شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

HANAA ALY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Assessment of Clinical Pharmacy Services Implemented in Drug Information Center in an Egyptian Hospital

A Thesis

Submitted for fulfillment of the requirements for the

Ph.D. degree in Pharmaceutical Sciences

(Clinical Pharmacy)

By

Dina Mohamed Ibrahim Ibrahim Belal

Clinical pharmacist at New Cairo Hospital
M.Sc. of Pharmaceutical sciences (Clinical Pharmacy), 2013
Faculty of Pharmacy, Ain Shams University

2022

Assessment of Clinical Pharmacy Services Implemented in Drug Information Center in an Egyptian Hospital

A Thesis

Submitted for fulfillment of the requirements for the

Ph.D. degree in Pharmaceutical Sciences
(Clinical Pharmacy)

By

Dina Mohamed Ibrahim Ibrahim Belal
M.Sc. of Pharmaceutical sciences, 2013
Faculty of Pharmacy, Ain Shams University

Under Supervision of

Prof. Nagwa Ali Sabri
Professor of Clinical Pharmacy
Faculty of Pharmacy, Ain Shams University

Dr. Mohamed Hassan Mohamed Solayman
Lecturer of Clinical Pharmacy
Faculty of Pharmacy, Ain Shams University

Dr. May Ahmed Shawki
Lecturer of Clinical Pharmacy
Faculty of Pharmacy, Ain Shams University

2022

بِسْمِ اللَّـهِ الرَّحْمَـٰنِ الرَّحِيمِ

"قَالُواْ سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ ﴿٣٢﴾"

سورة البقرة

Acknowledgments

First, I thank "**Allah**" for granting me the power to accomplish this work.

I would like to express my deepest thanks and appreciation to **Prof. Dr. Nagwa Ali Sabri**, Professor of Clinical Pharmacy, Faculty of Pharmacy, Ain Shams University, for her valuable scientific supervision, constructive advice and continuous guidance and encouragement throughout the work. Her precious time and great support is highly appreciated.

I am also greatly indebted to **Dr. Mohamed Hassan Solayman**, Lecturer of Clinical Pharmacy, Faculty of Pharmacy, Ain Shams University, for suggesting the topic of research and for providing continuous scientific supervision and follow up. His valuable time and big effort are greatly appreciated. I also thank him for providing guidance especially throughout the design and initiation part in this study.

My deepest gratitude and appreciation are expressed to **Dr. May Ahmed Shawki**, Lecturer of Clinical Pharmacy, Faculty of Pharmacy, Ain Shams University, for her divine support and for kindly continuous encouragement throughout the whole study period. Her constructive criticism, guided me immensely throughout the work and during the revision of the thesis.

I would also like to thank my dear colleagues and all the workers at the clinical pharmacy department, Faculty of Pharmacy, Ain Shams University for their help and support during this work. Besides, I would like to thank all the staff members and the scientific committee at New Cairo Hospital, for their help during data collection and follow up.

Finally, my deepest everlasting thanks and appreciation are for my beloved family for their continuous support and encouragement throughout my life.

والحمد لله رب العالمين.....

Dina Mohamed Ibrahim Ibrahim Belal

Tables of Contents

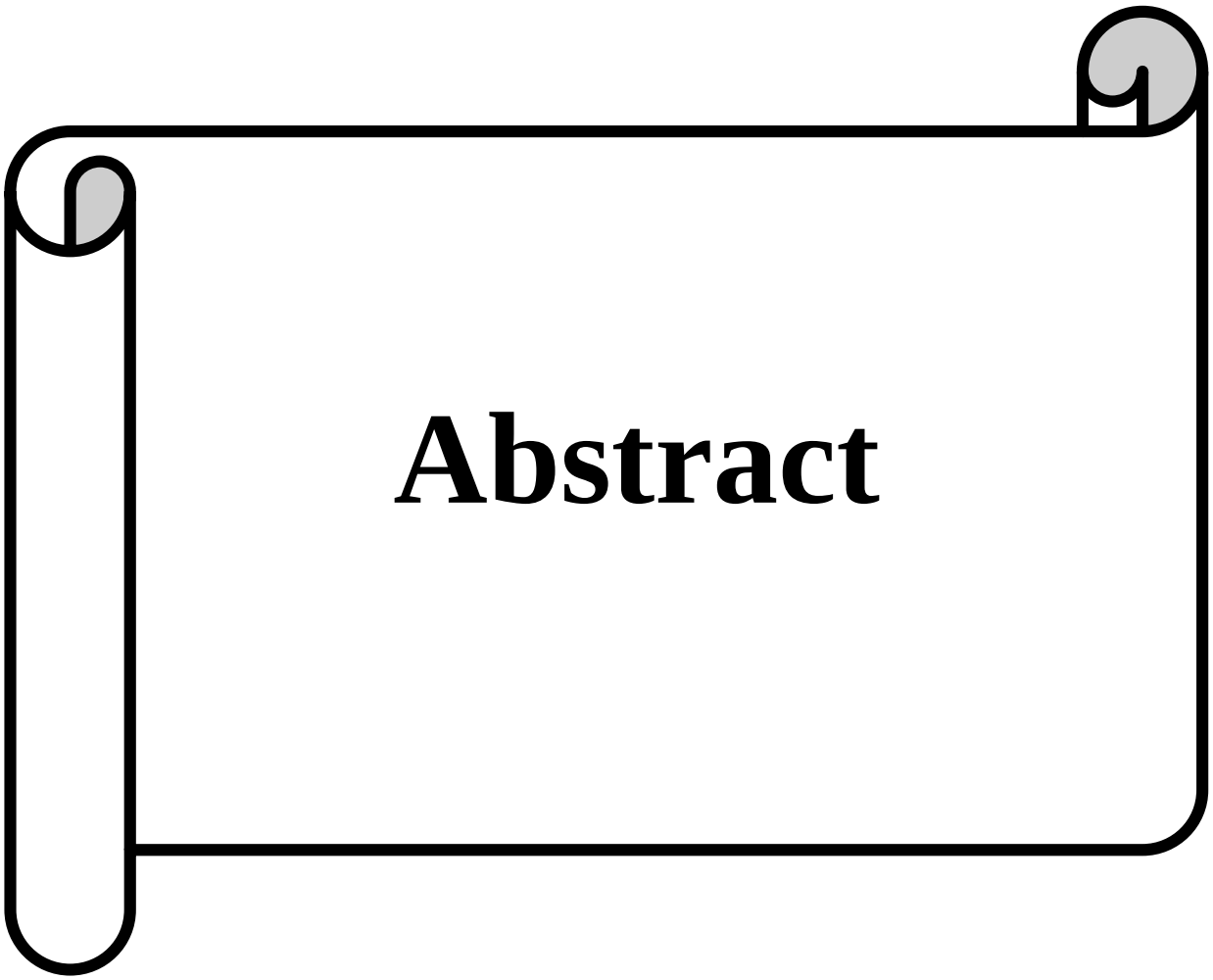
List of Abbreviations

ACCP	American College of Clinical Pharmacy
ADRs	Adverse Drug Reactions
APhA	American Pharmacists Association
ARDS	Acute respiratory distress syndrome
ASHP	American Society of Health System Pharmacists
ASU	Ain Shams University
COVID-19	Corona Virus Disease 2019
DI	Drug Information
DIC	Drug Information Center
DIR	Drug Information Request
DIS	Drug Information Service
DTC	Drugs and Therapeutics Committee
DUE	Drug Use Evaluation
EBM	Evidence based medicine
EBP	Evidence based pharmacy
EDA	Egyptian Drug Authority
EDIC	Egyptian Drug Information Center
EPVC	Egyptian Pharmacovigilance Center
FDA	Food and Drug Administration
HCPs	Healthcare Practitioners

HRS	Hepatorenal Syndrome
ICSR	Individual case safety report
ICU	Intensive Care Unit
IRB	Institution review board
L.E	Egyptian Pound
ME	Medication Error
MOH	Ministry of Health
NICU	Neonatal Intensive Care Unit
PD	Patient Days
PV	Pharmacovigilance
RDU	Rational Drug Use
REC	Research Ethics Committee
SBP	Spontaneous Bacterial Peritonitis
STGs	Standard Treatment Guidelines
TDM	Therapeutic Drug Monitoring
UMC	Uppsala Monitoring Centre
WHO	World Health Organization

List of Figures

List of Tables


Abstract

Abstract of Chapter I

"Optimizing Human Albumin Use in the Intensive Care Unit"

Introduction:

Albumin is a non-blood plasma substitute known for its high cost and limited availability. It is derived from blood through a hard manufacturing process and it has a superior advantage over non protein colloids for being a relatively safer product. It has been commonly used in various indications and has been reported to be inappropriately used in different healthcare settings. Hence, interventions are required to control its irrational use.

Aim: To evaluate the impact of clinical pharmacist implemented interventions on optimizing of albumin use in an intensive care unit (ICU).

Methods: The study included three phases; a preparation phase where the appropriate use criteria of human albumin were determined. A local albumin dispensing protocol and a restriction dispensing form were prepared by the clinical pharmacists based on international guidelines in the literature and both were approved by the local drugs and therapeutics committee, and a retrospective pre-implementation phase included the evaluation of medical records of all ICU patients receiving albumin for appropriateness of albumin use according to the developed protocol. This was followed by a prospective implementation phase where the dispensing protocol and restriction dispensing form were applied. The pattern of albumin consumption and cost were recorded and compared between the retrospective and prospective phases. All healthcare team were educated on using the dispensing form and on the approved appropriate indications of albumin use on several educational sessions. These sessions were held by clinical pharmacy department in order to ensure adherence to the approved protocol.

Results: It was found that the clinical pharmacists' interventions have led to a significant optimization of albumin use. Baseline serum albumin of patients was