# AST Recommended Standards of Practice for Creating the Sterile Field

**Introduction**
The following Recommended Standards of Practice were researched and authored by the AST Education and Professional Standards Committee and have been approved by the AST Board of Directors. They are effective April 13, 2008.

AST developed the Recommended Standards of Practice to support health care facilities in the reinforcement of best practices as related to creating the sterile field in the perioperative setting. The purpose of the recommended standards is to provide an outline that heath care workers (HCWs) in the perioperative setting can use to develop and implement policies and procedures for creating the sterile field. The Recommended Standards is presented with the understanding that it is the responsibility of the health care facility to develop, approve, and establish policies and procedures for creating the sterile field according to established health care facility protocols.

**Rationale**
The following are Recommended Standards of Practice related to creating the sterile field in the perioperative setting. Surgical team members must rigorously adhere to the principles of aseptic technique and implement those principles for every surgical procedure in order to reduce the risk of the patient acquiring a surgical site infection (SSI). During all phases of surgical case management, the surgical team members must exhibit a high level of surgical conscience that demands when creating the sterile field, if an individual breaks aseptic technique, he/she will immediately communicate this to the other team members, or if another team member points out a break in aseptic technique, the individual who broke technique will not argue.[4] Additionally, the surgical personnel will work together as a team to problem solve the break in technique and arrive at the optimal decision applying the principles of aseptic technique. By following these Recommended Standards of Practice, another goal is to contribute to reducing waste and additional costs to the surgical patient. All surgery department personnel should be involved in the process of developing and implementing health care facility policies and procedures for creating the sterile field.

## Standard of Practice I

**To provide for a safe and uneventful surgical procedure, the Certified Surgical Technologist (CST) should have all the necessary instruments, supplies, and equipment needed to prepare the sterile field for the surgical procedure.**

1. The CST should cross-check the surgeon's preference card against the instruments, supplies, and equipment that have been gathered or what is referred to as "pulled" for the procedure to confirm that everything needed for the procedure is available.

# Standard of Practice II

**The O.R. furniture and equipment should be grouped and positioned prior to opening the sterile items.**

1. The CST should verify that all furniture, eg IV stands, sitting stools, anesthesia provider's cart, and equipment, eg electrosurgical unit, suction system, are in the O.R.
    A. Any unnecessary furniture and equipment should be removed from the O.R.[3]
    B. Equipment, eg electrosurgical unit, patient monitors, suction system, and specialty equipment, such as tourniquet machine, microscope, etc should be tested for functionality.
    C. New suction liners should be placed in the suction canister and confirm that the suction tubing is connected to the wall vacuum outlet.
    D. Confirm that a separate suction system is prepared for use by the anesthesia provider.[3]
2. Furniture should be grouped and positioned.
    A. Furniture that will eventually be sterilely draped including the back table, Mayo stand and basin ring stand should be grouped and organized together. It is recommended these items be positioned so that the sterile field will be established in an area furthest from the O.R. door. When the O.R. doors open and close, this causes air movement in which particles are stirred up, therefore the furniture should be positioned as far as possible from the O.R. doors and human traffic that occurs in and out of the room.[3]
    B. The furniture that will be set up and included in the sterile field should be positioned 12-18 inches away from the wall and other non-sterile furniture and equipment.
3. All other furniture that will not be included in the sterile field, eg linen and trash hampers, sponge/kick buckets, sitting stools, should be positioned away from the furniture to be used in the sterile field and away from traffic patterns.
    A. A biohazard bag should be positioned in the linen and trash hampers.
    B. Sponge buckets should be lined with an impervious biohazard bag.
4. The O.R. table should be positioned according to the surgeon's preference under the O.R. lights.
5. The anesthesia machine should be positioned according to the anesthesia provider's preference and according to the position of the O.R. table.
    A. A clean, lift sheet and armboard covers should be placed on the O.R. table.[5]
    B. Safety strap should be correctly positioned on the O.R. table.

# Standard of Practice III

**Aseptic technique must be strictly adhered to by the surgical team members when opening sterile instrument sets, packages and peel packs.**

1. Sterile items should be positioned for use in the O.R., eg back table pack placed on back table, basin placed in ring stand, instrument sets placed on flat surfaces, skin prep tray placed on prep table. The items should be placed on clean, dry surfaces. Items that will not be immediately opened, such as sterile dressing

supplies are placed in a location where they will be easily accessible by the circulator.

2. Prior to opening a sterile item, the following should be verified:
    A. The chemical indicator has changed color indicating the item has been exposed to a sterilization process.
    B. The integrity of the packaging material is intact, eg no perforations, tears or evidence of strike-through.
    C. Confirm expiration date, if present.
3. The surgical team members should establish a routine for opening sterile items.
    A. The following is a recommended sequence for opening sterile items:
        (1) Back table pack
        (2) Basin set
        (3) Small wrapped items, eg sterile towel pack
        (4) Peel pack items, including suture
    B. The CST's gown and gloves should be opened on a separate flat surface, such as the Mayo stand.
    C. Small wrapped items, peel packs and suture packets should be opened and "flipped" onto the sterile field using aseptic technique. The border of peel packs and suture packets is considered the boundary between non-sterile and sterile. Items should be opened in such manner that the non-sterile person is not extending over the sterile field.
    D. Peel packs that contain a heavy or difficult item(s), eg pliers, multiple clamps, should not be opened and flipped onto the sterile field. The item could puncture the sterile cover. A non-scrubbed person should open the peel pack and pass the sterile item(s) using aseptic technique to the CST in the first scrub role.
4. Rigid instrument containers should be inspected prior to opening.
    A. The filter and/or valve system should be inspected to confirm they are intact.[5]
    B. The seal should be checked for integrity, and if the chemical indicator on the seal changed color to confirm that the container was exposed to a sterilization process.
    C. If the container does not meet these inspection criteria, it must be considered contaminated and not used.
    D. The lid should be lifted upwards and away from the container to prevent contamination.
5. If a sterile package is dropped, the package may be considered safe for immediate use if wrapped in impervious packaging, the area of contact is dry, and the integrity of the packaging is maintained. The package should not be placed back in sterile storage and must be immediately opened and placed on the sterile field. Sterile packages wrapped in reusable woven fabric packaging that have been dropped should not be opened, and the items should not be transferred to the sterile field; reusable fabric packaging allows air to implode into the package when it lands on the area of contact. Refer to the *AST Recommended Standard of Practice for Sterile Wrapped Items Dropped on Floor* for additional details.

# Standard of Practice IV

**Traffic in and out of the O.R. should be monitored and controlled when the surgical team begins to open sterile items.**

1. The number of surgical personnel entering and leaving the O.R. should be monitored and controlled. Preferably only those surgical team members assigned to the surgical procedure should be entering and leaving the O.R. on a limited basis.
    A. Controlling the traffic aids in keeping air movement to a minimum, thus reducing the particles that enter the atmosphere and the amount of airborne contamination.
    B. Controlling traffic aids in keeping the level of conversation that is occurring in the O.R. to a minimum in order to reduce the spread of airborne droplets, which can carry microorganisms.[6]

# Standard of Practice V

**Sterile supplies should be opened as close to the time of surgery as possible and for one surgery only.**

1. Only one patient should occupy an O.R. and therefore, a single sterile field should be created.
    A. The performance of two procedures when there are two sterile fields, two surgical teams and two surgical sites dramatically increases the risk for airborne particle and droplet cross-contamination. Additionally, surgical team personnel traffic patterns are limited, thus increasing the chance for contamination of a sterile surface or item.
2. Sterile fields should be created as close to the scheduled time of surgery as possible.
    A. The potential for airborne contamination increases with the length of time a sterile field has been open. Dust and particles from the ambient environment can settle onto the surfaces of the sterile field and items. Additionally, surgical personnel entering and leaving the O.R. stirs up dust and particles, which can settle on the surfaces.
    B. Currently, there is no research-based recommendation related to how long a sterile field can remain open without being used. As with sterile packages, the concept of event-related sterility applies to the sterile field. Health care facilities should establish policies that address the issue and best serve the needs of the facility. However, the policy should include that the sterile field is kept under constant observation in order to identify contamination that may occur and to control traffic in and out of the O.R. A sterile field that is not kept under constant observation should be considered non-sterile and broken down.[5]
3. If a patient is transported into the O.R. but, for unforeseen reasons, the surgical procedure is cancelled prior to its start, the sterile field and sterile items should be considered contaminated.[5] The sterile field should be broke down, and the O.R. cleaned. It is recommended that the disposable items be saved and donated to a CAAHEP-accredited surgical technology program if one is near the health care facility.

A. When sterile supplies have been opened, a sterile field created and a procedure cancels, but the patient was not brought into the O.R., the room may still be used if the subsequent procedure is the same or similar.[5]

4. A sterile field, such as the sterile back table should not be covered with a sterile cover or drape. Removing the cover in an aseptic manner that prevents contamination of the sterile field cannot be achieved since the sides of the cover are below the level of the surface of the table and most likely will touch the sterile field upon removal. Additionally, moving the cover upward stirs the air current in an upward direction causing airborne contamination of the sterile field. Therefore, a sterile field should not be covered for the purposes of moving it to another O.R.

# Standard of Practice VI

**To contribute to the efficiency of surgical patient care the CST in the first scrub role should implement the principles of economy of motion when completing the setup of the sterile field.**

1. Prior to entering the sterile field, the CST must complete the surgical scrub, enter the O.R., dry hands and arms, and don the sterile gown and gloves. Refer to the *AST Recommended Standards of Practice for the Surgical Scrub and Gowning and Gloving*.
2. The CST should establish a logical, sequential and efficient routine for setting up the sterile field that can be followed for all types of surgical procedures.[3]
    A. Utilizing a routine for setting up the back table, Mayo stand and basin set contributes to economizing time. Variations can occur, including taking into account surgeon's preferences, emergency procedure vs. scheduled procedure and product differences. The CST should plan in advance the steps that will be taken to account for these variations.
3. The eight principles of economy of motion when setting up the back table and Mayo stand should be followed by the CST.[3]
    A. Motions should be simple, productive, minimal and non-repetitive.
    B. Move about as little as possible.
    C. Visualize and keep the body centered in a "box" or one area and move just the shoulders and hands. This may not always be possible when preparing for large procedures, but movement should be minimized as much as possible.
    D. Divide the back table into sections and work in sections at the table.
    E. Handle each item once; avoid rearranging items. Once an item has been placed, leave it.
    F. Establish a logical, sequential, and efficient pattern for back table and Mayo stand set up.
    G. Be aware of the total O.R. environment in order to develop "sixth sense awareness" related to movement of others in the O.R., who are non-sterile and areas that are sterile and non-sterile.
    H. Think fast, but move carefully.

4. Establishing a routine for setting up the back table involves the CST being knowledgeable of the contents of the back table pack, supplies that were opened and basin set contents.
    A. Drapes and supplies, such as extra gowns, Bovie handle, light handle covers and suction tip with tubing need to be rearranged.
    B. Small basins are removed from the basin set and are situated on the back table in such a manner that allows the circulator to pour solutions and medicines in an aseptic manner.
    C. Sharps, including suture packets and sponges, are arranged in a manner to facilitate completing the counts in an efficient manner. Refer to the *AST Recommend Standard of Practice for Completing Counts*.
5. The CST should establish a logical, sequential and efficient routine for setting up the Mayo stand.
    A. The CST should select the instruments and supplies that will be used most frequently during the surgical procedure for placement on the Mayo stand.
    B. Instruments should be briefly inspected for functionality and damage.[3]
    C. The CST should place instruments on the Mayo stand in even numbers.
    D. The instrument should only be closed to the first ratchet to facilitate the surgeon being able to quickly open the instrument for use.
    E. Sharps should be placed in a manner that allows the CST to safely pick up the sharp and either, place in the neutral zone, or pass to the surgeon.
    F. A roll towel is recommended for use. The ring handles of the instruments should be placed over the roll towel. It is not recommended placing the ring handles over the edge of the Mayo stand.

**Competency Statements**

| Competency Statements | Measurable Criteria |
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| 1. The CST and Certified First Assistant (CFA) have the knowledge and skills for implementing the principles of aseptic technique including monitoring of traffic within the O.R. to reduce the risk of SSI to the patient.<br><br>2. The CST and CFA are qualified to prepare and work within the sterile field utilizing their knowledge of the principles of aseptic technique.<br><br>3. The CST and CFA have the knowledge and skills to implement the principles of economy of motion in order to contribute to the efficiency of the surgical procedure and safety of the patient. | 1. Educational standards as established by the *Core Curriculum for Surgical Assisting* and *Core Curriculum for Surgical Technology*.<br><br>2. The subjects of principles of aseptic technique and implementation of the principles, preparing the sterile field, traffic flow patterns in the surgery department and O.R., surgical conscience, and principles of economy of motion are included in the didactic studies as a student.<br><br>3. Students demonstrate knowledge of the above listed didactic subjects in the lab/mock O.R. setting and during clinical rotation. |

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| | 4. As practitioners, CSTs and CFAs implement the principles of aseptic technique in preparing and working within the sterile field and monitoring traffic flow in the O.R., and implement the principles of economy of motion.<br><br>5. CSTs and CFAs complete continuing education to remain current in their knowledge of aseptic technique as well as to learn new information for reducing the risk of SSI as related to creating the sterile field. |

## References


1. *Core Curriculum for Surgical Assisting*. 2nd ed. Littleton, CO: Association of Surgical Technologists; 2006.

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3. Caruthers B, Junge T, Long JB, Price BD. Surgical case management. In: Frey KB, Ross T, eds. *Surgical Technology for the Surgical Technologist: A Positive Care Approach.* 3rd ed. Clifton Park, NY: Delmar Cengage Learning; 2008:304-376.

4. Frey KB, Price BD, Ross T. Asepsis and sterile technique. In: Frey, KB Ross T, eds. *Surgical Technology for the Surgical Technologist: A Positive Care Approach.* 3rd ed. Clifton Park, NY: Delmar Cengage Learning; 2008:139-184.

5. Gruendemann BJ, Mangum SS. (2001). *Infection Prevention in Surgical Settings*. Philadelphia, PA: WB Saunders Company; 2001.

6. Price P, Frey KB. *Microbiology for Surgical Technologists*. Clifton Park, NY: Delmar Learning; 2003.