



The World Health Organization's 'Surgical Safety Checklist': should evidence-based initiatives be enforced in hospital policy?

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DECLARATIONS

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NS was the originator of the idea; NS, KRMR, BFMR and LV discussed the idea and collected results; NS, KRMR and BFMR created the manuscript

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Summary

Objectives To assess the awareness and voluntary usage of the World Health Organization's Surgical Safety Checklist (WHO SSC), just prior to its mandatory implementation.

Design Questionnaire-based, prospective, telephone survey.

Setting Patients are exposed to systematic risks and principles of surgical safety are inconsistently applied even in sophisticated settings. The evidence-based WHO SSC addresses shortfalls to promote patient safety. It was formally introduced in the United Kingdom in January 2009 and became a mandatory preoperative requirement in all hospitals from February 2010.

Participants Two hundred and thirty-eight hospitals, both private and government-run, in the UK.

Main outcome measures Appreciation among senior theatre personnel as to the existence, implementation and usage of the WHO SSC concept.

Results Almost all had heard of the SSC, but in only two-thirds of hospitals was its use mandatory. Where the SSC was not compulsory, 80% were using it informally or sporadically. One-quarter of senior theatre personnel in hospitals without compulsory use indicated they did not know or that their department did not plan on using the checklist in the next six months, despite the deadline for implementation.

Conclusions If the SSC is to optimize safety, then greater education and awareness is required.

Background

There are an estimated 234 million procedures per year worldwide.¹ These operations carry a significant risk with papers quoting 'all surgical adverse

effects' of 21.9%² and inpatient surgical procedures contributing to between 3% and 16%.³ Leape⁴ suggested that such retrospective studies may underestimate adverse effects. The World Health Organization (WHO) introduced its

Surgical Safety Checklist (SSC) in June 2008 to try to reduce the number of surgical deaths and complications.

Entitled 'Safe Surgery Saves Lives', the WHO's initiative aims to reduce the number of surgical deaths and complications by ensuring concordance with good operating theatre practice, by improving team communication in operating rooms and by empowering all members of the surgical team to flag up concerns. Based on a core set of 19 safety checks covering anaesthetic practice, surgical practice, and scrub-team and nursing routines, the checklist is used in three key stages where mistakes are known to occur: briefing or 'Sign In' prior to induction of anaesthesia; 'Time Out' prior to skin incision'; and debriefing or 'Sign Out' prior to the departure of the patient from the operating theatre. The checklist prompts personnel and ensures that critical tasks have been completed, minimizes the effects of distractions and multitasking, and mitigates preventable risks. Minimal resources are required to deploy this initiative.

The checklist was launched in Europe in January 2009,⁵ and from February 2010 the National Patient Safety Agency (NPSA) in the UK has made the use of a modified version of the checklist mandatory for all trusts in England and Wales.⁶

This study assesses the voluntary use of the policy and identifies awareness of the SSC.

Method

Five hundred and forty hospitals in the UK were identified using the Dr Foster Health website (www.drfoosterhealth.co.uk).⁷ Those centres with no operating facilities were then excluded. Within a timeframe of one week in mid-January 2010, a team of four researchers telephoned 421 hospitals at random and asked to be connected initially to the operating department and then to the 'operating department coordinator' or the 'operating department manager'. If neither were available, connection to the most senior operating theatre nurse available was requested. By speaking only with senior theatre staff, we hoped to prevent ignorance of the unit's protocols and practice from biasing the results.

Four closed-style standard questions were asked to all participants (Table 1):

Table 1

Summary of the answers to the four questions posed to the 238 hospitals, expressed as percentages

All hospitals	'Yes' (%)	'No' (%)	'Do not know' (%)
Have you heard of the WHO's SSC?	99	1	–
Is its use compulsory in your hospital?	65	32	3
If not compulsory, is it used voluntarily/informally?	81	9	10
If not compulsory, are there plans for it to become so in the next six months?	75	7	18

- (1) Have you heard of the World Health Organization's Surgical Safety Checklist? (Yes or No) (Figure 1);
- (2) Is it currently in compulsory use in theatres? (Yes, No or Don't Know) (Figure 2);
- (3) If it is not compulsory, then is it used voluntarily or informally in your theatres? (Yes, No or Don't Know) (Figure 3);
- (4) If it is not compulsory, are there any plans for it to be compulsorily-used in the next six months? (Yes, No or Don't Know) (Figure 4).

Figure 1

Graphical representation of answers to Question 1

In the U.K. (Jan. 2010), what % of sampled operating room managers/senior-most theatre co-ordinators have heard of the WHO SSC?

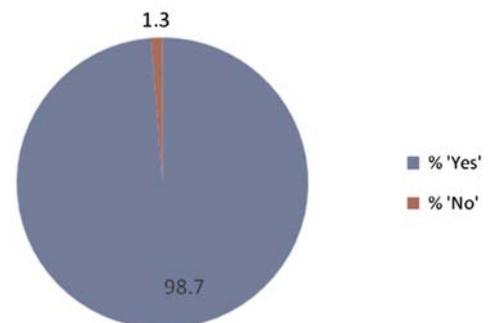


Figure 2
Graphical representation of answers to Question 2

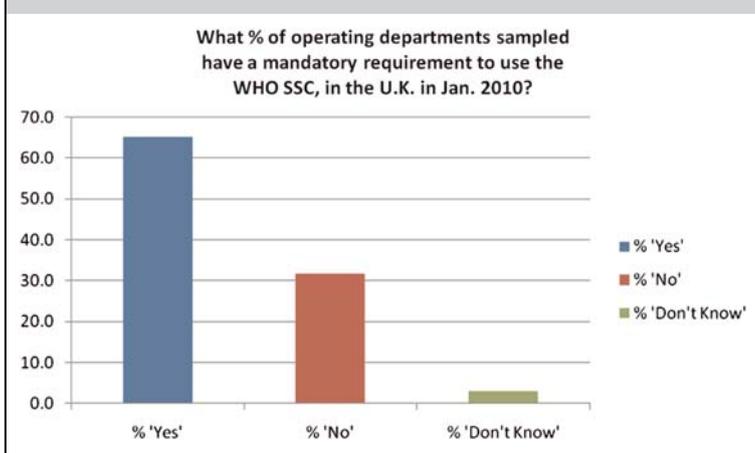
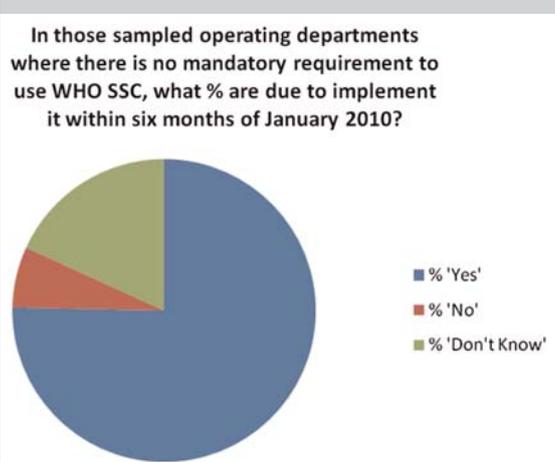


Figure 4
Graphical representation of answers to Question 4



Results

The researchers surveyed 238 hospitals or about 44% of the hospitals in the UK. Two hundred and two were NHS (government) hospitals (= 57% of NHS hospitals) and 36 were private hospitals (=19% of private hospitals) (Tables 2 and 3). Information could not be obtained from 183 hospitals due to: staff refusing to give details over the telephone without a formal written request; and the unavailability of suitable staff with whom we could speak when we telephoned.

Some operating department staff reported that in order to finish as close to the allocated time as possible, certain tasks may be omitted including part of or all of the SSC.

Private hospitals are generally part of larger groups and many reported that they employed some form of checklist as part of their 'integrated operating checklist pathways', that they did not use the WHO SSC, and accepted that differences existed between them.

Discussion

At the time of the survey, immediately before the mandatory introduction of the modified version of the WHO's SSC, almost all those staff that we surveyed had heard of the SSC but in only approximately two-thirds of hospitals was its use

Figure 3
Graphical representation of answers to Question 3

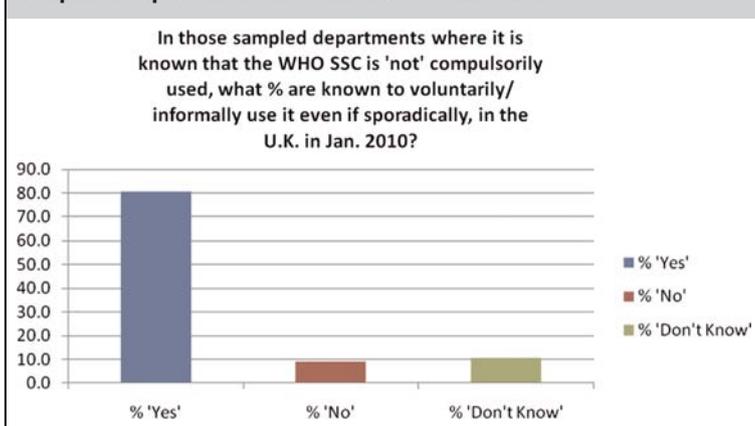


Table 2
The answers from government-run hospitals ($n=202$), expressed as percentages

NHS (Government)	'Yes' (%)	'No' (%)	'Do not know' (%)
Have you heard of the WHO's SSC?	99	2	–
Is its use compulsory in your hospital?	65	33	3
If not compulsory, is it used voluntarily/informally?	88	5	8
If not compulsory, are there plans for it to become so in the next six months?	79	5	16

Table 3
The answers from private hospitals ($n = 36$), expressed as percentages

Private	'Yes' (%)	'No' (%)	'Do not know' (%)
Have you heard of the WHO's SSC?	100	0	–
Is its use compulsory in your hospital?	69	26	6
If not compulsory, is it used voluntarily/informally?	30	40	30
If not compulsory, are there plans for it to become so in the next six months?	50	20	30

mandatory. Of those hospitals where the SSC was not compulsory, 80% were using it 'informally or voluntarily, even if sporadically'. This means up to 93% of hospitals were using the safety checklist in some manner with variable uptake. Worryingly, almost one-quarter of senior theatre personnel in hospitals not compulsorily using the checklist indicated that their department had no knowledge of the implementation of the SSC and did not know whether they would be using it in the next six months, despite the deadline.

In this particular survey example, some hospitals may be using similar checklists, but the WHO SSC should be completed nevertheless. Although this duplication can lead to decreased compliance, Degani and Wiener found that creating redundancy in the system enhances safety.⁸ Thus, if two forms are filled in during the transition phase leading to the exclusive implementation of the WHO SSC, it might be advantageous. We recognize that the NPSA guidelines for implementing the SSC apply only to England and Wales, however, we surveyed hospitals in the whole country in order to ascertain the national attitude to this WHO initiative. We also appreciate that only a limited number of hospitals were surveyed, and this obviously has an impact on the validity of generalizing from our figures. However, we believe that the trend from approximately half of all hospitals does stress the importance of educational awareness.

Even though the SSC is evidence-based, internationally accepted and, crucially, validated,

voluntary pick-up rates were below 100%. This may be due to a number of reasons including unwillingness to change, the need for comprehension, and a lack of awareness of the SSC. If schemes like this are to work effectively, it is important that all members of the team are informed both of its existence and of the reasons for and the importance of its implementation.

Fulfilment of time-sensitive targets is increasingly important in modern healthcare but this can jeopardize safety and good clinical care. Some members of the operating teams commented about the omission of certain tasks due to time pressures. Vats *et al.* found the same issue whereby 'in the busy period towards the end of an operation, nobody assumed responsibility for the sign-out checks',⁹ although they also found that teams became quicker at completing the checklist as their familiarity increased. Although the complications of surgery have profound effects on patients, they also adversely affect the cost of healthcare.¹⁰ With demands on medical resources rising worldwide, any complication can compromise the provision of healthcare by increasing the costs, with a very damaging effect on the hospital or healthcare provider and, ultimately, on other patients. For example, the length of stay is increased by complications,^{11,12} which causes a knock-on effect on discharge planning,¹⁰ waiting lists and the healthcare needs of others.

Conclusion

Validated evidence-based initiatives need to be strongly emphasized and publicized to medical and paramedical staff for the benefit of patients and the healthcare systems. Awareness and understanding lead to improved outcomes. Safety and efficiency have a symbiotic relationship in high quality, patient-centred, medical care. The WHO's SSC checklist allows the same fundamental safety checks to be completed for any patient, every time. Using this 'uniform' checklist can further reduce the mortality and morbidity of surgery.

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