Metz, the WHO surgical safety checklist was present in all patients chart some month after the introduction of the Checklist. But only 70 % of the individual items were filled out (4).

“In a retrospective study, the frequency of implementation of the WHO checklist was found to have dropped from 88 % to 76 % of use. The first two parts of the checklist were found to have been filled out with about 90 % completeness, and the third part with 75 % completeness. Only 18 % of all items on the WHO checklist were also communicated in the operating room” (4, 12). Sadly enough, the third part was completed only in 2 % in New Zealand (4, 13). “The frequency of items raising concern ranged from 1.5 % to 1.9 %” (4, 14), with common ones counting forgotten administration of antibiotics, surprisingly high risk of bleeding with incomplete preparation and orders.

In order to be able to use the WHO surgical safety checklist as a daily practice in the operating room, there needs to be an acceptance of the checklist. This could possibly be

achieved if the team leaders would take the guidance seriously and serve as an example to others by using it themselves. Training videos for demonstrating the correct way of handling the checklist and how to achieve a good team work and a safe zone for the patient should be given for the hospital staff (4).

“The WHO Surgical Checklist is strongly recommended as a highly effective yet economically simple intervention to improve patient safety” (15). The WHO surgical safety checklist need not only be decidedly focused on developed countries, but should also be stressed in developing countries. “The surgical mortality showed a 10 times higher number than in developed countries and deaths attributed to anaesthesia were thousand-folds higher” (16, 17). Therefore, the WHO surgical safety checklist is believed to be more critical in developing countries compared to developed countries. The use of the WHO checklist in developing countries has shown a reduction in operating errors and significant drop in patient mortality from 1.5 % to 0.8 % (16, 18).

By following the implementation of the WHO worldwide, the largest decrease in terms of complications was seen in low-income nations or middle-income nations (74.3 %). Also two of the four hospital sites in poor developing countries had a higher decrease in surgical site infections and total complication rates compared to only one of the four hospital sites in a developed and high-income country (16, 19).

By keeping the WHO Surgical Safety Checklist alive, we may keep our patients alive. Team work, communication and guidance is the key for a safer operating room.

## **Discussion**

In 2008, the World Health Organisation (WHO) created a Surgical Safety Checklist for operating rooms. The checklist consists of three-phases: sign-in, time-out and sign-out. Each phase is formed to check for errors that could occur during that specific time of preparation.

The WHO surgical safety checklist was developed for the operating teams in order to improve their patient's safety and to serve as a guidance for the preparation prior to surgery. By following the few critical steps, health care professionals can minimize the most common and avoidable risks jeopardizing the lives of their patients. The checklist should be seen as a guiding instrument. By following the checklist step by step, nothing can be forgotten.

Many physicians sees the WHO surgical safety checklist as a time consuming task and therefore choose to ignore it. Some may also skip a task or two. But in order to full fill the highest safety in an operating room, the checklist should be followed as it has been constructed. However, as time brings skills, the checklist will by time become an easy daily task to use. Patience and acceptance is the golden key.

Now, should every step be checked for every single surgery that will be performed? Do I agree that "some items have indeed been considered so irrelevant that there is no need for a check" (5)?

I believe some changes could be done, such as not repeating similar steps as for an example to save some time. But by looking over the results that were evaluated: “the WHO checklist was found to reduce both post-operative morbidity and mortality” (5, 6), I believe it makes more benefit than harm to take use of the checklist.

Hospitals should offer seminars for their staffs, where they will be educated how to use the guidance and what its aim is for in order to avoid frustration and disinterest.

We should be aware that the checklist is the operating room’s main tool for communication, teamwork, safety and improvement.



## **Conclusion**

Now, would I as a future physician take use of the WHO Surgical Safety Checklist and try to motivate my team and co-worker to follow? Yes, I would.

## **References:**

1. Conley MC, Singer S, Edmondson L, berry RW, Gawande AA: **Effective Surgical Safety Checklist Implementation.** J Am Coll Surg, 2011.
2. Helmiö P, Takala A, Aaltonen L, Pauniaho S, Ikonen T: **First year with WHO Surgical Safety Checklist in 7148 otorhinolaryngological operations: use and user.** Clinical otolaryngology 2012, 37: 305-330.
3. **Implementation Manual WHO Surgical Safety Checklist 2009.** World Health Organization 2009. 5.
4. Fudickar A, Hörle K, Wiltfang J, Bein B: **The effect of the WHO Surgical Safety Checklist on Complication Rate and Communication.** Dtsch Arztebl Int 2012;109(42):695-701.
5. Takala RSK, Pauniaho SL, Kotkansalo A, Helmiö P, Blomgren K: **A pilot study of the implementation of WHO surgical Checklist in Finland: improvements in activities and communication.** The Acta Anaesthesiologica Scandinavica, 2011.
6. De Vries EN, Prins HA, Crolla RM, Den Outer AJ, Van Anandel G, Van Helden SH, Schlack WS, Van Putten MA, Gouma DJ, Dijkgraaf MG, Smorenburg SM, Boermeester MA: **Effect of a comprehensive surgical safety system on patient outcomes.** N Engl J Med 2010; 363: 1928–37.
7. Haynes AB, Weiser TG, Berry WR, et al.: **A surgical safety checklist to reduce morbidity and mortality in a global population.** N Engl J Med 2009, 360:491–499.
8. Haynes AB, Weiser TG, Berry WR, et al.: **A surgical safety checklist to reduce morbidity and mortality in a global population.** N Engl J Med 2009; 360: 491–9.

9. Nilsson L, Lindberget O, Gupta A, Vegfors M: **Implementing a preoperative checklist to increase patient safety: a 1-year follow-up of personnel attitudes.** *Acta Anaesthesiology Scan* 2010; 54: 176–82.
10. Helmio P, Blomgren K, Takala A, Pauniah SL, Takala RS, Ikonen TS: **Towards better patient safety: WHO Surgical Safety Checklist in otorhinolaryngology.** *Clin Otolaryngology* 2011; 36: 242–7.
11. Sivathasan N, Rakowski KR, Robertson BF, Vijayarajan L: **The World Health Organization’s “Surgical Safety Checklist”: should evidence-based initiatives be enforced in hospital policy?** *JRSM Short Rep* 2010; 1: 40.
12. Paugam-Burtz C, Guerrero O: **French surgical checklist in university hospital: achievements one year after implementation.** *Ann Fr Anesth Reanim* 2011; 30: 475–8.
13. Vogts N, Hannam JA, Merry AF, Mitchell SJ: **Compliance and quality in administration of a Surgical Safety Checklist in a tertiary New Zealand hospital.** *N Z Med J* 2011; 124: 48–58.
14. Fourcade A, Minvielle E, Blache JL, Bourgain JL: **Assessment of the French surgical checklist: the experience of 17 French cancer centres.** *Ann Fr Anesth Reanim* 2011, 30: 495–500.
15. Mascherek CA, Schwappach LBD, Bezzola P: **Frequency of use and knowledge of the WHO-surgical checklist in Swiss hospital: a cross-sectional online survey.** *Patient Safety in Surgery* 2013, 7:36.
16. Vivekanantham S, Ravindran PR, Shanmugarajah K, Maruthappu M, Shalhoub J: **Surgical safety checklists in developing countries.** Surgical Associates Ltd., 2013.
17. Li G, Warner M, Lang BH, Huang L, Sun LS: **Epidemiology of anaesthesia related mortality in the United States, 1999e2005.** *Anaesthesiology* 2009, 110(4):759e65.

18. Bank W.: **Data & statistics: country classification.** Available from:  
<http://data.worldbank.org/about/country-classifications>; 2006.
  
19. Haynes AB, Weiser TG, Berry WR, et al.: **A surgical safety checklist to reduce morbidity and mortality in a global population.** N Engl J Med 2009; 360(5):491e9.