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RESEARCH ARTICLE

PERCEPTIONS OF HAND WASHING POLICY: A STUDY OF THE ICU NURSING STAFF OF SELECTED HOSPITALS IN TRINIDAD AND TOBAGO

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ABSTRACT

Background: Hand washing has become one of the most recommended methods of infection control in hospitals. Studies indicate that the knowledge, attitude and practices are poor in many countries. There has not been any similar study in Trinidad and Tobago. This study is attempt to document the situation in the twin-Island state.
Aim: To document the perceptions of the nurses in the Intensive Care Units (ICUs) of the selected hospitals in Trinidad with regard to hand washing in accordance with the policies of the Ministry Health, Trinidad and Tobago.
Methods: A cross-sectional survey was conducted using 3 major hospitals with ICUs. 81% of the nurses in the units voluntarily participated. Result was analyzed in simple percentage frequencies and presented in tables.
Results: Overall the nurses show favourable perceptions on aspects of the policy. There are however aspects of the perceptions that are suspect.
Discussion: The result was discussed noting the implications of their perceptions compared to literature.

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INTRODUCTION

The history of hand washing and its role in infection prevention and control in nursing began with Florence Nightingale. Her belief in purity of water and air as well as efficient drainage, light and cleanliness lead to her research in hospital sanitary problems. This research helped to establish a standard of formalized cleanliness and sanitation in hospitals (Ellis, 2015). Another pioneer of infection prevention and control was Ignaz Semmelweis who was an obstetrician in Vienna around the same time-period as Florence Nightingale. He observed that the maternal death rate at the hospital had increased fivefold for mothers who were being delivered by medical students. On May 15th 1847, his research led to the theory that disinfecting hands or routine hand washing could prevent the transmission of infection to patients, which resulted in a decrease in maternal death (Ellis, 2015).Intensive care units (ICU) are a primary component of modern medicine and are currently in more than 95% of acute-care hospitals in the United States.

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Although ICUs account for only 5% of hospital beds, they represent 8% to 15% of hospital admissions. More than one third of patients who were hospitalized in ICUs develop unexpected complications. In particular, these patients were at a high risk of developing nosocomial infections (Weinstein & Bonten, 2002).The most frequent nosocomial infections are infections of surgical wounds, urinary tract infections and lower respiratory tract infections. The highest prevalence of nosocomial infections occur in intensive care units and in acute surgical and orthopaedic wards. Infection rates are higher among patients with increased susceptibility because of old age, underlying disease, or chemotherapy (Ducel, 2001). Half of all life threatening nosocomial infections occurred in intensive care units (ICUs). Consequently, infection prevention and control policies were implemented in all ICU's to curb this occurrence (Bearman & Munro, 2006). Centers for Disease Control and Prevention (2009), indicates that severity of patients' illness related to exposure to life-saving invasive devices and procedures have increased. Also (Weinstein & Bonten, 2002) posited that there is high rates of infection in ICU patients accounting for >20% of nosocomial infections, with increased morbidity and financial cost and the mortality exceeding 40%.

Stone (2014) indicated that intensive care units have shown uneven compliance with hand washing policies. According to the survey, many hospital ICUs fell short in adhering to policies and it was recommended that more focus should be placed on dissemination and implementation studies, as this will help inform medical and nursing staff to improve evidence-based practices to prevent the spread of nosocomial infections. Infection prevention and control policies for hand washing seek to prevent the spread of health care-associated infections in a health care facility. The policies and guidelines, which are made to prevent infections, are required to monitor and control infections in health care facilities (Ministry of Health, 2011). Therefore, it is of great importance that health care workers comply with these policies and guidelines to minimize the spread of infections in health care facilities. Compliance will presuppose that they healthcare workers are aware of these policies.

Registered Nurses (RN's) and Critical Care Nurses (CCNs) are in constant contact with critically ill patients who are completely dependent on them to provide health care and to meet their activities of daily living. Two foundational tenets of nursing are non-maleficence and advocacy. As such, nurses are charged with the prime responsibility of ensuring that they have favourable perceptions of infection control policies and procedures. Documented studies from other developed countries have shown that their and practice of hand washing policies by ICU nurses was not up to recommended standards. For example, Yuceer and Demir (2009) indicated that the intensive care nurse is in constant contact with the patient and as such has a vitally important responsibility in preventing hospital care associated infections (HCAI's). These nurses should have current knowledge regarding infection prevention and control and universal precautions that are accepted worldwide and this knowledge must be reinforced through practice while providing the most effectual patient care and as patient advocates, it has always been the duty of the intensive care nurse to ensure that all members of the health care team are compliant with the guidelines of the infection control policies and procedures so as to protect the patient from HCAI's. Also, Vandijck, Labeau, Vogelaers, and Blot (2010), posited that nurses' compliance, knowledge, attitude and perception of evidence-based guidelines in the prevention of infection was relatively poor. It also discovered that the ICU nurses' knowledge about evidence-based guidelines for the prevention of ventilator-associated pneumonia (VAP): the average score for knowledge on this topic as 45.1%; about the frequency for which the ventilator circuits were to be changed; only 35.1% of the respondents were mindful of the recommendation while only 21.4% knew the recommended frequency for change of the oxygen humidifiers. Vandijck *et al*. (2010) also tested the nurses on their knowledge about evidence-based guidelines for the prevention of catheter-related bloodstream infection. The average score on this topic was 44.4%. Forty-three percent (43%) of respondents knew the recommendation to change the dressing on the catheter insertion site only when it was found to be soiled, loosened, or damp, and at least once weekly. Only 26.2% of ICU nurses correctly indicated that both transparent semi permeable polyurethane and gauze dressings are recommended to cover the catheter insertion site, as this type of dressing does not affect the risk for catheter related bloodstream infection (CR-BSI). When asked which disinfectant solution is recommended for the insertion site, only 13.9% of respondents correctly indicated a 2% aqueous chlorhexidine solution. Only 26.5% of the nurses seemed to be aware of the recommendation to replace the administration set every 96 hours, when either lipid emulsions or blood products are administered through a central venous catheter (Vandijck *et al*., 2010). On average, the scores for nurses' knowledge on the prevention of surgical site infection were outrageously low at 29.0%. Even more disturbing, the project showed that less than half of the respondents, 45.7%, knew the CDC guidelines for the protection of surgical wounds during the first 24-48 hours post-surgery (Vandijck *et al*., 2010). This which necessitated the European project the "Lancet Infectious Disease Project" for European ICU nurses.

Munro, Giuliano and Kleinpell (2008) opined that most patients in the intensive care unit are admitted because of a life threatening medical or surgical condition, are at increased risk for infection, because of the severity of their illness, underlying conditions and the use of multiple antibiotics necessary to treat their condition. This leads to an immune-compromised state and alterations in the natural flora and fauna. Additionally, a breakage in the continuity of the skin and mucous membranes which occurs with the insertion of numerous invasive lines and devices, exposure to multiple procedures such as tracheostomy and endotracheal intubation and increased contact with healthcare personnel also predisposes the patient to multiple infections. It included another primary source of cross-transmission of nosocomial pathogens are the equipment used by staff when providing care for the ICU patient. These were the reason open lines of communication and compliance to infection control policies was identified as pivotal in the control of HCAI's. The ICU nurse as patient advocate has assumed full responsibility for the delivery of quality care that is evidenced based. Consequently, the nurse fosters an atmosphere of open communication between all members of the multidisciplinary team, pursuant of enforcing infection control measures and monitoring, reducing and ultimately eliminating the dilemma of HCAI's (Stone, Pogorzelska-Maziarz, Herzig, Weiner, Furuya, Dick, & Larson, 2014). However, there are no documented studies of this problem in Trinidad and Tobago. Additionally, statistics from the World Health Organization (WHO) has shown that as many as two-thirds of the patients admitted to an intensive care unit in Trinidad and Tobago would have suffered from at least one health care-associated infection (WHO, 2015). It became apparent that to expect the healthcare workers to comply with infection control policies will be predicated on the healthcare workers perceptions of the existing policies regarding hand washing. This study sets out to find out from the intensive care nurses of selected hospitals in Trinidad what their perceptions are of the infection control policies of the Ministry of Health, Trinidad and Tobago with regard to hand washing.

Purpose of the Study

The purpose of this study was to ascertain the perceptions of the staff of the ICUs of the selected hospitals in Trinidad with

regard to infection control policing of hand washing in their hospitals.

Methodology

Research Design

A non-experimental, descriptive, cross-sectional survey was undertaken since we looked at the variables without manipulating them (Dengler, 2011; Bevins, 1999, and Nebecker, 2013). Therefore this study sought to determine if the intensive care nurses of 3 major teaching hospitals in Trinidad have favourable perceptions of the policies related to hand washing, and if their knowledge is related their demographic characteristics.

Population/sample

The study population consisted of a total of eighty-four (84) nursing personnel. At Hospital A, there were thirty (30) Registered Nurses (RNs) as well as (four) 4 Enrolled Nursing Assistance (ENA). Out of the Registered Nurses, eight were Critical Care Nurses (CCN). At Hospital B, there were twenty-three (23) Registered Nurses (RN) of which seventeen (17) were CCNs. and six (6) were RNs. The unit also has (six) 6ENAs. Hospital C, also has twenty-three (23) RNs, of which, nine (9) were CCNs and fourteen (14) were RNs. and two ENAs. We believe that the nurses in these ICUs of the 3 hospitals represented the largest group of ICU nurses throughout Trinidad. All nursing personnel that were present during the 7am-3pm and 1pm-9pm shifts were invited to participate in the study and be part of the sample population. However only sixty-nine (69) nurses volunteered to participate representing 82.1% of the population were recruited for the study.

Instruments of data collection

A questionnaire was designed which consisted of 21 items. Nine of these items were on demographic data about the participants, 7 questions focused on the participants knowledge about the hand washing procedure and 5 questions were used to determine what actions the participants believed would be effective in improving hand hygiene practices in the ICU. The content of the questionnaire was in part guided by the Port of Spain General Hospitals' (POSGH) Policies and Procedures Manual for Hand Hygiene and faired by the Senior Infection Prevention and Control Officer at the Infection and Control Department in the selected hospitals for further validation of the information in the study.

Data Collection Procedure

Data was collected over a period of one month and began when all required ethical approvals were obtained from (a) The Ethics Committee of the University of the West Indies and (b) the ethics committees of the three respective Regional Health Authorities. A letter was also sent to the Hospital Administrator of the selected hospitals for their permissions to conduct the study at the ICU. Data collection took place during the 7am-3pm and 1pm-9pm shifts over the specified period. The team explained the purpose of the study and answered questions by nursing staff before consent was obtained. After consent was obtained, the questionnaires were distributed to all staff present during the respective shifts and a box was placed at the nursing station for participants to deposit completed questionnaires.

Instrument of Data Analysis

The data collected was represented by the use of the Statistical Package for Social Sciences (SPSS). The data was also represented by the use of frequency tables.

RESULTS

Table 1 summarizes the percentage of participants who answered the questionnaires given by the research team. The first 9 items in the questionnaire addressed the demographic data of the participants. Of the entire population 83% were females and 17% were males. Fifty-five percent (55%) of the population was aged between 31-40 years old whereas 16% were aged between 20- 30 years old. The religious background of the participants ranged from 54% of unknown religion, 31% Christians, 12% Hindus and 3% Muslims.

The Ethnicity of the participants comprised of 58% African descent, 19% East Indian descent, 14% other and 9% mixed. Forty-four (44%) of the nursing staff were critical care nurses, 33% were registered nurses and 23% were Enrolled Nursing Assistant. 50% of the staff worked in the ICU for 2-5 years whereas 3% of the staff worked in the unit for less than 6 months.

The highest level of qualification in the population was Masters of Science in Nursing. Five percent (5%) of the population had this qualification. Thirty-six percent (36 %) were registered nurses and 27% were post basic registered nurses. The work experience of the population ranged from 52% with 0-10 years' experience and 26% with 11-20 years of experience. Those with 21-30 and 31-40 years of experience were represented by 6% each. Most (34%) received their training from either the Ministry of Health School of Nursing or the College of Sciences Tertiary Appling Art of Trinidad and Tobago respectively.

Table 2 summarizes the responses of the nurses with regard to their perceptions of the stipulations of hand washing regarding the expectations of the respective hospital administrations. in their respective hospitals. It can be observed that their perceptions of the stipulations varied. The table indicated that the nurses agree to hand washing with appropriate material reduces microorganisms (84%), need to wash hands before entry and after leaving a unit (92%), need to comply with policy (73%) and the belief that compliance with hand washing policy is related to infection control (84%). Majority of the nurses do not think that there is the need for them to receive regular training on hand washing technique (61%) as well as the nurses being too busy to follow the guidelines related to hand washing (68%). Also majority of the nurses agree to place posters at hand washing stations (52%), and that health members to receive regular training on hand washing (63%).

Table 1. Demographics (N=69)

Gender	Male		Fem	
	17%		83%	
Age	20-30	31-40	41-50	51-60
	16%	55%	17%	12%
Religion	Hindu	Christian	Muslim	Other
	12%	31%	3%	54%
Ethnicity	East Indian	African	Mixed	Other
	19%	58%	9%	14%
Profession	CCN	RN	ENA	
	44%	33%	23%	
How long have you been working in this unit	< 6 months	6mth -1yr	2-5yrs	5-10yrs
	3%	11%	50%	36%
Highest level qualification	ENA	RN	Post basic Reg	BScN	MScN
	16%	36%	27%	16%	5%
Experience in years	0-10yrs	11-20yrs	21-30yrs	31-40yrs
	52%	36%	6%	6%

Table 2. Knowledge of stipulations in the Hand Washing policy (N=69)

Knowledge of the hand washing policy	Disagree	N	Agree
Nurses must believe that hand washing with soap and water, alcoholic-based antiseptic hand rub and antimicrobial products helps to remove microorganisms, which may cause disease.	8	5%	87
As a Health- care professional, nurses must wash their hands on entry to a unit, before and after contact with the patient and their environment and before and after any procedure.	5%	3%	92%
The nurses in the ICU I receive regular training & updates about the hand-washing technique.	61%	9%	30%
They must not be too busy to follow the guidelines written in the hand-washing policy.	68%	16%	16%
There is a strong relationship between compliance with the hand-washing policy and prevention of health care associated infections.	10%	6%	84%
Head nurses and senior nurses within the ICU encourage compliance to the hand-washing policy.	28%	6%	66%
Hand hygiene posters placed at each hand-washing station as reminders to staff.	52%	9%	39%
All members of the health care team will receive regular training in the hand-washing technique.	63%	11%	26%
Copies of the hand-washing policy will be given to each member of the healthcare team.	28%	22%	50%
Members of the health care team will support and encourage each other to be compliant with the hand washing policy.	33%	6%	61%

However, most (66%) disagreed that head nurses and senior nurses should encourage compliance, or that copies of the hand washing policies should be distributed to all health care members (50%). They also disagreed that health care members should support each other with regard to compliance to hand washing.

DISCUSSION

The result of the demographic characteristics of the nurses in the ICUs of the 3 hospitals is not surprising. It demonstrates the known general population characteristics of the Island country, a multi-ethnic, multi-cultural and where most of the nurses are males. However, it is very encouraging that most of the nurses are 40 years or less (71%), a situation signifying that they nurses in the ICU have many more years to give their services to the country. It also found that most of the nurses have worked in the ICU for 2-10 years (86%). This implies that they should be expected to be fairly experienced with ICU procedures. With regard to their perceptions of the hand washing policies of the hospitals, Table 2 showed that the nurses have generally favourable perceptions of most of the policy items of theier hospitals. This favourable perceptions concur with many other studies (Canham, 2011; Collins, 2006; Inweregbu, Jayshree, & Alison, 2005; Erkan, Tukoc & Findik, 2011; Muhammad, Mahmoud, Iyad & Manal, 2012; Salati & Kadi, 2014). The finding that 61 % of the nurses disagreed to the need for regular training and updates on hand washing is a course for concern. However, it may be because many of they have worked in the ICUs for up to 10 years. On the positive, one hopes that this statement that they do not need regular training and updates is an indication that they have mastered the art very well. Also that majority (61%) do not see the need to encourage each other to comply with the policy, and for each to be given a copy of the guidelines (50%) is worrying and potentially dangerous. Onuoha and Brieger (1992) posited that health all health staff require regular continuous continuing education if they are to remain current in their practice. One hopes that the practice of hand washing will vindicate their stance of these aspects of the policies.

Recommendations

We recommend a follow up study on the practices of the ICU nurses with regard to hand washing in relation to the infection control policy of the hospitals in Trinidad and Tobago. We consider this recommendation paramount given the stance of the nurses in the ICUs. Already there are evidence of nosocomial infections in the hospital s in the Island (WHO, 2015).

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