

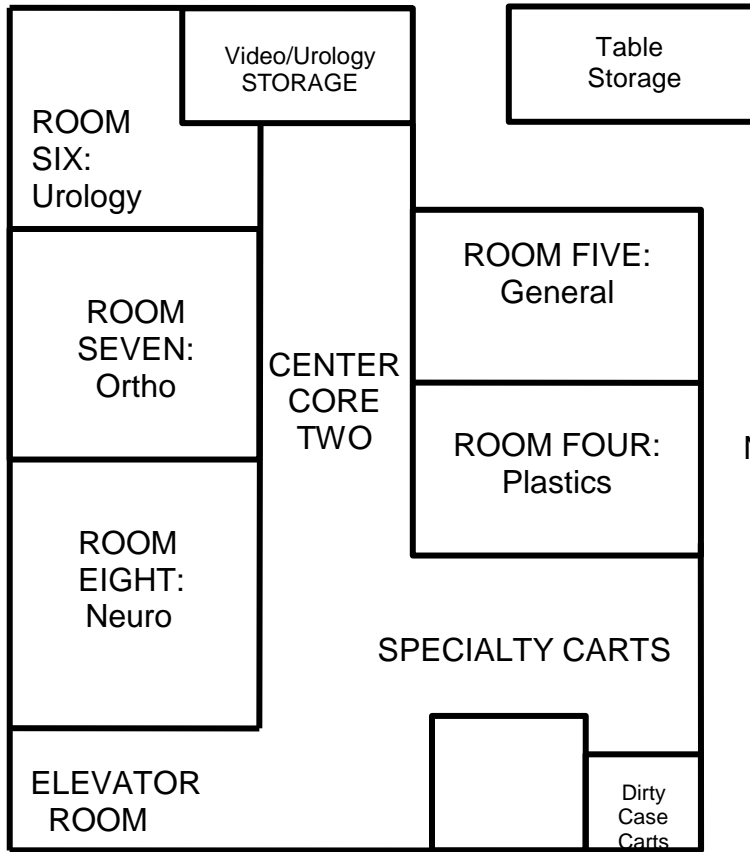
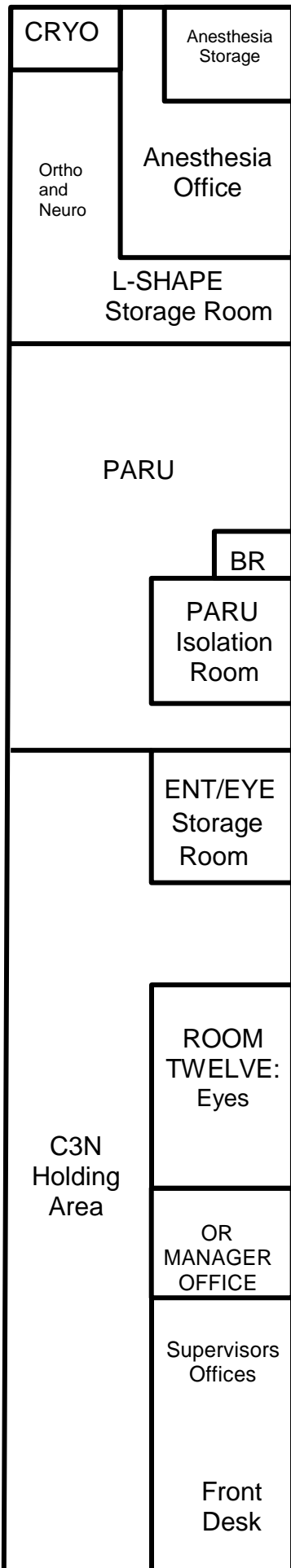


CHW

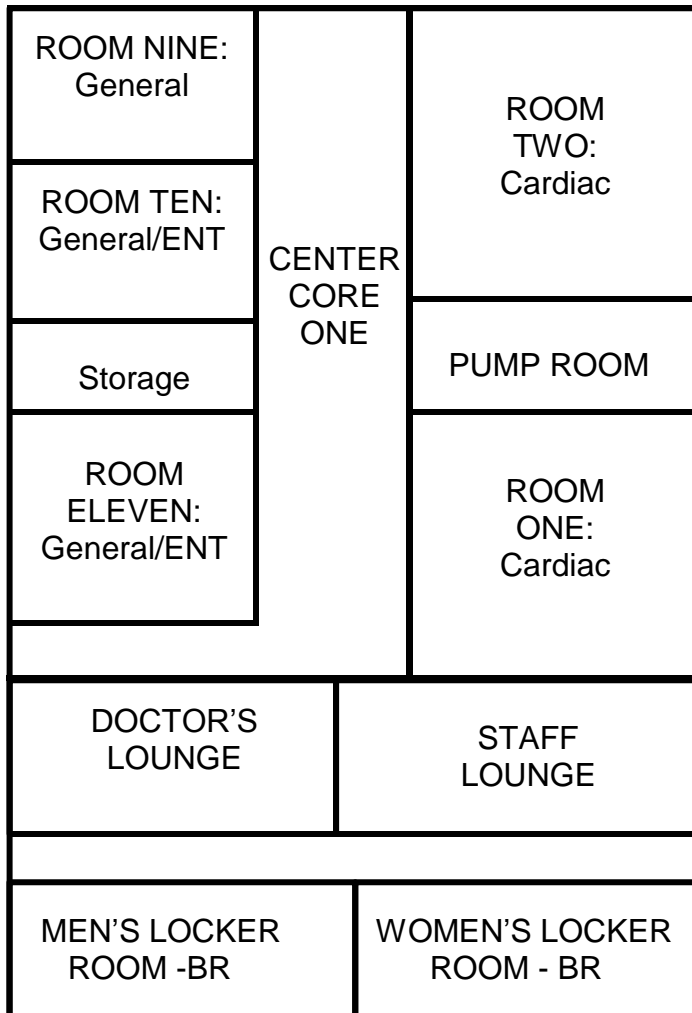
OR ORIENTATION

Lead RN/ST Office

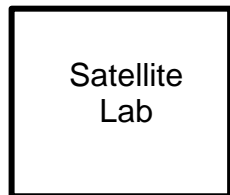
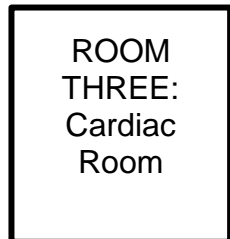
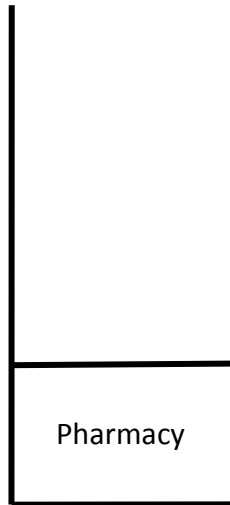
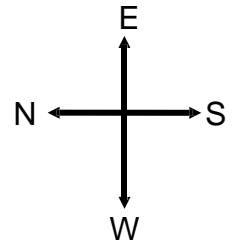
ALASKA



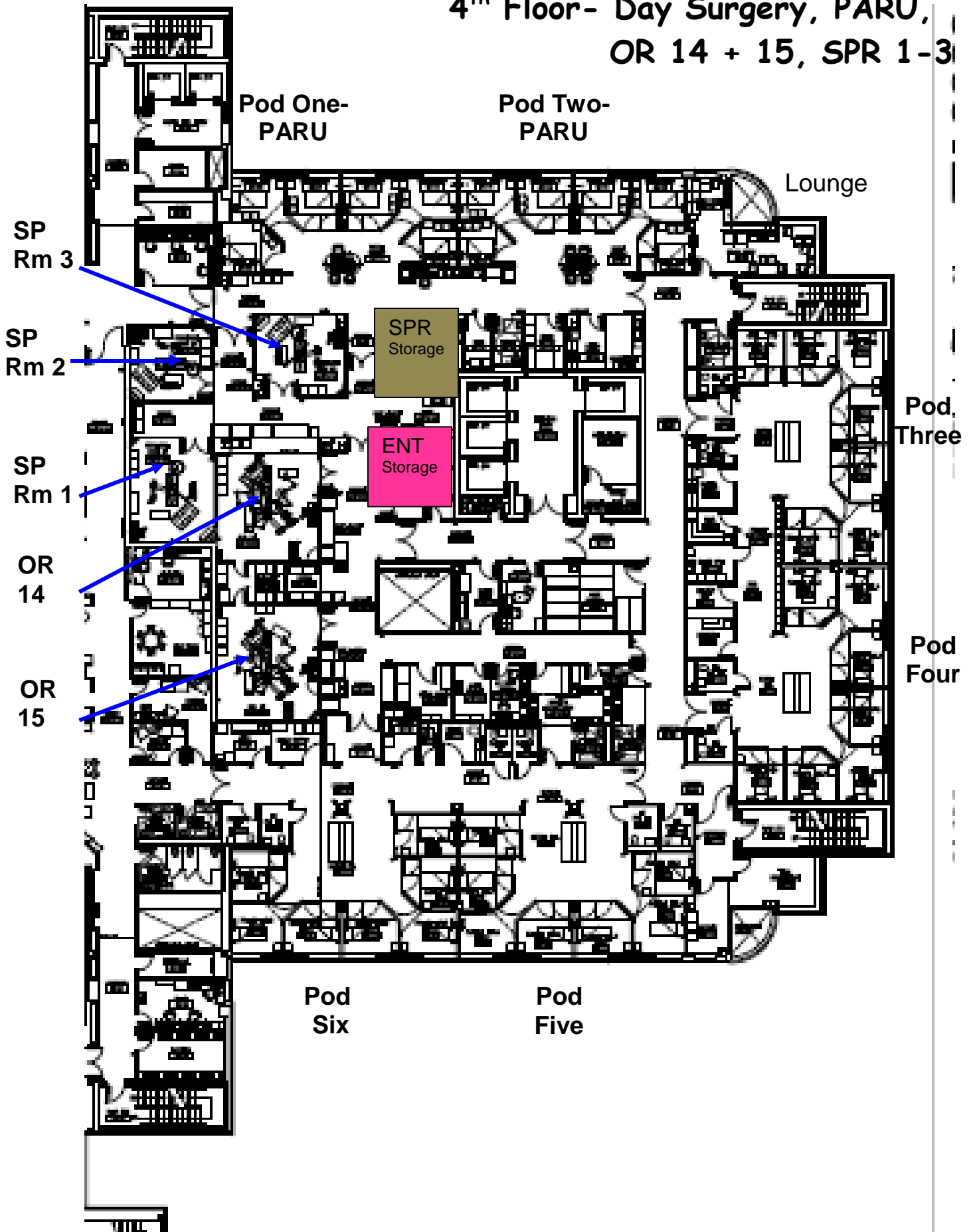
HALLWAY BETWEEN CENTER CORES 1 & 2



CHILDREN'S HOSPITAL OF WISCONSIN OPERATING ROOMS



4th Floor- Day Surgery, PARU, OR 14 + 15, SPR 1-3



Points to Remember about Aseptic Technique

Adherence to the Principles of Aseptic Technique Reflects One's Surgical Conscience.



1. The patient is the center of the sterile field.

2. Only sterile items are used within the sterile field.

- A. Examples of items used.
- B. How do we know they are sterile? (Wrapping, label, storage)
- C. The edges of sterile packages are not sterile once the package is opened.

3. Sterile persons are gowned and gloved.

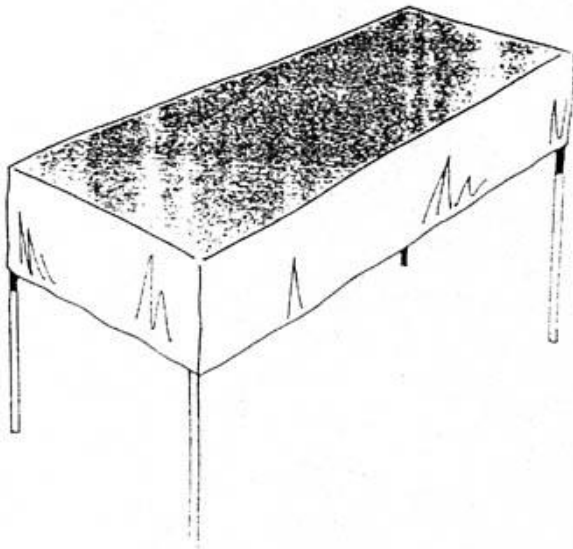
- A. Keep hands at waist level and in sight at all times.
- B. Keep hands away from the face.
- C. Never fold hands under arms.
- D. Gowns are considered sterile in front from chest to level of sterile field, and the sleeves from above the elbow to cuffs. Gloves are sterile.
- E. Sit only if sitting for entire procedure.

4. Tables are sterile only at table level.

- A. Anything over the edge is considered unsterile, such as a suture or the table drape.
- B. Use non-perforating device to secure tubing and cords to prevent them from sliding to the floor.

5. Sterile persons touch only sterile items or areas; unsterile persons touch only unsterile items or areas.

- A. Sterile team members maintain contact with sterile field by wearing gloves and gowns.
- B. Supplies are brought to sterile team members by the circulator, who opens wrappers on sterile packages. The circulator ensures a sterile transfer to the sterile field. Only sterile items touch sterile surfaces.



6. Unsterile persons avoid reaching over sterile field; sterile persons avoid leaning over unsterile area.

- A. Scrub person sets basins to be filled at edge of table to fill them.
- B. Circulator pours with lip only over basin edge.
- C. Scrub person drapes an unsterile table toward self first to avoid leaning over an unsterile area. Cuff drapes over gloved hands.
- D. Scrub person stands back from the unsterile table when draping it to avoid leaning over an unsterile area.
- E. Avoid reaching over a sterile field 1) to drop a sterile object, 2) to pour solutions, 3) to fix suction, cautery, or drainage tubes, or 4) to reposition the head light.



7. Edges of anything that encloses sterile contents are considered unsterile.

- A. When opening sterile packages, open away from you first. Secure flaps so they do not dangle.
- B. The wrapper is considered sterile to within one inch of the wrapper.
- C. In peel-open packages, the edges where glued, are not considered sterile.

8. Sterile field is created as close as possible to time of use.

- A. Covering sterile tables is not recommended.

9. Sterile areas are continuously kept in view.

- A. Sterility cannot be ensured without direct observation. An unguarded sterile field should be considered contaminated.

10. Sterile persons keep well within sterile area.

- A. Sterile persons pass each other back to back or front to front.
- B. Sterile person faces a sterile area to pass it.
- C. Sterile persons stay within the sterile field. They do not walk around or go outside the room.
- D. Movement is kept to a minimum to avoid contamination of sterile items or persons.



11. Unsterile persons avoid sterile areas.

- A. Unsterile persons maintain a distance of at least 1 foot from the sterile field.
- B. Unsterile persons face and observe a sterile area when passing it to be sure they do not touch it.
- C. Unsterile persons never walk between two sterile fields.
- D. Circulator restricts to a minimum all activity near the sterile field.

12. Destruction of integrity of microbial barriers results in contamination.

- A. Strike through is the soaking through of barrier from sterile to non-sterile or vice versa.
- B. Sterility is event related.

13. Microorganisms must be kept to irreducible minimum.

- A. Perfect asepsis is an idea. All microorganisms cannot be eliminated. Skin cannot be sterilized. Air is contaminated by droplets.

14. Movement and air currents within and around a sterile field must be minimal to avoid contamination. Contamination occurs whenever a bacterial barrier is violated.

15. When in doubt regarding an item's sterility consider it unsterile.

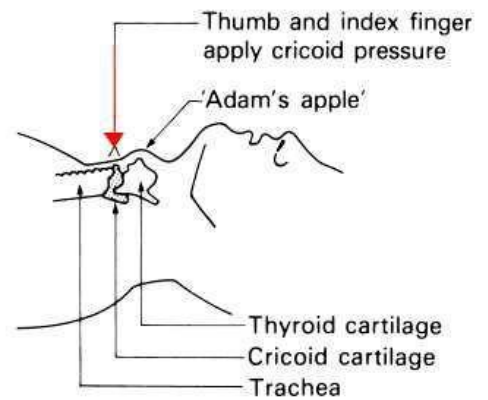
Depth of General Anesthesia

FROM	TO	PATIENT STATUS	NURSE SHOULD
Beginning administration of gas or drug	Loss of Consciousness	May appear inebriated, drowsy, dizzy	Close OR doors. Keep the room quiet. Stand by patient to assist if necessary
Loss of Consciousness	Relaxation	May appear excited; breathe irregularly; may move arms and legs or body. Patient very susceptible to external stimuli (noise, being touched suddenly)	Be ready to restrain patient, if needed. Remain at patient's side, quiet and alert. Assist anesthesiologist, if needed.
Surgical Anesthesia Stage of Relaxation	Loss of reflexes. Depression of vital functions	Regular respiration, contracted pupils, eyelids reflexes disappear, jaw relaxed. Auditory sensation lost during this stage	Begin prep only when anesthesiologist indicates this stage is reached and patient is under good control.
Vital functions too depressed (Danger Stage)	Respiratory failure. Possible cardiac arrest	Not breathing. Little or no heartbeat or pulse.	If arrest occurs; react immediately to assist in establishing airway. Provide cardiac arrest cart; drugs, syringes. Assist surgeon with closed or open cardiac massage.

The emergency patient with a full stomach presents a hazardous situation. The patient may have eaten shortly before becoming acutely ill or just before an accident. In the presence of severe body trauma, the stomach might be full of blood. In either case, there can be very real danger that the patient will vomit and aspirate stomach contents into the lungs. This complication can present a grave threat to life and can even prove fatal. The circulating nurse must be prepared to assist the anesthesiologist until the situation is well controlled. A reliable source of suction, a catheter or appropriate suction tip, gastric tube, drainage pan, bulb syringe, emesis basin, wet towel- all or a portion of these items may be needed. The nurse should know how to turn the head of the table downward to Trendelenburg's position, for this might be helpful in promoting expulsion of vomitus rather than aspiration. Turning the patient's head to one side might be a helpful maneuver. Nothing can ever be more important than preservation of patient's life.

When the patient has a full stomach, general anesthesia is avoided if possible. If it is necessary to proceed immediately with the operation and it can only be done satisfactorily under a "general", the anesthesiologist often inserts a gastric tube to empty stomach contents. Since this tube fits the trachea closely, vomitus cannot easily reach the lungs. During intubation the circulating nurse may be asked to apply cricoid pressure (Sellick's maneuver). Gentle backward pressure on the cricoid cartilage helps the anesthesiologist visualize the vocal cords and occludes the esophagus to prevent vomiting. The nurse must lend assistance during this critical situation until such time as it is no longer needed.

Sellick's Maneuvre, applying cricoid pressure



Surgical Services Roles

SCRUB- Surgical Technician or RN

Pre-operative Duties

- ✓ Locate the surgeon's preference card from the DPC.
- ✓ Assist the circulator with setting up supplies and equipment.
- ✓ Scrub (Time scrub/Avagard), gown, and glove according to procedure.
- ✓ Set up case as scheduled.
- ✓ Confer with the surgeon regarding suture routine and avoid waste.



During the Procedure

- ✓ Glove and gown surgeon and assistants.
- ✓ Assist with draping and observe principles of draping.
- ✓ Preserve order on the sterile field, keeping it clean, dry, and ready (as needed) for relief person to take over with minimum confusion and delay.
- ✓ Anticipate the surgeon's needs for instruments, sutures, and sponges.
- ✓ Maintain a count of the number of needles in use and foresee suture sequence.
- ✓ Have closure suture ready and dressing prepared as required.
- ✓ Verify the tissue specimen as delivered by the surgeon and relay it to the circulator.

At the Closure

- ✓ Take and report the sponge count. Missing sponges are regarded as foreign bodies until proven otherwise. Undertake thorough search and prepare for x-ray films (if needed).
- ✓ Organize use instruments for clean-up, separate items for discard from those preserved. Take particular care of knives and needles.

CIRCULATOR- RN

Before the Procedure

- ✓ Arrange supplies, instruments, furniture, and equipment that are appropriate to the scheduled procedure(s).
- ✓ Check equipment and secure appliances needed for positioning and induction.
- ✓ Open sterile supplies and assist the scrub nurse/tech as needed.
- ✓ Send for the patient (if not first case of the day). On arrival to holding area, check name band with the patient's stickers. Check chart for completeness including lab work, consent, pre-op checklist, and extremities must be marked with the surgeon's initials and a x.
- ✓ Communicate with the anesthesiologist or surgeon (or resident) to determine blood requirements and any variations from preference card. Act or report appropriately.
- ✓ Record appropriate information on operating room record in cooperation with the anesthesiologist.
- ✓ Place the patient on the table, arrange restraints, place leads on patient, and assist with induction as needed.
- ✓ Perform a Time Out.

CIRCULATOR Cont.

During the Procedure

- ✓ Anticipate needed supplies appropriately in cooperation with the scrub nurse/tech.
- ✓ Take and record the sponge/needle count (observe sponge/needle count procedure as defined).
- ✓ Receive and prepare the specimen for the laboratory (observe laboratory procedure).
- ✓ Maintain asepsis, order and cleanliness in the room (observe environmental controls).
- ✓ Remain in attendance and report pertinent information when relieved/returning.
- ✓ Transmit messages accurately.
- ✓ Report to the patient care supervisor or designee if patient's condition becomes critical or if procedure is changed (taking longer).
- ✓ When the anesthesiologist is not in attendance (for local cases) maintain appropriate vital signs on records and assist the patient as needed.



At the Closure

- ✓ Complete the operating room record, specimen forms and patient charge sheets. All specimens must be labeled.
- ✓ Send for the next patient if applicable.
- ✓ Assist with preparation of the patient for recovery room or ward.
- ✓ Accompany the patient to recovery room if needed.
- ✓ Assist the scrub person and environmental services personnel with breakdown of set up; prepare room for next case or strip room after last case scheduled.
- ✓ Rooms will be set up with suction canisters even if there is not a case to follow.

Operative Services Assistants

C3N

- ✓ Paperwork for Add Ons
- ✓ Blood Bands, Transport Blood
- ✓ Transport Patients
- ✓ Turn over C3N Rooms
- ✓ Bed Ready Patients
- ✓ Escort Families to Waiting Room
- ✓ Phone 8769

Float

- ✓ Transport Patients in PARU
- ✓ Lunches and Breaks
- ✓ Help out where needed
- ✓ Phone 7676

OSA 3rd and 4th Floor

- ✓ Turn Over Rooms
- ✓ Return or Retrieve Equipment
- ✓ Open Sterile Supplies
- ✓ Transport when necessary
- ✓ Transport Labs/Blood
- ✓ Can help with Lunches and Breaks
- ✓ 4th Floor phone 8963



Pre-operative/Pre-procedure	Before Skin Incision/Procedure	Before Patient Leaves OR/Procedure Room
SIGN IN INITIATED BY CIRCULATOR	TIME OUT-INITIATED BY SURGEON	SIGN OUT-INITIATED BY SURGEON
VERIFICATION STEPS VERBALIZED OUT LOUD FOR ALL TEAM MEMBERS TO REVIEW:		
<p>TEAM MEMBERS CONFIRM:</p> <ol style="list-style-type: none"> 1. Patient Identification Matching 2 identifiers –name and DOB with I.D. band Engage parents/legal guardians, and patient (when applicable) 2. Procedure 3. Site marked (if applicable) 4. Allergies/special precautions 5. Informed Consent/Consent signed 6. Need for prophylactic antibiotics 7. Blood loss risk/Blood Consent <p>ANESTHESIOLOGIST CONFIRMS:</p> <ol style="list-style-type: none"> 1. NPO status 2. Difficult airway/aspiration risk 3. Need for prophylactic antibiotics 4. Blood loss risk/availability of blood <p>CIRCULATOR CONFIRMS:</p> <ol style="list-style-type: none"> 1. Availability of relevant documents, diagnostic and radiological test results 2. Required equipment, devices and/or implants available 	<p>ALL TEAM MEMBERS:</p> <ol style="list-style-type: none"> 1. Introduce self by name and role <p>SURGEON VERIFIES:</p> <ol style="list-style-type: none"> 1. Patient/Procedure 2. Side and site 3. Correct position 4. Relevant documents, diagnostic and radiological test results available and reviewed 5. Need for equipment, devices, and/or implants 6. Anticipated risks, EBL, duration <p>ANESTHESIOLOGIST VERIFIES:</p> <ol style="list-style-type: none"> 1. Antibiotics given within 60 minutes of incision 2. IV access appropriate for anticipated EBL 3. Blood (or cross-match) available if needed <p>CIRCULATOR/SCRUB TECH/NURSE VERIFIES:</p> <ol style="list-style-type: none"> 1. Consent matches verbalized procedure 2. Site marking visible in prepped field 3. Required equipment, devices and/or implants available 4. Medications/solutions available & labeled 5. Allergies/special precautions <p style="text-align: center;">STOP!</p> <p style="text-align: center;">ANY QUESTIONS FROM ANY MEMBER OF THE TEAM ?</p>	<p>SURGEON VERIFIES:</p> <ol style="list-style-type: none"> 1. Name of procedure to be recorded <p>CIRCULATOR/SCRUB VERIFIES:</p> <ol style="list-style-type: none"> 1. Final Counts (sponge/sharps/instruments) 2. Correct labeling of specimens completed and orders have been completed 3. Equipment, implant and/or supply problems to be addressed <p>ALL TEAM MEMBERS VERIFY:</p> <ol style="list-style-type: none"> 1. Key concerns for postoperative period 2. Airway concerns during recovery 3. Plan for communicating key post operative/recovery issues to accepting team (safe hand-off)

Surgical Preps- Skin Antisepsis

While the process of surgical site preparation has remained virtually unchanged over the years, the variety and delivery of solutions has not. Today's solutions range from aqueous/non-aqueous isodophor and isopropyl alcohol to iodine, chlorhexidine and chloroxylonol and gel compounds, all of which come in multi-use bottles, or pre-measured single-use applications.



In addition to meeting the primary goal of surgical skin preparation — to remove dirt, oil and reduce microbial count as quickly as possible with as little irritation as possible — the selection of scrub solutions should also be based on:

- Compatibility with the items it comes in contact with, including gloves and draping materials
- Flammability
- Whether or not it is inactivated by organic material
- How easily it can be removed from the skin surface
- The area being prepped, procedure being performed and the patient's condition

Use of single use preps-key benefits are:

They are faster to apply, less messy, cleanse more effectively, dry faster and enhance drape adhesion, thus preventing the sterile surface from being compromised while speeding prep time. They reduce cross-contamination. Pooling between patient and equipment is reduced since application is controlled, thereby reducing the risk of skin irritation and providing for a “quicker” post-procedure clean-up.

Surgical Prep Solutions:

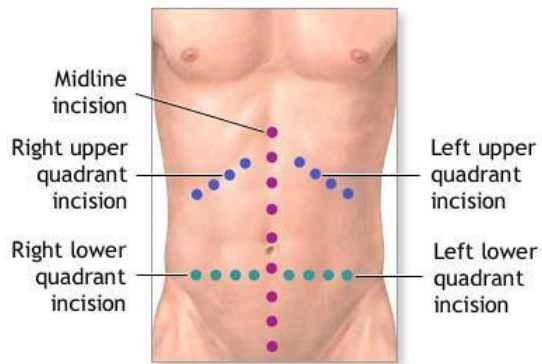
- ❖ Betadine scrub
- ❖ Betadine solution
- ❖ Betadine swabs
- ❖ 5% Betadine Opth solution
- ❖ Chlorhexidine
- ❖ 2% Iodine
- ❖ Phisohex
- ❖ Acetone
- ❖ Alcohol
- ❖ Chloraprep
- ❖ Duraprep

PREP	
SKIN PRE - OP <input type="checkbox"/> CLEAR	
SOLUTIONS	
<input type="checkbox"/>	BETADINE SCRUB
<input type="checkbox"/>	BETADINE SOLU/SPRAY
<input type="checkbox"/>	BETADINE SWABS
<input type="checkbox"/>	5% BETADINE OPHTH SOLU
<input type="checkbox"/>	CHLORHEXIDINE
<input type="checkbox"/>	2% IODINE
<input type="checkbox"/>	PHISOHEX
<input type="checkbox"/>	NACI
<input type="checkbox"/>	ANTIBIOTIC IRRIGATION
<input type="checkbox"/>	LRS
<input type="checkbox"/>	OTHER _____
FLAMMABLE PREP SOLUTIONS	
<input type="checkbox"/>	ACETONE
<input type="checkbox"/>	ALCOHOL
<input type="checkbox"/>	CHLORAPREP
<input type="checkbox"/>	DURAPREP
<input type="checkbox"/>	ALL FLAMMABLE PREP SOLUTIONS ARE NOT ALLOWED TO SOAK INTO THE PATIENT'S HAIR AND OR LINENS.
<input type="checkbox"/>	ALL FLAMMABLE PREP SOLUTIONS ARE INSPECTED TO ASSURE THEY ARE COMPLETELY DRY PRIOR TO DRAPING.
<input type="checkbox"/>	TIME _____ MIN
<input type="checkbox"/>	BY _____
HAIR REMOVAL	
<input type="checkbox"/>	BY _____
<input type="checkbox"/>	HAIR CLIPPED <input type="checkbox"/> HAIR SHAVED
<input type="checkbox"/>	HAIR SAVED <input type="checkbox"/> YES <input type="checkbox"/> NO

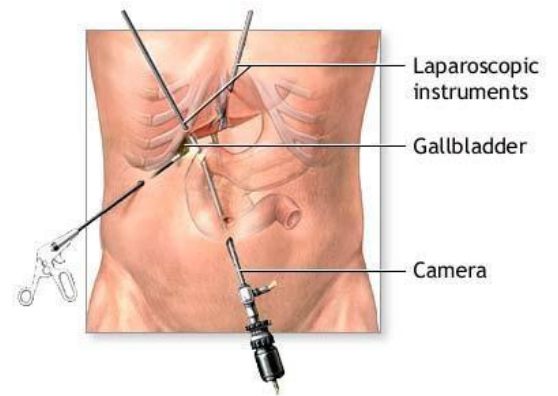
Considerations:

- Allergies, Size/Location, Time, Shaving, Skin Assessment
- Surgical site must be marked
- Prepping from the incision site out vs. back and forth method

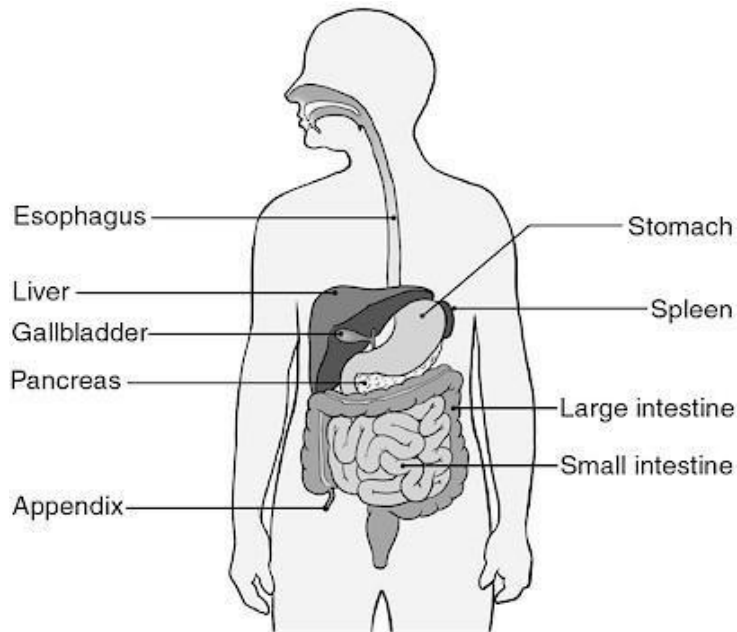
Skin Incisions:



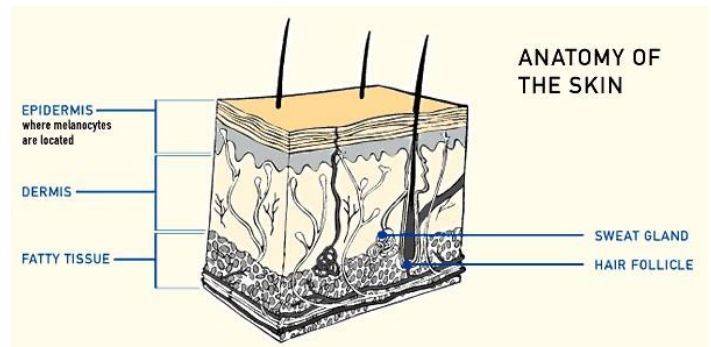
ADAM.



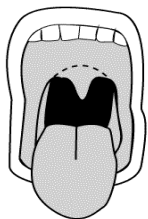
ADAM.



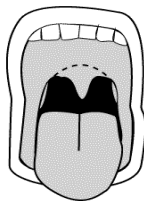
(Figure 1)



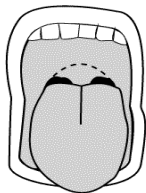
Wound Classification		
Class I: Clean	Has the least potential for contamination at the time of surgery; primarily closed, without drains and is usually elective.	Alimentary, Respiratory, Genitourinary tract has not been entered. Oropharyngeal cavities have not been entered. Non-traumatic No inflammation encountered. No break in aseptic technique Expected infection rate= 1-5%.
Class II: Clean-Contaminated	Clean, but systems with endogenous flora have been entered.	Alimentary, Respiratory, Genitourinary tract has been entered without significant spillage or under controlled conditions. Oropharynx was entered. Biliary tract entered in the absence of infected bile. GU tract entered in the absence of infected urine. Wound Dehiscence. Expected infection rate= 8-11%
Class III: Contaminated	Implies surgical area is prone to infection but no infection is present at the time of surgery.	Incisions in which acute, nonpurulent, inflammation is encountered. Open, fresh, accidental wounds. Gross spillage from hollow viscus-GI tract. Break in sterile technique. Expected infection rate= 15-20%
Class IV: Dirty	Imply the existence of organisms in the operative area prior to surgery.	Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. Perforated viscus is encountered. Transection of "clean" tissue for the purpose of access to a collection of pus. Expected infection rate= >25%



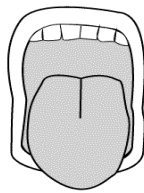
Class I: soft palate, uvula, fauces, pillars visible
No difficulty



Class II: soft palate, uvula, fauces visible
No difficulty



Class III: soft palate, base of uvula visible
Moderate difficulty



Class IV: hard palate only visible
Severe difficulty

Fig. 4-5. Mallampati signs as indicators of difficulty of intubation. (Adapted from Mallampati and Samssoon and Young.)

ASA stands for American Society of Anesthesiologists. In 1963 the ASA adopted a five category physical status classification system for assessing a patient before surgery. A sixth category was later added. These are:

1. A normal healthy patient.
2. A patient with mild systemic disease.
3. A patient with severe systemic disease.
4. A patient with severe systemic disease that is a constant threat to life.
5. A moribund patient who is not expected to survive with or without the operation.
6. A declared brain-dead patient whose organs are being removed for donor purposes.



Positioning is the finely honed art of moving and securing the human anatomy into place, allowing the best exposure of the surgical site, and the least compromise in both physiological functions and mechanical stresses in joints and other body parts.

General principles of positioning:

- Provide best possible exposure of the operative area without exceeding physiological and anatomical limits
- Provide best possible body alignment, considering individual medical problems of patient
- Provide access to the patient for administration of intravenous fluids, drugs and anesthetic agents
- Provide best possible body alignment, considering idiosyncrasies and peculiarities of patient
- Provide safety to patient, so body systems can function adequately during the procedure

Considerations:

- Patent airway for patient
 - Adequate respiratory excursions and air exchange
 - Adequate circulation
 - No excessive pressure to superficial nerves and bony prominences
 - Eyes protected from abrasions, pressure and irritating fluids
 - Extremities (hands and feet) supported and protected
 - Head adequately supported
 - Avoidance of excessive flexion, extension or rotation of body parts
 - Minimal muscle strain or hyperextension
- referenced from Barbara Gruendemann RN, MS positioning plus (1987)

The three forces of pressure, obstruction, and stretching, account for most problems and injuries due to faulty positioning. Damage and injury occurs to the nerves, veins, arteries and bony prominences.

Helpful tips:

Depending on the procedure, the safety strap is placed:

Loosely over the waist area; or

Over the mid to upper thigh, at least 2 inches above the knees to prevent their hyperextension. The strap is not placed over a bony prominence, for example the knees, but rather over a soft tissue, fleshy area. The strap should be secured tight enough to provide protection, but with enough "give" to allow satisfactory circulation to occur. The nurse should be able to run his/her hand under the strap after it is placed properly.

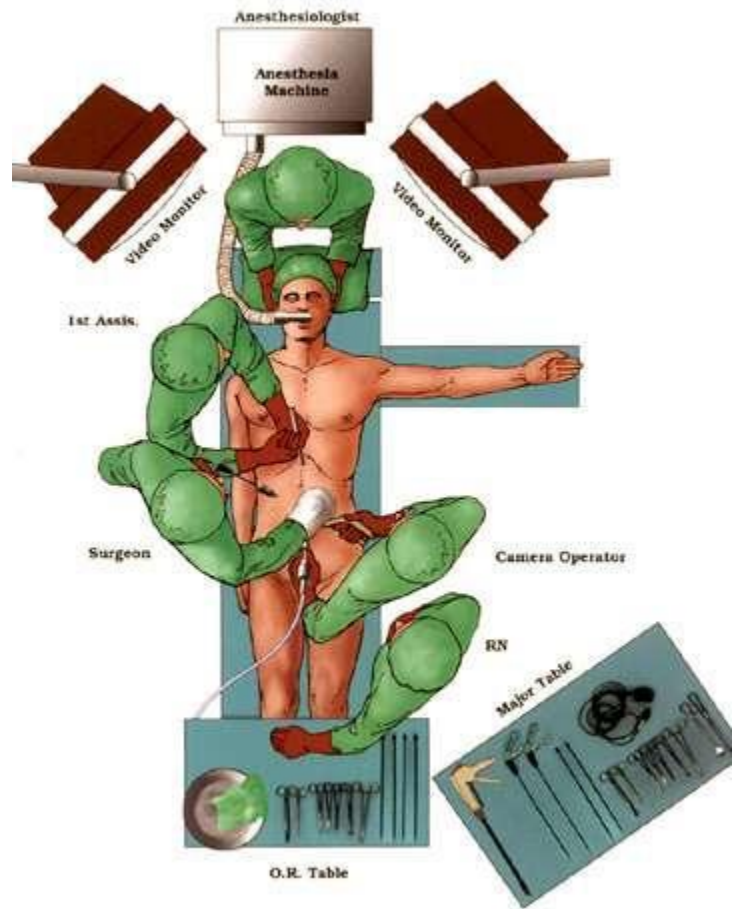
Small padding placed under the patient's head and neck allows the strap muscles to relax and also prevents neck strain

Small, soft pad may be placed under the small of the back and under the knees to maintain normal lumbar concavity and to prevent strain on the back, thigh, and leg muscles and ligaments

In the supine position, the legs are parallel and uncrossed to prevent perineal and tibial nerve injury, rubbing, and compression to circulation

Head to toe positioning checklist

1. Head, neck, and cervical spine supported in a straight line
2. Scalp, head, and face protected from hairpins, beads, tight anesthesia mask/straps, or other sources of uneven or damaging pressure
3. Eyes and ears protected from traumatic pressure/objects and solutions
4. Chest and torso kept in physiological position so that adequate, full, bilateral respiratory exchange and expansion can take place
5. Breasts (female) protected from excessive pressure
6. Arms in physiological position, adequately supported; not to exceed 90° extension at shoulder, in flexion or slight extension, upper arm not hanging over edge or rubbing on metal part of table, elbow area protected, hands free from pressure with fingers in slight flexion or neutral extension, palms up on armboard whenever possible, palms toward body when arms at side
7. Genitals free of trauma, pressure, or rubbing; assure that solutions do no pool in genital area
8. Back in physiological position, with supine in straight line
9. Thighs/legs in straight line or flexed position; no pressure to iliac crests, greater trochanters, area between and back of knees, peroneal nerve on lateral aspects of knees, or to patellas
10. Heels/ankles/toes free of pressure or rubbing trauma
11. Safety belt placed snugly over patient. Blanket or towel placed between strap and patient's body to prevent maceration
12. Other straps or positioning devices placed only over padded body parts (ankles and feet to be padded before any stirrup straps are applied)



SURGICAL SCRUBS

3M AVAGARD WATERLESS BRUSHLESS SCRUBLESS



Surgical Scrub Techniques

All sterile team members should perform the hand and arm scrub before entering the surgical suite. The basic principle of the scrub is to wash the hands thoroughly, and then to wash from a clean area (the hand) to a less clean area (the arm). A systematic approach to the scrub is an efficient way to ensure proper technique.

There are two methods of scrub procedure. One is a numbered stroke method, in which a certain number of brush strokes are designated for each finger, palm, back of hand, and arm. The alternative method is the timed scrub, and each scrub should last from three to five minutes, depending on facility protocol.

The procedure for the timed five minute scrub consists of:

Remove all jewelry (rings, watches, bracelets).

Wash hands and arms with antimicrobial soap. Excessively hot water is harder on the skin, dries the skin, and is too uncomfortable to wash with for the recommended amount of time. However, because cold water prevents soap from lathering properly, soil and germs may not be washed away.

Clean subungual areas with a nail file.

Start timing. Scrub each side of each finger, between the fingers, and the back and front of the hand for two minutes.

Proceed to scrub the arms, keeping the hand higher than the arm at all times. This prevents bacteria-laden soap and water from contaminating the hand.

Wash each side of the arm to three inches above the elbow for one minute.

Repeat the process on the other hand and arm, keeping hands above elbows at all times. If the hand touches anything except the brush at any time, the scrub must be lengthened by one minute for the area that has been contaminated.

Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbow. Do not move the arm back and forth through the water.

Proceed to the operating room suite holding hands above elbows.²

If the hands and arms are grossly soiled, the scrub time should be lengthened. However, vigorous scrubbing that causes the skin to become abraded should be avoided.

At all times during the scrub procedure care should be taken not to splash water onto surgical attire.²

Once in the operating room suite, hands and arms should be dried using a sterile towel and aseptic technique. You are now ready to don your gown and sterile gloves.

When gowning oneself, grasp the gown firmly and bring it away from the table. It has already been folded so that the outside faces away. Holding the gown at the shoulders, allow it to unfold gently. Do not shake the gown.

Place hands inside the armholes and guide each arm through the sleeves by raising and spreading the arms. Do not allow hands to slide outside the gown cuff. The circulator will assist by pulling the gown up over the shoulders and tying it.

To glove, lay the glove palm down over the cuff of the gown. The fingers of the glove face toward you. Working through the gown sleeve, grasp the cuff of the glove and bring it over the open cuff of the sleeve. Unroll the glove cuff so that it covers the sleeve cuff. Proceed with the opposite hand, using the same technique. Never allow the bare hand to contact the gown cuff edge or outside of glove.

The scrubbed technologist or nurse gowns the surgeon after he or she has performed the hand and arm scrub. After handing the surgeon a towel for drying, the technologist or nurse allows the gown to unfold gently, making sure that there is enough room to prevent contamination by nonsterile equipment. To glove another person, the rules of asepsis must be observed. One person's sterile hands should not touch the nonsterile surface of the person being gloved.

Pick up the right glove and place the palm away from you. Slide the fingers under the glove cuff and spread them so that a wide opening is created. Keep thumbs under the cuff. The surgeon will thrust his or her hand into the glove. Do not release the glove yet. Gently release the cuff (do not allow the cuff to snap sharply) while unrolling it over the wrist. Proceed with the left glove, using the same technique.

Formal guidelines and recommended practices for hand washing have been published by professional organizations (e.g., Association for Professionals in Infection Control (APIC), Association of periOperative Registered Nurses, Inc. (AORN). AORN recommends the use of a traditional standardized anatomical timed scrub or counted stroke method for surgical hand scrub and encourages institutions to follow the scrub agent manufacturer's written recommendations when establishing policies and procedures for scrub times. On this basis, for example, the typical scrub procedure for a PVPI-containing product based on manufacturer's labeling would require the use of a scrub brush and two applications of five minutes each, whereas the typical procedure for a CHG-based product would require a three-minute scrub followed by a three-minute wash. In actual practice, however, variations in surgical hand scrubbing times may be of shorter duration than manufacturer's recommendations for a number of reasons:

Staff time constraints.
Desire to reduce poor hand health.
Acceptance of data from other sources suggesting those scrub times shorter than those recommended by manufactures are adequate.³

Hand condition is emerging as an increasingly important factor in personnel compliance and infection control. Frequent surgical scrubbing can cause dermatitis of the hands and arms. Most antimicrobial agents are drying to the skin, especially when coupled with a scrub brush.





Midazolam Hydrochloride (Versed ®)

Midazolam is a short-acting water-soluble benzodiazepine. It is similar to diazepam (Valium) in its action. It acts as a central nervous system depressant.

Indications for midazolam are for sedation, anxiolysis and amnesia prior to diagnostic, therapeutic or endoscopic procedures or before the induction of anesthesia. It is also used as an anticonvulsant.

CHW protocol for giving midazolam is .5mg/kg up to 10mg po on call to surgery- usually approximately 30 minutes prior to surgery. The duration is usually 2-3 hours.

Midazolam is metabolized in the liver and eliminated through the kidney and also in breast milk. It is contraindicated in known allergy or hypersensitivity to benzodiazepines, shock/hypotension, and alcohol or other CNS depressants use.

Patient's must be monitored for respiratory distress or any adverse side effects such as paradoxical reactions.

The manifestations of midazolam overdose are sedation, somnolence, confusion, impaired coordination, diminished reflexes, untoward effects on vital signs, coma and possible cardio-respiratory arrest. Treatment of overdose is the same as that followed for overdose with other benzodiazepines. The benzodiazepine antagonist, flumazenil is a specific antidote in known or suspected overdose.

DIPRIVAN®

(propofol) Injectable Emulsion

CNS effects:

Sub-anesthesia dose; sedation, restraint and lack of awareness of surroundings.

Anesthetic dose; unconsciousness, good muscle relaxation. May have both anticonvulsant properties and seizure-causing properties.

Cardiovascular effects:

During induction produces a marked decrease in systemic blood pressure, mainly via decreased peripheral resistance.

Arterial hypotension, bradycardia, negative inotropism.

Respiratory effects:

Significant respiratory depression. This is seen particularly with rapid injection or high doses.

Ocular effects:

Decrease intraocular pressure.

Gastrointestinal effects:

Increase appetite; also antiemetic.



Store between 40-72F, do not freeze. Protect from light, shake well before use. Do not use if the emulsion has separated. Manufacturers recommendation: discard unused portion at the end of the procedure or after six hours (whichever is sooner). Good growth medium for bacteria.

Rapidly crosses blood brain barrier; onset of action usually within one minute.

Distribution half-life is 2-8 minutes. Metabolised in the liver, excreted in urine.

Pain may occur on injection; lidocaine can be added to reduce effect.

Pediatric Patients: Most patients aged 3 years through 16 years and classified ASA-PS I or II require 2.5 to 3.5 mg/kg of DIPRIVAN (propofol) Injectable Emulsion for induction when unpremedicated or when lightly premedicated with oral benzodiazepines or intramuscular opioids. Within this dosage range, younger pediatric patients may require higher induction doses than older pediatric patients. As with other sedative-hypnotic agents, the amount of intravenous opioid and/or benzodiazepine premedication will influence the response of the patient to an induction dose of DIPRIVAN (propofol) Injectable Emulsion. A lower dosage is recommended for pediatric patients classified as ASA-PS III or IV. Attention should be paid to minimize pain on injection when administering DIPRIVAN (propofol) Injectable Emulsion to pediatric patients. Boluses of DIPRIVAN (propofol) Injectable Emulsion may be administered via small veins if pretreated with lidocaine or via antecubital or larger veins.

DIPRIVAN (propofol) Injectable Emulsion administered over a longer period of time is at a variable rate infusion supplemented with nitrous oxide 60% - 70% provides satisfactory anesthesia for most children 2 months of age or older, ASA-PS I or II, undergoing general anesthesia.

In general, for the pediatric population, maintenance by infusion of DIPRIVAN (propofol) Injectable Emulsion at a rate of 200 - 300 mcg/kg/min should immediately follow the induction dose. Following the first half-hour of maintenance, infusion rates of 125-150 mcg/kg/min are typically needed. DIPRIVAN (propofol) Injectable Emulsion should be titrated to achieve the desired clinical effect.

Younger pediatric patients may require higher maintenance infusion rates than older pediatric patients.

Fentanyl

also known as fentanil, brand names **Sublimaze** is a potent synthetic narcotic analgesic with a rapid onset and short duration of action.

Historically it has been used to treat breakthrough pain and is commonly used in pre-procedures as a pain reliever as well as an anesthetic in combination with a benzodiazepine, such as Versed..



Mechanism of Action Binds with stereospecific opioid mu receptors at many sites within the CNS, increases pain threshold, alters pain reception, inhibits ascending pain pathways

Fentanyl's major **side effects** (more than 10% of patients) include diarrhea, nausea, constipation, dry mouth, somnolence, confusion, asthenia (weakness), and sweating and, less frequently (3 to 10% of patients), abdominal pain, headache, fatigue, anorexia and weight loss, dizziness, nervousness, hallucinations, anxiety, depression, flu-like symptoms, dyspepsia (indigestion), dyspnea (shortness of breath), hypoventilation, apnea, and urinary retention. Fentanyl use has also been associated with aphasia.

Neonates: Analgesia: Intermittent doses: Slow I.V. push: 0.5-3 mcg/kg/dose Continuous I.V. infusion: 0.5-2 mcg/kg/hour.

Neonates and younger Infants: Sedation/analgesia: Slow I.V. push: 1-4 mcg/kg/dose; may repeat every 2-4 hours Continuous sedation/analgesia: Initial I.V. bolus: 1-2 mcg/kg, then 0.5-1 mcg/kg/hour; titrate upward Mean required dose.

Older Infants and Children 1-12 years: Sedation for minor procedures/analgesia: I.M., I.V.: 1-2 mcg/kg/dose; may repeat at 30- to 60-minute intervals. **Note:** Children 18-36 months of age may require 2-3 mcg/kg/dose. Continuous sedation/analgesia: Initial I.V. bolus: 1-2 mcg/kg then 1 mcg/kg/hour; titrate upward; usual: 1-3 mcg/kg/hour; some require 5 mcg/kg/hour.

Children >12 years and Adults: Sedation for minor procedures/analgesia: I.V.: 0.5-1 mcg/kg/dose; may repeat after 30-60 minutes; **or** 25-50 mcg, repeat full dose in 5 minutes if needed, may repeat 4-5 times with 25 mcg at 5-minute intervals if needed. **Note:** Higher doses are used for major procedures. Preoperative sedation, adjunct to regional anesthesia, postoperative pain: I.M., I.V.: 50-100 mcg/dose Adjunct to general anesthesia: I.M., I.V.: 2-50 mcg/kg General anesthesia without additional anesthetic agents: I.V. 50-100 mcg/kg with O₂ and skeletal muscle relaxant Moderate to severe chronic pain.

Dosage Forms

Film, for buccal application, as citrate: Onsolis™: 200 mcg, 400 mcg, 600 mcg, 800 mcg, 1200 mcg Injection, solution, as citrate [preservative free]: 0.05 mg/mL (2 mL, 5 mL, 10 mL, 20 mL; 30 mL [DSC]; 50 mL) Sublimaze®: 0.05 mg/mL (2 mL, 5 mL, 10 mL [DSC], 20 mL)



Tylenol-Acetaminophen

Acetaminophen is used to relieve mild to moderate pain from headaches, muscle aches, menstrual periods, colds and sore throats, toothaches, backaches, and reactions to vaccinations (shots), and to reduce fever. Acetaminophen may also be used to relieve the pain of osteoarthritis (arthritis caused by the breakdown of the lining of the joints). Acetaminophen is in a class of medications called analgesics (pain relievers) and antipyretics (fever reducers). It works by changing the way the body senses pain and by cooling the body.

Acetaminophen comes as a tablet, chewable tablet, capsule, suspension or solution (liquid), drops (concentrated liquid), powder, extended-release (long-acting) tablet, and orally disintegrating tablet (tablet that dissolves quickly in the mouth), to take by mouth, with or without food. Acetaminophen also

comes as a suppository to use rectally.

Acetaminophen may cause **side effects**: rash, hives, itching, swelling of the face, throat, tongue, lips, eyes, hands, feet, ankles, or lower legs, hoarseness and difficulty breathing or swallowing.

Child's Weight	Dose for suppository
4 to 6 kg	60 mg
6.1 to 12kg	120 mg
12.1 to 16 kg	162.5 mg
16.1 to 24 kg	240 mg
24.1 to 32.5 kg	325 mg

Weight	Infant's Concentrated Drops 80mg/0.8mL Dropperful	Children's Suspension Liquid 160mg/5mL Teaspoon	Children's Soft Chewable Tablets 80mg each Tablet	Junior Strength Chewable Tablets 160mg Tablet
	(Use dropper)	(Use dosing cup)		
6-11 lbs	1/2 (0.4mL)			
12-17 lbs	1=(0.8mL)	1/2 tsp.		
18-23 lbs	1-1/2=(1.2mL)	3/4 tsp.		
24-35 lbs	2=(1.6mL)	1 tsp.	2	
36-47 lbs		1-1/2 tsp.	3	
48-59 lbs		2 tsp.	4	2
60-71 lbs		2-1/2 tsp.	5	2-1/2
72-95 lbs		3 tsp.	6	3
96 lbs & over				4

Dexmedetomidine:



Precedex™ is indicated for short-term intravenous sedation and sedation of initially intubated and mechanically ventilated patients during treatment in an intensive care setting. Precedex should be administered by continuous infusion not to exceed 24 hours.

Precedex has been continuously infused in mechanically ventilated patients prior to extubation, during extubation, and post-extubation. It is not necessary to discontinue Precedex prior to extubation. Supplied: 200 mcg/2 ml (100 mcg/ml) final concentration 4 mcg/ml (200 mcg/50 ml). Route of administration: IV. Titrate dosing to desired clinical

effect.

Blood pressure, heart rate and oxygen levels will be monitored both continuously during the infusion of Precedex and as clinically appropriate after discontinuation.

The most frequently observed treatment-emergent adverse events included hypotension, hypertension, nausea, bradycardia, fever, vomiting, hypoxia, tachycardia and anemia. Clinically significant episodes of bradycardia and sinus arrest have been reported with Precedex administration in young, healthy adult volunteers with high vagal tone or with different routes of administration including rapid intravenous or bolus administration.

Precedex is a relatively selective alpha₂-adrenergic agonist with sedative properties. Benefits of Precedex includes no respiratory depression, decreased anesthetic requirements, decreased analgesic requirements, blood pressure control without tachycardia, sedation, anxiolysis, analgesia, decreased oxygen demand and decreased shivering.

When Precedex is infused for more than 6 hours, patients should be informed to report nervousness, agitation, and headaches that may occur for up to 48 hours. Additionally, patients should be informed to report symptoms that may occur within 48 hours after the administration of Precedex such as: weakness, confusion, excessive sweating, weight loss, abdominal pain, salt cravings, diarrhea, constipation, dizziness or light-headedness.



Rocuronium: ZEMURON (rocuronium bromide) injection is a nondepolarizing neuromuscular blocking agent with a rapid to intermediate onset depending on dose and intermediate duration. ZEMURON® (rocuronium bromide) Injection is indicated for inpatients and outpatients as an adjunct to general anesthesia to facilitate both rapid sequence and routine tracheal intubation, and to provide skeletal muscle relaxation during surgery or mechanical ventilation.



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Pediatric Patients

The recommended initial intubation dose of ZEMURON is 0.6 mg/kg; however, a lower dose of 0.45 mg/kg may be used depending on anesthetic technique and the age of the patient. For sevoflurane (induction) ZEMURON doses of 0.45 mg/kg and 0.6 mg/kg in general produce excellent to good intubating conditions within 75 seconds



Glycopyrrolate: Robinul Injection (glycopyrrolate) is indicated for use as a preoperative antimuscarinic to reduce salivary, tracheobronchial, and pharyngeal secretions; to reduce the volume and free acidity of gastric secretions; and to block cardiac vagal inhibitory reflexes during induction of anesthesia and intubation. When indicated, Robinul Injection (glycopyrrolate) may be used intraoperatively to counteract surgically or drug- induced or vagal reflexes associated arrhythmias. Glycopyrrolate protects against the peripheral muscarinic effects (e.g., bradycardia and excessive secretions) of cholinergic agents such as neostigmine and pyridostigmine given to reverse the neuromuscular blockade due to non-depolarizing muscle relaxants.

Preanesthetic Medication.

The recommended dose of Robinul Injection (glycopyrrolate) in pediatric patients is 0.004 mg/kg intramuscularly, given 30 to 60 minutes prior to the anticipated time of induction of anesthesia or at the time the preanesthetic narcotic and/or sedative are administered. **Infants.**(1 month to 2 years of age) may require up to 0.009 mg/kg.

Intraoperative Medication.

Because of the long duration of action of Robinul Injection (glycopyrrolate) if used as preanesthetic medication, additional Robinul Injection (glycopyrrolate) for anticholinergic effect intraoperatively is rarely needed; in the event it is required the recommended pediatric dose is 0.004 mg/kg intravenously, not to exceed 0.1 mg in a single dose which may be repeated, as needed, at intervals of 2 to 3 minutes. The usual attempts should be made to determine the etiology of the arrhythmia, and the surgical or anesthetic manipulations necessary to correct parasympathetic imbalance should be performed.

Neostigmine: BLOXIVERZ is a cholinesterase inhibitor indicated for the reversal of the effects of non-depolarizing neuromuscular blocking agents after surgery.

Reversal of Neuromuscular Blockade.

The recommended pediatric dose of Robinul Injection (glycopyrrolate) is 0.2 mg for each 1.0 mg of neostigmine or 5.0 mg of pyridostigmine. In order to minimize the appearance of cardiac side effects, the drugs may be administered simultaneously by intravenous injection and may be mixed in the same syringe.



Surgical Terminology

Prefixes

a-, **an-** without or not
ante- before
anti- against
dys- difficult, disordered, painful
ecto- exterior
endo- interior
hyper- above
hypo- below
inter- between
intra- within, during
post- after
pre- before
retro- behind

Suffixes

-al pertaining to
-cleisis closure, occlusion
-desis fusion
-ectomy surgical excision of
-itis inflammation
-lysis freeing of, reduction of
-oma tumor or neoplasm
-orrhaphy repair of
-oscopy examine an organ by viewing
-ostomy creation of an opening
-otomy cutting into
-pexy fix or suture in place
-plasty restorative or reconstructive procedure

Roots

adeno gland
arthro joint
blepharo eyelid
cardi heart
chole gall
cholecyst gallbladder
col colon
colpo vagina
craino skull
cysto urinary bladder
dent tooth
derma, dermat skin
entero intestines
gastro stomach
hema, hemo, hemato blood

hepato liver
hystero uterus
jejun second part of small intestines
lamin posterior vertebral arch
mast breast
myo muscle
nephro kidney
oophor ovary
ophthalm eye
orchio testicle
os opening or mouth; also bone
ot ear
pharyng throat
phleb vein
pneumo lung
procto anus
prostate prostate gland
pyelo pelvis of kidney
rhino nose
salping fallopian tube
spermato semen
splanchno viscera
teno tendon
thoraco chest
trachel neck of uterus **tracheo**
trachea; windpipe **ureter,**
uretero tube from kidney **vas**
vessel or duct

Operations

Operations Ending in –ectomy *Excision of*
Adenoidectomy Adenoids
Adrenalectomy Adrenal gland
Appendectomy Appendix
Cecectomy Cecum
Cholecystectomy Gallbladder
Coccygectomy Coccyx
Colectomy Colon
Craniectomy Skull
Cystectomy Urinary Bladder
Embolectomy Embolus
Esophagectomy Esophagus
Fistulectomy Fistula
Ganglionectomy Ganglion
Gastroectomy Stomach
Glomectomy, Carotid Carotid body
Hemicolectomy Half of colon

Hemorrhoidectomy Hemorrhoids
Hydrocelectomy Hydrocele
Hypophysectomy Pituitary gland
Hysterectomy Uterus
Laminectomy Posterior vertebral arch
Laryngectomy Larynx
Lobectomy Lobe of lung or liver
Mastectomy Breast
Mastoidectomy Mastoid cells
Myomectomy Muscle tumor
Nephrectomy Kidney
Neurectomy Nerve
Oophorectomy Ovary
Orchiectomy or orchidectomy testicle
Pancreatectomy Pancreas
Pericardiectomy Pericardium
Pneumonectomy Lung
Polypectomy Polyp **Prostatectomy**
Prostate gland **Salpingectomy**
Necrotic bone **Splenectomy** Spleen
Stapedectomy Stapes
Sympathectomy Sympathetic nerve
Thromboendarterectomy Clot and lining of
artery
Thyroidectomy Thyroid gland
Tonsillectomy Tonsils

Operations Ending in –ostomy To cut into

Arthrotomy Joint
Cardiotomy Heart
Cholecystotomy Gallbladder
Choledochotomy Common bile duct
Cholelithotomy Gallbladder to remove
stone
Chordotomy Spinal cord
Colpotomy Vagina
Commissurotomy Cusps of heart valve
Craniotomy Brain
Duodenotomy Duodenum
Episiotomy Vulva
Hepatotomy Liver
Hysterotomy Uterus
Laparotomy Abdominal cavity
Lithotomy Duct or organ to remove stone
Myringotomy Tympanic membrane
Osteotomy Bone
Phlebotomy Vein
Pyelolithotomy Kidney to remove stone

Pyloromyotomy Muscle of pylorus of
stomach
Scalenotomy Scaleni muscles
Sphincterotomy Sphincter muscle
Thoracotomy Chest
Tracheotomy Trachea
Vagotomy Vagus nerve
Valvulotomy Heart valve

***Operations Ending in –orrhaphy Surgical
repair of***

Colporrhaphy Vagina
Herniorrhaphy Hernia
Perineorrhaphy Perineum
Tenorrhaphy Tendon

***Operations Ending in –ostomy Make and
leave an opening or form a connection
between***

Antrostomy Nasoantral window
Cholecystoenterostomy Gallbladder and
intestine
Cholecystojejunostomy Gallbladder and
jejunum
Choledochojejunostomy Common bile duct
and jejunum
Choledochostomy Common bile duct
Colostomy Colon **Cystostomy** Urinary
bladder **Duodenoduodenostomy** Two
portions of duodenum
Enterostomy Intestine
Gastroenterostomy Stomach and intestine
Gastrojejunostomy Stomach and jejunum
Ileostomy Ileum
Jejunostomy jejunum
Nephrostomy Kidney
Thoracostomy Chest
Tracheostomy Trachea
Ureterosigmoidostomy Ureter and sigmoid
colon

Operations Ending in –oscopy

*Examination of organ by viewing through an
endoscope*

Arthroscopy Joint **Bronchoscopy**
Lung **Choledochoscopy** Common
bile duct

Colonscopy Colon from ileocecal valve to anus

Colposcopy Vagina and cervix

Culdoscopy Cul-de-sac to retrouterine space

Cystoscopy Urinary bladder

Esophagoscopy Esophagus

Gastrosocopy Stomach

Laparoscopy Abdominal and pelvic organs

Laryngoscopy Larynx

Mediastinoscopy Mediastinal spaces in chest cavity

Nephroscopy Kidney

Peritoneoscopy Peritoneum

Proctoscopy Anus

Sigmoidoscopy Sigmoid colon and rectum

Urethroscopy Urethra

Operations Ending in -pexy Fixation

Hysteropexy Uterus

Nephropexy Kidney

Orchiopexy or orchidopexy Testicle

Salphingopexy Fallopian tube

Ureteropexy Ureter

MISCELLANEOUS OPERATIONS

Abdominoperineal resection Removal of rectum

Amputation Removal of portion or all of arm or leg; excision of other appendage such as uterine cervix

Anastomosis Surgical joining of two organs or surfaces such as blood vessels or intestine

Arthrodesis Surgical fusion of a joint

Arthrodesis, triple Surgical fusion of three joints or ankle

Biopsy Removal of tissue for diagnostic purposes

Bypass graft Surgical creation of a diversion for the bloodstream by suturing a graft to blood vessel so that blood bypasses an

obstructed or weakened portion of the vessel

Cesarean section Abdominal delivery of infant via incision in uterus

Cauterization; conization Use of electric current to destroy or remove tissue

Circumcision Excision of foreskin of penis

Closure of colostomy Closure of opening previously made in colon to empty bowel content outside abdomen

D&C or D&E (Dilation and curettage or evacuation) Operation to dilate uterine cervix and scrape lining of uterus or empty contents of uterus

Decompression Surgical relief of pressure, such as intracranial

Disarticulation Amputation of an arm or leg at a joint

Enucleation Removal of eyeball

Palliative operation An operation done to relieve symptoms rather than cure

Pelvic exenteration Radical removal of contents of pelvis

Portacaval shunt Surgical creation of anastomosis between portal and caval veins

Skin graft Transfer of skin from one site to another to improve function or appearance

Splenorenal shunt Surgical creation of anastomosis between splenic and renal veins

T&A (Tonsillectomy and adenoidectomy) Excision of tonsils and adenoids

Vein ligation and stripping tying off and removing a major blood vessel for treatment of varicose veins

Syncope

A transient loss of consciousness due to inadequate blood flow to the brain.

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"HOW LONG HAVE YOU BEEN HAVING THESE BLACKOUTS?"

ETIOLOGY: Syncope or fainting may be due to deficient blood flow resulting from peripheral circulatory failure, cerebral vascular-accident (stroke), cardiac arrhythmia or transient cardiac standstill in strokes-adams syndrome, or altered blood chemistry as in hyperventilation or hypoglycemia. Prolonged standing, nausea, pain, emotional disturbances, anemia, dehydration, poor ventilation, and many other.

FIRST AID: Place the person in a horizontal position, preferably with the head low in order to facilitate blood flow to the brain. At the same time, be certain there is a clear airway. The clothing must be loose, especially if a tight collar was being worn. Fainting usually is of short duration and is counteracted by the individual's being in a supine position. Nevertheless, it is important to attempt to establish the cause of the faint prior to dismissing the episode as being of no consequence. If recovery from fainting is not prompt, have the patient seen in the E.R.