ASSESS THE LEVEL OF INFECTION CONTROL PRACTICES AMONG HEALTHCARE WORKERS IN EMERGENCY DEPARTMENT IN A SELECTED HOSPITAL AT CHENNAI

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Abstract

Background

This study aimed to investigate the level of infection control practice among health care workers in emergency department.

Methods

It was a Quantitative approach and Descriptive design .The study was conducted at 20 Bedded Emergency department in a selected hospital at Chennai. 55 Sample were selected using non- probability convenient sampling technique .

Result

In this study the result was out of 55 healthcare workers 5(9%) of healthcare workers had the good level of infection control practice,16(29%) of healthcare workers had a fair level of infection control practice, 34(62%) of healthcare workers had a poor level of infection control practice and there is the no significant association between the selected demographic variable with the level infection control practice where the p-value is ***(P = 0.6912)***

Conclusion

According to the result 62% of health care workers had poor level of practice .Institutional support and self esteem is needed to improve the level of infection control practice

Keywords

Infection control practice ,Health care workers ,Emergency department

Introduction

Healthcare-associated infections are a major patient safety issue, causing significant patient morbidity and mortality, despite being largely preventable. National Action Plan and the Joint Commission's 2014 National Patient Safety Goals. Healthcare-associated infections are largely avoidable through the use of guideline-based infection prevention practices. Specifically, upwards of 70% of certain device-related healthcare-associated infections are preventable through the use of evidence-based strategies. Proper hand hygiene is considered one of the most effective methods to prevent the spread of infection. Infection prevention in the emergency department(ED)is of particular importance as millions of patients seek care in the ED each year; millions of invasive devices including urinary catheters, central venous catheters, and peripheral venous catheters are placed in this setting each year and numerous opportunities for hand hygiene exist.

Hand Hygiene

Hand hygiene is considered one of the best methods to prevent healthcare-associated infections (Allegranzi B, ete all 2009;). In 1981, the first-hand hygiene guidelines for the acute care setting were published by the Centers for Disease Control and Prevention These guidelines have since been updated and additional hand hygiene guidelines have been published by the Association for Professionals in Infection Control and Hospital Epidemiology and the World Health Organization. Centers for Disease Control. Guidelines for the prevention and control of nosocomial infections.(Atlanta, GA: Centers for Disease Control; 1981.)

As part of the Joint Commission's hospital accreditation program, institutions are required to use hand hygiene guidelines, monitor hand hygiene compliance, and provide compliance feedback Further, national safety goals to reduce healthcare-associated infections stress the importance of proper hand hygiene. (National Patient Safety Goals. 2014.) Need for the study is Healthcare professionals are constantly exposed to microorganisms. Many of which can cause serious or even lethal infections (Twitchell, 2003). Nurses, in particular, are often exposed to various infections during the course of carrying out their nursing activities (Kosgeroglu, et. all, 2004). Nosocomial infection (NI), or hospital-acquired infection or Health-care-associated infection (HCAI) refers to the infection that is acquired during the process of care and not manifested at the time of admission to a hospital or other health-care facility (Nejad, Allegranzi, Syed, Ellis, &Pittet, 2011.Objectives are To assess the level of Infection Control Practices in Emergency Department among Health Care Workers .To associate the level of infection control with selected demographic variables.

METHOD

It was a Quantitative approach and Descriptive design was stated for this study .The study was conducted at 20 Bedded Emergency department in a selected hospital at Chennai. The Duration was 2 week. From 16/04/2018 to 28 /04/2018. And the sample was People working in Emergency Department in Selected Hospital who fulfill the inclusion criteria. (People who are working in the emergency department, Those who were available during a period of data collection, People who are doing procedures ,Both male and female. The Sample size consists of 55 healthcare workers and the technique was Non- probability convenient sampling technique.

Data collection was done by single blinded observational check list(Infection Control Practice in ED - Observational Checklist-Health Care Workers) consist of Part-A:Socio-demographic variables such as sex, profession .Part-B: Infection Control Practice in Emergency department Observational Checklist-Health Care Workers It consists of 20 listed items, Components of Hand Washing Technique (8 items), Personal Protective Equipment (4 items), Handling Sharp Instrument (4 items), Biomedical Waste Management(4 items) total 20 items and the score interpretation: Scoring for each item is Done – 2 Done Incorrectly – 1 Not Done – 0 Total -40 score. Level of infection control practice was scored by 31-40 Good Practice 21-30 Fair Practice 0-20 Poor Practice .Reliability was checked by using test retest formula where the r value is r =0.8.

Data analysis was done by using statistical methods frequency and percentage, Mean and standard deviation and chi-square. at the significance level of $P>0.05$

- Frequency and percentage distribution of demographic variables of health care worker
- Distribution of level of infection control practice among healthcare workers
- Mean and standard deviation of the level of infection control practice among healthcare workers

- Item analysis of infection control practice
- Association of the selected demographic variables with the Infection Control Practice

RESULT

In the study this study distribution of demographic variables of level of health care workers in Frequency and percentage. Regarding the sex of the population, 17(31%) were male and 38(69%) members were female. Regarding the profession 5(9%) were Dr/Dr ER, 8(14.5%) were CRRI, 8(14.5%)were Nursing-staffs ,7(13%e) were Nursing students, 3(5.4%) were AHS-Staffs and 24(43.6%) AHS students. In level of practice out of 55 healthcare workers 5(9%) of health care workers had a good level of infection control practice,16(29%) of health care workers had a fair level of infection control practice, 34(62%) of healthcare workers had a poor level of infection control practice. The mean and standard deviation for a level of infection control practice is 17.74 and 9.66. There was no significant association between the profession with the level of infection control practice with the level of infection control practice .In item analysis above 80% of people not done hand washing steps health care workers in emergency department are comfortable in using Streillium for hand hygiene . In personal protective equipment more then 60% of health care workers are not done. In handling sharp instruments 60% of health care workers were not wearing gloves,35% were recapping the needle which was in correct ,82 % disposed sharp immediately and 85% ware not leave the sharp lying around the bed. In biomedical waste management above 70% of health care workers done correctly.

DISCUSSION:

"Our results confirm that out of 55 healthcare workers 5(9%) of health care workers had a good level of infection control practice,16(29%) of healthcare workers had a fair level of infection control practice, 34(62%) of healthcare workers had a poor level of infection control practice and there is a no significant association between the selected demographic variable with the level infection control practice where the p-value is (P = 0.6912) No significant**.** The reason we conduct studies is to know the level of infection control practice in the emergency department.

In the same line M Al-Damouk, E Pudney, A Bleetman(Department of Accident and Emergency Medicine, Birmingham Heartlands Hospital, Bordesley Green East, Birmingham B9 5SS, UK)done a study on Hand hygiene and aseptic technique in the emergency department.this study reveals that There was poor compliance with good practice guidelines for asepsis in invasive procedures in UK and New Zealand emergency departments. Staff achieved high compliance with the guidelines in only 27% of cases in the UK and 58% of cases in New Zealand. Clinical urgency did not appear to adversely affect compliance with aseptic good practice. Hand hygiene between patient consultations was very low at 14% in the UK and 12% in New Zealand. Asepsis and hand hygiene was poor in both the UK and New Zealand emergency departments. There may be a need for some compromise in standards of asepsis in very sick patients due to the urgency of the clinical situation. Compliance in all situations especially non-urgent procedures needs to be improved.

our study which corroborates the findings of a study Health Care Workers and Standard Precautions: Perceptions and Determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care Hospital in South India Sangini Punia,1 Suma Nair,2 and Ranjitha S. Shetty2 1 Department of Anesthesiology, University of Iowa Hospitals and Clinics, Iowa City, IA 52246, USA 2 Department of Community Medicine, Kasturba Medical College, Manipal University, Manipal, Udupi, Karnataka 576 104, India,in 2014 The study shows varying degrees of compliance with the different measures contained within standard precautions. The majority of the participants declared the use of hand rub (74.7%) following most procedures. Compliance with glove use was reported by 85.1%. The study findings show the existence of inadequate needle safety precautions, low compliance with standard guidelines, and improper disposal of sharps among the health care workforce in a trauma care setting. This is despite the presence of an active infection control committee and the presence of posters stressing the need to comply with standard precaution Suggestions are For inadequate practices on the hand washing before touching the patient, the staffs should be trained and educated on Healthcare-Associated infection .For the inadequate biomedical waste management Practices the staffs can be educated on disposal of waste in color-coded bins, Posters can be displayed, regular audits can be conducted by the hospital infection control committee. To avoid recapping of the

needle and intimate to respective in charge and document regarding the needle stick injury and standard Operating procedure have to be followed for needle stick injury. Hospital Infection Control Programme: Monthly staff training sessions on infection control.Frequent assessment of staff's knowledge regarding infection control and how the infection spread.Motivational activities for staff For Involvement of staff in overall maintenance of optimum standards of infection control the following can be done: Quiz Contests for Clinicians, Nursing Staff, Paramedical Staff Test your IQ (Infection Quotient), Elocution, Debate Competitions • Poster Competition'I-keep-my-hands-clean' Competition • Best staff Award .Infection prevention championship (For Critical as well as Non-Critical Areas).Challenger cup championship (an Innovative idea which has effectively challenged the Infection Growth).

Conclusion

The Descriptive study was conducted from 16/04/2018 to 28 /04/2018 in emergency department among healthcare workers.55 sample were selected for data collection and data was collected and analyzed.

Major Findings:

- The result Shows that out of 55 healthcare workers 5(9%) of healthcare workers had the good level of infection control practice,16(29%) of healthcare workers had a fair level of infection control practice, 34(62%) of healthcare workers had a poor level of infection control practice
- The result shows that there is the no significant association between the selected demographic variable with the level infection control practice where the p-value is **(P = 0.6912)**

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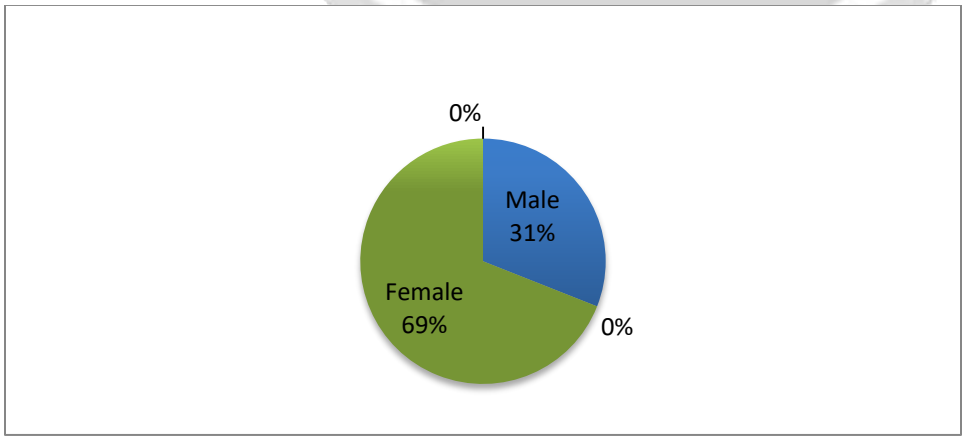
Table-1 Frequency and percentage distribution of demographic of level of health care workers

S.NO	DEMOGRAPHIC- VARIABLE	FREQUENCY	PERCENTAGE
1.	**Sex** Male Female	 17 38	 31% 69%
2.	**Profession** a)Dr/Dr. ER b)CRRI c)Nursing-staff d)Nursing student e)AHS-Staff f)AHS student	 5 8 8 7 3 24	 9% 14.5% 14.5% 13% 5.4% 43.6%

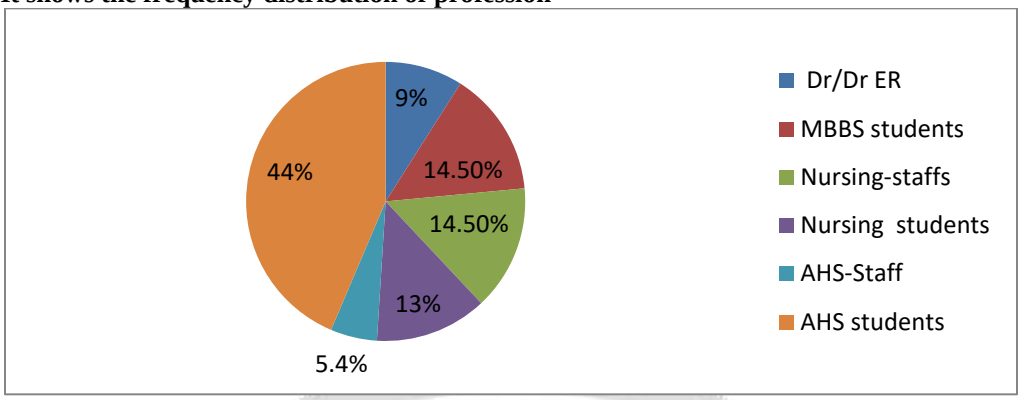
Table I: shows that Frequency and percentage distribution of demographic variables of level of health care workers . Regarding the sex of the population, 17(31%) were male and 38(69%) members were female. Regarding the profession 5(9%) were Dr/Dr ER, 8(14.5%) were CRRI, 8(14.5%)were Nursing-staffs ,7(13%e) were Nursing students, 3(5.4%) were AHS-Staffs and 24(43.6%) AHS students.

Figure -1.1 Frequency distribution of sex of health care workers.



It shows the frequency distribution of sex of health care workers 69% were female and 31% were male.

Figure -2 It shows the frequency distribution of profession



It shows major is AHS students (44%) and minimum is AHS-staff.

SECTION-II:

- It Shows that out of 55 healthcare workers 5(9%) of health care workers had a good level of infection control practice,16(29%) of health care workers had a fair level of infection control practice, 34(62%) of healthcare workers had a poor level of infection control practice.
- Shows that mean and standard deviation for a level of infection control practice is 17.74 and 9.66

Table -2 Distribution of level of infection control practice among healthcare workers

Level of infection control practice	**N**	**%**	**Mean**	**SD**
Good practice	5	9%	17.74	9.66
Fair practice	16	29%		
Poor practice	34	62%		

Figure- 3 Distribution of level of infection control practice among healthcare workers

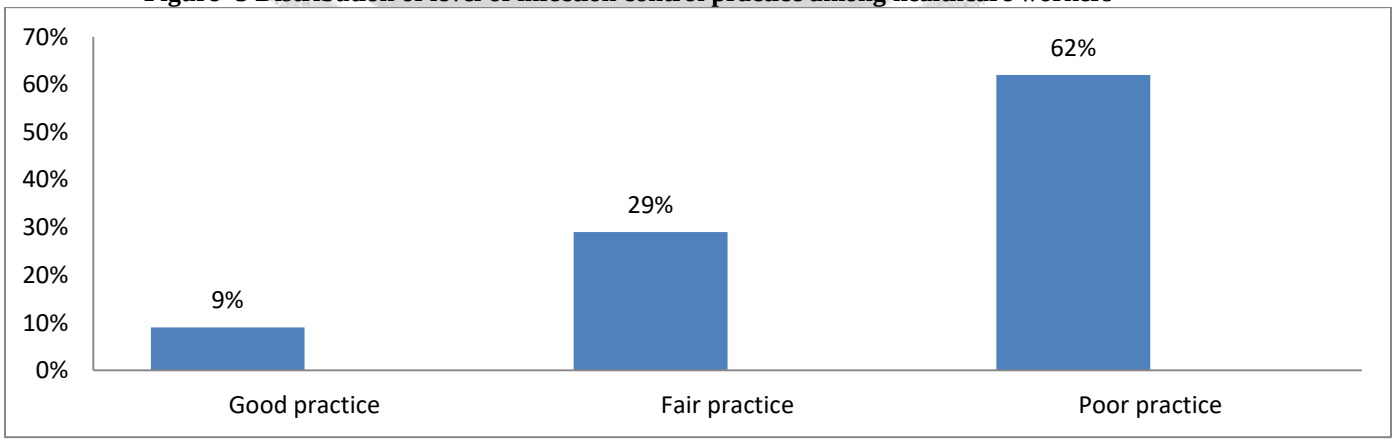


Figure-3 It shows that major practice 34(62%) of healthcare workers had a poor level of infection control practice.

Table -4 Item analysis of infection control practice

Items	Done correctly		Done Incorrectly		Not Done	
	no	%	no	%	no	%
Hand Washing						
a)Wet Your Hands And Apply Enough Soap.	10	18%	0	0%	45	82%
b).Rub Your Palms Together.	8	15%	2	4%	45	82%
c).Rub The Back Of Each Hand	7	13%	3	5%	45	82%
d).Rub Both Your Hands While Interlocking Fingers.	8	15%	2	4%	45	82%
e) Rub The Tips Of Your Fingers.	8	15%	2	4%	45	82%
f) Rinse Both Hands Properly With Water.	9	16%	0	0%	46	84%
g) Dry The Hands	3	5%	2	4%	50	91%
h) Streillium Used For Hand Hygiene	44	80%	0	0%	11	20%
PPE a)Wearing Glove when Handling Body Fluids	21	38%	0	0%	34	62%
b)Changing Gloves Between Procedure For the Same Patient	19	35%	0	0%	36	65%
c)Changing Gloves Between Patients	21	38%	0	0%	34	62%
d)Wearing Mask	7	13%	0	0%	48	87%
Sharp Instruments a) Wearing Gloves Before Handling Sharps	22	40%	0	0%	33	60%
b)Do not Recapping The Needle	19	35%	10	18%	19	35%
c)Sharp Disposed Immediately	45	82%	2	4%	8	15%
d)Do not Leave Sharp Lying Around The Bed	47	85%	0	0%	8	15%
Biomedical Waste Management a)White-Waste Sharps including metals.	43	78%	3	5%	9	16%
b)Blue-Glassware.	39	71%	7	13%	9	16%
c)Yellow-Human Anatomical Waste ,soiled waste.	40	73%	6	11%	9	16%
d)Red-Contaminated Waste(Recyclable)tubing, gloves	37	67%	9	16%	9	16%

SECTION-III:

Table -5: It shows that Associations of the profession with the level of infection control practice

S.No	Demographic variables	GOOD		FAIR		POOR		Chi square
		N	%	N	%	N	%	
1.	a)Dr/Dr. ER b)CRRI c)Nursing-staff d)Nursing student e)AHS-Staff f)AHS student	1 0 2 0 0 2	1.8% 0% 3.6% 0% 0% 3.6%	1 2 2 2 2 6	1.8% 3.6% 3.6% 3.6% 3.6% 10.9%	3 6 4 5 1 16	5.% 10.9% 7.2% 9.0% 1.8% 29.0%	χ^2 = **7.358**, **df = 10**, **P = 0.6912** **Not significant**

Df- degree of freedom NS- not- significant

The table shows that there is the no significant association between the selected demographic variable with the level of infection control practice

ANNEXURE

SECTION-A

INFECTION CONTROL PRACTICE IN ED OBSERVATIONAL CHECKLIST-HEALTH CARE WORKERS

SAMPLE CODE:

PART A

2.Sex: ☐ a)Male ☐ b)Female

3. Profession: ☐ a)Dr/Dr. ER ☐ b)MBBS students ☐ c)Nursing-staff ☐ d)Nursing student ☐ e)AHS-Staff ☐ f)AHS student

HAND WASHING TECHNIQUE

Hand Washing	**DONE**	**DONE INCORRECTLY**	**NOT DONE**
a)Wet Your Hands And Apply Enough Soap.			
b).Rub Your Palms Together**.**			
c).Rub The Back Of Each Hand			
d).Rub Both Your Hands While Interlocking Fingers.			
e) Rub The Tips Of Your Fingers.			
f) Rinse Both Hands Properly With Water.			
g) Dry The Hands			
h) Streillium Used For Hand Hygiene			

PERSONAL PROTECTIVE EQUIPMENT

PPE	**DONE**	**DONE INCORRECTLY**	**NOT DONE**
a)Wearing Glove when Handling Body Fluids			
b)Changing Gloves Between Procedure For the Same Patient			
c)Changing Gloves Between Patients			
d)Wearing Mask			

HANDLING SHARP INSTRUMENT

SHARP INSTRUMENTS	**DONE**	**DONE INCORRECTLY**	**NOT DONE**
a) Wearing Gloves Before Handling Sharps			
b)Do not Recap The Needle			
c)Sharp Disposed of Immediately			
d)Do not Leave Sharp Lying Around The Bed			

BIOMEDICAL WASTE MANAGEMENT

BIOMEDICAL WASTE MANAGEMENT	**DONE**	**DONE INCORRECTLY**	**NOT DONE**
a)White-Waste Sharps including metals.			
b)Blue-Glassware.			
c)Yellow-Human Anatomical Waste, soiled waste.			
d)Red-Contaminated Waste(Recyclable)tubing, gloves			

PART C

CENTRAL LINE CATHETER	DONE	DONE INCORRECTLY	NOT DONE
a)Washing Hands			
b)Gloving			
d)Mask			
e)Cleaning The Site			
f)Applied Sterile Dressing After Procedure			
g)Disposal of waste			

*ED-Emergency Department * Score-Done – 2 Done Incorrectly – 1 Not Done - 0
*PPE-Personal Protective Equipment