

**NURSING PRACTICE ON POST OPERATIVE WOUND CARE
IN SURGICAL WARDS AT MUHIMBILI NATIONAL HOSPITAL,
DAR-ES-SALAAM, TANZANIA**

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**MSc. Nursing (Critical care & Trauma) Dissertation
Muhimbili University of Health and Allied Sciences**

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By

Adela Abel Mwakanyamale

**A Dissertation submitted in (partial) Fulfillment of the Requirements for
the Degree of Masters of Science (critical care and trauma) of
Muhimbili University of Health and Allied Sciences**

**Muhimbili University of Health and Allied Sciences
November, 2013**

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled *Nursing Practice on Post Operative Wound Care in Surgical Wards at Muhimbili National Hospital, Dar es salaam, Tanzania*, in (partial) fulfillment of the requirement for the degree of Master of Nursing (Critical Care and Trauma) of Muhimbili University of Health and Allied Sciences.

.....
Dr. Thecla W. Kohi
(Supervisor)

Date

**DECLARATION
AND
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I, **Adela Abel Mwakanyamale**, declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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Glory to God for he has been the source of strength and wisdom throughout this work and my studies at large.

DEDICATION

I dedicate this work to my beloved husband Dr. Peter Patrick Mfisi for his full support, understanding and tolerance of my busy academic schedule during the whole course of my Masters studies. This dissertation is also dedicated to my children; Patrick, Patricia, Patrina, and Patrice, beloved parents Mr and Mrs Mwakanyamale, and in-laws Mr and Mrs Patrick Mfisi whom I shall always remain grateful to their great support, prayers and patience during my study period.

ABSTRACT

Background:

Postoperative wound healing has been a problem which causes high mortality in the developing world; postoperative wound has been reported to cause devastating consequences and a measurable mortality.

The objective of the study was to assess nursing practice on postoperative wound care in surgical wards at Muhimbili National Hospital.

Methodology:

A quantitative descriptive cross-sectional design was employed. Data was collected using a checklist from a convenient sample of 71 nurses in surgical wards at Muhimbili National Hospital. The study was approved by the ethical committee of Muhimbili University of Health and Allied Sciences and permission to conduct the study was granted by Muhimbili National Hospital. Data was analyzed using SPSS program version 19. Results were summarized using frequencies, percentages, and presented using figures, tables and text.

Results

The result shows that majority of the participants were female 76.5% and 40.8% of the participants aged 25 – 34 years. More than half of the participants were observed to have poor post operative wound care practice 57.7%. Male participants scored higher, and had better practice compared to female however there was no significant difference between the scores ($P=0.803$).

In the preparation phase, hand washing before and after the procedure was observed by less than half of the participants 49.3%. None of the participants ensured cleanliness of the environment and patient's privacy by screening or closing the room. The study findings revealed that nurses use clean gloves when removing the old dressing 99%, while use of sterile gloves during wound dressing was not observed by 63% of participants. Good practice was observed in applying dressing solution as prescribed 85% participants, dry sterile dressing applied 90%, arrangement of dressing forceps and other items by order to their application using forceps 20%, usage of forceps to dip gauze into antiseptic solution 35% and cleaning of the wound from least contaminated to most contaminated area 34%.

Post-operative counseling and instructing the patient not to temper with the wound was done by only 15% of the participants. None of the participant documented wound changes, reported patient comfort, and recorded date or time after the procedure.

Conclusion

Majority of the participants in surgical wards do not follow the postoperative wound care checklist provided by MNH although they know its importance. Assessment of the wound and documentation continues to be a problem in the nursing profession.

Participants were reasonably knowledgeable about the principal of wound dressing; however lack of knowledge on some of the key principles of wound dressing is worth noting. Almost half of the participants did not wash hands before and after the procedures, they did not use single gauze in one direction only, nor cleaned from least contaminated to most contaminated area, which can lead to wound contamination.

Recommendation

Ministry of health and social welfare should ensure that nurses are more trained at least to undergraduate level of nursing education. This can be achieved by providing more learning opportunities to nurses accompanied by sponsorships from the Ministry of Health and Social Welfare and sophisticated access to loan from Higher Education Loan Board (HELBS)

Muhimbili National Hospital should recruits adequate number of nurses to cope with workload and number of patients. Adequate number of nurses will enable nurses to have more time to prepare equipments and to assess, plan, implement and evaluate care of patients with wound. Ministry of health and social welfare should also ensure that nurses caring for patients with wounds have refresher course to update them on issues of personal and patient protection from infection through infection control and prevention seminars. Increase economic power of the MNH to purchase items to ensure adequate supply of dressing materials including dressing packs, toothed forceps, cotton swabs, gauze, kidney dishes, dressing towels, artery forceps, eusol solution and Hydrogen peroxide solution, normal saline and Spirit.

LIST OF ABBREVIATIONS

ATP	:	Adenosine Triphosphate
HCAIs	:	Health Care Associated Infections
MNH	:	Muhimbili National Hospital
MUHAS	:	Muhimbili University of Health and Allied Sciences
NICE	:	National Institute of Health and Clinical Excellence
PACU	:	Postoperative Anesthesia Care Unit
SCU	:	Surgical Care Unit
SPSS	:	Statistical Package for Social Sciences
SSIs	:	Surgical Site Infections

DEFINITION OF TERMS

Wound: Is a tissue following loss of skin integrity, provides a moist, warm and nutritive environment that is conducive to microbial colonization (Pilhammar and Anderson 1996).

Wound dressing: is the process by which a soiled dressing is removed, the wound is cleansed and a sterile dressing applied (Naude, 2010).

Infection: The invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that are not normally present within the body and may cause wound breakdown, herniation of the wound and complete wound dehiscence (Polit and Beck, 2004).

Nosocomial infection: (hospital-acquired infection) is an infection whose development is favored by a hospital environment, such as one acquired by a patient during a hospital visit or one developing among hospital staff. Such infections include fungal and bacterial infections and are aggravated reduced resistance of individual patients (Cosker et al., 2005).

Postoperative: pertaining to the period of time after surgery. It begins with the Patient's emergence from anesthesia and continues through the time required for the acute effects of the anesthetic and surgical procedures to abate (Mathieu et al., 2006).

OPERATIONAL DEFINITIONS

A nurse in this study refers to both registered and enrolled nurse

Wound care is defined as prevention of wound complications and promotion of wound healing.

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CHAPTER ONE

1.0 INTRODUCTION

Postoperative wound infection has been a problem which causes high mortality in the developing world, (Masood et al., 2007). Postoperative wounds have been reported to cause devastating consequences and measurable mortality, (Mathieu et al., 2006). Despite advances in the operative techniques and better understanding of the pathogenesis of wound infection, postoperative wound infection continues to be a major source of morbidity and mortality for patients undergoing operative procedures (Masood, et al., 2007). The rates of wound healing have been reported to vary in different countries, in different areas and even in different hospitals, (Masood, et al., 2007). A recent study in Nigeria shows that 70-80 percent of both morbidity and mortality are due to wound infections (Naude, 2010). Studies have reported that even, in 1960s before the advent of preoperative and postoperative care, one quarter of the surgical wards were occupied by patients with wound complications (Mathieu, et al., 2006).

In a study done in Bangladesh by showed that Nurses had low level of Knowledge (M=69.7%, SD=8.51) and high level of practice on post-operative wound care. There was a weak significant negative correlation between Knowledge and practice regarding prevention of surgical wound infection ($r=-.18$, $p=0.04$). These findings suggest that Nurses knowledge and some certain areas of practice regarding prevention of SSI need further improvement. (Humaun, et al., 2010). Moreover a study done regarding Nurses knowledge on postoperative wound care showed a low knowledge on post-operative wound care, the nurses' mean score on the knowledge test was 29% with Males Nurses shown to have better scores (Sonia, et al., 2009).

According to Masood et al., (2007) wound healing has been associated with many factors, the common factors are; malnutrition, age, surgical site infections (SSIs), obesity, presence of infective foci, diabetes, hygienic conditions and duration of operation. Robert et al., (2011) report that SSIs have led to a high proportion of healthcare-associated infections

(HCAIs) accounting to 20 percent of all HCAIs, and affect more than 5 percent of patients who had surgery. Additionally, wound dressing practice has been also mentioned to be among of the factors which affect wound healing. Wound dressing practice using gauze is disruptive to the healing wound as it dries and causes tissue damages when it is removed. Inappropriate use of dressing may lead to unwanted effects (Jones *et al.*, 2006). Robert *et al.*, (2011) claim that the management of postoperative wounds have perhaps received less attention than is merited, with the greatest focus being upon the management of chronic wounds.

Robert *et al.*, (2011) report that, a range of guidance and recommendations regarding postoperative dressing practice have been provided to health care workers in the United Kingdom [UK]. Rodriguez, et al (2008) recommended that at the end of the operation surgical incisions anticipated to heal by primary intention should be covered by a film membrane with or without a central absorbent. Currently postoperative dressing practice comprises of the use of a vapor- permeable film dressing as those suggested by Rodriguez *et al.*, (2008). Although there has been an advance in the operative techniques and better understanding of the pathogenesis of wound infection, postoperative wound infection continues to be a major source of morbidity and mortality for patients undergoing operative procedures (Cosker, et al 2005). This situation need to be studied more so as to address the problem.

Some studies shows that despite the development of several clinical guidelines, though it helps to increase awareness, they remain ineffective as many members of the interdisciplinary team are unaware of their existence. (NICE 2003).

1.1 Problem statement

Post-operative wound infection has been reported to be one of the most common causes of nosocomial infections accounting to 20% to 25% of all nosocomial infections worldwide Mathieu, et al., (2006). Post-operative wound infections have been responsible for the increasing cost, morbidity and mortality related to surgical operations and continues to be a

major problem worldwide, Sibbald et al., (2003). Globally, surgical site infection rates have been reported to range from 2.5% to 41.9% (Masood, et al., 2007). In the United States, approximately 2% to 5% of the 16 million patients undergoing surgery each year have postoperative surgical site infections Mathieu, et al., (2006).

Despite improvements in operating room practices, instrument sterilization methods, better surgical technique and the best efforts of infection prevention strategies, surgical site infections remain a major cause of hospital-acquired infections and rates are increasing globally even in hospitals with most modern facilities and standard protocols of preoperative preparation and antibiotic prophylaxis (National Institutes for Health and Clinical Excellence , 2008a) .

Surgical site infections are the most common hospital acquired infection occurring in early postoperative period in surgical patients. It can be associated with morbidity, mortality and increased resource utilization. Surgical site infections account for 38% of all infections in surgical patients and 31.1% of all infections in trauma patients (National Institutes for Health and Clinical Excellence, 2008b).

Despite advances in the operative techniques and better understanding of the pathogenesis of wound infection, postoperative wound infection continues to be a major source of morbidity and mortality for patients undergoing operative procedures, (Masood, *et al.*, 2007)

In spite of technological advances that have been made in surgery and wound management, wound infection has been regarded as the most common nosocomial infection especially in the patients undergoing surgery (Jones, et al., 2006), It is a common cause of illness resulting in a prolongation of hospital stay, increased costs and general wound management practices become more resource demanding (Robert, et al., 2011). SSI continues to remain a major problem in hospitals, contributing significantly to increased rate of morbidity, mortality and cost of care (Polit and Beck, 2004). The problem is more

serious in low income countries where resources are scarce and staff is always in short supply (Gosain and Dipietro, 2004).

Previous studies conducted in a district and a tertiary hospital in Tanzania reported the surgical site infections rate of 19.4% and 24% respectively, (Naude, 2010).

In Tanzania, postoperative wound healing still remains a problem to surgical patients and a challenge to clinicians despite that much effort on wound care management has been provided. Tanzania still suffers from a lack of qualified health workers. Increased burden of diseases affects the quality and supply of effective health services, which has seen postoperative patients get inadequate wound treatment and wound (dressing) care management in surgical wards, resulting to wound healing delay and complications (Masood, *et al.*, 2007).

1.2 Rationale of the study

The study findings will help come up with solutions for postoperative wound infection which will help to hasten wound healing. Post-operative wound care can lead to morbidity that will result into long duration of hospital stay. This can complicate in its management especially in scarce resource countries. Findings in this study will highlight importance of proper post-operative wound care in reducing cost that can results due to management of post-operative wound infections. Improving the better practice of post-operative will enable to prevent mortality as an outcome of post-operative wound care. The findings are expected to be presented to the MNH authority to be used toward improving the nursing practice on post-operative wound care.

1.3 Research questions

1. What is the level of nurses' practice on post-operative wound care in surgical wards at MNH?
2. What is the availability of required surgical dressing materials during wound care in surgical wards?
3. Do nurses in surgical wards use available dressing material during wound care?

1.4 Objectives of the study

1.4.1 General objective

The main objective of the study was to assess nursing practice on postoperative wound care among registered and enrolled nurses in surgical wards at Muhimbili National Hospital June 2013.

1.4.2 The specific objectives

The specific objectives of this study were:

1. To assess the nursing practice on postoperative wound care among registered and enrolled nurses in surgical wards at MNH.
2. To assess the availability of the required surgical dressing materials during wound care in surgical wards.
3. To assess proper use of the available surgical dressing materials during wound care in surgical wards.

CHAPTER TWO

2.0 LITERATURE REVIEW

Wound infection has always been a major complication of surgery (Pilhammar and Andersson, 1996). Most post-operative wound infections are hospital acquired (nosocomial infection), and vary from one hospital to the other and are associated with increased morbidity and mortality (Naude, 2010).

2.1 Factors which affect wound healing

According to Gosain and DiPietro, (2004) factors that influence repair can be categorized into local and systemic factors.

Table 2.1: Factors which affect wound healing process.

<i>Local Factors</i>	<i>Systemic Factors</i>
Oxygenation	Age and gender
Infection	Sex hormones
Foreign body	Stress
Venous Sufficiency	Ischemia
	Diseases: diabetes, Keloids, fibrosis, hereditary healing disorders, jaundice, uremia
	Obesity
	Medications: glucocorticoid steroids, anti-inflammatory drugs, chemotherapy
	Alcoholism and smoking
	Immunocompromised conditions: cancer, radiation therapy, AIDS

In addition, wound dressing practice has been reported to be among of the factors which affect wound healing, (Jones, *et al.*, 2006).

2.2 Postoperative wound dressing practice

Wu, et al., (2007) defines wound dressing as the way of protecting the wound from desiccation and external contamination, reduce pain, absorb wound drainage and promote epithelialization. Wu et al., (2007) reported that despite many advanced dressings available, split-thickness skin graft donor sites are often treated with antiquated methods, which results in painful, unpredictable and potentially delayed post-operative wound healing. Cosker *et al.*, (2005) reported that “the management of postoperative wounds has perhaps received less attention than is merited, with the greatest focus being upon the management of chronic wounds”, in recent years researchers has turned their attention on the choice and type of dressing for postoperative wound. In their study of the choice of dressing for postoperative patients, Cosker *et al.*, (2005) set out the followings properties for an ideal postoperative dressing that they should: allow gaseous exchange, function as a waterproof barrier, allow monitoring of the wound, low adherence for easy traumatic removal and able to act as an effective barrier to bacterial contamination.

Currently, in United Kingdom (UK) postoperative practice consists of the application of a non-woven dressing (Mepore®, Mölnlycke Health Care) to the sternum wound immediately postoperatively, while the patient is in theatre, (Roberts *et al.*, 2011).

2.3 Methods and types of dressing

Dressing may be either adherent or non-adherent, and are sub-divided into occlusive or non-occlusive, depending on whether or not they allow exchange of gases or water. Adherent dressing are used early on wound management, and when the wound healing is underway non-adherent dressing are chosen in order to minimize further damage to the wound when changing the dressing (www.eurpub.com/mediaserver/attachement_data/mmiid=9780750688079.pdf accessed on 15th August, 2012).

2.3.1 Adherent dressing

These are sterilized gauze pads used to dry wounds, and they are either dry to dry or wet to dry, all these help to remove necrotic tissues and loose debris and they help to debride the

wound (www.eu.elsevierhealth.com/media/us/.../9780750688079.pdf accessed on 11 July, 2012).

Dry to dry and wet to dry are covered by a bandage with an absorbent secondary layer. They are removed once the primary layer has a chance to dry, usually after twelve hours. OpSite, one of the adherent dressings, is a transparent adhesive film dressing that may be used to cover granulating wound that are highly exudative.

2.3.2 Non-adherent dressings

Non-adherent dressings prevent wound desiccation and allow moisture to be retained at the wound site, promoting healing. Depending on how they perform their work, non-adherent dressings are grouped into occlusive or semi-occlusive. Non-adherent dressings are nowadays often used and are highly recommended to be used for wound dressing. (www.eu.elsevierhealth.com/media/us/.../9780750688079.pdf accessed on 11 July, 2012). This section has explained the literature on wound healing, it has included the wound healing process and the factors which affect wound healing. From the foregoing literature it suggests that, a study on nursing practice need to be conducted as there is/are few literatures which explain the nursing practice on postoperative wound dressing.

2.4 Surgical Site Infection

Surgical Site Infection (SSI) is very common, being the second and third most common cause of adverse events in hospitalized patient in U.S and Canada (Marton and Nichols, 2003).

Generally, it is an infection developing at any time and it can be present at any time up to 30 days post operative, or up to one year following implantation of foreign materials (Marton and Nichols, 2003).

The first step against surgical wound infection and asepsis occurred in the mid- 1800s, when Semmelweis introduced the association of hand washing with decreased bacterial contamination (Brieger, 1997).

Penicillin was the first antibiotic to be discovered in 1948, (Kumazawa, et al., 2002). Thereafter a variety of antibiotics with wide coverage range have been discovered and used to prevent and treat surgical wound infection. Before 1980s antibiotics were administered postoperatively but later found that perioperative administration was more effective in preventing surgical wound infection.

Surgical wound infection is clinically defined as evidence of purulent discharge with classical signs of erythema, induration and tenderness, (Jones, et al., 2006). Bacteriological, the surgical wound is considered to be infected when a culture yields bacteria count of more than 10^5 cfu/gm of tissue or ml of fluid, (Rodriquez, et al., 2008).

Kirkwood and Sterne, (2003) studied the magnitude and pattern of surgical infection on 129 patients following abdominal operation in Ethiopia. The results showed that the overall wound infection rate was 21% and this was significantly associated with the class of wound highest rate being 61.4% for contaminated or dirty wounds.

A study from Sri Lanka by Polit and Beck, (2004) revealed high rates of surgical wound infection, 15% for clean wounds, and 13% for contaminated wounds.

However, a study by Mathieu et al, (2006) on 696 abdominal operations revealed an overall wound infection rate of 9.8%. In this study, the infection rate for clean wounds was 4.2%, clean contaminated wounds was 9.15%, contaminated wound was 14.4% and for dirty wound was 28.8%. These rates were high compare to those found by Rodriquez, et al., (2008) that is, 2.9% for clean wounds, 5.4% for clean contaminated wound, and 15.2% for contaminated wounds, and lower than those found by Naude, (2010) which were 15.5% and 13% for clean and clean contaminated wounds respectively.

In Tanzania, a study done at Ifakara by Sibbald et al (2003) on surgical patients found a SSI prevalence of 21.6%. 1% of these patients died as a result of their infections. Later studies done in Ifakara district hospital among surgical patients where high prevalence rate (22%) of SSI was reported (Fehr, et al 2006). All this patients had received a peri operative

antibiotic, Other studies done in studies done at Kilimanjaro Christian Medical Centre (KCMC) among general surgical patients reported incidence of SSI rate of 19.4%, in which 36.4% of the patients were diagnosed post-discharge (Eriksen et al 2003) Incidence was high in dirty surgery (50%) compared to clean (15.6%), clean contaminated (17.7%) and contaminated (37%). Inappropriate use of antibiotics in this study could have contributed to high rate of SSI. The risk factors for SSI development in this study were; length of pre-operative hospital stay, long duration of operation and post-operative wound care. A study done in Bugando Medical Centre (BMC), Mwanza among general surgical patients found high rate of SSIs at (26%), of whom (86.2%) and (13.8%) had superficial and deep SSIs respectively (Mawalla et al 2011). This rate was higher than that reported before, indicating increasing rate of SSIs among patients undergoing operations in this country.

At Muhimbili National Hospital (MNH) few studies have reported the magnitude of SSI in general. One of the studies among clean elective general surgical patients reported low SSI incidence rate of 12.3% (Wayi et al 2000), which was in contrast to an observation made by Ussiri et al who documented SSI rate of 15.6% in a study among surgical patients who underwent clean contaminated and dirty surgery at the same hospital (Ussiri et al 2005).

CHAPTER THREE

3.0 STUDY METHODOLOGY

3.1 Design

The study was conducted as a quantitative descriptive cross-sectional aimed at assessing nursing practice on post-operative wound care by nurses working in surgical wards at MNH. The descriptive cross-sectional study implies that the information will be collected from the sample of the population of interest at one point in time and then descriptive measures will be calculated (Polit & Beck, 2004).

3.2 Setting

The study was conducted at Muhimbili National Hospital, Ilala Municipal council in Dar-es-salaam, Tanzania. MNH is the National Referral Hospital and University Teaching Hospital with 1,500 bed facility, attending 1,000 to 1,200 outpatients per week. The hospital has undergone major reform processes that include infrastructure change. The focus has been on improving the quality of health care services and the introduction of quality assurance monitoring.

It has 2700 employees of whom 300 are doctors and specialists, 900 registered & enrolled nurses. The rest are supporting operations employees. This study was carried out at MNH due to the fact that it is a national hospital which receives many patients for operative procedures. In addition, nurses at MNH have been provided with guidelines on dressing practices.

3.3 Study Population

The study population was nurses (registered and enrolled) working in surgical wards at MNH. These are wards No.9 to 14 in Kibasila block. The wards admit all male and female patients with surgical conditions and post-operative wounds except those with Gynecological, Orthopedics and Pediatrics Surgical conditions. In surgical wards there are

one hundred fifty two (152) nurses. Of these 152 nurses, ninety four (94) are registered nurses and fifty eight (58) are enrolled nurses.

3.4 Sample size

The estimated sample size for the study was 165. It was calculated by using the following formula

$$N = \frac{t^2 \times P(1-P)}{m^2}$$

Where

N= required sample size

t= confidence lever at 95 % (standard value of 1.96)

p= estimated prevalence of post op wound infection is 30%

The figure has been taken from the previous studies conducted in a district and a tertiary hospital in Tanzania reported the surgical site infections rate of 30% respectively, Erikson, Chugulu and Kondo(2003). m=margin of error at 5% (standard value of 0.05)

$$N = \frac{1.96^2 \times 0.3(1-0.3)}{0.05^2}$$

$$N = \frac{3.8416 \times 0.21}{0.0025}$$

$$N = \frac{0.8068}{0.0025}$$

$$N = 164.72$$

$$= \mathbf{165}$$

Due to small number of Registered and enrolled nurses in surgical wards compared to calculated sample size, all nurses in surgical wards at the time of study who gave consent formed the sample size. Due to a number of reasons as some of Nurses being in Annual leave and some in school leave, so 71 Nurses gave the consent and participated in the study.

3.5 Inclusion criteria

1. The study included all registered and enrolled nurses in surgical wards at MNH.
2. Nurses who were officially employed by MNH

3.6 Exclusion criteria

Nurses who were not directly involved in the bedside patient care such as Nurse Managers.

3.7 Sampling procedure

Burn and Grove (2001) define sampling as a procedure of selecting people, events, behaviors or other elements with which to conduct a study. Key concepts of sampling theory are: elements, population, sampling criteria, representatives, randomization, sampling frames sampling plans and sampling errors.

Sampling was done by the researcher herself. The study participants were obtained on convenient basis from those eligible nurses who were on duty during the data collection period.

3.8 Data collection – instruments

Data collection refers to gathering specific information aimed at proving or refuting some facts, (Kirkwood & Sterne, 2003). Data collection is the process of selecting subjects and gathering information from the subjects. Data may be collected on subjects by observing, testing, measuring, questioning, recording or by combination (Burns and Grove 2001).

Data was collected (gathered) by the use of observational checklist on standard nursing practice on wound care (see Appendix 1). The tool is a pre-designed one from MNH and also it follows the standards principles of wound dressing and it is internationally acceptable. The content of Validity of the checklist was assessed by the panel of experts from a Quality control unit of MNH.

The first part of the observational checklist included questions pertaining to demographic data: - For example, age, education, and gender. The second part of the tool was on standard nursing practice on wound care, the third part of the tool included questions on availability of dressing materials, the fourth part of the tool included assessment on proper use of available dressing materials (see Appendix ii) . The tool was in English language. The observation was done during the working days of the week (Monday to Friday). A roster was used to avoid double observation of the study participants. In this study the data was collected from the participants who met inclusion criteria of the study after seeking their consent (see Appendix ii)

3.9 Pre – Testing

The pre-testing of data collection tool was conducted among ten (10) nurses in surgical wards one week before starting data collection in order to check clarity of questions and accuracy of the checklist .The data collected and participants involved during the pre-test were not part of the study. Results from the pre-testing showed that the checklist was well understood and it was clear hence nothing was changed in the checklist.

3.10 Validity and Reliability of the study instrument

Validity, often called “generalizability”, involves whether the results given by the study are transferable to other groups (i.e. populations) of interest (Burn and Grove, 2001).

The standard nursing practice on wound dressing checklist was observed by two experienced nurses in surgical wards to pretest the instruments.

Reliability

According to Burn & Grove (2001), for the instrument to be reliable, it must yield the same measure when used on more than one occasion.

In this study pretest was done to check the reliability of the instrument .The Cronbach’s alpha was also used to calculate and evaluate internal consistency of the instrument. Likert-type scales were used to calculate and report Cronbach’s alpha coefficient for internal consistency reliability

Table 3.1: Framework for data collection tools per study objective.

SN	Objective	Variable	Tool	Method
1	To assess the correct use of checklist on standard Nursing practice on postoperative wound care among registered and enrolled nurses in surgical wards at MNH.	Nursing Practice on post operative Wound care.	Checklist Section two (Appendix 1)	Observation
2	To assess availability of dressing materials.	Dressing Materials	Checklist Section three (Appendix 1)	Observation
3	To assess the proper use of the available surgical dressing materials during wound care in surgical wards	Dressing materials	Checklist Section three (Appendix 1)	Observation

3.11 Ethical consideration

According to (Burn and Grove, 2001), in a study where human beings are used as participants one must ensure that the rights of these people are protected. As researchers it is of great importance to consider the ethical requirements and continually ask him/her if the study is safe for and protects the participants (Polit & Beck, 2004). Informed consent was obtained from participants by signing a consent form (see Appendix ii). Ethical clearance was obtained from MUHAS Research and Publication Committee before the start of data collection (see appendix iv). Permission to conduct research study was obtained from Muhimbili National Hospital administration (see Appendix v). In this study the researcher observed the Ethical principles of beneficence, respect of human dignity, fair treatment, self-respect, protection of human rights and honesty in data processing.

Confidentiality was granted as the participants were identified by number and not by their names to ensure anonymity.

3.12 Data collection

After obtaining ethical clearance, the researcher introduced herself to the area manager, and nurses in charge at surgical wards. Brief introduction to the prospective participants was done at individual level and consent form provided by the researcher to the eligible participants. The observation was done during the working days of the week (Monday to Friday). The observation was done once for each study participant and each observation took a period of at least forty five minutes to sixty (60) minutes. Data was collected over a period of one month.

3.13 Data processing and analysis

Data was coded, entered and analyzed using SPSS version 19 (Armonk, NY, IBMcorp2010). Descriptive analysis was done and used to present results in frequency distributions tables and bar graphs. Mean was calculated in determining nurses postoperative wound care scores with difference in mean scores used as a measure for poor and better post-operative wound care practice. Independent sample t-test was done and used in assessing the significant difference in mean practice score with a *p*-value of 0.05 considered as a significance level at 95% confidence interval with ANOVA done for multiple comparisons. Chi-square test was used to assess the association between nurses' proper use of available dressing material with a *p*-value of 0.05 considered significant at 95% confidence interval.

3.14 Quality control

The researcher pre tested the instrument for evaluation and refining among 10 (ten) nurses in surgical wards at Muhimbili National Hospital to check the reliability, validity, and clarity of the instrument. The researcher collected the data and same data was entered, verified by two different individual to ensure appropriate data consistency and of good

quality. Coding, entering, verifying and cleaning of the data were performed with great care.

3.15 Dissemination of findings

It is intended that the result of this study should reach many readers and stakeholders. Hence the researcher will disseminate the results to the Directorate of Post Graduate Studies MUHAS, School of Nursing MUHAS, Muhimbili National Hospital, MUHAS library, Ministry of Health and Social Welfare and journals.

3.16 Limitations of the study

This study reports on nurses in surgical wards at MNH therefore may not be a true representative of general population. The nature of the study design made nurses to be aware of my presence at the beginning of my research, which made them change their normal routine behavior, as they were more cautious and observant on the procedures in my presence. To counteract this, Nurse were given a consent form a week before the observation. Hence it had no effect to the data collection and results in general.

Financial constraints and short time allocated for data collection were limiting factors to accomplish this study. However, the researcher made efforts to collect all data after obtaining ethical clearance.

CHAPTER FOUR

4.0 RESULTS

This chapter is concerned with data analysis and discussion of the results. Each objective is presented separately based on results from analysis and observations made by the researcher during the course of the study. Frequency distributions table was used to show the nurses' socio-demographic characteristics. Nurse's practice on postoperative wound care was analyzed using a predesigned Checklist, a correct practice item scored 1 and incorrect one 0. For all 34 practice items, a total score was calculated and an overall mean score was obtained. A higher score on postoperative wound care indicated better practice whereas a lower score indicated poor practice. Independent sample t-test and ANOVA were done to assess significant mean differences for two sample and multiple samples respectively. Bar graph was used to show distribution of nurses' post-operative wound care practice. Frequency distribution table was used to show the distribution of availability of dressing material. Chi-square test was used to assess association between nurses' proper use of available dressing material.

4.1 Description of the sample

As shown in table 3, a total of 71 nurses participated in this study. Of those 55 (76.5%) were female and 16 (22.5%) were male. 40.8 % of nurses were of age group between 25 to 34 years. Only two (2.8%) participants were of age group between 15 to 24 years. Sixty percent (60.6%) of respondents reported to have diploma level of education. Nearly three quarter (74.6%) were registered nurses.

Table 4.1 Distribution of participant by demographic characteristics

Factors	Specific variable	Number n=71	Percentage
Sex	Male	16	22.5
	Female	55	76.5
Age (year)	Less than 24	2	2.8
	25 to 34	29	40.8
	35 to 44	26	36.6
	More than 45	14	19.7
Professional Education level	Certificate	18	25.4
	Diploma	43	60.6
	Degree	10	14.1
Job title	Registered Nurse	53	74.6
	Enrolled Nurse	18	25.4

4.2 Nurse's practice towards post-operative wound care

All 35 items involving nurses' practice were assessed. A correct practice was scored 1 and incorrect or undone procedure was scored 0. Total scores for overall practice and the scores were compared on socio-demographic characteristics. The calculated Nurses mean score was 16.42. Score below the mean was considered as a poor postoperative wound care and a score above was considered as a good practice. Although the cut point of 17 was not used since some practice items were not attained by all nurses.

However with this method of scoring all items in the checklist carry the same weight despite of difference in their importance in Post-operative wound care. Table 2 summarizes the results on practice scores with the socio-demographic characteristics.

In general, 30 participants (42.3%) had good practice on post operation wound care and more than half of participants (57.7%) had poor practice on post-operative wound care. Male participants scored higher score on post-operative wound care compared to their female counterparts, however there was no significant difference between scores ($P=0.803$).

Low post-operative wound care score was recorded for Participants aged 34 years and below. Nurses with 15 to 24 years and 25 to 34 years had 14.5 and 16.38 scores respectively. Higher scores were observed in participants aged 35 to 44 years (16.65%). There was no significant difference in practice scores between participants of different age group ($P=0.844$)

Undergraduate nurses had good practiced and scored higher compared to others. There was unsatisfactory post-operative wound care in nurses with diploma and poor practice in nurses with certificate level of education. There was a significant better practice between undergraduate nurses compared to diploma trained nurses ($P=0.003$). Moreover good post-operative wound practice was observed among undergraduate nurses compared to certificate holding nurses. ($P=0.006$)

However there was no significant difference in score between nurses having certificate training and those with diploma level of education ($P=0.907$). Registered nurses scored higher compared to enrolled nurses. There was no significant difference in scores between enrolled and registered nurses ($P=0.254$).

Table: 4.2 Practice scores with socio-demographic characteristics

Variable	Category	Mean	$\pm p$ -Value
Sex	Male	16.62	0.803
	Female	16.36	
Age (year)	15 to 24	14.5	0.844
	25 to 34	16.38	
	35 to 44	16.65	
	45 +	16.36	
Professional	Certificate	15.67	0.006 *
Education level	Diploma	16.02	0.907 †
	Degree	19.5	0.005 ¶
Job title	Registered Nurse	16.68	0.254
	Enrolled Nurse	15.67	

* *P-Value* for score between nurses with Certificate and degree

† *p-Value* for score between nurses with Certificate and Diploma

¶ *p-Value* for score between nurses with Diploma and degree

\pm (Independent sample t-test in comparing mean between sex and Job title, ANOVA was used in comparing mean difference between Age groups and Professional education level).

4.3 Assessment of nurses on post-operative wound care procedure – Preparation phase

As shown in figure 1 below, assessing the preparation phase for post-operative wound care. All nurses were able to make sure that the waste bag was within reach. 81.7% of respondents were able to discuss with the patient about the procedure. Assembling of all needed supplies was done by 64.8% of nurses. Nearly half of nurses washed their hands using running water before and after procedure. 43.7% of nurses assisted the patient to assume the comfortable position

None of the nurses ensured a clean and safe environment before commencing the procedure. Nurses didn't ensure that moping and dusting was done before dressing procedure started. The privacy of patients was not observed since none of the nurses closed nor screened the room before starting the procedure. The observation of lacking in ensuring privacy was due to absence of doors in the wards and scarcity of screen.

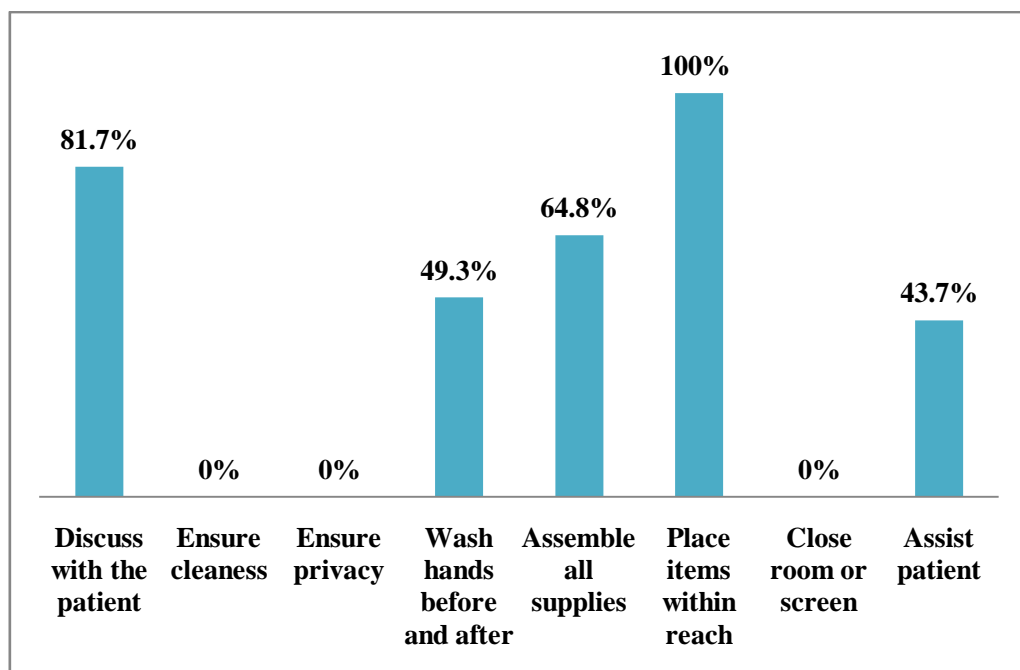


Figure: 4.1 Assessment of nurses on post-operative wound care procedure in percentage

Distribution of Nurses practice on post-operative wound care-Usage of dressing equipment

As shown in figure 2 below, the use of clean gloves by the nurses was observed, with 99% using them effectively. All nurses were able to remove old dressing leaving inner dressing, 99% used normal saline to soak and remove stuck dressing from the wound. 97% of the nurses disposed inner dressing and put them in the waste bag, 68% removed disposable gloves and the same number 68% put on a sterile glove. Usage of forceps in lifting inner dressing was observed by only half of respondents (52%) and less than half of nurses (48%) took time to observe and inspect the nature of the wound during dressing.

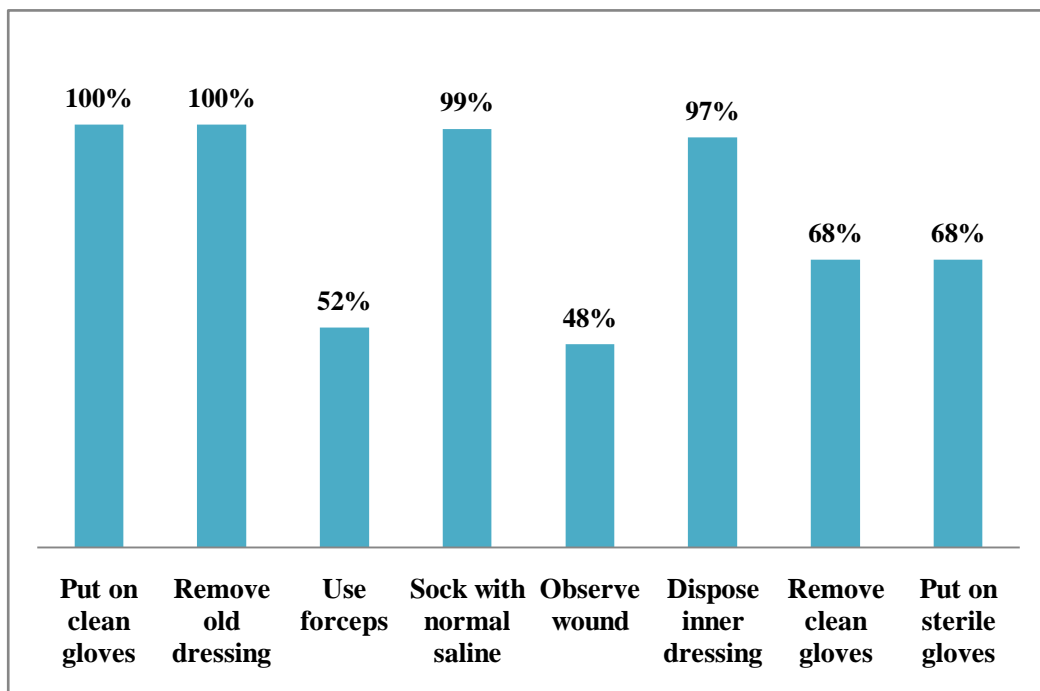


Figure 4.2 Distribution of Nurses practice on post-operative wound care- Usage of dressing equipment

Distribution of Nurses' practice on post-operative wound care-dressing phase

In figure 3 below, good practice was observed in applying dressing solution as prescribed by 85%, 87% poured antiseptic solution into the sterile receiver, 90% applied dry sterile dressing, and all nurses used tape as adhesive plaster or bandage. Less than 40% of the nurses arranged dressing forceps and other items in order to their application using forceps, 32% used forceps to dip gauze into antiseptic solution and 34% cleaned the wound from least contaminated to most contaminated area.

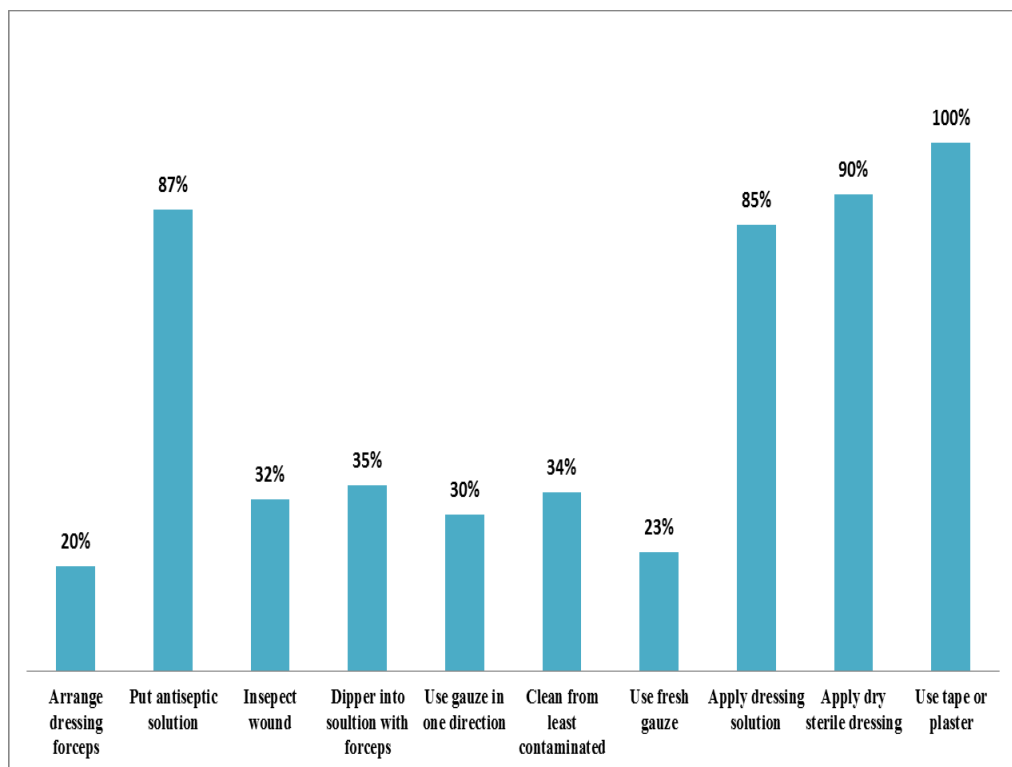


Figure 4.3: Distribution of Nurses' practice on post-operative wound care-dressing phase

Nursing practice on post-operative wound care-counseling and documentation

As shown in figure 4, all nurses cleaned all used equipment. Post-operative counseling and instructing the patient not to temper with the wound was done by only 15% of nurses. None of the nurses documented wound changes, reported patient comfort, neither recorded date nor time after the procedure.

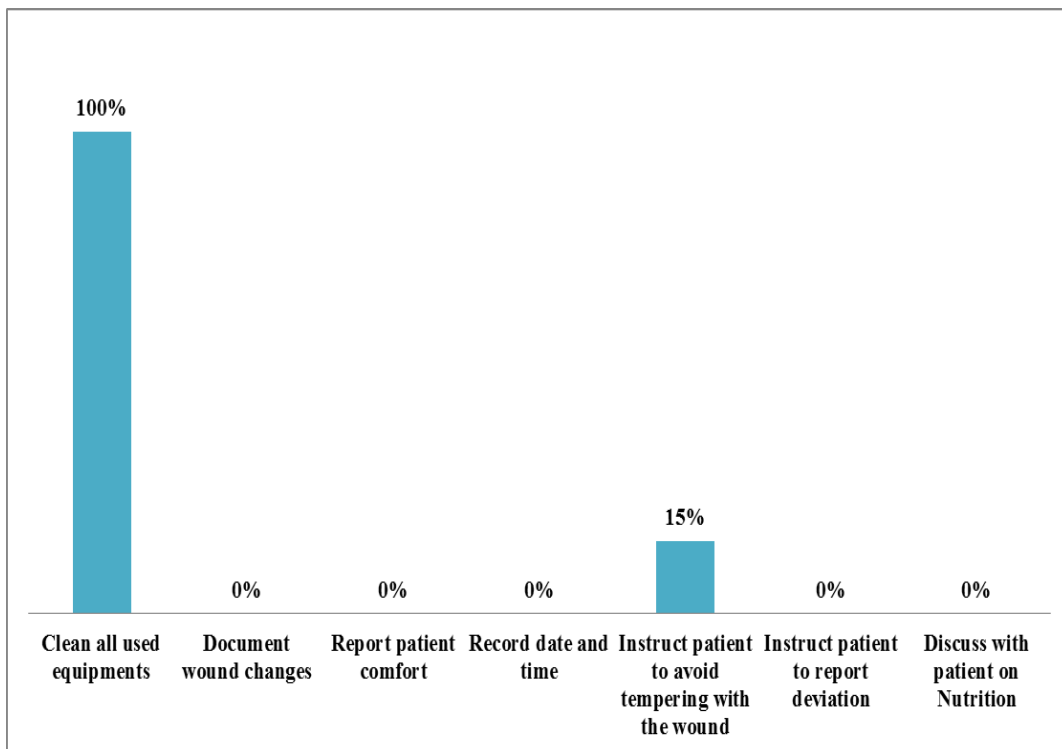


Figure 4.4: Nursing practice on post-operative wound care-counseling and documentation

4.4 Availability of dressing equipment

Table 5 below shows there was a good availability of items in the dressing pack. Non toothed forceps was available by 62% while 70.4% dressing towel was available in cases assessed.

Moreover, Artery forceps was not available at all in all assessed cases. In terms of dressing solutions, Normal saline, Spirit and Povidone were available though hydrogen peroxide and Eusol Solution was not available at all.

In general dressing equipments were available though there was scarcity of Masks, Plastic Aprons, Jar Cheatle, Cheatle forceps and Dressing Mackintosh. There were adequate clean and sterile gloves, drums, trolleys and containers for soiled items.

Table 4.1: Distribution of availability of dressing equipment

Item	Present (%)	Not present (%)
DRESSING PACK		
Toothed dissecting Forceps	71 (100)	-
Non toothed dissecting forceps	44 (62)	27 (38)
Dressing Towel	50 (70.4)	21 (29.6)
Gauze	69 (97.2)	2 (2.8)
Cotton Swab	68 (95.8)	3 (4.2)
Gall Pot	70 (98.6)	1 (1.4)
Kidney Dish	69 (97.2)	2 (2.8)
Artery Forceps	-	71 (100)
DRESSING SOLUTION		
Normal Saline	71 (100)	-
Spirit	71 (100)	-
Eusol Solution	-	71 (100)
Hydrogen Peroxide	-	71 (100)
Povidone	71 (100)	-
DRESSING EQUIPMENTS		
Trolley	60 (84.5)	11 (15.5)
Mask	-	71 (100)
Drum	71 (100)	-
Plastic Apron	-	71 (100)
Sterile Gloves	60 (84.5)	11 (15.5)
Bandage	67 (94.4)	4 (5.6)
Container for Soiled Items	71 (100)	-
Cheatele Forceps	-	71 (100)
Jar Cheatele	-	71 (100)
Dressing Macintosh	10 (14.1)	61 (85.9)
Clean Gloves	71 (100)	-

4.5 Assessment of nurses on Proper usage of Available dressing material

Table 6 below shows the prevalence of Nurses who had a proper usage of dressing materials. In each item the prevalence of Nurses with improper usage of dressing materials was not indicated due to importance to ascertain the proper usage though it was used in calculating the association between Proper usages of dressing materials between registered and Enrolled Nurses. Results shows that registered nurses demonstrated better usage of dressing material than enrolled nurses. Almost all nurses placed the waste bag for soiled items within reach, dusted trolley for carrying equipment, usage on dressing solutions, usage of forceps in wound dressing and usage of fresh gauze to dry the wound. However enrolled nurses performed better than registered ones in the usage of gloves, and gauze in one direction. There was no statistical significant difference in usage of dressing materials between registered and enrolled nurses in all procedures ($p>0.05$)

Table 4.2: Distribution of nurses on proper usage of available dressing materials

(Chi-square test to assess association on proper usage between registered and enrolled nurses)

Dressing material	Registered Nurses N (%)	Enrolled Nurses N (%)	Value
Dust dressing Trolley for carrying equipment	37 (69.8)	8 (44.4)	0.054
Place waste bag for soiled item within reach	48 (90.6)	3 (72.3)	0.53
Put on disposable (clean) gloves when open wound	39 (73.6)	15 (83.3)	0.402
Using toothed dissecting forceps to lift inner dressing off slowly	40 (75.5)	11 (61.1)	0.242
Use normal saline to sock the wound if dressing stick on the wound	47 (88.7)	17 (94.4)	.478
Pour antiseptic solution into sterile receiver (kidney dish or gall pots)	41 (77.4)	11 (61.1)	.027
Put on sterile gloves while dressing the wound (Use one glove for one patient)	29 (54.7)	9 (50)	.62
Clean the wound by using forceps (non-toothed dissecting forceps)	18 (34)	4 (22.2)	.414
Use single sterile gauze in one direction only	12 (22.6)	8 (44.4)	167
	28 (52.8)	5 (27.8)	0.061
Apply dressing solution as prescribed	60 (84.5)	11 (15.5)	0.262
Apply dry sterile dressing	53 (74.6)	18 (25.3)	-

CHAPTER FIVE

5.0 DISCUSSION OF RESULTS

This chapter discuss the nurses practice on post-operative wound care among patients attending Muhimbili National Hospital.

5.1 Demographic characteristics

A total of 71 nurses were included in this study. Of those three quarters were female. This high percent of females in the study can be explained by the dominance of nursing profession in Tanzania. Majority of respondents (40.8%) were of age group between 25 to 34 years. Less than 3% of nurses had less than 24 years. Sixty percent of nurses had diploma level of education. This can be explained by few enrollments of nurses in degree programs. This study also demonstrates that nearly seventy percent of nurses were registered and this could be due to the diploma level of education, and the fact that MNH is a referral hospital.

5.2 Practice on post-operative wound care

In general only 42.3% of nurses had good practice on post-operative wound care with more than half demonstrating bad post-operative wound practice. This could be attributed by scarcity of dressing materials, such as sterile gloves and non-toothed dissecting forceps. Some of the procedures were no done by Nurses, for example Nurses didn't ensure privacy due to lack of doors and scarcity of Screens in the wards. This is contrary to studies done by Leanne Cook (2011) and Schultz & colleagues that demonstrate accepted level of good post-operative wound care. Poor post-operative wound care can be attributed by lack of proper education on wound care and shortage of nurses. This could also be due to non-adherence to the wound dressing checklist issued by the MNH. Similar results have been documented in the study that was done by Leanne Cook (2011) in UK.

Interviewing nurses could have been one of the method in assessing their adherence and knowledge on Post-operative wound care Guidelines that have an impact on their practice.

Male nurses scored better on postoperative wound care compared to female ones with no statistical significant difference. Younger nurses had poor postoperative wound care compared to older ones with no statistical significant difference. This is be attributed by lack of experience in nursing care and most of them had having low levels of professional education. Some studies done by Elizabeth and colleagues (2005) in USA demonstrated that old nurses had good post-operative wound care compared to young ones of which it demonstrated by an increase in percentage of good practice with increase in age. The same results demonstrated that aged nurses had good practice due to experience in wound management of which participants who had more than three years of experience had better practice compared to inexperienced ones Leanne Cook (2011). And the same results are demonstrated by Christine (2010) that showed better practice in aged nurses.

Undergraduate nurses scored higher and had good practice compared to those having diploma and certificate level of education, however there was no significant difference in practice among nurses who had certificate and diploma level of education. Good post-operative wound care practice in undergraduate nurses could be attributed by education that they acquired or due to the fact that they are experienced. Similarly some studies have stressed on the importance of education in promoting better post-operative wound care, Caroline in UK (2009) and Leanne Cook (2011).

Registered Nurses scored higher and had a good postoperative wound care compared to enrolled ones though it did not show statistical significant difference. This could be due to high level of education that they had and good practice in post-operative wound care. With emphasis complete holistic approach should be performed to highlight the etiology of the wound and factors that contribute to healing as insisted by Leanne Cook (2011)

This study demonstrates that Nurses didn't ensure privacy while attending to patients as none of them screened before doing the procedure. This could be due to lack of enough

screens to cater for the needs of all patients, unfavorable environment for procedures as the wards were overcrowded. The same findings have been demonstrated by the study done by Hanna (2011) in KCMC Tanzania that showed the problem of overcrowding and difficulties in ensuring privacy for patients. Poor practice that could lead to contamination was observed as no nurse ensured a clean environment before the procedure and only half of them washed their hands before and after the procedure.

There was good use of clean gloves which is good for personal protection though 37% of nurses didn't change to sterile gloves on wound dressing. This demonstrates poor practice and could lead to wound infections. Wound dressing is a non-touch technique hence use of forceps was expected throughout the dressing procedure. The results showed that only half of nurses used forceps in wound dressing. As explained earlier the reason for this could be due to lack of education and non-adherence to wound dressing checklist. Wound inspection was observed in only half of the nurses. This is contrary to a study done by Leanne Cook (2011) that demonstrated good practice in wound inspection before dressing that was done by 81% of participants.

Nurses demonstrated poor wound dressing techniques. Only 30% of nurses used single gauze in one direction. This is a source of wound infection. Moreover only 23% of nurses used clean gloves when cleaning the wound and only 35% of nurses cleaned the wound from the less contaminated area to the most contaminated one. These findings demonstrate poor wound dressing practice. This study also demonstrates poor documentation after wound assessment and dressing as none of the nurses documented the time and data after wound assessment. Only 15% of nurses took time to instruct the patients not to temper with the wound after the dressing.

5.3 Assessment of available dressing material

The dressing packs supplied were not adequate for the number of patients. There was good availability of toothed forceps, Cotton swab and Gauze, and kidney dish. Dressing towels were accessible to only 70.4% of nurses. Artery forceps were not available at all.

Eusol solution and Hydrogen peroxide solution were not available at all but there was a good availability of normal saline and Spirit.

Many dressing equipments were available though there were scarcity of Masks, Plastic Aprons, Jar Cheatle, Cheatle forceps and Dressing Macintosh. There was a good availability of clean and sterile gloves, Drum Trolleys and Containers for soiled items. Unavailability of dressing material could be attributed to low economic power of the MNH Hospital to purchase there items.

These findings are different to the study done in UK and USA by Caroline in UK (2009) and Leanne Cook (2011) that demonstrated a better usage of dressing materials.

5.4 Proper usage of Available dressing material

Registered nurses demonstrated better usage of dressing material than enrolled ones. This could be attributed to good education attained and experience in wound dressing. The same results on influence of education and experience in good usage on dressing materials was shown in studies done in KCMC Tanzania by Hanna (2011) and Christine (2010). There was proper use of waste bags for disposing soiled items within reach, proper dusting trolley for carrying equipment, usage on dressing solutions, usage of forceps in wound dressing and usage of fresh gauze to dry the wound.

However enrolled nurses performed better than registered ones in Usage of gloves and usage of gauze in one direction.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Majority of the respondents in this study 55 (76.5%) were female nurses. Most of them (40%) were of age group between 25 to 34 years old. Regarding level of education most (60.6%) of nurse reported to have diploma level of education. Nearly three quarterly (74.6%) were registered nurses. More than half of participants (57.7%) had poor post-operative wound care practice. Male participants scored higher on post-operative wound care compared to their female counterparts, however there was no significant difference between scores ($P=0.803$).

All nurses were able to make sure that the waste bag was within reach. 81.7% of respondents were able to discuss with the patient about the procedure. Assembling of all needed supplies was done by 64.8% of nurses. Nearly half of nurses washed their hands before and after procedure. All nurses were able to remove old dressing leaving inner dressing, 99% used normal saline to soak and remove stuck dressing from the wound. 97% of the nurses disposed inner dressing and put them in the waste bag, 68% removed disposable gloves and 63% put on a sterile glove

Good practice was observed in applying dressing solution as prescribed by 85%, 87% poured antiseptic solution into the sterile receiver, 90% applied dry sterile dressing, and all nurses used tape as adhesive plaster or bandage. There was a good availability of items in the dressing pack. Non toothed forceps was available by 62% while 70.4% dressing towel was available in cases assessed.

Although almost half of the nurses do not wash hands before and after the procedures, they don't use single gauze in one direction only, don't clean wounds from least contaminated to most contaminated area, which can lead to wound contamination.

Majority of the nurses do not follow the postoperative wound care checklist provided although they know it is important. This was attributed by lack of some dressing materials and various equipments.

Assessment of the wound and documentation continues to be a problem in the nursing profession. Results also show lack of relevance of the tool some items in the guidelines were not followed by majority of nurses.

6.2 Recommendations

Ministry of health and social welfare should increase economic power of the MNH to purchase items to ensure adequate supply of dressing materials including dressing packs, toothed forceps, cotton swabs, gauze, kidney dishes, dressing towels, artery forceps, eusol solution and Hydrogen peroxide solution, normal saline and spirit. Also adequate supply of masks, plastic aprons, jar cheatle, cheatle forceps and dressing mackintosh, clean and sterile gloves, drum trolleys and containers for soiled items. It should also ensure that nurses caring with patients with wounds have refresher course to update them on issues of personal and patient protection from infection through infection control and prevention seminars.

Inadequate wound care was found to be associated with nurse's non-adherence to wound dressing checklist. Therefore nurse supervisors should encourage clinical nurses to adhere to the wound dressing checklist issued by the MNH. This can also be accompanied by in-service training of nurses through regular seminars and workshops aimed to remind nurses about the use of the checklist in order to promote better post-operative wound care. On the other side of the coin, Nurses should ensure that they practice wound care according to the available guidelines, policies and procedures. They should be aware that wound care

guidelines, and protocols are there for them to use and they should be ready to read them and apply them regularly and whenever they are caring for a patient with wound

Muhimbili National Hospital should recruit an adequate number of nurses to cope with workload and number of patients. Adequate number of nurses will enable nurses to have more time to prepare equipment and to assess, plan, implement and evaluate care of the patients with wound.

Ministry of Health and Social Welfare should ensure that nurses are more trained at least to undergraduate level of nursing education. This can be achieved by providing more learning opportunities to nurses accompanied by sponsorships from the Ministry of Health and Social Welfare and sophisticated access to loan from Higher Education Loan Board (HELBS).

Lastly, further research is recommended to be undertaken in various contexts similar to and different from this study. Studies are recommended which incorporate larger and more diverse samples of nurses in order to have a wide understanding about this phenomenon

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APPENDICES

APPENDIX 1: Wound Care Checklist

Form No.....

SECTION ONE: DEMOGRAPHIC INFORMATION

1. Age of respondent

(a) 15-24

(b) 25-34

(c) 35-44

(d) 45-54

2. Sex

(a) Male

(b) Female

QUALIFICATION

3. Education

(a) Secondary (o- lever)

(b) Secondary (A – lever)

(c) College

(d) University

4. Highest level of nursing education

(a) Certificate

(b) Diploma

(c) Degree

5. Job title (please mark only one)

(d) Registered nurse

(e) Enrolled nurse

APPENDIX I: Continued**NURSING PRACTICE ON POST OPERATIVE WOUND CARE****SECTION TWO**

N	CHARACTERISTICS TO BE OBSERVED	PERFORMANCE		
		YES	NO	
1	Discussion with a patient about the procedure			
2	Ensure cleanliness and safety of environment			
3	Ensure privacy			
4	Wash hands before and after procedure			
5	Assemble all needed supplies			
6	Place waste bag for soiled items within reach			
7	Close room or cubicles curtain or screen around			
8	Assist client/ patient assume comfortable position			
9	Put on disposable gloves and open wound			
10	Removing old dressing leaving inner dressing ,			
11	Use forceps ; lift inner dressing off slowly			
22	If dressing stick on the wound sock with normal saline			
13	Observe and inspect nature of wound			
14	Dispose of inner dressing and put them in the waste bag			
15	Removal of disposable gloves			

16	Arrange dressing forceps; scissors and receiver in order of their application using forceps			
17	Pour antiseptic solution into sterile receiver			
18	Put on sterile gloves			
19	Inspect the wound and clean it			
20	Using forceps and gauze dip into antiseptic solution			
21	For each stroke of cleaning use single gauze in one direction only to avoid maximally wound contamination.			
22	Clean from least contaminated to most contaminated area			
23	Use fresh gauze to dry the wound			
24	Apply dressing solution as prescribed			
25	Apply dry sterile dressing			
26	Use tape or adhesive plaster or bandage			
27	Clean all used equipment and supplies			
28	Document wound changes and client's response			
	Communicate aspects			
29	Report patients level of comfort			
30	Record data and time of dressing			
31	Observe and record any changes in the wound			
	Teaching aspect			
32	Instruct the patient /relative to avoid tempering with the wound			
33	Instruct the patient and family to report any deviations from normal on the wound			
34	Discuss with the patient and significant others on nutritional			

APPENDIX 1: Continued**ASSESSMENT OF AVAILABLE DRESSING MATERIALS****SECTION THREE**

	TYPES OF DRESSING MATERIALS	YES	NO
1	Trolley		
2	Toothed dissecting forceps		
3	Non toothed dissecting forceps		
4	Cheatle's forceps		
5	Jar cheatle		
3	Drum		
4	Gauze		
5	Cotton swabs		
6	Dressing towel		
7	Dressing mackintosh		
8	2, gall pots		
9	2 kidney dishes		
10	1, Artery forceps		
11	Mask		
12	Plastic Apron		
13	Sterile gloves		
14	Clean gloves		
15	Normal saline		
16	Spirit		
17	Eusol solution		
18	Hydrogen peroxide		
19	Povidone/ iodine		
20	Container for soiled items		
21	Plaster		
22	Bandages		

APPENDIX I:Continued**ASSESSMENT ON PROPER USE OF THE AVAILABLE DRESSING MATERIALS****SECTION FOUR**

SN	DRESSING MATERIALS	PERFORMANCE	
		YES	NO
1	Dust dressing Trolley for carrying equipment		
2	Place bag for soiled item within patient reach		
3	Put on disposable (clean) gloves when opening wound		
4	Using toothed dissecting forceps to lift inner dressing off slowly		
5	Use normal saline to sock the wound if dressing sticks on the wound		
6	Pour antiseptic solution into sterile receiver (kidney dish or gall pots)		
7	Put on sterile gloves while dressing the wound(Use one glove for one patient)		
8	Clean the wound by using forceps (non toothed dissecting forceps)		
9	Use single sterile gauze in one direction only		
10	Use fresh gauze to dry the wound		
11	Apply dressing solution as prescribed		
12	Apply dry sterile dressing		
13	Use tape or adhesive plaster to secure dressing		

APPENDIX II: Informed Consent

ENGLISH VERSION



**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
DIRECTORATE OF RESEARCH AND PUBLICATIONS, MUHAS
CONSENT FORM**

ID NO

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Consent to participate in a study: entitled “**NURSING PRACTICE ON POST OPERATIVE WOUND CARE IN SURGICAL WARDS AT MUHIMBILI NATIONAL HOSPITAL**”

Greetings! My name is Adela Abel Mwakanyamale, a 2nd year Masters student of Science Nursing Critical Care and Trauma at Muhimbili University of Health and Allied Sciences (MUHAS), working on this research project with the objective of assessing nursing practice on post operative wound care .

Purpose of the study

The main purpose of the study is to investigate how nurses at Muhimbili National Hospital practice wound care.

Participation in this study

Registered and enrolled nurses working in surgical ward at MNH.

Confidentiality

All information collected during this study will be kept strictly confidential and will not be revealed to anybody outside the research team

Risks

We do not expect any risk while participating in this study

Rights to withdraw

Taking part in this study is completely voluntarily. You can withdraw at any point of the study even if you had consented

Benefits

No benefits in terms of money payments to the hospital. However the information that will be collected in this study will be beneficial in helping the strategies laid down in Tanzania to meet the fourth Millennium development goal of reducing mortality rate

Compensation

There will be no compensation of any form for participation in this study.

Who to contact:

In case of any questions about the study contact the principal investigator Adela Abel Mwakanyamale, Muhimbili University of Health And Allied sciences Po. Box 65000 Dar es salaam.Tel 0784 512046

If you ever have questions about your rights as a participant, you may call Prof. Mainen J. Moshi, Chairman of the Senate Research and Publications Committee. P.O. Box 65001, Dar es Salaam. Tel 2150302-6 215248

I _____ have read and understood the contents of this form, My questions have been answered, and I consent to participate in this study.

Signature of participant

Signature of researcher

APPENDIX III: Informed Consent**SWAHILI VERSION**

**CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI
IDARA YA UTAFITI NA USAMBAZAJI WA TAARIFA ZA UTAFITI**

FOMU YA IDHINI YA KUSHIRIKI UTAFITI

Namba ya Utambulisho

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Idhini ya kushiriki katika utafiti unaohusu “HUDUMA WANAYOTOA WAUGUZI KWA WAGONJWA WALIO NA VIDONDA BAADA YA KUFANYIWA UPASUAJI KATIKA WODI WANAZOLAZWA WAGONJWA WA UPASUAJI KATIKA HOSPITALI YA RUFAA YA MUHIMBILI”

Salaam! Jina langu ni Adela Mwakanyamale, mwanafunzi wa mwaka wa pili wa shahada ya Uzamili (MSc, critical care and trauma) katika Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, nina fanya kazi ya utafiti huu nikiwa na dhumuni la kutathmini huduma wanayotoa wauguzi kwa wagonjwa waliona vidonda baada ya kufanyiwa upasuaji katika wodi wanazolazwa wagonjwa wa upasuaji katika hospitali ya rufaa ya Muhimbili.

Lengo la Utafiti:

Thumun kuu la utafiti nikutathmini huduma wanayotoa wauguzi kwa wagonjwa waliona vidonda baada ya kufanyiwa upasuaji katika wodi wanazolazwa wagonjwa wa upasuaji katika hospitali ya rufaa ya Muhimbili.

Ushirikikatika Utafitihuu:

Utafiti huu utahusish awauguzi waliosajili wanaofanya kazi kwenye wodi za wagonjwa waliofanyiwa upasuaji katika hospitali ya rufaa ya Muhimbili.

Usiri:

Taarifa zote zitakazotolewa/kupatikana katika utafiti huu zitahifadhiwa na kulindwa kwa siri na hazitaonyeshwa wala kutolewa kwa mtu yeyote asiye miongoni mwa watafiti.

Madhara:

Hatutarajii kuwa madhara yeyote yanaweza kukupata iwapo utashiriki katika utafiti huu.

Haki ya Kujiondoa katika Utafiti/Vinginevyo:

Kuhusika kwako hakika ni uchaguzi wako. Unaweza kuacha kushiriki katika utafiti huu muda wowote hata kama umeshapatiwa fomu ya idhini ya kushiriki.

Fidia:

Hakuna fidia au malipo ya kifetha itakayotolewa kwa wale watakaohusika kwenye tafiti hii. Hata hivyo mhusika anahaki ya kujitoa au kutokuendelea kwenye tafiti hii .Jeleweke kwamba kusaini fomu ya ridhaa hakumzuii mhusika kujitoa kwenye utafiti kwa namna yoyote ile na hata pale mtu atakaporidhia kujitoa hakuna hatua zozote za kisheria zitatolewa au kunyimwa haki yoyote ile inayotokana na majukumu yake.

KwaMawasiliano:

Kama una maswali kuhusu utafiti huu, wasiliana naMtafiti; bibi, Adela Mwakanyamale, simu- 0784- 512046, kutoka Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, S.L.P. 65001 Dar es Salaam. Kama una maswali zaidi kuhusu haki zako za kushiriki katika utafiti huu, wasiliana na Prof. Mainen J. Moshi; Mwenyekiti wa Baraza la Tafiti na Machapisho, S.L.P. 65001, Dar es Salaam. Simu- 2150302-6 2152489.

Sahihi:

Kukubali kwa Mshiriki.....Kukataa kwa Mshiriki

Mimi _____ nimeisoma nakuielewa fomu hii ya idhini ya kushiriki. Maswali yangu yamejibiwa na nakubali kushiriki katika utafiti huu.

Sahihiya Mshiriki _____

Sahihi ya Mtafiti _____

Tarehe _____

APPENDIX IV: Ethical Clearance Letter

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED
SCIENCES**

Directorate of Postgraduate Studies

P.O. BOX 65001
DAR ES SALAAM
TANZANIA.

Website: <http://www.muhas.ac.tz>



Tel: +255-(0)22-2150302 Ext 207.
Tel (Direct): +255-(0)22-2151378
Telefax: 255-(0)22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. MU/PGS/SAEC/Vol. VI/

27th May, 2013

Ms. Adela Abel Mwakanyamale,
MSc. Nursing Critical Care and Trauma,
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED "NURSING PRACTICE ON POST OPERATIVE WOUND CARE IN SURGICAL WARDS AT MUHIMBILI NATIONAL HOSPITAL, DAR ES SALAAM, TANZANIA"

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has on behalf of the Senate approved ethical clearance for the above-mentioned study.

Thus ethical clearance is granted and you may proceed with the planned study.

Please liaise with bursar's office to get your research fund.

Prof. O. Ngassapa
DIRECTOR, POSTGRADUATE STUDIES

/emm

cc Vice Chancellor, MUHAS
cc Deputy Vice Chancellor – ARC, MUHAS
cc Dean, School of Nursing, MUHAS.

APPENDIX V: Permission Letter**MUHIMBILI NATIONAL HOSPITAL**

Cables: "MUHIMBILI"
 Telephones: 255-22-2151367-9
 FAX: 255-22-2150234
 Web: www.mnh.or.tz



Postal Address:
 P.O. Box 65000
 DAR ES SALAAM
 Tanzania

In reply please quote:
 Ref:

31ST MAY 2013

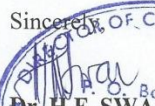
TO WHOM IT MAY CONCERN
MUHIMBILI NATIONAL HOSPITAL

RE: RESEARCH CLEARANCE NO 353 2013/2014

Name of Researcher	ADELA AMOSI MWAKANYAMALE
Research Title	NURSING PRACTICE ON POST OPERATIVE WOUND CARE IN SURGICAL WARDS AT MNH, DAR-ES-SALAAM
Type of Research	QUANTITATIVE DESCRIPTIVE CROSSECTIONAL STUDY
Valid Between	JUNE 2013 AND AUGUST 2013

The above named has been allowed to conduct the stated research.

Please accord him/her and his/her assistants the necessary assistance/cooperation.

Sincerely,

 P. O. Box 65000
 DAR ES SALAAM
DR. H.E. SWAI
DIRECTOR OF MEDICAL SERVICES

