



**A Study On Assess The Employee Awareness On Hospital Acquired Infection Control
At Life Line Multispeciality Hospital, Chennai**

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ABSTRACT

The primary objective of this study is to assess the employee awareness on the hospital-acquired infection control in Lifeline Multi-Speciality Hospital, Chennai. The secondary objectives are to analyse the awareness of employees on the importance of barriers techniques like hand washing, wearing of gloves, wear of mask, eye protection, wearing of gown and to evaluate the knowledge of isolation of infected patients. This study also aims to assess the method of sterilizing the equipment which are used for patients in Lifeline Multi-Speciality Hospital and to understand the most preferred method among the nurses for self-protection from hospital acquired infections

Hospital – Acquired Infection have been found to affect between 5-10 per cent of hospital patients and the changing delivery of health care services is likely to impact further on the nature and cost of HAI. On the one hand, the increasing use of same day surgery, the trend for shorter lengths of hospital pathogens and invasive devices. So that the investigator chosen the topic and improve the knowledge level among the staffs and management employees.

INTRODUCTION

Background and Rationale of the study

Hospital-acquired infections (HAIs), also known as health-care associated infections, encompass almost all clinically evident infections that do not originate from a patient's original admitting diagnosis. Within hours after admission, a patient's flora begins to acquire



characteristics of the surrounding bacterial pool. Most infections that become clinically evident after 48 hours of hospitalization are considered hospital can be considered to have a nosocomial origin if the organisms were acquired during the hospital stay.

Pathophysiology

Within hours of admission, colonies of hospitals strains of bacteria develop in the patient's skin, respiratory tract, and genitourinary tract. Risk factors for the invasion of colonizing pathogens can be categorized into 3 areas: iatrogenic, organizational and patient related.

- Iatrogenic risk factors include pathogens on the hands of medical personnel, invasive procedures (e.g. intubation and extended ventilation, indwelling vascular lines, urine catheterization), and antibiotic use and prophylaxes.
- Organizational risk factors include contaminated air conditioning systems, contaminated water systems, and staffing and physical layout of the facility (e.g. nurse-to-patient ratio, open beds close together).
- Patient risk factors include the severity of illness, underlying immunocompromised state, and length of stay.

OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE

To assess the employee Awareness on Hospital-Acquired infection control in Lifeline Multi-Speciality Hospital, Chennai.

SECONDARY OBJECTIVES

1. To analyse the awareness of employees on the importance of barriers techniques like hand washing, wearing of gloves, wear of mask, eye protection, wearing of gown
2. To analyse the awareness on use of sterilized equipments, Linen, and disinfectants and needle destroyer.
3. To evaluate the knowledge of isolation of infected patients
4. To assess the method of sterilizing the equipments which are used for patients in Lifeline Multi-Speciality Hospital



5. To understand the most preferred method among the nurses for self-protection from hospital acquired infections

NEED FOR THE STUDY

Hospital – Acquired Infection have been found to affect between 5-10 per cent of hospital patients and the changing delivery of health care services is likely to impact further on the nature and cost of HAI. On the one hand, the increasing use of same day surgery, the trend for shorter lengths of hospital pathogens and invasive devices. So that the investigator chosen the topic and improve the knowledge level among the staffs and management employees.

RESEARCH APPROACH AND DESIGN:

The approach chosen for this study is descriptive survey method which helps to provide factual information about existing phenomena. It also helps to study the current problem by further descriptive and understanding of current conditions. The purpose of this approach is to describe and documents the aspects of situation. Research design is descriptive study design. It describes the knowledge of infection control among the staff at the Lifeline Multi-Speciality Hospital. Descriptive studies are designed to gain more information about characteristics within the particular field of study. The Purpose is to produce a picture of a situation as it naturally occurs. In descriptive design, an attempt is made to establish the relationship between dependent and independent variables.

SAMPLE SIZE

The sample size of a statistical sample is the number of observations that continue it. It is typically denoted n , a positive integer (natural number). Typically, all else being equal, a larger sample size leads to increased precisions in estimates of various properties of the population, though the results will become less accurate if there is a systematic error in the experiment. This can be seen in such statistical rules as the law of large numbers and the central limit theorem. Repeated measurements and replication of independent samples are often required in measurement and experiments to reach a desired precision. Hence the researcher chosen sampling size is 100.

DATA ANALYSIS



TABLE NO:1

**AFTER TOUCHING THE PATIENTS WITH BLOOD, SECRETIONS,
EXCRETIONS AND CONTAMINATED ITEMS**

S.NO	Material gloves	No. of Respondents	%
1	Handle the next patient immediately	0	0
2	Wipe the hands with cloth/cotton	16	16
3	Wash the hands in running water	84	84
	TOTAL	100	100

INFERENCE:

From the above pie chart, it states that 84% of the respondents wash the hands in running water after touching the patients with blood, secretions, excretions and contaminated items and 16% of the respondents wipe the hands with cloth/cotton after touching the patients with blood, secretions, excretions and contaminated items

TABLE 2

RESPONDENTS BY MATERIAL GLOVES

S.NO	Material gloves	No. of Respondents	%
1	Latex	38	38
2	Nitrile	22	22
3	Rubber	18	18
4	Vinyl	12	12
5	Neoprene	10	10
	TOTAL	100	100

INFERENCE:



From the above pie chart, it states that 38% of the respondents use latex material gloves, 22% of the respondents use nitrile material gloves, 18% of the respondents use rubber material gloves, 12% of respondents use vinyl material gloves and lastly 10% of the respondents use for neoprene.

TABLE 3
RESPONDENTS BY TYPES OF GLOVES

S.NO	GLOVES	No. of Respondents	%
1	Sterile surgical gloves	74	74
2	Sterile exam gloves	14	14
3	Non-sterile exam gloves	12	12
	TOTAL	100	100

INFERENCE:

From the above table, it can infer that 74% of the respondents prefer sterile surgical gloves, 14% of the respondents prefer sterile exam gloves and 12% of the respondents prefer non-sterile exam gloves.

TABLE 4
RESPONDENTS TO PERFORM HAND HYGIENE

S.No.	Particular	No. of Respondents	%
1	In Between	14	14
2	Only After	0	0
3	Before and After	74	74
4	Just Before	12	12
	TOTAL	100	100



INFERENCE:

From the above table it can be noticed that 74% of the respondents say that hand hygiene should be performed before and after every patient/resident or equipment contact while 14 % say that that hand hygiene should be performed before and after every patient/resident or equipment contact

TABLE 5

WHILE DOING DRESSING FOR PATIENTS

S.NO	Particular	No. of Respondents	%
1	on the wound with empty hand by touching it	14	14
2	on the wound with empty hand without touching it	10	10
3	on the wound using cotton	18	18
4	on the wound with gloved hands	58	58
	TOTAL	100	100

INFERENCE:

From the above table show that, 14% of the respondents apply on the wound with empty hand by touching it, 10% of the respondents apply on the wound with empty hand without touching it, 18% of the respondents apply on the wound using cotton and 58% of the respondents apply the medicine on the wound with gloved hands.

TABLE 6

RESPONDENTS TO INFECTIONS REQUIRES HAND HYGIENE

S.NO	INFECTIONS	No. of Respondents	%
1	Catheter Associated Urinary Tract Infection	48	48



2	Surgical Site infection	22	22
3	Methicillin-resistant Staphylococcus Aureus	18	18
4	Clostridium difficile	12	12
	TOTAL	100	100

INFERENCE:

From the above table, we can observe that 22% of the respondents to Surgical Site Infections, 18% Respondents to Methicillin-Resistant Staphylococcus Aureus, 12% Respondents to Clostridium and 48% of the respondents say that Catheter Associated Urinary Tract Infection requires Hand Hygiene with soap and water rather than alcohol-based hand rub to prevent transmission.

TABLE 8

GLOVES ARE NOT NECESSARY AS PART OF STANDARD PRECAUTIONS

S.NO	PARTICULARS	No. of Respondents	%
1	Pills are being dispensed.	86	86
2	A catheter bag is being emptied	4	4
3	An incontinent patient is being repositioned	6	6
4	Wound dressing is being changed	4	4
	TOTAL	100	100



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INFERENCE:

From the above table, it can infer that 86% of the respondents feel that gloves are not necessary as part of standard precautions while pills are being dispensed and 6% of the respondents feel that gloves are not necessary as part of standard precautions while an incontinent patient is being repositioned

TABLE- 9

TRUE STATEMENTS ABOUT ANTIBIOTICS

S.NO	PARTICULARS	No. of Respondents	%
1	Doctors should prescribe an antibiotic whenever a patient request one.	8	8
2	Consumers often request antibiotics when they are not appropriate	6	6
3	Doctors should prescribe antibiotics for every patient with an infection	80	80
4	Consumers should stop taking antibiotics when they start to feel better	6	6
	TOTAL	100	100

INFERENCE:

From the above table, it can inferred that 80 % of the respondents feel that doctors should prescribe antibiotics for every patient with an infection and 6 % of the respondents feel that doctors should prescribe antibiotics for every patient with an infection

TABLE 10

**NHANDLING OF INJECTED PLACE AFTER GIVING INJECTIONS TO THE
PATIENT**



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S.NO	PARTICULARS	No. of Respondents	%
1	Rub the injected place with cotton	56	56
2	Rub the injected place with hands	4	4
3	Will ask the patient to rub on their own	40	40
	TOTAL	100	100

INFERENCE:

From the above table, it can be inferred that 56% of the respondents rub the injected place with cotton while 40% of the respondents will ask the patient to rub on their own

STATISTICAL TOOLS

CHI – SQUARE

Chi-square Test is a useful measure of comparing experimentally obtained results with those expected theoretically and based on hypothesis. The Expected frequencies are the frequencies that should be uniformly distributed over a given period of time.

$$\chi^2 = \sum [(O-E)^2 / E]$$

Where O-Observed frequency

E-Expected frequency.

NULL HYPOTHESIS:

H₀: There is no relationship between the experience and the method to handle the patients suffering from contagious diseases

ALTERNATIVE HYPOTHESIS:

H₁: There is a relationship between the experience and the method to handle the patients suffering from contagious diseases

TABLE 11
Chi-Square Tests



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	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	58.372 ^a	6	.000
Likelihood Ratio	73.993	6	.000
Linear-by-Linear Association	4.472	1	.034
N of Valid Cases	100		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .90.

Experience * Handle the patients suffering from contagious diseases Cross tabulation

		Handle the patients suffering from contagious diseases			Total
		No special attention	Wear masks while handling them	Isolation room	
Experience	1-4 yrs Count	2	0	3	5
	% within Experience	40.0%	.0%	60.0%	100.0%
	% within Handle the patients suffering from contagious diseases	22.2%	.0%	13.6%	10.0%
	% of Total	4.0%	.0%	6.0%	10.0%
5-9 yrs	Count	0	0	9	9
	% within Experience	.0%	.0%	100.0%	100.0%
	% within Handle the patients suffering from contagious diseases	.0%	.0%	40.9%	18.0%
	% of Total	.0%	.0%	18.0%	18.0%
10-14 yrs	Count	7	0	10	17
	% within Experience	41.2%	.0%	58.8%	100.0%
	% within Handle the patients suffering from contagious diseases	77.8%	.0%	45.5%	34.0%



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	% of Total	14.0%	.0%	20.0%	34.0%
>14 yrs	Count	0	19	0	19
	% within Experience	.0%	100.0%	.0%	100.0%
	% within Handle the patients suffering from contagious diseases	.0%	100.0%	.0%	38.0%
	% of Total	.0%	38.0%	.0%	38.0%
Total	Count	9	19	22	50
	% within Experience	18.0%	38.0%	44.0%	100.0%
	% within Handle the patients suffering from contagious diseases	100.0%	100.0%	100.0%	100.0%
	% of Total	18.0%	38.0%	44.0%	100.0%

Calculated value of $X^2 = 58.372^a$

Degree of freedom, $v = (R-1) (C-1)$

$$= (4-1) (3-1)$$

$$= 3 \times 2 = 6$$

Level of Significance, $\alpha = 0.05$

$$\alpha(0.05, 6) = 12.592$$

Since, computed value 58.372^a is greater than table value 12.592

That is, $58.372^a > 12.592$

INFERENCE:

Calculated value of $X^2 = 58.372^a$ is more than the table value = 12.592

Null hypothesis is rejected.



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Result:

There is a relationship between the experience and the method to handle the patients suffering from contagious diseases

ONE WAY ANOVA

The ANOVA tests the null hypothesis that samples in two or more groups are drawn from populations with the same mean values. To do this, two estimates are made of the population variance. The ANOVA produces an F-statistic, the ratio of the variance calculated among the means to the variance within the samples. If the group means are drawn from populations with the same mean values, the variance between the group means should be lower than the variance of the samples, following the central limit theorem. A higher ratio therefore implies that the samples were drawn from populations with different mean values.

All of this sounds like a lot to remember, and it is. However, there is a table which makes things really nice.

TABLE 12

	SS	df	MS	F
Between	SS(B)	k-1	$\frac{SS(B)}{k-1}$	$\frac{MS(B)}{MS(W)}$
Within	SS(W)	N-k	$\frac{SS(W)}{N-k}$	.
Total	SS(W) + SS(B)	N-1	.	.

Notice that each Mean Square is just the Sum of Squares divided by its degrees of freedom, and the F value is the ratio of the mean squares. Do not put the largest variance in the numerator, always divide the between variance by the within variance. If the between variance is smaller than the within variance, then the means are really close to each other and you will fail to reject the claim that they are all equal. The degrees of freedom of the F-test are in the same order they appear in the table



Null hypothesis (Ho):

There is no significance difference between wearing the mask and gloves during the procedures and patient care activities and the nurses wearing gown during procedures and patient – care

Alternate hypothesis (H1):

There is a significance difference between wearing the mask and gloves during the procedures and patient care activities and the nurses wearing gown during procedures and patient – care

TABLE 13

Descriptive

WEARING OF MASK AND GLOVE DURING PROCEDURES AND PATIENT CARE ACTIVITIES

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Yes	38	1.92	.850	.138	1.64	2.20	1	3
No	12	1.00	.000	.000	1.00	1.00	1	1
Total	50	1.70	.839	.119	1.46	1.94	1	3

FINDINGS

- Majority (56%) of the respondents rub the injected place with cotton
- Majority (54%) of the respondents wash their hands while attending the patients



- Majority (38%) of the respondents feel that medical microbiologists controls the antibiotic policy
- Majority (66%) of the respondents sterilize the equipments with chemical.
- Majority (72%) of the respondents say that disinfectants are used for cleaning walls and floor on a daily basis
- Majority (68%) of the respondents to strongly agree that wash & sterilize the linen after the patients get discharged
- Majority (78%) of the respondents strongly agree to wear a mask and glove during procedures & patient care activities
- Majority (86%) of the respondents throw the needle in the dust bin with needle cap after use
- Majority (76%) of the respondents wear gown during procedures and patient – care
- Majority (80%) of the respondents strongly agree that hospital should undertake surveillance of hospital-acquired infection
- Majority (44%) of the respondents say that handle the patients suffering from contagious disease from an isolated room
- Majority (58%) of the respondents prefer periodical staff vaccinations for protecting themselves from hospital acquired infections.

SUGGESTIONS

Management of Lifeline Multi-Speciality Hospital can create a committee to monitor the hospital acquired infections. This committee can ensure the periodical vaccination for the nurses to protect them for hospital acquired infection

- ❖ Special training sessions can be conducted to the nurses and create awareness about the hospital acquired infection on a regular basis



- ❖ Heat sterilization for equipments can be made readily available than waiting for the chemical sterilization of equipments which requires more effort.
- ❖ Standard principles have to be framed for the nurses for handling the patients. All these principles should protect the nurses from various hospital acquired infections
- ❖ Wearing gloves & masks wherever necessary has to be followed strictly among the nurses. This will set a good image for the hospital among the patients and also prevents the hospital acquired infection

CONCLUSION

Hospital acquired infections are a serious threat to the nurses who handle the patients every day in hospital. Although nurses are trained to protect themselves from the infections, few lapses happen in every hospital. Through this study, the researcher has assessed the awareness among the nurses about the hospital acquired infections. Based on the responses, numerous findings have been arrived. In short, regular check on the cleanliness, hand wash, usage of disinfectants, maintaining hygienic atmosphere and the way patients are handled decide the spread of hospital acquired infections. Monitoring of the hospital acquired infections and periodical vaccinations for nurses can protect them from the hospital acquired infections. Suitable suggestions have been given to the management of Lifeline Multi-Speciality Hospital to make their hospital free from any kind of hospital acquired infections.

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