

Subject Asepsis – Surgical Procedure / Sterile Technique
Index Number GL-9141
Section Infection Control
Subsection General
Category Corporate
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Last Revised 9/14/2018

References

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Applicable To

All employees, volunteers and non-employees with privileges within the institution of Gundersen Lutheran Medical Center, Inc., Gundersen Clinic, Ltd.; and Gundersen Administrative Services, Inc.; (collectively Gundersen Health System) involved in procedures requiring sterile technique.

Detail

PURPOSE:

1. To provide optimal patient care during invasive procedures.
2. To exercise sound practice of asepsis coupled with surgical conscience.
3. To promote open and honest communication for the acknowledgement of questionable breaks in technique or risks to patient safety.
4. To recognize the intimate contact between the patient and the surgical team.
5. To promote attention to personal hygiene and health.

Clean technique or medical asepsis	A technique that places emphasis on the prevention of cross contamination or transfer of microorganisms to the involved body site, other body sites of the patient, between patients or the environment. It requires the use of Standard Precautions for the protection of the employee from the patient’s body fluids, secretions, and excretions. It is appropriate for the use of semi-critical items that have contact with intact mucous membranes. Clean technique includes meticulous hand hygiene, a clean environment including a clean field, use of clean gloves, sterile instruments, and prevention of direct contamination of materials and
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	supplies.
Sterile technique or surgical asepsis	A technique that restricts any microorganisms in the environment, on equipment and supplies from contaminating the wound or vascular system. It is the required technique for the use of critical items that enter sterile tissue or the central vascular system. At a minimum, sterile technique involves meticulous hand hygiene, use of a sterile field, sterile gloves for application of a sterile dressing and sterile instruments. Sterile technique may be expanded to include the use of clean attire, surgical hand scrub, sterile surgeon gowns, surgical masks, hair covering and a controlled environment.
Critical items	A category assigned to items that present a high risk of infection if the item is contaminated with any microorganisms, including bacterial spores. This category includes surgical instruments, cardiac catheters and indwelling urinary catheters, implants, and needles. Most of the items in this category should be purchased sterile or be sterilized with ethylene oxide, peracetic acid, vaporized hydrogen peroxide or by steam under pressure.
Semi-critical items	Items that come in contact with mucous membranes or with skin that is not intact and must be free of all microorganisms, with the exception of high numbers of bacterial spores. Intact mucous membranes are generally resistant to infection by common bacterial spores but are susceptible to other organisms, such as tubercle bacilli and viruses. Respiratory therapy and anesthesia equipment, endoscopes, and diaphragm fitting rings are included in this category. Semi-critical items generally require high-level disinfection with the use of wet pasteurization or chemical germicides (i.e. glutaraldehyde, chlorine). Terminal sterilization of instruments is done to remove all pathogenic organisms before use on the next patient although items may be handled using clean technique during the procedure.
Noncritical items	A category assigned to items that come in contact with intact skin but not with mucous membranes. Intact skin acts as an effective barrier to most microorganisms. Examples of noncritical items include blood pressure cuffs, exam tables, electronic thermometers and furniture. Most items can be effectively cleaned with a hospital-grade disinfectant.

Implementation

I. PATIENT CARE

- A. Assure patient eligibility for surgery in consultation with surgeon and anesthesiologist.
- B. Assess patient for signs or symptoms of an infectious process and report findings to the surgeon and anesthesiologist:
 1. Core temperature > 38.5° Celsius
 2. Productive cough, runny nose, sore throat, and any other symptoms of a respiratory infection
 3. Elevated WBC
 4. Diarrhea with abdominal pain
 5. Any purulent material or lesion of the skin or subcutaneous tissue in proximity to the operative site. This includes any abraded or burned skin.

6. Any recent exposure to communicable disease that may lead to subsequent disease (e.g., chickenpox exposure to those w/o immunity)
- C. Patient Placement
 1. Use Contact precautions for the patient
 - a. with a multiple drug resistant organism (MDRO) or *C. difficile* infection.
 - b. with any infectious uncontrolled drainage from wounds.
 2. Use Airborne Precautions for tuberculosis. See GL-9902 *Airborne Precautions for Tuberculosis in Surgery* as one is not available in Legacy.
 - a. Recover the patient in an AII room in PACU or post-operative recovery area. Use respiratory protection. See GL-9902 *Airborne Precautions for Tuberculosis in Surgery*
 3. NOTE: Ophthalmology patients may wear their street clothes if they are cocooned in freshly laundered linens and remain on the eye cart throughout the surgical procedure.

II. STAFF ATTIRE AND PRACTICE:

- A. Perform hand hygiene.
- B. Cover hair and facial hair (beards, moustache, and sideburns) before entering the semi-restricted and restricted areas.
 1. Launder reusable hair coverings at the end of the shift through Laundry services.
 2. Discard single use hair covering at the end of the shift. Do not store hair covering in pocket for re-use.
- C. Put on clean attire, namely; scrub pants, scrub top, and warm-up jacket
 1. Change all clean attire daily or more often if visibly soiled or wet.
 2. Size the two-piece pant suit to prevent pant legs from dragging and provide adequate coverage. The top should fit snugly at the hips or be tucked in to the pants.
 3. Clean attire is not worn outside of the building/s.
- D. Put on clean duty shoes that have not been worn outside.
 1. Don shoe covers if exposure to blood or potentially infective material is anticipated.
 2. Remove shoe covers upon leaving the room following the procedure.
NOTE: Shoe covers are not a substitute for wearing duty shoes, hosiery or socks.
- E. Put on long sleeved cover jacket or warm-up jacket.
 1. Wear jackets in the central core and the operating room.
 2. Change daily or whenever possible contamination may have occurred.
 3. Wear snapped closed.
- F. Cover all personal clothing with the clean attire.
 1. Remove any clothing that cannot be covered, such as button up shirt, tie or turtleneck.
 2. Contain jewelry within clean attire.
- G. Select type of mask (e.g. surgical, PAPR, N95 respirators, HEPA) based on the infectious agent involved and the anticipated level of exposure. Medical PAPRs are not approved for use in a surgical setting with an open sterile field.

1. Wear surgical mask during invasive procedures or when the sterile items are open.
 2. Wear surgical mask so that it completely covers the nose and mouth and is secured to prevent venting at the sides.
 3. Keep masks either on or off; they are not to be tucked into a pocket or worn hanging around the neck.
 4. Change mask between cases. Exceptions can be made for supervising staff or others that are in several rooms for brief periods of time. Surgical mask must be removed before leaving surgery unit.
 5. Remove mask by touching only the strings, to reduce contamination of the hand from the nasopharyngeal area.
 6. Wear mask during cleaning between cases due to the short turn-around time of rooms.
- H. Report all possible exposures to blood borne pathogens promptly.
1. All surgeons and surgery staff that scrub-in should know their baseline status for Hepatitis B (HBV), Hepatitis C (HCV) and human immune-deficiency virus (HIV) infection.
 2. Report dual exposure during a surgical procedure whereby the patient becomes exposed to the health care worker's blood.
 - a. Employee Health Service (EHS) will consult with Infection Control in the event of a dual exposure.
 - b. Surgeons and surgery staff with known HBV, HCV or HIV infection should consult with EHS for ongoing follow-up. (Reference: Infection Control and Hospital Epidemiology March 2010, Vol. 31, No. 3)

III. SURGICAL SKIN PREP IN NON-OPERATIVE/PROCEDURAL AREA

See Peri-Op-7825 *Surgical Skin Prep – Operating Room*

See MaCh-3166 *Surgical Skin Prep: Cesarean Section*

- A. Assure completion of a pre-op shower & shampoo or other method to cleanse the operative site and surrounding areas.
- B. Remove hair
 1. using a clipper or a chemical depilatory, and only when absolutely necessary to facilitate drape adherence, skin preparation, wound closure and dressing.
 - a. Use clipper with single use disposable head.
 - b. Avoid hair removal in surgery. Use clipper with vacuum attachment if hair must be removed in surgery.
 2. as close to incision time as possible.
- C. Document assessment of the operative site noting the presence of any skin lesion.
- D. Use a hospital approved surgical scrub antimicrobial agent to prepare the surgical site.
 1. Select surgical scrub agents based on patient sensitivity, incision location, and skin condition.
 2. Use according to the manufacturer's recommendations or approved GHS evidence based protocols.
 3. Follow established protocol to prep skin lesions or open areas
4. Store antiseptic agents in the original, single-use container.
5. Use sterile supplies and sterile gloves to apply agents.

- a. Perform hand hygiene before donning sterile gloves.
- b. Scrub jackets should be worn during the prep as long as it will not contaminate the prepped area.
6. Apply the antimicrobial agent proceeding from the incision site to the periphery
 - a. Follow manufacturer instructions if using Chloraprep.
7. Remove pooled surgical scrub agents from under patient.
- E. Document the skin prep assessing skin integrity, hair removal process, area prepped, solutions used, abnormal reaction to prep, prepping agent dried per manufacturer instructions before draping or procedure start, and name of person(s) performing the task.

IV. PREPARE THE STERILE FIELD

A. Preparation of Scrubbed Personnel

1. Don sterile gowns and gloves.
2. Select sterile gowns based on the length and physical contact with the procedure.
 - a. **Level 2** barrier gowns are appropriate for short procedures with little or no anticipated exposure to blood or body fluids. Standard surgeon gown (ComPel from Standard Textile) are classified per ANSI/AAMI PB270:2003 standard as a Level 2 Barrier.
 - b. **Level 3** barrier gown provides greater protection.
 - c. **Level 4** barrier gowns provide the greatest level of protection. The disposable MicroCool KC400 meets Level 4 Barrier standards.
3. Stand away from the sterile field or instrument table to don a sterile gown and sterile gloves.
4. Consider sterile gowns as sterile in front from chest to the level of the sterile field, and the sleeves are considered sterile from two inches above the elbow to the cuff.
5. Inspect gloves after donning for integrity.
6. Double gloving is recommended for most procedures.
 - a. Use Blue indicator polyisoprene surgical gloves as the under glove when double gloving. The blue indicator glove allows for easier detection of holes in the outer surgeon glove.
 - b. Change the outer glove every two hours.
7. Report to Employee Health (or Emergency Services after hours) any incident of strike-through for evaluation and possible exposure follow-up.
 - a. Gown strike-through places not only the healthcare worker at risk to blood-borne pathogens but also may increase risk to the patient for developing a surgical site infection.
 - b. Strike-through may indicate a problem with reprocessing of reusable gowns or may indicate that a higher level of protection is needed.

B. Sterile Field Preparation

1. Use sterile drapes to establish a sterile field.
2. Place sterile drapes on the patient and on all furniture/equipment to be included in the sterile field.
 - a. Handle the sterile drapes as little as possible.

- b. Hold the sterile drape folded and compact above the operative area during the draping process.
 - c. Place and unfold from the operative site to the periphery starting with the side closest.
 - d. Cuff the draping material over the hands to protect sterile gloves during the draping process
 3. Check all items presented to the sterile field for proper processing and package integrity.
 4. Use only sterile items within the sterile field.
 - C. Introduce items onto a sterile field
 1. Secure all wrapper edges when supplies are presented to the sterile field.
 2. Open the wrapper farthest from the un-scrubbed person first and the nearest wrapper flap last.
 3. Present sterile items to the scrubbed person or place securely on the table.
 4. Present objects that are sharp, heavy or difficult to handle to the scrubbed person or open on a separate surface.
 5. Dispense solutions:
 - a. Place the receptacle near the edge of the table or have the scrubbed person hold it.
 - b. Pour the entire contents into the receptacle, or discard the remainder.
 - c. Pour the fluid slowly to avoid splashing.
 - d. Label appropriately
 - D. Monitor and maintain the sterile field
 1. Use sterile material or covering to bring non-sterile equipment into or over the sterile field draped so that only sterile items are touching sterile items.
 2. Keep sterile fields uncovered as it is difficult to remove the drape without contamination.
 3. Prepare the sterile fields as close as possible to the time of use. Exceptions are:
 - a. Delayed cases in Labor & Delivery may have sterile field set up for four hours before take-down, provided that room access is limited and set up is watched.
 - b. Opened instruments are not transported outside of the intended room of use.
 4. Consider all open case supplies contaminated once the patient enters the room. The set-up may not be used on another patient.
 5. Consider unguarded sterile fields as contaminated.
 6. Observe for events that may contaminate the sterile field.
 7. Keep conversation to a minimum in the procedure/operating room.
 - a. Gum chewing is not permitted in the procedure/operating room.
 - E. Movement around the sterile field See *Traffic Patterns in Procedural and Surgical Areas*
 1. Maintain the integrity of the sterile field.
 2. Un-scrubbed persons maintain a safe distance from sterile areas.
 3. Scrubbed personnel:
 - a. Do not leave the room
 - b. Remain close to the sterile field

- c. Keep arms and hands within the sterile area
- d. Avoid changing levels to prevent exposure to the un-sterile portion of the gown.

I. SANITATION

- A. Remove external shipping / packing containers before transporting materials into the procedure/operating room.
- B. Maintain the integrity of all packages.
- C. Damp dust furniture, lights, and equipment with hospital approved disinfectant before the first scheduled case of the day.
- D. Visually inspect the area before the instruments are brought into the room.
- E. Damp dust equipment from outside the procedure room with an EPA approved germicidal agent prior to entry into the procedure/operating room. This includes but is not limited to items stored in outer corridor.
- F. Place patient into freshly laundered linens and gowns before transporting patients into the procedure/operating room.
- G. Confine and contain contamination during the procedure.
 - 1. Clean-up contaminated surfaces promptly with an approved disinfectant.
 - 2. Do not use spray bottles during the procedure or set up.
- H. Consider items that come in contact with the patient and/or sterile field as contaminated.
 - 1. Place disposable items with squeezable, drippable, pourable blood in closeable, leak-proof containers or red bags that are labeled as biohazardous.
 - 2. Place used/unused or soiled disposable items in the properly defined disposal receptacles.
- I. Remove gown and glove in a manner that contains contamination. Place gown and glove in the proper receptacle prior to leaving the procedure/operating room and perform hand hygiene.
- J. Handle contaminated linen as little as possible.
- K. Place linen from any open packs, whether soiled or not, in linen hampers for the laundry.
- L. Use gloves to place instruments directly into instrument trays and then into the case cart.
- M. Seal disposable suction containers and send to Central Services for disposal. Or empty suction fluids into a designated soiled area.
- N. Count all needles, sponges, and instruments before disposal to reduce the risk of retained items.
- O. Discard sponges into or onto impervious surface for counting. Use gloves or forceps to handle sponges, organic material, and specimens.
- P. Perform turnover cleaning between cases.
 - 1. Operating Room staff and Environmental Services jointly perform this task. Environmental Services is ultimately responsible for all terminal cleaning.
 - 2. Clean equipment and furniture with friction and an approved cleaner/disinfectant.
 - a. Follow manufacturer's recommendations for surface disinfection wet contact time.

- b. Clean in a sequence from clean to dirty (e.g. overhead lights, gowning table, prep stand, back table to OR table).
 - c. Disinfect all surfaces that may have been contaminated during the procedure. This includes but is not limited to ring stands, Mayo stand, desk, lead aprons, lead shields, etc.
 3. Remove all debris from the floor, including any item that may potentially result in a puncture wound of laundry personnel.
 4. Mop with an approved disinfectant.
 - a. Determine level of cleaning based upon the likelihood of contamination. Some procedures are minimally invasive and there is no blood loss therefore floor disinfection is not necessary.
 - b. Change the mop-head after each patient procedure.
 - c. Do not dip mop-head back into mop-bucket after use.
 - d. Use multiple mopheads to clean a heavily soiled floor.
 5. Clean patient transport vehicles with an approved cleaner/disinfectant.
 6. Terminal/daily clean the procedure/operating room at the conclusion of the day's schedule.
 - a. Clean lights, ceiling mounted equipment, all furniture including the wheels and casters, handles and push plates, face plates and vents, all horizontal surfaces, the entire floor, kick buckets, and scrub sinks.
 - b. Set thermostats at 70° Fahrenheit or warmer.
- Q. Cleaning other adjacent spaces:
 1. Daily Tasks
 - a. Clean the locker rooms, corridors, rest-rooms, workrooms and storage areas.
 - b. Clean break rooms at least daily but typically need to be cleaned more often to keep trash to a minimum. Keep break room doors closed at all times.
 2. Weekly tasks:
 - a. Wash walls.
 - b. Damp dust refrigerators, crash carts, supply carts, med carts, desks, tables, and case carts in the Central Core.
 - c. Clean step stools. Step stools may be sent to Central Services for cleaning.
 3. Monthly tasks:
 - a. Clean storage areas and shelves.
 - b. Check for outdated supplies in refrigerators, freezer, crash cart, etc. and med cart.
 - c. Clean the gas tracks, light fixtures, and the vents in the clean storage areas and corridors every six weeks.