

Surgical Safety Checklist in Obstetrics and Gynaecology

This clinical practice guideline has been reviewed by the Clinical Practice Gynaecology Committee and reviewed and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.

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systematic reviews, randomized control trials/controlled clinical trials, and observational studies. Searches were updated on a regular basis and incorporated in the guideline to January 2012.

Values: The quality of evidence was rated with use of the criteria described by the Canadian Task Force on Preventive Health Care. Recommendations for practice were ranked according to the method described by the Task Force (Table).

Benefits, harms, and costs: Implementation of the guideline recommendations will improve the health and well-being of women undergoing obstetrical or gynaecologic surgery.

SUMMARY STATEMENTS AND RECOMMENDATIONS

Summary Statements

1. Surgery may account for up to 40% of all hospital adverse events. (II-2)
2. Good communication is essential for safer surgical care, as communication failure is common in the operating room. (III)
3. The concept of a surgical safety checklist has been studied globally, and there have been decreases in complications and mortality when the checklist has been implemented. (II-1)
4. Emergency cases such as a “crash” Caesarean section will require a modified approach that is centre- and situation-dependent. (III)
5. The SOGC endorses the adoption of the surgical safety checklist in obstetrics and gynaecology. (III)

Recommendations

1. The surgical safety checklist should be adopted by all surgical care providers and their respective institutions to improve patient safety. (II-1A)
2. Surgeons should be familiar with, advocate for the use of, and participate in all 3 parts of the surgical safety checklist. (II-1A)
3. The surgical safety checklist may be modified and adapted for use in surgical obstetrics cases. (II-2A)

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Key Words: Patient safety, surgical safety checklist

Abstract

Objective: To provide guidance on the implementation of a surgical safety checklist (SSCL) in the practice of obstetrics and gynaecology.

Outcomes: Outcomes evaluated include the impact of the SSCL on surgical morbidity and mortality.

Evidence: Medline databases were searched for articles on subjects related to “Surgical Safety Checklist” published in English from January 2001 to January 2011. Results were restricted to

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Key to evidence statements and grading of recommendations, using the ranking of the Canadian Task Force on Preventive Health Care

Quality of evidence assessment*	Classification of recommendations†
I: Evidence obtained from at least one properly randomized controlled trial	A. There is good evidence to recommend the clinical preventive action
II-1: Evidence from well-designed controlled trials without randomization	B. There is fair evidence to recommend the clinical preventive action
II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group	C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making
II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category	D. There is fair evidence to recommend against the clinical preventive action
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees	E. There is good evidence to recommend against the clinical preventive action
	L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

*The quality of evidence reported in these guidelines has been adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.¹³

†Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.¹³

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BACKGROUND

The aviation industry has long embraced a culture of safety, understanding the integral role that human and organizational factors play in accident prevention. Similar scrutiny is now being applied in the medical field. Over the past 10 years, hospitals have been placing increased emphasis on improving patient safety. This attention is largely in response to the 1999 Institute of Medicine report *To Err is Human*, which suggested that 44 000 to 98 000 patients die in hospital in the United States each year because of preventable medical errors.¹ The *Canadian Adverse Events Study* found similarly alarming numbers, including a possible 185 000 admissions to acute care hospitals that were associated with an adverse event, and up to 70 000 potentially preventable events.² A recent systematic review suggested that almost 1 in 10 patients admitted to hospital experience an adverse event, with operations accounting for 40% of these events.³

In addition to patient safety, specific attention is being paid to team relationships and communication. Much as an airplane pilot must rely on the ground crew, flight personnel, and air traffic controllers for a safe and successful flight, a surgeon must rely on the anaesthetist and nurses during an operation. The common element critical for success amongst these teams is good communication. Communication

failures occur in approximately 30% of team exchanges in the operating room, and one third of these failures have immediate effects such as inefficiency or team tension.⁴ Failures in communication can have significant impact on patient safety in the operating room, and their reduction is an essential part of a checklist to improve surgical safety.


Summary Statements

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2. Good communication is essential for safer surgical care, as communication failure is common in the operating room. (III)

THE WHO SURGICAL SAFETY CHECKLIST

In 2008, an initiative from the World Health Organization to improve surgical safety and reduce perioperative harm to patients led to the development of the surgical safety checklist (SSCL). A study conducted in 8 hospitals in 8 cities around the world showed that with the use of a checklist, surgery complications were reduced by more than one third (from 11.0% to 7.0%) and deaths reduced by almost one half (from 1.5% to 0.8%).⁵ The sites were in both developing and developed nations, including Canada. A further study involving 6 Dutch hospitals with high standards of care showed a similar reduction in adverse events (1 or more complications decreased from 15.4% to 10.6%, and mortality decreased from 1.5% to 0.8%).⁶ Control hospitals showed no improvement. New versions of the checklist, implementation manual, and guidelines

Figure 1. Surgical safety checklist

	SURGICAL SAFETY CHECKLIST	www.safesurgerysaveslives.ca
BRIEFING—Before induction of anesthesia <i>Hand-off from ER, Nursing Unit or ICU</i> <input type="checkbox"/> Anesthesia equipment safety check completed <input type="checkbox"/> Patient information confirmed - Identity (2 identifiers) - Consent(s) - Site and procedure - Site, side and level marked - Clinical documentation - History, physical, labs, biopsy and x-rays <input type="checkbox"/> Review final test results <input type="checkbox"/> Confirm essential imaging displayed <input type="checkbox"/> ASA Class <input type="checkbox"/> Allergies <input type="checkbox"/> Medications - Antibiotic prophylaxis: double dose? - Glycemic control - Beta blockers - Anticoagulant therapy (e.g., Warfarin)? <input type="checkbox"/> VTE Prophylaxis - Anticoagulant - Mechanical <input type="checkbox"/> Difficult Airway / Aspiration Risk - Confirm equipment and assistance available <input type="checkbox"/> Monitoring - Pulse oximetry, ECG, BP, arterial line, CVP, temperature and urine catheter <input type="checkbox"/> Blood loss - Anticipated to be more than 500 ml (adult) or more than 7 ml/kg (child) - Blood products required and available - Patient grouped, screened and cross matched	BRIEFING (continued) <input type="checkbox"/> Surgeon(s) review(s) - Specific patient concerns, critical steps, and special instruments or implants <input type="checkbox"/> Anesthesiologist(s) review(s) - Specific patient concerns and critical resuscitation plans <input type="checkbox"/> Nurses(s) review(s) - Specific patient concerns, sterility indicator results and equipment / implant issues <input type="checkbox"/> Patient positioning and support / Warming devices <input type="checkbox"/> Special precautions <input type="checkbox"/> Expected procedure time / Postoperative destination TIME OUT—Before skin incision <input type="checkbox"/> All team members introduce themselves by name and role <input type="checkbox"/> Surgeon, Anesthesiologist, and Nurse verbally confirm - Patient - Site, side and level - Procedure - Antibiotic prophylaxis: repeat dose? - Final optimal positioning of patient <input type="checkbox"/> “Does anyone have any other questions or concerns before proceeding?”	DEBRIEFING—Before patient leaves OR <input type="checkbox"/> Surgeon reviews with entire team - Procedure - Important intra-operative events - Fluid balance / management <input type="checkbox"/> Anesthesiologist reviews with entire team - Important intra-operative events - Recovery plans (including postoperative ventilation, pain management, glucose and temperature) <input type="checkbox"/> Nurse(s) review(s) with entire team - Instrument / sponge / needle counts - Specimen labeling and management - Important intraoperative events (including equipment malfunction) <input type="checkbox"/> Changes to post-operative destination? <input type="checkbox"/> What are the KEY concerns for this patient’s recovery and management? <input type="checkbox"/> Could anything have been done to make this case safer or more efficient? <i>Hand-off to PACU / RR, Nursing Unit or ICU</i> PATIENT INFORMATION <div style="border: 1px solid black; height: 80px; width: 100%;"></div>
Adapted from the WHO Surgical Safety Checklist, © World Health Organization, 2008		Surgical Safety Checklist: Canada—Version 1, January 9, 2009

were released in September 2009, including versions in 6 languages and wording modifications to improve the checklist’s usability.⁷

Summary Statement

3. The concept of a surgical safety checklist has been studied globally, and there have been decreases in complications and mortality when the checklist has been implemented. (II-1)

Recommendation

1. The surgical safety checklist should be adopted by all surgical care providers and their respective institutions to improve patient safety. (II-1A)

SURGICAL SAFETY CHECKLIST OUTLINE

The current WHO checklist identifies 3 phases in an operation, each corresponding to a specific time period in the normal flow of a procedure (Figure 1).

1. The “sign-in” or “briefing” is the period before the induction of anaesthesia. The checklist coordinator confirms the patient’s identity, procedure, and consent. The coordinator reviews with the anaesthetist the patient’s risk of blood loss, airway difficulty, and allergies. The surgeon’s presence is highly recommended, as he or she may be better able to anticipate blood loss and potential complications; however, it is recognized that the surgeon’s presence may not be essential for this portion of the checklist.
2. The “time out” occurs before the start of the operation. During this period, each member of the team introduces him or herself by name and role. This step can be skipped later in the day as long as the team members are the same. The correct patient and procedure will be identified by reading the consent form aloud. Opportunity is given to confirm preoperative antibiotics and venous thromboembolism prophylaxis. Finally, surgical, anaesthesia, and nursing teams can bring up any concerns before commencement of the surgery.

Figure 2. Surgical safety checklist for obstetrics

BIRTHING UNIT SURGICAL SAFETY CHECKLIST		
BRIEFING <i>Before Induction of Anesthesia</i>	TIME-OUT <i>Before Surgical Incision</i>	DEBRIEFING <i>Before Drapes Removed</i>
<p>Obstetrician/delegate (senior resident) reviews:</p> <ul style="list-style-type: none"> <input type="checkbox"/> What additional equipment/supplies are needed? <input type="checkbox"/> Any equipment issues or concerns? <input type="checkbox"/> What is the level of urgency? <input type="checkbox"/> Does the patient require a type and screen? <input type="checkbox"/> If yes, is blood available? <input type="checkbox"/> Is an Ultrasound required? <input type="checkbox"/> If yes, has it been completed? <p>Nurse reviews:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Is patient identity, procedure, and consent Confirmed? (NB tubal ligation) <input type="checkbox"/> Is sterility confirmed? <input type="checkbox"/> Has fetal status been confirmed? Concerns? <input type="checkbox"/> Is the requirement for neonatal support confirmed with pediatric department? <input type="checkbox"/> Is venous thromboembolism prophylaxis needed? <input type="checkbox"/> If yes, has it been completed? <p>Anesthesiologist reviews:</p> <ul style="list-style-type: none"> <input type="checkbox"/> What is the ASA score? <input type="checkbox"/> Is the anesthesia checklist completed? <input type="checkbox"/> Does the patient have all required monitoring? <input type="checkbox"/> Does the patient have a known allergy? <input type="checkbox"/> Difficult airway/aspiration risk? <input type="checkbox"/> If yes, is equipment/assistance available? <input type="checkbox"/> Risk of hypothermia (operation >1h)? <input type="checkbox"/> If yes, is warmer required? 	<p>Obstetrician leads:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Everyone please state name and role <input type="checkbox"/> Confirms adequate surgical anesthesia <input type="checkbox"/> Confirms urgency <p>Nurse reviews:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirms: <ul style="list-style-type: none"> • patient's name • procedure • allergy status <input type="checkbox"/> Was antibiotic prophylaxis given? <input type="checkbox"/> Is the neonatal care provider(s) present? <input type="checkbox"/> If no, notify and give report on arrival <input type="checkbox"/> Is the Resuscitation unit on? <input type="checkbox"/> Is the Resuscitation equipment present & working <p>Anesthesiologist reviews:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Any concerns <p>Obstetrician Leads:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Summarizes <ul style="list-style-type: none"> • clinically significant information • anticipated critical events <input type="checkbox"/> Asks team if any questions or concerns 	<p>Nurse confirms with the team:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The name of the procedure recorded <input type="checkbox"/> The instrument, sponge and needle counts are correct <input type="checkbox"/> All specimens are labeled with <ul style="list-style-type: none"> • patient name • contents identified <input type="checkbox"/> Are there any equipment problems requiring follow-up? <p>Obstetrician, anesthesiologist, pediatrician, and nurses review:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Are there any specific patient/neonate care requirements: <ul style="list-style-type: none"> • to be ordered? • to be communicated?
<p>In case of URGENT Cesarean Section: Surgeon states: "Doing a crash cesarean section. Does anyone have any concerns prior to proceeding?"</p>		

3. The “sign out” or “debriefing” occurs as soon as the operation is over, before any cleanup or patient transfer begins.

The team reviews the following:

- The operation that was performed
- Completion of sponge and instrument counts
- Labelling of any surgical specimens
- Any equipment malfunction or other issue that needs to be addressed
- Any concerns regarding postoperative management

Since its introduction, the SSCL has been widely accepted and implemented in operating rooms throughout the world. The Canadian Patient Safety Institute endorses the SSCL and provides a Canadian version of the checklist.⁸ Since April 2010, the SSCL has become mandatory in hospitals in some provinces, and other provinces are likely to mandate its implementation and monitoring.

Clinical Reminder

The 3 components of the surgical safety checklist are “Briefing,” “Time Out,” and “Debriefing.”

Recommendation

2. Surgeons should be familiar with, advocate for the use of, and participate in all 3 parts of the surgical safety checklist. (II-1A)

SURGICAL SAFETY CHECKLIST IN OBSTETRICS

The SSCL should be implemented for all obstetrical and gynaecologic surgical procedures, especially obstetrical procedures in which both maternal and neonatal factors need to be taken into consideration. Team briefings that include obstetricians, anaesthetists, family physicians, nurses, midwives, and paediatricians allow the team to prepare for potential surgical difficulties and for newborn resuscitation and care. The use of the SSCL in complicated obstetrical cases and those that may require double set-up, such as placenta prevail and placenta accrete, may assist with patient safety, although this has not yet been studied.

Although the current SSCL can easily be adapted for gynaecologic surgery, some may argue that labour and delivery is a unique environment and that the SSCL is not

specific to the needs of obstetrics. The WHO surgical safety checklist is by no means exclusive or comprehensive. Rather, additions and modifications to suit local practice are not only allowed but encouraged. Detailed examples of how the SSCL can be modified for obstetrics have been published.⁹ Furthermore, some Canadian hospitals have developed versions of the SSCL specifically for obstetrics (Figure 2).

Recommendation

3. The surgical safety checklist may be modified and adapted for use in surgical obstetrics cases. (II-2A)

EMERGENCY CASES

Specific attention must be given to the use of the SSCL in emergency situations. Heightened patient acuity and time pressure increase the potential for critical errors and omissions in established standards of care. A subgroup analysis of urgent surgeries (within 24 hours of assessment) carried out at the 8 hospitals in the original WHO study demonstrated a one third decrease in complications (from 18.4% to 11.7%) with introduction of the SSCL.¹⁰ However, in obstetrical emergencies, time is an important determinant in fetal outcome. In these instances, clinical judgement is needed in weighing the risks of a short delay against the consequences of omitting surgical checks. A surgical team that uses the SSCL routinely may get through the list quickly, even in emergencies, such as the “crash” Caesarean section in which the procedure is performed as quickly as possible.

Summary Statement

4. Emergency cases such as a “crash” Caesarean section will require a modified approach that is centre- and situation-dependent. (III)

INTERNATIONAL AND NATIONAL PERSPECTIVES

The Royal College of Obstetricians and Gynaecologists in the United Kingdom supports the introduction of surgical checklists to ensure patient safety in operating theatres.¹¹ The American Congress of Obstetricians and Gynecologists has released a similar bulletin.¹² The Canadian Patient Safety Institute has received endorsement from several national organizations for the Canada-wide adoption of the SSCL. Given this support for the SSCL and evidence that its use improves patient safety in the operating room, the SOGC supports the use of the surgical safety checklist in obstetrics and gynaecology.

Summary Statement

5. The SOGC endorses the adoption of the surgical safety checklist in obstetrics and gynaecology. (III)

CONCLUSION

The implementation of the SSCL worldwide has resulted in a significant reduction in adverse events and therefore a remarkable improvement in patient safety. Consistent use of the SSCL ensures that critical steps of the operation are completed while preparing the team for potential complications. The SSCL is readily available, inexpensive to implement, and—with team acceptance—easy to use. Finally, it fosters communication among team members by requiring them to introduce themselves and voice concerns or issues regarding the patient’s surgery. The SSCL is critical to improving patient safety in the operating room and should be implemented in all obstetrical and gynaecologic surgery.

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