

MEASURES FOR PREVENTION AND CONTROL OF NOSOCOMIAL INFECTION AMONG NURSES IN DHQ HOSPITAL FAISALABAD

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ABSTRACT

Background: Identify the measure for prevention and controlling nosocomial infection in neonatal intensive care unit. Health care association infection cause complication and may lead to critical situation. It is necessary the health care facilitators to have knowledge of intervention of infection prevention and controlling. Healthcare personnel protect neonate from hospital acquired infection by standardize method. **Objective:** To identify the measure for prevention and controlling of nosocomial infection and to improve infection prevention strategy. **Pried:** Total duration of study is four month. **Methodology:** It is cross sectional study and structure questionnaire tool is used. Non probability sampling technique is used for data collection. The sample size is 141 including head nurses and registered nurses working in district head quarter DHQ hospital Faisalabad. **Result:** 75% of nurses response for infection control team working in their hospital.90% response for using standardize method for infection control.60% response for ongoing assessment .only 31% response of health care worker behavior modification.64% response to follow infection control policy and guideline is used.58% of nurses take training on infection prevention. 95% agree to start diploma on infection prevention and controlling. Only 40% health care professional followed eleven step of hand washing is not feasible to follow every time due to shortage of time. 67% agree on available of alcohol base sanitizer. Only 44% staff wearing gloves. **Conclusion:** knowledge and education on infection prevention and controlling can change and modify their practice and behavior.

Key words: Nosocomial Infection, Neonatal Intensive Care Unit (NICU), Prevention

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INTRODUCTION

Nosocomial infection or hospital acquired infection an infection occurs within 48 hours of admission to health care institution or 30 days after hospital discharge.¹ It increases morbidity, mortality rate, and length of stay (LOS) in hospital. It happen 10% patient in western countries and 25% patient in restricted income countries due to insecure infectivity control.² It influences about 2 million victims in United States every year and 90,000 deaths in result.³ The World Health Organization (WHO) report on the global burden of Hospital Acquired Infection (HAI) in 2011 stated that "there is an urgent need to establish reliable systems for HAI surveillance and to gather data on the actual burden on a regular basis".⁴

One million deaths per year due to neonatal blood stream Nosocomial infection.⁵ In developed countries, incidence of HAI comparatively is less than to the developing countries. In USA it is 4.5%, in Europe 7.1% and 15.5% in under developing countries which higher than developed countries.⁶ Patient in High Dependency Unit (HDU) are more at risk about 25% of total occurrence in HDU.⁷ It is common source of morbidity and mortality among neonates in under developing countries. Nosocomial infection is much higher in Pediatric Intensive Care Unit (PICU) than adult 16.5% incidence rate among children. WHO gives guide line to control nosocomial infection.⁸

It creates extra burden for health care professional

and increases economic budget for hospital and their family. The devices uses during massive procedure cause device associated hospital acquired infection. Therefore Nosocomial infection is not related to their actual illness. The health care professional also cause of spread hospital infection because they visit patient to patient.¹⁰

It is world wide problem of developed and developing country. A current analysis of (WHO) found that health care associated infection was 15.5 per 100 patient in developing country which was significantly grater than prevalence report from Europe and USA.¹¹ Among HAIs, device-associated infections pose the greatest threat to patient safety, particularly in the intensive care unit (ICU),⁴ with higher rates observed in low and middle-income countries (LMICs), as reported by the International Nosocomial Infection Control Consortium (INICC) in 2016. Infection prevention measure are not accessible in Pakistan and low quality care in public hospitals. It has limited resources, poor knowledge and awareness among healthcare workers (HCW).¹²

It is a need for Current situation to apply infection prevention strategy according to CDC. A controlling unit established by WHO in 2016 which include basic elements related infection prevention and controlling.¹ Nosocomial infection controlled by preventive measure include surveillance and treatment. Every hospital has infection control team doctor nurse and manager in UK since 1995.¹³ HAI repotting has important role in infection determining and assessing implementing of strategies. Infection monitoring in (NICU) is Important in giving quality of care. Frontline health care worker must be included in disciplinary commiette to took decision related IP & controlling.¹⁴

Hand hygiene is basic and important measure in Neonatal Intensive Care Unit (NICU) about 42% G Negative infection caused by hand contamination.¹⁵ Hand washing prevent from invisibile micro organism and pathogens. It is simple and easy

prevention method is feasible than to treat nosocomial infection. From simple hand hygiene prevent bacteria which is about 3.9×10^4 to 4.6×10^6 colony forming units/cm² on health care workers. There is living microbes on hand also shed during contact and transmit infection if touch with out hand hygiene.¹⁶ Hand hygiene measure from washing to drier each step is important to follow use air dryer instead of clothing or towel. Health care personnel are aware by protocol of hand hygiene in special procedures on single event. Motivated the staff by providing awareness, training and knowledge on hand washing repeatedly. These protocol must be proper documented and checked by infection control team.¹⁷ In nursery also provide guideline for patient family by phmplet hand rub available in visiting area.¹⁶

Many device use in nursery to save life cause devise associated infection. It is risk for patient safety and increase the burden of disease and mortality rate, low quality instrument lack of expert and not follow the guideline cause nosocomial infection. Ventilator associated pneumonia blood stream infection and urinary catheter infection are common site infection in neonatal intensive care unit. These invasive procedures are easily spread bacterial infection in neonate Knowledge Practice training meeting and demo of staff helpful to control infection.¹⁸ By using close infusion system and advanced practice which reduce central line associated infection. Aseptic technique before insertion devices and for massive procedure can low hospital acquired infection and improve patient safety. These infection prevention measures are barrier for medium of transmission of infection and low nosocomial infection rate.¹⁹

SIGNIFICANCE OF THE STUDY

Neonate are more susceptible to (HAI) due to immature immune system and low stander infection prevention strategy. Data related NICU shows high incidence rate of nosocomial infection it increase death rate, hospital burden for (HCW) and their family. Low quality care is

source of hospital born infection .Nurses are the front line health care provider therefore I conducted this study in (NCU) among nurses. This Study can improve awareness knowledge and quality of care which helps in manage programmed to minimize infection.

STATEMENT OF PROBLEM

Identify the measure for prevention n controlling nosocomial infection in neonatal intensive care unit. Health care association infection cause complication and may lead to critical situation. It is necessary the health care facilitators to have knowledge of intervention of infection prevention and controlling. Health cares personnel protect neonate from hospital acquired infection by standardize method.

OBJECTIVE OF THE STUDY

- To identify the measure for prevention and controlling of nosocomial infection.
- To improve knowledge and practices among health care professionals and Nurses in tertiary care hospital.

REVIEW OF LITERATURE

Study published in South Africa regarding neonatal infection prevention. There is a limited researches on (HAI) found in South African. Which creates extra burden for low income countries and under developing country. 43% prevalence reported in 1992 at King Edward hospital Durban, in pediatric (HDI). Generally (16.5%), high (HAI) rates and a greater prevalence of BSI and respiratory tract infections. Limited resources and data on (HCAI),so it is difficult tasks for enactment infection prevention programs .Surveillance study at Tygerberg Children's Hospital 24%, prevalence of an hospital acquired infection documented with hospital-acquired pneumonia and hospital acquired blood stream infection(HA-BSI) predominating. HAI incidence density is highest in the PICU (94 v. 22/1 000 patient days in wards). The hospital acquired infection affect the cost for further investigation treatment to cure infection and increases the stay

in hospital and threat for other patient. For infection prevention firstly rule out knowledge and practice gap among health care personnel then manage accordingly. In pediatric intensive care unit (PICU) Infection spread by many ways such as by contact, Health system, hospital environment, equipment and patient own immunity. All these factors manage by infection control team by change their policy and decisions. Arrange meeting Guidelines, training and standardize education on infection prevention methods to health care professionals estimate through surveillance system to spend limited resources on more risk population. Then limited resources save large population. Hospital set-up developed according to requirement to isolate patient.¹⁸

According to study in United States prematurity was main risk in NICU to cause nosocomial infection. It affects abundantly neonatal health, (LOS), morbidity and mortality. Infant weight between 1251-1500g can increase 80% hospital budget. Sepsis can prolong two week hospital stay in North America. He stated It is important to start noninvasive reparatory as early as possible. In (NICU) prevent other skin infection invasive fungal and viral infection. health care staff Follow nursing barrier before contact to neonate as well as family or visitor also follow barrier method to break chain of infection.²⁰

A French Study on neonatal hospital acquired infection, to find associated factor and prevention. It affect abundantly neonatal health, long stay in hospital, hospital cost morbidity and mortality. Two week lengthen hospital admission and cost for one attack of blood sepsis even in North America. It was found by study, length of stay increases 4 to 7 days in hospital acquired blood stream infection in low birth weight neonates. in study discuss in detail types of nosocomial infection blood stream infection and pneumonia are rare than other. The predisposing factor was lack of practice, unknown protocols while maintain or fixing intravenous catheter. Minimize central line associated infection ratio after

applying best clinical practice such as aseptic measure, Handwashing, proper site of insertion and daily observe catheter site for any complication. To prevent from pneumonia general guideline intervention and instruction about ventilator and procedure demonstration is important for reduction ventilator associated pneumonia. Introduce latest and more advance type of ventilator. Its important to start noninvasive reparatory as early as possible. In NICU prevent other skin infection invasive fungal and viral infection. Not only health care medical staff contact to neonate patient family or visitor also use barrier method to stop transmission of infection.²¹

HAI creates extra burden for low income countries and under developing country. 43% prevalence reported in 1992 at King Edward hospital Durban, in pediatrics (HDU). Generally (16.5%), high (HAI) rates and a greater prevalence of BSI and respiratory tract infections. Limited resources and data on (HCAI), difficult tasks for enactment infection prevention programs. Surveillance study at Tygerberg Children's Hospital 24%, prevalence of an hospital acquired infection documented with hospital-acquired pneumonia and hospital acquired blood stream infection (HA-BSI) predominating.²²

Mangolia has higher ratio of nosocomial infection than developed countries. There is a first research in Magnolia and compare their result to China which was much higher. Patient's safety at risk and high due to high morbidity and mortality due to Device associated nosocomial infection in ICU. Before this study no active surveillance for controlling and prevention is there. Before Government participation in policy against infection control programs and lack of resource and delay in implement of guideline are the cause of spread nosocomial infection and delay in. Result compared to the to report International Nosocomial Infection Consortium (INIC) and National health care safety network. The Risk of central line associated blood stream infection, catheter associated urinary tract infection and

ventilator associated pneumonia WAS much higher, VAP was the (2.8 per 1000 MV days; 95% CI, 20.4-21.1). During research period health care personnel follows INICC protocols, use online system demonstrate procedure from developed countries institution. They not only depend awareness and education. The surveillance and reporting estimated the actual condition total burden of diseases. Device associated infection control by the quality improvement and competency of (HCW).²³

Study conducted in Nepal which expose infection causing agent of HAI. It is consider as worldwide problem not exist only in one place and in one country. It is a global issue which effect patient during hospitalization. Therefore literature review shows in (NICU) the incidence rate of HAI 47% and 39% per 1000 patient-days respectively and BSI is 62.2% is discouraging. The Infection ratio in developing countries higher than the developed countries. it causes septicemia and lead to increases neonate mortality. 10.8% incidence of hospital acquired sepsis. Overcrowding, patient population, lack of supervision, limited resources are the main risk factor in nursery. Nosocomial infection rate is high in ICU unfortunately in PICUs more than ICUs. To control nosocomial infection in NICU the infection reporting method, best practices for management team. Educational programs is tool to control infection rate by health care provider.²⁴

A national level study in Allied hospital Faisalabad in Pakistan focused on hand washing for prevention of nosocomial infection. In literature highlight significance of Hand hygiene in controlling hospital acquired infection .It was observed in medical ICU or surgical ICU, lack of information of hand washing and unknown ways of controlling infection are source of contamination. In this literature excuse of time shortage replace by offering isopropyl hand rub for easy and quick disinfectant. It was observed that there is difference in result before and after seminar. The result shows rate of earlier 3% to 11% and 12%

to 21% after in surgical and medical therefore need to insist hand washing. it is must be mention before and after dealings patient. Workshop seminar booklet conducted after an interval for health care provider .its plays an important role in controlling hospital acquired infection.²⁹

Review study of Aga khan university Hospital in Karachi Pakistan, mention 1 million death per year due to blood stream infection (BSI). According to world health organization (WHO). In developed country 1-10/ 1000 live-birth however in Pakistan three time more widespread. It can minimize in the course of best performance of health care practice. In neonatal intensive care unit (NICU) after interference of infection controlling decreases up to 29%. From simple approach which lessen the hospital acquired infection without use of any machinery. Hand washing and use of gloves for every process lessen the infection. Lessen the use of venous catheter also reduce the infection and there is no cost of limiting use of venous catheter segregate the patient to avoid spread infection ,contact after wearing nursing barriers. The cost for minimizing hospital acquired infection corporately less than because its effect on morbidity and mortality. Decrease Rate of diseases like septicemia ,multi drug resistance and blood stream infection also decreases.²⁵

A study reported 35.6% nosocomial infection in neonatal intensive care unit. WHO reported pneumonia and neonatal sepsis most common cause in developing country and 1.6 million death per year. Result showed 58.6% gram negative and 36.8 gram positive this showed gram negative is most common than gram positive. Some other study also agree with that result but some study are different so neonatal sepsis causes are changes time to time and place. Candida spp, Klebsiella pneumonia and most common Pseudomonas aeruginosa in neonates. In literature discuss device use in NICU and intravenous catheter, urine catheter, and resistance antibiotic are responsible which increase neonatal sepsis death rate. Multidrug

resistance main cause and need more study on antibiotic resistance. In neonate strictly watch neonatal sepsis replace resistance antibiotic therapy. Make policy on drug resistance include in infection control guideline for prevention of neonatal intensive care unit.²⁶

A study published in which determined the causes and common type of infection in Egypt, Nosocomial infection in developing country is a global issue but more in developing countries. it is estimated that 40% neonatal death cause by hospital born infection. The consequence of hospital acquired infection determine by patient outcome, and worth of care. The best clinical performance of health care workers can reduce (HAI) literature review pointed some other factors; beyond the health care provider, like refer from other hospital or admit after home delivery where infection prevention measures is not proper. Hospital infrastructure moisture condition and recycle of hospital devices contributes to cause nosocomial infection. These entire factors lengthen hospital stay and due to long stay the patient infection risk is increases.²⁷

METHODOLOGY

A cross sectional design was followed for data collection purpose as one time data was collected from the respondents. This study was conducted at District Headquarter Hospital Faisalabad. The target population was comprised of nurses who were working at District headquarter hospital Faisalabad. A total of 206 nurses were working at the time of data collection. A non-probability convenient sampling technique was used for data collection purpose keeping in view the ease of approaching the respondent. Total duration of study is four month.

A total sample of 141 nurses was approached for data collection against a total population of 206 nurses. Criteria recommended were followed for data collection.²⁸ A self-developed demographic questionnaire was designed and questions related to prevention and control of infections



Description	No.	Missing	Mean	Median	Min	Max	S.D	Excess Kurtosis	Skewness
Age	1	0	1.894	1	1	4	1.09	-0.64	0.879
Education	2	0	1.298	1	1	4	0.66	5.6	2.423
Department	3	0	2.83	3	1	4	1.243	-1.56	0.366
Experience	4	0	1.489	1	1	3	0.777	-0.309	1.18

Table 1: Summary Table of All Variables

Description	No.	Missing	Mean	Median	Min	Max	S.D	Excess Kurtosis	Skewness
Does in your Hospital have infection control team?	5	0	1.496	1	1	3	0.856	-0.594	1.178
Does hospital staff know about the guideline regarding hospital acquired infection prevention?	6	0	1.234	1	1	3	0.554	4.195	2.311
Does hospital management focused on measures regarding infection prevention and controlling (IP&C)?	7	0	1.184	1	1	3	0.541	6.528	2.828
Does your hospital improve its guide line frequently?	8	0	1.206	1	1	3	0.539	5.429	2.578
Does hospital arrange new seminars and training programmed for staff about infection prevention and controlling?	9	0	1.865	2	1	3	0.736	-1.134	0.22
Does hospital management facilitate to improve health practices?	10	0	1.326	1	1	3	0.484	-0.649	0.938
Does hospital management monitor sanitary worker?	11	0	1.106	1	1	2	0.308	4.727	2.581
Does hospital management establish policy and procedur of waste management?	12	0	1.071	1	1	3	0.329	24.765	4.957
Does hospital use standard method for waste management?	13	0	1.142	1	1	3	0.485	9.902	3.361
Does hospital management monitor and evaluate the performance of programmed going on?	14	0	1.652	1	1	3	0.85	-1.225	0.737
Does sanitary worker cleaning environment by adequate method of cleaning?	15	0	1.39	1	1	3	0.543	-0.063	0.987
Does hospital has reporting method of hospital acquired infection?	16	0	1.518	1	1	3	0.804	-0.554	1.099
Does hospital manage overcrowding patient and visitor in pediatric intensive care unit (PICU)?	17	0	1.433	1	1	2	0.495	-1.952	0.275
Does hospital staff has modify their behavior regarding health care practices?	18	0	1.546	1	1	3	0.689	-0.44	0.884
Do you have infection control policy and guideline in your unit?	19	0	1.362	1	1	2	0.48	-1.686	0.582
Would you immunize against infectious diseases?	20	0	1.326	1	1	2	0.469	-1.46	0.749
Does hospital has policy to immunize their personnel against infectious diseases?	21	0	1.702	2	1	3	0.592	-0.581	0.205
Do you think socio-economic factors are a risk for patient?	22	0	1.071	1	1	2	0.257	9.554	3.379
Does hospital ensure appropriate staff training related infection controlling measures?	23	0	1.511	1	1	3	0.67	-0.249	0.963
Do you think there is need to start diploma related infection prevention and controlling?	24	0	1.05	1	1	2	0.217	15.792	4.191
Does infection control method reduce the burden of diseases?	25	0	1	1	1	1	0	n/a	n/a
Do you know nosocomial preventive measure related to health care practices?	26	0	1.362	1	1	3	0.587	0.971	1.406
Do you attend any meeting regarding hand washing technique?	27	0	1.801	2	1	3	0.48	0.28	-0.492
Do you know proper hand washing can prevent nosocomial infection?	28	0	1.177	1	1	3	0.434	5.616	2.461
Do you know eleven step of hand washing?	29	0	1.355	1	1	3	0.56	0.82	1.329
Do you follow eleven step of hand washing every time?	30	0	1.645	2	1	3	0.521	-1.006	-0.152
Do you think these step of hand washing are feasible to every time?	31	0	1.532	1	1	3	0.625	-0.41	0.758
Do you clean your hand with soap during time?	32	0	1.277	1	1	3	0.585	2.849	2.008

was designed through extensive literature review. This questionnaire was validated by the panel of experts (Panel of two doctor's one nursing principal) and was made reliable by pilot testing for data collection. Analysis was done using Statistical Package for Social Sciences (SPSS version 21.0) to calculate mean, standard deviation and frequency to distribution according to prevention and controlling of infections. T-test and chi-square tests were used to comparison the controlling and Preventing of nosocomial infection among nurses.

RESULTS

A total of 155 were received back against a170 distributed questionnaires. Out of which 141 were completed filled and were considered for final data analysis. First of all demographic variables were screened for missing values. Here it has been found that no missing value was recorded

Demographic Analysis		
Classification of the respondents according to their age		
Category	Frequency (n)	Percentage (%)
20-25	72	51.1
26-30	32	22.7
31-35	17	12.1
36 and above	20	14.2
Total	141	100.0

Classification of the respondents according to their Education		
Category	Frequency (n)	Percentage (%)
Nursing and Midwifery	112	79.4
Diploma and specialization	19	13.5
BSN and Above	7	5.0
Other	3	2.1
Total	141	100.0

Classification of the respondents according to their Department		
Category	Frequency (n)	Percentage (%)
Emergency	31	22.0
Medicine	30	21.3
Surgery	12	8.5
Pediatric	68	48.2
Total	141	100.0

Classification of the respondents according to their Experience		
Category	Frequency (n)	Percentage (%)
Less than 5 years	97	68.8
5-10 years	19	13.5
above 10 years	25	17.7
Total	141	100.0

against age, education, department and experiences of nurses who completed the questionnaire.

Table 3: Comparison between controlling and Preventing of nosocomial infection among nurses				
One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Controlling	141	28.19	4.034	.340
Preventing	141	31.52	3.510	.296
One-Sample t-test				
	t	df	Sig. (2-tailed)	Mean Difference
Controlling	82.991	140	.000	28.191
Preventing	106.638	140	.000	31.525
Chi-Square Tests				
	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	533.845	144	.000	
Likelihood Ratio	358.169	14	.000	
Linear-by-Linear Association	44.836	1	.000	

Table 3: demonstrates the high significance between controlling and preventing of nosocomial infection among nurses at DHQ Hospital, Faisalabad.

DISCUSSION

The results showed that most of the nurses i.e. 75% reported that infection control teams are working in hospitals. 34 nurses replied that they don't know regarding presence of infection control teams in hospitals. Similarly 83% nurses reported that hospital staff knows regarding the instructions to for infection prevention. Further 89% respondents reported that their hospitals have a clear cut focus regarding prevention and control of infections within the hospitals. 86% nurses reported that their hospitals revise the infection prevention guidelines regularly. Mixed response received regarding arrangement of seminars in order to control and prevent infections within the hospitals. 68% respondents reported that hospitals management tries to improve the health related services.

Almost 90% nurses reported that hospital management has a check on the activities of sanitary workers in order to prevent and control the infections within the hospitals. Most of the nurses are in favor of the opinion that hospitals

management follow a policy for waste management and 90% respondents reported that hospitals use standard procedures and processes for the handling of waste. 60% respondents reported that hospital manage the monitoring of ongoing programs in the hospitals. Although 24% respondents reported that they don't know about it. 63% nurses in favor of the argument that sanitary workers try to follow a good approach in cleaning of hospitals whereas 33% were in favor that sanitary workers don't follow proper cleaning. Nurses also reported that hospitals have adequate channels for reporting of infections. A mixed response was received from the nurses regarding management of overcrowding in pediatric wards. However a minor merging was recorded in favors of management of overcrowding.

Similarly 31% nurses perceive that hospital staff has not modified their behavior regarding health care procedures. 64% nurses reported that at present where they are working infection control policies are followed. 67 % nurses reported that they have tendency to get immunize against hospital infection diseases. 56 % respondents reported that their hospitals have no proper policy for immunizations of their staff from infections. 93% respondents reported that socio economic factors are risk for patients.

58% nurses reported that their hospitals provide trainings for infections awareness whereas 31% replied in No. 95% nurses perceive that a diploma must be started for regarding prevention and control of infections in hospitals. All the nurses believe that infection control methods reduce the burden of diseases. 70% nurses reported that they know regarding Nosocomial measures of infections prevention and control. 73% respondents reported that they have never attended any training regarding hand washing.

27% respondents have no knowledge regarding 11 steps of hand washing. 60% nurses reported that they don't follow 11 steps of hand washing. 40% respondents reported that they believed that

11 steps of hand washing are not feasible every time. 79% nurses reported that they use soap for hand washing during the duty hours. 40% reported that alcohol based sanitizer is not feasible for all patients. 38% reported that in their hospitals alcohol based sanitizer is not available with the beds of patients.

46% nurses believe that it is not possible for them to sanitize their hand for every patient. Almost all nurses use gloves for washing of secretions. For passing PICU almost all nurses try to use gloves. 56% nurses reported that they don't use gloves while giving medicines to the patients in the ward. 27% nurses don't use sanitizer after giving medicine to the patients. Most of the nurses use swab for passing catheter. 47% nurses reported that they don't receive bundle of care for central line catheter. 70% of nurses reported that visitors also follow same procedure of hand washing equal to the hospital staff.

CONCLUSION

Most of the respondent believes that septic technique provides prevention regarding infection at the time of passing catheter. 36 percent nurses reported that hospitals have not documented the procedures of removing the catheter associated infections. In most of the hospitals there is isolated ward for infected patients. 80% nurses reported that in their hospitals nurses follow infection prevention guideline.

RECOMMENDATIONS

It is recommended that:

- Proper checking of sanitary workers and monitoring of their activities related to cleaning must be enhanced as these can become a source of infection prevalence in the hospitals.
- Most of the nurses are unaware from the infection prevention and controlling techniques in Govt: Hospital, so training and seminars must be conducted to spread awareness regarding prevention and controlling of infections.

- As 95% nurses perceive that a diploma must be started for regarding prevention and control of infections in hospitals, so it should be brought on the table of policy makers for launching new programs in the academic settings.
- As 27% respondents have no knowledge regarding 11 steps of hand washing. So arrangement must be made for spreading information regarding hand washing techniques.
- Most of the nurses use soap at hospitals for washing their hands. Arrangements must be made regarding washing hands with sanitizer.
- It is very alarming that most of the nurses don't use gloves during their duty hours, it can spread infections, so policies must be formulated for using gloves during duty hours.
- In addition to this proper training, seminars and awareness campaigns must be launched for prevention and controlling of infection based diseases on regular basis.


REFERENCES

1. Inweregbu, K., Dave, J., & Pittard, A. (2005). Nosocomial infections. *Continuing Education in Anaesthesia, Critical Care & Pain*, 5(1), 14-17.
2. Baqi, S., Damani, N. N., Shah, S. A., & Khanani, R. (2009). Infection control at a government hospital in Pakistan. *International Journal of Infection Control*, 5(1).
3. Chang, K. H., Burke, J. P., & Coffey, J. C. (2013). Infliximab versus cyclosporine as rescue therapy in acute severe steroid-refractory ulcerative colitis: a systematic review and meta-analysis. *International journal of colorectal disease*, 28(3), 287-293.
4. World Health Organization. Report on the Burden of Endemic Health Care-Associated Infection Worldwide. 2011.
5. Lawn, J. E., Cousens, S., Zupan, J., & Team, L. N. S. S. (2005). 4 million neonatal deaths: when? Where? Why? *The lancet*, 365(9462), 891-900.
6. Phu, V. D., Wertheim, H. F., Larsson, M., Nadjm, B., Dinh, Q. D., Nilsson, L. E., ... & Tran, C. T. (2016). Burden of hospital acquired infections and antimicrobial use in Vietnamese adult intensive care units. *PLoS One*, 11(1), e0147544.
7. Dogru, A., Sargin, F., Celik, M., Sagioglu, A. E., Goksel, M. M., & Sayhan, H. (2010). The rate of device-associated nosocomial infections in a medical surgical intensive care unit of a training and research hospital in Turkey: one-year outcomes. *Jpn J Infect Dis*, 63(2), 95-8.
8. Dramowski, A., Cotton, M., & Whitelaw, A. (2017). Surveillance of healthcare-associated infection in hospitalised South African children: Which method performs best? *SAMJ: South African Medical Journal*, 107(1), 56-63.
9. Gawad, A. (2017). Assessment of knowledge about standard precautions and nosocomial infection among nurses working in hospitals of Sana'a city, Yemen. *International Journal of Caring Sciences*, 10(1).
10. Allegranzi, B., Nejad, S. B., Combescure, C., Graafmans, W., Attar, H., Donaldson, L., & Pittet, D. (2011). Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis. *The Lancet*, 377(9761), 228-241.
11. Rosenthal, V. D., Al-Abdely, H. M., El-Kholy, A. A., AlKhawaja, S. A. A., Leblebicioglu, H., Mehta, Y., ... & Salgado-Yepez, E. (2016). International Nosocomial Infection Control Consortium report, data summary of 50 countries for 2010-2015: Device-associated module. *American journal of infection control*, 44(12), 1495-1504.
12. Moolchandani, K., Sastry, A. S., Deepashree, R., Sistla, S., Harish, B. N., & Mandal, J. (2017). Antimicrobial resistance surveillance among intensive care units of a tertiary care hospital in southern India. *Journal of clinical and diagnostic research: JCDR*, 11(2), DC01.
13. Kishk, R. M., Mandour, M. F., Farghaly, R. M., Ibrahim, A., & Nemr, N. A. (2014). Pattern of blood stream infections within neonatal intensive care unit, Suez Canal University Hospital, Ismailia, Egypt. *International journal of microbiology*, 2014.
14. Heeg, P. (2006). Nosocomial infections in newborn

nurseries and neonatal intensive care units. *International Journal of Infection Control*, 2(1).

15. Murni, S., Whale, J., Urmees, T., Davis, J., & Harries, D. (2013). Learning from experience: A survey of existing micro-hydropower projects in Ba'Kelalan, Malaysia. *Renewable energy*, 60, 88-97.
16. Rathore, F. A., & Rayan Attique, Y. A. (2017). Prevalence and Perceptions of Musculoskeletal Disorders Among Hospital Nurses in Pakistan: A Cross-sectional Survey. *Cureus*, 9(1).
17. Ramasethu, J. (2017). Prevention and treatment of neonatal nosocomial infections. *Maternal health, neonatology and perinatology*, 3(1), 5.
18. Marschall, J., Mermel, L. A., Fakih, M., Hadaway, L., Kallen, A., O'Grady, N. P., ... & Yokoe, D. S. (2014). Strategies to prevent central line-associated bloodstream infections in acute care hospitals: 2014 update. *Infection Control & Hospital Epidemiology*, 35(7), 753-771.
19. Zingg, W., & Marschall, J. (2018). Surveillance Associated and Prevention of Infections with Vascular Catheters. *Practical Healthcare Epidemiology*, 162.
20. Legeay, C., Bourigault, C., Lepelletier, D., & Zahar, J. (2015). Prevention of healthcare-associated infections in neonates: room for improvement. *Journal of Hospital Infection*, 89(4), 319-323.
21. Seale, A. C., Blencowe, H., Manu, A. A., Nair, H., Bahl, R., Qazi, S. A., ... & Lawn, J. E. (2014). Estimates of possible severe bacterial infection in neonates in sub-Saharan Africa, south Asia, and Latin America for 2012: a systematic review and meta-analysis. *The Lancet infectious diseases*, 14(8), 731-741.
22. Ider, B. E., Clements, A., Adams, J., Whitby, M., & Muugolog, T. (2016). Prevalence of hospital-acquired infections and antibiotic use in two tertiary Mongolian hospitals. *Journal of Hospital Infection*, 75(3), 214-219.
23. Yadav, R. L., Yadav, P. K., Yadav, L. K., Agrawal, K., Sah, S. K., & Islam, M. N. (2017). Association between obesity and heart rate variability indices: an intuition toward cardiac autonomic alteration—a risk of CVD. *Diabetes, metabolic syndrome and obesity: targets and therapy*, 10, 57.
24. Ur Rehman, A., & Majeed, W. (2017). Nosocomial Infections Prevented B.
25. Qadir, M., Qamar, F. N., Resham, S., Ali, R., Khalil, A., Ahmed, S., ... & Mossani, S. (2015). Effectiveness of simple strategies in reducing multidrug resistant blood stream infections in neonatal intensive care unit of tertiary care hospital in Karachi, Pakistan. *JPMA. The Journal of the Pakistan Medical Association*, 65(1), 72-75.
26. El-Shiekh, H., Gaafar, M., Yosri, M., Hassan, D. M., & Said, H. (2016). Study of Bacteria Causing Septicemia in Neonatal Intensive Care Unit. *The Egyptian Journal of Medical Microbiology (EJMM)*, 25(1).
27. Abdelwahab, S., Rewisha, E., Hashem, M., Sobhy, M., Galal, I., Allam, W. R., ... & Waked, I. (2012). Risk factors for hepatitis C virus infection among Egyptian healthcare workers in a national liver diseases referral centre. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 106(2), 98-103.
28. Morgan and Krejcie (2012) Sample Size Determination Using Krejcie and Morgan Table. Kenya Projects Organization (KENPRO).

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Rabia Bibi	Conduct study, data collecting, Write article.	
2	Shafqat Inayat	Review lit review. Guide 2 write up of methodology and supervise overall in the research proces	