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## Major Article

## An exploration of surgical team perceptions toward implementation of surgical safety checklists in a non-native English-speaking country

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## Key Words:

Barrier  
Operating room  
Safe surgery  
Strategy  
Surgery  
Surgical safety checklist

**Background:** In-depth information on the success and failure of implementing the World Health Organization surgical safety checklist (SSC) has been questioned in non-native English-speaking countries. This study explored the experiences of SSC implementation and documented barriers and strategies to improve SSC implementation.

**Methods:** A qualitative study was performed in 33 Thai hospitals. The information from focus group discussions with 39 nurses and face-to-face, in-depth interviews with 50 surgical personnel was analyzed using content analysis.

**Results:** Major barriers were an unclear policy, inadequate personnel, refusals and resistance from the surgical team, English/electronic SSC, and foreign patients. The key strategies to improve SSC implementation were found to be policy management, training using role-play and station-based deconstruction, adapting SSC implementation suitable for the hospital's context, building self-awareness, and patient involvement.

**Conclusion:** The barriers of SSC were related to infrastructure and patients. Effective policy management, teamwork and individual improvement, and patient involvement may be the keys to successful SSC implementation.

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The World Health Organization (WHO) surgical safety checklist (SSC) has been implemented globally in surgical settings. It seems to be successful in several settings, especially in the United States,<sup>1,2</sup> Canada,<sup>3</sup> and France,<sup>4</sup> where SSC adoption is mandatory. The particularly rapid implementation in these countries has high compliance, ranging from 90% to 100%;<sup>1-4</sup> however, in the United Kingdom, much lower complete compliance with the SSC has been reported (62%).<sup>5</sup> Related studies have shown that potential factors for success or failure of SSC implementation depend on system management and support, cooperation of the surgical team, and accountability of the surgical personnel.<sup>3-13</sup> However, the factors affecting SSC implementation regarding non-mandatory adoption and

in non-native English-speaking countries such as Thailand remain unreported. Factors affecting implementation may vary due to differences in context, adoption method, and culture.

In Thailand, comprehensive implementation of safe surgery was initiated in 2006 as one of the 8 patient safety goals,<sup>14,15</sup> but only the preoperative verification process, marking the operative site, and surgical time-out immediately before starting the procedure have been comprehensively implemented by following the Institute of Hospital Quality Improvement and Accreditation of Thailand protocols.<sup>14</sup> The WHO SSC was introduced in surgical settings in late 2008<sup>15</sup> after the WHO launched the Safe Surgery Saves Lives initiative;<sup>16</sup> however, SSC implementation was not mandatory, and it was left to voluntary adoption. In 2012, 9 organizations responsible for safe surgery signed a declaration to strengthen WHO SSC implementation and reduce surgical adverse events.<sup>17</sup> SSC implementation significantly increased but was not adopted in all surgical settings. A pilot study in a university hospital showed that compliance with the SSC varied with individual items on the checklist.

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Some items had a relatively high compliance, such as verbal confirmation of the procedure (99.5%) and verbal confirmation of the instruments, sponges, and needle counts (96.8%), but poor compliance with surgical site marking (19.4%).<sup>10</sup>

Currently, little in-depth information is available about the success or failure of SSC implementation in non-native English-speaking countries. In addition, whether the SSC is being implemented successfully in instances where adverse events and mortality have been reduced in non-mandatory adoption countries is an open question. Understanding the reasons behind the success or failure of implementation in these settings may lead to more effective implementation of the SSC and result in the improvement of surgical outcomes. This qualitative study aimed to explore the surgical team's perceptions of barriers and strategies to improve SSC implementation in Thailand.

## METHODS

### *Study design, settings and participants*

A qualitative study was performed between November 2013 and February 2015. Using stratified sampling, hospitals throughout Thailand were selected to be nationally representative. The inclusion criteria used to select the hospitals included: 1) at least 1-year implementation of SSC and 2) willingness to participate in this study. Thirty-three hospitals were selected, including 25 government hospitals and 8 private hospitals. Of these, 14 were teaching hospitals and 19 were non-teaching hospitals.

Twenty-seven hospitals implemented the SSC at least 3 years before the study (mean = 3.7 years; SD = 0.8), and 17 hospitals reported approximately 80% compliance with the SSC (mean = 84.4 years; SD = 20.6).

Volunteers, including surgeons, anesthetists, and nurses, were solicited from participating hospitals. All volunteers were willing to provide information and participate in this study. This study was reviewed and approved by the Research Ethics Committee, Faculty of Nursing, Chiang Mai University and later certified by the administrators or ethics committees of the study hospitals.

### *Data collection*

Focus group discussions (FGDs) and individual in-depth interviews were conducted to gather pertinent information. FGDs were conducted to examine the broad perception of surgical personnel before in-depth interviews. A semi-structured FGD guide and a semi-structured in-depth interviewing guide were developed by the research team and reviewed by 2 surgeons, 1 anesthetist, and 2 operating room (OR) nurses who had expertise in the SSC. The FGDs and in-depth interviewing guides were designed to gather information on barriers and strategies to improve SSC implementation. Open-ended questions were used, such as: "What are the barriers of SSC implementation?" and "What are the strategies to improve SSC implementation?" Probing techniques were used to collect additional information. All research tools were pilot tested for feasibility in one surgical setting.

Three FGDs were initiated to gather information from 39 representatives of the 33 participating hospitals (1 or 2 participants from each hospital); 13 people participated in each group. The FGDs were audio-recorded and notes were taken. The FGDs lasted 90 min on average (range: 75–110 min). After an interim analysis of FGD information, face-to-face, in-depth interviews by trained personnel were conducted with 50 surgical personnel (surgical ward nurses, surgeons, anesthesiologists, nurse anesthetists, and OR nurses; 10 each). Those chosen for in-depth interviews were selected from 33 participating hospitals with the lowest and highest SSC compliance

rates. Interview participants were recruited from the 5 lowest and 5 highest SSC compliance hospitals. The in-depth interviews lasted 40 min on average (range: 30–75 min). The interviews were audio-recorded and notes were taken.

### *Data analysis*

Recordings from the FGDs and in-depth interviews were transcribed verbatim. Transcripts were independently coded by 2 trained qualitative researchers using an inductive method to identify themes. Themes were extracted until saturation was reached. Then the themes were sorted into sub-themes. The themes and sub-themes that emerged were checked by a researcher with expertise in surgical safety to ensure conformity with concepts of surgical safety.

## RESULTS

### *Demographics of participants*

A total of 39 participants, all OR nurses, participated in the FGDs. Of these, 71.8% were OR head nurses, and 92.3% were women. The mean age was 50.6 years (SD = 7.3). Most participants had a master's degree (64.1%). The mean working experience was 28.2 years (SD = 4.1). Most participants were involved in the hospital accreditation committee (89.7%) and/or surgical care improvement committee (94.9%). The in-depth interviews included 50 participants, half of whom held leadership positions or were senior staff members; the other half were junior staff members. Most were nurses (60.0%) and women (76.0%), with a mean age of 38.4 years (SD = 9.8). A third of the participants held a master's degree (32.0%), and the mean working experience was 24.7 years (SD = 6.8). Most were involved in the hospital accreditation (76.0%) and surgical care improvement committees (86.0%) (Table 1).

### *Barriers of SSC implementation*

Four main themes reflecting SSC implementation barriers were structure, surgical team, checklist, and patient barriers. The structure and surgical teams were major barriers for SSC implementation. Details of the barriers and exemplary comments of the participants are summarized below.

#### *Structure barriers*

Structural barriers to SSC included unclear policy, inadequate infrastructure, and traditional Thai culture. Some hospitals did not have a clear policy mandating SSC adoption; therefore, they could not put it into real practice. Shortage of personnel, inadequate computer support, and traditional culture also resulted in failure to implement the SSC with all patients.

#### *Surgical team barriers*

Surgical team barriers included unprepared surgical teams, refusals and resistance, and lack of awareness or irresponsibility. Some surgical personnel lacked true understanding regarding SSC content, leading to uncertainty and ineffective implementation. They did not know how to use the checklist. Some surgical personnel refused and resisted, especially in the initial stage of SSC implementation. In addition, some surgical personnel lacked awareness and/or were irresponsible, leading to ineffective implementation.

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