

Guideline for Surgical Patient Skin Care

November 1999

Surgical Patient Skin Care

I. Pre-Operative Skin Preparation:

A. Elective Surgery:

Patient scheduled for surgery should be admitted to hospital as short as possible before the operation.

Certain preventive measures must be taken to reduce the risk of SSI.

1. Patient Shower:

Preoperative shower reduces the skin's microbial colony counts, so it is preferred that each patient scheduled for operation should take a shower using antimicrobial detergent (as chlorhexidine gluconate 4%) before surgery.

Frequency and time of shower determined according to the degree of skin contamination, type and nature of operation. These showers can be carried out at home depending on admission policy. Special attention should be paid to areas known to harbor many pathogens such as groin, perineum, axillae and umbilicus etc.

A clean towel is used for drying, a clean gown is put on and the bed has clean linen.

The ill or bed-ridden patient is given or assisted with a complete bed bath, with attention to the details listed above.

2. Hair removal:

Hair should not be removed unless it is necessary i.e. when hair at or around the incision site interferes with the operation. If hair is removed, it should be removed immediately before the operation, using a depilatory cream cover shaving are that it can be used on granulating wound, although depilatories sometimes produce skin hypersensitivity reaction.

Hair removal should occur immediately before surgery, in practice one or two hours before surgery. Shaving brushes are never used because they usually harbor microorganisms.

3. Pre-operative Skin Preparation:

Before preparation of skin at the incision site initiated in the theatre, the skin should be free from gross contamination (i.e. dirt, soil, or many other debris). The incision site is disinfected by applying an antiseptic preparation in a concentric circle, beginning at the area of proposed incision. The prepared area should be large enough to intend the incision or create new incision or drain sites if necessary.

Selection of antiseptic solution for pre-operative skin preparation is a multifactorial issue. Ideally, the optimum antiseptic agent should have a broad spectrum of activity, fast acting, have

a persistent residual effect, of how toxicity and effective in presence of organic material. The site of incision must be considered when selecting the proper antiseptics such as in face, burn and ophthalmic operations.

Several antiseptic agents are used for skin preparation sites:

- (a) Chlorhexidine gluconate 4% or
- (b) Povidone-iodine 7.5% or
- (c) Alcohol solution (isopropyl 90%, Ethyl alcohol 70%).

Both chlorhexidine gluconate and iodophors have broad spectrum of antimicrobial activity. Chlorhexidine gluconate achieves greater reduction in skin micro flora than does povidone-iodine and also has greater residual activity. Further, chlorhexidine gluconate is not inactivated by blood or serum proteins. Iodophors may be inactivated by blood or serum proteins but exert bacteriostatic effect as long as they are present on the skin. Alcohol is one of the most effective and rapid acting skin antiseptics, but it has no residual activity, easily evaporated and flammable.

4. Surgical Scrubbing:

Proper surgical scrubbing can reduce SSI risk.

Members of the surgical team who have direct contact with the sterile operating field, or sterile instruments or supplies used in the field should wash their hands and fore-arms up to the elbows immediately before donning sterile gowns and gloves, this procedure known as surgical scrub. To ensure effective scrubbing, the following points should be considered.

- (a) Nails should be short, do not wear artificial nails.
- (b) Hands or arm jewelries should not be worn.
- (c) A proper skin antiseptic must be used (e.g. chlorhexidine gluconate 4%).
- (d) Scrubbing procedure should start from tips of fingers ending at elbows.
- (e) Duration of scrubbing should last at least 3-5 minutes.
- (f) Hands should be kept up and away from the body (elbows in flexed position).
- (g) Hands should be dried with sterile towels, before donning sterile gowns and gloves.

5. Surgical Barriers and Drapes:

The following points should be considered:-

- (a) Surgical mask (that fully covers the mouth and nose) should be worn when entering the operating room if the operation is going, or if sterile instruments are exposed. The mask should be worn throughout the operation.
- (b) Caps or hoods, (that fully covers hair on the head and face) should be worn when entering the operative room, and throughout the operation.

- (c) Eye protective devices, such as goggles or face shields should be worn whenever splashes are expected.
- (d) Sterile gloves should be worn after donning the sterile gowns.
- (e) Surgical gowns and drapes should be effective barriers even when wet, (i.e. made of materials that resist liquid penetration).
- (f) Scrub gown, gloves, and drapes should be changed whenever they are visibly soiled, contaminated, penetrated, and or/damaged.
- (g) Shoe covers are no more recommended for prevention of surgical site infection (SSI).

B. Emergency Surgery:

Emergency cases vary in respect of urgency of transfer to theatre, depending upon the time available. Any of the previously mentioned SSI preventive measures should be carried out in a modified form depending on the degree of urgency. The skin preparation is then completed in the theatre.

II. Post-Operative Wound Care:

Certain measures should be considered post-operatively to prevent SSI:

1. Wound Dressing:

The main purposes of wound dressing are:

- ◆ To protect the wound from trauma or bacterial contamination.
- ◆ To promote healing and
- ◆ To prevent the spread of organisms from an infected wound to other sites on the same or other patients.

Appropriate dressing materials should be selected according to the nature of the wound such as: size, site depth of the wound and the presence of slough or infection.

Usually, dressing should absorb excess exudates, but maintains warm and moist conditions at the wound surface to improve healing and should allow gaseous exchange. It should be impermeable to bacteria.

The progress of the wound should be accurately recorded. The primarily closed incision (i.e. the skin edges are re-approximated at the end of the operation), should be covered with a sterile dressing for 24-48 hours, until the incision edges are sealed.

When a surgical incision is left open for few days before it is closed (delayed primary closure), such incision should be packed with a sterile dressing (usually moist) and should be inspected daily during dressing changes until the decision is made to close it.

When a surgical incision is left open to heal by secondary intention, it should be packed with sterile moist gauze and covered with a sterile dressing. There is no recommendation for the exact time for patient showering or bathing post operatively. In general, the wound should not be exposed or get wet before the incision edges are sealed.

The patient and the family should be educated about the signs/symptoms of infection and proper wound care (written instructions are preferred).

Septic and contaminated wound should be dressed at the end of the dressing list.

Sutures should be removed at the beginning of the list.

Wound Dressing Procedure:

- ◆ Whenever a wound is inspected or the dressing touched, full aseptic precautions must be taken and the condition of the wound recorded by the doctor or nurse.
- ◆ Equipment and dressings must be sterile.
- ◆ Antiseptic solutions must be freshly prepared.
- ◆ The room should be free of visitors, cleaning activities and bed making should cease 30-60minutes and curtains should be drawn 10 minutes before dressing is started. As these activities may disperse large number of organisms, all these activities should be ceased throughout the dressing procedure.
- ◆ Separate infected from non-infected cases.

Wound Dressing Steps:

1. Wash and dry hands (according to Infection Control Policy).
2. Clean and disinfect the surfaces of the dressing trolley by using paper towel and 70% ethyl alcohol with 0.5% chlorhexidine solution.
3. Attach disposable bag for soiled dressing trolley by using paper towel and 70% ethyl alcohol with 0.5% chlorhexidine solution.
4. Wear face mask if required.
5. Disinfect the hands and don sterile gloves.
6. Open the corner of the sterile inner dressing bag carefully and place the sterile drape to form a sterile field.
7. Pour the antiseptic solution in the dressing set to be ready for use.
8. Remove the wound outer dressing with sterile forceps and discard both.
9. Clean the wound using sterile forceps and cotton swabs from the sites of incision to the outer, and from clean area to the more contaminated (dirty area), each in a single stroke and discard.

10. Wipe the wound site as dry as possible.
11. Inspect the wound, e.g. healing process, signs of infection such as pus, redness, swelling and tenderness.
12. Cover the wound if needed, with dry sterile dressing preferably transparent.
13. Clean and disinfect the surfaces of trolley and dry well.
14. Discard the soiled material in the proper place.
15. Wash and dry hands.
16. Send all the re-usable equipment to the CSSD for recycling.

Documentation of the Wound Status:

The nurse who did the dressing should record:-

1. Date and time of dressing.
2. Condition of the wound e.g. healing status and signs of inflammation.
3. Patient's complaints regarding the wound should be recorded for example pain, redness, and discharge.

Drains:

All types of wound drainage support the growth of microorganisms; therefore aseptic measures should be followed to keep the wound surface clean. When drain is to be used, a closed drainage system should be placed.

References

1. CDC Guideline for the Prevention of Surgical Site Infection, 1998.
2. Prevention and Control of Nosocomial Infections, Richard Wenzel 1993.
3. CDC Definitions, 1992.
4. Kuwait Regulations for Control of Infection, 1948.