**Compliance of Nurses with WHO Guidelines on Infection Control, and the Implication on HAIs**

**Purpose of the study**

The study aims to find out the effect of compliance to WHO set guidelines for infection control has any impact on the occurrence of Hospital Acquired Infections.

**The significance of the study**

The WHO has set aside guidelines to guide nurses on how to control infections. Such measures include hand sanitation and proper sanitation of the workplace. Many nurses have been trained on the instructions, and in case of an update, they are taught further. However, no research has been done to ascertain whether there is compliance because cases of HAIs are still high. Hence, this study is essential, because it will highlight the rates of compliance and what happens to infection control if compliance is at its maximum.  The findings from this study will shed light on the compliance levels which will open the way for another study to be done on how to reinforce the compliance levels amongst nurses. It will also shed light on the WHO whether the guidelines they set were practical, or they need to set new guidelines or add to the existing measures.

**Statement of the research problem**

Hospital Aired Infections cost institutions money and costs the patient recovery time and in extreme cases, their lives. Some guidelines have been set up by the WHO to guide nurses on how to ensure infection control, to reduce the instances of HAIs. Many nurses are educated on the guidelines but compliance is an issue, and that is why cases of infections are high. Hence, this study aims to find out if complete compliance of the WHO guidelines can bring a difference in the rates of HAIs.

**Theoretical Framework**

Compliance with the set WHO guidelines on infection control will reduce the instances of Hospital Acquired Infections Substantially. Such guidelines include hand sanitation and proper hygiene at the hospital. This study will draw from theory on studies that have been done in different hospitals that show education levels of nurses on the guidelines, and how compliant they are. It will also show the weaknesses in the system and why even after the instructions were passed, the cases of Hospital Acquired Infections were still high.

**Literature Review**

A study was done in teaching hospitals in Amhara region, Ethiopia. The purpose of the study was to find out the potential risk factors that can lead to hospital-acquired infections (Yallew, Worku, Kumie, Abera, Yehuala, & Moges, 2017). The study sample was selected according to the guidelines by CDC of hospital-acquired infections. Controls for the study were chosen on the basis that if they had stayed at the hospital for more than 48 hours and had not contracted an infection. For every chosen survey, there were four controls. A complete study was conducted that included a sample of 545 patients, of which 109 were the study cases, and 436 were controls. The median stay in the hospital for these patients was seven days. It was discovered that patients admitted with a medical waste container had 82% less chance of developing HAIs with an adjusted odds ratio of 0.81 (95% confidence interval ranging between 0.03 and 0.97). Immune suppressed patients were 2.34 (95% confidence interval ranging between 1.17 and 4.69) times more prevalent to hospital infections than other patients.  Patients who had been given antimicrobials, catheter, and those who had undergone surgery had 8.63, 6.91 and 2.35 more chance of getting the infections. Limitations of the study outlined by the authors include: Incomplete clinical data, and inclusion of a relatively small number of risk factors for HAIs. However, the sampled data was drawn from proportionately larger controls than cases making it simpler to identify variations in the population. Nurses should ensure that all wards have the necessary healthcare materials in all wards because it reduces the rate of HAIs. Attention should be given to the handling of immune-suppressed individuals, as well as those who have undergone surgery.

HAIs have a health and economic burden on patients and healthcare facilities. In developing countries, the effects are worse, because of shortcomings in the implementation of guidelines. A study by Nair et al. (2017) aimed to find out the prevalence of HAIs and the risk factors in a hospital for the elderly, in prune, India. A cross-sectional survey was done and data for each patient collected. 1886 eligible patients were sampled. The CDC guidelines were followed when identifying patients who got HAI. The overall prevalence of HAI was 3.76% with a 95% confidence interval ranging between 2.97% and 4.69%. Surgical ICU had 25%, medical ICU 20%, and burns unit had a 20% prevalence of HAI. All the three figures were reported to be statistically significant. People who had stayed at this hospital for long had an adjusted odds ratio of 2.31 with a p-value of 0.061. People on oxygen had 18.57, those on urinary catheter 7.9 and those who were exposed to CAC were found to be having 8.59 prevalence of HAI. One of the limitations of the study reported by authors is that the population was small because it was conducted in only one hospital setting. However, the data collection method was the use of surveys and repeated prevalence of the same is an efficient method that enables tracking of trends (Nair et al., 2017). The conclusion here is that HAIs are still an issue, and nurses and other healthcare providers should prioritize infection control because it costs patients their lives and prolongs the length of hospital stay.

HAIs have led to the emergence of numerous drug-resistant pathogens.  To contain this problem, the whole healthcare team has to be included, especially nurse, because of thy ear in close contact with the patient at all times. To understand ways by which HAIs can spread between the hospital, patient transfer patterns were examined in the French healthcare system (Nekkab, Astagneau, Temime, & Crépey, 2017). Three patient networks were established; those with HAI, those who might have HAI and other patients. They were tracked, and the results indicated that there was a possibility of a patient acting as a vector of an infection from one hospital to another. Hence, it could lead to an epidemic in the country. This means that infection control measure have to be put in place, or the possibility of an outbreak is imminent. It would be bad if the infection is resistant to drugs.

The article by (Hostiuc, 2018) aimed to show the importance of disclosing to patients if they have a HAI and the importance of this preventing further spread. The highest prevalence of HAIs is in the ICU, but their effects can be felt in any hospital department. As nurses, it is essential to prevent infections from spreading. However, if a patient has a HAI, it is important to inform them, so that they can be wary not to spread it to others.

Medina-Presentado et al. (2017) describes online learning courses nurses took in Latin America and the effects it had on the prevalence of HAIs. Latin America is one of the most significant areas in the world. Hence, it is prone to instances of HAIs, and drug-resistant pathogens are a result of regular infections. 1169 nurses took part in the online learning course, from 19 Latin American countries. Almost half of the people who started the program received certificates of completion. Hence it can be said that coverage was excellent. The results indicate that there was an increase of knowledge after the program. Commitments to adhere to the guidelines taught went hand in hand with the people who took the tests.  Education is key when educating nurses on HAIs and they should strive to educate themselves on ways to reduce infection spread.

Nosocomial infections In the ICU is about ten times higher than in normal wards. However, with proper NABH principles, the infection rate goes down by one third. A cross-sectional study was done by Kadur (2017) on what happens when the NABH guidelines are obeyed, from April-Aug 2015. The results indicated that urinary tract infections reduced by half during that time. Central line blood infections reduced substantially. This goes on to show that hen procedures are followed, the rate of infection goes down.  Nurses should strive to follow guidelines because high levels of compliance translate to low instances of infections in the hospital.

This study aimed to find out the prevalence of HAIs in Primorsku Krai and the consequences of these infections (Paudel, Ghosh, & Adhikari, 2013). The study was carried out via retrospective epidemiological analysis. The results indicated that highest prevalence were in the maternity, surgical and pediatric units. The effects were increased morbidity and mortality rates, and operative complications. The effects are grave, and that is why infection control is important, to prevent issues such as death and prolonged hospital stay.

Nurses are usually tasked with the responsibility of infection control because they come into contact with patients a lot. However, patients are also supposed to maintain hygiene, more so hand hygiene. A study by Haverstick (2017) aimed to find out the prevalence of HAIs in patients who sustained hand hygiene. Patients from the cardiothoracic surgical unit in a Michigan hospital were given hand sanitizers. Nurses taught them how to keep hand hygiene. The participants of the study filled questionnaires, at the beginning of the study, at discharge and for three months after they were discharged. In the hospital, the rate of HAIs reduced significantly. They also did not have any instances of infection after they were released. The study shows that infection control by patients reduces the chances of getting HAIs. Hence, nurses should include patients, and teach them how to control infections.

Hand hygiene is essential when controlling infections at the hospital. Studies have shown that it reduces the chances of getting an infection substantially. However, some pathogens have grown resistant to disinfectants. An example is methicillin-resistant Staphylococcus aureus, (HA- MRSA). Monistrol et al. (2012) assessed the effect of a multifaceted intervention on hand washing compliance and the prevalence of HAIs and HA-MRSA. The compliance of hand washing was observed through WHO guidelines. A sample size of 825 patients was used before the study began and 868 after the study were wrapped up. The results indicated that the more compliant the health care workers were to hand washing, the less the instances of HAIs were reported. There were also low instances on HA-MRSA in the follow-up periods. Hand hygiene compliance was found to have improved from 54.3 percent to 75.8 percent with a p-value of 0.005. The long-term follow up was identified to be a strength of the study. The limitation of the study was that it lacked a control group. This limitation was supplemented with pre-post intervention comparison. This study acknowledges that there are infections that are resistant to normal infection control measures. However, compliance reduces the chances of such pathogens affecting people.

A study carried out by Sharma, Sharma, Puri and Whig aimed at finding out the compliance of hand washing in a tertiary hospital in India. Cross-sectional design method was used, and 42 medical ICUs were studied. Observation method was used to ascertain compliance of them. A questionnaire was filled to find out the knowledge these health care workers had about hand washing. Overall compliance was reported to be 43.2% and the risk of cross-transmission was 38.8% compliance hence is affected by the workload, and knowledge is based on someone's rank. Limitations of this study were lack of a control group and the sample size observed was small. Ideally, nurses are supposed to be well informed and be compliant, to reduce the percentage of cross infection.

**Synthesis paragraph**

Many nurses are aware of the guidelines. As students, they are taught, but compliance is an issue due to the workload. Research shows that when compliance is high, the rate of infection goes down. Measures should be put in place to push for compliance. For instance, the hospital could prioritize compliance, because it will save lives, as well as money and resources for the hospital. Secondly, regular monitoring should be done to identify nurses who are not compliant. They should be punished, to reinforce compliance.

**Definition of variables**

Theoretical variables

The WHO Guidelines on infection control.

Level of education

Operational variables

Number of patients

Type of ward

Type of hospital

Resources available

Gender of the research sample

**Research questions**

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| PICO | EXPLANATION |
| Patient or Problem | Poor compliance to WHO Guidelines on infection control by nurses. |
| Intervention | Ensure proper compliance of the WHO guidelines on infection control through frequent monitoring and evaluation to reinforce the behavior. Also, give nurses just enough workload so that they do not rush through some procedures. |
| Comparison | Compare the occurrence of Hospital Acquired infections in wards that nurses are compliant and wards that the nurses are not compliant. |
| Outcome | Cases of HAIs were lower in wards that nurses were compliant, and were higher in wards that nurses were not compliant. |
| Time | Data Collection will be over 3 months. |

Patients go to the hospital to be healed, and the last thing any patient wants is to acquire an infection during their visit to the hospital. However, hospitals are home to many pathogens, and when care is not taken, there might be cross-transmission. Nurses handle most patients, which mean that the risk of cross-transmission from nurses is higher than any other healthcare worker.

To what extent does compliance to guidelines on infection control help prevent the occurrence of Hospital Acquired Infections?

**Hypothesis**

Compliance to guidelines set for infection control helps reduce the occurrence of Hospital Acquired Infection.

**Research design**

This study will assume a cross-sectional study method. This study design will examine nurses from all areas in the hospital. It is the best study design method because it will collect data from one point in time. Hence, it will prevent the chance that some participant will quit before the study is over. This study design cannot determine a cause but can explain the characteristics that accompany a particular occurrence. In this case, the study will aim to find out compliance, whereby observations will be made, and inferences made too that will prompt further research. It will also allow the investigation to look into several characteristics at once; for instance gender, age, level of education and type of sickness. It is also the best because this study design is used to examine the existing characterizes of a population. In this case, the community is prone to HAIs, and this study aims to find the contributing factors.

**Assumptions of the study**

1. The study assumes that the patients studied do not have underlying conditions that could lead to opportunistic infections.
2. The hospital staffs are aware of the guidelines stipulated by the WHO on compliance to control Hospital Acquired Infections.

**Limitations of Study Design**

1. Similar participants have to be found. It is hard to find participants who are equal in each way, except for the one variable that is being studied.
2. There might be group difference, which might affect the validity of the results. There might also be underlying factors that might lead to infections in some people, and that will also affect the validity of the results.

**Strengths of study design**

1. It is cheap because it is done at one point.
2. It is fast because researchers can garner a lot of information at once and in a short time because it is done at one place.
3. It allows room for different variables to be observed at once. Hence, comparisons can be drawn, and a viable conclusion arrived at.
4. Findings from this design pave the way for further studies.

**Sampling method**

The sampling technique that will be used for this study is the non-probability sampling method. A specific hospital will be chosen, and specific wards examined. All the patients in the wards chosen will take part in the study. The criteria for sampling is that the health care worker should have worked In the hospital for a minimum of a year, have worked the whole week and is aware of the WHO compliance measures.

**Data collection**

Data will be collected using questionnaires which will be filled by the health professionals. The researchers will collect data by observation method, and then compared to the guidelines set. Laboratory records of the patients being taken care of will be examined, and instances of HAIs will be ascertained. To protect the participants of the study, they will not be allowed to fill in their names on the questionnaires. Patients and nurses will sign a consent form that will enable the researchers to collect data on them. Confidentiality will be maintained all through.

**Instruments**

To measure reliability and validity, instruments that will be used are performance checklists, observations forms, and socio-metric devices.

**Data analysis**

The data collected is quantitative; therefore, it will be analyzed by SPSS software. A chi-square test of difference in proportions will be conducted to compare the cases of HAIs between groups. Association between HAIs and risk factors observed will be conducted by computing odds ratios. The analyzed data will then be presented in the form of tables, pie charts, and graphs

**References**

Haverstick, S. (2017). Patients' Hand Washing and Reducing Hospital-Acquired Infection. *Critical Care Nurse* , 1-8.

Hostiuc. (2018). Patient autonomy and disclosure of material information about hospital- acquired infections. *Infection and Drug Resistance* , 369-75.

Kadur, S. (2017). Impact of NABH guidelines on incidence of hospital acquired infections in intensive care-Audit. *Indian Journal of Clinical Anaesthesia 4(2)* , 257-60.

Medina-Presentado, J. C., Margolis, A., Teixeira, L., Lorier, L., Gales, A. C., Pérez-Sartori, G., ... & Guerra, S. (2017). Online continuing interprofessional education on hospital-acquired infections for Latin America. *The Brazilian Journal of Infectious Diseases*, *21*(2), 140-147.

Monistrol, O., Calbo, E., Riera, M., Nicolás, C., Font, R., Freixas, N., & Garau, J. (2012). Impact of a hand hygiene educational programme on hospital-acquired infections in medical wards. *Clinical Microbiology and Infection*, *18*(12), 1212-1218.

Nair, V., Sahni, A. K., Sharma, D., Grover, N., Shankar, S., Chakravarty, A., … Chopra, B. K. (2017). Point prevalence & risk factor assessment for hospital-acquired infections in a tertiary care hospital in Pune, India. *The Indian Journal of Medical Research*, *145*(6), 824–832. http://doi.org/10.4103/ijmr.IJMR\_1167\_15

Nekkab, N. N., Astagneau, P., Temime, L., & Crépey, P. (2017). Spread of hospital-acquired infections: A comparison of healthcare networks. *PLoS Computational Biology* , 1-22.

Paudel, I. S., Ghosh, V., & Adhikari, P. (2013). Knowledge, Attitude and Practice of nursing students on Hospital Acquired Infections in Western region of Nepal. *Journal of College of Medical Sciences-Nepal* , 103-107.

Sharma, S., Sharma, S., Puri, S., & Whig, J. (2011). Hand hygiene compliance in the intensive care units of a tertiary care hospital. *Indian Journal of Community Medicine* , 217-221.

Yallew, Worku, W., Kumie, Abera, Yehuala, & Moges, F. (2017). Risk factors for hospital- acquired infections in teaching hospitals of Amhara regional state, Ethiopia: A matched- case control study. *PloS One* , 1-11.