

**Effect of Guidelines on Nurses' Performance Provide Care  
for Children on Hemodiafiltration at  
Hemodialysis Unit**

**Thesis**

Submitted in Partial Fulfillment of the Requirements for  
the Doctorate Degree  
**Pediatric Nursing**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا أنك لا تعلم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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# *List of Contents*

Title	Page No.
List of Tables .....	i
List of Figures .....	iii
List of Abbreviations .....	iv
Abstract .....	vi
Introduction & Aim of the Study .....	1
- Review of Literature .....	5
- Part I: Hemodiafiltration .....	5
- Part II: Nursing Care of Child Undergoing emodialysis .....	27
- Part III: Guidelines for Pediatric End Stage Renal Disease .....	46
Subjects and Methods .....	53
Results .....	61
Discussion .....	82
Conclusion & Recommendations .....	89
Summary .....	91
References .....	98
Appendices	
Appendix I .....	110
Appendix II .....	121
Appendix III .....	132

## *List of Tables*

Table No.	Title	Page No.
(1):	Number and percentage distribution of the studied nurses according to age and experience (n=50) .....	62
(2):	Number and percentage distribution of children undergoing hemodiafiltration regarding to their Characteristics (n=50).....	64
(3):	Percentage Distribution of Nurses Knowledge about hemodiafiltration Pre / Post Program Implementation.....	66
(4):	Distribution of the studied nurses regarding to their performance about preparation of the child pre and post implementation guideline before connecting to hemodiafiltration machine. ....	68
(5):	Distribution of the studied nurses regarding to their performance about preparation of equipment and supplies necessary pre and post implementation guideline before connecting the child to hemodiafiltration machine.....	70
(6):	Distribution of the studied nurses regarding to their performance about preparation of the child for connecting to hemodiafiltration machine pre and post implementation guideline. ....	71
(7):	Distribution of the studied nurses regarding to their performance about preparation of hemodiafiltration machine pre and post implementation guideline. ....	72
(8):	Distribution of the studied nurses regarding to their performance about connecting the arterial blood lines to hemodiafiltration machine pre and post implementation guideline. ....	73

## *List of Tables (cont...)*

Table No.	Title	Page No.
(9):	Distribution of the studied nurses regarding to their performance about connecting the safe line to hemodiafiltration machine pre and post implementation guideline. ....	74
(10):	Distribution of the studied nurses regarding to their performance about connecting the venous blood lines to hemodiafiltration machine pre and post implementation guidelines.....	75
(11):	Distribution of the studied nurses regarding to their performance about priming the extracorporeal blood lines pre and post implementation guideline.....	76
(12):	Distribution of the studied nurses regarding to their performance about insert the ultrafiltration data (UF) pre and post implementation guideline. ....	77
(13):	Distribution of the studied nurses regarding to their performance about connection the child on hemodiafiltration machine pre and post implementation guideline. ....	78
(14):	Distribution of the studied nurses regarding to their performance about observation the child during hemodiafiltration session pre and post implementation guideline.....	79
(15):	Distribution of the studied nurses regarding to their performance about disconnects the child from hemodiafiltration machine pre and post implementation guideline.....	80

## *List of Figures*

Fig. No.	Title	Page No.
<b><i>Figures of Review</i></b>		
(1):	Vascular Access .....	8
(2):	High-flux (HF) Hemodiafilter .....	9
(3):	Water Quality .....	10
(4):	Post-Dilution Online Hemodiafiltration.....	12
(5):	Predilution Online Hemodiafiltration .....	13
(6):	Clinical Benefits of Hemodiafiltration Therapies .....	17
(7):	The 5008 Therapy System .....	20
(8):	Principles of the 5008 ONLINEplus System.....	22
(9):	DIASAFE plus dialysis fluid filters .....	23
(10):	The dialyzer and bi-baj 5008.....	25
<b><i>Figures of Results</i></b>		
(1):	Percentage distribution of nurse according to their qualification .....	63
(2):	Percentage distribution of children according to their resident.....	65

## *List of Abbreviations*

<i>Abb.</i>	<i>Full term</i>
<i>AVF.....</i>	<i>Areriovenous Fistulae</i>
<i>AVG .....</i>	<i>Arteriovenous Grafts</i>
<i>AGEs.....</i>	<i>Advanced Glycosylation End Products</i>
<i>ANNA.....</i>	<i>American Nephrology Nurses Association</i>
<i>AAP .....</i>	<i>American Academy of Pediatrics</i>
<i>BMI .....</i>	<i>Body Mass Index</i>
<i>BUN.....</i>	<i>Blood Urea Nitrogen</i>
<i>CHDF.....</i>	<i>Continuous Hemodiafiltration</i>
<i>CHDT.....</i>	<i>Continuous Heamodialysis Therapy</i>
<i>CHF .....</i>	<i>Continuous Hemofiltration</i>
<i>CKD .....</i>	<i>Chronic Kidney Disease</i>
<i>Cr .....</i>	<i>Creatinine</i>
<i>CRF.....</i>	<i>Chronic Renal Failure</i>
<i>CRRT.....</i>	<i>Continuous Renal Replacement Therapy</i>
<i>CVVH.....</i>	<i>Continuous Veno-Venous Hemofiltration</i>
<i>ESRD.....</i>	<i>End Stage Renal Disease</i>
<i>ESA .....</i>	<i>Erythropoiesis Stimulating Agent</i>
<i>GIT .....</i>	<i>GastroIntestinal</i>
<i>Hb .....</i>	<i>Hemoglobin</i>
<i>HD.....</i>	<i>Hemodialysis</i>
<i>HDF .....</i>	<i>Hemodiafiltration</i>
<i>HDUs.....</i>	<i>Hemodialysis Unit</i>
<i>HF.....</i>	<i>High-Flux</i>
<i>IDH .....</i>	<i>Intra-Dialytic Hypotensive</i>
<i>IHF.....</i>	<i>Intermittent Hemofiltration</i>
<i>IV .....</i>	<i>Intravenous</i>
<i>KDOQI.....</i>	<i>Kidney Disease Quality of Life</i>
<i>NKUDICH.....</i>	<i>National Kidney and Urologic Disease Information Clearinghouse</i>

*NKF.....National Kidney Foundation*  
*OL-HDF.....Online Hemodiafiltration*  
*SLEF.....Slow Extended Hemofiltration*  
*SPSS..... Statistical Package for Social Science*  
*TMP .....Trans Membrane Pressure*  
*UF.....Ultrafiltration*

## *Abstract*

**The aim of the study** was to assess the effect of guidelines about hemodiafiltration for nurses' performance in providing care for children on hemodiafiltration at hemodialysis Units. **Research design:** A quasi experimental design was utilized in this study. **Settings:** The study was conducted in Pediatric Hemodialysis Units at three hospitals namely Children Hospital affiliated to Ain Shams University Hospitals, Abu El-Resh Children Hospital affiliated to Cairo University Hospitals and El Zahraa Hospital affiliated to Al-Azhar University Hospitals. **Subjects:** A purposive sample composed of all (Fifty) nurses caring for children undergoing hemodiafiltration (Fifty out of one hundred), in the previously mentioned settings. **Tools for data collection:** Two tools were used; Observation checklist to assess nurses' performance, A questionnaire sheet to assess nurses' knowledge followed by a guideline for hemodiafiltration machine pre and post implementation. **Results:** The results revealed that, there was a statistical significant difference between nurses' performance pre and post implementation of guideline. **Conclusion:** The study was concluded that, the guideline had a positive effect on nurses' performance to provide care for children on hemodiafiltration. **Recommendation:** The study was recommended that, for the application of the guideline for nursing staff as well as for the newly appointed nurses at the dialysis unit.

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**Keywords:** *Hemodialysis, Hemodiafiltration, Children and Guidelines.*

# INTRODUCTION

Chronic Kidney Disease (CKD) or Chronic Renal Failure (CRF) is a major health problem and is considered as the most common disease of childhood, it is persisting and progressive deterioration of renal function leading to increase retention of the waste products which end fatally in uremic and other complication. Although relatively uncommon in children, it can be a devastating illness with many long-term consequences (*Kaur & Davenport, 2016 and Becherucci et al., 2016*).

Worldwide, slightly more than 30 pediatric populations in every 100,000 develop kidney failure each year, and the annual rate of children who develop CRF is 1 or 2 new cases in every 100.000 children, the risk increases steadily with age (*National Kidney and Urologic Diseases Information Clearinghouse [NKUDICH], 2010*).

In Egypt, CRF, the incidence is about 225 per million pediatric populations, from them 1700 children suffers of CRF. The Hemodiafiltration (HDF) remains the only alternative treatment over the last decade, there has been a significant improvement in Hemodialysis technique due to improvement in technology of dialysis machine (*Lesley et al., 2011*).

Hemodiafiltration (HDF) is a safe and highly efficient renal replacement therapy that allows diffusive and convective clearance of uremic toxins across a wide molecular weight range, advances in technology with the availability of dialysis machines that allow controlled Ultrafiltration (UF) and smaller dialysis filters and lines have enabled the use of HDF as a safe technique of routine renal replacement therapy even in small children (*Chan et al., 2015 and Fischbach et al., 2016*).

Nephrology nursing involves both preventing disease and assessing the health needs of pediatric patients and families, care spans the life cycle and involves pediatric patients who are experiencing the real or threatened impact of CKD; therefore nephrology nurses must be well-educated, highly skilled, and motivated., these nurses also deal with every organ system in the body, calling for a holistic approach to pediatric patient care that is both challenging and rewarding (*American Nephrology Nurses Association [ANNA], 2017*).

Guideline is general rule, principle, or a piece of advice. it is a line by which one is guide, it is information intended to advise people how something should be done, the aim of guideline to improve the general quality of dialysis delivered to children with end stage renal disease, it was recommended that instruction guideline for HDF based on a serious scientific step and it using theoretical knowledge and skill to assess children (*National Kidney Foundation (NKF), 2012*).

### **Significance of the Study:**

It has been proved that the outcome and the mortality risk reduction of 35% in pediatric patients treated with high-efficiency HDF compared with those treated with conventional HD. today, several different convection-based therapies are available for use in treating both Acute Kidney Injury and End Stage Renal Disease (ESRD), for ESRD, HDF is the most widely used of those convective therapies (*Tattersall et al., 2015*).

## **AIM OF THE STUDY**

The study aimed to assess the effect of guidelines on nurses' performance to provide care for children on HDF at HDUs through:

- Assess nurses' performance to provide care for children on HDF at HDUs.
- Designing, implementing and evaluating the effect of guidelines on nurses' performance to provide care for children on HDF at hemodialysis unit.

### **Research Hypothesis:**

There will be a statistical significant difference between nurses' performance to provide care for children on HDF at Hemodialysis Unit (HDUs) pre and post implementation the guidelines.