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Perceptions and use of surgical checklist practices in a tertiary hospital of Tunisia, 2023

Abstract

Introduction: Patient safety remains a major concern in the operating room (OR). The surgical checklist (CL) is presented as a solution for reducing postoperative complications by ensuring better patient safety, but the adoption and use of this tool remain modest in our ORs. So, we aimed to describe CL use practices and perceptions among OR professionals at the University Hospital Center (UHC) of Sahloul, Sousse in 2023.

Methods: This was a cross-sectional study among OR professionals at UHC of Sahloul. Data were collected using a questionnaire and an observation grid.

Results: The average age of respondents was 38.05 (±8 years) with a female predominance. Our results revealed positive perceptions (98.7%) regarding the usefulness of the surgical CL. Some difficulties were raised by participants, notably the difficulty of accepting verbalization aloud (59.4%), the anxiety generated by multiple checks for the patient (58.8%) and the difficulty of implementing CL during emergency interventions (49.4%). The observation grid revealed the rate of CL use in the OR (70.8%) and inadequate practices in the quality of CL item completion: Variation in the quality of CL item completion from one stage to the next; Items mostly ticked without verification, with only the patient identification (69.1%), procedure site (64.7%), known allergy (47.1%) and antibiotic prophylaxis (61.8%) items being checked aloud.

Conclusion: CLs in the operating room are essential to guarantee safe, quality care. It is therefore essential that healthcare professionals, healthcare establishments and decision-makers not only recognize its importance, but also implement the necessary measures for its adoption and systematic use.

Keywords: operating room, surgical safety, patient, practice, check-list, perceptions

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Introduction

Patient safety in the OR does not rely solely on the sophistication of devices and procedures, but also on the rigor and application of simple, preventive measures such as the patient safety CL. It is a control tool that includes a list of items to be checked before, during and after surgery, to reinforce patient safety in surgery. This approach was initiated by the World Health Organization (WHO) in 2008 as part of its «Safe Surgery Saves Lives» program, which aims to correctly identify the patient and the surgical site, improve interventional and anaesthetic safety, reduce the risk of infection, and develop teamwork and inter-professional coordination.[1–3] According to several recent studies, more than half of all adverse events related to care (51% to 61%) are associated with surgery, and it is estimated that 37% to 51% of these events could be avoided.[4] Among the most frequent causes of adverse events observed, communication failures have been highlighted.[5,6] Use of the CL has been shown to significantly improve surgical outcomes, with a 36% reduction in postoperative complication rates (all types combined) and a 52% reduction in mortality.[1,7] To achieve such results, it is essential the CL must be well-known and accepted by professionals working in the OR.[8–18]

In the context a total quality management program aiming at continually improving the quality of care, the CL was initially implemented in the neurosurgery OR at Sahloul Teaching Hospital of Tunisia, since 2019.[19–24] After this initial implementation, the generalization of the use of the CL was targeted through the training of all the hospital's OR staff.

In this context, we conducted this study to describe CL use practices among OR professionals at Sahloul Hospital, in 2023, and determining knowledge and perception of HCW on this tool.

Methods

Study design and settings: This was a cross-sectional study with two independent parts:

a. A descriptive questionnaire-based perception survey

b. A practice audit by direct observation

This study took place within the ORs at Sahloul Teaching Hospital distributed as follows: Orthopedic surgery OR; General and digestive surgery OR; Urological surgery OR; Plastic reconstructive, aesthetic and burns surgery OR; Maxillofacial surgery OR; Emergency OR; Neurosurgery OR.

Note: The cardiovascular and thoracic surgery OR was excluded from the study due to a refusal to participate.

Study population

For the study of perceptions of CL use, all teams working in the above-mentioned ORs were approached: senior surgeons, anaesthetists, surgical residents, anaesthesia residents, senior surgical instrumentation technicians, senior anaesthesia-intensive care technicians and OR nurses.

We targeted all of the 194 healthcare workers (HCW), except trainees from any of the above professional categories. For the Audit

of CL use practices, it is standard practice to make 30 observations in this type of study. In our study, 96 observations were performed.

Data collection procedure and tools

These consisted of a questionnaire and an observation grid, both tools were developed based on instruments validated by the "Haute Autorité de Santé" (HAS), as part of a formative evaluation, to improve collaborative working modes in the OR. For data related to HCW perceptions, in addition to the socio-demographic and professional characteristics of the participants, we implemented a self-administered four-point Likert scale questionnaire which included four sections designed to elicit the following information: OR professionals' opinions on the use of CL; Difficulties raised by the use of CL; Elements facilitating the use and implementation of CL; A question on overall appreciation of the usefulness of CL. To describe the practices of CL use by OR professionals, we implemented an observation grid, compatible with the criteria for the three steps of CL "patient safety in the OR": Step 1: before induction of anesthesia; Step 2: before skin incision; Step 3: before the patient leaves the OR. Observation was objective and unobtrusive (based on the grid). Data collection took place between 22/January/2023 and 15/April/2023 for both studies.

Data entry and analysis

Data were entered and analysed using SPSS (Statical Packing for the Social Sciences) version 23.0. Qualitative variables were presented in absolute and relative frequencies.

Ethical considerations

In this survey, ethical and deontological recommendations were respected:

a. Participants were informed of the nature of the study and its objectives.

b. Anonymity and confidentiality were respected throughout data collection and analysis.

c. No negative results will give rise to administrative or disciplinary sanctions.

d. Human Ethics and Consent to Participate declarations: not applicable

Results

Results of the perception survey of CL use: Of the 194 health professionals working in the ORs at Sahloul University Hospital, 160 responded to our questionnaire, corresponding to a response rate of 82.47%.

Description of the study population: (Table 1) From our survey, it emerges that the female gender is dominant, among the respondents (n=90, 56.3%). The average age of participants in our study was 38.05 ±8 years, with a minimum age of 25 years and a maximum age of 58 years. The population was divided into seven ORs.

We noted that 27.5% of respondents were nurses. As for the seniority of the professionals (n=153, 95.6%), their experience did not exceed 30 years.

Study of perceptions of CL use: (Table 2) According to the results obtained, almost the entire population recognized the importance of CL: an overall appreciation of the usefulness of CL was reported by more than 98% of participants. The difficulties raised by the use of CL were recognized with different percentages. Certain difficulties were raised more frequently by 25% to 75% of OR professionals: Emergency context; Lack of physician support; Oral exchange of information; Little acceptance of dramatization; and Anxiety-inducing nature of multiple checks. The entire population agreed that information actions (n=156, 98.1%), team meetings (n=156, 98.1%), training (n=155, 97.5%), quality documents (n=154, 97.5%), evaluation actions (n=152, 95.6%), as well as the commitment of superiors (n=151, 95%) and encouragement from the hospital (n=150, 94.3%) can help with the implementation of CL.

Results of the audit of CL use practices

Description of observation data: Most of the interventions observed (n=92, 95.8%) were scheduled, mainly in burns, maxillofacial and emergency ORs

Rate of CL use: Overall, the CL was used in 70.8% of observations. In burns and neurosurgery units, the CL is always used. In the orthopedics, emergency, maxillofacial and urology departments, the CL was used in more than 60% of procedures observed. No CL use was observed in the general surgery OR.

CL completion conditions during these 3 steps: (Table 3) Surgical instrumentation technicians (SIT) were the most involved in the CL coordinator role in all 3 steps (i.e. (n=47, 69.1%) during step 1; (n=46, 67.6%) during step 2 and (n=46, 67.6%) during step 3). An optimal CL filling climate was observed in 60.3% for the first two steps and in 51.5% for step 3. In real-time most items (n=57, 83.8%) were checked during CL step 1, only (n=25, 36.8%) during step 2 and (n=28, 41.2%) during step 3.

Quality of completion of CL items: (Table 4) Concerning step 1, before anaesthetic induction, only the first two steps were checked aloud, with a percentage of more than 60%. Most other items were ticked without verification, with percentages ranging from (n=31, 45.6%) to (n=47, 69.1%). In step 2, most CL items were checked without verification, with a percentage of over 50%, except for the antibiotic prophylaxis item, which was checked aloud in 61.8% of cases. In step 3, "checked without verification" represented the highest percentages (from 41.2% to 58.2%).

In the vast majority of observations, i.e. 91.2%, the CL was stapled to the patient file.

Table 1 Distribution of participants by socio-demographic and professional characteristics

Characteristics	Results
1) Gender	
Male n (%)	70 (43.8)
Female n (%)	90 (56.3)
2) Age, mean	38.05 ±8 years[25–58]
3) Professional status	
Surgeon n (%)	37 (23.1)

Table 1 Continued...

Characteristics	Results
Surgery resident n (%)	35 (21.9)
Anaesthetists n (%)	5 (3.1)
AR resident n (%)	10 (6.3)
Nurse n (%)	44 (27.5)
Instrument technician n (%)	13 (8.1)
Anesthesia technician n (%)	16 (10.0)
4) Operating room seniority	
<1 Year n (%)	4 (2.5)
from 1 to 30 years n (%)	153 (95.6)
>=30 Years n (%)	3 (1.9)
5) OR	
General and digestive surgery n (%)	40 (25.0)
Orthopaedic surgery n (%)	35 (21.9)
Neurosurgery n (%)	19 (11.9)
Emergency room n (%)	6 (3.8)
Maxillofacial surgery n (%)	19 (11.9)
Urological surgery n (%)	30 (18.8)
Plastic, reconstructive, aesthetic and burn surgery n (%)	11 (6.9)

Of the total number of participants, (n=84, 52.5%) had not received any training in patient safety, and (n=139, 86.8%) felt that they were sufficiently informed and trained in the use of the CL.

Table 2 Main perceptions of CL use among operating room professionals at the university hospital center (UHC) of Sahloul in 2023

Items	Agreement n(%)	Disagreement n(%)
Overall opinion		
CL improves team sharing	154 (96.3)	6 (3.8)
CL enables cross-checking before intervention	155 (96.9)	5 (3.1)
The CL is an opportunity to avoid errors or malfunctions during the performance of an intervention.	15 (97.5)	4 (2.5)
CL strengthens links between professionals	153 (97.5)	7 (2.5)
CL is an essential tool for professionals in training	152 (95.6)	8 (4.4)
CL helps develop a safety culture in the OR	156 (95.0)	4 (5.0)
Overall assessment of CL usefulness	155 (98.7)	2 (1.3)
The difficulties of using CL		
CL is an additional administrative formality	10 (6.3)	150 (93.8)
CL wastes time	5 (3.1)	155 (96.9)
CL is redundant with other documents	29 (18.1)	131 (81.9)
CL is useless for some tried-and-tested interventions	19 (11.9)	141 (88.1)
CL is useless for stable teams	26 (16.3)	134 (83.8)
CL is difficult to implement for emergency interventions	79 (49.4)	81 (50.6)
It's difficult for a circulating instrument technician to coordinate the CL, especially if there's no support from the doctors.	56 (35.0)	104 (65.0)
The exchange of oral information between the various professionals involved is difficult to obtain.	75 (46.9)	85 (53.1)
The "theatricalisation" caused by verbalisation aloud is difficult to accept and/or implement.	95 (59.4)	65 (40.6)
Multiple checks are anxiety-inducing for the patient (identity, etc.).	94 (58.8)	66 (41.3)
Some criteria are confusing, unsuitable or inapplicable to certain activities	41 (25.6)	119 (74.4)
The choice of answers is inappropriate/not flexible enough	17 (10.6)	143 (89.4)
It's a pity that certain risks are not mentioned by name (skin preparation of the surgeon, Prion risk, etc.).	32 (20.0)	128 (80.0)
The CL is very repetitive	14 (8.8)	145 (91.2)
CL is a challenge to professional skills	28 (17.5)	132 (82.5)
CL can lead to legal problems in the event of an adverse event.	42 (26.3)	118 (73.8)
Appointing a coordinator is difficult because it raises liability issues.	39 (24.4)	121 (75.6)
When carrying out the CL, we sometimes don't dare contradict someone who gives an incorrect answer.	27 (16.9)	133 (83.1)
Actions that make CL easier to use		
Information campaigns organized at facility level (medical committee information meetings, OR council, etc.)	156 (98.1)	3 (1.9)
Team meetings in the operating room	156 (98.1)	3 (1.9)
Training courses offered to professionals ("classic" training, simulation, etc.)	155 (97.5)	4 (2.5)
Quality documents (procedure, quality form, etc.)	154 (97.5)	4 (2.5)
CL assessment/audit actions carried out at the facility	152 (95.6)	7 (4.4)
Your superiors' commitment to the use of CL	151 (95.0)	8 (50)
The hospital's commitment to the use of CL (accreditation context)	150 (94.3)	9 (5.7)

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Table 3 Distribution of professionals acting as CL coordinators and observations during CL filling

		Step 1 n (%)	Step 2 n (%)	Step 3 n (%)
OR nurse	No	42(61.8)	45(66.2)	42(61.8)
	Yes	26(38.2)	23(33.8)	26(38.2)
SIT	No	21(30.9)	22(32.4)	22(32.4)
	Yes	47(69.1)	46(67.6)	46(67.6)
Optimal conditions	No	27(39.7)	27(39.7)	33(48.5)
	Yes	41(60.3)	41(60.3)	35(51.5)
All items were checked in real time	No	11(16.2)	43(63.2)	40(58.8)
	Yes	57(83.8)	25(36.8)	28(41.2)

Table 4 Quality of item completion in the three CL steps

All items are checked n(%)			
Steps	**Yes out loud**	**Checked without verification**	**Unverified**
Step 1: before anaesthetic induction			
Identity, procedure and consent confirmed by patient	47 (69.1)	19 (27.9)	2 (2.9)
Procedure site	44 (64.7)	22 (32.4)	2 (2.9)
Anaesthesia equipment and products	21 (30.9)	44 (64.7)	3 (4.4)
Pulse oximeter in place and running	20 (29.4)	47 (69.1)	1 (1.5)
Known allergy	32 (47.1)	31 (45.6)	5 (7.4)
Risk of difficult intubation or inhalation	15 (22.1)	45 (66.2)	8 (11.8)
Risk of blood loss >500ml	10 (14.7)	44 (64.7)	14 (20.6)
Step 2: before skin incision			
All team members introduce themselves	22 (32.4)	41 (60.3)	5 (7.4)
Patient's name, procedure, incision site	29 (42.6)	36 (52.9)	3 (4.4)
Antibiotic prophylaxis	42 (61.8)	24 (35.3)	2 (2.9)
Anticipation of critical events			
For the surgeon :			
-Critical or unusual steps	11 (16.2)	33 (48.5)	24 (35.3)
- duration of operation	10 (14.7)	34 (50,0)	24 (35.3)
-Anticipated blood loss	9 (13.2)	35 (51.5)	24 (35.3)
For the anaesthetist :			
-A particular problem	10 (14.7)	39 (57.4)	19 (27.9)
For the nursing team			
-Sterility (color shift of passage indicators)	17 (25.0)	44 (64.7)	7 (10.3)
-presence or absence of equipment malfunctions or problems	18 (26.5)	43 (63.2)	7 (10.3)
Availability of essential imaging documents	12 (17.6)	43 (63.2)	13 (19.1)
Step 3: after intervention			
Type of procedure	14 (20.9)	39 (58.2)	14 (20.9)
Final count of instruments, swabs and correct needles	12 (17.6)	29 (42.6)	27 (39.7)
Labeling of samples	20 (29.4)	28 (41.2)	20 (29.4)
The presence or absence of equipment malfunctions to be resolved	12 (17.6)	34 (50.0)	22 (32.4)
Concerns upon awakening and post-operative management of the patient	6 (8.8)	37 (54.4)	25 (36.8)

Discussion

This study aims to describe CL use practices among OR professionals at Sahloul Hospital, and to explore these professionals' perceptions of the CL. In what follows, a discussion of the methodology, as well as the main results obtained in the light of the available literature. Bearing in mind the imperiousness of ensuring the fidelity and validity of data collection methods, we used two tools inspired by those validated by the HAS, which guarantees precise measurement of the variables of interest: a self-administered questionnaire designed to describe CL use practices among OR professionals at Sahloul Hospital, in 2023, and to determine the factors influencing them. Several researchers have used this instrument in their studies, given its good psychometric qualities.[33–37] An observation grid, which was the most suitable means of objectively assessing the practices of OR professionals concerning CL, and of measuring the degree and quality of CL application in the OR, which is why several researchers used this grid.[38–40] By using both a self-administered questionnaire and an observational grid, our study would be able to provide a comprehensive assessment of OR professionals' practices and perceptions of CL, which could be used to develop interventions to promote its safe use.

Let's begin this discussion with the focus on the main perceptions of CL use

The average age of participants in our study was 38.05±8 years, with a minimum age of 25 years and a maximum age of 58 years. This result is close to that of a study conducted.[41] Similarly, in

another study conducted by Toor et al.[42] in Pakistan, the mean age of OR professionals was 37.4 years, which is close to our study. Our study population was predominantly female (n=90, 56%), which is in line with the results of a study carried out in Quebec in 2013, in which 66.7% of participants were women[43] and can be explained by the fact that the Tunisian population is predominantly female. Indeed, according to the Tunisian Association of Women and Science, "several fields of study (medicine, nursing and biological sciences) are highly feminized".[44] In the present study, our findings indicate that 52.5% of the population have not received any training in patient safety, raising significant concerns about the quality of surgical safety practices, which is why several studies have stressed the importance of training for the proper use of CL. A study in India showed that CL training was crucial to improving communication and patient safety.[45]

According to the responses collected, 86.8% of the population considered themselves sufficiently formed and trained in the use of CL, even though 52.5% of participants had not received training in CL use. This may be explained by the fact that some participants acquired their knowledge of CL use through practical experience and observation of their colleagues, rather than through formal training. The overall opinion on the use of the CL was marked by a high level of support (96.3%) from OR professionals for the role of the CL in improving and sharing information within the team. This finding is consistent with the results of previous studies that have also shown high adherence to the CL in the surgical environment taking the example of the study by Treadwell et al.[46] with an average of 92% and the study by Healey et al.[47] with a high adherence to the CL of an average of 94%. The majority of respondents (97.5%) saw CL as an opportunity to avoid errors or malfunctions during the performance of an intervention. This finding is described in the literature, where 33% of the population surveyed by the American Journal of Surgery confirmed that they had already detected an error thanks to the use of CL.[48] The literature also reports that improving patient safety and quality of care, particularly in ORs, requires the promotion and development of a safety culture.[49] One of the actions contributing to the development of a safety culture is the appropriate use of CL;[50] this was confirmed by 95% of participants. Importantly, almost all participants (98.7%) confirmed the usefulness of CL in improving patient safety in the OR. This strong positive assessment is in line with the results of several studies carried out in several countries, including Tunisia, which have demonstrated the effectiveness of CL in preventing medical errors and reducing postoperative complications. (Table 5) However, although the perception of OR professionals is positive towards the usefulness and effectiveness of the CL, its use raises certain difficulties.

Table 5 Summary of data on the overall assessment of the usefulness of CL as reported in the literature

Authors (date)	Objectives	Country	Population	Sample size	Results
Ben Jemaa, Imen et al.[58]	Evaluating the impact of the use of surgical CL on postoperative outcomes in Monastir Fattouma Bourguiba University Hospital.	Tunisia	Patients undergoing surgery	368 patients	The use of surgical CL resulted in a reduction in mortality (from 2.9% to 0.7%), infectious morbidity (from 10% to 2.1%) and length of stay (from 6.5 to 5.3 days).
Bianco et al.[59]	Evaluate the impact of CL use on post-operative complication rates and length of hospital stay	Italy	Patients over 65 undergoing elective surgery	505 patients	Use of CL significantly reduced post-operative complications and hospital stay
Quilici et al.[60]	Assessing the impact of CL on patient and healthcare professional satisfaction	France	Surgical patients and healthcare professionals	152 patients and 58 healthcare professionals	Using CL has improved patient and healthcare professional satisfaction
Fourcade et al.[61]	Assessing the effect of CL on medical errors and mortality	France	General surgery	1370 patients	Reduces medical errors by 40% and mortality by 50%.

It is important to emphasize that the implementation of CL in ORs has been widely studied and demonstrated to be effective in ensuring patient safety and reducing surgical errors, and cannot be perceived as an administrative task or a waste of time[50] which is why we find that the majority of our study population (96%) held the same perception. Almost half of the professionals (49.4%) considered CL to be difficult to implement for interventions carried out in emergencies, as this raises concerns about the feasibility of CL. This perception is consistent with the findings of some a previous study conducted by Conley et al. in 2015, which showed that the implementation of CL in emergency situations can be difficult due to the need to make rapid decisions and temporal pressure.[51] However, it is important to emphasize that even in emergency situations, the use of CL can be beneficial by identifying potential errors and preventing them before they occur. Even partial use of CL in emergency situations can reduce the number of errors.[52,53] Analysis of the results also shows that more than half the participants considered the dramatization of verbalization and the exchange of oral information between professionals to be difficult to implement. These results seem to go hand in hand with the study carried out by Lignard et al.[54] which revealed that members of the surgical team often find it difficult to communicate due to several factors. It is therefore important to implement strategies to improve communication and collaboration within the surgical team especially if we take into consideration that the main risk factors for serious events are related to teamwork and organization in 80% of the population.[55] The results of our study highlight a major concern linked to patient anxiety concerning multiple checks. Indeed, a majority of the population surveyed (58.8%) considered that these checks can be anxiety-provoking for patients. This perception is consistent with the survey of healthcare professionals carried out by HAS in 2012, which indicated that 61% of the population stated that multiple verifications can be anxiety-provoking for patients. Although multiple verifications are an essential component of safe care in the hospital environment, it is important to take patients' concerns into account and actively involve them in the verification process.[56]

All participants anonymously stressed the importance of information campaigns, team meetings, training, quality documents and evaluation campaigns, as well as the commitment of their superiors and the encouragement of the hospital to facilitate the integration of CL into care practices. These results highlight the importance of a comprehensive approach to the effective implementation of CL in the OR. In addition, a Tunisian study published in 2017 shared the same result in fact it also highlighted that the majority of the population are (is) in favor of the importance of training, information, buy-in from

healthcare professionals and institutional commitment to support the use of CL.[57] All in all, therefore, this evaluation of the perception of CL use showed that the vast majority of professionals are aware of the importance and usefulness of CL in preventing errors in the OR and developing a culture of safety, a result in line with the literature. However, it is difficult to apply in emergency situations, and the dramatization that comes from verbalizing information aloud and exchanging it between professional's remains a challenge, although information campaigns can facilitate its implementation.

Moving to the discussion of the CL use observations

Globally, the CL is used in ORs in 70.8% of the procedures observed. This is in line with the results of a global study of 1,464 facilities in 94 countries during a period from 2014 to 2016, which found CL adoption of in 75.4% of operations.[62] Only the burn and neurosurgery ORs used CL 100% of all procedures observed, this result can be discussed on the one hand by the nature of rapid procedures in the burn OR on the other by the commitment of superiors in the neurosurgery OR in establishing a safety culture and encouraging staff to use CL. Surgical instrumentation technicians were the professionals most significantly involved in implementing CL in the OR as CL coordinators, with an average of (68.6%). This reflects a fairly strong commitment, which is confirmed by the literature, which highlights their active participation, which can improve communication and coordination between members of the surgical team.[63] A climate of stress characterized by silence in the first 2 steps, i.e. 60.3% of all observations during the first two steps (pre-induction and pre-procedure), translating into reduced communication due to the vigilance and attention of OR professionals to the procedure. As coordinators, surgical instrument technicians can play a key role in communicating clearly and systematically, which can contribute to better compliance with the LC and these steps.[64]

However, at step 3, post-surgery, the conditions for performing CL are less optimal (51.5%), which translates into communication that may be less prioritized and less systematic, due to the concentration of professionals on other tasks such as wound closure or patient transfer, which can hinder the proper use of CL. This climate finds its explanation in a study conducted in 2012 by Aveling et al.[64] which shows that poor communication can lead to negligence in performing CL verification during this step. Real-time verification during each step of the CL showed a significant variation between the different steps: indeed, a high compliance of 83.8% was observed during step 1. This can be explained by the fact that, at this step, professionals are often more aware of the importance of this step, which has been highlighted in numerous studies published by the WHO[65] so they are more inclined to comply with CL verification at this crucial step of the surgical procedure. Nevertheless, during steps 2 (36.8%) and 3 (41.2%), there was a reduction in real-time compliance. Furthermore, as the surgical procedure progresses, other tasks and requirements may capture the attention of team members, which may contribute to a decrease in real-time verification during steps 2 and 3. This is confirmed by workload theory, which suggests that the quantity and complexity of tasks faced by professionals may negatively influence their ability to perform CL verifications in real time.[66]

Observations in the different ORs showed that in 91.2% of cases, the CL was cycled and stapled to the patient record, suggesting good compliance with WHO recommendations, which stress the importance of appropriate documentation in the context of patient safety and risk management.[67] During step 1, our study of the quality of completion of CL items showed that the first two CL items and the known allergy item were checked aloud by an average of 64.2%. These results raise the question of the importance attached to these specific items by professionals during this step. A study by Vries et al.[68] confirms these results, showing that certain items, such as patient identification and allergy verification, were often checked more systematically than others. In steps 2 and 3, only the antibiotic prophylaxis item was checked aloud in 61.8% of the procedures observed, while most of the other items were checked without verification in more than half of the observations. These results can be explained by the negative perceptions of our participants towards the dramatization due to verbalization aloud: an observation made through the evaluation of perceptions.

Strengths and limitations

As for strengths, our study addressed an important and topical issue in the field of patient safety in the OR, which may have direct implications for clinical practice and the improvement of surgical care. Our study was exhaustive, meaning that we included all professional categories working in the OR. This comprehensive approach enabled us to explore the underlying problem in depth. The French National Authority for Health (HAS) generally recommends several observations of 30 for this type of study. However, in our study, we decided to carry out a higher number, i.e. 96 observations. We aimed to gain a better understanding of the problem we wished to study. A major strength of our study lies in the use of two measuring instruments validated by the HAS. This rigorous methodological approach guarantees the reliability and validity of the data collected, reinforcing the credibility of our results. Discussion of the entire study shows a concordance in the results obtained from the two studies, which contributes to increasing the reliability of our methodology and reinforcing the validity of our results. The concordance can be summarized in two points of convergence:

A. The positive perceptions of CL's usefulness in improving patient safety found in the questionnaire were confirmed in the observation grid by the rate of CL use.

B. The results of our questionnaire indicate that dramatization aloud is difficult to implement, which is in line with the practice of professionals, who tend to check off CL items without verification. Our study has limitations, although the observation grid is an objective, standardized tool for assessing the behaviours of OR professionals, it may not capture all relevant aspects of their practice. Certain key or subtle elements may escape observation, which could limit the representativeness of the data collected. Also, the presence of an observer can potentially influence professionals' behaviour, leading to performance bias or an artificial modification of their usual practices (Hawthorne effect).

Recommendations

To improve the use and implementation of the CL by OR professionals, it is important to put in place recommendations inspired by the literature and the results above. Concerning healthcare facilities, essential leadership on the part of institutional managers, department heads and nursing managers is encouraged, as well as ongoing commitment from OR professionals and daily implementation integrated into the operating schedule. To ensure a balanced use of the CL, it is advisable to allocate responsibilities equitably between members of the surgical team. Clear clarification of who is responsible for each step of the CL avoids excessive workload for any one individual. This balanced distribution of tasks also promotes harmonious collaboration within the team. In addition, the local and regional healthcare administrations must provide ongoing, regular and up-to-date training in CL use to ensure its effectiveness. This keeps staff knowledge and skills up to date. They must also raise

awareness among HCW on the importance of the CL. It is essential to explain in detail the benefits of the CL for patient safety, and to share concrete examples of errors avoided thanks to its use. This helps to create greater staff awareness and commitment.

In regards to the national level, multicentre studies of variations in CL use are recommended. These studies aim to examine variations in CL use and identify factors contributing to these differences. They can also compare practices between facilities, taking into account cultural differences, available resources and institutional policies, to understand the factors influencing CL adoption and use. Globally, we can suggest thorough revision and simplification of CL content. By eliminating redundant or non-essential elements, it is possible to reduce the cognitive load and time required to complete the CL. This makes it easier to use, and avoids overloading staff. The CL documentation process can be simplified through user-friendly electronic formats. By adopting mobile applications or specific software, information entry becomes faster and less time-consuming. As a result, the administrative burden is reduced, enabling staff to concentrate more on delivering safe patient care.

Conclusion

Based on these results, it remains essential to reduce the gap between positive perceptions and inadequate practices.

Multiple information actions are important to improve professional practices concerning the surgical CL, to ensure better patient safety in OR.

Author contributions

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Conflicts of interest

The author declares that there are no conflicts of interest.

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