Assessment of Nursing Performance Regarding Hospital Acquired Infection

Thesis

Submitted for partial fulfillment of Master Degree
In Pediatric Nursing

By

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List of Abbreviations

Abbr.	Full-term
AIA	: American Institute of Architects
AIIR	: Airborne Infection Isolation Room
BSI	: Body Substance Isolation
BSI	: Bloodstream Infection
CBIC	: Certification Board of Infection Control
CDC	: Centers for Diseases Control and Prevention
FGI	: Facility Guidelines Institute
HAI	: Hospital-Acquired Infections
HBV	: Hepatitis B Virus
HCV	: Hepatitis C virus
HCW	: Healthcare Worker
HEPA	: High Efficiency particulate Air
HICPAC	: Health Care Infection Control Practices Advisory Committee
HIV	: Human Immunodeficiency Virus
HRN	: High-Risk Nursery
ICP	: Infection prevention and control professional
ICU	: Intensive Care Unit
IPC	: Infection Prevention and Control
JCAHO	: Joint Commission on Accreditation of Healthcare Organizations
MDROs	: Multi Drugs Resistance
MRSA	: Methicillin-Resistant Staphylococcus Aureus
NICUs	: Neonatal Intensive Care Units
NIS	: Nosocomial Infections
NNIS	: National Nosocomial Infections Surveillance
OSHA	: Occupational Safety and Health Administration
PICU	: Pediatric Intensive Care Unit

PPE : Personal Protective Equipment
SARS : Severe Acute Respiratory Syndrome
SARS-CoV : SARS-Associated Coronavirus
SD : Standard Deviation
SENIC : Study on the Efficacy of Nosocomial Infection Control
SPSS : Statistical package for social sciences
SSI : Surgical Site Infection
STBP : Standard and Transmission-Based Precautions
UP : Universal Precautions
UTI : Urinary Tract Infection
VAP : Ventilator-Associated Pneumonia
VRE : Vancomycin-Resistant Enterococci
WHO : World Health Organization

Abstract

Background: Hospitalized children are a particularly vulnerable population. This is due to the many invasive procedures and frequent antibiotic use, which put the patient's children at risk for infection and promote the emergence of multidrug-resistant organisms. **Aim:** This study aims to assess nursing performance regarding hospital acquired infections. **Design:** A descriptive study was used. **Settings:** The study was conducted at Neonatal and Pediatric Intensive Care Units, Pediatric Medical and Surgical Units affiliated to Ain Shams University Specialized Hospital. **Subjects:** Eighty nurses from the previously mentioned settings. **Data collection**: Two tools, first tool was an interview questionnaire form composed of two parts; **Part 1:** About demographic characteristics of nurses. **Part 2:** Knowledge of nurses regarding HAI. The second tool was observation checklist that consists of two parts **Part 1:** Assess performance of nurses regarding infection control and **Part 2: To** assess their performance regarding the infrastructure of the involved units**. Results**: The study indicated that more than half of the studied nurses had incompetent performance regarding HAI. While more than one third of them had competent performance, above half of them incompetent performance regarding infrastructure of their units, while less than half of them were competent. **Conclusion:** This study concluded that there was a positive correlation between total knowledge of the studied nurses and their total performance regarding the hospital acquired infections.

Recommendations: The study recommended continuous training programs and strict observation of nurses' performance are required for the correction of poor practices by the infection control team, in addition to utilization of infection control standard precautions.

Keywords: *Hospital Acquired Infection, Pediatric Intensive Care Units, Neonatal Intensive Care Unit, Nurses.*

Introduction

Hospital-Acquired Infections (HAIs) (previously called Nosocomial infection) refer to infections associated with health care delivery in any setting (such as: hospitals, long-term care facilities, community, ambulatory setting). An HAI is defined as a localized or systemic infection that results from adverse reaction to the presence of an infectious agent (s) or its toxin (s), for which there is no evidence of infection on admission to a health care facility ***(Gómez-Vallejo et al., 2016).***

Hospital-acquired infections are caused by viral, bacterial, and fungal pathogens; the most common types are Blood Stream Infection (BSI), Pneumonia (e.g., Ventilator-Associated Pneumonia [VAP]), Urinary Tract Infection (UTI), and Surgical Site Infection (SSI) ***(Dramowski et al., 2016).***

Hospital-acquired infections occur: up to 48 hours after hospital admission, up to 3 days after discharge, up to 30 days after an operation in a healthcare facility when a child was admitted for reasons other than the infection ***(Rahmqvist et al., 2016).***

Hospital acquired infections are one of the major causes of mortality and morbidity in the Neonatal Intensive Care Units (NICUs). The HAI is an infection occurs during hospitalization that was not present or in incubation at the time of admission that has an impact on the healthcare

system as it increases the use of medical resources, duration of hospitalization, as well as increased cost of treatment in both developed and developing countries. These are major public health problems worldwide, but particularly in developing countries ***(Riaz and Jamal, 2016).***

Infection prevention and control issues are generally similar for adults and children. However, youth and immature immune systems make children more susceptible to infections; the pathogens and most common HAI sites differ from those in adults. Close contact with patients, siblings and family, uncontrolled body fluids, and play areas create unique opportunities for the spread of infection ***(Fleischmann et al., 2016).***

The nurse is the member of the healthcare team who leads the rest of the team in practicing prevention strategies to protect the patient from infection ***(Benson and Powers, 2011).***

Nurses perform some basic strategies resulting in positive patient outcomes include the practice and promotion of hand hygiene, consistent use of aseptic technique, cleaning and disinfection practices, use of standard precautions, patient assessment and additional precautions, patient education, use of safety devices, removal of unnecessary invasive devices, use of bundle strategies for infection prevention, fit for duty are the best ways to prevent HAI ***(Potter et al., 2016).***

Significant of Study

Hospital-acquired infections are an important medical morbidity facing an already vulnerable group of infants. The epidemiology and strategies that can reduce these infections are well known; however, implantation of strategies that can influence the occurrence of HAI within the pediatric health care setting require a concerted team effort by all individuals who participate in the care of these infants. Each care provider must understand his or her role in preventing HAI and have a willingness to modify behavior such that comply with recognized infection-control practices even the most basic care practices ***(World Health Organization [WHO], 2013).***

The incidence of infections varies widely among NICUs. It occurs at an incidence of around 30% in the developing countries, it is estimated to cause 40% of all neonatal deaths, depending on environmental factors and differences in clinical practice premature neonates, very sick children and children have had surgery, are more vulnerable than other people ***(Mohammed and El Seifi, 2014).***