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Hand Hygiene Practice Among Pharmacy Staffs in Miri General Hospital

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INTRODUCTION: According to the World Health Organisation (WHO) guideline, hand hygiene needed as thousands of people die around the world from infections acquired during the process of receiving healthcare. Transmission of healthcare-associated pathogens generally occurs via the contaminated hands of healthcare workers. Pharmacists regarded as healthcare workers and could also be vehicles of cross-contamination within the hospital if hand hygiene practice were not practice.

OBJECTIVES: This study aimed to assess the knowledge, perception and practice of hand hygiene among the pharmacists in Miri General Hospital (MGH).

METHODS: The study designed as cross-sectional descriptive study and targeted at all pharmacy staffs at MGH. Self-administered questionnaire, adopted from WHO distributed to all pharmacy staffs with formal consent and collected soon after. Collected data analysed using IBM SPSS Statistics Version 21.

RESULTS AND DISCUSSION: Seventy-five out of eighty questionnaires adequately filled and returned. Female's participants (80%) were the majority. Most of the respondents (40%) were aged between twenty-six to thirty years. There were thirty-three (44%) respondents had received formal training in hand hygiene in the last three years. There was no association between attending hand hygiene formal training with the practice of using alcohol-based

handrub for hand hygiene (p>0.005). However, majority respondents (60%) used handrub rountinely for hand hygiene purpose. Besides, the knowledge of hand hygiene including the main route of cross-contamination, the frequent source of germs causes nosocomial infections and minimum time required for alcohol-based handrub to kill germs (p>0.005) not significantly associated with attending hand hygiene formal training. Most respondents (54.6%) have the perception that healthcare facility is the main route of germs transmission, leading to nosocomial infections; while the common source of germs was the hospital environment instead of germs present in patient which differs from other study. There were 41% respondents aware that a minimum time of 20 seconds needed for alcohol-based handrub to kill germs.

CONCLUSION: Regardless of the participation in hand hygiene training, the adherence to hand hygiene practices and knowledge about hand hygiene were poor among the pharmacy staffs in Miri General Hospital. Increased workload, lack of motivation or alertness might cause this phenomenon. Hence, frequent and continuous motivation, training and education of hand hygiene needed for correct hand hygiene practice and knowledge in future.

KEYWORDS: Hand hygiene, WHO, healthcare

Introduction

Hand hygiene defines to either hand washing with soap and water or the use of alcohol-based gels or foams that do not use of water. Hand hygiene is the single most important practice to reduce transmission of microorganisms from one person to another or one site to another on the same patient. Clean Your Hands annual initiative is part of a major global effort led by the World Health Organisation (WHO). The WHO approach recommends Health Care Workers (HCW) to clean their hands (1):

- Before touching a patient
- Before clean/aseptic procedures
- After body fluid exposure/risk
- After touching a patient
- After touching patient surroundings(1)

According to WHO guideline, hand hygiene needed because nowadays thousands of people die around the world from infections acquired during the process of receiving health care. Thus, hand hygiene is the most important and simple measure to prevent transmitting harmful germs and health-care-associated infections. This is because hands are the main pathways for harmful germs to transmit while health care provided. Based on the WHO guideline, any health-care worker, caregiver or personnel involved in patient care should have consistent good hand hygiene practice (2).

Health-care-associated infections are a critical cause of morbidity and mortality among inpatients worldwide. Transmission of health-care-associated pathogens most often happens via the contaminated hands of health care workers. In view of the growing issue, Centers for Disease Control and Prevention's (CDC's) Healthcare Infection Control Practices Advisory Committee (HICPAC) published a comprehensive Guideline for Hand Hygiene in Health-Care Settings in 2002 to overcome the factors have contributed to poor hand washing compliance among health care workers. On the other hand, World Health Organisation (WHO) launched its Guidelines on Hand Hygiene in Health Care (Advanced Draft) in October 2005 to improve hand hygiene in health care facilities (3). In the United States, the Joint Commission held the 2010 National Patient Safety Goals and demand all hospitals to form a program to promote and monitor hand hygiene of their healthcare worker (1).

Alcohol-containing hand disinfection (AHD) is an effective and practical alternative to standard soap and water. AHD is easier to perform and faster than hand washing with soap and water (1). There have two ways to perform hand hygiene. First, if hands not visibly soiled, clean the hands by rubbing them with an alcohol-based formulation. The duration of the entire procedure is around 20-30 seconds. Second, if hands are visibly dirty or soiled with blood or other body fluids, wash the hands with soap and water. The duration of the entire procedure is around 40-60 seconds (2).

Countries or areas from all over the world have been running their own hand hygiene campaigns. Malaysia is one of them that have been running hand hygiene campaign since 2006. Malaysia commitment towards WHO First Global Patient Safety Challenge "Clean Care, Safer Care" campaign kicked off with signing of statement of commitment by Ministry of Health in 2006. By 2008, WHO Multimodal Hand Hygiene Improvement Strategy and Tools introduced in all hospitals in Ministry of Health Malaysia. Every year most of the tertiary hospitals hold hand hygiene awareness day around 5 May. To strengthen the hand hygiene compliance among the health care workers, the Director General of Health has ordered hand hygiene compliance rate to be one of the Hospital Key Performance Indicator on January 2012 (4).

There were some journals have discussed about hand hygiene practice in Malaysia. A survey regarding the perceptions of hand hygiene among health care workers conducted in Sibu, East Malaysia. A modified World Health Organization questionnaire used to gather data. The findings from this journal have provided a foundation for future studies on hand hygiene (5). There was another study which explored the perceptions and barriers of hand's hygiene practice among medical science students from Management and Science University (MSU). Most of the participants mentioned that they frequently washed their hands using soap. However, most of the participants mentioned the laziness was their main barrier of frequent hand washing. It concluded that medical students still have some misconception and negative attitude towards hand hygiene practice (6).

Infection caused due to hospital acquired microbes is an evolving problem worldwide. Transmission of healthcare-associated pathogens generally occurs via the contaminated hands of healthcare workers. Hand hygiene considered the single most cost-effective public health measure for preventing health care associated infection. Pharmacists regarded as healthcare workers and can also be vehicles of cross-contamination within the hospital if hand hygiene

practice were not practice. Hence, this study aims to assess the knowledge of hand hygiene practice among pharmacy staffs in Miri General Hospital by assessing the knowledge of pharmacy staffs on hand hygiene and evaluate the perception and significance of hand hygiene among pharmacy staffs.

Methods

Settings

The study conducted in Miri General Hospital (MGH). This hospital has 340 beds which has several specialty wards such as Medical, Surgical, Eye, Orthopaedic, Gynaecology, Radiology, Anaesthesia, and Paediatrics. The hospital has altogether 10 pharmacy departments in this hospital. Hand-washing facilities are located in all wards, clinics and pharmacy departments in the hospital. Each department provided with at least a wash hand shank, running tap water, soap and paper towel for hand drying.

Study Design

This was a cross-sectional descriptive study. It designed to assess the knowledge, perception and practice of the hand hygiene including hand washing methods as well as identify factors that motivate and/or militate against hand washing practices by pharmacist in MGH.

Study Population

This study targeted at all pharmacy staffs at Miri General Hospital (MGH) Outpatient Pharmacy (OPD), Inpatient Pharmacy (IPD), Satellite Pharmacy (SAT), Clinical Pharmacy, Production Department, Logistic Pharmacy, Therapeutic Drug Monitoring Department, Medication Therapy Adherence Clinic (MTAC), Cytotoxic Drug Reconstitution (CDR) and Drug Information Service Department. Clinical Pharmacy comprise of Female Medical Ward (FMW), Male Medical Ward (MMW), Female Surgical Ward (FSW), Male Surgical Ward (MSW), Intensive Care Unit (ICU), Paediatric Medical Ward (PMW), and Paediatric Surgical Ward (PSW). The pharmacy staffs include both pharmacist and assistant pharmacists. This survey conducted for 3 months.

Data Collection

Data collection done in April 2016, using a self-administered questionnaire. The questionnaire adopted from WHO's hand hygiene knowledge questionnaire for health care workers. The questionnaire consists of 21 questions. The first 11 questions tailored for demographic data extraction while questions number 12 to 21 focuses on assessing the knowledge on hand hygiene. The questionnaires distributed to all pharmacy staffs and collected soon after. Some of them however, failed to return theirs. Formal consent obtained from the respondents prior to the questionnaire.

Data Analysis

Data analysed using IBM SPSS Statistics Version 21. Descriptive statistics using Chi Square and Fisher's exact Test were as appropriate. The level of significance set at 5% ($p<0.05$).

Results

Of the 80 questionnaires distributed, 75 questionnaires adequately filled and returned. This gives a response rate of 96.15%.

Table 1 Demographic characteristics of study population

	n	%
Gender		
Male	15	20.0
Female	60	80.0
Age (Years)		
21-25	20	26.6
26-30	30	40.0
31-35	15	20.0
36-40	5	6.7
51-55	5	6.7

Majority were female's participants than male participants. Their mean age was twenty-eight years old. Among the participants, there were thirty-three (44%) respondents had received formal training in hand hygiene in the last three years.

Table 2 Association between attended formal training with knowledge of hand hygiene practice among the pharmacy staffs in Miri General Hospital.

	Attended Formal Training n (%)		p-Value
	Yes	No	
Using an alcohol-based handrub for hand hygiene routinely			0.225[a]
i. Yes	15 (37.5)	25 (62.5)	
ii. No	18 (51.4)	17 (48.6)	
Main route of cross-contamination of potentially harmful germs between patients in a health-care facility			0.765[b]
i. Health-care workers' hand when not clean	17 (41.5)	24 (58.5)	
ii. Air circulating in the hospital	4 (36.4)	7 (63.6)	
iii. Patients' exposure to colonised surfaces	9 (50.0)	9 (50.0)	
iv. Sharing non-invasive objects between patients	3 (60.0)	2 (40.0)	
Most frequent source of germs responsible for health care-associated infections			0.382[b]
i. The hospital's water system	1 (100.0)	0 (0.0)	
ii. The hospital air	8 (57.1)	6 (42.9)	
iii. Germs already present on or within the patient	10 (45.5)	12 (54.5)	
iv. The hospital environment (surfaces)	14 (36.8)	24 (63.2)	
Minimum time needed for alcohol-based handrub to kill germs on hands			0.371[b]
i. 20 seconds	11 (34.4)	21 (65.6)	
ii. 3 seconds	3 (75.0)	1 (25.0)	
iii. 1 minute	9 (50.0)	9 (50.0)	
iv. 10 seconds	10 (47.6)	11 (52.4)	

[a] Fisher's Exact Test
[b] Pearson Chi-Square

There was no significant association between attending hand-hygiene formal training and the practice of using alcohol-based handrub and for hand hygiene routinely as p-value is 0.225 (p >0.005). Although the result not significantly associated, it shown that most of the participants 45 (60%) used handrub routinely for hand hygiene purposes. Majority of the participants had chosen the cleanliness of the health-care workers as the main route of cross-contamination of potentially harmful germs between patients in a health-care facility. However, the knowledge about the main route of cross-contamination not significantly associated (p>0.005) with attending hand-hygiene formal training. Same goes to the knowledge about the most frequent source of germs responsible for health-care infections and minimum time required for an alcohol-based handrub to kill germs were both not significantly associated (p>0.005) with attending the formal training of hand hygiene practice.

Discussion

Hand hygiene known to prevent cross infection in hospitals. The knowledge about good hand hygiene washing practices and compliance of the same according to the WHO guidelines among healthcare workers are essential for lowering the risk of health-care associated infections (7).

In this study, forty-one (54.6%) of the subjects answered correctly which is the main route of transmission of potentially harmful germs between patients in a health care facility. Our results are comparable with other studies as stated by Ariyaratne and his colleague (8) which reported that 72% of participants knew that unhygienic hands of health care workers were the main route of transmission. This route of transmission may lead to healthcare associated infection or known as nosocomial infection. Healthcare associated infections defined as those that develop during hospitalisation but are neither present nor incubating upon the patient's admission to the hospital; generally for those infections that occur more than 48-72 hours. Healthcare associated infections results in excess stay, mortality and healthcare cost. In 2002, an estimated 1.7 million healthcare associated infections occurred in the United States, resulting in 99,000 deaths. In March 2009, the report from Centre for Disease Control and Prevention (CDC) released a report estimating overall annual direct medical costs of healthcare associated infections that ranged from $28-45 billion (3).

In this study, thirty-eight (50.6%) of the respondents thought that most frequent source of germs which causes healthcare-associated infections was the hospital environment. Followed by the source of germs came from the germs already present on or within the patient. This result was different with the study conducted by Maheswari and his colleague (7) which stated that germs present on or within the patient were the most frequent source of germs responsible of the health care associated infections. The most common sources of infectious agents causing healthcare associated infections are the germs on or within the patients, followed by the hospital environment, the healthcare personnel, contaminated drugs or food and contaminated patient care equipment. The infection is more likely to develop especially in those patients who are immunocompromised due to age (neonate or elderly), underlying diseases, severe illness or medical/surgical treatments.

According to data first published in Hospital Epidemiology and Infection Control, 2nd Edition (1999) and contained in the CDC's hand-hygiene guidelines, alcohol-based hand rubs are better than hand washing at killing bacteria (3). WHO recommends alcohol based hand rubs for hand antisepsis based on its intrinsic advantages of fast acting, broad spectrum antimicrobial activity. The minimum time needed for the alcohol-based handrub to kill germs on hands is 20 seconds as mentioned in WHO guidelines (2). The findings of this study shown that only 35 (41%) respondents out of 75 respondents were aware about the minimum time needed for effective hand hygiene.

Limitations

Ideally, hand hygiene practices have to be assessed by direct observation, which could not be done and hence questionnaire used to assess self-reported practices and knowledge, although there were studies which have reported no major differences between self-reported practices rate and observed practices rates (9). In addition, non-response bias would occur as there were some of the respondents did not submit their questionnaires. Hence, a larger sample size and a questionnaire based study coupled with observation of hand hygiene performance would yield a better result (10). Regular survey of healthcare associated infections occurring in the hospital would also be helpful.

Conclusion

Hand hygiene is the most effective method of preventing transmission of infections. Although hand hygiene is a simple measure to follow, adherence to hand hygiene practices

and knowledge about hand hygiene were poor among the pharmacy staffs in Miri General Hospital regardless of their participation in hand hygiene training. This phenomena may be due to lack of motivation and increased workload or tight work schedule between patient care identified as a possible constraint to hand washing (11). Emphasis on the importance of hand hygiene and improve the awareness and understanding of infection control among the pharmacy staffs in Miri General Hospital should be reinforce to prevent disease transmission. The ideal way to improve hand washing compliance is through motivation, training and education of hand hygiene. Hand hygiene training sessions may need to be conducted more frequently with continuous monitoring and performance feedback to encourage them to follow correct hand hygiene practices as well as provide updated knowledge in the area of nosocomial infections for the pharmacy staffs. It would also translate in a behavioural change of attitudes and practices that would help in reducing the incidence of nosocomial infections.

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