

Awareness and Knowledge of the Surgical Safety Checklist among Healthcare Professionals in University Teaching Hospital, Kathmandu, Nepal

Uprety A,¹ Kobashi Y,²⁻⁴ Ozaki A,^{4,5} Shrestha D,⁶ Ghimire B,⁷ Sedain G,⁸ Sigdel S,⁹ Higuchi A,^{2,4} Tsubokura M,^{2,4} Singh YP¹⁰

¹Department of Anesthesiology, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

²Department of Radiation Health Management, Fukushima Medical University School of Medicine, Fukushima City, Fukushima 960-1295, Japan.

³Department of Anesthesia, Jyoban Hospital of Tokiwa Foundation, Iwaki City, Fukushima, 972-8322, Japan.

⁴Medical Governance Research Institute, Minato-ku, Tokyo, 108-0074, Japan.

⁵Department of Breast Surgery, Jyoban Hospital of Tokiwa Foundation, Iwaki City, Fukushima, 972-8322, Japan.

⁶Department of Neonatology, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

⁷Department of GI and General Surgery, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

⁸Department of Neurosurgery, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

⁹Department of Cardiothoracic and Vascular Anesthesiology, Manmohan Cardiothoracic Vascular and Transplant Center, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

¹⁰Department of Gastrointestinal and General Surgery, Maharajgunj Medical Campus, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

Corresponding Author

Yurie Kobashi
Department of Radiation Health Management,
Fukushima Medical University School of Medicine,
Fukushima City, Fukushima 960-1295, Japan.
E-mail: tenten.yurie@gmail.com

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ABSTRACT

Background

An introduction of the World Health Organization Surgical Safety Checklist (WHO SSC) is essential to promote surgical safety.

Objective

To obtain country-specific information regarding the checklist in a leading medical institution in Nepal.

Method

The present research was a cross-sectional study with a survey conducted among healthcare professionals working in the operation theatre at the Tribhuvan University Teaching Hospital (TUTH) in Kathmandu, Nepal. A questionnaire was distributed to 150 healthcare professionals working in the operating theatre. Responses to the questionnaire were analysed descriptively and regression analyses used to identify factors associated with awareness of the checklist.

Result

In total, 127 healthcare professionals participated in the study, of whom 118 (92.9%) had been aware of the WHO SSC. A substantial proportion of participants (108, 91.5%) were not satisfied with the prevailing practice whereby the checklist was not routinely used during surgery. Lack of appropriate training was the most prevalent barrier to the checklist use (72, 67.9%), followed by unwillingness of staff to use the checklist (54, 50.9%), and lack of experience (42, 39.7%). The mean score on the survey was 6.0 out of 10. Regarding the results of the regression model on survey scores, surgeons had higher scores compared to nurses (unadjusted coefficient 0.80, 95% CI 0.20-1.40).

Conclusion

Most of the healthcare professionals were aware of the WHO SSC, however multiple barriers to the checklist use were identified. It is important to establish an effective use of WHO SSC in the operation theatre.

KEY WORDS

Surgical safety, WHO Surgical Safety Checklist, Workforce

INTRODUCTION

Improvement of the safety of patients is an important factor in reducing the perioperative morbidity and mortality rate.¹ The World Health Organization Surgical Safety Checklist (WHO SSC), the 19-item checklist has shown significant reduction in both morbidity and mortality and is now routinely used worldwide. It has been reported that the WHO SSC has decreased mortality of surgical patients by 47% and surgical complications by 35%.² One study estimates that the WHO SSC is saving 500,000 lives every year.³ Thus, the use of the WHO SSC is a high priority for promoting surgical safety and outcomes. Nevertheless, the utilization rate of the WHO SSC is reported to be around 64% in developed countries, while 34% in developing countries.³ Plausible reasons for this include lack of workforce and knowledge, cultural issues, economic restrictions, and lack of medical equipment in developing countries.⁴⁻⁷ Thus, the introduction of the WHO SSC is crucial problem particularly in developing countries.³

Compliance with the WHO SSC is reported to gradually decrease after its introduction.^{8,9} To maintain a high compliance, it is essential to have a proper policy for the introduction and subsequent use.⁹ To develop an effective strategy for this, it is necessary to clarify the social, behavioural, logistic, and organizational problems in local situations among the healthcare professionals.^{10,11}

Nepal is a low and middle-income country (LMIC), which approximately 24.88 million residents are living. Surgical interventions in Nepal are still in a developing phase; major incidents have frequently occurred, with surgeons mistakenly performing surgery on the wrong side of a patient.^{12,13} Thus, the widespread introduction of the WHO SSC is a priority in Nepal.

To obtain information about the introduction of the WHO SSC in a leading medical institution in Nepal, the awareness and knowledge of the WHO SSC among healthcare professionals was investigated.

METHODS

The present cross-sectional study used data from a survey conducted at the Tribhuvan University Teaching Hospital (TUTH), which is located in Nepal's capital city Kathmandu. Questionnaires were distributed to healthcare professionals working in the operating theatre. Established in 1983, TUTH is one of the main hospitals providing advanced medical care in Nepal. TUTH provides a wide range of care and the most advanced medical services in Kathmandu, including general health check-ups, minor and major surgeries, kidney and liver transplants, and laparoscopic surgery. However, the WHO SSC is not formally used in TUTH.

From February to April in 2019, a convenient sample of nurses, surgeons, and anaesthesiologists who work in the operating room of TUTH were recruited for this study.

We did not consider those who mainly worked in other hospitals in this survey. Consequently, the questionnaires were distributed to 150 individuals.

We designed the questionnaire to investigate the awareness, attitudes, barriers, subjective knowledge, and objective knowledge of the WHO SSC by referring to an instrument used in previous studies.^{14,15} The survey was separated into four sections. Section one included characteristics of the participant: age, gender, years of work, job description, and area of specialty. Sections two and three, which were designed following the work of Ogunlusi et al., included awareness of and opinions about the WHO SSC.¹⁴ Section four assessed objective knowledge about the WHO SSC. For this purpose, we used a Swiss survey, which has been used and validated to investigate the objective knowledge of the WHO SSC in Europe.¹⁵ This section included 10 questions with a True/False format (see Supplementary Table S1). The total number of correct answers was used as a total score for analysis. Scores ranged from 0 to 10, with one point given for each correct item and higher scores indicating higher levels of knowledge of the WHO SSC.

First, we descriptively analysed the answers to each question, and examined the percentage of participants who were aware of the WHO SSC, as well as scores on the Swiss survey from participants who were aware of the WHO SSC. Second, we constructed a logistic regression model for awareness of the WHO SSC. Independent variables in the logistic regression model included age, gender, occupation, and years of experience. The multivariate model was constructed using variables with p values < 0.1 in the univariate analyses. In addition, a linear regression model was constructed to identify the factors associated with the Swiss survey scores. Independent variables in this analysis included age, gender, occupation, years of job experience, experience using the checklist, and understanding of the main objective of the checklist. The multivariate model was constructed using variables with $p < 0.1$ in the univariate analyses. We used Microsoft Excel and STATA15 for analysis. A p value less than 0.05 was considered to be significant.

AU and DS explained the study design and purpose to the participants; after that, the survey was started. The answering questionnaire was regarded that the participants agree to joined the study. This study was approved by Ethics Committee of TUTH (approval number 320(6-11-E)²/075/076).

RESULTS

A total of 127 (84.7%) respondents completed the survey, with all included in the analyses.

Table 1 summarizes the characteristics of the participants. Of 127 participants, 60 (47.2%) were surgeons, 10 (7.9%) were anaesthesiologists, and 50 (39.4%) were nurses. With regard to the specialities of the surgeons, ear, nose, and

Table 1. Characteristics of the participants

Variable	(N=127)
Age (years old, median, interquartile range) ^a	30 (27 – 33)
Sex	n(%)
Female	72 (56.7)
Male	53 (41.7)
Missing	2 (1.6)
Years of experience (median, interquartile range) ^b	5 (3 – 8)
Job	n(%)
Nurse	50 (39.4)
Anaesthesiologist	10 (7.9)
Surgeon	60 (47.2)
Missing	7 (5.5)
Specialty of surgeons (calculated only among 60 surgeons)	
Gynaecology and Obstetrics	15 (25.0)
Ear Nose and Throat	15 (25.0)
Orthopaedics	10 (16.7)
Gastrointestinal and general surgery	9 (15.0)
Urology	5 (8.3)
Neurosurgery	3 (5.0)
Plastic surgery	2 (3.3)
Missing	1 (1.7)
^a Calculated only on the 122 participants without missing values.	
^b Calculated only on the 115 participants without missing values.	

throat (25%) and gynaecology and obstetrics (25%) were the most common. The median age of participants was 30 years (interquartile range 27-33), and 72 (56.7%) of the participants were female. The median years of professional experience among the participants was 5 (interquartile range 3-8) years.

Table 2 shows the awareness and use of the WHO SSC among the participants. In total, 118 (92.9%) participants were aware of the checklist. Of those who were aware, 96 (81.4%) understood the objective of the WHO SSC, and 87 (73.7%) had used the checklist in TUTH or previous workplaces. However, among those who had used the checklist previously, 39 (44.8%) answered that the checklist had been used in less than 25% of surgeries. Nonetheless, of the 87 previous users, 43 (49.4%) stated that they had experienced a case in which an adverse incident had been prevented by use of the checklist.

Table 3 presents the opinions regarding the WHO SSC among those who were aware of its existence. Among them, 106 (89.8%) confirmed it was not routinely used in TUTH's operating theatre, and 108 (91.5%) were dissatisfied with it not being used. Furthermore, 115 (97.5%) and 110 (93.2%) considered that the checklist improves patient safety and teamwork in the operating theatre, respectively. With regard to the barriers to routine use of the WHO SSC, a lack of training was the most common reason (72, 67.9%), followed by unwillingness of staff to use the checklist (54, 50.9%), and lack of experience (42, 39.6%).

Table 2. Awareness and use of the surgical safety checklist

Variable	(N=127)
Question 1. Are you aware of the surgical safety checklist?	
Yes	118 (92.9)
No	8 (6.3)
Missing	1 (0.8)
Question 2. If you answered yes to Question 1, have you ever used it before?	
Yes	87 (73.7)
No	31 (26.3)
Question 3. If you answered yes to Question 2, for how many operations have you used the checklist at your workplace?	
<25%	39 (44.8)
25–50%	19 (21.8)
50–75%	20 (23.0)
>75%	7 (8.0)
Missing	2 (2.3)
Question 4. If you answered yes to Question 2, did you experience a case in which an incident was prevented by the use of checklist?	
Yes	43 (49.4)
No	44 (50.6)
Question 5. If you answered yes to Question 1, do you know the main objective of the checklist?	
Yes	96 (81.4)
No	10 (8.5)
Missing	12 (10.2)

Table 4 shows the breakdown of scores regarding the objective knowledge of the WHO SSC. Scores can range from 0 to 10, with higher scores indicating higher levels of knowledge. Question 6, which asked whether the WHO SSC helps inexperienced members of the surgical team, had the lowest rate of positive answers. The mean score on the objective knowledge of the WHO SSC scale was 6.0 (SD =1.5).

As indicated in Table 5, in the univariate linear regression model for the scores on the objective knowledge of the WHO SSC scale, surgeons had higher scores compared to nurses. (unadjusted coefficient 0.80, 95% CI 0.20–1.40). There were no other variables significantly associated with scores on this survey. The multivariate linear regression model was constructed with age and sex as basic variables, and occupation, which showed a significant difference in the univariate analysis. Scores on the objective knowledge survey were significantly higher among surgeons than nurses in the multivariate analysis (adjusted coefficient 1.07, 95% CI 0.29-1.86).

As shown in Table 6, with regard to the results of the univariate logistic regression model for awareness of the WHO SSC, no significant differences were observed.

Table 3. Opinions on surgical safety checklist (only among those who were aware of checklist)

Variable	(N=118)
Question 1. Are you satisfied with the present state of not using the checklist in OT? n(%)	
Yes	8 (6.8)
No	108 (91.5)
Missing	2 (1.7)
Question 2. Does the surgical checklist improve patient safety? n(%)	
Yes	115 (97.5)
No	2 (1.7)
Missing	1 (0.8)
Question 3. Do you think using the checklist improves the teamwork in OT? n(%)	
Yes	110 (93.2)
No	6 (5.0)
Missing	2 (1.7)
Question 4. Is the checklist routinely used in OT? n(%)	
Yes	11 (9.3)
No	106 (89.8)
Missing	1 (0.9)
Question 5. If no to question 4. could you choose all the reasons?n(%) ^a	
Causes delay	25 (23.6)
Unnecessary in TUTH	1 (0.9)
Not sufficient time	38 (35.9)
No experience	42 (39.6)
No training	72 (67.9)
Staff unwilling to use the checklist	54 (50.9)
Benefit of the checklist is minimal	2 (1.9)
Question 6. How do you rank your knowledge with respect to the content and utilization of the Checklist? n(%)	
Very Good	11 (9.3)
Good	91 (77.1)
Bad	11 (9.3)
Very bad	3 (2.5)
Missing	2 (1.7)

^aAmong 118, 2 did not answer Question 5.

Table 4. Objective knowledge of the WHO Surgical Safety Checklist (n = 112)

Score	n	Percent (%)
3	5	4.4
4	14	12.5
5	25	22.3
6	24	21.4
7	26	23.2
8	11	9.8
9	7	6.3
Mean (SD)	6.0 (1.5)	

Table 5. Unadjusted and adjusted coefficients of scores on the surgical safety checklist

	Univariate analysis	Multivariate analysis (N=89)
	Unadjusted coefficient (95% CI)	Adjusted coefficient (95% CI)
Age	-0.02 (-0.06 - 0.03)	-0.04 (-0.09 - 0.01) *
Sex		
Female	Ref.	Ref.
Male	0.40 (-0.18 - 0.98)	0.06 (-0.86 - 0.73)
Years of experience	0.00 (-0.06 - 0.06)	
Job		
Nurse	Ref.	Ref.
Anaesthesiologist	0.98 (-0.22 - 2.19)	1.13 (-0.23 - 2.49)
Surgeon	0.80 (0.20 - 1.40) **	1.07 (0.29 - 1.86) **
Experience using checklist		
No	Ref.	
Yes	-0.05 (-0.70 - 0.60)	
Knowing the main objective of checklist		
No	Ref.	
Yes	0.60 (-0.45 - 1.60)	

*P value < 0.1, **P value < 0.05, CI = confidence intervals

Table 6. Unadjusted and adjusted logistic regression OR of objective awareness of the surgical safety checklist

	Univariate analysis	Multivariate analysis (N=109)
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Age	1.03 (0.89 - 1.18)	1.05 (0.72 - 1.54)
Sex		
Female	Ref.	Ref.
Male	1.24 (0.28 - 5.45)	2.34 (0.28 - 19.4)
Years of experience	1.07 (0.87 - 1.32)	1.01 (0.67 - 1.55)
Job		
Nurse	Ref.	Ref.
Anaesthesiologist	0.57 (0.05 - 6.16)	0.33 (0.02 - 5.56)
Surgeon	0.89 (0.19 - 4.19)	0.63 (0.07 - 5.30)

OR = odds ratio
CI = confident intervals

DISCUSSION

The proportion of healthcare professionals in operating theatre who were aware of the existence of the WHO SSC was as high as those reported in previous studies.^{14,16} In the present study, a substantial majority of participants (92.9%) were aware of the WHO SSC. Although the WHO SSC was not formally introduced in TUTH, a significant proportion of respondents had a fair idea of its purpose and implications. Consistent with our findings, health care providers in other developing countries (e.g. Guatemala (93.8%) and Nigeria (83%)) also have a high degree of awareness of the WHO

SSC.^{14,16} Furthermore, 92% of respondents in our study reported that they were dissatisfied with the failure to use the WHO SSC. Thus, it can be inferred that many TUTH operating theatre healthcare professionals hope to see the WHO SSC routinely used.

This survey revealed barriers hampering the introduction of the WHO SSC. Many respondents answered that lack of training was the most significant factor preventing introduction of the WHO SSC, followed by the unwillingness of staff to use the checklist, and lack of experience in using it. There are obviously a variety of factors opposing uptake of the checklist in any setting. In particular, emergency procedures, change of staff shifts, and the widely perceived tedious and time consuming nature of the “Sign Out” component of the checklist, were identified as reasons for low checklist usage in Nepal.¹⁷ It is critical that all reported obstacles to implementing routine use of the WHO SSC should be addressed to ensure smooth uptake and compliance with the WHO SSC once it has been introduced.

The scores on the objective knowledge of the WHO SSC scale among participants in this study was relatively lower than those in previous studies.^{7,15} The average score from this survey was 6 points, while the average scores were 7.4–8 in previous studies conducted in European countries.^{7,15} The probable reason for this disparity is that the survey in the previous studies was conducted after the widespread introduction of the WHO SSC. Also, the previous study was conducted after healthcare professionals in operating theatre had undergone intensive training both prior to and after the introduction of the WHO SSC.⁷ No training in this respect had been made available at TUTH. Proper training with respect to the values and use of the WHO SSC should optimally be undertaken before the introduction of the checklist mechanism.

The scores on the objective knowledge survey differed significantly by occupation. As shown by the multivariate analysis, scores of nurses were significantly lower than those of surgeons. It has been reported that cooperation among all healthcare professionals is necessary for the successful introduction of the WHO SSC. In particular, lack of cooperation among them often prevents the smooth

introduction and successful implementation of the WHO SSC, especially in developing countries.⁹ The difference in knowledge levels between occupations may have a negative effect on cooperation. A previous descriptive study found that there was no difference in the knowledge score between physicians and nurses.¹⁵ This suggests that the difference in scores between the different occupations found in this study may improve in the future. For successful introduction of the WHO SSC, it is necessary to adequately educate nurses about its use and value. It is crucial to prevent differences in knowledge among operating theatre workers from preventing the introduction of the WHO SSC.

There are several limitations to this study. First, the small number of participants limits the generalisation of findings. Second, the objective knowledge survey has been mainly used in Europe; therefore, this survey may not be suitable for evaluating the knowledge of the WHO SSC accurately in Nepal due to social and cultural differences. Third, selection bias might have occurred because of the convenience sampling methodology. Fourth, this study was conducted within a single facility. Despite these limitations, we believe that this study provides useful information concerning awareness of the WHO SSC in Nepal. Future research should be conducted at multiple health facilities with a larger number of participants.

CONCLUSION

Awareness of the WHO SSC was sufficiently high, and there was a high motivation among healthcare professionals in operating theatre to introduce the WHO SSC in TUTH. To improve the safety of surgery, the strategic and comprehensive introduction of the WHO SSC should be implemented with comprehensive training provided to all those who may be involved in its use.

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REFERENCES

1. Meara JG, Leather AJ, Hagander L. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development [published online April 21, 2015]. *Lancet*. 2015. [doi:10.1016/S0140-6736(15)60160-X] [PubMed: 25924834].
2. Debas HT, Donkor P, Gawande A, Jamison DT, Kruk ME, Mock CN, editors. Disease control priorities, (Volume 1): essential surgery. The World Bank; 2015 Mar 23.
3. Vivekanantham S, Ravindran RP, Shanmugarajah K, Maruthappu M, Shalhoub J. Surgical safety checklists in developing countries. *International journal of surgery*. 2014 Jan 1;12(1):2-6.
4. Treadwell JR, Lucas S, Tsou AY. Surgical checklists: a systematic review of impacts and implementation. *BMJ quality & safety*. 2014 Apr 1;23(4):299-318.
5. Russ SJ, Sevdalis N, Moorthy K, Mayer EK, Rout S, Caris J, et al. A qualitative evaluation of the barriers and facilitators toward implementation of the WHO surgical safety checklist across hospitals in England: lessons from the “Surgical Checklist Implementation Project”. *Annals of surgery*. 2015 Jan 1;261(1):81-91. [doi:10.1097/SLA.0000000000000793] [PubMed: 25072435].
6. Lilaonitkul M, Kwikiriza A, Ttendo S, Kiwanuka J, Munyarungero E, Walker IA, et al. Implementation of the WHO Surgical Safety Checklist and surgical swab and instrument counts at a regional referral hospital in Uganda—a quality improvement project. *Anaesthesia*. 2015 Dec;70(12):1345-55. [doi:10.1111/anae.13226] [PubMed: 26558855].
7. Sendlhofer G, Mosbacher N, Karina L, Kober B, Jantscher L, Berghold A, et al. Implementation of a surgical safety checklist: interventions to optimize the process and hints to increase compliance. *PLoS One*. 2015 Feb 6;10(2):e0116926. [doi:10.1371/journal.pone.0116926] [PubMed: 25658317].

8. Bashford T, Reshamwalla S, McAuley J, Allen NH, McNatt Z, Gebremedhen YD. Implementation of the WHO surgical safety checklist in an Ethiopian referral hospital. *Patient safety in surgery*. 2014 Dec;8(1):1-2. [doi:10.1186/1754-9493-8-16] [PubMed: 24678854].

9. Lagoo J, Lopushinsky SR, Haynes AB, Bain P, Flageole H, Skarsgard ED, et al. Effectiveness and meaningful use of paediatric surgical safety checklists and their implementation strategies: a systematic review with narrative synthesis. *BMJ open*. 2017 Oct 1;7(10):e016298. [doi:10.1136/bmjopen-2017-016298] [PubMed: 29042377].

10. Kim RY, Kwakye G, Kwok AC, Baltaga R, Ciobanu G, Merry AF, et al. Sustainability and long-term effectiveness of the WHO surgical safety checklist combined with pulse oximetry in a resource-limited setting: two-year update from Moldova. *JAMA surgery*. 2015 May 1;150(5):473-9. [doi:10.1001/jamasurg.2014.3848] [PubMed: 25806951].

11. Vohra RS, Cowley JB, Bhasin N, Barakat HM, Gough MJ. Attitudes towards the surgical safety checklist and factors associated with its use: A global survey of frontline medical professionals. *Annals of Medicine and Surgery*. 2015 Jun 1;4(2):119-23. [doi:10.1016/j.amsu.2015.04.001] [PubMed: 25973191].

12. Republica. Gross Negligence Norvic Hosp. (2019) [Cited 2019 9 August]; Available from: <https://myrepublica.nagariknetwork.com/news/sheer-negligence-by-norvic-hospital/>.

13. Gopal S. To err is inhuman (2018) [Cited 2019 July 5]; Available from: <https://kathmandupost.com/opinion/2018/04/27/to-err-is-inhuman>.

14. Ogunlusi JD, Yusuf MB, Ogunsuyi PS, Wuraola OK, Babalola WO, Oluwadiya KS, et al. Awareness and use of surgical checklist among theatre users at Ekiti State University teaching hospital, Ado-Ekiti, Nigeria. *Niger. J. Surg*. 2017 Jul;23(2):134-7 [doi:10.4103/njs.NJS_3_17] [PubMed: 29089740].

15. Mascherek AC, Schwappach DL, Bezzola P. Frequency of use and knowledge of the WHO-surgical checklist in Swiss hospitals: a cross-sectional online survey. *Patient safety in surgery*. 2013 Dec;7(1):1-7. [doi:10.1186/1754-9493-7-36] [PubMed: 24304634].

16. Hurtado JJ, Jiménez X, Peñalzo MA, Villatoro C, de Izquierdo S, Cifuentes M. Acceptance of the WHO Surgical Safety Checklist among surgical personnel in hospitals in Guatemala city. *BMC health services research*. 2012 Dec;12(1):1-5. [doi:10.1186/1472-6963-12-169] [PubMed: 22721269].

17. Shrestha SK, Thapa PB, Lama T, Maharjan DK. Compliance and outcome of implementing World Health Organization surgical safety check list in surgical practice in a teaching hospital. *J. Kathmandu Med. Coll.*, 2015;4(4):126-30. [doi:10.3126/jkmc.v4i4.18253].

Appendix

Supplemental Table 1. Item scores on objective knowledge of WHO SSC (Swiss survey)¹⁵

Variable	(N=118)
Question 1. Surgical checklist is a synonym for Team Time Out. (n, %)	FALSE
TRUE	63 (53.4)
FALSE	53 (44.9)
Missing	2 (1.7)
Question 2. Surgical checklist must not be completed by all team members. (n, %)	FALSE
TRUE	27 (22.9)
FALSE	89 (75.4)
Missing	2 (1.7)
Question 3. Surgical checklist requires exact documentation of sponges. (n, %)	FALSE
TRUE	67 (56.8)
FALSE	51 (43.2)
Question 4. Surgical checklist exclusively addresses surgeons. (n, %)	FALSE
TRUE	21 (17.8)
FALSE	97 (82.2)
Question 5. Surgical checklist recommends an antibiotic prophylaxis within 60 minutes of surgery. (n, %)	TRUE
TRUE	74 (62.7)
FALSE	42 (35.6)
Missing	2 (1.7)
Question 6. Surgical checklist shall support inexperienced members of team. (n, %)	FALSE
TRUE	88 (74.6)
FALSE	28 (23.7)
Missing	2 (1.7)

Question 7. Surgical checklist is a tool used to attribute mistakes and misses to specific people. (n, %)	FALSE
TRUE	71 (60.2)
FALSE	43 (36.4)
Missing	4 (3.4)
Question 8. Surgical checklist aims to prevent accidental omissions within routine procedures. (n, %)	TRUE
TRUE	117 (99.1)
FALSE	0 (0.0)
Missing	1 (0.9)
Question 9. Surgical checklist aims to improve team communication. (n, %)	TRUE
TRUE	117 (99.1)
FALSE	1 (0.9)
Question 10. Surgical checklist may be used to document complications. (n, %)	FALSE
TRUE	79 (67.0)
FALSE	39 (33.1)