



# Implementation Manual for the Colorado Surgical Site Checklist

Additional Information or Questions:

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## **Executive Summary:**

The World Health Organization (WHO) has committed to a Safe Surgery Saves Lives initiative in an effort to reduce the number of surgical deaths across the world. WHO has identified a set of safety checks that could be performed in an operating area in an effort to assist operating teams in reducing the number of preventable deaths during surgery.

The aim of the WHO Surgical Safety Checklist is to reinforce accepted safety practices and foster better communication and team work between clinical disciplines. The checklist is not a regulatory device; it is intended as a tool for use by healthcare providers interested in improving the safety of their operations in the surgical suite.

In early 2009, the Colorado Hospital Association (CHA) in partnership with the Colorado Medical Society (CMS) and COPIC Insurance began work to tailor the WHO Surgical Site Checklist to the specific needs of Colorado hospitals. The modified checklist was created in collaboration with physicians, quality professionals and surgical nurses, and includes additional safety “checks” such as those that are currently required by the Joint Commission.

In July of 2009, CHA’s Board of Trustees approved and endorsed the use of the Colorado Surgical Site Checklist in all Colorado hospitals. CMS has also endorsed the Colorado Surgical Site Checklist and will work with their member physicians to promote its use. CHA, CMS and COPIC Insurance will work in a collaborative effort to ensure that the Colorado Surgical Site Checklist is used by surgical teams across the state, educate physicians and hospitals on the importance of its use and promote active participation by all members of the surgical team to ensure all safety checks have been completed prior to surgery.

## **How to Use the Checklist:**

In an effort to decrease confusion among hospitals and physicians in Colorado, it is recommended that all hospitals and physicians use the standardized surgical site checklist that was developed for Colorado. Many physicians practice in different hospitals across the state and different checklists that contain different safety checks can cause confusion and decrease active participation by key members of the surgery team. CHA and CMS are encouraging hospitals and physicians to stay consistent with the safety checks that have been selected for the Colorado Surgical Site Checklist.

In order to implement the checklist during surgery, a single person should take responsibility for checking the boxes on the checklist. The designated person can be any healthcare professional participating in the operation. Each healthcare facility should determine in their own policies and procedures who this designated professional should be.

As operating teams become familiar with the steps of the checklist, they can integrate the checks into their familiar work patterns and verbalize their completion of each step without the explicit intervention of the designated professional. Each team should seek to incorporate

use of the checklist into its work with maximum efficiency and minimum disruption, while aiming to accomplish the steps effectively.

The checklist can be used in a variety of formats to suit the needs of each healthcare facility. For example, the checklist can be in an electronic format or made into a dry erase board that is hung in the surgical suite. Use the checklist in a format that suits the organization needs and ensures ease of use so that it becomes part of the routine for performing surgical procedures.

The Colorado implementation plan for the surgical site checklist has been adapted from the first edition of the “Implementation Manual Surgical Site Checklist” created by the World Alliance for Patient Safety which is a component of the World Health Organization. The WHO’s implementation plan can be found by assessing the following link:  
[http://www.who.int/patientsafety/safesurgery/tools\\_resources/SSSL\\_Manual\\_finalJuno8.pdf](http://www.who.int/patientsafety/safesurgery/tools_resources/SSSL_Manual_finalJuno8.pdf)

# COLORADO SURGICAL SITE CHECKLIST

Prior to Anesthesia: SIGN IN
Patient has confirmed: <input type="checkbox"/> Identity (name and DOB) <input type="checkbox"/> Site <input type="checkbox"/> Procedure
<input type="checkbox"/> Consent form is signed by patient
<input type="checkbox"/> Site marked <input type="checkbox"/> NA
<input type="checkbox"/> H&P is complete and updated
<input type="checkbox"/> Patient allergies have been reviewed
<input type="checkbox"/> Diagnostic and radiology test results received
<input type="checkbox"/> Verify essential imaging is displayed and labeled correctly <input type="checkbox"/> NA
<input type="checkbox"/> Verify antibiotic prophylaxis within 60 minutes of incision (120 minutes for vancomycin/ flouroquinolones) <input type="checkbox"/> NA
Does patient require a beta blocker <input type="checkbox"/> Yes and administered <input type="checkbox"/> No
Does patient require VTE prophylaxis <input type="checkbox"/> Yes (boots/anticoagulants ready) <input type="checkbox"/> NA
<input type="checkbox"/> Identify and obtain special necessary medications, equipment, blood or other products <input type="checkbox"/> NA
<input type="checkbox"/> Risk of hypothermia assessed
<input type="checkbox"/> Verify pre-anesthesia assessment is complete
<input type="checkbox"/> Verify pulse ox is on patient and functioning

Prior To Incision: TIME OUT
<input type="checkbox"/> All team members cease activity for TIME OUT
<input type="checkbox"/> Team members introductions if necessary
Procedure team reviews and affirms: <input type="checkbox"/> Correct Patient <input type="checkbox"/> Correct site is marked <input type="checkbox"/> NA <input type="checkbox"/> Correct procedure <input type="checkbox"/> Correct patient position
<input type="checkbox"/> Surgeon reviews anticipated events: <ul style="list-style-type: none"> <li>• Critical or potential unexpected steps</li> <li>• Duration of procedure</li> <li>• Blood loss/blood product availability</li> <li>• Need for special implants/ equipment</li> </ul>
<input type="checkbox"/> Anesthetist reviews any patient safety concerns
<input type="checkbox"/> Nursing Team confirms sterility/indicator results
<input type="checkbox"/> Identify special safety precautions based on patient history or medication use

Prior to Leaving OR: SIGN OUT
Nurse verbally confirms: <input type="checkbox"/> Name of procedure was recorded <input type="checkbox"/> The instrument, sponge and needle counts are correct (as applicable) <input type="checkbox"/> Specimen is labeled (name and DOB) <input type="checkbox"/> Address any equipment problems that need to be corrected
<input type="checkbox"/> Proceduralist, anesthetist and nurse review key concerns for patient recovery and management
<input type="checkbox"/> Discontinue prophylactic antibiotics (if applicable)
<input type="checkbox"/> VTE prophylaxis administered <input type="checkbox"/> NA
<input type="checkbox"/> Surgical team debriefing if necessary

\*\*This checklist is based on the WHO Surgical Safety Checklist developed by the World Health Organization. This checklist is also inclusive of additional Joint Commission requirements and the Surgical Care Improvement Project measures\*\*



<b>RN Signature:</b> _____ <b>Date:</b> _____ <b>Time:</b> _____
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## **Prior to Anesthesia: SIGN IN**

Nearly all the steps will be checked verbally with the appropriate personnel to ensure that the key actions have been performed. Therefore, during “Sign In” before induction of anesthesia, the person coordinating the checklist will verbally review with the patient (when possible) that his or her identity has been confirmed, that the procedure and site are correct and that consent for surgery has been given. The coordinator will visually confirm that the operative site has been marked (if appropriate) and that a pulse oximeter is on the patient and functioning. The coordinator will also review if the history and physical has been completed and is current, if patient allergies have been reviewed, if diagnostic and radiology test results have been received and if essential imaging is displayed and labeled correctly. The coordinator will also verbally review antibiotic prophylaxis administration, necessity of VTE prophylaxis and beta blocker administration (if applicable) as well as the need for any special necessary medications, equipment or blood products. Risk of hypothermia will be assessed and the coordinator will review whether a full anesthesia safety check has been completed. Ideally the surgeon will be present for “Sign In”, as the surgeon may have a clearer idea of anticipated blood loss, allergies, or other complicating patient factors. However, the surgeon’s presence is not essential for completing this part of the checklist.

### **Patient Has Confirmed Identity, Site and Procedure:**

The coordinator verbally confirms with the patient his or her identity (using both their name and date of birth), the type of procedure planned and the site of surgery. This step is essential for ensuring that the team does not operate on the wrong patient or site or perform the wrong procedure. When confirmation by the patient is impossible, such as in the case of children or incapacitated patients, a guardian or family member can assume this role. If a guardian or family member is not available and this step is skipped, such as in an emergency, the box should be left unchecked.

### **Consent Form is Signed by Patient**

The coordinator should confirm that consent for surgery has been given and that a consent form has been signed by the patient. If this step is skipped, such as in the event of an emergency, the box should be left unchecked.

### **Site Marked/Not Applicable:**

The coordinator should confirm that the surgeon performing the operation has marked the site of surgery (usually with a permanent felt-tip marker) in cases involving laterality (a left or right distinction) or multiple structures or levels (e.g. a particular finger, toe, skin lesion, vertebra, etc.). Site marking for midline structures (e.g. thyroid) or single structures (e.g. spleen) will follow local practice. Some hospitals do not require site marking because of the extreme rarity of wrong-site surgery in these instances. Consistent site marking in all cases does, however, provide a backup check confirming the correct site and procedure.

### **History and Physical is Complete and Updated:**

The coordinator should confirm that the patient's history and physical has been completed and is current.

### **Patient Allergies Have Been Reviewed:**

The coordinator should review whether the patient has a known allergy and, if so, what it is. This should be done even if he or she knows the answer in order to confirm that the anesthesia professional is aware of any allergies that pose a risk to the patient. If the coordinator knows of an allergy that the anesthesia professional is not aware of, this information should be communicated.

### **Diagnostic and Radiology Test Results Received:**

The coordinator should review whether essential diagnostic and radiology test results have been received and are available to the surgical team. If essential test results have not been received, these should be obtained immediately.

### **Verify Essential Imaging is Displayed and Labeled Correctly/Not Applicable:**

Imaging is critical to ensure proper planning and conduct of many operations, including orthopaedic, spinal and thoracic procedures. The coordinator should confirm whether imaging is needed for the surgical case. If so, the coordinator should verbally confirm that the essential imaging is in the room and prominently displayed for use during the operation. Only then should the box be checked. If imaging is needed but not available, it should be obtained. The surgeon will decide whether to proceed without the imaging if it is necessary but unavailable. If imaging is not necessary, the "not applicable" box should be checked.

### **Verify Antibiotic Prophylaxis Within 60 Minutes of Incision (120 Minutes for Vancomycin/Fluoroquinolones):**

Despite strong evidence and wide consensus that antibiotic prophylaxis against wound infections is most effective if serum and/or tissue levels of antibiotic are achieved, surgical teams are inconsistent about administering antibiotics within one hour prior to incision. To reduce surgical infection risk, the coordinator should confirm whether prophylactic antibiotics were given during the previous 60 minutes (120 Minutes for Vancomycin/Fluoroquinolones). The team member responsible for administering antibiotics (usually the anesthesia professional) should provide verbal confirmation. If prophylactic antibiotics have not been administered, they should be administered immediately, prior to incision. If prophylactic antibiotics have been administered longer than 60 minutes before incision (120 Minutes for Vancomycin/Fluoroquinolones), the team should consider re-dosing the patient. If prophylactic antibiotics are not considered appropriate (e.g. cases without a skin incision,

contaminated cases in which antibiotics are given for treatment), the “not applicable” box may be checked once the team verbally confirms this.

### **Verify Necessity of Beta Blocker Administration:**

Patients who were on beta-blocker therapy prior to surgery should be evaluated for the necessity of a beta-blocker during the perioperative period. The perioperative period is defined as 24 hours prior to surgical incision through discharge from post-anesthesia care/recovery area.

### **Verify Necessity of VTE Prophylaxis:**

Despite the evidence that VTE is one of the most common postoperative complications and prophylaxis is the most effective strategy to reduce morbidity and mortality, it is often underused. The frequency of venous thromboembolism (VTE), that includes deep vein thrombosis and pulmonary embolism, is related to the type and duration of surgery, patient risk factors, duration and extent of postoperative immobilization, and use or nonuse of prophylaxis. Patients should be evaluated for the necessity of VTE prophylaxis prior to anesthesia induction.

### **Identify and Obtain Special Necessary Medications, Equipment and Other Products:**

This is the opportunity for the surgical team to discuss the necessity of special medication, equipment and/or blood products based on the patient’s H&P or pre-surgical assessment. If special materials are required, this is the opportunity for the surgical team to obtain the necessary materials prior to incision.

This is also the opportunity to anticipate any special medication, equipment or blood products that may become necessary if complications arise and to ensure that the essential items are readily available in the event of an emergency.

### **Evaluate Hypothermia Risk:**

If the surgical procedure will take longer than one hour, the patient is at risk for hypothermia. A patient warmer should be in place and readily available if a planned surgical procedure will take longer than one hour or there is a possibility that complications could occur which would extend the surgical procedure beyond a one hour period.

### **Verify Preanesthesia Assessment is Complete:**

The coordinator completes this next step by asking the anesthesia professional to verify completion of an anesthesia safety check, understood to be a formal inspection of the anaesthetic equipment, medications and patient’s anaesthetic risk before each case.

### **Verify Pulse Oximeter Placement on Patient and Functionality:**

The checklist coordinator confirms that the pulse oximeter has been placed on the patient and is functioning correctly before induction of anesthesia. Ideally, the pulse oximetry reading should be visible to the operating team. An audible system should be used when possible to alert the team to the patient's pulse rate and oxygen saturation. Pulse oximetry has been highly recommended as a necessary component of safe anesthesia care by the World Health Organization.

## Prior to Incision: TIME OUT

For “**Time Out**”, each team member will introduce him or herself by name and role if introductions are necessary. The team will cease all activity immediately prior to the skin incision to confirm out loud that they are performing the correct operation on the correct patient and site and then verbally review with one another, in turn, the critical elements of their plans for the operation using the checklist questions for guidance. They will also identify the need for any special safety precautions based on patient’s history or medication use.

### All Team Members Cease Activity for Time Out:

During this section of the surgical site checklist, it is essential that all members of the surgical team cease activities during the *Time Out* section. The rationale for this is that it is essential for the surgical team to pay full attention to the safety checks that are being assessed and speak up if there are any questions or inconsistencies in the information. This is the last opportunity to verify the essential safety checks that are necessary to conduct prior to incision and it is imperative for all members of the surgical team to play an active role during the time out section of the surgical site checklist.

### Team Member Introductions:

Operating team members may change frequently. Effective management of high risk situations requires that all team members understand who each member is and their roles and capabilities. A simple introduction will achieve this. The coordinator will ask each person in the room to introduce him or herself by name and role. Teams already familiar with each other can confirm that everyone has been introduced, but new members or staff that have rotated into the operating room since the last operation should introduce themselves, including students or other personnel.

### Procedure Team Reviews and Agrees Upon Correct Patient, Site, Procedure and Position:

This step is the standard *Time Out* or “surgical pause” and meets the standards of many national and international regulatory agencies. Just before the surgeon makes the skin incision, the person coordinating the checklist or another team member will ask everyone in the operating room to stop and verbally confirm the name of the patient, the surgery to be performed, the site of surgery and, where appropriate, the positioning of the patient in order to avoid operating on the wrong patient or the wrong site. This box should not be checked until the anesthesia professional, surgeon and circulating nurse explicitly and individually confirm agreement.

## Review Anticipated Critical Events:

- **Surgeon**  
A discussion of “critical or unexpected steps” is intended, at a minimum, to inform all team members of any steps that put the patient at risk for rapid blood loss, injury or other major morbidity. This is also a chance to review steps that might require special equipment, implants or preparations.
- **Anesthetist**  
In patients at risk for major blood loss, hemodynamic instability or other major morbidity due to the procedure, a member of the anesthesia team should review out loud the specific plans and concerns for resuscitation—in particular, the intention to use blood products and any complicating patient characteristics or comorbidities (such as cardiac or pulmonary disease, arrhythmias, blood disorders, etc). It is understood that many operations do not entail particularly critical risks or concerns that must be shared with the team. In such cases, the anesthesia professional can simply say, *“I have no special concern regarding this case.”*
- **Nurse**  
The scrub nurse or technologist who sets out the equipment for the case should verbally confirm that sterilization was performed and that, for heat-sterilized instruments, a sterility indicator has verified successful sterilization. Any discrepancy between the expected and the actual sterility indicator results should be reported to all team members and addressed before incision. This is also an opportunity to discuss any problems with equipment and other preparations for surgery or any safety concerns the scrub or circulating nurse may have, particularly ones not addressed by the surgeon and anesthesia team. If there are no particular concerns, however, the scrub nurse or technologist can simply say, *“Sterility was verified. I have no special concerns.”*

## Identify Special Safety Procedures Based on Patient History and Medication Use:

This is the opportunity for the entire surgical team to be aware of special safety procedures or precautions that are required during the course of surgery based on the patient’s history and/or medication use. Often times this information is captured in the H&P; however it is important for the entire surgical team to be aware of these special circumstances prior to the surgery beginning.

## **Prior to Leaving the OR: SIGN OUT**

For the “**Sign Out**”, the team will review together the operation that was performed, completion of sponge and instrument counts and the labeling of any surgical specimens obtained. It will also review any equipment malfunctions or issues that need to be addressed. The team will also discuss the need for VTE prophylaxis (if it was decided to delay this step until after completion of surgery) and discontinue prophylactic antibiotics if they were used. Finally, the team will review key plans and concerns regarding postoperative management and recovery before moving the patient from the operating room.

### **Name of Procedure Was Recorded:**

Since the procedure may have changed or expanded during the course of an operation, the checklist coordinator should confirm with the surgeon and the team exactly what procedure was done.

### **Instrument, Sponge and Needle Counts Are Correct:**

Retained instruments, sponges and needles are uncommon but persistent and potentially calamitous errors. The scrub or circulating nurse should therefore verbally confirm the completeness of final sponge and needle counts. In cases with an open cavity, instrument counts should also be confirmed to be complete. If counts are not appropriately reconciled, the team should 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 is Labeled:**

Incorrect labeling of pathological specimens is potentially disastrous for a patient and has been shown to be a frequent source of laboratory error. The circulator should confirm the correct labeling of any pathological specimen obtained during the procedure by reading out loud the patient’s name, the specimen description and any orienting marks.

The specimen should be labeled with the patient’s name and date of birth.

### **Address Any Equipment Problems That Need to Be Corrected:**

Equipment problems are universal in operating rooms. Accurately identifying the sources of failure and instruments or equipment that have malfunctioned is important in preventing devices from being recycled back into the room before the problem has been addressed. The coordinator should ensure that equipment problems arising during a case are identified by the team.

### **Surgeon, Anesthetist and Nurse Review Key Concerns for Patient Recovery and Management:**

The surgeon, anesthetist and nurse should review the post-operative recovery and management plan, focusing in particular on intraoperative or anesthetic issues that may affect the patient's recovery. The aim of this step is the effective and appropriate transfer of critical information to the entire surgical team.

### **Discontinue Prophylactic Antibiotics (if applicable):**

Prophylactic antibiotics should be discontinued at this point if they were used during the surgical procedure. Prolonged administration of antibiotics when they are no longer necessary puts a patient at risk for antibiotic resistance.

### **VTE Prophylaxis Administration/Not Applicable:**

Timing of VTE prophylaxis is based on the type of procedure, prophylaxis selection and clinical judgment regarding the impact of patient risk factors. The optimal start of pharmacologic prophylaxis in surgical patients varies and must be balanced with the efficacy-versus-bleeding potential. Due to the inherent variability related to the initiation of prophylaxis for surgical procedures, 24 hours prior to surgery to 24 hours post surgery was recommended by consensus of the SCIP Technical Expert Panel in order to establish a timeframe that would encompass most procedures.

If VTE prophylaxis was not administered prior to incision, the coordinator should review the appropriateness of administration prior to the patient leaving the OR.

### **Surgical Site Debriefing:**

This is an opportunity for the surgical team to discuss any unanticipated events that occurred during the course of the surgery and discuss an opportunities for improvement in future surgical cases.