

Wound Dressing Procedure and Prevention of Contamination and Cross Infection

By:

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Introduction

Man, in his day to day life experience emergencies like trauma due to assaults, car accidents, burns and machine injuries. In the hospital settings there are also surgical/operative interventions which are done to patients as part of treatment. In all these cases there would be a cut or a break in continuity of the tissues which is called a wound (Wolf et. al 1983). This wound has to be dressed using a sterile procedure to prevent contamination and to facilitate the healing process (Lewis, 1976). Wound dressing is a sterile procedure which is done in many settings i.e. the hospital out patients, wards, operating theatres, as well as clinics and health centres, on all age groups. If the procedure is not sterile there would be contamination of the wound as well as cross infection increasing mortality and morbidity rate especially in this era of HIV infection and AIDS. In this article research information is presented on an evaluation of how wounds are being dressed; the findings, the discussion and the recommendations made by the authors.

Aims of the study

The aims of the study were to

- * assess how wound dressing procedures are performed in some wards and health centres in one of the districts in the Southern region of Malawi.
- * assess the resources available for wound dressings in the wards and health centres.
- * assess the methods of sterilisation of wound dressing equipment.
- * come up with recommendations for improvements based on the findings of the assessment.

Methods

Sampling Method and Sample Size:

A convenient sampling method was used for selection of the four wards and three health centres. The wards which were selected were those that do many daily dressing of wounds while the health centres were those that were amongst densely populated areas of the district.

Data collection was done in October 1997 by the use of a questionnaire consisting of five open ended questions addressing the following areas, the:

1. average number of patients for daily wound dressings in the ward and health centre
2. total number of gallipots/receivers/bowls used for wound dressings for the ward and health centre
3. total number of wound dressing forceps for the ward and health centre.

4. cadre of personnel that usually does wound dressing procedure.
5. methods of sterilisation of wound dressing utensils at the ward and health centre.

After approval by the District Health Officer, personal visits were made by the authors to all the selected sites. The Officer in charge of the ward/health centre and the people who do the wound dressing were interviewed at each site.

Results

Average Number of Wound Dressing Per Day

The results revealed that there are a lot of wounds being dressed in all the sites, the highest being one hundred and fifty per day in one health centre and lowest average being nine dressings per day in another health centre (see 1 table column 2).

Number of Dressing Forceps/Gallipots/Receivers/Bowls

The findings revealed that in all the sites there were not enough forceps/gallipots/receivers/bowls to competently perform a sterile procedure (see table 1, column 3 and 4).

In 72% of the sites, those who perform dressings explained that they use one common bowl for cleaning all the wounds and one common bowl for dressing all the wounds. Forceps are not used for individual patients because of lack of knowledge on principles of sterility. In one health centre the dresser picked up a dirty forceps from the table and placed them into a tray containing sterile forceps.

Cadre of people who did wound dressing in the visited sites.

The findings revealed that in the wards, dressing of wounds is done by nurses, if there is shortage of nurses, the patient attendant does, whilst in health centres wound dressings are performed by a ward attendant or labourer (see table 1 column 5)

Methods of sterilisation

All the health centres use boiling method of sterilization whilst sites at the hospital use autoclaving supplemented by boiling method (see table 1 column 6)

In 67% of the health centres boiling of equipment is done once a day whilst in the remaining 33% boiling is done twice a day.

The nurses/clinical officers expressed that it was difficult to maintain sterility because of the following reasons:

- (i) large number of patients requiring wound dressing versus the amount of equipment available to do sterile wound dressing procedure.
- (ii) shortage of staff, the nurse is often finishing the patients, queue unlike following the correct way of doing a wound dressing which would delay the queue and leaving other patients undressed.
- (iii) due to shortage of nurses, ward attendants, labourers and patients attendants who have no knowledge of principles of sterility are used to perform wound dressing procedures, in the process causing contamination of wounds and cross infections.

Discussion

There are large numbers of people requiring wound dressing per day versus insufficient equipment. The dressers use common bowls for cleaning and dressing of wounds and this insufficient equipment is not sterilised between patients. Lewis (1976) indicated that in order to prevent cross infection there should be individual dressing trays with equipment and supplies necessary for each patient. Therefore use of common bowls render patients with wounds to greater risks of wound contamination and cross infection. This is very dangerous in this era of HIV/AIDS as there could be transfer of the virus from one patient to the other. Furthermore contamination of wounds lengthen patients' stay in the hospital or any health care facility draining the already limited resources, for example, drugs, dressing lotions/materials, food and personnel.

Wound dressing which is a sterile procedure should be carried out by a properly trained person who clearly understands principles of sterility. Wound dressing procedures performed by labourers, ward attendants and patients attendants without proper training raises a great concern because this cadre has no knowledge of bacteria and its behaviour, principles of sterility and handling of forceps. This is why in one of the sites the authors observed a ward attendant picking a used forceps which was left on the table and placed it into a tray containing sterile forceps. When asked the person said the forceps were good enough to be used on the next patient. In this way, the doctor may perform a successful surgical operation in theatre, however, healing process may be hindered as a result of contamination of dressing equipment and lotions as shown in the findings.

The Nurses and Midwives Act No. 16 (1995) stipulates that only a trained person who has undergone a program of study at a recognized institution and after licensure is safe to practice the maintenance of principles of sterility. This is because the courses studied which are listed in the syllabus like microbiology, parasitology, anatomy and physiology of the skin and tissues, fundamentals of nursing and medical/surgical nursing assist the person to acquire knowledge and skills necessary to perform a sterile wound dressing procedure.

In some of the health centres sterilisation of equipment is only done once a day and in others twice a day. At one health centre a wound dresser was boiling forceps in a receiver using a hot plate. Furthermore, the receiver was not covered and the forceps were not immersed in water. The uncovered receiver with forceps was carried to another block for wound dressing procedures.

Dressing instruments i.e. gallipots, receivers forceps bowls, swabs should be sterilised preferably by autoclaving (Hector 1970). Boiling method of sterilisation if properly done can kill most known bacteria except spores. The recommended boiling time is a minimum of 15 minutes (Wolf, et al. 1983)

However, it may take a long time to reach the required temperature and there is a risk of shortening the sterilisation time to below effective levels (Hector 1970). This is true of most wards and health centres where boiling method of the few available instruments is continuously done for the large number of patients to be dressed. Hence they do not give the sterilising process the required time as they are working to finish the large number of patients.

Recommendations

1. Although there are limited resources asepsis should be maintained as much as possible when doing wound dressing. For example, use of common bowls and forceps should be discouraged.
2. Non nursing personnel performing wound dressings should be trained on the job so that they understand and observe principles of sterility.
3. The boiling method of sterilization should be properly followed i.e equipment should be fully immersed in water and boiling time of a minimum of 15 minutes. Instruments should be boiled in the room where the wounds are being dressed to minimise contamination. If it has to be in another room then equipment should be transferred while covered in sterile bowls.
4. Wound dressings should be performed using the spraying method. It has the following advantages:-
 - 4.1 It is cheap because it requires less equipment for example 2 forceps, 1 or 2 spraying bottles can be used for many patients. There is no need for gallipots and the bottles do not need sterilisation in between patients.
 - 4.2 The procedure is safe for patient and has a minimum chance of contamination and cross infection
 - 4.3 It saves time - no need to wait for gallipots to get boiled.

Equipment required for spraying method of dressing

- 1 or 2 spraying bottles if different types of lotions are used for cleaning and dressing
- 2 forceps or gloves
- Sterile cleaning swabs and gauze squares
- Plastic bags or receiver for used swabs
- Receiver for used forceps

Procedure

- * Explain the procedure to the patient
- * Bring equipment to the bedside
- * Provide privacy
- * Follow the aseptic technique
- * Remove dirty dressing. If stuck soften it by spraying cleaning solution until wet (except fresh wound)
- * Spray the wound with cleaning lotion
- * Clean wound with swabs using forceps or gloves from the centre-outwards
- * Put one sterile gauze on the wound spray on the dressing lotion (enough to wet the gauze but should not dribble)
- * Cover it with enough dry dressings (gauze)
- * Secure the dressings with strapping or bandage
- * Make patient comfortable, clear equipment
- * Remove gloves and wash hands

Conclusion

This study though with a limited sample size, showed that there is a lot of potential for contamination during the wound dressing procedure. There are insufficient numbers of gallipots and forceps as compared to the number of persons requiring wound dressings.

In most cases, dressings are done by personnel who are not trained to do wound dressings therefore they do not have knowledge on principles of sterility. This results in possible contamination and cross infection. This is very dangerous in this era of HIV/AIDS. The spray method is safe, cheap, saves time and minimises the risk of contamination and cross infection. Ten patients can be dressed aseptically using two spray bottles whilst for the same number of patients one would require twenty gal-lipots to dress them aseptically.

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References

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TABLE 1: RESULTS

1	2	3	4	5	6
WARD OR HEALTH CENTRE (SITE)	AVERAGE NO. DRESSINGS PER DAY	TOTAL NO. GAL/REC. BOWLS USED FOR DRESSINGS	NO. OF DRESSING FORCEPS	CADRE OF PERSON DOING DRESSINGS	METHOD OF STERILISATION OF DRESSING UTENSILS
1	21	14	5	W.A. or L.B.	Pressure sterilizer
2	150	4	8	W.A. or L.B.	Hot plate + receiver directly no pot
3	130	6	4	W.A. or L.B.	Medium sterilizer
4	9	20	2	Nurse or P.A.	Sterilizer CSSD Drum + dressing packs
5	30	3	3	Nurse or P.A.	Sterilizer CSSD Drum + dressing packs
6	15	10	5	Nurse or P.A.	Sterilizer CSSD Drum dressing packs
7	30	15	40	Nurse or P.A.	Sterilizer CSSD Drum + dressing packs

Key:

Gal = gallipots
 Rec = receivers
 P.A. = patient attendant
 CSSD = Central Sterile Supply department
 L.B. = Labourer
 W.A. = Ward Attendant