

Role of the hand washing in the spread of infections in hospital research proposa...

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METHODOLOGY

This study is intended to be conducted prospectively in a 375-bedded educational hospital facility. This study will be carried out in a 6 month period running from November 2013 to April 2014. In regard to the methodology for this study, all patients admitted during this period will be examined and included in this research for every day detection of any form of Hospital acquired infection, also referred to as nosocomial infections, which ranges from Surgical site infections (SSI), Pneumonia (PNEU), Urinary Tract Infection (UTI), Methicillin-Resistant Staphylococcus Aureus (MRSA), blood stream and Lung infections among many others (Warrell, 2003, p. 17). Through a quantitative research model, the study seek to answer the research question on the role of a nurse in reducing the risk of hospital acquired infection in the hospital setting. It will determine the incidence of Hospital Acquired Infections (HIA) in this educational hospital facility with the help of specifically programmed surveillance software which is able to merge the available patient personal data and the relative infection results manually.

This methodology provides an appropriate approach to this research since the healthcare facility has enough nurses who sums up to a total of 126 of them, the hospital has 375 beds and records an annual occupancy rate of 77. 5% (Muralidhar & Muralidhar, 2007, p 312). In addition, the study will be exercised in the whole hospital; including the Intensive care Units (ICU), and in all the wards in this facility. Since nosocomial infections are among the most serious health issues affecting hospitalized patients, the role of a nurse in preventing these incidences is imperative. Before embarking onto this

study, it is important for the researchers to define various concepts and principles that they may encounter in their quest to finding out the role of the nurse in preventing these acquired infections that normally causes high morbidity and mortality rate. Some of the concept definitions includes:

(Bloom, Craddock, Delmore and Kurlinski, 2003, p. 494)

- HIA (Hospital Acquired Infections) or NI (Nosocomial Infections), these were defined to being a systemic or localized infection that is being caused a given causative agent or toxins in the hospital facility. The infection is expected not to be present or be in the incubation phase by the time of patient admission. Therefore this definition supposes that the infection should be apparent at least 48hours after admission ().

- The NNIS (National Nosocomial Infections Surveillance) criteria which will be used to define various infections defines Surgical Site Infections as the infections that occur within 30days after an operative procedure has been carried out and largely involving the site of incision.

- The case of a urinary Infection is categorically stated in regard to its relative symptoms and signs which include; A fever of beyond 38 °C (temperature > 38°C), frequency or suprapubic tenderness.

- PNEU (pneumonia), is defined in this research to being the infections that causes patients to have dullness or rales to percussions upon the physical examination of the chest.

The Centre for Disease Control and Prevention and the National Infection Surveillance system's criteria will be adopted and applied in explaining and defining various healthcare aspects and infections all along the study. The hypothesis for this study which asserts that, daily bathing and hand washing

with a skin antiseptic such as chlorhexidine gluconate (Muralidhar & Muralidhar, 2007, p 300), is able to reduce the chances of a patient's skin contamination and therefore indirectly decrease contamination of the healthcare worker's hands and environment, and potentially play a significant role in preventing the spread of infections in hospital setting will be expounded in the research. It will seek to find the main roles that a nurse should play to ensure that the patients that are hospitalized in their healthcare facilities are at lower risk of acquiring these infections.

Study Design

After a comprehensive review of the major causes of hospital acquired infections which are: Surgical site infections (SSI), Pneumonia (PNEU), Urinary Tract Infection(UTI), Methicillin-Resistant Staphylococcus Aureus (MRSA), blood stream and Lung infections among the patients in this facility, a simple but comprehensive analysis of the infection control would be established which will be based on the nurses level of emphasis and action towards education regarding prevention of the spread of infections (Minnaar, 2008). In this study design, the patients, the length of stay of the patient will be put into account, the gender, and the age of the participants. In this randomized study, the patients will be grouped into controls and the actual groups. In addition, the nurses will be involved in this research in the case of hand washing practices, according to the use of intravenous catheters which promotes the spread of infections in the respiratory tract.

The Inclusion of nurses in this study helps the researchers to identify the most risky factors in the etiology of nosocomial infections. These risk factors

include the duration of hospital stay, indwelling catheters, use of total parenteral nutrition, mechanical ventilation and immune deficiency among the patients. The nurses are supposed to offer care to both the actual research group and the controls when having not adhered to the required preventive measures of infection. For instance, most of the nurses and the theatre staffs are reluctant to remove their wedding rings when they are scrubbing up higher microbial counts, this will be further expounded on this research. This study design is appropriate in trying to understand further the interactions between the various healthcare professionals, their practices that seems to increase chances of infections to the patients and also the preventive roles that the nurses would play to reduce the spread of the infection in a hospital setting.

Study population and sample

In this randomized study, a study population involved all the eligible patients being admitted in this health care facility in the 6 month period of study. A total of 213 nurses were involved in this study. In the first phase of this study, the nurses are expected to attend to these patients in the normal way that they usually handle them. After this, an all-inclusive educational program would be introduced that would emphasize the need for precautionary measures in regard to nosocomial infections by nurses. The criteria for eligibility for this study is that , only the patients who are hospitalized or are staying in the hospital for more than 2 calendar days will be included in this surveillance study. This will be done according to the following algorithm: (Date of Discharge from the hospital-Date of Admission

to the hospital +1> 2) (Bissett, 2006). Therefore, all the patients that would be staying for less than 3 days will be excluded for this study. To justify this criteria, the methodological of this research defines these acquired infections such as the SSI's as those infections that occurs within 48 hours upon admission to the facility thus the need to set the inclusion criteria to not less than 3 days.

Data collection

Data collection will be carried out prospectively through the 6months period in all the wards, Coronary Care Units, ICUs and in the general health units of the educational hospital facility. The general patient information such as the name, their gender, date of birth, the day of admission, past medical history, discharge date or admission to the ward will be easily retrieved from the Hospitals Information Systems (HIS). The main method for Data collection for this research will be through the use of the National Healthcare Safety Network (NHSN), which is a secure, free and internet based surveillance system that was developed and is maintained by the CDC (Tuohy, Dowling & Sixsmith, 2013, p32). All the patients who will be admitted and hospitalized in this facility and meets the eligibility criteria will be included in this study and duly followed until the time they left the hospital or died.

In addition, the Hospital Acquired infections definitions criteria in the surveillance protocol clearly outlines that all the patients that presents themselves to this educational facility and gets infected within 48Hours after admission will be labelled as nosocomial infected patients. All the data from the infected patients will be collected followed by their daily physical

assessment of, review of laboratory data, chest radiographs and most importantly interviewing the doctors and nurses in charge of these patients. The nurses would be required to fill out a questionnaire which is composed of questions regarding the conduct of that particular health professional towards the patients that may have contributed to the spread of an infection. After all the data about the patient was collected and the criteria for inclusion was met, this data will be manually input into the surveillance software.

Data analysis

In regard to my analysis of the data that I would have collected, various test such as the t-test and the Chi-square will be used. The Nosocomial Infections surveillance software is a web based, program which will be used to further analyze the data automatically. Using tabulated findings of the research study, one would easily be able to analyze the data and create other complex statistical tools that enhance the interpretation of the study (Wilcox, 2009, p. 133). This data analysis will be able to identify the most common sections of the hospital where infections occurred most and the relative approach or impact that the nurses plays in this issue of spread of infections.

Study Conduct and Rigour

The issue of validity and reliability in a qualitative research is not as readily codified as that of a quantitative research. This study is followed by a detailed comprehensive review of the selected techniques and methodology in order to produce relevant, reliable and valid conclusion to the hypothesis. These techniques includes the approach of using an accredited computer

software program that is responsible for surveillance and analyzing the patient's personal information against the acquired infections. Other qualitative measures such as the technique of conversation analysis makes this research study reliable. The concept of rigour requires a research to be conducted by adhering to various issues that ensures research credibility. These issues includes appropriateness of the sample sizes, improved study design and a reliable measure of activity (Great Britain, 2005). In my research, all the issues in regard to rigour and general dependability of the research findings have been observed.

Ethical issues/ consideration of data collection

According to the article Economics and preventing healthcare acquired infection, the author has sought to deeply explain the issue of research ethics on data collection and the methodology applied in a given research. This journal appears to outline similar ethics and ethical challenges that appears similar to our current situation. Mostly the common ethical challenge is arguably the conflict of interest between the researcher and the researched (Graves & Halton, 2009, p. 514). However, this study will abide to all the ethical standards set by research monitoring boards so as to ensure that the results of the study are reliable and valid and align itself with the rigour for qualitative research. The fundamentals principles of ethical research which ranges from maintaining confidentiality, being conscious of multiple roles, discussing frankly the intellectual property to tapping into ethics resources have been observed and adhered to (Bissett, 2006).

Timeline

The issue about time is very important in this study. In fact it is one of the major determinant of the outcome. There ought to be a well-planned approach as well as the required time to complete the intended undertakings. In this case, I have developed a Gantt chart to enable me to clearly define my project plans before embarking on conducting the research. I have broken down the 6 month period that the research has been planned to take into various tasks which will take varied periods of time within the 6 month period.

Conclusion

In conclusion, it is evident that this paper has managed to comprehensively expound on the plan for the intended research. It is my desire that, if the research is executed as planned, credible findings would be deduced in our quest to understanding all the aspects in regard to the spread of Hospital Acquired Infections especially its modes of transmission and the role that the nurse plays in order to either propel or prevent the spread of these infections. In general, I believe that this proposal provides a logical, valid and reliable approach to the intended research.

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