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Observational study on hand hygiene practice of NICU nurses in selected hospitals, Puducherry

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Abstract

Introduction: Hand hygiene is considered as primary measure for reducing the risk of transmitting organisms to patients and health care personnel (HCP). **Objectives:** To assess the hand hygiene practice of nursing personnel in neonatal intensive care unit. **Methods:** The study was conducted among 20 staff nurses in NICU in the selected hospitals at Puducherry. Study approach and design was quantitative and descriptive design, purposive sampling technique was used. The instrument used for data collection was observational checklist which consists of five moments of hand washing **Results:** 12(60%) subjects used hand washing before and after gowning procedure. 15(75%) subjects were used hand rub before patient contact. 9(45%) subjects were used hand rub after contact with patient , equipment, or removing gloves. 12(60%) subjects were used hand washing after body fluid exposure risk,1(5%)subjects were used hand washing before preparing medications,5(25%) subjects were used hand washing before handling EBM,9(45%)subjects used hand rub before and after aseptic procedure,11(55%) subjects were used hand washing before and after changing diaper,14(70%) subjects used hand washing after handling laundry or wastes,18(90%) subjects were used hand washing before and after eating. **Conclusion:** the above result shows that through all the nurses were aware about the hand washing techniques but proper practice was lacking. NICU is the high risk area for the babies to get infection, so hand washing must be strictly followed

Key words: Hand hygiene practice, NICU

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1. Introduction

Health can neither be demanded nor given, it can neither be bought, nor sold but the circumstances and services that are prerequisite to health can certainly be demanded and received as a right. A productive environment in the hospital unit is very essential as a pre-requisite particularly when considering the services provided in the Neonatal Intensive Care Unit provision for a safe and protective environment is a prior need.

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One-third of the annual 4 million neonatal deaths occurring worldwide are associated with infections. Observational data from one case-control study found that neonatal mortality was significantly lower among children of mothers who reported washing their hands. This study also found that birth attendants' hand washing was associated with reduced neonatal mortality [1].

In countries with high neonatal mortality (>45 per 1000 births), 50% of these deaths are attributed to infections. Hand hygiene is the single most important procedure for the prevention of infection and shall be practiced by all employees, contractors, physicians, students, and volunteers. The hands of healthcare workers are the most common mode of transmission of pathogens to patients, residents, and clients. [2]

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India contributes to one-fifth of the total live births and 27% of global newborn mortality [3].Health care-associated infections persist as a major problem in most neonatal intensive care units (NICU). Neonates are susceptible to infection because their host defence mechanisms are not mature. They also occupy an environment in which frequently used antibiotics and invasive interventions often permit the invasion of common nosocomial pathogens, and the close proximity of patients in many NICUs facilitates the transfer of organisms from patient to patient. Organisms that cause nosocomial infection in NICUs are most commonly transmitted by the hands of physicians, nurses, physiotherapists, and other hospital personnel. Hand hygiene has often been singled out as the most important procedure in preventing nosocomial infection. [1-3]

Of the nearly 8.5 million children who die each year before their fifth birthday, an estimated 4 million die during the first 28 days of life. In settings with high neonatal mortality, about half of these deaths are estimated to occur because of infectious syndromes such as sepsis, acute respiratory infection, neonatal tetanus, and diarrhea. Promotion of handwashing with soap has been shown to reduce, by half, the risk of acute respiratory infection and diarrhea in children less than 5 years old. [2]

The basic requirements for reducing HCAI in NICU would include continuous water supply, soap, elbow- or foot-operated taps, strict hand washing, avoiding overcrowding, acceptable nurse-to-patient ratio, sufficient disposables, rational antibiotic policy, and good housekeeping and asepsis routines. One should wash hands for at least 2 minutes following the six steps of hand washing allotting at least 20 seconds for each step. The six steps should cover the following in sequence: palms and fingers and web spaces, back of hands, fingers and knuckles, thumbs, fingertips and wrists and forearm up to elbow [4].

A hand rub may not be a substitute for hand washing before entering the NICU. The “My 5 Moments for Hand Hygiene” approach outlines the key moments which are applicable to the NICU setting also. This approach recommends hand washing before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings [5].

The annual global campaign by WHO "Save lives: clean your hands" also emphasizes the need to improve and sustain hand hygiene practices of health-care workers at the right time, and in the right way, to help reduce the spread of potentially life-threatening HCAI. [5]

The US Centers for Disease Control and Prevention (CDC) recommends hand-washing before and after contact with every patient. The recommendation on hand hygiene has recently been updated, and hand washing has been replaced by hand rub as the standard of care [6]

The importance of good hand hygiene practices in a NICU cannot be overemphasized, yet many published studies conducted in intensive care units have reported that health care workers (HCWs) failed to wash their hands more than half of the recommended times, and in many cases, the hand-washing procedure was inadequate. Physicians, in particular, wash their hands significantly less frequently than nurses [7-8].

Hence the researcher is interested to take this observational study on assessing the Hand Washing techniques of NICU staffs.

Objectives of the study:

To assess the hand washing techniques of NICU staffs.

Assumptions:

- It is assumed that different nurses will practice differently the Hand Washing Techniques.

2. Methods and materials

20 staff nurses of NICU were selected by purposive sampling. After getting consent from the respective authority. The researcher has conducted the study. The study design was a non-experimental & observational study for this study.

The instrument used for the data collection was an observational checklist with 5 moments of hand washing. Nurses who are working in NICU and Nurses who are available during the study were selected for the study. Nurses who are not available during the study were excluded from the study.

Data was collected through the objective assessment of hand washing procedures. Observation checklist consists of 10items which includes before and after gowning procedure, hand hygiene before patient contact, hand hygiene after contact with patient, equipment, or removing gloves, after body fluid exposure risk, before preparing medications, before handling EBM, before &after aseptic procedure, before & after changing diaper, after handling laundry items or wastes, before and after eating.

Staff nurse practice of hand washing was assessed with the help of observational checklist regarding their knowledge on hand washing practice

After the data was calculated it was planned to analyze with descriptive statistical methods.

3. Results and discussion

The analysis and interpretation of the data collected from 20 samples, to assess the practice of hand hygiene measures in Rajiv Gandhi women and children hospital at Puducherry. Results Show that in relation to the age of the staffs 8(40%) were in the age group between 31-40Years, 7(35%) were in the age group between the 41-50 years, 5(20%) were in the age group between the 20-30years

Table no 4: Distribution of the hand washing techniques among the NICU staffs

Items		Number of subjects (Frequency)	%
Before and after gowning	HR	6	30
	HW	12	60
	NO	2	10
Hand hygiene before patient contact	HR	15	75
	HW	6	30
	NO	0	0
Hand hygiene after contact with patient, equipment, or removing gloves	HR	9	45
	HW	11	55
	NO	0	0
After body fluid exposure risk	HR	8	40
	HW	12	60
	NO	0	0
Before preparing medications	HR	9	45
	HW	1	5
	NO	10	50
Before handling EBM	HR	0	0
	HW	5	25
	NO	14	70
Before & after aseptic procedure	HR	9	45
	HW	11	55
	NO	0	0
(Before & after changing diaper)	HR	9	45
	HW	11	55
	NO	0	0
After handling laundry or wastes	HR	6	30
	HW	14	70
	NO	0	0
Before and after eating	HR	2	10
	HW	18	90
	NO	0	0

Table 4 Result shows that in relation to the distribution of the Hand Washing techniques of NICU Staffs 12(60%) subjects were used hand washing,6(30%)were used hand rub, 2(10%) were used none before and after the gowning procedure. 15(75%) subjects were used hand rub, 6(30%) were used hand rub, 0(0%) were used none before patient contact. 9(45%) subjects were used hand rub, 11(55%) were used hand washing, 0(0%) were used none after contact with the patient , equipment, or removing gloves. 12(60%) subjects were used hand washing, 8(40%) were used hand rub ,0(0%) were used none after body fluid exposure risk,1(5%) subjects were used hand washing , 9(45%) were used hand rub ,10 (50%) were used none before preparing medications,5(25%) subjects were used hand washing, 0(0%) were used hand rub, 14(70%) were used none before handling EBM,9(45%) subjects were used hand rub,11(50%) were used hand washing ,0(0%) were used none before and after aseptic procedure,11(55%) subjects were used hand washing before and after changing diaper,14(70%) subjects were used hand washing after handling laundry or wastes, 18(90%) subjects were used hand washing before and after eating.

12(60%) subjects were used hand washing before and after the gowning procedure. 15(75%) subjects were used hand rub before patient contact. 9(45%) subjects were used hand rub after contact with the patient , equipment, or removing gloves. 12(60%) subjects were used hand washing after body fluid exposure risk,1(5%) subjects were used hand washing before preparing medications,5(25%) subjects were used hand washing before handling EBM,9(45%) subjects were used hand rub before and after aseptic procedure,11(55%) subjects were used hand washing before and after changing diaper,14(70%) subjects were used hand washing after handling laundry or wastes,18(90%) subjects were used hand washing before and after eating.

Similarly, another study by AyGe Karaaslanthe results for the effect of hand hygiene measures among staff nurses in NICU Overall HH compliance was 37.0% (261/704) in HCWs. Compliance differed by role was as follows: nurses, 41.4%, and doctors, 31.9% [P = 0.02].Overall HH compliance with respect to the five MMH were as follows: overall compliance prior to patient touching was 43.2%, prior to a clean/aseptic procedure was 8.5%, after body fluid exposure was 18.1%, after contact with patients was 68.1%, and after contact with patient surroundings was 43.2%. HCWs mostly prefer to wash their hands with soap and water procedure. HCWs were more likely to use soap and water (63.6%) compared to alcohol-based hand hygiene disinfectant (36.3%) [$P < 0.05$] [16].

Both WHO and CDC guidelines recommend HCWs wash their hands with soap and water when visibly dirty; on the other hand, alcohol-based hand hygiene is recommended for all other opportunities [17]

Conclusion

The above result shows that through all the nurses were aware of the hand washing techniques proper practice was lacking. NICU is the high-risk area for the babies to get an infection, so hand washing must be strictly followed

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