

Safe Health Practices in Different Types of Hospitals in Cairo

Thesis submitted by

Inas Abd El Rahim Ali

M.B, B.CH, MSc, Ain Shams University

Assistant Lecturer in the Dept of Community & Family Medicine

Misr University for Science & Technology MUST

For partial fulfillment of MD degree in Public Health

Under the supervision of

Prof. Dr. Abdel Aziz Mohammad Kamal

Professor in the Dept of Community, Environmental &

Occupational Medicine, Faculty of Medicine

Ain Shams University

Prof. Dr. Aisha Mohammad Abou El Fotouh

Professor in the Dept of Community, Environmental &

Occupational Medicine, Faculty of Medicine

Ain Shams University

Prof. Dr. Mohammad Farghaly Kassem

Professor in the Dept of Community Medicine

Faculty of Medicine, El Azhar University

Head of the Dept of Community & Family Medicine

Faculty of Medicine, MUST University

Faculty of Medicine, Ain Shams University

May, 2009

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

"قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ
أَنْتَ الْعَلِيمُ الْحَكِيمُ"

صدق الله العظيم

(سورة البقرة-آية ٣٢)

List of abbreviations

BBPs	Blood Born Pathogens
CDC:	Centers for Disease Control and Prevention
Cfu:	Colony forming unit
EMR:	Eastern Mediterranean Region
EMRO:	Eastern Mediterranean Regional Office
ESU:	Epidemiology and Surveillance Unit
Fig:	Figure
HAI:	Hospital Acquired Infections
HCFs:	Health Care Facilities
HCV:	Hepatitis C Virus
HCWs:	Health Care workers
HHMC:	Home Health and Medial Care services
HI:	Health Insurance
HIV:	Human Immune deficiency Virus
ICMJE:	International Committee of Medical Journal Editors
IC:	Infection Control
IEC:	Information Education and Communication
JWG:	Joint Working Group, U.K
MOHP:	Ministry of Health and Population
NCPS:	National Council for Patient Safety
NIOSH:	National Institute of Occupational Safety & Health
NPI	Needle Prick Injury
NPSF:	National Patient Safety Foundation
OSHA:	Occupational Safety and Health Administration
PHS:	Public Health Services
PPE:	Personal Protective Equipment
SP:	Standard Precautions
SPSS:	Statistical Package for Social Sciences
U.K:	United Kingdom
USA:	United States of America
WHO:	World Health Organization

List of figures

Figure number	Title	Page
(1)	Flyers hang beside the sink during the intervention session.....	35
(2)	Flyers for hand wash and hand rub beside liquid soap container.....	35
(3)	Proper hand wash steps (<i>CDC, 2006</i>).....	36

List of tables

Number	Title	Page
1	Characteristics of the Health Care Workers (HCWs)	39
2	Characteristics of Health Care Workers (HCWs) in different studied hospitals	41-42
3	Immunization and training profile of the Health Care Workers (HCWs)	43
4	Immunization and training profile of Health Care Workers (HCWs) in different studied hospitals	44
5	Work circumstances of Health Care Workers (HCWs)	45
6	Work stress among Health Care Workers (HCWs)	46
7	Work circumstances of Health Care Workers (HCWs) in different studied hospitals	47
8	Work stress among Health Care Workers (HCWs) in different hospitals	48
9	Hospital administration policy towards Health Care Workers (HCWs)	50
10	Hospital administration policy towards Health Care Workers (HCWs) in different hospitals	51
11	Availability of supplies at hospitals	52
12	Availability of supplies in different hospitals	53
13	Prevalence of reported standard precautions practice among HCWs	55

List of tables (cont.)

Number	Title	Page
14	Prevalence of reported standard precautions practice in different hospitals	57
15	Knowledge of risky behavior among Health Care Workers (HCWs)	59
16	Knowledge of risky behavior in different hospitals	60
17	Relation between hand wash before patient contact and sociodemographic characteristics of HCWs	61-62
18	Relation between hand wash before patient contact and work circumstances of HCWs	63
19	Relation between hand wash before patient contact and work stress	65
20	Relation between hand wash before patient contact and related hospital administration policy	66
21	Results of logistic regression for different factors affecting hand wash before patient contact	68
22	Adherence to hand wash before patient contact in different hospitals	69
23	Relation between hand wash after patient contact and sociodemographic characteristics of HCWs	71-72
24	Relation between hand wash after patient contact and work circumstances of HCWs	73
25	Relation between hand wash after patient contact and work stress	75

List of tables (cont.)

Number	Title	Page
26	Relation between hand wash after patient contact and related hospital administration policy	76
27	Adherence to hand wash after patient contact in different hospitals	78
28	Results of logistic regression for different factors affecting hand wash after patient contact	80
29	Relation between wearing gloves when dealing with patient and sociodemographic characteristics of HCWs	81
30	Relation between wearing gloves when dealing with patient and work circumstances of HCWs	83
31	Relation between wearing gloves when dealing with patient and work stress	84
32	Relation between wearing gloves when dealing with patient and related hospital administration policy	85
33	Results of logistic regression for factors affecting wearing gloves when dealing with patient	87
34	Adherence to wearing gloves in different hospitals	88
35	Relation between method of syringe disposal and sociodemographic characteristics of HCWs	90
36	Relation between method of syringe disposal and work circumstances of HCWs	92
37	Relation between method of syringe disposal and work stress	94

List of tables (cont.)

Number	Title	Page
38	Relation between method of syringe disposal and related hospital administration policy	95
39	Results of logistic regression for factors affecting safe syringe disposal	96
40	Adherence to safe syringe disposal in different hospitals	97
41	Relation between proper waste sorting and work circumstances of HCWs	99
42	Relation between proper waste sorting and work stress	101
43	Relation between proper waste sorting and related hospital administration policy	102
44	Results of logistic regression for factors affecting proper waste sorting	103
45	Adherence to proper waste sorting in different hospitals	104
46	Relation between use of Personal Protective Equipment (PPE) and sociodemographic characteristics of HCWs	106
47	Relation between use of Personal Protective Equipment (PPE) and work circumstances of HCWs	108
48	Relation between use of Personal Protective Equipment (PPE) and work stress	109
49	Relation between use of Personal Protective Equipment (PPE) and related hospital administration policy	110
50	Results of logistic regression for factors affecting use of Personal Protective Equipment (PPE)	111

List of tables (cont.)

Number	Title	Page
51	Adherence to use of Personal Protective Equipment (PPE) in different hospitals	112
52	Circumstances of 60 hand wash observations	114
53	Circumstances of 60 injection observations	116
54	Relation between availability of supplies for hand wash and location and indication of the procedure	118
55	Relation between duration of hand wash and location of observations	120
56	Relation between hand wash pre and post training intervention session	122

Acknowledgements

First and foremost, I thank ALLAH, the Beneficent and the most Merciful for granting me the power to proceed and to accomplish this work.

I would like to express my utmost and sincere gratitude and cordial appreciation to Professor Dr. Abdel Aziz Mohammad Kamal, professor in the department of Community, Environmental and Occupational health and exHead of the department, Ain Shams University for his continuous assistance and valuable guidance during the whole period of this work.

I do appreciate the kind participation of Professor Dr. Aisha Mohammad Abou El Fotouh, Professor in the department of Community, environmental and Occupational Health for her continuous encouragement and support.

My deep thanks are due to Professor Dr. Mohammad Farghaly Kassem for his continuous help thorough the whole work.

The cooperation and help of the Infection Control committee team in each hospital is truly acknowledged.

I am also indebted to every health care worker who accepted to be enrolled in this study for whom I wish the best.

I also thank my husband Dr. Saber Ali for his help and cooperation and my colleague Dr. Sherif Hetta for his help.

No words can describe the support and encouragement of my family members.

Inas Abd El Rahim

May, 2009

Introduction

Health care associated infections occur worldwide and affect both developed and resource poor countries. Infections acquired in health care settings are among the major causes of death and increased morbidity in hospitalized patients. They represent a significant burden for both the patient and his family and for public health. A prevalence survey conducted under the auspices of the World Health Organization (WHO) in 55 hospitals revealed that on average, 8.7% of hospital patients suffer nosocomial infections (*WHO, 2006 c*).

Hands of Health Care Workers (HCWs) are the main vehicles of microbial transmission especially those resistant to antimicrobial agents. Thorough hand washing by all medical personnel before each patient contact is one of the most effective ways to combat nosocomial infections (*Girou et al., 2004*). Although hand washing may seem like a simple measure, it is often not used or is performed incorrectly. Health care settings must continually remind practitioners to wash their hands thoroughly (*Nogueras et al., 2004*).

Egypt has a very high prevalence of HCV. Ten to twelve percent of the population has HCV, with 70,000-140,000 new infections each year. Approximately 20% of Egyptian blood donors are anti-HCV positive. Egypt has higher rates of HCV than neighboring countries as well as other countries in the world with comparable socioeconomic conditions and hygienic standards for invasive medical, dental, or paramedical procedures (*EMRO, 2006*).

Among the 35 million health care workers worldwide, about 3 million receive percutaneous exposures to blood borne pathogens each year, more than 90% of these infections occur in developing countries (*WHO, 2006 a*).

The frequency of needle stick injuries among HCWs is high in Egypt. In surveys conducted in Upper and Lower Egypt in 2001, approximately 30% of HCWs reported a needle stick injury within the past 3 months. There was an average of 5 needle stick injuries per year per HCW. The frequency of needle stick injuries was similar across a broad category of HCW that included dental personnel, laboratory workers, nurses and nursing assistants, housekeeping personnel, sanitarians, physicians, technicians, and other

allied health professionals. Underreporting of needle stick injuries in studies published outside of Egypt is estimated to be between 30-96 percent, suggesting that the actual rate of such injuries is much higher (*OSHA, 1997*). In general, HCWs who have more intense contact with patients or more opportunity for exposure to blood and body fluids (nurses, physicians, dentists, laboratory technicians) have an increased risk of blood-borne pathogen infection than do HCWs who have only brief or casual contact with patients. Studies of sharps injuries elsewhere indicate that nurses experience the greatest proportion of these; however, others, such as environmental services (housekeeping) personnel, also rank high (*Memish, 2002*).

Poor management of health care waste exposes HCWs, waste handlers and the community to infection, toxic effects and injuries. In addition, it creates opportunities for the resale and potential reuse without sterilization (*WHO, 2006 b*)

Improving patient safety requires continuous learning and constant communication between care givers, organizations and patients. Every one has a role in patient

safety, and every one will benefit from its successes (*NPSF, 2003*).

In Egypt, there are about 250 general hospitals in urban areas and about 120 district hospitals in rural areas, these a part teaching and private sector hospitals and hospitals of health insurance national institution (*EMRO, 2006*).

Data about adherence of HCWs to safe practices and the related contributing factors in Egypt are lacking. Research is essential to understanding the extent of adherence and the causes of unsafe health practices and for developing appropriate solutions.

Aim of the work

Objectives:

- To determine the prevalence of unsafe health practices involving both patients and health care workers
- To investigate the contributing factors related to unsafe practices
- To provide and implement a pilot training program of this issue
- To evaluate the effect and compliance of the training program for setting and generalization of recommendations for promotion of safe health practices in hospitals