

**Assessment of Nurses' Performance in
Implementation of Medical Prescriptions
at Pediatric Critical Care Settings**

Thesis

*Submitted For Partial Fulfillment of the
Master Degree in Pediatric Nursing*

By

Dalia Abdelmordy Bayomi

(B.Sc., Nursing Sciences, 2013)

*Demonstrator at Pediatric Nursing Department
Faculty of Nursing - Ain Shams University*

**Faculty of Nursing
Ain Shams University
2019**

**Assessment of Nurses' Performance in
Implementation of Medical Prescriptions
at Pediatric Critical Care Settings**

Thesis

*Submitted For Partial Fulfillment of the
Master Degree in Pediatric Nursing*

Under Supervision of

Prof. Dr. Wafaa El Sayed Ouda

Professor of Pediatric Nursing
Faculty of Nursing - Ain Shams University

Prof. Dr. Randa Mohamed Adly

Professor of Pediatric Nursing
Faculty of Nursing - Ain Shams University

**Faculty of Nursing
Ain Shams University
2019**

Acknowledgement

*First of all and foremost, thanks to **Allah**, for giving me the strength and the patience to complete this work after all challenges and difficulties.*

*Words cannot express my deep appreciation and gratitude to **Dr. Wafaa El Sayed Ouda**, Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University for her meticulous supervision, constructive criticism and continuous encouragement throughout the conduction of this study.*

*As well, I would like to express my appreciation to **Dr. Randa Mohamed Adly**, Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University for her close supervision, continuous advices and unlimited help in all stages of this study.*

Last but not least, I wish to extend my thanks to all my family, friends, nurses and staff of Pediatric hospital at Ain Shams University for their help.

Dalia Abdel mordy

List of Contents

Subjects	Page Number
List of Tables	I
List of Figures	IV
List of Abbreviations	VI
Abstract	VII
Introduction and Aim of the Study	1
Review of Literature	5
Subjects and Methods	46
Results	55
Discussion	87
Conclusion and Recommendations	105
Summary	107
References	116
Protocol	137
Appendices	152
Arabic summary	---

List of Tables

Table Number	Title	Page Number
1	Distribution of the studied nurses according to their characteristics.	56
2	Distribution of the studied nurses according to their knowledge regarding the definition, importance, types and assigned physician for writing medical prescriptions	60
3	Distribution of the studied nurses according to their knowledge about factors affecting implementation of medical prescriptions	61
4	Distribution of the studied nurses according to their knowledge about the components of medical prescriptions.	62
5	Distribution of the studied nurses according to their attitude towards the implementation of medical prescriptions.	66
6	Distribution of the studied nurses according to their documentation related to implementing of medical prescriptions.	69
7	Characteristics of medical prescriptions as assessed by the researcher.	72

Table Number	Title	Page Number
8	Relation between the studied nurses' characteristics and their total knowledge about medical prescriptions.	74
9	Relation between the studied nurses' characteristics and their attitude towards implementation of medical prescriptions.	76
10	Relation between the studied nurses' characteristics and documentation related to implementation of medical prescriptions as assessed by the researcher	78
11	Relation between the studied nurses' total knowledge about medical prescriptions and their department	80
12	Relation between the studied nurses' attitude towards implementation of medical prescription and their department	81
13	Relation between the studied nurses' documentation related to implementation of medical prescription and their department	82
14	Relation between the studied nurses' total knowledge about medical prescriptions and their attitude towards	83

Table Number	Title	Page Number
	implementation of medical prescriptions.	
15	Relation between the studied nurses' total knowledge about medical prescriptions and their documentation related to implementation of medical prescriptions as assessed by the researcher	84
16	Relation between the studied nurses' attitude towards implementation of medical prescriptions and their documentation related to implementation of medical prescriptions as assessed by the researcher	85
17	Correlation between total nurses' knowledge, attitude and documentation regarding implementation of the medical prescriptions	86

List of Figures

Figure Number	Title	Page Number
Figures of Review		
1	Example of medical prescriptions writing	12
2	Types of parenteral nutrition	16
3	Oxygen delivery devices	18
Figures of Results		
1	Distribution of the studied nurses according to their job title.	57
2	Distribution of the studied nurses according to their working department.	58
3	Distribution of the studied nurses according to their attendance of training courses.	59
4	Distribution of the studied nurses according to their knowledge about characteristics of medical prescriptions.	62
5	Distribution of the studied nurses' according to their knowledge related to implementation of medical prescriptions in drug, laboratory, IV fluids, nutrition, oxygen and routine activities.	64
6	Distribution of the studied nurses according to their total knowledge about medical prescriptions.	65
7	Distribution of the studied nurses according to their total attitude towards the implementation of medical prescriptions.	68

Figure Number	Title	Page Number
8	Distribution of the studied nurses according to their total documentation related to implementation of medical prescriptions.	71
9	Total characteristics of medical prescriptions as assessed by the researcher	73

List of Abbreviations

Abbreviation	Full Term
AABB	American Association for Blood Bank
AARC	American Association for Respiratory Care
ABG	Arterial Blood Gases
ASPEN	American Society for Parenteral and Enteral Nutrition
C&S	Culture and Sensitivity
EBP	Evidence-Based Practice
ETT	Endotracheal Tube
Fi O₂	Fraction of Inspired Oxygen
GMC	General Medical Council
HCT	Hematocrit
MUAC	Mid Upper Arm Circumference
NICU	Neonatal Intensive Care Unit
NIHC	National Institute for Health and Care Excellence
PALS	Pediatric Advanced Life Support
PICU	Pediatric Intensive Care Unit
PN	Parenteral Nutrition
Sa O₂	Oxygen Saturation
SP O₂	Stands for Peripheral Capillary Oxygen Saturation

Assessment of Nurses' Performance in Implementation of Medical Prescriptions at Pediatric Critical Care Settings

Abstract

Background: Medical prescription is a physician's order for the preparation and administration of a drug or device for a pediatric patient. It is considered as a potent way of communication and collaboration between health care providers. **Aim:** The aim of this study was to assess nurses' performance in implementation of medical prescriptions at pediatric critical care settings. **Research design:** A descriptive explanatory design used to conduct this study. **Setting:** The study was conducted at pediatric critical care settings namely: Neonatal intensive care unit, Pediatric intensive care units and Emergency unit at Children's Hospital affiliated to Ain Shams University Hospitals. **Subjects:** A Convenient sample of 60 nurses who are working at the above mentioned settings regardless their characteristics. **Data collection tools:** involved; Pre-designed interview questionnaire sheet to gather data related to characteristics of the studied nurses and their knowledge about medical prescriptions, Attitude-type rating scale, Assessment sheet for the medical prescriptions and Assessment sheet for the studied nurses' documentation related to the implementation of medical prescriptions. **Results:** The results of the study revealed that, $\bar{X} \pm SD$ of the studied nurses age was (33.17 ± 7.30) , most of them were females, almost the majority of them had satisfactory total knowledge about medical prescriptions, more than three quarters of them had total positive attitude towards the implementation of medical prescriptions and about two thirds of medical prescriptions evaluated by the researcher were complete. **Conclusion:** The studied nurses' total knowledge was satisfactory, they had positive attitude and poor documentation related to implementation of medical prescriptions. **Recommendation:** Provide continuous education program for nurses working at pediatric critical care settings about medical prescriptions importance, implementation, and documentation.

Keywords: Pediatric critical care settings, Medical prescriptions, Nursing.

Introduction

The word “prescription” derives from “pre” (before) and “script” (writing, written), which denotes that it is an order that must be written down before or for the preparation and administration of a drug. Also, it is an important transaction between the physician and the patient. Prescription writing is both an art and a science, which needs to be mastered by the medical professional (*Kumari, 2014 and Patil et al., 2015*).

The patients in the Pediatric Intensive Care Unit (PICU) are the most critically ill children in the hospital setting. There are various factors that have led to poor outcomes in PICU patients. The main factor that leads to inadequate care for PICU patients is the improper health assessment and implementation of medical prescriptions by the healthcare providers. This may include not observing a change in the pediatric patient’s clinical status, delayed resuscitation efforts, delayed decision making or a combination of any of these factors (*Hodkinson et al., 2016*).

The pediatric critical care setting is recognized as a high-risk environment for errors because of a number of factors, including medically-complex pediatric patients

with multiple disorders, lack of standard pediatric drug dosing and formulations, weight-based dosing medications, verbal orders, hectic environment with frequent interruptions, lack of clinical pharmacists and numerous transitions in care (*Custer et al., 2015*).

The interaction between the nurse and the physician allows the knowledge and skills of both professions to influence the pediatric patient's care. Moreover, a competent nurse has a role in diagnosis and proposes appropriate treatment as well, in addition to the participation in the follow-up of the treatment. This step requires monitoring of the clinical and biological examinations that are necessary for the detection of the expected adverse effects (*Muhrer, 2014 and Mahlkecht et al., 2017*).

Errors in prescription can occur due to various reasons. However, the most common errors are human errors which occur in prescription writing. Some of the common errors observed during prescription writing can be attributed to wrong format, lack of clarity in comprehending the prescription or aberration in spelling. This results in nurse misreading/misinterpreting the prescription, dispensing the wrong drug/dose or providing

insufficient/ambiguous information to the nursing staff
(*General Medical Council "GMC", 2013 and Fox, 2016*).

Significance of the study:

According to the findings of several studies in the field of pediatric nursing (*Mostafaei et al., 2014, Esqué Ruiz et al., 2016 and Alemu et al., 2017*), it was found that multiple errors occurred during care for pediatric patients, which may have been due to misinterpretation of the pediatricians' medical prescriptions. Therefore, the researcher conducted the present study to shed light on the pediatric nurses' performance in implementation of medical prescriptions at pediatric critical care settings.

Aim of the Study

The current study aims to assess nurses' performance in implementation of medical prescriptions at pediatric critical care settings.

Research Question:

What is the nurses' performance in implementation of medical prescriptions at pediatric critical care settings?