# A STUDY TO ASSESS THE HAND HYGIENE PRACTICES AMONG HEALTH CARE WORKERS IN CSICU, SCTIMST

**PROJECT REPORT**

*Submitted in the partial fulfillment of the requirements*

*For the*

*Diploma in Cardio vascular and Thoracic Nursing*


*SUBMITTED BY*

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**CODE NO: 6197**





**SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCE AND TECHNOLOGY**
**TRIVANDRUM, 695011**


**November 2011**

## CERTIFICATE FROM SUPERVISORY GUIDE

This is to certify that Miss: Shanu.S J has completed the Project work on "**A STUDY TO ASSESS THE HAND HYGIENE PRACTICESAMONG HEALTH CARE WORKERS IN CSICU**" at SCTIMST, Trivandrum under my supervision for the partial fulfillment for the Diploma in Cardio Thoracic Nursing in the University of Sree Chitra Tirunal Institute For Medical Sciences and Technology. It is also certified that no part of this report has been included in any other thesis for processing any other degree by the candidate. .

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# CERTIFICATE FROM THE CANDIDATE

This is to certify that the project on: "A STUDY TO ASSESS THE HAND HYGIENE PRACTICES AMONG HEALTH CARE WORKERS IN CSICU", at SCTIMST, Trivandrum is a genuine work done by me, under the guidance of Dr: Saramma P P, Senior Lecturer in Nursing , SCTIMST , Trivandrum. It is also certified that this work has not been Presented previously to any other University for award of degree, diploma Or other recognition.

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# APPROVAL SHEET

This is to certify that Miss. Shanu.S J bearing code no: 6206 has been admitted to the Diploma in Cardiovascular and Thoracic nursing, in January 2011 and has undertaken the project entitled, "A study to assess the Hand hygiene practice among health care workers in Cardiac Surgical ICU" in SCTIMST, Trivandrum, which is approved for the Diploma in Cardiovascular and Thoracic nursing, awarded by the Sree Chitra Tirunal Institute for Medical Sciences and Technology Trivandrum, and is found satisfactory.

**EXAMINERS**

(1) ……

(2) ……

November 2011.
Thiruvananthapuram,

**(1) ……..**
**……**
**(2) …….**

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Shanu. S J

# Abstract

Topic: - A study to assess the hand hygiene practices among health Care workers in CSICU.

**Background of the study**: - Health care associated infections persist as a major problem in most Intensive Care Units. Hand hygiene is the most simple and effective method for the prevention of these. So assess the reported hand hygiene practices and observing is very much important to find out gaps, plan remedial measure to reduce HAIs. **Aims of the study:** (a) To assess the hand hygiene practices among health care workers (b) To assess the reason for non-compliance. **Material and method:-** This study was conducted in CSICU of SCTIMST TVM. It was an observational, study 50 HCWs were taken for observational study,50 for assess the reported hand hygiene practices. Questionnaire and observation tool were used for data collection. **Result:**. The study revealed that there is a disparity between the opinion and the practices of hand hygiene among health care workers. The over all observed compliance was 67.08% (75 HCWs are included in observation study , 111 number of opportunities are given only 76 opportunities of hand hygiene being performed). The physiotherapist shows higher compliance rate (78%). The nurses and residents shows 68% and the technician and unit helpers shows low rate (60%). The reported hand hygiene compliance among HCWs was above 90% (Questionnaire given to 50 HCWs they were may or may not be included in observation study ). Nurses reported 98% compliance rate technician reported 81% and others reported between 90-95%. **Conclusion:** There were two studies conducted by the investigator. The observational study and reported study. The observational study shows that the over all hand hygiene compliance was 67.08% and the reported study give more than 90% of compliance among HCWs.

## CONTENTS

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## LIST OF ABBREVATIONS

CSICU -- Cardiac Surgical Intensive Care Unit

HAIs --- Health Care Associated Infections

HCWS – Health Care Workers

ABHRSs – Alcohol Based Hand Rub Solution

# Chapter – 1
# INTRODUCTION

## 1.1 Introduction

Most nosocomial infections are thought to be transmitted by the hands of health care workers. It has long been known that hand hygiene among health care workers plays a central role in preventing the transmission of infectious agents. Hand washing is the most effective way of preventing the spread of infectious diseases. But despite a Joint Commission requirement that Centers for Disease Control and Prevention hand hygiene guidelines be implemented in hospitals, compliance among health care workers remains low.

The reasons of lack of compliance to hand washing include: lack of appropriate equipment, low staff to patient ratios, allergies to hand washing products, insufficient knowledge among staff about risks and procedures, the time required and casual attitudes among HCWs towards bio-safety ( Pittet 2006).

Hand hygiene is a core element of patient safety for the prevention of Health Care Associated Infection (HAIs) and spread of anti microbial resistance. Its promotion represents a challenge that requires a multimodel strategy. Hand hygiene prevents cross infection in hospitals, but Health Care Workers (HCWs) adherence to hand hygiene guidelines is poor,. Easy, timely access to both hand hygiene and skin protection is necessary for satisfactory hand hygiene behavior. Alcohol based hand rub may be better than traditional hand washing as they require less time, acts faster, are less irritating, and contribute to sustained improvement in compliance associated with decreased infection rates (Pitett, 2011) .

Hand hygiene is the most simple, most effective measure for preventing HAIs. Despite advances in infection control and hospital epidemiological, Semmelweis' message is not consistently translated in to clinical practice, and HCWs adherence to recommended hand hygiene practice is unacceptably low. Average compliance with hand hygiene recommendations varies between hospital wards, among professional categories of HCWs, and according to working conditions, as well as according to the definitions used in different studies. (Asare A et al.2009). Compliance with hand hygiene recommendations is the most important measure in preventing health care-associated infections. Transmission of microorganisms from the hands of healthcare workers is the main source of cross-infection in hospitals and can be prevented by hand washing (Akyol AD;2007).

The use of alcohol-based hand rub solutions (ABHRSs) in health care settings has been associated with increased hand hygiene compliance and reduced rates of nosocomial infection (Ahmed-Lecheb et al.2011).) Adherence to hand hygiene recommendations in the intensive care unit (ICU) is variable and moderate, at best.(Qushmaq et al.2008).

The hand hygiene practices of health care workers (HCWs) have long been the main vector for nosocomial infection in hospitals. So study to examine influences on risk judgment from the individual differences in knowledge levels and health beliefs among HCWs is important (McLaughlin 2011).

## 1.2 Background of the study

Hand hygiene is the practice, which keeps the hands free from pathogens or decrease the amount prior to any procedure or touching the patient. Hand hygiene prevents cross – infection in hospitals, but HCWs adherence to hand hygiene is poor. Easy, timely access to both hand hygiene and skin protection is necessary for satisfactory hand hygiene behavior (pittet, 2011).

Hand hygiene compliance rates among HCWs rarely exceeds 50% contact precaution are thought to increase HCWs hand hygiene awareness (Gilbert, 2010). Health Care Associated infections (HCAIs) are the major cause of morbidity and mortality. Hand hygiene is an effective preventive measure (Gould, 2010).

Hospital acquired infections posses a very real and serious threat to all who are admitted in hospitals. Pathogens are readily transmitted through the hands of HCWs, and hand hygiene substantially reduces the chance this transmission. Evidenced based guidelines for HCWs, hand hygiene practice exist, but compliance with these are internationally low. (Creedon, 2005).

Transmission of microorganisms from the hands of HCWs is the main source of cross infection in hospital and can be prevented by hand washing. Compliance with hand washing is moderate. Variation across hospital wards and types of HCWs suggests that targeted educational programme may be useful. The association between non-compliance and intensity of care suggest that under staffing may decrease the quality of patient care. (Pittet, 1999). Nosocomial infections are a leading complication in ICUs. Although hand hygiene is the single most efficient preventive measure, compliance with simple action remains low. Nosocomial infection can be transmitted from microorganisms on the hand of HCWs to patients. Hand Washing is has a proven benefit in preventing transmission of infection, yet compliance with hand washing, especially in intensive care unit is very important ( Lipsett, 2011).

**My 5 moments of hand hygiene (WHO)**

The My 5 Moments for Hand Hygiene approach defines the key moments when health-care workers should perform hand hygiene.

This evidence-based, field-tested, user-centered approach is designed to be easy to learn, logical and applicable in a wide range of settings.

This approach recommends health-care workers to clean their hands;

1. Before touching the patient
2. Before clean / aseptic procedures
3. After body fluid exposure / risk
4. After touching the patient and,
5. After touching patient surroundings

Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST) is an institute of national importance by an action of Indian Parliament. It is an autonomous institution under the administrative control of the department of Science and Technology, Govt. of India, and is situated at Trivandrum, the capital city of Kerala. It has 246- bedded tertiary referral hospital with major specialties like cardiology, Cardiac surgery and Neurology And Neuro surgery. There are 3 ICUs for cardiac and 2 ICUs for Neuro department. There are many critically ill patients admitted in this hospital for medical treatment and for surgeries.

### 1.3 Need and Significance of the study

(HAIs) affect 1.4 million patients at any time world wide, as estimated by the World Health Organization (WHO) . In Intensive Care Units, the burden of HAIs is greatly increased, causing additional morbidity and mortality. Multidrug – Resistant pathogens are commonly involved in such infections and render effective treatment challenge. Proper hand hygiene is the single most important, simplest, and least expensive means of preventing HAIs. According to Centers for Disease Control And Prevention and WHO guidelines on hand hygiene in

health care, alcohol – based hand rub should be preferred means for routine hand antisepsis. (Tschudin-sutter etal. 2010.).

Health care workers are the most common vehicle for the transmission of HAIs from patient to patient and with in the health care environment (Allegranzi 2009).A large proportion of the infection acquired attributed to cross contamination and transmission of microbes from hands of HCWs to patients. Many studies have consistently shown that improved hand hygiene has reduced nosocomial infections and cross contamination of multi resistant infection in hospitals (Mathai etal. 2011)

Most of nosocomial infections are thought to be transmitted by the hands of HCWs. So assess the knowledge, attitude and practice of hand washing among HCWs is important (Khaled etal 2006) Hospital acquired infections poses a very real and serious threat to all who are admitted to hospital. Pathogens are readily transmitted though HCWs hands, and hand hygiene practice substantially reduce the transmission. So study to assess HCWs hand hygiene practices is important (Creedon, 2005).

Transmission of microorganisms from the hands of HCWs is the main sources of cross – infection in hospitals and can be prevented by hand washing. So identifying predictors of non-compliance with hand washing during routine patient care is important (Hugonnet 2002).

Health care associated infections persist as a major problem in most Intensive Care Units. Hand hygiene is the most simple and effective method for the prevention of these. So assess the reported hand hygiene practices and observing is very much important to find out gaps, plan remedial measure to reduce HAIs. From this point of view the researcher decide to assess the hand

hygiene practices among HCWs. This study is conducted in Cardiac Surgical ICU SCTIMST.

### 1.4 Statement of the problem

A Study to Assess the Hand hygiene Practices Among Health Care Workers in CSICU, SCTIMST.

### 1.5 Objectives of the study

(a) To assess the hand hygiene practices among Health care workers.

(b) To assess the reasons for non compliance in hand hygiene practice

### 1.6Operational definition

**(a) Hand hygiene** :-

It is the practice of keeping the hands free from pathogens by washing with soap and water or using alcohol based hand rubs whenever indicated as per 5 moments of hand hygiene

**(b) Health Care Workers**:-

All staff working in ICU and give care to the patient including Doctors, nurses, physiotherapist, X ray technician, unit helpers and cleaning attendants.

### 1.7 Research methodology

Design: - Descriptive Approach

Setting: - The study will be planned to conduct in a selected ICU of SCTIMST, Trivandrum.

Population: - All Staff in selected ICU who are engaged in giving Care to Patient.

Sample size: - 50(knowledge assessment)
75(practice assessment)

Sampling technique: - Purposive sampling

Inclusion Criteria: - All Health Care Workers in CSICU

Duration of the study: - Three months

**1.8 Delimitations**

The delimitation of the study is that the study conducted only in CSICU (Cardiac Surgical Intensive Care Unit).

**1.9 Organization of the report**

Chapter 1 deals with the introduction, background of the study, and statement of the problem, Need and significance of the study, objectives, operational definitions and delimitation. Chapter 2 deals with review of literature, Chapter 3deals with the methodology, Chapter 4 presents analysis and interpretation of data and chapter 5 include summery, discussion, conclusion, recommendation, reference and appendices are given towards the end.

# Chapter - II
# REVIEW OF LITERATURE

## 2.1 Introduction

Review of literature is the key step in research process, which helps to lay a foundation for the study. The literature review provides a background for understanding current knowledge on topic and illuminates the significance of the study. A literature review is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to the particular topic. Literature review are secondary sources, and as such, do not report any experimental work.

The literature review relevant for this study is presented on the following sections;

***2*.2 Studies on hand hygiene practices in critical care units.**

**2.3 Studies to assess attitude of health care workers towards hand hygiene compliance**

## 2.2 Studies on hand hygiene practices in critical care units.

Asare A et al (2009 Jun) conducted a study to assess the hand hygiene practices in a neonatal intensive care unit in Ghana. Unobtrusive observation of patient contact, hand hygiene practices, and hand washing technique among nurses and physicians attending randomly selected newborns for five hours daily for two weeks. Patient contact categorized as low-risk or high-risk. Hand hygiene practice before and after patient contact categorized as clean uncontaminated, clean recontaminated, new gloves, unchanged gloves. Compliance to alcohol rub use assessed. The result of the study was that the patient to nurse/physician ratio varied from 9:1 to 12:1. There were 97 patient contacts of which 49 were high-

risk and 48 low-risk. Most (73%) patient contacts were from nurses. Compliance to hand hygiene recommendations before versus after patient contact was 15.4% versus 38.5% for physicians and 14.1% versus 9.9% for nurses. Gloves were used for 60.8% patient contacts (85.7% high-risk, 35.4% low-risk); however, compliance to recommended procedure occurred in only 12.2% of high-risk contacts and none of the low-risk contacts. Gloves were not changed between patients in 43.7% of high-risk contacts and 88.2% of low-risk contacts. Hand washing protocol was generally followed. Alcohol hand rub was always available but was not used for hand hygiene. The researcher concluded that hand hygiene compliance of physicians and nurses was low. Gloves and alcohol rub were not used according to recommended guidelines. Incorporating effective education programs that improve adherence to hand hygiene guidelines into the continuing education curriculum of health professionals is recommended.

Gilbert et al (2010) conducted a study to assess the hand hygiene practices among health care workers in Atlana Vetrence Affairs Medical center, to determine any differences in hand hygiene compliance rates for HCW between patients in contact precaution and those not in any isolation. The study was done in a hospital's medical (MICU) and surgical (SICU) intensive care units, a trained observer directly observed hand hygiene by the type of room (contact precaution or non-contact precaution) and the type of HCW (nurse or doctor). The result of the study was that the SICU had similar compliance rates (36/75 [50.7%] in contact precaution rooms vs. 223/431 [51.7%] compliance in non-contact precaution rooms, $P > .5$); the MICU also had similar hand hygiene compliance rates (67/132 [45.1%] in contact precaution rooms vs. 96/213 [50.8%] in non-contact precaution rooms, $P > .10$). Hand hygiene compliance rates stratified by HCW were similar with 1 exception. The MICU nurses had a higher rate of hand hygiene compliance in contact precaution rooms than in rooms with non-contact precautions (66.7% vs. 51.6%, respectively).Finally the authors concluded that Compliance with hand hygiene among HCWs did not differ between contact

precaution rooms and rooms with non-contact precautions with the exception of the nurses in the MICU.

Dedrick et al (2007) conducted an observational study to identify characteristics of encounters between healthcare workers (HCWs) and patients that correlated with hand hygiene adherence among HCWs.. The study was conducted in Intensive care unit in a Veterans Affairs hospital including all HCWs. The result of the study was there were 767 patient encounters observed (48.6% involved nurses, 20.6% involved physicians, and 30.8% involved other HCWs); 39.8% of encounters involved patients placed under contact precautions. HCW contact with either the patient or surfaces in the patient's environment occurred during all encounters; direct patient contact occurred during 439 encounters (57.4%), and contact with environmental surfaces occurred during 710 encounters (92.6%). The median duration of encounters was 2 minutes (range, <1 to 51 minutes); 33.6% of encounters lasted 1 minute or less, with no significant occupation-associated differences in the median duration of encounters. Adherence with hand hygiene practices was correlated with the duration of the encounter, with overall adherences of 30.0% after encounters of d"1 minute, 43.4% after encounters of>1 to d"2 minutes, 51.1% after encounters of>3 to d"5 minutes, and 64.9% after encounters of >5 minutes (P<.001 by the §$^2$ for trend). In multivariate analyses, longer encounter duration, contact precautions status, patient contact, and nursing occupation were independently associated with adherence to hand hygiene recommendations. The authors concluded that in this study, adherence to hand hygiene practices was lowest after brief patient encounters (ie, <2 minutes). Therefore, improving adherence after brief encounters may have an important overall impact on the transmission of healthcare-associated pathogens and may deserve special emphasis in the design of programs to promote adherence to hand hygiene practices.

Khaled M et al . (2006) Conducted a cross sectional descriptive and observational study to assess the knowledge, attitude, and practices of hand washing among health care workers (HCW) in Ain-Shams University hospitals and to assess its different wards for facilities required for hand washing (HWs). Study was conducted for six months from June till November 2006. It included preparatory phase, observational phase for practice and assessment of knowledge & attitude through self-administered questionnaire to HCW in 10 different departments. 2189 opportunities among HCW were observed. The result of the study was that Doctors showed a significantly higher compliance (37.5%) observational than other groups of HCW (P=0.000), however only 11.6% of them had done the HW in an appropriate way. The most common type of HW practiced among HCW was the routine HW (64.2%) and the least was the antiseptic HW (3.9%). Having a short contact time and improper drying (23.2%) was the most common form of inappropriate HW. Most of the wards had available sinks (80%) but none of them had available paper towels. The mean score knowledge was higher in nurses than in doctors (42.6±11.7 versus 39.1±10.5). 97.3% of the nurses believe that administrative orders and continuous observation can improve hand-washing practices. Finally the authors concluded that Compliance to hand washing was low. Implementation of multifaceted interventional behavioral hand hygiene program with continuous monitoring and performance feedback, increase supplies necessary for HW and institutional support is important for improving the compliance of hand hygiene guidelines.

Van De Mortel et al. (2011), Conducted a study to examining the hand hygiene knowledge, beliefs and practices of Italian nursing and medical students with the aim of informing undergraduate curricula A questionnaire was administered to a convenience sample of 117 nursing and 119 medical students in a large university in Rome, Italy, to determine their hand hygiene knowledge, beliefs and practices. The result of the study was that Nursing students' hand hygiene knowledge ($F = 9{\cdot}03(1,230)$; $P = 0{\cdot}003$), percentage compliance

($Z = 6{\cdot}197$; $P < 0{\cdot}001$) and self-reported hand hygiene practices ($F = 34{\cdot}54(1,230)$; $P < 0{\cdot}001$) were significantly higher than that of medical students. There were no statistically significant differences between hand hygiene beliefs. Mean scores on the knowledge questions were low for both groups, reflecting primarily a knowledge deficit in relation to the use of alcohol-based hand rubs to decontaminate hands in the healthcare setting. Finally the authours concluded that significant disciplinary differences in hand hygiene knowledge and self-reported practices were apparent among undergraduate Italian healthcare students.

Bukhari et al (2009- 2010), Conducted an observational, prospective, longitudinal study to motivate healthcare professionals, with a focus on improving hand hygiene compliance. Study was conducted on the evaluation of hand hygiene compliance at Hera General Hospital, Makkah, and Kingdom of Saudi Arabia from May 2009 to May2010. Four components to improve hand hygiene compliance were implied; daily audit, monthly staff education; quarterly workshops of hand hygiene and education material distribution. The compliance rate was calculated by its adherence with number of opportunities. The result of the study was that Results Of total 163 healthcare professionals were surveyed for hand hygiene compliance; 57 (35%) were doctors, 92 (56.4%) nurses, and 14 (8.6%) patient care technicians. The overall compliance rate was 50.3%, and its distribution among staff was as follows; doctors 49.1%, nurses 52.2%, and technicians 42.8%. The highest compliance rate among doctors and nurses was found in surgical units. A low compliance in high intensity patient care area was observed such as in the Emergency Room and out patient department the patient care technicians showed highly variable results, as their compliance rate was 100% in medical units while 0% in various other clinical areas. Finally the authors concluded that the overall hand hygiene compliance rate of healthcare professionals reached 50% after a long education campaign, and was highest among the nurses. Further study is needed to explore the reasons for non-compliance.

Creedon S A (2005) conducted a quasi-experimental study on health care workers decontamination practice from behavioral perspective. A quasi-experimental design with a convenient sample was used. The result of the study was that Implementation of the multifaceted interventional behavioral hand hygiene programme resulted in an overall improvement in compliance with hand hygiene guidelines (51-83%, $P < 0.001$). Furthermore, healthcare workers believed that their skin condition improved ($P < 0.001$). An increase in knowledge about hand washing guidelines was also found. The researcher concluded that in order to be effective, efforts to improve compliance with hand washing guidelines must be multifaceted. Alcohol hand rubs (with emollients) need to be provided at each patient's bedside. Issues surrounding healthcare workers' skin irritation need to be addressed urgently.

Lipsett (2011) et al conducted an observational study to assess the hand washing compliance depends on professional status. The study was conducted in surgical intermediate care unit in large university teaching hospital. HW compliance was observed among all health care workers (HCW): physicians (MD; N = 46), nurses (RN; N = 295), and nursing support personnel (NSP; N = 93). Over an 8-week period, unidentified, trained observers documented all HCW interactions in 1-h random blocks. HW opportunities were classified into low and high risk of pathogen acquisition and transmission. The result of the study was a total of 493 HW opportunities were observed, of which 434 involved MD, RN, and NSP. Two hundred and sixty-one low-risk (MD 35, RN 171, NSP 55) and 173 (MD 11, RN 124, NSP 38) high-risk interactions were observed. Overall HW rates were low (44%). Significant differences existed among HCW, with MDs being the least likely to wash (15% versus RN 50%, NSP 37%, $p < 0.01$). In adjusting for high-risk situations, MDs (odds ratio [OR] 5.58, 95% CI 2.49–12.54; NSP, OR 1.73, 95% CI 1.13–2.64; RN, OR 0.98, 95% CI 0.77–1.23) were significantly less likely to perform HW when compared to RNs. Nursing

groups were significantly less likely to wash in low-risk versus high-risk situations (MD 9.2% versus 17.1%; RN 69.4% versus 39.6%; NSP 85% versus 23.3%), suggesting individual discrimination of the importance of HW. Although nurses were less likely to wash in high-risk situations compared to NSP, the overall number of opportunities was greater, suggesting that improvement in HW to the level of NSP could have a major impact on infection transmission. Finally the authors concluded that Significant opportunities exist for quality improvement, novel educational strategies, and assessment of reasons why MDs and, to a lesser extent, RNs fail to follow simple HW practices.

## 2.3 Studies to assess attitude of health care workers towards hand hygiene compliance.

Mathai et al,(1993), conducted a before – after prospective, observational, intervention study in a mixed medical surgical ICU of a tertiary level hospital. The authors aim was to investigate the HCWs' hand hygiene compliance rate in ICU and to assess the reason of hand hygiene non – compliance. All Health care workers in ICU all come in contact with patient were observed before and after a multi model interventional strategy. (Education, posters, verbal reminders, and easy availability of products). A self reported questionnaire circulated to assess perception regarding compliance. Results shows that hand hygiene compliance among medical personnel working in the ICU was 26% and the most common reason for cited non – compliance was lack of time (37%). The over all compliance improved significantly followed by the intervention to 57.36% ( $p<0.000$), Nursing students ( 9.8- 33.33%, <0.0000 ), Resident trainees (21.62 – 60.71%, $p < 0.0000$), Visiting consultant 922-57.14%, $p= 0.0001$), Physiotherapist 75.95%, $p= 0.413$ ) and premedical staff (10.71- 55.45%, $p<0.0000$). The authors concluded that hand hygiene compliance among health care workers in the ICU is poor; however; intervention strategies, such as the one used, can be useful in improving the compliance rate significantly.

Al – Wazzan et al ( 2011) conducted a cross-sectional study to assess the compliance with hand hygiene guidelines among nursing staff in secondary care hospitals in Kuwait. The researcher use direct observation using the Lewisham observation tool and self-administered questionnaire in six major public secondary care hospitals in Kuwait. scale were considered as indications for hand hygiene while any attempt for hand. A self-administered questionnaire was prepared and pilot tested and then distributed to nursing staff at each ward immediately after conducting the inspection; 550 were distributed and 454 were completed and returned. Among 204 observation sessions, a total of 935 opportunities and 312 hand hygiene practices were recorded. The Result of the study was that the overall compliance was 33.4%. The observed compliance significantly varied between different ward categories from 14.7% in emergency to 55% in medical wards. Of the 454 nursing staff that participated in self-reported compliance, 409 (90%) indicated that they always washed their hands upon practicing patient care activities. Nurses consistently reported higher compliance after conducting patient care activities rather than before Being busy with work (42.2%), having sore/dry hands (30.4%) and wearing gloves (20.3%) were the most frequently reported hindrances to improving hand hygiene. Finally the authors concluded that observed hand hygiene compliance among nursing staff in secondary care hospitals in Kuwait was poor. High self-reported compliance may reflect a high level of awareness of hand hygiene but may also suggest that improving compliance through increasing awareness has probably reached saturation.

Gould et al (2010) conducted a study to assess to assess the short and longer-term success of strategies to improve hand hygiene compliance and to determine whether a sustained increase in hand hygiene compliance can reduce rates of health care-associated infection. The researcher conducted electronic searches of: the Cochrane Central Register of Controlled Trials; the Cochrane Effective Practice and Organization of Care Group specialized register of trials; MEDLINE; Pub Med; EMBASE; CINAHL; and the BNI. All databases were

searched to July 2006; MEDLINE was searched from 1980, CINAHL from its inception, and the remainder from 1990 until July 2006.The data collection analysis done by two reviewers independently extracted data and assessed data quality. The result of the study was that two studies met the criteria for review. One was a randomized controlled trial. The other was a controlled before and after study. Both were poorly controlled. Statistically significant post-intervention increase in hand washing was reported in one study up to four months after the intervention. In the other there was no post-intervention increase in hand hygiene compliance. Finally the authors concluded that there is little robust evidence to inform the choice of interventions to improve hand hygiene. It appears that single interventions based on short, 'one off' teaching sessions are unlikely to be successful, even short-term. There is a need to undertake methodologically robust research to explore the effectiveness of soundly designed interventions to increase hand hygiene compliance

Suchitra J B(2007) et al, conducted a study to assess the to identify predictors of noncompliance with hand washing during routine patient care. The participants in the study were Health Care Workers (HCWs). Doctors, nurses and ward aides working in different wards of the hospital who were observed for compliance with hand washing. The result of the study was that in 270 observed opportunities for hand washing, average compliance was 63.3%. Noncompliance was highest among doctors followed by nurses. Ward aides were most compliant. Finally the authors concluded that compliance with hand washing was moderate. Variation across the hospital ward and type of HCW suggests that targeted educational programs may be useful. Noncompliance suggests that understaffing may decrease quality of patient care.

Patarakul (2005) et al, conducted an observational study to determine the baseline compliance and assess the attitudes and beliefs regarding hand hygiene of HCWs and visitors in intensive care units (ICUs) at KCMH. Observed hand-hygiene compliance of HCWs and visitors in ICUs before patient contact for eight

hours. A self-administered questionnaire was employed to measure attitudes and beliefs about hand hygiene for two-week period. The result of the study was that Overall hand-hygiene compliance obtained from this observational study was less than 50% and differed markedly among various professional categories of HCWs and visitors. In questionnaire-based study, patient needs perceived as a priority (51.2%) was the most common reason for non-compliance, followed by forgetfulness (35.7%), and skin irritation by hand-hygiene agents (15.5%). Subjects believed to improve their compliance by multiple strategies including available low irritating hand-hygiene agents (53.4%), information of current nosocomial infection rate (49.1%), and easily accessed hand-hygiene supplies (46.3%). Almost all subjects (99.7%) claimed to know correct hand-hygiene techniques. Hand washing with medicated soap was perceived to be the best mean of hand decontamination (37.8%). Authors concluded that Hand-hygiene compliance of HCWs and visitors is unacceptably low. Their knowledge, behavior attitudes, and beliefs toward hand hygiene need to be improved by the multimodal and multidisciplinary approach.

**Summary**

The review of literature shows that the studies conducted by different investigators at different hospitals about the hand hygiene practices and the attitude of HCWs towards the non-compliance. The authors use observational tool and questionnaire for their study. The studies shows that the HCWs had sufficient knowledge about hand hygiene practices and its importance but they do not practice it well. So many studies dhows the importance of hand hygiene among HCWs.The majority of HAIs occurs because of lack of hand hygiene.

The review of literature is an important aspect of any research study from beginning to end. The chapter covered Introduction, The review of literature related to the studies on hand hygiene practice in critical care units and studies to assess the attitude of HCWs towards hand hygiene practices.

# Chapter -III
# METHODOLOGY

## 3.1 Introduction

This chapter deals with the research approach, setting, the sample and sampling technique, development of tool, description of tool, pilot study, data collection procedure and plan for analysis.

## 3.2 Research Approach

Descriptive study approach is used**.**

The objective of the study is: -

(a) To assess the hand hygiene practices among health care workers

(b) To assess the reason for non-compliance in hand hygiene practice.

## 3.3 Setting of the study

The study was conducted in the CSICU of SCTIMST, Trivandrum. It is 246 bedded specialty referral hospital . This is an surgical unit comprises 14 beds. The study was conducted over 3 months (August 2011- November 2011). There 2 ICUs 1$^{st}$ and 2$^{nd}$, hand washing facilities available in both ICUs. The hand hygiene facilities include wash basins with surgical hand rub solution and soap, hand dryer, hand towel and tissue paper is available for drying hand after washing. Also there were alcohol based hand rub in each bedside There is an infection control unit tin our hospital . The infection control sister took classes for HCWs and also observes the hand hygiene practices of HCWs in each unit.

### 3.4 Sample and Sampling technique

The sample was selected from the health care workers in Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum. Te purposive sampling technique was used to collect the samples. The sample was selected from the health care workers in CSICU .The researcher collect data by using questionnaire and observational tool .The researcher use 75 HCWs for observational study and give questionnaire to 50 HCWs they may or may not be included in observational study. The duration of the study period was from August 2011 to November 2011.

### 3.5 Inclusion Criteria

Health care workers involved in direct patient care activities in Cardiac Surgical Intensive Care Unit in Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

### 3.6 Development of tool

An extensive study and review of literature helped in preparation of the tool. A validated tool and an observational scale is used as the tool for this study .

### 3.7 Description of the tool

Part I: - This part contains items such as demographic data which include age, sex, profession, total years of experience, ICU experience.

Part ii: - An observation toll was used to assess the hand hygiene practices of HCWs

Part iii: - A questionnaire was distributed to HCWs in order to assess the opinion about hand hygiene practices.

### 3.8 Pilot study

Pilot study was done on October 2011. Six staff were taken for the pilot study. The pilot study was conducted to find out the feasibility of the study . The questionnaire and observation tool are used for this study. After pilot study modification of the tool was done.

### 3.9 Data collection procedure

Formal permission obtained from the authorities for collection of data. The data was collected from health care workers in Cardiac surgical ICU of Sree Chitra Tirunal Institute for Medical Sciences and Technology; the period of data collection was from August 2011 to October 2011. The assessment of staff done while they were in CSICU.

The study was completed over a 3month period. In this study the investigator use a questionnaire and an observation tool. The period of observation of hand hygiene compliance was conducted over a period of 4 weeks. Here, observations on activities around individual patient carried out in random 10- minutes period interval during day time, which are the busiest shifts in the ICU. Target ICU patients were selected randomly, at the start of each observation period and was observed continuously for the entire 10- minute period. All Health care personnel who contacted the target patient during this period, including doctors, nurses, and paramedical personnel (e.g.: physiotherapist, technicians, unit helpers, etc), were observed unobtrusively by the observer. In observation the observer give situations to the samples according to their jobs.

The tools used for questionnaire and observation tool were both well - validated tools invented by the National Center For patient Safety The Department of Veterans Affairs (USA) and developed by the Veterans Affairs –

3M Six Sigma Project and the Veterans Affairs “Infection”: Don’t Pass it on “ campaign. These tools were downloaded from the United States Department of Veterans Affairs website (http://www.patientsafety.gov/safetytopics/Hand hygiene/index.html). The special instruction, which accompanied the observation tool, helped us to understand and standardize the tool. There was only one observer. The observer conducted a trail study with 6-observation period. These tools selected for my study were chosen because they were simple, clear and described each observation episode in detail.

Immediately after the 4 weeks of observation period was over, the researcher circulated a self-reported questionnaire among residents, nurses, technicians, physiotherapist and unit helpers who were involved in-patient care. The questionnaire was aimed at evaluating the awareness and self-perception of health care workers hand hygiene compliance and assessed the perceived barriers to use appropriate hand hygiene measures. The researcher handed the questionnaires to the personnel targeted and collected them back immediately. This was to ensure that other personnel did not influence health care personnel. Through the questionnaire, the researcher aimed to assess the reported practices of HCWs .

The major limitation of the study was that the researcher couldn’t distribute questionnaire to the whole samples who were taken for observational study.

### 3.10 Plan for analysis

The investigator developed a plan of analysis after pilot study. The data were coded, entered in excel sheet and analyzed using Epi info Version 3.5.1.

### 3.10 Summary

This chapter includes research approach, setting, population, sample and sampling technique, development and description of the tool, data collection and plan for analysis.

# Chapter -IV

# ANALYSIS AND INTERPRETATION OF DATA

## 4.1Introduction

Analysis is categorizing, ordering, manipulating and summarizing the data to an intelligible and interpretable form, so that research problem can be studied and tested including relationship between variable. Interpretation is a process of making a sense of the result and examining the implication of finding with in a broader context.

The data in the study was arranged and analyzed under the following sections.

4.2 Distribution of sample according to demographic data

4.3 Distribution of sample according to hand hygiene compliance.

4.3 Distribution of sample according to observation of hand hygiene practices.

## 4.2 Distribution of sample according to demographic data

**Table 4.2(a) Distribution According to Age**

| Age Group | Frequency | Percentage |
|---|---|---|
| <25yrs | 8 | 16% |
| 26-29yrs | 18 | 36% |
| 30-39yrs | 19 | 38% |
| > 40yrs | 5 | 10% |
| Total | 50 | 100% |

The data given on ***table 4.2 (a)*** shows distribution of samples according to age range from <25years to >40years. The diagram shows that most of the sample belongs to 30-39 years (38%) .

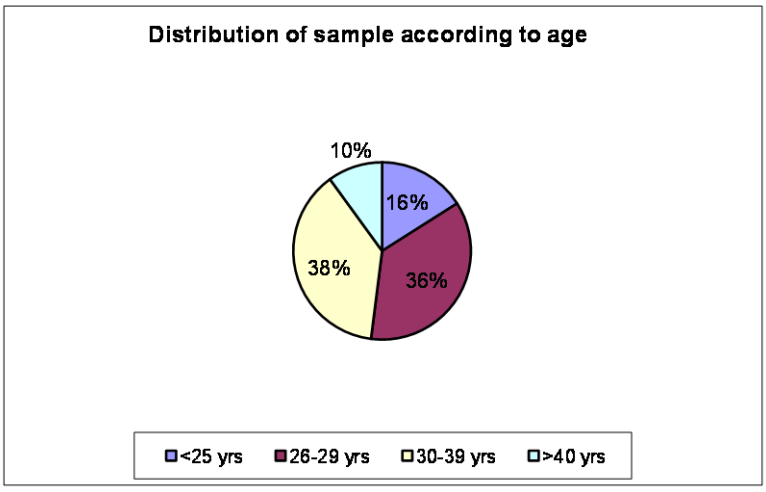



Fig 4.2(a) Pie diagram of sample according to age

**Table 4. 2(b) Distribution According to Sex**

| Sex | Frequency | Percentage |
|---|---|---|
| Male | 17 | 34% |
| Female | 33 | 66% |
| Total | 50 | 100% |

The data given on ***fig 4.2 (b)*** shows that the distribution of sample according to sex. The diagram shows that about 66% (33) of samples are female.

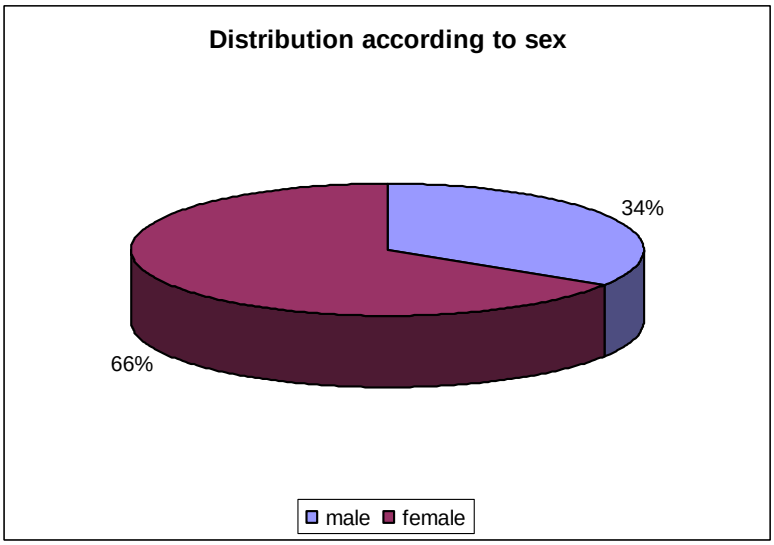



Fig 4.2 (b) Pie diagram of sample according to sex

**Table 4. 2(c ) Distribution According to Profession**

| Profession | Frequency | Percentage |
|---|---|---|
| Nurse | 25 | 50% |
| Resident | 5 | 10% |
| Physiotherapist | 5 | 10% |
| Technician | 5 | 10% |
| Unit Helper | 10 | 20% |
| Total | 50 | 100% |

The data given in ***table 4.2(c*** ) shows that the distribution of sample according to the profession. Most of the samples are nurse that is 50% (25).

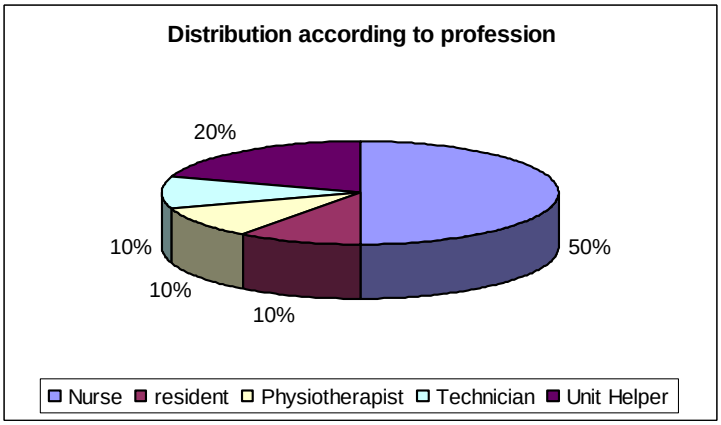



Fig 4.2 (c) Pie diagram of sample according to profession

**Table 4.2(d) Distribution According to Total Experience**

| Total Experience (in years) | Frequency | Percentage |
|---|---|---|
| < 1 | 9 | 18% |
| 1-5 | 19 | 38% |
| 6-10 | 14 | 28% |
| > 10 | 8 | 16% |
| Total | 50 | 100% |

The data given in ***table 4.2(d)*** shows that distribution of data according to professional experience about 38% of samples having to 1-5years of experience.

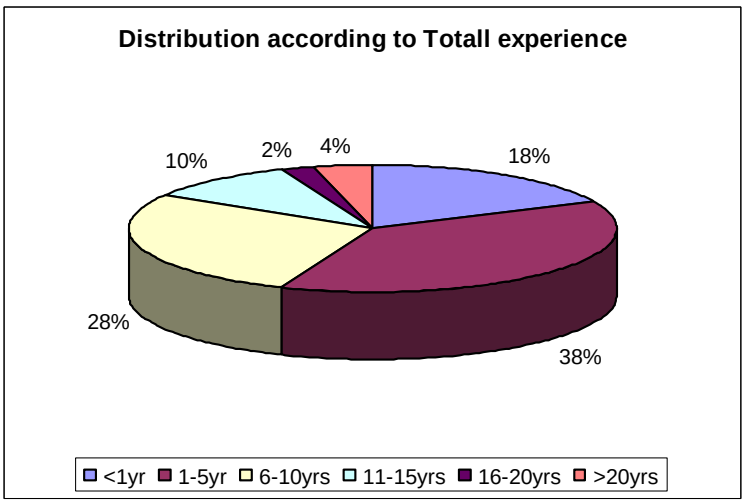



Fig 4.2 (d) pie diagram according to Total experience

### 4.2 (e) Distribution according to ICU experience

| ICU Experience (in years) | Frequency | Percentage |
|---|---|---|
| < 1 | 30 | 60% |
| 1-5 | 14 | 28% |
| 6-10 | 05 | 10% |
| > 10 | 01 | 02% |
| Total | 50 | 100% |

The data given in table ***4.1 (e)*** shows that distribution of samples according to ICU experience. About 60% (30) samples having <1 year of experience.

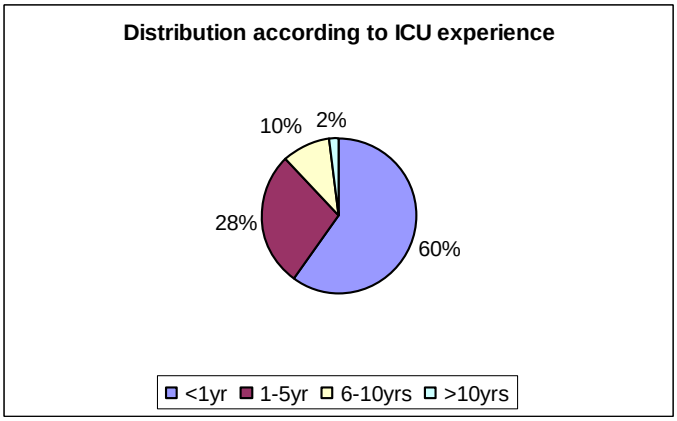



Fig 4.2 (e) Pie diagram according to ICU experience

**Table 4.3 Distribution of sample according to reported hand hygiene compliance**

**Table 4.3 (a) Distribution of sample according to the reported use of soap and Water**

| Reported Soap and water | Frequency | Percentage |
|---|---|---|
| Never | 1 | 02% |
| 1-10% | 5 | 10% |
| 11-40% | 25 | 50% |
| 41-70% | 15 | 30% |
| 71-100% | 04 | 08% |
| Total | 50 | 100% |

The data given in ***table 4.3 (a)*** shows the distribution of sample according to the reported use of soap and water. about 50% of sample use soap and water alone for hand hygiene up to 11-40%. One person did not use soap and water for hand hygiene

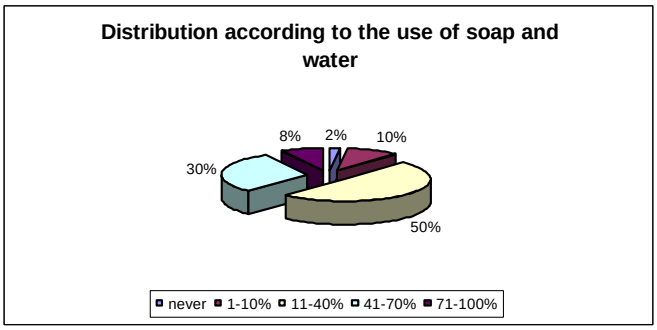



Fig 4.3(a) Pie diagram according to the use of soap and water

**Table 4.3 (b) Distribution of sample according to the use of Alcohol based hand rub**

| Reported use of Alcohol based hand rub | Frequency | Percentage |
|---|---|---|
| Never | 0 | 0 |
| 1-10% | 1 | 02% |
| 11-40% | 14 | 28% |
| 41- 70% | 26 | 52% |
| 71-100% | 9 | 18% |
| Total | 50 | 100% |

***Fig 4.3 (b )*** Shows the distribution of sample according to the use of alcohol based hand rub. 52%) use alcohol based hand rub up to 41-70% of time and 18% (9) samples use alcohol based hand rub up for 71-100% of time.

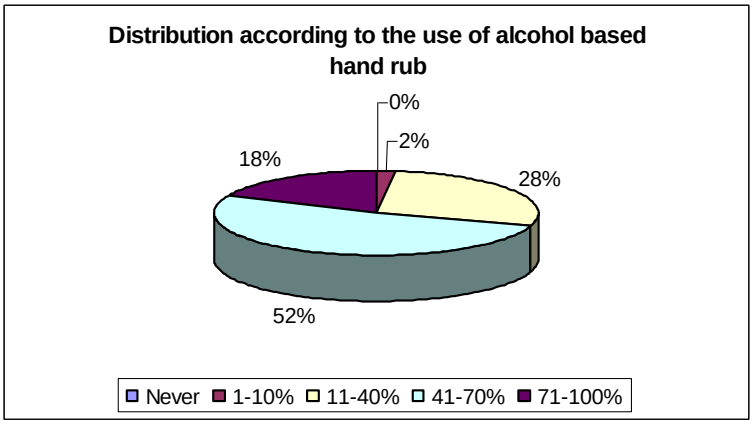



Fig 4.3 (b) Pie diagram shows distribution of sample according to the reported use of alcohol based hand rub

**Table 4.3(c) Distribution according to the use of both Soap and water and alcohol based hand rub**

| Both soap and water and alcohol based hand rub | Frequency | Percentage |
|---|---|---|
| Never | 24 | 48% |
| 1-10% | 11 | 22% |
| 11-40% | 11 | 22% |
| 41-70% | 03 | 06% |
| 71-100% | 01 | 02% |
| Total | 50 | 100% |

Forty eight percent of the sample reported that they never used both soap and water and alcohol based hand rub together . Only eight percent reported that they used both for more than 40% of the time.

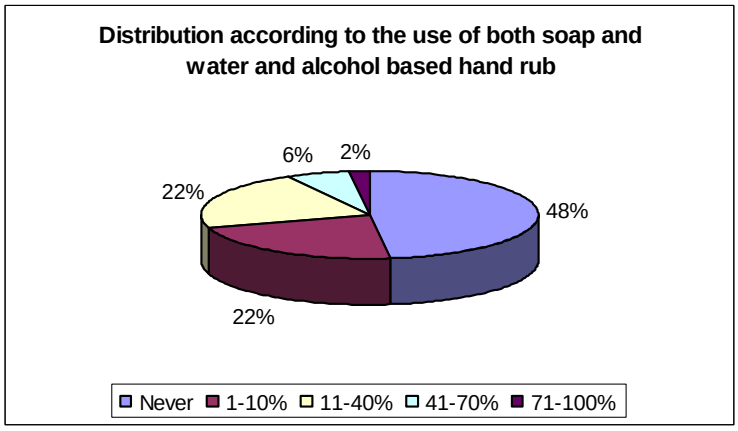



Fig 4.3 (c) Pie diagram shows distribution of sample according to the use of both soap and water and alcohol based hand rub.

**Table 4.4 Distribution according to reasons for lack of hand Hygiene**

| Reasons | Frequency | Percentage |
|---|---|---|
| Too busy | 32 | 64% |
| Forget | 08 | 16% |
| Unsure of need | 01 | 02% |
| Out of products | 07 | 14% |
| Products not in convenient location | 02 | 04% |
| Total | 50 | 100% |

The data given in table 4.4 shows distribution of sample according to the reasons for lack of hand hygiene .The pie diagram shows about 64% of lack of hand hygiene is because of too busy and 4% is due to product not in convenient location

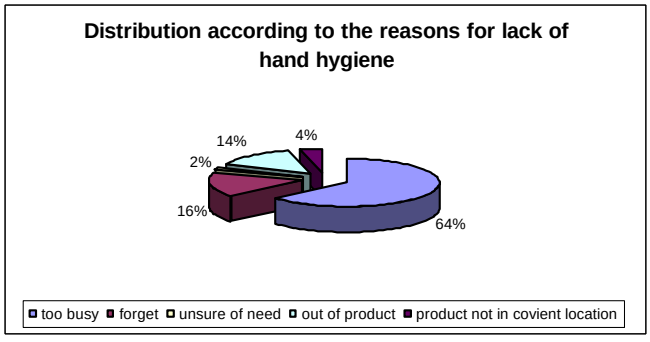



Fig 4.4 Pie diagram according to the reasons for lack of hand hygiene

**Table 4.5 Distribution of sample according to the Satisfaction with Hand Hygiene practice in the unit**

| Satisfaction rate | Frequency | Percentage |
|---|---|---|
| Highly satisfied | 08 | 16% |
| Satisfied | 37 | 74% |
| Neutral | 05 | 10% |
| Total | 50 | 100% |

The data given in ***table 4.5*** shows that 90% sample were satisfied with the present hand hygiene practices in the unit.

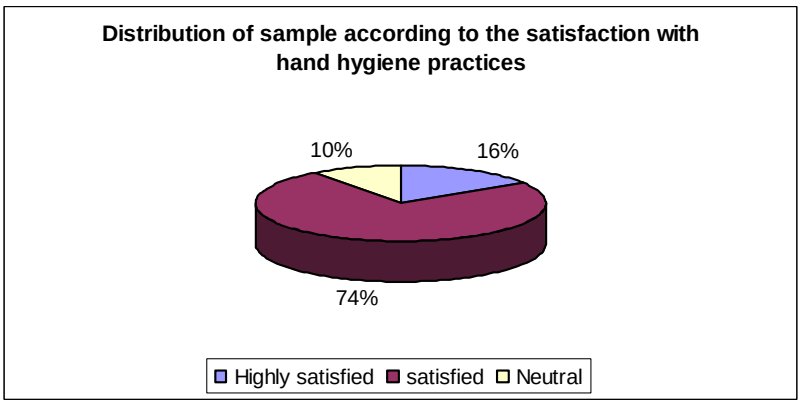



Fig 4.5 Pie diagram shows distribution of sample according to the satisfaction with hand hygiene practices in the unit.

**Table 4.6 Distribution of sample according to the satisfaction with hand hygiene materials used in the unit**

| Satisfaction rate | Frequency | Percentage |
|---|---|---|
| Highly satisfied | 18 | 36% |
| Satisfied | 32 | 64 |
| Total | 50 | 100% |

***Table 4.6*** Shows that 100% of sample highly satisfied / satisfied with the hand hygiene material currently used in our unit.

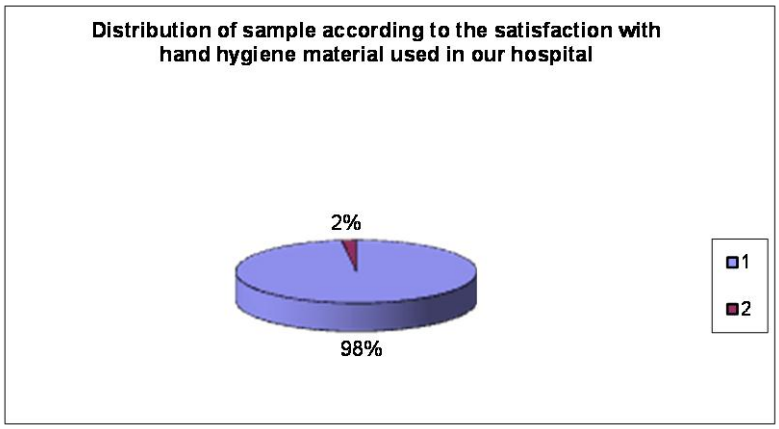



Fig 4. 6 Shows the distribution of sample according to the satisfaction of hand hygiene material provided in the hospital.

**Table 4.7 Distribution of samples according to the opinion about the relationship between good hand hygiene practices and hospital acquired infection**

| Opinion | Frequency | Percentage |
|---|---|---|
| Very weak | 0 | 0% |
| Weak | 0 | 0% |
| Neither weak nor strong | 01 | 02% |
| Strong | 16 | 32% |
| Very strong | 33 | 66% |
| Total | **50** | 100% |

The ***table 4.7*** Shows about opinion of the HCWs majority (98%) opined that there is relationship good hand hygiene practices and hospital acquired infection

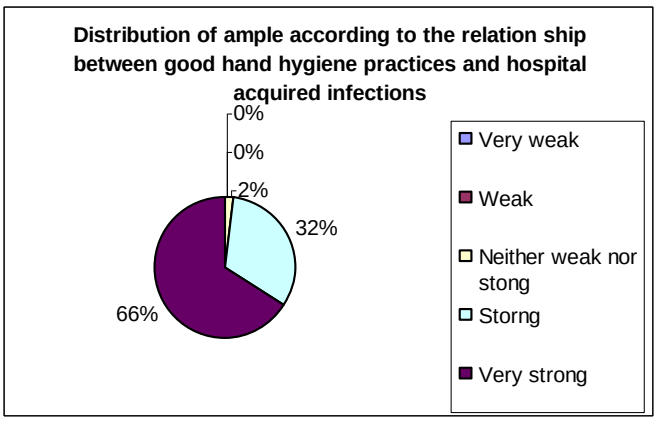



Fig 4.7 Shows the relationship between good hand hygiene practices and hospital acquired infections

**Table 4.8 Reported hand hygiene compliance among different health care workers**

| Health Care Workers | Number of hand hygiene Situations | Reported need hand hygiene | Over all Compliance |
|---|---|---|---|
| Nurse | 275 | 272 | 98.90 |
| Physiotherapist | 55 | 52 | 94.55 |
| Unit Helper | 110 | 105 | 95.46 |
| Technician | 55 | 45 | 81.82 |
| Residents | 55 | 50 | 90.90 |
| Total | 550 | 524 | 95.26 |

Majority of HCWs identified and reported that situations / patient care activities that require hand hygiene. All categories of HCWs except technician identified and reported more than 90% of situation requires hand hygiene.

**Table 4.9 Distribution of sample according to observation of hand hygiene practices**

***Table 1*** **Observed Hand hygiene compliance specific to each opportunity (Overall)**

| ***Situations*** | **Number of opportunities observed** | **Hand hygiene performed** | |
|---|---|---|---|
| | | **Number** | **%** |
| *Before clean and aseptic procedures* | 22 | 16 | 72.73% |
| *Before putting on gloves* | 04 | 04 | 100% |
| *After contact with body fluids* | 23 | 23 | 100% |
| *After handling soiled linen and objects* | 30 | 21 | 70% |
| *After removing gloves* | 12 | 11 | 91.67% |
| *Before patient contact* | 66 | 57 | 86.36% |
| *After patient contact* | 66 | 63 | 95.45% |
| *Before patient equipment contact* | 74 | 13 | 17.57% |
| *After patient equipment contact* | 75 | 48 | 64% |
| *Gloves used whenever potential for hand contact with body fluids* | 19 | 09 | 47.37% |
| *Gloves removed after use* | 13 | 07 | 53.85% |

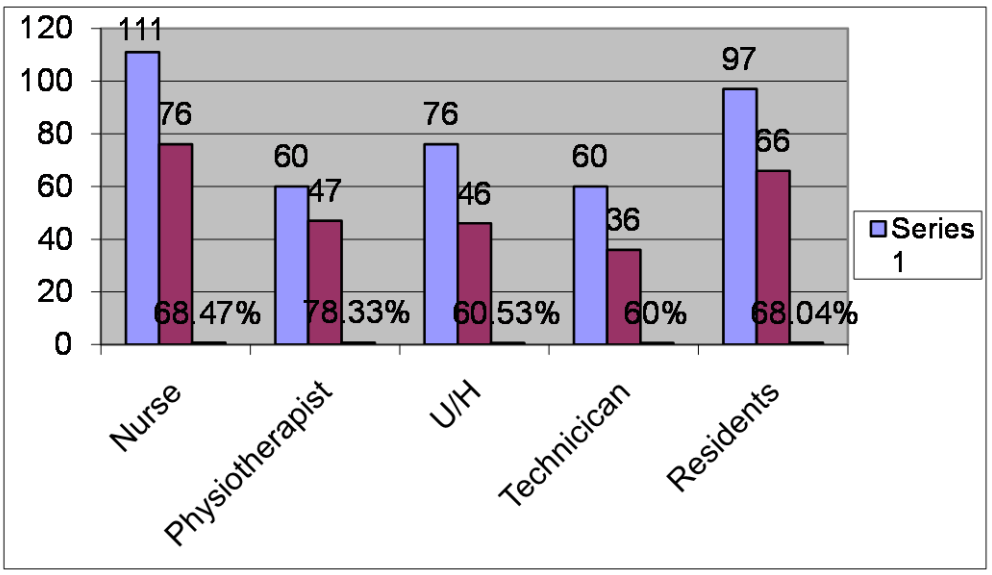
The table shows over all observed hand hygiene compliance, all samples performed hand hygiene before putting on gloves and after contact with body fluids. Hand hygiene compliance was more than 64% in eight out of eleven situations. About Eighteen percent samples perform hand hygiene before patient equipment contact only. However lapse in hand hygiene were observed in certain situations like use of gloves.

**Table 2 Observed Hand hygiene compliance among different health care workers**

| Health Care Workers | Number of opportunities observed | Hand hygiene performed | Over all compliance |
|---|---|---|---|
| Nurse | 111 | 76 | 68.47% |
| Physiotherapist | 60 | 47 | 78.33% |
| Unit Helper | 76 | 46 | 60.53% |
| Technician | 60 | 36 | 60% |
| Residents | 97 | 66 | 68.04% |
| Total | 404 | 271 | 67.08% |

Table 2 shows the observed compliance among different health care workers Physiotherapist showed (78.33%) more compliance than other health care workers. And technicians have less compliance rate (60%). Nurses and residents have more opportunity than others and their compliance rate was (68.47%).

**Bar diagram with reported and observed hand hygiene compliance**



# Chapter-V
# SUMMARY, CONCLUSION, LIMITATION AND RECOMMENDATIONS

## 5.1 Introduction

This chapter gives a brief account of the present study including conclusion drawn from findings are possible application of the result and suggestions for improving the present study are also included.

## 5.1 Summary

This study was undertaken to assess the hand hygiene practices among health care workers in critical care unit.

The specific objective of the study were ;

(a) To assess the hand hygiene practices among Health care workers .
(c) To assess the reason for non compliance in hand hygiene practice.

The questionnaire include 12 questions based on various aspect of hand hygiene and an observation tool is also used to find out the hand hygiene practices .It include 11 situations for hand hygiene. Pilot study was done prior to the main study. The sample of the reported study was 50 and the observed samples are 75 .The observed and reported sample were may or may not be same .Tables and bar diagram are used to illustrate the findings of the study.

## 5.2 Major findings of the study

I had 75 observation period with 404 hand hygiene opportunities . I found that the bedside nurses involved in patient care maximum opportunities for hand hygiene (111 opportunities and perform only 76 opportunities i.e.; 68.47%)

followed by resident trainees ( 97 opportunities and perform 66 i.e.; 68.04%). Table 1 (4.9) shows the overall compliance among HCWs and table 2 shows the compliance of different HCWs . The maximum opportunities for hand hygiene were found to be in the areas of before and after patient equipment contact (74/75) followed by before and after patient contact (66/66).

The investigator found that the overall observed hand hygiene compliance among HCWs was 67.08%, from that the physiotherapist shows more compliance rate (78%) followed by nurses and residents (68%) and the technicians and unit helpers shows less compliance rate (60%).

After the observation study a 12 point questionnaire was distributed among 50 HCWs who involved I patient care activities in our ICU. This includes 25 staff nurses, 5residents, 5 physiotherapists, 5 technicians and 10 unit helpers. All questionnaire distributing were collected immediately and available for analysis. On analysis it was found that 38% of respondents use soap and water and 70% used alcohol based hand rub for hand hygiene. They reported the most reported reason for non compliance was that they were too busy (64%).

Though 98%of respondents were highly satisfied / satisfied with the hand hygiene practices presently used in CSICU and 100% were satisfied with the hand hygiene material s used in our unit. Ninety eight percent respondents agreed that there was very strong/strong relation between good hand hygiene practices and HAIs.

Majority of HCWs identified and reported situations / patient care activities require hand hygiene. All HCWs expect technicians identified and reported more than 90% of situations require hand hygiene.

## 5.3 Discussion

A large proportion of the infection acquired in the ICU have been attributed to cross contamination and transmission of microbes from hand of health care workers to patients Many studies have consistently shown that improved hand hygiene practice reduced nosocomial infections and cross transmission of multidrug resistant infections in hospital. Despite this, present day data suggest that hand hygiene compliance among health care personnel in most hospital is at best, less than 50%. Working in ICUs, Doctors under staffing, overcrowding, high intensity patient care insufficient time, lack of institutional priority etc were some of the risk factors for poor hand hygiene compliance. Many attempts have been made in the past to improve hand hygiene compliance such as educational intervention, motivational programmes etc. However, most of these met with little or temporary success. Hence several multi faceted interventions, which include behavioral, environmental and social changes, have been suggested and tried to sustain improvement in hand hygiene compliance.

In the present study the investigator assess the hand hygiene practices among HCWs in CSICU . On analysis it was found that 38% of respondents use soap and water and 70% used alcohol based hand rub for hand hygiene. Suchitra et al (2011) conducted a study to assess the hand hygiene compliance, in the study the researcher given 270 opportunities for hand washing. The categories of staff were doctors, nurses, and ward aides . The total compliance was 63.3%. Hand washing done by soap in 41 situations (71.9%). The remaining 16 (28%) opportunities were by use of hand disinfections agents. Compliance in hand hygiene was differed among the different categories of HCWs.

They reported the most reported reason for non compliance was that they were too busy (64%). Patarakul et.al (2005) conducted a cross sectional study to assess the attitude and hand hygiene compliance of HCWs, the result of the study was that the overall hand hygiene compliance was less than 50%, the

questionnaire –based study, patient need perceived as priority (51.2%) was the most common reason for non compliance, followed by forgetfulness (35.7%), and skin irritation by hand hygiene agents (15.5%).

Though 98%of respondents were highly satisfied / satisfied with the hand hygiene practices presently used in CSICU and 100% were satisfied with the hand hygiene materials used in the unit. Ninety eight percent respondents agreed that there was very strong/strong relation between good hand hygiene practices and HAIs. The reported opinion of different HCWs was varying. Majority of HCWs identified and reported situations / patient care activities require hand hygiene. All HCWs expect technicians identified and reported more than 90% of situations require hand hygiene. McLaughlin et al (2009) reported that there is individual difference in judgments of hand hygiene risk by HCWs. The data describe the individual difference of HCWs related to hand hygiene in ways that can be used to create targeted intervention and products to improve hand hygiene.

During the observation period the opportunities for hand hygiene were most in the areas of "before/after equipment contact" The investigator found that the overall observed hand hygiene compliance among HCWs was 67.08%, from that the physiotherapist shows more compliance rate (78%) followed by nurses and residents (68%) and the technicians and unit helpers shows less compliance rate (60%).

## 5.4 Conclusion

The researcher concluded that there was disparity in hand hygiene compliance among HCWs in CSICU.

## 5.5 Limitation

There were disparity in the result from observational study and questionnaire – based study because the number of samples are varying, the samples involved in observational study may or may not be included in the questionnaire – based study. And the samples taken for observation are 75 and questionnaire distributed to 50 samples only; this was one of the major limitations of the study.

## 5.6 Recommendation

This study reveal only the hand hygiene compliance rate .There is an option for conduct further studies on hand hygiene to demonstrate reduction in HAIs, as well as reduced mortality and morbidity in our CSICU. And there is another option for doing an interventional study.

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## INFORMED CONSENT

I here by agree that to participate the research study " A study to assess the hand hygiene practices of Health Care Workers" conducted by Ms Shanu S J First year Diploma in Cardio – Vascular and Thoracic Nursing of SCTIMST, Trivandrum. I understand that the data given by me will be kept confidential and be used only for research purpose

Place Signature of staff

Date

# HAND HYGIENE QUESTIONNAIRE

**Section A**

**Socio Demographic Data**

**Fill or tick mark appropriately**

1. Age: Years

2. Sex : M/F

3. Profession: Nurse/ Resident/ Physiotherapist/ Technician/ Unit helper

4. Qualification : SSLC/Degree/GNM(N)/B. Sc (N)/M. Sc (N)/Doctoral/Others

5. Total professional experience: _____ years

6. Total years of CCU/CSICU experience _____years _____ months

(1) Did you receive formal training for hand hygiene ?

(a) Yes (b) No

(2) Do you routinely use alcohol – based hand rub ?

(a) Yes (b) No

(3) How often (%) do you use these products to disinfect your hands ( Should add up to 100% )?

(a) Soap and water alone_____%
(b) Alcohol – based hand rub_____%
(c) Both _____%
(d) Neither _____%

(4) Is there is any hand hygiene protocol in the ICU or hospital that you are aware of ?

(a) Yes (b) No

(5) If there is any protocol, what do you estimate your compliance rate?

(a) Never
(b) 1-10%
(c) 11-40%
(d) 41-70%
(e) 71-100%

(6) When you don't disinfect your hands ( use an alcohol- based rub) when you should, what is the reason why?

(a) Too Busy
(b) Forgot
(c) Unsure of need
(d) Out of products
(e) Products not in convenient location
(f) Other_____

(7) To what degree you think there is a relationship between good hand hygiene practice and hospital acquired infections?

(a) Very Weak
(b) Weak
(c) Neither weak nor strong
(d) Strong
(e) Very strong

(8) When working with another care giver and you forgot to disinfect your hands before touching the patient, what percent of time does your colleague remind you?

(a) Never
(b) 1-10%
(c) 11-40%
(d) 41-70%
(e) 71-100%

(9) When working with another care giver and him / her forgot to disinfect their hands before touching the patient, what percent of time does you Remind your colleague?

(a) Never
(b) 1-10%
(c) 11-40%
(d) 41-70%
(f) 71-100%

(10) Rate your satisfaction with hand hygiene practice (including glove Practice) currently used in your hospital

(a) Highly satisfied
(b) Satisfied
(c) Neutral
(d) Dissatisfied
(e)Highly dissatisfied

(11) Please rate your satisfaction with hand hygiene material currently used in your hospital

(a) Highly satisfied
(b) Satisfied
( c) Neutral
(d) Dissatisfied
(e) Highly dissatisfied

**Hand Hygiene Observation Tool**

Date:

Staff title:

Yes (√)

No (⤫)

N/A (0)

| **Observations** | **Yes/no/N/A** | **Yes/no/N/A** | **Yes/no/N/A** | **Yes/no/N/A** |
|---|---|---|---|---|
| Before clean and aseptic procedures including medication preparation | | | | |
| After contact with blood body fluids secretions or excretions, mucous membrane, non intact skin. | | | | |
| After handling objects and device such as soiled linen, trash and equipment. | | | | |
| After removing gloves used for contact with body substances. | | | | |
| Before patient contact. | | | | |
| After patient contact. | | | | |

| | | | | |
|---|---|---|---|---|
| Before patient equipment contact | | | | |
| After patient equipment contact | | | | |
| Gloves removed immediately after use | | | | |
| Before putting on gloves for sterile procedures | | | | |
| Gloves used whenever potential for hand contact with blood/body fluids. | | | | |

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# സമ്മതപത്രം

'ആരോഗ്യപരിപാലന ജീവനക്കാരുടെ കൈകളുടെ ശുചിത്വ നിരീക്ഷണം' എന്ന വിഷയത്തെക്കുറിച്ച് പഠിക്കുന്നതിന് തിരുവനന്തപുരം ശ്രീചിത്തിരതിരുന്നാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസസ് ആന്റ് ടെക്നോളജിയിൽ ഡിപ്ലോമ ഇൻ കാർഡിയോ വാസ്കുലാർ ആന്റ് തൊറാസിക് നഴ്സിംഗ് വിദ്യാർത്ഥിനിയായ- ഷാനു എസ്.ജെ. നടത്തുന്ന പഠനത്തിൽ സഹകരിക്കുവാൻ ഞാൻ സമ്മതിക്കുന്നു. ഞാൻ നല്കുന്ന വിവരങ്ങൾ തികച്ചും രഹസ്യവും പഠനത്തിനുവേണ്ടി മാത്രമേ ഉപയോഗിക്കുകയുള്ളൂ എന്നും ഞാൻ മനസ്സിലാക്കുന്നു.

സ്ഥലം :
തീയതി :

ഒപ്പ്

# കൈകളുടെ ശുചിത്വത്തെ സംബന്ധിക്കുന്ന ചോദ്യാവലി

ഭാഗം - 1

## വ്യക്തിവിവരം

**ശരിയായ ഉത്തരം പൂരിപ്പിക്കുകയോ അല്ലെങ്കിൽ ശരി [√] അടയാളപ്പെടുത്തുകയോ ചെയ്യുക.**

1. വയസ്സ് : (വർഷത്തിൽ)
2. ആൺ (1) പെൺ (2)
3. തൊഴിൽ : നഴ്സ് / ഡോക്ടർ / ഫിസിയോ തെറാപിസ്റ്റ് / ടെക്നീഷ്യൻ / യൂണിറ്റ് ഹെൽപ്പർ (ക്ലീനിംഗ് അറ്റൻഡന്റ്)
4. വിദ്യാഭ്യാസ യോഗ്യത : എസ്.എസ്.എൽ.സി. / ഡിഗ്രി / ജി.എൻ.എം. / ബി.എസ്.സി. / ഡോക്ടറൽ / മറ്റേതെങ്കിലും
5. തൊഴിൽ പരിചയം ..... വർഷം
6. തീവ്ര പരിചരണ വിഭാഗത്തിലെ തൊഴിൽ പരിചയം .....

ഭാഗം - 2

1. കൈകളുടെ ശുചീകരണത്തെക്കുറിച്ചുള്ള പരിശീലന ക്ലാസ്സുകൾ മുമ്പ് ലഭിച്ചിട്ടുണ്ടോ?

   (a) ഉണ്ട് (b) ഇല്ല

2. കൈകളുടെ ശുചീകരണത്തിനായി ആൽക്കഹോൾ അടങ്ങിയ ലായനി (ഹാൻഡ് റബ്) നിങ്ങൾ സ്ഥിരമായി ഉപയോഗിക്കാറുണ്ടോ ?

   (a) ഉണ്ട് (b) ഇല്ല

3. താഴെ പറയുന്ന ഉൽപന്നങ്ങൾ കൈ ശുചീകരണത്തിനായി നിങ്ങൾ എത്രമാത്രം ഉപയോഗിക്കുന്നു. (ആകെ 100 ശതമാനത്തിൽ) ?

   (a) സോപ്പും വെള്ളവും ..... %

   (b) ഹാൻഡ്റബ് .... %

   (c) ഇവ രണ്ടും ഉപയോഗിക്കുന്നത് ..... %

(d) ഇവ ഒന്നും ഉപയോഗിക്കുന്നില്ല .....%

4. ആശുപത്രിയിലോ തീവ്രപരിചരണ വിഭാഗത്തിലോ കൈകളുടെ ശുചീകരണത്തെ കുറിച്ചുള്ള മാർഗ്ഗ നിർദ്ദേശങ്ങൾ ഉള്ളതായി അറിവുണ്ടോ ?

(a) ഉണ്ട് (b) ഇല്ല

5. മാർഗ്ഗനിർദ്ദേശംഉണ്ടെങ്കിൽ നിങ്ങൾ അത് എത്രമാത്രം പാലിക്കുന്നു ?

(a) ഇല്ല (b) 1 - 10% (c) 11 - 40% (d) 41 - 70% (e) 71 - 100%

6. നിങ്ങൾ എപ്പോഴെങ്കിലും കൈ ശുചിയാക്കിയില്ല എങ്കിൽ (ആൽക്കഹോൾ ലായനി ഉപയോഗിച്ച്) അതിന്റെ കാരണം എന്തൊക്കെയാണ് (ബാധകമായത് ശരി [√] അടയാളപ്പെടുത്തുക.)

(a) വളരെ തിരക്ക് (b) മറന്ന് പോവുക (c) ആവശ്യകത തോന്നിയില്ല

(d) ഉല്പന്നങ്ങളുടെ ലഭ്യത കുറവ്

(e) ഉല്പന്നങ്ങൾ സൗകര്യപ്രദമായ സ്ഥലത്ത് ഇല്ലാതിരിക്കുക

(f) മറ്റേതെങ്കിലും

7. നല്ല കൈ ശുചീകരണവും ആശുപത്രിയിൽ നിന്നുണ്ടാകുന്ന അണുബാധയും തമ്മിൽ എത്ര മാത്രം ബന്ധമുണ്ട് എന്നാണ് നിങ്ങൾ കരുതുന്നത് ?

(a) വളരെ കുറവ് (b) കുറവ് (c) കുറവും കൂടുതലുമല്ല

(d) കൂടുതൽ (e) വളരെ കൂടുതൽ

8. നിങ്ങൾ മറ്റ് സഹപ്രവർത്തകരുമായി ജോലി ചെയ്യുമ്പോൾ, രോഗിയെ സ്പർശിക്കുന്നതിനു മുമ്പ് കൈ ശുചീകരിക്കാൻ നിങ്ങൾ മറന്നുപോയാൽ നിങ്ങളെ അവർ എത്ര മാത്രം ഓർമ്മിപ്പിച്ചിട്ടുണ്ട് ?

(a) ഒരിക്കലും ഇല്ല (b) 1 - 10% (c) 11 - 40 % (d) 41 - 70% (e) 71 -100%

9. നിങ്ങൾ മറ്റ് സഹപ്രവർത്തകരുമായി ജോലി ചെയ്യുമ്പോൾ, രോഗിയെ സ്പർശിക്കുന്നതിനു മുമ്പ് കൈ ശുചീകരിക്കാൻ അവർ മറന്നുപോയാൽ നിങ്ങൾ അവരെ എത്രമാത്രം ഓർമ്മിപ്പിച്ചിട്ടുണ്ട് ?

(a) ഒരിക്കലും ഇല്ല (b) 1 - 10% (c) 11 - 40 % (d) 41 - 70% (e) 71 -100%

10. നിങ്ങളുടെ ജോലി സ്ഥലത്ത് ഇപ്പോൾ ഉപയോഗിക്കുന്ന കൈ ശുചീകരണ പ്രവർത്തികളിൽ (ഗ്ലൗസ് ഉപയോഗിക്കുന്നത് ഉൾപ്പെടെ) നിങ്ങൾ എത്രമാത്രം സംതൃപ്തരാണ് ?

(a) വളരെയേറെ സംതൃപ്തരാണ് (b) സംതൃപ്തരാണ്

(c) പ്രത്യേകിച്ച് അഭിപ്രായമില്ല (d) അസംതൃപ്തരാണ്

(e) വളരെ അസംതൃപ്തരാണ്

11. നിങ്ങളുടെ ആശുപത്രിയിൽ ഉപയോഗിക്കുന്ന കൈശുചീകരണ ഉല്പന്നങ്ങളിൽ നിങ്ങൾ എത്രമാത്രം സംതൃപ്തരാണ് ?

(a) വളരെയേറെ സംതൃപ്തരാണ് (b) സംതൃപ്തരാണ്

(c) പ്രത്യേകിച്ച് അഭിപ്രായമില്ല (d) അസംതൃപ്തരാണ്

(e) വളരെ അസംതൃപ്തരാണ്

12. താഴെ പറയുന്നവയിൽ ഏതൊക്കെ അവസരങ്ങളിലാണ് കൈശുചീകരണം നടത്തേണ്ടത് ? (ബാധകമായത് ശരി [√] അടയാളപ്പെടുത്തുക.)

(a) വൃത്തിയുള്ളതും അണുവിമുക്തവുമായ എല്ലാ പ്രവർത്തികളും ചെയ്യുന്നതിനു മുമ്പ്

(b) അണുവിമുക്ത പ്രവർത്തികൾക്ക് വേണ്ടി ഗ്ലൗസ് ഉപയോഗിക്കുന്നതിനു മുമ്പ്

(c) രക്തം, ശരീരദ്രവങ്ങൾ, വിസർജ്ജ്യങ്ങൾ എന്നിവ സ്പർശിച്ചതിനു ശേഷം

(d) രോഗികൾക്ക് ഉപയോഗിച്ച തുണി, ഉപകരണങ്ങൾ തുടങ്ങിയവ കൈകാര്യം ചെയ്തതിനു ശേഷം

(e) ശരീരദ്രവങ്ങളിൽ സ്പർശിച്ച ഗ്ലൗസ് മാറ്റിയതിനു ശേഷം

(f) രോഗിയെ തൊടുന്നതിനു മുമ്പ്

(g) രോഗിയെ തൊട്ടതിനു ശേഷം

(h) രോഗിക്ക് വേണ്ടി ഉപയോഗിക്കുന്ന ഉപകരണങ്ങൾ തൊടുന്നതിനുമുമ്പ്

(i) രോഗിക്ക് വേണ്ടി ഉപയോഗിക്കുന്ന ഉപകരണങ്ങൽ തൊട്ടതിനു ശേഷം

(j) രക്തം, ശരീരദ്രവങ്ങൾ എന്നിവ സ്പർശിക്കാൻ സാദ്ധ്യത ഉള്ള അവസരങ്ങളിൽ ഗ്ലൗസ് ഉപയോഗിക്കുന്നത്

(k) പരിസരം വൃത്തികേടാകാതിരിക്കാൻ വേണ്ടി ഉപയോഗശേഷം ഗ്ലൗസ് ഉടനെ മാറ്റുന്നത്