School Of Nursing Sciences

College Of Health Sciences

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Topic: *Factors Affecting Provision Of Oral Care By Nurses In The Intensive Care Unit At The Kenyatta National Hospital.*

Thesis Submitted In Partial Fulfillment For The Award Of The Degree Of Master of Science In Nursing (Critical Care)

By:
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Declaration

I declare that this is my original work and has not been presented to any other training institution.
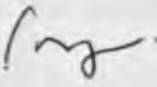
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Dedication

I dedicate this research work to my family for their constant encouragement,

support and inspiration while undertaking this study.

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List of Abbreviations

BScN - Bachelor of Science in Nursing.

HDU - High Dependency Unit.

ICN[1] - International Council of Nurses.

ICN[2] – Intensive Care Nurse.

ICU - Intensive Care Unit.

KNH - Kenyatta National Hospital.

KMTC - Kenya Medical Training College

KRCHN - Kenya Registered Community Health Nurse.

MScN -Master of Science in Nursing.

VAP -Ventilator Associated pneumonia.

NB. ICN[1] - Appears first in the literature.

Operational Definitions.

Critical care nursing: That specialty within nursing that deals specifically with human responses to life-threatening problems. A critical care nurse is a licensed professional nurse who is responsible for ensuring that acutely and critically ill patients and their families receive optimal care.

Intensive care: To provide care for severely ill patients with potentially reversible conditions or to provide care for patients who require close observation and/or specialized treatments that cannot be provided in the general ward.

Intensive care unit (ICU): Refers to Intensive Care unit and High Dependency Unit at the Kenyatta National Hospital.

Oral care: Oral care/hygiene is the practice of keeping the mouth clean and healthy by brushing and flossing to prevent tooth decay and gum disease.

Nursing: Nursing is an applied science, which has a unique body of knowledge that utilizes principles from the physical, biological, and behavioral sciences. The central concern of nursing is the holistic person. The focus of nursing is health promotion, maintenance, curative, restorative, supportive and terminal care to individuals and groups of all ages, taking into consideration the factors that influence them in the total environment (The ICN[1] Definition of Nursing).

Quality of oral care: Based on each techniques relative ability to maintain a hygienic oral cavity and lower the risk of infection (Day 1993, Kite & Pearson 1995, Pearson 1996, Fitch et al; 1999; Stiefel et al. 2000; Evans 2001, Pearson & Hutton 2002, Schelder & Lloyd 2002).

Abstract

Background: Intensive care unit (ICU) patients have complex oral care needs. Inadequate oral care may predispose ICU patients to nosocomial infections. Recent initiatives have sought to improve the quality and evidence base of ICU oral care provision.

Objectives: To identify factors that affect the quality of oral care in the ICU at KNH.

Methods: This was a descriptive cross-sectional survey. A total of 100 nurses working in the ICU were asked to participate in the study. 80 agreed to participate with 75 returning properly filled questionnaires giving a response rate of 94%. The study took 6 months from the development of the proposal to final presentation.

Results: The Bivariate correlation shows that nurses' oral care education, having sufficient time to provide care and not viewing oral care as an unpleasant task had direct effects on the quality of care provided.

Conclusion: Improving the quality of oral care in intensive care unit is a multi-layered task. Reinforcing proper oral care in education programmes, desensitizing nurses to the often perceived unpleasantness of cleaning oral cavity, and working with hospital managers to allow sufficient time to attend to oral care are recommended.

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Chapter One: Introduction

1.1 Background information

Patients in the Intensive Care Unit (ICU) have very specific care needs, demanding the highest standard of professional care. Frequently, the life saving nature of the ICU means the patient's oral care takes low priority. A patient's individual requirements for oral care should be taken into consideration as part of the admission assessment (Jenkins1989). Usually nursing care for critically ill patients includes some type of oral care, as the nurse has the responsibility for assessing, planning, implementing, and evaluating each patient's oral care needs. However, this does not always occur. Oral hygiene practices performed by nurses have been reported to be inconsistent and highly variable (Treloar and Stechmiller1995).

ICU patients may require oral intubation to maintain a patent airway. However, it has been reported that an endotracheal tube can induce potential complications for a patient (Barnason, Graham and Wild 1998). Patients in our critical care units are unable to maintain their normal oral hygiene routine. After a patient has been intubated for several days without an adequate oral hygiene routine, the bacterial flora in the mouth can change resulting in predisposition to oral infections and gum diseases

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1.2 Problem statement

Care of the mouth is an important nursing procedure and should be performed as part of the routine general hygiene of a patient. Nurses play an important role in providing effective oral care and promoting oral hygiene. However, oral hygiene has often been overlooked and performed on an ad hoc basis. In some instances, it has become a ritualistic and banal activity. Sporadic research has generated conflicting advice. Furthermore, it was reported that the delivery of oral care within institutional settings is fragmented (Roberts, 2001).

Hixson, Sole & King. 2000 noted that even though oral hygiene is considered standard nursing it is often neglected in critically ill patients or performed quickly by swabbing the mouth. The lack of published protocols for oral care in intubated patients has been noted in the nursing literature.

Comprehensive oral care is an evidence-based prevention strategy to reduce the risk of ventilator-associated pneumonia in patients receiving mechanical ventilation. Until recently, no comprehensive guidelines or standards existed to define necessary tasks, methods, and frequency of oral care to provide patients with optimal results.

Despite the presence of essential tools that can be used for oral assessment in ICUs, they are often not used. This may be due to lack of time or knowledge on the part of the bedside nurse as well as the lack of assistance for nurses in identifying particular problems such as Candida or herpes simplex infections (Porter 1994).

No research has been done in Kenya regarding oral care in intubated patients. The purpose of the study was therefore to describe factors associated with providing oral care in ICU at the Kenyatta National Hospital (KNH).

1.3 Justification

The study of Fitch, Munro and Glass (1999) provides some weak evidence that a mouth care protocol incorporating brushing of the teeth, gums and tongue confers some benefit in reducing inflammation of the oral mucosa. Such practices may also promote greater patient comfort and reduce the risk of VAP, but these outcomes have not been studied. Unfortunately, although the importance of oral hygiene has been stressed (McNeil 2000; Howarth 1977) little has been done about the effects of oral care interventions in critically ill patients. The lack of published protocols ensures that there is no uniformity in the way oral care is given to patients. It can, therefore, be suggested that oral care is an important component of intensive care nursing that is often ignored due to various factors.

Though little has been done in Kenya, research has been done elsewhere and shows the usefulness of oral care (Allen, Binkley, McCurren & Carrico 2004, Abidia 2007) and the multifaceted nature of factors affecting its outcome. This study sought to identify factors that affect the provision of oral care. The results can form a basis for further research to address these factors and help to standardize the care given to all patients.

1.4 Research questions

1. Is the quality of oral care affected by nurse factors?

2. Does the level of education of the nurse affect the quality of oral care provided?

1.5 Objectives

1.5.1 Broad objective

To investigate factors that affect the provision of quality oral care by nurses in the ICU at KNH.

1.5.2 Specific objectives

1. To determine the nurses' education and professional background.

2. To document the frequency of oral nursing care provision in the ICU at KNH.

3. To identify the resources available for oral care in the ICU at the KNH.

4. To determine the nurses' perception of the hospital's support in provision of oral care.

1.6   Hypotheses

Six research hypotheses in line with the objectives were postulated and tested:

1. Experience of nurses has no influence on the quality of oral care.

2. The level of education has no influence on quality of oral care

3. Availability of supplies does not affect the quality of oral care.

4. Availability of time has no effect on the outcome of oral care.

5. The priority given to oral care does not affect its quality.

6. The level of unpleasantness of providing oral care has no effect on quality of
   oral care.

Chapter Two: Literature Review

2.1 Introduction

Oral health is influenced by oral microbial floras, which are concentrated in dental plaque (Mojon 2002). Dental plaque provides a microhabitat for organisms and an opportunity for adherence of the organisms to either the tooth surface or other microorganisms. In critically ill patients, potential pathogens can be cultured from the oral cavity. These microorganisms in the mouth can translocate and colonize the lung, resulting in ventilator-associated pneumonia (Mehta & Niederman 2002). The importance of oral care in the intensive care unit has been noted in the literature, but little research is available on mechanical or pharmacological approaches to reducing oral microbial flora via oral care in critically ill adults. Most research in oral care has been directed toward patients' comfort; the microbiological and physiological effects of tooth brushing in the intensive care unit have not been reported. In addition, no evaluation of the effectiveness of pharmacological and mechanical interventions relative to each other or in combination has been published. Additional studies are needed to develop and test best practices for oral care for critically ill patients.

2.2 Problems Associated with Oral Intubation

With severe illnesses the bacterial strains naturally present in the mouth can shift from being predominately gram-positive normal flora to anaerobic gram-negative strains. (Treola and Stechmiller 1995, Abele Hom, Dauber & Baunerfeind 1997). Because organisms that colonize in the mouths of critically ill patients are virulent compared

colonize in the mouths of critically ill patients are virulent compared with organisms the mouths of healthy individuals, the potential for infection is increased (Jenkins 1989). Critically ill patients also have impaired immunological deficiencies and may be unable to respond to bacterial invasion of the lungs (Treola and Stechmiller 1995). Pathogens commonly responsible for nosocomial pneumonia in ICU patients were found to colonize in the dental plaque and oral mucosa of these patients (Scannapieco and Stewart 1992). Therefore, good oral hygiene measures may prevent the spread of infection from the oral cavity to the lower respiratory tract (McNeil 2000).

Assessment of the oropharynx and maintaining a favorable level of hygiene are difficult tasks to perform in both critically ill and intubated patients due to lack of access to the oral cavity (Liwu 1990). The orally intubated patient is at an even greater risk of colonization of organisms because mouth care is often hampered by the presence of tape, tubes, and bite blocks (Treola and Stechmiller 1995). The oral endotracheal tube is required for ventilation and airway protection, but the position of the tube and any anchoring devices may obscure the view of the oral cavity and limit access, which hinders the actual process of cleaning (McNeil 2000). Dislodging or displacing the endotracheal tube may be life threatening (Treola and Stechmiller 1995). As a result, nurses are often reluctant to manipulate the tube for oral assessment and hygiene measures. In turn, fixation tapes quickly become heavily contaminated with pathogens in the presence of salivary disturbances and the difficulties associated with cleansing the mouth (Hayes and Jones, 1995). Oral

assessment and care of the mouth is even more difficult in patients requiring prolonged intubation (Jenkins 1989).

Another aspect of maintaining the oral health of intubated patients is the impact of the use of drugs or procedures required to treat their medical condition that may have a detrimental effect on the oral cavity (McNeil, 2000). An example is drugs that cause xerostomia (Horwood, 1990). Intubated patients are forced to keep their mouths open and this may lead to dryness of the oral mucosa (Hayes and Jones 1995; Kite and Pearson, 1995 and Buglass, 1995). It is also common practice in ICUs to keep patients dehydrated in order to improve respiratory and cardiac function (Kite and Pearson, 1995). However, this may also exacerbate xerostomia and increase the potential for oral infections (McNeil, 2000).

2.3 Oral care and its relationship to nosocomial infections

Pneumonia is the most common nosocomial infection in ICU's that significantly contributes to morbidity and mortality patterns (Torres, Aznar and Gatell 1990) ICU patients. The risk is as much as 21 times greater than among non-ventilated patients and the mortality rate in these patients may exceed 50% (Torres et al. 1990). It is generally accepted that micro-aspiration of respiratory pathogens that colonize in the mouth of both older and critically ill patients can be a contributor to the development of nosocomial infections, particularly pneumonia (Scannapieco, Stewart and Myolette 1992; Fourrier, Duvivier and Boutigny 1998). Bacteria responsible for nosocomial pneumonia colonize the oral habitat of ICU patients (Scannapieco et al. 1992).

Mechanical ventilation involves the placement of an endotracheal tube into the lower airway. The bacteria that cause disease colonize the tube surface, which facilitates the transit of bacteria to the lung (Safdar, Cornish & Maki 2005). This is an important problem, not only because of increased mortality, but also because of the resulting extended length of hospital stay and the significant expansion of costs. Indeed, the onset of pneumonia can easily double the length of the patient's hospital stay.

The connection between oral health and VAP is rather straightforward. For pneumonia to develop, the pathogen must be aspirated from a proximal site (for example, the oropharyngeal cavity) into the lower airway. A person with teeth or dentures has non-shedding surfaces on which oral biofilms form. These biofilms are susceptible to colonization by respiratory pathogens (Scannapieco et al. 1992). Poor oral hygiene may predispose high-risk patients to oral colonization by respiratory pathogens. Subsequent aspiration would deposit these bacteria into the lower airway, thereby increasing the risk of infection. In addition, the host response to oral biofilms results in inflammation of the periodontal tissues. Thus, inflammatory products from the gingival tissues, as well as pathogenic bacteria shed from oral biofilms into the secretions, can be aspirated into the lower airway to promote lung infection (Scannapieco 1999).

Scannapieco and colleagues (1992) compared the colonization of dental plaque by respiratory pathogens in patients receiving treatment in medical intensive care units (ICUs) with that in matched, untreated control subjects. They examined the association between oral hygiene status together with other variables (for example,

antibiotic exposure) and the prevalence of oral colonization by potential respiratory pathogens. The results showed that patients treated in the ICU harbored greater levels of dental plaque than did the control subjects. Importantly, the authors found that bacterial pathogens known to cause pneumonia were prevalent only in the dental plaque of patients treated in the ICU. In some cases, up to 100 percent of the aerobic flora was *Staphylococcus aureus*, *P. aeruginosa* or one of several enteric species. In contrast, the dental plaque of control subjects rarely was colonized by respiratory pathogens. This finding suggests that the oral surfaces, especially dental plaque, could be a major reservoir of infection by respiratory pathogens in patients treated in the ICU.

2.4 Oral care practices:

Several oral care protocols have proved effective in reducing oropharyngeal colonization and nosocomial pneumonia risks. Chlorhexidine rinses and gels administration either two or three times daily have resulted in significant reductions in pneumonia in ICU patients (Fourrier et al. 2000). Generally, nurses have not been formally trained in assessing the oral status of patients in ICUs, and oral care protocols for these patients are not usually available (Fitch, Munro & Glass 1999). It has been recommended dental hygienists be involved in nursing education programs (Miller and Rubinstein, 1987) in order to improve the nurses' knowledge and ultimately their ability to provide better oral care. Fitch et al., 1999, recommended implementation of

a well-developed oral care protocol by bedside nurses to improve oral health of patients in the ICU (Table 1).

Table 1: Oral care protocol (Fitch et al 1999).

Preparation

1. Wash hands and don examination gloves.
2. Explain to the patient his/her mouth will be cleaned with toothpaste and mouthwash and then petroleum jelly will be applied to the lips.

Technique

1. Using a soft, pediatric-size toothbrush, brush the patient's teeth, gums, and tongue using Biotene® antibacterial dry mouth toothpaste. If the patient has no teeth, brush the gums and tongue gently.
2. If an airway (i.e., bite block) is present, remove, clean, and replace it after mouth care is completed.
3. If the patient is unresponsive and/or has clenched the mouth shut, use a mouth prop to gently open the mouth.
4. Rinse the toothpaste from the patient's mouth with an alcohol-free mouth rinse using an irrigation syringe or swab and suction as needed.
5. Apply Oral Balance moisturizing gel to a gloved finger and gently massage into the mucosal membranes of the patient's mouth.
6. With a gloved finger, apply petroleum jelly to the patient's lips.

Recently evidence based oral care protocols for ICU patients have been published; the protocols include oral assessment, tooth brushing with a child size brush, oral rinses and moisturizers every 2-6 hours (Schelder and Lloyd, 2002).

Some solutions and types of equipment used by nurses for oral care are not optimal (Kite and Pearson, 1995) Hydrogen peroxide and sodium bicarbonate effectively remove debris, but if not diluted carefully, may cause superficial burns. In a study conducted by Ttombes and Galluci (1993) using hydrogen peroxide, significant mucosal abnormalities were reported and numerous subjective complaints were made. Foam swabs, which are commonly used to provide mouth care to patients who cannot provide self-care, are effective for stimulation of mucosal tissues but are ineffective in removing plaque (Nesley 1996, Buglass 1995, Moore 1995, Adams 1996, Holmes 1996 and Dewalt 1975).

It has also been stated 0.9% saline or water are just as effective as mouthwashes (Jenkins 1989, Liwu 1990 and Horwood 1990). Disposable cotton swabs are often used for cleaning and moistening the patients' mouths and teeth in critical care units. Examples of these are lemons and glycerine swabs that stimulate production of saliva initially but are acidic, causing irritation and decalcification of teeth (Adams 1996, Holmes 1996, Meurman and Cate 1996) therefore, choosing less erosive products is important.

2.5 Oral Care Protocol for ICU Patients

Fitch et al (1999) in their study used a mouth protocol (Table 1). The oral care provided in their study was performed by nurses and differed from routine oral care in several ways. First, a pediatric toothbrush was used which had the advantage of being small enough to remove plaque yet not disturb oral tubes. Its soft bristles reduce the

potential for trauma and bleeding. In addition, the care products selected were alcohol-free and antibacterial to enhance the mechanical effects of oral cleansing without drying the mucous membranes.

In the Fitch et al. study Oral Balance moisturizing gel was applied to the mucous membranes and then petroleum jelly was applied to the lips to reduce tissue drying. The nurses were able to complete the entire protocol in less than five minutes and preferred this mouth care protocol to previous methods in use in the unit. The experimental protocol was effective in reducing inflammation, whereas routine oral care had a minimal effect on inflammation.

They concluded the provision of a well-developed oral care protocol by bedside nurses could improve the oral health of patients in the ICU. There were also positive correlations between scores for salivary flow, plaque, inflammation, bleeding, and purulence obtained by the nurses and scores obtained by the dental hygienist indicating nurses can appropriately assess the oral status of patients in the ICU in the study after proper training.

2.6 Factors influencing oral care in ICU

The literature reports that although sound oral care is efficacious in reducing infection, oral care may be under-used in ICU's. Nurse education in oral practice has remained relatively unchanged over the past 120 years (Turner and Lawler, 1999). Turner and Lawler concluded that oral care practices do not reflect the influence of more recent

conceptual or rhetorical standpoints on oral care in nursing. Researchers have found indicators of this dissonance. Observing a sample of English nurses, Adams (1996) concluded that nurses, including those fully qualified, lacked adequate knowledge about oral health.

The hospital environment has been demonstrated to promote (by the provision of support for health promotion) and hinder (via time limitations and lack of continuity of care) nursing care (Berland, Whyte & Maxwell 1995). Similarly has factors such as availability of supplies; equipments and allocation of time affect the type and quality of oral care given by the nurse (Kite, 1995; Moore, 1995).

The availability of appropriate toothbrushes influences their use in ICU's (Kite, 1995); however, many units stock mouthwashes and foam swabs rather than toothbrushes, or the toothbrushes provided are of poor quality, large and not readily accessible (Moore, 1995).

Having sufficient time to provide oral care is also an important factor. The current shortage of nurses (in most developing countries) may be responsible for many nurses reporting that they feel overworked- a critical barrier in providing quality patient care (Alken, Clarke & Sloane 2002). When nurses are overworked and their time is rationed, oral care is often the first practice to be deferred. Archilbald, Maaning & Bell (1997) investigated the relationship between nursing staffing, overcrowding and nosocomial infections rates and found that factors affecting nurse staffing had detrimental effects on patients' outcomes.

Nurses' attitudes towards particular health and treatment issues have been shown to affect nursing care (Roman, Sombes & Ezquerro 2001). Nurses' attitudes to oral hygiene have been associated with oral care practices as well. Wallace, Koeppel, Senko & Stawiaz 1997 studied the effects of nurses' attitudes and subjective norms on the intention to give oral care and found that they were important predictors of actual provision of care. Many nurses believe that oral health care carries low nursing priority (Wardh et al. 2000) and others recognize the importance of oral care yet believe that they lack adequate preparation and feel inadequate in their abilities to perform the procedure (Moore, 1995).

It can, therefore, be suggested that oral care is an important component of intensive care nursing that is often ignored due to various factors. The lack of published protocols ensures that there is no uniformity on the way oral care is given to patients. There is need, therefore, for research to be carried out to establish the current practice in oral care and look into ways of improving it.

Chapter Three: Methodology:

3.1 Study design

This was a descriptive cross sectional survey where a two-step analytical process was undertaken. First, several hypothesis were tested to determine the relationship between nurses' backgrounds, attitudes and perception of hospital factors and the quality of care in ICU. The level of significance was set at 0.05 (5%).

The second step of the analysis involved constructing regression equations to test the model proposed in Fig. 1.

3.2 Study area

The study was carried out in the Intensive Care Unit (ICU) at the Kenyatta National Hospital (KNH). KNH is a 1,800-bed referral and tertiary-care hospital, which is also the Teaching University Hospital. It is located in the heart of Nairobi about 3km from the city center. The ICU has 20 beds. (A preview of the study area is to be found in the appendix). This area was chosen because of its proximity, the availability of time and budget restrictions.

3.3 Study population

The study populations were the nurses working at the ICU KNH. There are a total of 100 nurses in working in the ICU. They are all registered nurses with a minimum of a diploma in Nursing.

3.4 Sample size determination

The following formula by Fisher et al 1999 was used to determine the sample size:

$$n = \frac{Z^2 pq}{d^2}$$

Where n= the desired sample size (if the target population is greater than 10,000)

z = the standard normal deviate at 95% confidence level (=1.96).

p = the proportion in the target population estimated to provide required oral care. (Since no studies have been done on these subjects 50% was used to determine the minimum sample size).

$$q = 1 - p$$

d = level of precision (set at +/- 5 % or 0.05)

Substituting these figures in the above formula:

$$n = \frac{(1.96)^2 (.50) (.50)}{(0.50)^2}$$

$$= 384$$

Since the target population is less than 10,000 the sample size was adjusted using the following formula:

$$n_f = \frac{n}{(1 + n)/N}$$

Where n_f = the desired sample size (where the population is less than 10,000)

n = the desired sample size (when the population is more than 10,000)

N = the estimate of the population size

$$\text{Hence } n_f = \frac{384}{(1+384)/100} = \frac{384}{385/100}$$

$$= 99.74026$$

Since the calculated sample size is the same as the number of nurses working in the unit, all the nurses were included in the sample. The sample size was hence 100.

3.5 Selection of study subjects

All nurses working in the ICU at the time of the study were recruited for the study. Those on annual leave during the period of study (16 in total) were excluded while 4 declined to give consent even after explanations. The available sample was hence 80 nurses. To these, research assistants gave the questionnaires. Five questionnaires were returned incomplete and 75 were completed with a response rate of 94%.

The majority of the respondents were aged between 30-39 years. Most respondents were female (61) and ICN trained (81.3%). All the respondents were registered nurses.72 (96%) of the respondents had diploma in nursing, 2 had bachelor's degree while one had a masters degree in intensive care nursing.

3.6 Inclusion criteria

1. Nurses who at the time of study were working in the ICU.

2. Nurses who gave consent to participate in the study.

3.7 Exclusion criteria

1. All nurses not deployed to work in the ICU at the time of study.

2. Nurses deployed to work in the ICU but who were on leave during the period of data collection.

3. Nurses deployed to work in the ICU but didn't give consent to participate.

3.8 Variables

3.8.1 Dependent variable:

Quality of oral care.

3.8.2 Independent variables:

1. Oral care education.

2. Years of ICU experience.

3. Time available.

4. Supplies provided by the hospital.

5. Value/importance of oral care.

6. Perceived unpleasantness of providing oral care.

3.9 Proposed model for ICU oral care

The following model was tested in the study. It suggested that provision of oral care in ICU is more than a function of education and individual experience of nurses, and includes both the organizational effects of the hospital environment and subjective attitudes nurses may hold about oral care.

It was expected that oral care education and years of ICU experience would have a positive impact on the quality of oral care provided. However, time and supplies were expected to hinder the provision of quality oral care. The value a nurse puts on oral care and its perceived unpleasantness were expected to interfere or facilitate provision of oral care.

Fig. 1: Proposed model for ICU oral care

Independent variables   **Outcome**


```
                              ┌─────────────────────┐
                              │ Value/importance of │
                              │ oral care (priority)│
                              └─────────────────────┘
                                        ┆
┌──────────────────────┐                ┆
│ Oral care education  │──────┐         ┆
└──────────────────────┘      │         ┆
                              ▼         ▼
┌──────────────────────┐   ┌──────────────────────┐
│ Years of ICU         │──►│ Quality of oral care │
│ experience           │   └──────────────────────┘
└──────────────────────┘      ▲         ▲
                              │         ┆
┌──────────────────────┐      │         ┆
│ Availability of time │──────┤         ┆
└──────────────────────┘      │         ┆
                              │         ┆
┌──────────────────────┐      │  ┌──────────────────┐
│ Supplies provided by │──────┘  │ Perceived        │
│ the hospital         │         │ unpleasantness of│
└──────────────────────┘         │ providing oral   │
                                 │ care             │
                                 └──────────────────┘
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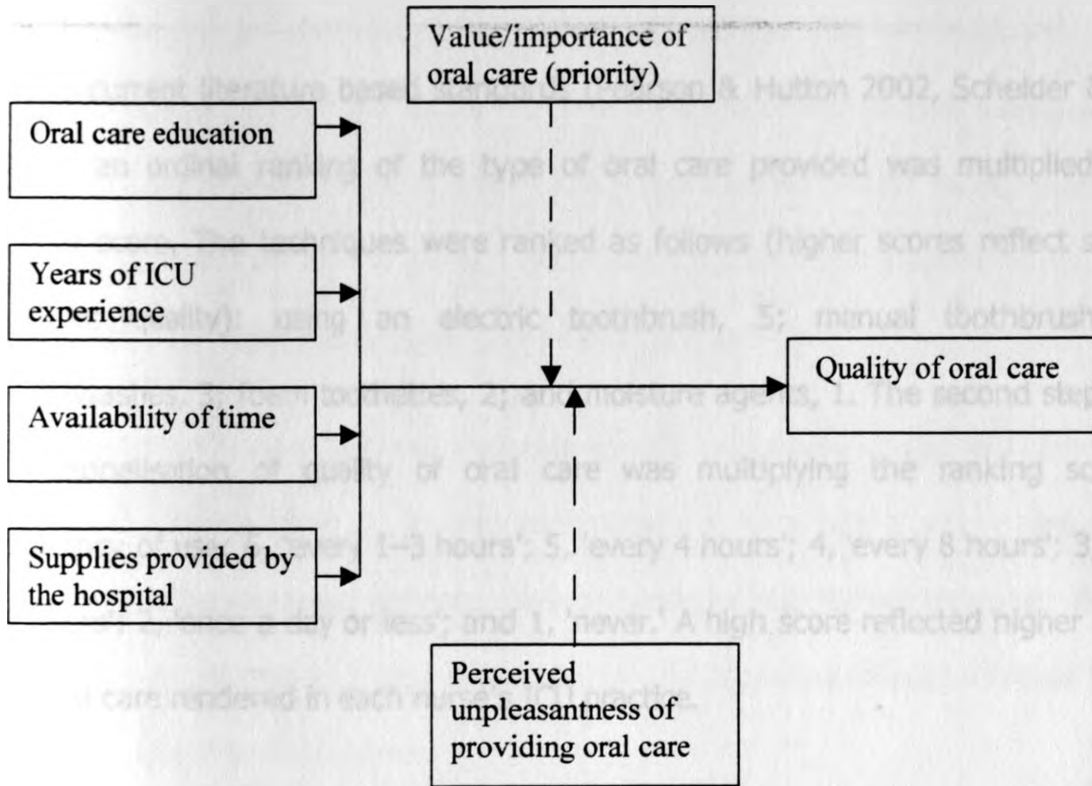
3.10 Operationalisation of variables

The variables in this study were operationalised as follows.

Dependent variable

Using current literature based standards (Pearson & Hutton 2002, Schelder & Lloyd 2002), an ordinal ranking of the type of oral care provided was multiplied by an ordinal score. The techniques were ranked as follows (higher scores reflect superior hygienic quality): using an electric toothbrush, 5; manual toothbrushes, 4; mouthwashes, 3; foam toothettes, 2; and moisture agents, 1. The second step of the operationalisation of quality of oral care was multiplying the ranking score by frequency of use: 6, 'every 1–3 hours'; 5, 'every 4 hours'; 4, 'every 8 hours'; 3, 'every 12 hours'; 2, 'once a day or less'; and 1, 'never.' A high score reflected higher level of the oral care rendered in each nurse's ICU practice.

Independent variables

The six variables were clustered into three conceptual groups: experience and education, nurses' perception of their hospital's facilities and support for providing oral care, and nurses' attitudes toward oral care practices. Nurses' professional backgrounds were represented by two variables: years of ICU experience and oral care education. Education was a measure of nurses' sources of learning about oral care for intubated patients. Responses were ranked so that formal sources received

higher scores (nursing school, 4 points; continuing education, 3 points; in-service, 2 points; and self-taught, 1 point) and each nurse checked all that applied.

Nurses' perceptions of hospital support for oral care were measured by responses to three 5-point Likert-scaled statements. A high score on the first two measures –'There are supplies readily available to provide oral care in our unit' and 'I have adequate time to provide oral care at least once a day'– represented greater facility support for oral care. A high score on the third, 'I need better supplies and equipment to perform oral care in ICU,' represented lower institutional support.

Two Likert-scaled items indicated attitudes specific to the provision of oral care: 'I find cleaning the oral cavity to be an unpleasant task' and 'Oral care is a very high priority for mechanically ventilated patients'. A high score on the former indicated a higher degree of unpleasantness while a high score on the latter represented a higher priority to the management of oral care.

3.11 Data collection.

Data was colleted by means of a self-administered questionnaire.

3.11.1 Study instrument

A self-administered questionnaire was developed by the principal investigator and used to collect data (appendix 1). It had three sections: nurses' experience and education; current practice in oral care and nurses attitudes and perception towards

oral care. Nurse' demographic information was also included. An interview schedule/guide was used to get information from the in charge.

3.11.2 Pre-testing of research tool

A biostatician reviewed the tool, which was then pre-tested for completeness and clarity at the intensive care unit. 5 nurses working in the ICU were requested to fill in the questionnaire. These nurses were excluded in the final survey. The results were checked against completeness, clarity and comprehension and the necessary amendments were made.

3.11.3 Selection and training of research assistants

Two research assistants among the BScN interns working at KNH at the time of data collection were recruited. They were trained on the purpose of the research, the objectives, how to use the research tool and interview techniques before commencement of the study. They were also trained on how to approach potential subjects, how to check the tool for completeness and entering of data in the computer.

3.12 Data analysis and presentation

Data collected was checked for completeness and unclear responses were substantiated. It was then coded and entered into the computer for easy access. It was analyzed using SPSS software. Descriptive statistics were used to summarize

quantitative data. The results were then presented in terms of tables and graphs and in percentages for qualitative data.

Correlation and regression analysis were applied to assess the relationship between independent variables and the provision of oral care.

3.13 Ethical consideration

Permission to carry out the research was sought from the Kenyatta National hospital-University of Nairobi Research standards and Ethics committee. Permission was also sought from the Permanent Secretary ministry of science and technology.

Each potential respondent had the research purpose explained to him/her, its benefits and the procedures. The respondents then signed an informed consent and any respondent seeking further clarification was assisted.

Any person unwilling to participate was not forced to do so and any person wishing to withdraw at any time during the study was free to do so. Anonymity, confidentiality and privacy were strictly maintained. Only the principal investigator and the research assistants had access to the data.

Chapter Four: Results

This chapter presents the results of the study under: demographic factors, nurses'

experience and education, current practice in oral care and nurses' attitudes and

perception towards hospital support.

4.1 Demographic factors.

Table 2: Demographic factors

	Frequency	Percentage
Gender		
Females	61	81.3%
Males	14	18.6%
Total	75	100
Age in years		
21-29 years	6	8%
30-39 years	59	78.7%
40-49 years	10	13.3%
Total	75	100

61 (81.3%) of the respondents were females while 14 (18.7%) were males. Majority of

the respondents (78.7%) were aged between 30-39 years while only 6 (8%) were aged

below 30 years.

Figure 2: Gender of respondents

4.2 Nurses' experience and education

Table 3: Nurses' education and experience

	Frequency	Percentages
Level of training		
MScN	1	1.3%
BScN	2	2.7%
KRCHN	61	81.3%
KRN/M	11	14.7%
Total	**75**	**100**
ICU training		
ICN training	61	81.3%
No ICU training	14	18.7%
Total	**75**	**100**
Length of basic training		
4 years and above	2	2.7%
2-3 years	73	97.3%
Total	**75**	**100**
Number of years practiced as a nurse		
Over 10 years	28	37.3%
5-9 years	45	60%
1-4 years	2	2.7%
Total	**75**	**100**
Number of years worked in ICU		
5-9 years	18	24%
1-4 years	54	72%
Less than one year	3	4%
Total	**75**	**100**
Training on oral care		
Nursing school	61	81.3%
Continuous medical education	2	2.7%
Self taught	12	16%
Total	**75**	**100**

61(81.3%) were ICU trained. The ICU training is one a one-year post basic course offered at the Kenya Medical Training College (KMTC) as well as at the Kenyatta National Hospital. Upon completion the nurse becomes a holder of a post basic diploma.

Figure 3: Professional qualifications
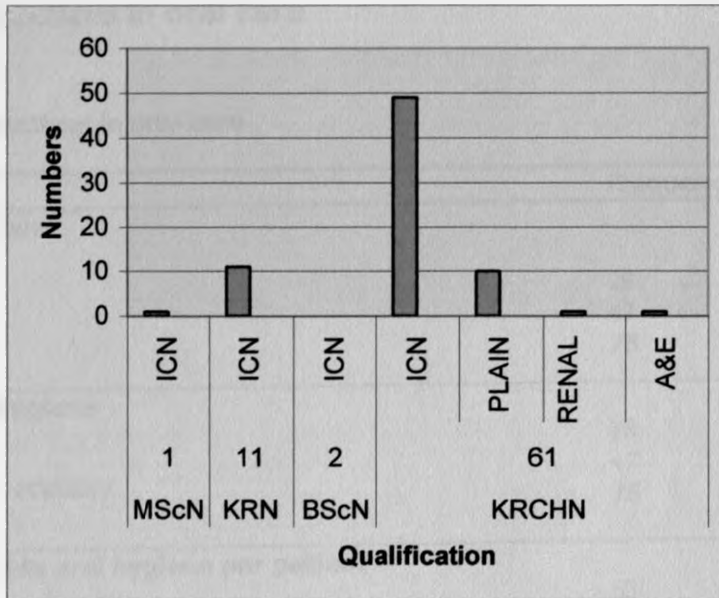
73(97.3%) nurses took three and half years in their basic training. These are nurses who are trained at the diploma level and are registered nurses. They work in various capacities ranging from ward in charges to bedside nurses.

2(2.7%) nurses took 4 years for their basic degree in nursing (BScN). This course is undertaken at the university level.

Over half of the respondents (60%) have practiced as nurses for between 5-9 years while 72% have worked in the ICU for between 1-4 years. 81.3%(61) of the respondents got their training on oral care as part of the ICU training in the nursing school. 12(16%) of the respondents learnt how to perform oral care on the job through personal initiatives.

4.3   Current practices in oral care

Table 4: Current practices in oral care

	Frequency	Percentages
Tool used for oral care		
Mouthwash	28	37.3%
Swabs	47	62.7%
Total	**75**	**100**
Frequency of oral hygiene		
Every 12 hours	28	37.3%
Once a day or when necessary	47	62.7%
Total	**75**	**100**
Time taken to provide oral hygiene per patient		
2-4 minutes	63	84%
5-10 minutes	12	16%
Total	**75**	**100**
Time taken to perform oral hygiene affect other nursing procedures		
Yes	8	10.7%
No	67	89.3%
Total	**75**	**100**

28 (37.3%) respondents used mouthwash as the agent when providing oral care while the rest used swabs soaked in normal saline. All the respondents reported that they used the two an agent interchangeably depending on which was available. They all

reported that they performed oral assessment of the oral cavity before carrying out oral care. They checked on the state of the oral mucosa, loose teeth, bad odor, sores and the position of the orotracheal tube.

Figure 4: Tool used for carrying out oral care
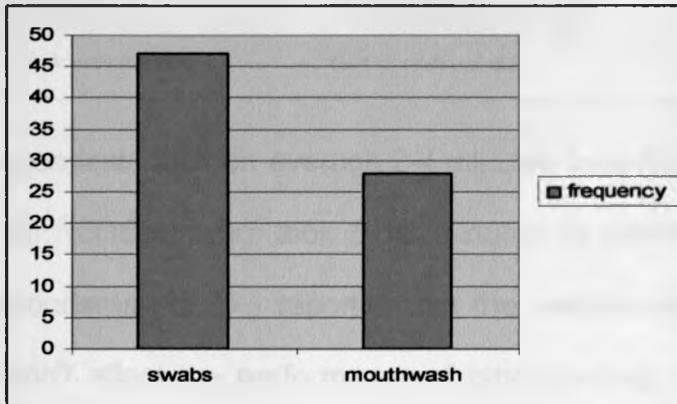
Above half of the respondents (62.7%) carried out oral care once a day or whenever necessary. They cited having to carry out oral care when necessary for patients with a lot of oral secretions or a patient with bad breath.

Figure 5: Time taken to provide oral care.
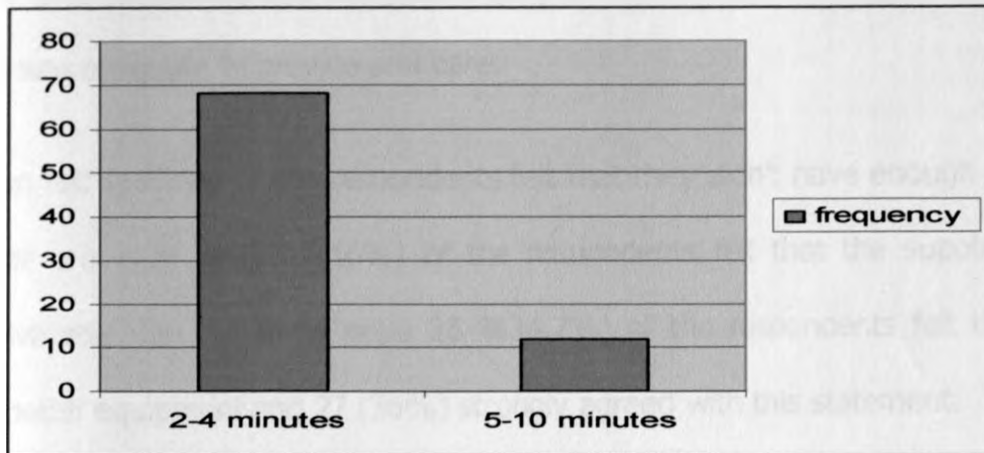
84% (63) of the respondents took on average 2-4 minutes to perform oral hygiene per patient compared to 12(16%) who took 5-10 minutes to perform the procedure. Majority of the respondents (89.3%) reported that the performance of the oral care procedure hence didn't affect the performance of other nursing procedures since it didn't take long to perform.

4.4 Nurses' attitudes and perception towards hospital support

Table 5: Nurses' attitudes and perception towards hospital support

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Adequacy of time to provide oral care	Frequency	3	26	11	21	14	75
	%	3.9%	34.7%	14.7%	28%	18.7%	100
Availability of supplies	Frequency	0	49	2	12	12	75
	%	0%	65.3%	2.7%	16%	16%	100
Need for better equipment	Frequency	7	9	6	26	27	75
	%	9.3%	12%	8%	34.7%	36%	100
Unpleasantness of cleaning oral cavity	Frequency	9	27	39	0	0	75
	%	12%	36%	48%	0%	0%	100
Priority of oral care	Frequency	0	0	0	24	51	75
	%	0%	0%	0%	32%	68%	100

While 34.7% (26) of the respondents disagreed with the statement that they have adequate time to provide oral care, 28% (21) of the respondents felt that the time available was adequate to provide oral care.

More than half (65.3%) of the respondents felt that they didn't have enough supplies to provide oral care while 12(16%) of the respondents felt that the supplies were readily available. On the same issue 26 %34.7%) of the respondents felt that they needed better equipment and 27 (36%) strongly agreed with this statement.

36(48%) of the respondents disagreed with the statement that cleaning the patient's oral cavity is an unpleasant task with 39(48%) of the respondents taking a neutral stand.

All the respondents agreed that oral care is a high priority for mechanically ventilated patients with 51(68%) strongly agreeing with the statement.

On average the nurses in the ICU work on three shifts. The morning shift and afternoon shifts are five and half hours each while the night shift is fourteen and half hours long. 16-17 nurse work per shift in an attempt to achieve the one to one ratio (nurse: patient). Allocation to certain shifts depends on the nurse's seniority, training and personal characteristics like temperament. Oral care is almost always carried out during the morning shift for most of the patients.

Table 6: Bivariate Correlations (Spearman's rho).

		Quality of care	Experience	Education	Time	Supplies	Needs better equipment	Priority	Unpleasant
Quality of care	Correlation Coefficient	1.000							
Experience	Correlation Coefficient	-.200							
	Sig. (2-tailed)	.085							
Education	Correlation Coefficient	.288*	.038						
	Sig. (2-tailed)	.012	.746						
Time	Correlation Coefficient	.313**	.037	.124					
	Sig. (2-tailed)	.006	.756	.288					
Supplies	Correlation Coefficient	.158	.043	.220	-.072				
	Sig. (2-tailed)	.177	.715	.058	.542				
Needs better equipment	Correlation Coefficient	-.126	-.008	-.139	.019	-.759**			
	Sig. (2-tailed)	.283	.944	.234	.871	.000			
Priority	Correlation Coefficient	-.002	.109	.038	.106	-.026	.161		
	Sig. (2-tailed)	.984	.353	.749	.367	.826	.167		
Unpleasant	Correlation Coefficient	-.488**	-.069	-.234*	-.223	-.068	-.036	-.242*	
	Sig. (2-tailed)	.000	.555	.044	.055	.564	.760	.037	

* $P < .05$ ** $P < .01$ n= 75

Results of bivariate analyses indicated that education, having sufficient time and not viewing oral care as unpleasant were associated with higher quality care. Experience in ICU, seeing oral care as a priority and the hospital factors concerning supplies and equipment were not related to care contrary to expectations.

Table 5 shows the correlation coefficients for variables used in the analysis. Three of the seven variables had the predicted relationship with quality of care. Education, which was a measure of the source of training in oral care, had the predicted

relationship with a p value .012. It was expected that time would have a positive correlation to quality of care and this was found to be so with a p value of 0.006. Perceiving oral care to be unpleasant was predicted to affect the quality of care negatively. This was found to be so with a p value of 0.000.

Quality of care as measured here was not associated with experience in ICU, which was expected to positively affect the quality of care. The correlation coefficient was -.200 with a p value of .085. Quality of care was also not associated with priority given to oral care, p value of .984. The variable concerning equipment was also not associated with quality of care although the available supplies approached significance in the predicted direction.

Therefore hypothesis 2, 4 and 6 were rejected.

As shown in table 6 education, but not experience correlated with reporting oral care to be less unpleasant (correlation coefficient of -.234 and a p value of 0.044). Neither education nor experience was associated with priority, however. Priority and viewing of oral care as unpleasant task correlated with each other (correlation coefficient of -.242 and a p value of 0.037). Having time to provide oral care didn't correlate with both attitude variables.

Table 7: Quality of care regressed on all independent variables

	Std. Error	Beta	t	Sig.
Education	.190	.226	2.346	.022
Experience	.066	-.149	-1.461	.149
Time	.082	.216	2.094	.040
Supplies	.147	.070	.389	.698
Needs better equipment	.132	-.041	-.230	.818
Priority	.208	-.108	-1.078	.285
Unpleasant	.086	-.442	-4.252	.000

Dependent Variable: quality of care

When quality of care was regressed on all independent variables simultaneously (table 7), education on oral care, availability of time and finding oral care unpleasant produced the highest betas. Viewing oral care as unpleasant task produced a significance of 0.000 strongly proving the predicted relationship as correct. The more the nurse views the oral care as unpleasant the lower the quality of oral care provided. On the other hand time had a p value of 0.040 while education had a p value of 0.022 both showing a high correlation to quality of oral care.

Chapter five: Discussion

Oral hygiene in the ICU is a commonly performed nursing procedure in which the aim is to ensure that patients' mouths are cared for. Pritchard and David indicate mouth care is required to:

1. Achieve and maintain oral cleanliness
2. Prevent infection/stomatitis
3. Keep the oral mucosa moist
4. Promote patient comfort

Although a study done elsewhere (Adams 1996) show that nurse including those fully qualified lacked adequate knowledge about oral health, education in this study had the predicted relationship with a p value .012. This could be attributed to the fact that 61(81.3%) of the respondents had ICU training in which oral care education was incorporated. Also all the nurses working in the ICU were registered nurses.

ICU nurses may be hesitant to provide oral care to patients who are intubated because endotracheal tubes may limit access to the oral cavity. The fear of dislodging or displacing the tube is also a deterrent (Treloar DM, Stechmiller JK 1995). Provision of oral care may be affected by the perception that oral care contributes less to patients' health and well-being (or has lower priority) than other nursing interventions for critically ill patients. The respondents however took oral care as a high priority nursing procedures that didn't affect their performance of other nursing procedures.

The frequency of oral hygiene for intubated patients is an area of controversy. Day and Jenkins suggest the frequency is based upon the scores from an "at risk" calculator, whereas Trenter et al. (1986) recommend anywhere between two and four hours, depending on the patient's condition. The oral hygiene protocol suggested by Barnason et al. (1998) of brushing every 12 hours and oral moistening at least every two hours while the patient remained intubated appeared effective but suggested more detailed research in this area is needed.

Although current critical care nursing manuals advocate oral care ranging from every 2 hours to every shift (8-12 hours),more than half of the respondents (62.7%) reported carrying out oral hygiene on the patient once a day during the morning shift. This is despite that 67(89.3%) of the respondents reported that the time needed to carry out oral care didn't interfere with other nursing procedures, but still carried out oral care just once a day and in a few instances when necessary. This could be attributed to convenience on the part of the nurse.

According to existing nursing literature, toothbrushes are not the tools of choice for oral care by nurses (Howarth, 1977; Harris M, 1980). To the contrary, there is strong evidence to support the use of a toothbrush for the effective control of plaque and its associated complications; the toothbrush is recommended to be the tool of choice for mouth care (Kite and Pearson, 1995). However as noted just below half of the respondents (37.3%) used betadine mouthwash while 67.3% used saline swabs depending on which was readily available. None of the respondents reported using a

toothbrush. On further inquiry, it was reported that in fact toothbrushes are not found in the ICU because they are associated with able patients unlike the ones in the ICU. The practice of using a toothbrush for the maintenance of the oral hygiene of orally intubated patients is hence not widespread.

Generally, though nurses have been formally trained in assessing the oral status of patients in ICUs, and oral care protocols for these patients are usually available, the quality is still low. This could be attributed to individual differences and the fact that the nurses feel they need more supplies and equipment to carry out this procedure. It has been recommended dental hygienists be involved in nursing education programs in order to improve the nurses' knowledge and ultimately their ability to provide better oral care. Fitch et al. recommended implementation of a well-developed oral care protocol by bedside nurses to improve oral health of patients in the ICU (Table 1).

The hospital environment has been demonstrated to promote (by the provision of support for health promotion) and hinder (via time limitations and lack of continuity of care) nursing care (Berland et al.1995). Similarly has factors such as availability of supplies; equipments and allocation of time affect the type and quality of oral care given by the nurse (Kite, 1995; Moore, 1995). This can be supported by the findings of this research, which showed that more than half of the respondents (65.3%) reporting that they needed more supplies and equipments in order to carry out oral care effectively. The institutional support can therefore be rated as low.

These findings suggest that oral care among intubated patients in ICU is a multi-tiered process. Experience, though perhaps necessary, is not sufficient to improve quality of oral care in ICU. The intersection between nurse' experience and attitudes and institutional support in terms of providing adequate time is clear from these data and further suggests that attempts to change oral care nursing practices will require intervention that involve hospital managers and peer leaders.

Studies (Atkinson JC, 1994; Abele Horn et al, 1997; Johanson et al, 1988) indicate that multifaceted implementation strategies are more likely than single-faceted strategies to be effective at changing behavior and thus moving best practices into action. Hence, outlining specific care protocols or procedures facilitates consistency and quality care through standardization.

Study limitations

The results may not be generalized to other hospitals such as private hospitals, faith based organizations and even other public hospitals due to the differences in organizational factors. KNH was selected as a study site owing to its proximity, budget and its size, which makes it more representative of other institutions.

The interrelationship between the factors was not considered and this could explain some of the correlation between the dependent and independent variables.

Conclusion and Recommendations

Conclusion

This study revealed that the oral care hygiene is an important component of intensive care nursing. It was found that education, availability of time and viewing of the oral care as an unpleasant task directly influenced the outcome of care. On the other hand, experience, availability of supplies and equipment as well as the priority given to oral care didn't have significant effects on the outcome of oral care.

The results of this study hence suggest that oral care provision for mechanically ventilated patients can be improved by providing oral care education, providing nursing staff with adequate time and reducing the perception that oral care in unpleasant. Multifaceted interventions to improve oral care nursing practices are required to reduce the incidence of pneumonia in mechanically ventilated patients, thereby improving patient safety.

Recommendations

The following are recommended for the oral care of ICU patients:

1. ICU patient's individual requirements for oral care should be considered as part of the admission assessment.

2. Education of nurses to provide skills in oral assessment and oral care is essential. A dental hygienist can train bedside nurses to improve the oral assessment and enhancement of oral care for ICU patients.

3. The use of an assessment model such as the "BRUSHED" Assessment Model (appendix 7) is recommended for the immediate identification of oral problems for every patient and should be carried out daily.

4. The use of a comprehensive protocol such as the Mouth Care Protocol presented in Table 1 has been shown to be effective and is recommended.

5. The frequency of oral care is an area of controversy and may depend more on the patient's condition. However, brushing every 12 hours and oral moistening at least every two hours while the patient remains intubated is recommended until further research is done in this area.

6. Some solutions and types of equipment used by nurses for oral care are not optimal and, therefore, caution must be applied if they are used. Swabs are ineffective in removing plaque, whereas the use of a soft pediatric toothbrush is recommended instead.

7. Further research is needed to determine the most effective way to perform oral hygiene care in critically ill patients as well as deciding on the most appropriate frequency of oral care. Research is also needed to determine the impact of oral health and improved oral health status on patients' outcome.

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Appendices

Appendix 1:Questionnaire

Questionnaire for the research on '*Factors affecting provision of oral care by nurses in the intensive care unit at the KNH'*.

Instructions:

- Read and sign the attached consent form before filling this questionnaire. Do not write your name.
- This questionnaire has sections A to D. Fill all the sections.
- Indicate by circling the number against the most appropriate response for sections A to C.
- For section D circle the number that best describes your feelings about hospital support for oral care.

Section A: Demographic factors

1. Please indicate your gender.

    1)   Female

    2)   Male

2. What is your age in completed years?

    1)   21-29 years

    2)   30-39 years

    3)   40-49 years

    4)   Above 50 years

Section B. Nurse's experience and education

3. What is the level of your training? (NB: If all apply please indicate).

    1)   MscN

    2)   BScN

    3)   KRCHN

    4)   KRN/M

    5)   ICN

4. How long did your basic training take?

    1)   4 years and above

    2)   2- $3^1/_2$years

    3)   1 year

5. For how many years have you practiced as a nurse?

    1)   Over 10 years

    2)   5-9 years

    3)   1-4 years

    4)   Below 1 year

6. How long have you worked in the intensive care unit?

    1)   Over 10 years ....

    2)   5-9 years ....

    3)   1-4 years ....

    4)   Less than one year ....

7. How did you start working in the ICU?

    1)   Personal choice

    2)   Deployment

    3)   Other (specify)...

8. Do you have any formal training on oral care of intubated patients?

    1)   Yes

    2)   No

9. If yes how did you get your training?

    1)   Nursing school

    2)   In service

    3)   Continuous medical education

    4)   Self taught

    5)   Others (specify)..

10. How long did this training (on oral care) take?

    1)   1 year

    2)   6 months

    3)   3 months

    4)   Others (specify)...

Section C. Current practice in oral care

11. Which of the following do you use when carrying out mouth care on an intubated patient?

    1)   Electric toothbrush ....

    2)   Manual toothbrush ....

    3)   Mouthwashes (specify which)...

    4)   Swabs (specify)...

    5)   Moisture agents

12. How often do you carry out oral care?

    1)   Every 1-3 hours ....

    2)   Every 4 hours ....

    3)   Every 8 hours ....

    4)   Every 12 hours ....

    5)   Once a day or less ....

    6)   Never ....

13. Do you carry out any assessment before providing oral care?

    1)   No

    2)   Yes (Explain) ....

14. On average how long does it take you to perform oral hygiene per patient?

    1)   Under one minute

    2)   2-4 minutes

    3)   5-10 minutes

4) Over 10 minutes

15. Does the time it takes you to perform oral hygiene affect the performance of other nursing procedures?

1) Yes

2) No

If yes please specify ....

Section D. Nurses,' attitude and perception towards hospital support

For questions in this section, please circle the number the best describes your feelings about hospital support for oral care and its provision using the following key.

KEY:

1. **Strongly disagree**   2. **Disagree**   3.**Neutral**   4. **Agree**   5.**Strongly agree**

16. I have adequate time to provide oral care at least once a day

    1   2   3   4   5

17. There are supplies readily available in our unit to provide oral care.

    1   2   3   4   5

18. I need better supplies and equipment to perform oral care in ICU.

    1   2   3   4   5

19. I find cleaning the oral cavity to be an unpleasant task

    1   2   3   4   5

20. Oral care is a very high priority for mechanically ventilated patients

    1   2   3   4   5

Appendix 2: Interview guide for ward in charge (interviewer administered).

1. How many shifts do the nurses work?...

....

....

2. How long is each shift?...

3. How many nurse work per shift?...

....

4. Which criteria do you use to allocate nurses to certain shifts?...........................

....

....

5. Do you have any protocol on how to carry out oral care?

       Yes ....

       No ....

6. If yes, who developed the protocol?..

....

....

7. Is it followed by the nurses?

       All the nurses...........................

       Some of the nurses.....................

       None of the nurses.....................

If not followed by all, why is this so?
....

....

....
....

8. If no (to Q.5) why isn't there one?...

....

....

Appendix 3: Consent form:

School of Nursing Sciences - University of Nairobi

Investigator: Dorcas Maina

I am a student in the University of Nairobi undertaking research in fulfillment of the requirement of the award of Masters Degree in Nursing. I am carrying out research on *'factors affecting provision of oral care by nurses in the ICU at the KNH'*.

Procedures:

This study involves interviewing nurses working in the ICU by filling a self-administered questionnaire. The results of this study may aid in development of an oral care protocol, which will ease your burden of patient care, and also in improving it. There are no risks associated with participating in this study although some questions may be personal in nature.

You are at liberty to participate or to withdraw at any time you wish without prejudice or coercion. You will not be required too write your name and the results will be treated with confidentiality.

Research committee contact:

If in doubt please contact the research committee:

Professor Bhatt - the chairman Kenyatta Ethics and Research Board,

P.O Box 20723,

Nairobi.

Or the investigator at 0721716514.

I have read and understood the purpose and benefits of this study and hence agree/decline to participate.

Respondents Signature.....................date ....

Investigator's signature ....date...............................

KENYATTA NATIONAL HOSPITAL
Hospital Rd along Ngong Rd
P O Box 20723, Nairobi
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi
Email: [illegible]

Ref: KNH-ERC 01 A/44

25th June 2007

Samuel A. Maina
Dept. of Nursing Sciences
School of Medicine
University of Nairobi

Dear Samuel

RESEARCH PROPOSAL: FACTORS AFFECTING PROVISION OF ORAL CARE BY NURSES IN THE INTENSIVE CARE UNIT AT THE KENYATTAN HOSPITAL (P132/2007)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** your above revised research proposal for the period 25th June 2007 – 24th June 2008.

[illegible paragraph regarding request for extension of study period and serious adverse events reporting]

On behalf of the Committee we wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study to ensure there is no duplication of similar research studies.

Yours sincerely

[signature]

Prof. A.N. Guantai
SECRETARY, KNH-ERC

c.c
The Deputy Director CS, KNH
Prof. K.M. Bhatt, Chairperson, KNH-ERC
The Dean, School of Medicine, UON
The Chairman, Dept of Nursing Sciences, UON
Supervisors: Mrs. F. Deru, Dept of Nursing Sciences, UON
Dr. S. Wang'o, Dept of Nursing Sciences, UON
Dr. B. Onuga, Dept of Nursing Sciences, UON

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REPUBLIC OF KENYA
MINISTRY OF SCIENCE & TECHNOLOGY

Telegrams: "SCIENCE TEC", Nairobi
Telephone: 02-318581
E-Mail:ps@scienceandtechnology.go.ke

JOGOO HOUSE "B"
HARAMBEE AVENUE,
P.O. Box 9583-00200
NAIROBI

When Replying please quote
Ref. MOST 13/001/ 37C 491/2

3rd August 2007

Dorcas W. Maina
University of Nairobi
P.O. Box 30197
NAIROBI

Dear Madam

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on, *'Factors Affecting Provision of Oral Care by Nurses in the Intensive Care Unit at the Kenyatta National Hospital'*

I am pleased to inform you that you have been authorized to carry out research the Kenyatta National Hospital for a period ending 30th June 2008.

You are advised to report to the Director Kenyatta National Hospital before embarking on your research project.

On completion of your research, you are expected to submit two copies of your research report to this office

Yours faithfully

M. O. ONDIEKI
FOR: PERMANENT SECRETARY

Copy to:

The Director
Kenyatta National Hospital
Nairobi

Appendix 6: Research Clearance Permit

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THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss DORCAS W. MAINA

of (Address) UNIVERSITY OF NAIROBI
P.O. BOX 30197 NAIROBI

has been permitted to conduct research in

KENYATTA NATIONAL HOSPITAL Location,

NAIROBI District,

NAIROBI Province,

on the topic FACTORS AFFECTING PROVISION OF ORAL CARE BY NURSES IN THE INTENSIVE CARE UNIT AT THE KENYATTA NATIONAL HOSPITAL.

for a period ending 30TH JUNE 20 08

PAGE 3

Research Permit No. MOST 13/001/37C 492
Date of issue 3.8.2007
Fee received SHS.500.00

For PERMANENT SECRETARY
OF EDUCATION

M.O. ONDIEKI

Applicant's Signature

FOR *Permanent Secretary*
Ministry of
Science and Technology

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Appendix 7: Preview of Kenyatta National Hospital

KNH is the largest Teaching and Referral hospital in Kenya. It is located in Nairobi province about 3 kilometers from the Nairobi central business district. The hospital was set up during colonial times when it was referred to as King George's hospital. The hospital also receives patients from the other regions in Africa.

It has now a capacity of 2000 beds. Its many clinical departments include: department of medicine, department of surgery, department of obstetrics and gynecology, department of pediatrics, laboratory department, and radiology department. Other departments/wards fall under these; that are renal unit, intensive care unit, trauma and emergency department and operating theaters.

The hospital has an ICU divided into the intensive and high dependency unit. The total bed capacity is 20.

It has about 1600 nurses with the ICU/HDU having 100 nurses.

The hospital hosts the University of Nairobi medical school and other students from various training institutions who come for training and experience in the hospital.

Appendix 8: 'BRUSHED' assessment model

Hayes and Jones (1995) recommended the use of the BRUSHED Assessment Model. This model was made to prompt nurses to check for particular clinical signs during oral assessment.

B   Bleeding

(Gums, mucosa and coagulation status)

R-   Redness

(Gum margins, tongue, and antibiotics stomatitis)

U-   Ulceration

(Size, shape, herpetic, infected)

S-   Saliva

(Xerostomia, hyper salivation, characteristics)

H-   Halitosis

(Character, acidotic, infected)

E-   External factors

(Angular chelitis, endotracheal tapes)

D-   Debris

(Visible foreign particles)

Appendix 9: Budget projections

Item	Units	Cost Per Unit (Shs)	Amount (Shs)
A. Computer services			
Computer (lap top) and software	1	68,000.00	68,000.00
Printing proposal	40 pages	5.00	200.00
Photocopying proposal	3x40 pages	3.00	360.00
Binding	3 copies	70.00	210.00
Photocopying questionnaires	110 copies	3.00	330.00
Printing final report	70 pages	3.00	210.00
Photocopying final report	7x 70 pages	3.00	1,470.00
Binding final report	4 copies	70.00	280.00
Binding the book	1 copy	500.00	500.00
B. Stationery			
Printing paper	3 reams	450.00	1,350.00
Notebooks	2	50.00	100.00
Calculator	1	1,200.00	1,200.00
Flash disks	2	2,000.00	4,000.00
Staples and stapler	1	300.00	300.00
Paper punch	1	300.00	300.00
Ball pens	1 dozen	180.00	180.00
Erasers	5	10.00	50.00
4C.Personnel/Human resources			
Wages- pretesting (research assistants)	2x1 day	@400.00	800.00
Wages (research Execution)			
i) Research assistants	2 x 5 days	@700.00	7,000.00
ii) Principal investigator	1 x 5 days	@1,400.00	7,000.00
D. Ethical committee fee		Submitted once	500.00
E. Ministry of Science and technology		Submitted once	500.00
Sub Total			**94,840.00**
15% contingencies			14,226.00
TOTAL			**109,066.00**

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