Original Article

# WHO Safety Checklist Introduction in Referral Obstetric Unit: The Way Forward for Quality Improvement

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## Abstract

**Objective:** Efficacy of WHO safety checklist in obstetrics in collaboration with anesthesia.

**Methodology:** The study was conducted to evaluate the implementation of WHO safety checklists in both elective and emergency. Among women undergoing cesarean section either elective or emergency 143 sets of checklists, three per patient were completed in Operation theatre. Obstetrics, anesthesia and nursing professionals completed these checklists. Each checklist was filled at the time of induction of anesthesia (Briefing), before surgical incision (timeout) and before drapes removed (Debriefing). All Proformas were analyzed at the end of the study in regard of filling and attitude of doctors and nurses.

**Results:** Total number of LSCS conducted during the study period was 1001. Among this 31 % were performed electively and 69% were Emergency LSCS. All three checklists were filled for 143 women undergoing LSCS. In the obstetric checklist, the briefing section was always filled completely. In the timeout section, three questions were about clinical information, critical events and queries were filled in 57% checklists. In the debriefing section, no certain post-operative patient care was mentioned in any checklist. In the anesthesia checklist, briefing and timeout sections were filled properly. While in the debriefing section, specific patient care was filled in 37% checklists. In the nursing checklist, nurses hardly took interest rather the obstetric resident was requested for it. Repeated problems encountered included were the fetal status was not entered, the antibiotic prophylaxis was never given by a nurse and the entry of specimen was irrelevant as no specimen was sent in any case.

**Conclusion:** The WHO Safety Checklist, if adopted, is a simple tool with better outcome in surgical as well as anesthesia department.

**Keywords:** Anesthesia, Checklist, Referral Obstetric.

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## Introduction

Patient safety has become a major public health concern. In order to improve patient safety, it is critical to understand and continuously improve clinical work quality. Determining the reasons for adverse events is also critical.[1,8] The role of clinicians in the medical system safety is critical.[2,5] Checklists are becoming popular in medical field as a tool to improve the quality and safety of medical practice.[1] Implementation of checklists should be carefully planned to achieve the desired aims.[3]

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In 2002, World Health Assembly recognizing the need to improve healthcare systems urged the WHO to take steps globally in this regard to improve health facilities.[3] In 2004, World Health Organization launched the alliance for patient safety, which was supported by latest evidence base to avoid the pitfalls causing harm to patient recovery.[4,9] In 2008 a second initiative was undertaken by World Health Organization to improve surgical and anesthesia safety. It led to the development of the surgical and anesthesia safety checklists to reduce preoperative, perioperative and postoperative harm to patients.[2,3] This concept of safety checklists has been studied globally. There has been a decrease in complications and mortality since the checklist has been implemented. [2,8]

In addition to patient safety, specific attention is being paid to team relationships and communication. A surgeon must rely on the anesthetist and scrub nurse during an operation. The common element which is critical to success is good communication.[5] In a small team of two or three people, the checklists can be implemented as a team. However, in larger teams, it is recommended that a single person is made responsible for running the checklists.[3,7]

In Pakistan, attention has been given to improve health facilities since past few years. In this regard, the KPK health sector has introduced the safety checklists. Its implementation has started since the past one year. In our study three departments were involved, the obstetrician, the anesthetist and the nurse to assess the implementation of safety checklists for LSCS, the commonest procedure in operative obstetrics.

## Methodology

The study was conducted to assess the practice of introducing WHO safety checklist for cesarean sections, both elective and emergency. A cross-section study was carried out over the time span of six months, from 1st Jan - 30th June, 2017 at Unit I, Department of Obstetrics & Gynecology, PIMS, Islamabad. using convenience sampling technique. Among women undergoing cesarean section either elective or emergency 143 sets of checklists, three per patient, were completed in Operation theatre. Obstetrics, anesthesia and nursing professionals completed these checklists. Each checklist was filled at the time of induction of anesthesia (*Briefing)*, before surgical incision (*timeout*) and before drapes removed (*Debriefing)*. All Proformas were collected at the end of the study. These were evaluated to see the deficiencies in filling or if there was any data irrelevant to index hospital practice in the checklists. The attitude of all three departments was critically analyzed to assess the barriers to doctors and nurses in implementing the safety checklists. Details of information were noted in a structured proforma.

## Results

This study was done for the duration of six months from 1st Jan – 30th June 2017 in the operation theatres of MCH Centre, unit I, PIMS. Total number of LSCS during this period was 1001. Among this 31 % were performed electively and 69% were Emergency LSCS. (Figure. 01). All three checklists were filled for 143 women undergoing LSCS. The checklists filled for EL. LSCS were 99 (70.0%) while 44 (30.0%) were completed for emergency LSCS.

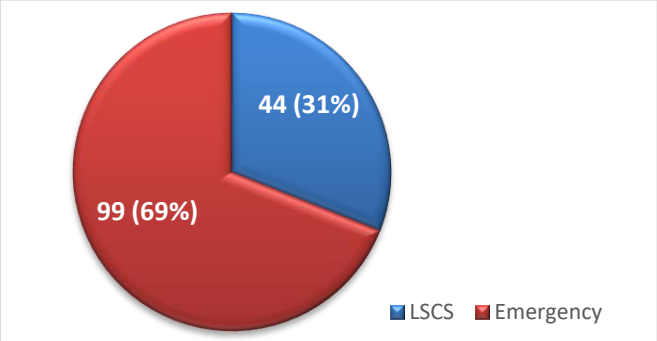


Figure 1. Frequency & Percentage of total LSCS performed.

In Table I showed the obstetric checklist, the *briefing section* was always filled completely. In the *time out section*, three questions were about clinical information, critical events, and queries. Majority assessed level 1 and level 4 urgency 43 (30.0%) and 74 (51.7%) respectively when asked 'what is the level of urgency?'. There were 112 (78.3%) women who were required type and screening whereas 116 (27.0) women required an ultrasound. In the *debriefing section*, no specific post-operative patient care was mentioned in any proforma. In Table. II; anesthesia checklist, *briefing* and *timeout* sections were filled properly. All participants answered yes when asked 'regarding anaesthesia checklist completed'. There were 133 (93.0%) patients who 'required and emergency drugs in OT while 17 (11.9%) patients were presented with allergy. Whereas the majority of the patients 123 (86.0%) required monitoring. While in the *debriefing section*, specific patient care was filled in 37% checklists (Table. II). In 63% proformas, no entry done in debriefing.

| Table I: Descriptive statistics of Information regarding WHO checklist (Obstetrics) | |
|---|---|
| **Obstetrics PG/HO Review** | **n (%)** |
| **Briefing** (before induction of anesthesia) | |
| **What additional equipment / supplies are need?** No | 143 (100.0) |
| **What is the level of urgency?** | |
| Level 1 | 43 (30.0) |
| Level 2 | 14 (9.8) |
| Level 3 | 12 (8.5) |
| Level 4 | 74 (51.7) |
| **Does the patient require at type and screen?** | |
| Yes | 112 (78.3) |
| No | 31 (21.7) |
| **If yes, is blood available?** Yes | 112 (78.3) |
| No | 31 (21.7) |
| **Is an ultrasound required?** | |
| Yes | 116 (27) |
| No | 27 (18.9) |
| **If yes, has it been completed?** | |
| Yes | 120 (83.9) |
| No | 23 (16.1) |
| Has fetal status been confirmed? | 143 (100.0) |
| Paeds doctor availability confirmed? | 143 (100.0) |
| Was antibiotic prophylaxis given? | 143 (100.0) |
| **Time Out** | |
| **Confirmed Adequate Surgical Anesthesia?** | |
| Yes | 82 (57.3) |
| No | 61 (42.7) |
| Confirms urgency | |
| Yes | 74 (51.7) |
| No | 69 (48.3) |
| **Debriefing** (before drapes removed) | |
| **The name of procedure recorded?** | 0 (0.0) |
| **The instrument, spong and needle counts are correct?** | 0 (0.0) |

For the nursing checklist, difficulty was repeatedly encountered as it was hardly ever filled by the scrub nurse. Rather the obstetric resident was requested to fill it on the nurses' behalf. In the *briefing section* the fetal status was not entered. In the *time out section*, antibiotic prophylaxis was never given by nurse. In the *debriefing section*, the entry of name of procedure was mentioned but question regarding the entry of 'instrument, sponge and needle counts to be correct' was not entered. Table. III

| Table II: Descriptive statistics of Information regarding WHO checklist (Anesthesia) | |
|---|---|
| **Anesthesia** | **n (%)** |
| **Briefing** (Before induction of anesthesia) | |
| What is ASA score? 1 | 48 (33.5) |
| 2 | 79 (55.2) |
| 3 | 16 (11.2) |
| 4 | 0 (0.0) |
| Regarding anaesthesia checklist completed | |
| Enough oxygen supply? | 143 (100.0) |
| Anesthesia machine, breathing circuit are in working condition? | 143 (100.0) |
| Resuscitation equipment, endotracheal tube and suction ready? | 143 (100.0) |
| Required and emergency drugs in OT? Yes | 133 (93.0) |
| No | 10 (7.0) |
| Does patient have required monitoring? Yes | 123 (86.0) |
| No | 20 (14.0) |
| Does patient have allergy? Yes | 17 (11.9) |
| No | 126 (88.1) |
| Difficulty airway and aspiration risk? No | 36 (25.2) |
| if yes, difficulty airway equipment available | 107 (74.8) |
| trained assistant available (yes) | 107 (74.8) |
| No | 36 (25.2) |
| Risk of hypothermia (operation> 1 hour)? Yes | 54 (37.8) |
| No | 89 (62.2) |
| If yes, warning fluid required? Yes | 76 (53.1) |
| No | 67 (46.9) |
| **Time Out (before surgical incision)** | |
| Comorbid DM | 15 (10.5) |
| Obesity | 12 (8.4) |
| Hyperthyroidism | 02 (1.4) |
| PIH | 11 (7.7) |
| Placenta Previa | 02 (1.4) |
| Nil | 101 (70.6) |
| Any other concern Anaemia | 04 (2.8) |
| APH | 02 (1.4) |

| | |
|---|---|
| HCV | 04 (2.8) |
| Primi Breech | 02 (1.4) |
| Nil | 131 (91.6) |
| **Debriefing** (before drape removed) | |
| **Is there any specific patient care requirement** | |
| To be ordered (Yes) | 19 (35.8) |
| No | 34 (64.2) |
| To be communicated | 0 (0.0) |

**Table III: Descriptive statistics of Information regarding WHO checklist (Nursing)**

| NURSING | n (%) |
|---|---|
| **Briefing** (Before induction of anesthesia) | |
| Is there patient identity, procedure and consent confirmed? (yes) | 143 (100) |
| Is sterility confirmed (yes) | 143 (100) |
| Has fetal status been confirmed (yes) | 0 (0.0) |
| Is the requirement for neonatal support confirmed (yes) | 143 (100) |
| **Time Out** | |
| Was antibiootic prophylaxis given? (yes) | 0 (0.0) |
| Is the neonatal care provider present? (yes) | 143 (100) |
| Is the resuscitation unit on? (yes) | 143 (100) |
| Is the resuscitation equipment present & working? (yes) | 143 (100) |
| **Debriefing** (before drapes removed) | |
| The name of procedure recorded? (yes) | 143 (100) |
| The instrument, sponge and needle counts are correct? (yes) | 0 (0.0) |

## Discussion

Anesthesia and surgical safety checklists have been used in the referral obstetric facilities. Different studies were performed in various hospitals in different specialties including otorhinolaryngology, abdominal surgery, anesthesiology etc. In our study only, lower segment cesarean sections were selected and all three checklists were filled with 143 women. As it was convenience sampling mainly in the morning hours the compliance rate was 70.6% in elective cases and 29.3% in emergency cases. A retrospective study of seven years period including 5144 elective cases Saudi Arabia overall compliance rate was 96.5%.[9] The rate of compliance for various procedures in a pilot study was 50% for dental extraction, 60% for cataract surgery,35% for endoscopy, 20% for cystoscopy 40% for cardiac catheterization procedures and 0% for bronchoscopy procedures.[6] In a survey of children hospitals of Canada over a period of 12 months, the compliance was 93%.[5]

In our study, we modified the WHO safety checklist according to obstetric and local needs for better outcome for the operated woman and her newborn infant. Such modifications are encouraged by WHO to suit local needs. In another study modified WHO surgical safety checklist for cataract surgery was developed and implemented in the center.[10] In, a children hospital in the USA, customization of steps of three-phase WHO surgical checklist was done.[11,12]

A study showing theater team briefing at the beginning of the day and debriefing at the end of the day can also way to further enhance teamwork and interdisciplinary communication.[13] Another study shows that a meeting of surgical team before the start of elective list in which all the day cases were briefly discussed was helpful to enable team preparedness.[5]

In the timeout section, in our cases, the nurse did not give antibiotic rather the obstetric resident gave an antibiotic. In a study, thromboembolic prophylaxis was missed or incomplete.[9] In our study option was removed from proforma due to the practice of early mobilization. In our study nurses did not take active part in the study and did not determine the fetus status. This is in contrast to published literature noting that nursing staff were the most supportive members of the theater team in use of checklists.[14]

In our study debriefing section was not filled properly as postoperative orders were written elsewhere in the file. Another study showed that completion of the checklist was poor by anesthetist whereas timing was the issue reported in another article.[14]The time out principle was considered useful for improving the safety of the surgical procedures, especially in emergency cases.[15] The checklist should be understood not merely as a list of items to be checked, but it should be used as a tool for improvement of communication, teamwork and safety culture in the operating room and it should be modified and implemented as per setting of the Institute.[8]

## Conclusion

Checklists are simple and promising tools for the improvement of the communication between the team members, prevent infection, prevention of complications with resultant better outcome of mother and fetus.

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