General Surgery Goals and Objectives:

Aseptic technique:

1. To develop proper and acceptable practice in hand washing and scrubbing
2. To demonstrate proper methods of hand drying
3. To demonstrate proper method of gowning and gloving, both by self and with assistance
4. To demonstrate technical skills to produce and maintain a sterile, aseptic operative field including:
   a. Proper preparation of surgical site
   b. Proper draping pertaining to specific procedures
   c. Proper placement of the operating table specific to OR procedure

PRINCIPLES OF ASEPTIC TECHNIQUE

1. Application of the basic principles of aseptic technique depends primarily on the individual’s understanding and conscience. Every person on the surgical team must share the responsibility for monitoring aseptic practice and initiating corrective action when a sterile field is compromised.

2. All materials in contact with the wound and used within the sterile field must be sterile. The inadvertent use of unsterile items may introduce contaminants into the wound. When using or dispensing a sterile item, personnel must be assured that the item is sterile and will remain sterile until used. Items of doubtful sterility must be considered unsterile.

3. Gowns of the surgical team are considered sterile in front from chest to the level of the sterile field. The sleeves are also considered sterile from 2 inches above the elbow to the stockinet cuff. The cuff should be considered unsterile because it tends to collect moisture and is not an effective bacterial barrier. Therefore the sleeve's cuff should always be covered by sterile gloves. Other areas of the gown that must be considered unsterile are the neckline, shoulders, areas under the arms, and back. Wraparound gowns that completely cover the back may be sterile when first put on. The back of the gown, however, must not be considered sterile because it cannot be observed by the scrubbed person and protected from contamination.

4. The sterile area of the front of the gown extends to the level of the sterile field because most scrubbed personnel work adjacent to a sterile table. For this reason the scrubbed person should avoid changing levels, as would occur while moving from footstool to floor. To maintain sterility, scrubbed persons should not allow their hands or any sterile item to fall below the level of the sterile field. Scrubbed persons should neither sit nor lean against unsterile surfaces because the threat of contamination is great. The only time scrubbed persons may be seated is when the entire surgical procedure will be performed at that level.
5. Sterile drapes are used to create a sterile field. Only the top surface of a draped table is considered sterile. Although a bacterial barrier may be draped over the sides of a table, the sides cannot be considered sterile. Any item that extends beyond the sterile boundary is considered contaminated and cannot be brought back onto the sterile field. A contaminated item must be lifted clear of the operative field without contacting the sterile surface and must be dropped with minimum handling to an unsterile person, area, or receptacle. Interpretation of sterile areas versus unsterile areas on a draped patient requires astute observation and use of good judgment.

6. Items should be dispensed to a sterile field by methods that preserve the sterility of the items and the integrity of the sterile field. Good judgment must be used when dispensing items either by presenting them to the scrubbed person or by placing them securely on the sterile field.

7. Motions of the surgical team are from sterile to sterile areas and from unsterile to unsterile areas. Scrubbed persons and sterile items contact only sterile areas; circulating nurses and unsterile items contact only unsterile areas. All must maintain a continual awareness of unsterile areas. Maintaining a safe margin of space can reduce accidental contamination in passing items between sterile and unsterile fields.

8. The patient is the center of the sterile field during an operation; additional sterile areas are grouped around the patient. If contamination is to be prevented, patterns of movement within or around this sterile grouping must be established and rigidly practiced. Scrubbed persons stay close to the sterile field. If they change positions, they turn face to face or back to back while maintaining a safe distance between.

9. Whenever a sterile barrier is permeated, it must be considered contaminated. This principle applies to packaging materials as well as to draping and gowning materials. Obvious contamination occurs from direct contact between sterile and unsterile objects. When moisture soaks through a drape, gown, or package, strike-through occurs, and the item must be considered contaminated.
SKILLS

Surgical Scrub

Each member of the surgical team must perform a proper scrub prior to any aseptic procedure.

• Scrub time – 5 minutes for first scrub of the day and 3 minutes for each subsequent scrub.
• Hands and forearms are to be held out from scrub clothes.
• Hands to be at higher level than elbows at all times.
• Scrub solution is applied to hands.
• Each nail is cleaned under running water with nail stick.
• Each nail is scrubbed against palm of opposite hand.
• Each finger is then scrubbed on all 4 sides – 5 strokes/side.
• Back of hand and palm is scrubbed from base of fingers to wrist – 30 strokes
• Small overlapping circles are used to scrub from wrist to 2 inches above elbow.
• Hands and forearms are rinsed from finger tip to elbow.
• With hands above elbows, arms are held above sink to allow excess water to drip into sink or onto mat – to avoid water slippage hazard.

Hand Drying

• Drying towel is lifted up and away from the sterile field without dripping water into that field.
• Drying towel is folded in half length-wise for a more absorbent surface area. (can also use dual towel technique)
• Bend forward at the waist, fingers and hand are dried thoroughly, then the same part of towel is used to dry remainder of forearm.
• The other end of the towel is then used to dry the other hand and forearm.

Gowning and Gloving

• The individual then moves into an area where the gown may be opened without contamination of self or gown, or sterile field.
• The gown is held away from the OR nurse's body and unfolded so that the inside is toward the wearer.
• The hands are slipped into the gown while keeping them away from the body and at shoulder level.
• The hands are advanced up the sleeves of the gown to the proximal end of the cuffs.
• “Gloving” is performed by the closed or open method.
• The individual turns to allow the circulating nurse to pull the gown over the shoulders and to tie the neck and waist of the gown at the back.
• The surgeon then hands the sterile right tab of the gown to the scrub nurse, turns left 280° and then takes back this tab. He/she then ties this to the other sterile tab to wrap the gown.

**Gloving – Closed Method**

This is the technique of choice as the bare hands never come in contact with the outside of the gloves. The gloves are handled only through the material of the sleeves of the gown. The hands are only pushed through the cuff as the gloves are pulled on. This technique is used when gloving oneself.

**Gloving – Open Method**

In this technique, the scrub nurse assists the scrubbed individual with gloving:
• The glove (right first) is grasped under the everted cuff by the scrub nurse.
• The palm of the glove is turned towards your hand so that the thumb of the glove is opposite your thumb.
• The cuff is stretched by the scrub nurse to open the glove widely.
• You then insert your right hand into the glove while pulling upon the palm side of the everted cuff of the glove with your left hand, which is still in the sleeve of the gown.
• The same is then done with the left hand.
• The cuffs of the gloves can then be adjusted.

**Removal of Dirty Gown, Gloves and Mask**

Recommended to prevent contact with soiled outer layer of gown, gloves and mask.
• The waist tie of the gown is untied.
• Grasp a shoulder of the gown and pulls it inside out off one gloved arm, pull that sleeve off leaving the glove on, but with the cuff now everted.
• This step is repeated with the other arm.
• The gown is pulled off completely, held away from the body and is placed into the appropriate waste container.
• The gloved fingers of one hand are placed under the everted cuff of the contra lateral glove; the glove is pulled off and inverted at the same time.
• The everted cuff on the remaining glove is then grasped with the bare free fingers of the other hand and is pulled off in the same way.

**GLOVE TO GLOVE / SKIN TO SKIN**

**Patient Skin Preparation**

Skin preparation is done as a 2 step process:
• Cleansing
• Sterilization
**Betadine Prepping**

- A scrub detergent solution of povidone is usually used to clean all surface dirt and loose squares from the skin’s surface. One starts at the center of the field and moves outward in reverse concentric circles.
- A sterile towel is placed over the cleaned field to dry the area.
- The towel is removed from end to end rather than being lifted up from the center.
- A non-detergent antiseptic, non-alcoholic iodophor is then painted on, leaving a thick film of iodophor on the skin. Again, this is done from the center of the field working outwards.
- After the antiseptic solution on the skin has been allowed to dry, sterile towels are placed around the field and are held in place by self adhesive or by the use of towel clips.
- Sterile drape(s) are then placed over the remainder of the patient.

**Chlora-prep**

Chlora-prep solution is a solution of chlorhexidine and alcohol. It provides rapid, long-lasting broad spectrum antimicrobial activity.

- Use Chlora-prep sponge applicator to prep operative site.
- Prep a circular motion working outwards from center of the field.
- Begin draping only after Chlora-prep solution is dry.

*When in doubt, prep widely*
Positioning the Patient

Preliminary Considerations

Proper positioning for a surgical procedure is a facet of patient care that is as important to patient outcome as adequate preoperative preparation and safe anesthesia. It requires knowledge of anatomy and application of physiologic principles, as well as familiarity with the necessary equipment. Safety is a prime consideration. Patient position is determined by the procedure to be performed, with consideration of the surgeon’s choice of surgical approach and of anesthetic administration technique. Factors such as age, height, weight, cardiopulmonary status, and preexisting diseases, also influence position and should be incorporated into the plan of care. Preoperatively, the patient should be assessed for alteration in skin integrity, joint mobility, and presence of joint or vascular prosthesis. Expected outcome is that the patient will not be harmed by positioning for surgical procedure and positioning of the patient will not harm operative team.

Responsibility

Choice of position for surgical procedure is made by the surgeon in consultation with the anesthesiologist, and adjustments are made as necessary for anesthesia. Responsibility for placing the patient in surgical position may be that of the circulator, with guidance, approval, and sometimes assistance of the anesthesiologist and the surgeon. In essence, it is a shared responsibility among all team members. In cases of complex positioning or obese, heavy patients, the plan of care will include the need for additional help in lifting and/or positioning the patient.

Peripheral Nerve Consideration

Prolonged pressure on or stretching of peripheral nerves can result in injuries ranging from sensory and motor loss to paralysis. Extremities, as well as the body, must be well supported at all times. Appliances, restraints, and equipment in contact with skin must be well padded. Most frequent sites of injury are divisions of the brachial plexus and the ulnar, radial, peroneal, and facial nerves.

- For example, arm boards should be aligned with the patient’s shoulder and should never be flexed to 90 degrees or more.

Soft Tissue Considerations

Body weight is distributed unevenly when the patient lies on the operating table. Weight concentrated over bony prominences can cause skin pressure ulcers. These areas must be protected from constant external pressure against hard surfaces, particularly in thin or underweight patients. Pressure injuries are more common after surgical procedures that last 2 hours or longer.
**Modifications for Individual Patient Needs**

Avoidance of unnecessary exposure, whether the patient is unconscious or conscious, is an essential consideration for all patients. Objectively observe the patient’s position before skin preparation and draping to see that it adheres to physiologic principles. Careful observation of patient protection and positioning facilitates expected outcome.
Safety Measures

Safety measures must be observed while moving and positioning patients. These include:

1. Operating table and transport vehicle must be securely locked in position, with the mattress stabilized during transfer to and from table.
2. Two persons should assist an awake patient with the transfer by positioning themselves on each side of the patient’s transfer path. The person on the side of the transport stretcher assists the patient to move toward the operating table. The person on the opposite side prevents the patient from falling over the edge of the table. Take care not to allow the patient’s gown or blanket to become lodged between the two surfaces.
3. Adequate assistance in lifting unconscious, obese, or weak patients is necessary to prevent injury. A minimum of four persons is recommended. Transfer devices and lifters may be used. The patient is moved on the count of three. The anesthesiologist gives the signal. Sliding or pulling the patient may cause dermal abrasion or injury to soft tissues.
4. Anesthesiologist guards the anesthetized patient’s head at all times and supports it during movement. The head should be kept in neutral axis and turned as little as possible to maintain airway and cerebral circulation.
5. **Physician** assumes responsibility for protecting an unsplinted fracture during movement.
6. Anesthetized patient is not moved without permission from anesthesia.
7. Anesthetized patient must be moved slowly and gently to allow the circulatory system to adjust and to control body during movement.
8. No body part should extend beyond the edges of the table or contact metal parts or unpadded surfaces.
9. Body exposure should be minimal to prevent hypothermia and to preserve dignity.
10. Movement and position should not obstruct or dislodge catheters, intravenous (IV) infusion tubing, and monitors.
11. Arm must be guarded to avoid hyper-extending the arm or dislodging the infusion needle.
12. When the patient is prone, the thorax must be relieved of pressure to facilitate chest expansion with respiration.