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Canadian Patient Safety Institute
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SURGICAL SAFETY CHECKLIST

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☐ WHAT: DETAILED EXPLANATION OF CHECKLIST ITEMS

May 2009

Building a Safer Health System

DETAILED EXPLANATION

OF THE SURGICAL SAFETY CHECKLIST ITEMS

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The aim of this document is to provide guidance for implementing the Surgical Safety Checklist. Teams should record their compliance with each step of the checklist in a way that best suits their specific needs, recognizing therefore that this will vary from hospital to hospital.

The Checklist Coordinator can be any member of the surgical team (surgeons, anesthesiologists, nurses, technicians and other OR personnel), although the surgeon whose patient is undergoing the operation may be in the best position for conducting the process. That said, the responsibility to carry out the checklist lies with all members of the surgical team. If reminders are required, every member of the team must feel comfortable in initiating the process.

Additional tools and resources to help organizations with implementation are available on the www.safesurgerysaveslives.ca website and on the Safe Surgery Community of Practice.

This document is based on the WHO Surgical Safety Checklist and Implementation Manual, URL http://www.who.int/patientsafety/safesurgery/en/ © World Health Organization 2008, and adapted by the Canadian in-Country Working Group with project support from the Canadian Patient Safety Institute.

BRIEFING – Before induction of anesthesia

Briefing requires the presence of the surgeon, anesthesiologist and nursing personnel. The Checklist Coordinator should ask all team members to introduce themselves by name and role. After hand-off from the Emergency Room, Nursing Unit or ICU, each of the checks for Briefing should be undertaken, with the Checklist Coordinator confirming that each item has been addressed all at once or sequentially, depending on the flow of preparation for anesthesia.

☐ Anesthesia equipment safety check completed

- The Checklist Coordinator confirms with the anesthesiologist that appropriate pre-anesthetic checks have been performed in accordance with local/departmental policies, such as the Pre-Anesthetic Checklist.[1]

☐ Patient information

- ***Identity (2 identifiers)***

  The coordinator verbally confirms with the patient:
  - his/her identity using two patient identifiers (i.e., patient wrist band/verbally)
  - the type of procedure planned, and the site, side and level of surgery
  - consent for surgery

- ***Consent(s)***

  Consent generally occurs in the surgeon's office, and the nurse verbally confirms that it has been signed. For elective procedures, if confirmation by the patient is not possible (i.e., children, incapacitated patient), then a guardian or family member may provide consent. If an emergency procedure "when the patient or substitute decision maker is unable to consent and there is demonstrable severe suffering or an imminent threat to the life or health of the patient, a doctor has the duty to do

[1] More information in the "Information, rationale and FAQ for the surgical safety checklist" document

what is immediately necessary without consent. Emergency treatments should be limited to those necessary to prevent prolonged suffering or to deal with imminent threats to life, limb or health. Even when he/she is unable to communicate, the known wishes of the patient must be respected."[2] A careful and complete note should be made of this step in the patient's record and the patient information box left unchecked in the Checklist.

- ***Site and procedure***

  These were confirmed by the patient in the **Identity** step and are now again confirmed by the surgeon and one other medical team member.

- ***Site, side and level marked***

  This step provides a second check to verify the correct surgical site. In the event that the surgeon is not the Checklist Coordinator, then the Checklist Coordinator confirms that the surgeon performing the operation has marked the site of surgery (usually with a permanent felt-tip marker). At minimum, site marking should be undertaken in all procedures that could have a left or right distinction, multiple structures, or multiple levels (e.g., a particular finger, toe, skin lesion, or vertebra). Site marking for midline structures (e.g., thyroid) or single structures (e.g., spleen) should follow local practice.

- ***Clinical documentation***

  The Checklist Coordinator (surgeon or anesthesiologist) is responsible for reviewing and conveying to the team that there is adequate documentation to indicate clearly the patient's condition, and the need for the planned procedure. The documentation (written or electronic) could also include confirmation of the

[2] Evans, KG. Consent. A Guide for Canadian Physicians. 4th Edition. The Canadian Medical Protective Association. https://www.cmpa-acpm.ca/cmpapd04/docs/resource_files/ml_guides/consent_guide/com_cg_beforewebegin-e.cfm

patient's identity, and/or the marking (by the surgeon) of the proposed surgical site. What is actually documented should conform to local / departmental practice.

- ***History, physical, labs, biopsy and x-rays***

  The section allows the OR team to give a brief review of important details of the patient's history, physical examination, laboratory results, and biopsy / x-ray results that contributed to the booking of the operation. A brief account of the presentation of the patient, the investigations undertaken and the decision making is valuable for the entire team and should be shared with the OR team.

☐ **Review final test results**

The surgeon or anesthesiologist should state any results of laboratory investigations or radiology findings that are pertinent to the procedure. For example, any electrolyte abnormalities or coagulation test results in a patient whose anticoagulation has been reversed, etc., should be noted.

☐ **Confirm essential imaging displayed**

The Checklist Coordinator should determine if Imaging is needed for the case. If so, the Coordinator should verbally confirm that the essential Imaging is available and prominently displayed. Some OR teams may choose to include in this part of the Checklist a check of the presence and functioning of an image guidance system and the surgeon should indicate any need for imaging during the operation (e.g., intraoperative ultrasonography).

☐ **ASA class**

The patient's ASA class should be communicated by the anesthesiologist to the OR team before induction of anesthesia and incision[3].

[3] More information in the "Information, rationale, and FAQ for the surgical safety checklist" document

☐ Allergies

The Checklist Coordinator directs this question to the anesthesiologist and surgeon: Does the patient have any known allergies? (If yes, then what are the specific allergies?) This question is asked to confirm that the anesthesiologist and/or surgeon are aware of any allergies that the patient might have. If the Coordinator knows of an allergy of which the anesthesiologist / surgeon is not aware, then this information should be communicated and discussed.

☐ Medications

- ***Antibiotic prophylaxis: double dose?***

  The Checklist Coordinator asks if prophylactic antibiotics were given during the previous 60 minutes. The team member responsible for administering antibiotics (usually the anesthesiologist) provides verbal confirmation. If prophylactic antibiotics have not been administered, they must be administered before the incision is made. If prophylactic antibiotics were administered more than 60 minutes before the incision is to be made, the team should consider giving the patient a second dose of antibiotic. Calculation of the time should also include consideration of antibiotic circulation time and duration of tourniquet time.

- ***Glycemic control***

  The Checklist Coordinator can consider this item to be complete if the patient's blood glucose was measured and the team was informed about the results.

- ***Beta blockers***

  The Checklist Coordinator should confirm if the patient is receiving beta-blockers, so that the OR team is aware of the possibility that the patient may have an attenuated sympathetic response (to light anesthesia and/or blood loss).[4] In

[4] Soto RG & Glass PSA. Consciousness Monitoring in the Elderly. Chapter 20 . In: Geriatric Anesthesia, Sieber F (Ed.). First Edition. Toronto: McGraw-Hill Medical Publishing Division, 2007

addition, if the patient had been receiving beta-blockers and these were discontinued in the immediate pre-operative period, then the anesthesiologist must be alerted so that beta-blockers can be re-administered to minimize the probability of perioperative myocardial ischemia / infarction.

- ***Anticoagulant therapy (e.g., warfarin)***
  The Checklist Coordinator should ask if the patient has been taking any type of anticoagulants, if they have been stopped and reused, if heparin has been substituted and then stopped, and if the patient has undergone testing of PT/PTT.

☐ **VTE Prophylaxis:** ***Anticoagulant & Mechanical***

The Checklist Coordinator should ensure that the OR team has instituted an appropriate plan for the intra-operative and/or post-operative prevention of VTE, consistent with hospital policy[5].

☐ **Difficult airway/ aspiration risk**

The Checklist Coordinator should first confirm that the anesthesiologist has evaluated the degree of difficulty of the patient's airway and the likelihood of pulmonary aspiration of gastric contents. Should the anesthesiologist determine that the patient has a potentially difficult airway or be at risk for aspiration, the Checklist Coordinator will request confirmation that the anesthesiologist has all necessary assistance and equipment at the bedside.

☐ **Monitoring**

The Checklist Coordinator confirms with the anesthesiologist that:

- All monitors classified as "required"[6] in the Guidelines to the Practice of Anesthesia, are (or will be) in continuous use.

[5] Additional information in the "Information, rationale, and FAQ for the surgical safety checklist" document.

- Any additional monitors indicated for the planned procedure are available.
  If the required monitoring equipment is not available, then the surgeon and anesthesiologist must evaluate the acuity of the patient's condition and consider postponing surgery until the necessary equipment is secured. In urgent circumstances, to save life or limb, this requirement may be waived.

☐ **Blood loss**

- ***Anticipated to be more than 500 ml (adult) or more than 7 ml/kg (child)***
  The Checklist Coordinator asks the surgeon if the (adult) patient might lose more than 500 ml of blood (or more than 7 ml/kg for a child) during surgery, so as to ensure recognition of and preparation for this potentially critical event. If the patient is likely to suffer major blood loss, hemodynamic instability or some other type of important complication related to the procedure, then members of the surgical and anesthesia teams should review aloud the specific plans and concerns for resuscitation. In particular, the anesthesiologist should describe any complicating patient characteristics or morbidities (i.e., cardiac or pulmonary disease, blood disorders, etc) and state his or her intention to transfuse blood products. It is understood that many operations do not entail such particularly critical concerns or potential complications that must be shared with the team. In these cases, the anesthesiologist can simply say, **"**I have no special concerns about this patient and his/her procedure.**"**

- ***Blood products required and available***
  If the operation may result in significant blood loss greater than 500 ml, then it is highly recommended that the patient have at least two large bore intravenous lines or a central venous catheter inserted before the skin incision is made. In addition, the OR team should confirm the availability of fluids or blood for resuscitation.

- ***Patient grouped, screened and cross matched***
  If use of a cell saver is being considered, then steps should be taken to ensure that the appropriate equipment and personnel are available and prepared.

☐ **Surgeon(s) review(s)**

- ***Specific patient concerns, critical steps, and special instruments or implants***
  A discussion of 'Critical or unexpected events' is intended, at a minimum, to inform all team members of any steps that increase the likelihood of the patient suffering rapid blood loss, injury or other major morbidity. This discussion is also a chance to review any steps in the procedure that might require special equipment, implants or preparations. In the case of implants, the availability of various sizes of implants that could be used should be confirmed.

☐ **Anesthesiologist(s) review(s)**

- ***Specific patient concerns and critical resuscitation plans***
  Similarly, the Checklist Coordinator then asks the anesthesiologist to describe any specific concerns he or she might have about the patient and the procedure and the plans for any critical resuscitation.

☐ **Nurse(s) review(s)**

- ***Specific patient concerns, sterility indicator results and equipment/ implant issues***
  The Scrub Nurse should verbally confirm that sterilization of instruments has been verified. Any discrepancy between the expected and the actual sterility indicator results of the instruments, other equipment and implants should be reported to all team members and addressed before incision. This is also an opportunity for OR team members, including, where appropriate, surgical equipment manufacturing representatives, to highlight the need to discuss any problems with equipment and other preparations for surgery or any safety concerns the scrub or circulating

nurse(s) may have. If there are no particular concerns, then the scrub nurse can simply say, **"***Sterility was verified. I have no special concerns.***"**

- **Patient positioning and support/ Warming devices**

  Should the patient not already be in the intended position for the procedure, then the surgeon and anesthesiologist will confirm the intended positioning. The circulating nurse will confirm that appropriate support and warming devices are either in place or are available for when the patient undergoes repositioning[6].

- **Special precautions**

  Other concerns about critical teamwork may not be listed. This may start with concerns related to transport of the patient to the OR. For example, were any drains that had been clamped shut for transport to the OR reopened; were all monitoring devices/lines (re)connected to the correct monitor/transducer. Other concerns may relate to such processes as special preparations for venous bypass, cross-clamping, etc. This is also an appropriate time to highlight any concerns about such problems as infection precautions and latex precautions.

- **Expected procedure time/ Postoperative destination**

  A patient's post surgical destination must be considered. In longer procedures, a patient's intended destination may change and must be tracked. The expected procedure time may also vary significantly and the surgeon must inform other members of the team about the factors that might make the duration unpredictable.

AT THIS POINT THE BRIEFING IS COMPLETED AND THE TEAM MAY PROCEED WITH INDUCTION OF ANESTHESIA, FOLLOWED BY POSITIONING, PREPPING AND DRAPING.

[6] Additional information in the "Information, rationale, and FAQ for the surgical safety checklist" document

DETAILED EXPLANATION OF THE SURGICAL SAFETY CHECKLIST ITEMS

TIME-OUT: BEFORE SKIN INCISION

To ensure communication of critical patient issues during '**Time Out**', the Checklist Coordinator leads a discussion among the surgeon, anesthesiologist and nursing staff about the operative plan. This can be done by simply asking each team member the specified question out loud. The order of discussion does not matter, but each box should be checked only after each clinical discipline has provided its information. During routine procedures or those with which the entire team is familiar, the surgeon may simply state, "This is a routine case of 'X' duration and then ask the anesthesiologist and nurse(s) if they have any special concerns.

- ☐ **All team members introduce themselves by name and role**

  The Coordinator will ask all OR team members to introduce themselves by name and role, if this was not already carried out earlier, or if someone not previously introduced has entered the OR.

- ☐ **Surgeon, Anesthesiologist, and Nurse verbally confirm**
  - the name of the patient;
  - the procedure to be performed;
  - the site, side and/or level of surgery;
  - antibiotic prophylaxis: repeat dose
  - final optimal positioning of the patient, including security of the patient's airway.

- ☐ **Does anyone have any other questions or concerns before proceeding?**

  This question affords the opportunity for one last check with the entire OR team to ensure that there are no outstanding issues/concerns before incision. In the event that this 'Go/No go' question leads to further discussion, the box may be checked only if the issues/concerns are resolved appropriately and to the satisfaction of the OR team member who brought up the issue for discussion.

AT THIS POINT THE TIME OUT IS COMPLETED AND THE TEAM MAY PROCEED WITH THE OPERATION

DEBRIEFING – Before patient leaves the OR

The **debriefing** can be initiated by the circulating nurse, surgeon or anesthesiologist and should be accomplished before the surgeon leaves the room. Debriefing can coincide with wound closure. Again, each box should be checked only after the Checklist Coordinator has confirmed that each item has been addressed by the team.

☐ Surgeon reviews with entire team

- ***Procedure***

  Since the procedure may have changed during the course of surgery, the Checklist Coordinator should confirm with the surgeon and the team exactly what procedure was performed. This is best done by asking the question: "What procedure was performed?"

- ***Important intra-operative events***

  If any important intra-operative events occurred, such as unexpected findings or changes to the operating plan, then they should be summarized by the surgeon. In many cases, the surgeon may simply state that "routine" surgery was performed.

- ***Fluid balance/ management***

  The surgeon reviews with the anesthesiologist any concerns/ issues related to postoperatively fluid, electrolyte, blood or colloid management. At this point, agreement on whether the patient is "behind" or "ahead" with respect to fluid balance must be reached to facilitate the writing and carrying out of postoperative orders that best reflect the patient's overall fluid and electrolyte status.

☐ **Anesthesiologist reviews with entire team**

- ***Important intra-operative events***

  If any important intra-operative events occurred related to the anesthetic, then they should be summarized by the anesthesiologist. In many cases, the anesthesiologist may simply state that a "routine" anesthetic was provided.

- ***Recovery plans (including postoperative ventilation, pain management, glucose and temperature)***

  The anesthesiologist reviews with the surgeon any concerns/ issues related to postoperative ventilation, pain management, glucose control, and temperature correction / maintenance. There should be agreement on recovery plans, which will be started in the Post-Anesthesia Care Unit and then carried on when the patient is transferred to the nursing unit (or ICU).

☐ **Nurse(s) review(s) with entire team**

- ***Instrument/ sponge/ needle counts***

  The scrub or circulating nurse(s) verbally confirm(s) that the final surgical counts, sponges and sharps, are correct. In operations where a body cavity was entered, instrument counts must be confirmed as complete. If counts are not appropriately reconciled, then the team must be alerted so that appropriate steps can be taken (such as examining the drapes, garbage and wound or, if need be, obtaining radiographic images).

- ***Specimen labeling and management***

  The circulating nurse verbally confirms the correct labeling of any specimen obtained during the procedure and sent for pathological examination, by reading aloud the patient's name, description of the specimen, type of pathological examination requested, and any orienting marks on the specimen.

- ***Important intraoperative events (including equipment malfunction)***
  The Checklist Coordinator must ensure that any problems with equipment arising during a procedure are identified by the team and that a plan is in place to address any malfunctions.

☐ **Changes to post-operative destination**

It is important to confirm whether or not the patient will go to the Post Anesthesia Care Unit (PACU) and then to a standard Nursing Unit bed or will need an Intensive Care Bed. Any concerns must be addressed about the availability of a Nursing Unit bed if this means that the patient must stay longer than anticipated in the PACU (i.e., while awaiting transfer to a bed on the Unit). If the patient has any special needs during transport, such as oxygen or electronic monitoring, then these should be arranged at this time.

☐ **What are the key concerns for this patient's recovery and management?**

The surgeon, anesthesiologist and nurse review the postoperative recovery and management plan, focusing particularly on intraoperative surgical or anesthetic issues that might affect the patient. The team should also address any specific events that could arise during the patient's recovery. This step is key to the efficient and appropriate transfer of critical information to the entire team.

☐ **Could anything have been done to make this case safer or more efficient?**

This question is extremely important and must be asked for each procedure. All members of the team must respond with either a negative or a specific answer to the question. Any specific answers should be collected and presented to the appropriate individual(s) (e.g., OR Quality of Care Committee) so that other team can learn from what occurred or could have occurred.

Hand off to PACU/ RR, Nursing Unit or ICU

THE SAFETY CHECKLIST IS NOW COMPLETE.