

Staff Nurse Exam Study Materials

Medical Surgical Nursing

Medical Asepsis

This includes:

- (1) General cleanliness, and control of visitors,
- (2) Isolation of infected persons,
- (3) Disinfection of all articles that may be contaminated, or used for more than one patient.
- (4) Correct and frequent hand-washing by all those caring for patients.

Hand-Washing Technique

- (1) Wet the hands under running water.
- (2) Apply soap thoroughly, and use a brush for the nails if possible.
- (3) Rinse well.
- (4) Dry with a clean towel.

It is important to keep the nails short.

Use of Gowns, Gloves and Masks, in Medical Asepsis

Any patient who is a source of infection needs to be isolated. The type of isolation depends on the method by which the organism may spread from person to person.

- (1) **Gown** protection is needed for persons in close contact with a patient who may spread infection by urine, faeces, vomit or wound drainage, e.g. those with typhoid fever, dysentery, cholera, gas gangrene.
- (2) **Gloves** are needed if the organism is the type that enters through a break in the skin. Gloves are used by doctors when making vaginal and rectal examinations.
- (3) **Face Mask**: This is needed to protect persons coming in close contact with a patient having a communicable disease which is airborne, e.g. diphtheria, strep throat, meningitis, chickenpox, whooping cough etc. In most of these cases a gown is also needed.

Gown Technique

At the entrance to the patient's unit a stand should be provided on which to hang the isolation gown. If the stand is inside the unit, the gown is hung with the contaminated side out; if outside the unit, it is hung clean side out.

To put on the gown, insert your hands into the sleeves of the gown without touching the contaminated side. Then fasten the neck-band, which is considered clean. Fasten the belt, then carry out the work in the unit. After finishing untie the belt, wash your hands, and untie the neck-band. Remove the first sleeve by slipping a finger under the edge. Remove the second sleeve by grasping it with the gown-covered hand. Hang the gown carefully on the hook, then wash your hands again thoroughly.

Use of Gloves

Clean gloves are usually adequate in medical asepsis, but when handling a wound after surgery or the vagina during delivery or in the puerperium, sterile gloves are needed.

The gloves are removed by a helper grasping the cuff and it is then placed into a disinfectant solution. Or the gloved hands may be washed under running water before taking them off, then placed in the disinfectant.

Use of Masks

Clean masks should be kept in a clean area near the handwashing facilities at the entrance to the isolation unit. Take a mask and tie it on before you enter. When leaving, wash hands, remove the mask holding the strings only, and drop it into a second container for used masks. Masks must be disinfected before being used again.

Surgical Asepsis

This means keeping objects and areas 'sterile'—free from all organisms. Surgical asepsis (sterile technique) is used in the operating room, delivery room, in doing surgical dressings and many other procedures.

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In surgical nursing the Health Worker must thoroughly understand the principles of surgical asepsis. She must be reliable in always keeping to these principles. She must know about the use and care of masks, gloves and gowns, the proper technique of hand-washing for surgical procedures, and the sterilizing and handling of sterile equipment.

Masks, Gloves and Gowns for Surgical use

Masks

A face mask is worn when doing any sterile surgical procedure. The purpose of the mask in surgical nursing is to prevent any germs from the Health Worker's respiratory tract from being breathed upon the wound or sterile articles. The mask should cover both nose and mouth of the wearer. It is made of two or more layers of material, either in rectangular or nose-bag shape, with tapes to tie at the back of the head. While being worn, the face-piece should not be touched. If it becomes wet with sweat or by sneezing, it should be changed. Do not speak more than necessary during surgery.

A fresh mask should be worn for each procedure. The mask should never be suspended around the neck nor put in the pocket.

After use, remove the mask, hold it by the tapes, and place it straight into antiseptic solution. At the end of each day, the used masks should be washed, dried, then folded with tapes outside and sterilised ready for use again.

In some hospitals, disposable masks are worn.

Gloves

Surgical gloves in various sizes are made of special thin rubber so that the surgeon may not lose the sense of touch. In clean operations they are worn to protect the patient, but in infected cases they protect the wearer also.

After use, gloves should be washed in cold water and then with soap and water. By filling the glove with water any holes can be detected. The gloves may be wiped dry or hung on a rack and turned to dry the inside as well.

Gloves that have small holes may be repaired for use by assistants but not given to the surgeon. To repair, turn the glove inside out, clean the site of the hole with petrol or benzene, then apply rubber solution, and stick on a clean rubber patch.

To prepare for sterilising, dust the gloves well both inside and out with glove powder. See that the roughened surface is on the outside (for better grip) then pair off the gloves. Turn back the cuffs 5 cm and place a small packet of glove powder just inside the right-hand glove. Place the pair of gloves in a glove packet marked with the correct size.

Disposable gloves are sometimes in use.

Gowns

Steam sterilised theatre gowns are worn by the scrubbed-up operating team, to prevent contamination of the sterile field by contact with clothing or skin. Unsterile but clean gowns are often worn by those persons in the operating room who are not scrubbed up.

For the surgeon and his assistant particularly, gowns should be made of close-woven material. For all those scrubbed up, the gowns must have sleeves which are long enough to fit under the gloves at the wrists. All gowns fasten at the back. An unsterile helper ties the tapes without touching the outside of the sterile gown.

After use, gowns are soaked in cold water if bloodstained, then hung to dry and sent to the laundry, or well washed in hot soapy water and ironed. Gowns to be sterilised must be folded and rolled up in such a way that only the inner surface is handled by the scrubbed-up person. They are packed in drums or bundles ready for autoclaving.

Caps, Clothing and Footwear

In the operating theatre, there must be no risk of introducing dust and dirt, especially any soil which may contain tetanus organisms. Therefore, every person entering must be wearing clean clothing, and put on clean theatre slippers or canvas shoes. These must be removed on leaving the theatre. The hair must be completely covered also, by means of a clean theatre cap.

Surgical Hand-Scrub

In all surgical work it is important to keep the hands and nails clean. Nails must be cut or filed very short. The surgical hand-scrub is necessary for the surgeon and those assisting at an operation, and for sterile procedures. However, it must be realised that hands can never be made sterile except by wearing sterile gloves.

Requirements

Running water,
Antiseptic soap or soap solution,
Sterile nail brush,
Sterile towel.

Method

- (1) Wear a clean cap and then a clean mask.
- (2) Note the time. The procedure should take 10 minutes.
- (3) Wet the hands up to the elbows under running water.
- (4) Apply soap to make a good lather, and work it into the hands and arms, adding small amounts of water but not enough to remove the lather.
- (5) After 30 seconds, rinse thoroughly.
- (6) Apply more soap and this time use the brush. Pay special attention to the nails, finger tips and between fingers. Add more water in small amounts frequently, but keep up the lather, with more soap also. After the nails, fingers and hand, work up the arm, scrubbing gently with circular motions and finishing at the elbow. Repeat for the other arm.
- (7) Rinse the arms and hands with forearms held up so that water does not run down from the elbows to the hands.
- (8) Dry on a sterile towel, starting with the hands and moving upwards.

Wearing Sterile Gown and Gloves

- (1) Take hold of the gown at arms length with your scrubbed up hands, unroll, and slip your arms into the sleeves, asking a helper to tie the tapes at the back. Both you and the helper must be very careful not to touch the outside of the gown.
- (2) Dust your hands with sterile powder, and put on the gloves. Hold the first glove by the turned back cuff, and slip it on. Next insert the gloved fingers under the cuff of the second glove and slip it on. The cuff of each glove is then unfolded and pulled completely over the sleeve end of the gown.

There must be no gap at the wrist, and you must not touch the bare skin nor inside of glove or gown when scrubbed up.

The first scrubbed up person may help others by holding the sterile gloves for them to slip in their hands.

When scrubbed up, you must remember to touch only sterile things. The instrument table and whole field of operation is draped with large sterile cloths and towels. Helpers who are not scrubbed up may help to bring sterile supplies to the tables, keeping to the outside and using 'Cheattle forceps'.

Handling of Sterile Articles

- (1) Always wear a mask when handling sterile articles.
- (2) Sterilised articles must be kept in sterile containers or on sterile towels, and kept covered till used. Never allow contact of unsterile with sterile articles.
- (3) Make sure there is no dampness, as this could make the things unsterile.
- (4) Never allow any unsterile article including the arms and hands, to pass over a sterile field.
- (5) Never touch the inside of a package or container with your fingers. Use the Cheattle forceps.
- (6) To pull a cork from a bottle of sterile fluid, take care not to contaminate the inside part of the cork nor inside the rim of the bottle. Replace it carefully.
- (7) When lifting a cover from a sterile container, lay it down with the inner side up, then replace it without delay.
- (8) To carry a sterile bowl or other container, hold it with your hands underneath, and do not touch the rim.

Rules for use of Cheattle Forceps

- (1) The sterile jar holding the forceps must be cleaned, re-sterilised and filled with fresh antiseptic lotion daily. The Cheattle forceps should be cleaned and autoclaved or boiled.

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- (2) When in use, keep the forceps at elbow level and pointed downwards, because if you lift it upwards the solution may run on to your hand and then back to the forceps, making it unsterile.
- (3) Put the forceps back into the jar immediately after use. Replace carefully without touching the rim of the jar. If the forceps becomes contaminated in any way, it must be re-sterilised before being put back into the jar.

Sterilisation

Sterilisation is the process of making materials needed for surgical use 'sterile', i.e. free from all living organisms.

Preparing Articles for Sterilising

A convenient method often used is to prepare sets of the instrument, swabs, sponges, dressings, towels and sutures needed for each type of operation or sterile procedure. These sets are packed into drums, bundles, or on trays, labelled and kept ready for sterilising. The articles should be carefully arranged so that those needed first are on top. They must be loosely packed for steam to penetrate. Drums must have the perforations opened. Bundles should have a double wrapper of close-woven cloth, or of paper.

Dressings, Swabs and Sponges are usually made of several thicknesses of surgical gauze. Raw edges must be folded in. Swabs and dressings are again folded to the desired size. Sponges used for abdominal surgery need to be large, stitched around the edge and a piece of tape sewed to one corner. When an artery forceps is clipped to the end of the tape, there is no risk of the sponge being left inside the abdomen.

Packing Gauze is made in various sizes. Use gauze four times the width of the desired packing. Fold the edges so that they meet in the middle, and again fold down the centre, and roll.

Cotton Wool is prepared in various ways. Cotton balls of various sizes are prepared by rolling between the palms. Some may be needed for internal surgery, and for this the cotton ball must be covered with gauze and tied. This type of swab is grasped with a long handled forceps. Cotton squares of various sizes are to be cut for use in

dressing wounds. Some may require to be covered with gauze.

Instruments

After use, surgical instruments should be washed first in cold water, then in warm water with a detergent. Use a brush to clean well especially between the teeth of artery forceps and clamps. To be properly sterilised, there should be no trace of dried blood or discharge. Rinse in clean water, then boil for 5 minutes and dry well.

Sharp instruments, knives and needles should be dealt with separately, taking care to avoid cuts and puncture wounds.

Syringes and Needles

As soon as possible after use, draw up some water into the syringe and push enough through each needle to make sure they are not blocked. Infected syringes (used for withdrawing blood or pus) should be washed immediately in a cold disinfectant solution. Next wash the syringes and needles in warm soapy water, using a bottle brush for the barrel. Rinse in clean water. Take care not to get barrels and plungers mixed, but keep them always paired together.

Needles should be examined carefully for sharpness. The tips may be rubbed carefully on a sharpening stone. Take care not to prick your finger, as infection may be transmitted in this way.

Rubber Tubing after use should be cleaned with cold water, then with hot soapy water, then rinsed. The inside must be thoroughly clean. Then it is boiled, and hung over a rail to drain. Put away loosely coiled, to avoid kinking. Rubber catheters should be cleaned by running cold water through from both ends. Wash and rinse in cold water, boil for 5 minutes, then dry, with a towel or by hanging up.

Sterilising Methods**(1) Autoclaving (steam under pressure)**

This is a reliable method and may be used for most articles. The autoclave is a metal chamber with an outer jacket and a lid or door which can be firmly clamped. Steam is generated by heating water in a boiler or in the outer jacket. Air is evacuated from the chamber either by displacement with steam, or by a vacuum attachment.