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Title: Challenges Faced by Nurses in Preventing Nosocomial Infections

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INTRODUCTION

Nosocomial infections also termed Health Care Acquired Infections (HCAI) occur worldwide and affect both developed and resource- poor countries with increased rate in critically ill patients. Nosocomial infections are those infections that are acquired in hospital or other health care facility (Weber, 2009). World Health Organisation (2002) defines it as an infection occurring in a patient in a hospital or other health care facility in whom the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge and also occupational infection among staff of the facility.

After working for six weeks in the intensive care unit at a central hospital in Norway, the author in this essay looks at the impact of nosocomial infections worldwide; in Norway and Zambia. The essay describes what nurses in the intensive care unit do and elaborates the policy used in the unit to prevent infections. It further explains why nurses in intensive care unit in Norway seem to work with motivation. Motivation is defined as a driving force or forces responsible for the initiation, persistence, direction and vigor of goal-directed behavior (Colman's 2001). The write up also justifies that it is not only mere hand washing that matter but a combination of proper hand washing with other infection prevention principles such as aseptic technique. Most specifically the essay looks at the role of nurses and the form used in the unit in preventing nosocomial infection for critically ill patients suffering from various diseases with urinary catheters, intravenous infusions, ventilators, endotracheal tubes and nasogastric tubes. The essay then outlines hindrances and challenges such as lack of gloves to use and better facilities that nurses in Zambia face as they work to prevent infections, hence citing ways in which nurses can be motivated. It finally states proposed areas of improvement in both the Zambian and Norwegian setting as observed by the author.

Given the limited resources in Zambia as compared to Norway, do nurses have a role to play in preventing nosocomial infections? Why do nurses in Norway seem to work with a sense of motivation? Are local policies like the ones used at the intensive care unit in

Norway possible to adopt in Zambia? What factors hinder the nurses' role in their line of duty in Zambia? And what can be done to make nurses in Zambia be motivated? What can be done to improve the prevention of HCAI despite the challenges in Zambia and Norway?

STATEMENT OF THE PROBLEM

World Health Organization (2002) study and others, have shown that the highest prevalence of nosocomial infections occur in intensive care units, acute surgical and orthopaedic wards. Most critically ill patients have impaired immunity and healing ability hence decrease in the ability to resist and fight infection (Nosek, 2009). Hospitals have sanitation protocols regarding uniforms, equipment sterilization, washing and other preventive measures but nosocomial infections are commonly transmitted when hospital officials become complacent and personnel do not practice correct hygiene regularly. Proper hand washing and use of alcohol hand rub by nurses before and after each patient contact remains one of the most effective ways to combat nosocomial infections (WHO, 2009).

According to (WHO, 2009) nosocomial infections add to functional disability and emotional stress of patients and may in some cases lead to disabling condition and reduce the quality of life. Nosocomial infections are also one of the leading causes of death worldwide. The economic costs are considerable and the increased length of stay for infected patients is the greatest contributor to costs. This not only increases direct costs to patients or payers but also indirect costs due to lost work. For example the United Kingdom Department of Health in its 2003 survey had estimated that one in ten National Health Service hospital patients would acquire a HCAI, which would cost at least £1 billion a year (Dougherty and Lister, 2008).

A prevalence survey conducted under the auspices of WHO (2009) in 55 hospitals of 14 countries representing four WHO regions (south-east Asia, Europe, the eastern Mediterranean and the western pacific) revealed that on average 8.7 percent of hospital patients suffer nosocomial infections. At any time over 1.4 million people worldwide suffer from infection complications associated with health care. The more sick the patient, the

higher the risk of acquiring a HCAI and dying from it. In developed countries, about 5-10 percent of patients admitted to acute care hospitals acquire an infection that was not present or incubating on admission. Among critically ill, even in highly resourced units, at least 25 percent of patients admitted develop a HCAI. In resource-poor countries, where the health system needs to deliver care to a population with lower health status and to cope with lack of human and technical resources, the burden of HCAI is even more important (ibid).

According to the Norwegian institute of public health national surveillance system for nosocomial infections in 2002-2003, it was revealed that in acute care hospitals, urinary tract had 34%, lower respiratory 29%; surgical sites 28% and septicemia 8% (Eriksen et al, 2005).

In Zambia alone, out of the estimated population of 11,025,690 the extrapolated incidence of nosocomial infections was 81,071 (Cure research, 2010). The Ministry of Health (MOH, 2009) Zambia, Department of Public Health and Research article entitled “Nosocomial Outbreak of Novel Arena virus Infection in Southern Africa” revealed that a nosocomial outbreak of novel arena virus infection involving 5 patients 4 of whom died between September and October 2008 could have been avoided if maintenance of appropriate infection control precautions at all times were followed.

DESCRIPTION

After six weeks placement period in intensive care unit, the author observed that nosocomial infection prevention was crucial due to the nature of patients and devices used to care for the patients. Most of the patients admitted to the unit were over the age of 50 years with different illnesses such as chronic obstructive lung disease, pneumonia, malignant cancer, epilepsy and septicemia. As noted by (WHO, 2002) old age and malignancy leads to lowered immune system and makes an individual susceptible to nosocomial infection. Due to the nature of their illnesses, these patients had to be nursed with urinary catheters, central venous / peripheral catheters, nasogastric tubes and endotracheal tubes connected to ventilators.

As a local policy nurses used what was called “intensive care unit routine schedule form” to change the tubes on the patient. Before and after touching the patient, nurses would ensure that they either thoroughly washed their hands with liquid soap and dry them with paper towels or used alcohol hand rub. The different connections were changed in the following manner: indwelling urinary catheter made of hydrogel every two weeks, central venous/ peripheral catheter and epidural catheter dressings every 72 hours; inner cannula or airway for tracheostomy tubes every 12 hours; tracheostomy filters, inhalation filters, oxygen masks, suction tube system, nasogastric tubes and adhesive strapping attached to the nose were changed daily. Each patient had own bottle of sterile saline for flushing intravenous infusions which was changed daily. Nurses had to sign on the form during their shift to show that change and care had been done.

A nurse was assigned to care for only one patient at a time. In affirmation with Pike (2009), one of the roles of nurses is to provide direct as well as indirect care where assessment, actual bedside nursing, education and comfort of the patient and significant others is done. The positive aspect of this system was that total care was given to a particular patient and nurses felt fulfilled as they had no stress of looking after many patients making them care for their patients with undivided attention and subsequently preventing infections. This aspect is also supported by Fagon and Chastre (2005) who notes that in any ICU, one of the most important factors is probably the team that staff it- the number, quality and motivation of its medical, nursing and ancillary members. They further stated that the team should include a sufficient number of nurses to avoid having them move from one patient to another and to avoid working under pressure. However, the disadvantage was that if another patient changed condition, in a bid to assist the other nurse in resuscitating the patient, some nurses would not follow principles of infection prevention like hand washing due to limited time in the hope of saving the patient’s life.

It was also a routine for nurses to leave their uniforms in the changing room before going home and putting on a clean one daily before they started their duties. This was a good way of not acquiring infections from outside and bringing it in the hospital. The weakness of this system was that in as much as nurses would use a different uniform daily, patient’s

relatives on the other hand would be allowed to enter the patient's unit in their plain clothes and would touch the patient without washing their hands. As the saying goes, "consider every person infectious". Some nurses including other health care workers would come in contact with the patient while wearing finger rings and watches.

The Zambian set up is structured in such a way that nurses have the responsibility of caring for many patients in a ward. This makes them overwhelmed and lose concentration of maintaining infection prevention principles as observed by the author. For many years now Zambia has been using functional type of nursing which has proved to be suitable looking at the critical shortage of nurses. It is a task oriented method where a particular nursing function is assigned to each staff member. This is appropriate due to the fact that it is least costly as fewer Registered Nurses are required and a lot of tasks are accomplished in a small amount of time. However, the disadvantages are that the patients do not benefit as they do not have one identifiable nurse; care becomes fragmented and depersonalized; it also leads to patient and nurse dissatisfaction (Ira, 2010).

ANALYSIS

Historically, infection prevention and control has been a specialty with a relatively low profile compared to other areas of health service development and it has very much been viewed as a least important service, but now the tide is turning and it has become one of the most talked about subjects in both the health care and public arena (Westone, 2008).

Do nurses really have a role to play in nosocomial infection prevention? Chalmers and Straub (2006) categorically observed that patients have a right to be protected from preventable infections and nurses have a duty to safeguard the well being of their patients. Although not all infections are avoidable, research suggests that at least 20 percent are potentially preventable. According to Segers et al (2005) if each patient is evaluated individually, it is possible to focus more closely on those patients who are most susceptible to infection. The most usual means for spread of infection include: - Hands of the staff involved; inanimate objects for example instruments, clothes and dust particles or droplet nuclei suspended in the atmosphere. However, nurses need knowledge and skills in order to

develop and implement evidence - based care that consistently and effectively minimize infection risks to patients and others (Bennette and Brachman, 2007). For example hand hygiene is a very simple action and remains the primary measure to reduce HCAI, yet compliance is very low throughout the world and governments should ensure that hand hygiene promotion receives enough attention and funding to succeed (WHO, 2009).

The following strategies can also contribute to the nosocomial infection prevention:

- Closed - circuit suction system prevents catheter from becoming contaminated and reduces the number of times the patient is disconnected from the ventilator
- Limiting entry to sterile sites by adopting closed system for intravascular devices and urinary catheterization
- Use of simpler non - touch medical aseptic technique when changing central venous devices, fluids or lines.

Why do nurses in Norway seem to work with motivation? The author observed that nurses have access to very good, adequate facilities and supplies with regard to the nosocomial infection prevention. This makes them work with confidence and feel useful in their work; individually nurses also feel they have to work hard to safeguard their patients hence appearing to work with motivation. According to Bartzak (2010) nurses can experience frustration that can adversely affect attitude and work ethic on their unit when necessary supplies are not readily available. In Norway, warm water and paper towels for drying hands is readily available. Antiseptic hand rub is placed near each bed and within reach for all. In addition, sterile equipment for wound dressing for example is adequate, plastic aprons and everything that nurses need to prevent infection is in abundance. This makes nurses feel the autonomy of taking care of the patient and gives them the undivided attention with focus on their patients. It also makes them accountable for doing a good or bad job on their patients hence doing their best.

However, allowing Patient's relative access to the patient in their plain clothes and touching the patient without washing hands compromises the good system. Nurses and other health care workers coming in contact with the patient while wearing a ring or watch,

increases the chance of transmitting infection to the patient. According to Fagernes and Lingaas (2010) in their study conducted in acute care hospitals in Norway, it was observed that wearing of finger rings and watches increases the carriage of non fermentative gram-negative bacteria and enterobacteria on the hands of health workers.

Are local policies like the ones used at the intensive care unit in Norway possible to adopt in Zambia? As observed by the author, Local policies such as the ones used at the central hospital in Norway that stipulates for example how often the urinary catheter is supposed to be changed are nonexistent but can be formulated. Documentation of patient care in Zambia is poor. Nurses end their shifts without indicating in their care books whether an indwelling catheter was cleaned or changed. Poor training in infection prevention practices and adherence to guidelines on hand washing is one reason. Also uneven application of policies and practices across country is another concern, as usage may vary largely between hospitals (WHO, 2009). The ministry of Health in Zambia has put up general guidelines but individual hospitals need to do much to suit their environment and protect patients from nosocomial infections (MOH, 2002). The General Nursing Council of Zambia in its nurse's curriculum shows that nurses are taught on infection prevention but the practice is crippled by lack of essential supplies (Syacumpi, 2006).

What could be hindering nurses in limited resource countries like Zambia from adhering to infection prevention principles? Despite the good formulated infection prevention guidelines, antiseptic hand rub is not enough to cater for all nurses and is not readily available in the wards. Nurses are still faced with a lot of challenges such as non availability of supplies like liquid soap; paper towels and warm water to wash and dry their hands as they only rely on bar soaps and linen towels which became wet and contaminated with continuous use. As clearly emphasized by Grinbaums et al (1995) and Subbannayya et al (2006) bars of soap can become slimy and be heavily contaminated during use and should not be used in patient areas. Liquid soap in closed containers that do not come into contact with the user's hands should be used. However, proper hand washing remains the most effective way of preventing nosocomial infection (WHO, 2009).

Due to limited resources shortage of gloves also still stands as a big challenge making nurses to either use a clean glove for a sterile procedure or vice versa for a clean procedure. But according to St. Clair and Larrabee (2002) in as much as gloves protect, boxed clean non - sterile gloves should not be used for aseptic techniques as there is insufficient evidence to justify a practice change to non- sterile gloves for aseptic techniques. In addition to gloves, disposable plastic aprons are not enough to cater for all nurses making nurses use their linen aprons for procedures that require plastic aprons. Even the few plastic aprons which are supposed to be disposable are reused over and over again putting the patient at risk. But the Department of Health (2001) strongly objects to this noting that plastic aprons are single use items and are worn for one procedure or episode of patient care and then removed.

Due to shortage of trolleys, it is not uncommon to find a trolley for wound dressing being used for other procedures such as bed making but trolleys used for aseptic procedures must not be used for any other purpose. Ayliffe et al (2000) states that in order to reduce airborne contamination of wounds, all activities such as bed making must cease 30 minutes before a dressing and the wound exposed for as little as possible.

It is also a common practice that nurses will carry their uniforms home and use the same uniform the following day due to non availability of changing rooms and limited number of uniforms per nurse. However, personal protective equipment such as uniforms should not be taken home for laundering; changing facilities should be provided for staff to encourage them to change out of their uniforms in the work place (National Health Service Executive, 2002). The government has however been trying to purchase uniforms for nurses (Times of Zambia, 2010). The author therefore observed that nurses in Zambia work with little motivation due to the above hindrances and challenges.

Given this magnitude of hindrances and challenges how can nurses in Zambia be motivated? After the experience in Norway, the author learnt that constant supplies of

gloves, plastic aprons for nurses to use could be a very good source of motivation; Regular refresher course in infection prevention could go a long way in up grading the nurse's knowledge and attitudes towards preventing nosocomial infections; Personal interest in having knowledge through reading about infection prevention is also vital for the nurse.

What then are the areas of improvement in Zambia? The Ministry of Health (2002) through its Integrated Technical Guidelines for frontline health workers (ITG) has formulated infection prevention guidelines designed to minimize costs of managing nosocomial infections and protect expensive and often fragile equipment, while at the same time assuring a high degree of safety. As observed by the author, most Zambian nurses are ready to leave their uniforms in the hospital but lack of changing rooms is a big problem which can easily be overcome as most hospitals have rooms which are not being used. Given constant surgical/medical supplies, most nurses would be ready to put in their best to protect the patients from nosocomial infections.

What can be done to improve the loopholes in Norway? Areas of improvement would be that a policy could be put in place to ensure that patient's relatives put on gowns when entering the ward and that they wash their hands before touching the patient. Watches and rings could also be put aside when on duty.

CONCLUSION

The six weeks allocation to the ICU proved beneficial to the author. It highlighted a lot of challenges that nurses face in their duties and left a food of thought to the author. In order to achieve the desired benefits in nosocomial infection prevention, a lot of commitment from hospital management in providing adequate supplies for the nurse to function well is needed. Nurses today are still faced with a lot of challenges hence with good clear policies and adequate supply of essential items, prevention of nosocomial infections is possible. The nurse has a role to play but their work is at times crippled due to inadequate supplies and clear policies. Simple less expensive methods like hand washing can surely be possible in Zambia, little more effort however needs to be done to keep up to date with latest trends.

Motivation of nurses in Norway could be attributed to good facilities and adequate supplies as opposed to the Zambian setting. Both the Norwegian and Zambian set up have the potential to overcome their challenges in order to attain a safe environment for the patients and subsequently prevent nosocomial infections. After all protecting patients from harm is at the heart of everything we do as nurses.

RECOMMENDATIONS

To the Norwegian nursing system:-

- Patient's relatives should be encouraged to wash their hands and hospital gowns should be provided for patient's relatives to change before they gain access to see their sick relative.

To the Zambian nursing system:-

- Consistent supply of gloves, liquid soap, warm water, paper towels and antiseptic hand rub should be made available in the wards and near each bed of the patient.
- Specific policies should be introduced to stipulate how often catheter should be cleaned and changed for example the urinary catheter and changing rooms must be made available to prevent nurses from taking their uniforms home.
- Continued education in infection prevention principles and latest guidelines should be promoted and availed to the nurses at all times.

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