



USE OF PERSONAL PROTECTIVE EQUIPMENT IN AN TRAUMA EMERGENCY USO DE EQUIPAMENTOS DE PROTEÇÃO INDIVIDUAL EM UMA EMERGÊNCIA TRAUMATOLÓGICA

USO DE LOS EQUIPOS DE PROTECCIÓN INDIVIDUAL EN UNA EMERGENCIA TRAUMATOLOGICA

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ABSTRACT

Objective: analyzing the use of Personal Protective Equipment in practice of procedures constituent of nursing care practice. **Method:** descriptive, observational non participatory study with 37 nurses working in the emergency room trauma during the April/July/2011. Data were collected from seven procedures performed by nurses and analyzed using absolute frequencies and percentages. This study was a research project approved by the Research Ethics Committee, Protocol 794/10. **Results:** only 53,5 % made hands hygiene before and after the procedures and 3,5% did somehow. Regarding the use of gloves we observed that 93% of nurses used them and 7% did not and 42,4% used the cloak. As regards the use of masks, the adhesion was 99,2%. But 100% of the nurses made use of goggles. **Conclusion:** the most professional made use of equipment such as gloves and masks. **Descriptors:** Exposure to Biological Agents; Accidents at Work; Hospital Emergency Department.

RESUMO

Objetivo: analisar a utilização dos Equipamentos de Proteção Individual na execução de procedimentos constitutivos da prática assistencial do enfermeiro. **Método:** estudo descritivo, observacional não participativo, com 37 enfermeiros que atuam na emergência de um hospital de trauma no período de Abr/Jul/2011. Os dados foram coletados de sete procedimentos realizados pelos enfermeiros e analisados por meio de frequências absolutas e porcentagens. O estudo teve o projeto de pesquisa aprovado pelo Comitê de Ética em Pesquisa, Protocolo 794/10. **Resultados:** apenas 53,5% higienizaram as mãos antes e após os procedimentos e 3,5% não fizeram de forma alguma. Quanto ao uso de luvas observamos que 93% dos enfermeiros utilizaram-nas e 7% não e 42,4% usaram o capote. No que se refere ao uso de máscaras, a adesão foi de 99,2%. Porém 100% dos enfermeiros fizeram uso de óculos de proteção. **Conclusão:** a maioria dos profissionais fez uso dos equipamentos como luvas e máscaras. **Descritores:** Exposição a Agentes Biológicos; Acidentes de Trabalho; Serviço Hospitalar de Emergência.

RESUMEN

Objetivo: analizar el uso de equipo de protección personal en la ejecución de los procedimientos de constituyente de la práctica de enfermería. **Método:** estudio descriptivo, observacional no participativo con 37 enfermeras que trabajan en la sala de emergencias de traumatismo durante Abril/Julio/2011. Los datos fueron recogidos a partir de siete procedimientos realizados por enfermeras y analizados mediante frecuencias absolutas y porcentajes. Este estudio fue un proyecto de investigación aprobado por el Comité de Ética de la Investigación del Protocolo 794/10. **Resultados:** sólo el 53,5% higienizaran las manos antes y después de los procedimientos y el 3,5% lo hizo de manera alguna. En cuanto al uso de guantes se observó que el 93 % de las enfermeras los usó y el 7% no lo hizo y el 42,4% utilizó la capa. En cuanto al uso de máscaras, la adhesión fue de 99,2%. Pero el 100% de las enfermeras hicieron uso de gafas protectoras. **Conclusión:** el uso más profesional hecha de equipos, tales como guantes y máscaras. **Descriptores:** Exposición a Agentes Biológicos; Accidentes de Trabajo; Servicio de Urgencias del Hospital.

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INTRODUCTION

Biosecurity is very important because it aims to promote the professional institutions and instruments of the full development of their activities with adequate security.¹ These actions are intended to prevent, reduce, control or eliminate risks to activities that may compromise human, animal, plant and environment.² There are summarized in care health professionals in the prevention of accidents, contamination with biological material, occupational disease, contamination customer and inappropriate practices developed in the workplace.

To obtain biosecurity is necessary the use of Personal Protective Equipment (PPE), ie, an individual and must use device designed to protect the physical integrity and health of the worker.³ PPE are exemplified by gloves, masks, caps, sunglasses, coat or apron and shoes.⁴ For each procedure performed with the client, it was required a certain protective procedures that allow contamination of nurses in the workplace. For example, in procedure where you will have contact with blood and secretions in mucosa or broken skin, the gloves used; when there is a possibility of contact with blood or body fluids of the client in the health professional hat, masks and goggles should be used to avoid contamination in the mucosa of the mouth, nose and eyes; at risk of biological material, especially contaminated materials, gowns or aprons are used; and finally, when there is the risk of accidents in wet locations or infected materials in the workplace, the shoes are used, avoiding accidents at work connected to the environment.

Work accidents with health professionals are very relevant in the index that relate to injuries with sharps, they are associated with transmission of hepatitis B, hepatitis C and Human Immunodeficiency Virus (HIV) to health professionals.⁵ Mentions the author 80 to 90% of sharps injuries are needle stick injuries, although it is estimated that the risk of contamination by this type of material reaches indexes from 6 to 30% for HBV, 0,4 to 1,8% HCV and 0,25 to 0,4% for HIV.⁶

In emergency hospitals in Fortaleza there is demand from people needing emergency care, so that requires fast response. However, the risk of injuries with sharps is very high and sometimes undiagnosed. Note the requirement of characteristics and acquisition of specific skills for nurses to act in emergencies and integrate the hospital staff.⁷

In emergency departments, the risks inherent in the provision of nursing

significantly increase the rate of infection, since the professionals and customers are exposed to a work environment that facilitates the emergence of cross-infection, the great demand of polytrauma patients.⁸ However, in health care, even in emergencies, there are accidents involving professionals, because they did not follow the safety rules. Risk assessment is a diverse and widely used concept.⁹

The scientific literature on this subject will allow nurse practitioners to recognizing the importance of using personal protective equipment and observe the rules of standard precautions during given care, and it is expected to reduce the time and number of hospitalizations for infections, as well as the statistics of sharps injuries.

This study aims to analyzing the use of Personal Protective Equipment in the execution of procedures constituent of nursing care practice.

METHOD

An exploratory, descriptive study with a quantitative approach, performed by direct and non-participatory observation in April to July 2011, with 37 nurses working during day and night shifts in the trauma emergency room of a hospital in Fortaleza-Ceará.

A checklist intended for the observation of the use of PPE was used as a tool for data collection, containing seven types of common procedures in healthcare practice: patient examination involving intact skin, contact with blood, body fluid and mucous membranes or broken skin; achievements of dressings, gastrointestinal poll, bladder catheterization, airway aspiration and lavage. This list was created according to a framework of Procedure manual (Occupational Exposure to Biological Material: Hepatitis and HIV, 2000), which brings the recommendations of the Ministry of Health regarding the use of PPE in basic biosecurity precautions.¹⁰

The data, after suffering tabulation, were analyzed using Microsoft Office Excel 2007, absolute frequencies and percentages, presented in tables program.

The study was previously approved by the Ethics Committee following ethical and legal principles for research involving human beings, the Hospital of Messejana Dr. Carlos Alberto Gomes Studart (CEP / HM), and approved with the protocol number 794/10.

RESULTS AND DISCUSSION

Table 1 shows the first procedure checklist - involving the examination of patient skin

part. The Ministry of Health (MOH) calls for the implementation of this procedure, only hand hygiene before and after contact with the patient as the primary measure of standard precaution to be performed, not the use of EPI10 being necessary.¹⁰

Table 1. Distribution of frequencies related to the use of PPE in the examination of the patient involving skin full performed by nurses of emergency department. Fortaleza-Ceará, 2012.

Procedure	nº	%
Hands washing		
Before and after the procedure	23	62,2
Only before the procedure	01	2,7
Only after the procedure	10	27,0
Non conducted	03	8,0
Extra use of PPE: Gloves	23	62,2
Masks	33	89,2
Cloak	16	27,0

It was found that only 62,2% of the nurses performed hand hygiene before and after patient contact, therefore, as recommended by MOH. However, 8% did not wash their hands before or after. We notice, however, the very low adherence of nurses to hand hygiene before procedures. It was observed that professionals did not make the hygiene of the hands after procedure execution, were using simple gloves during care. This makes us believe, mistakenly, these nurses fail to wash their hands for believing that the gloves serve as a protective factor and it is not a source of transmission of microorganisms. It is considered "unfortunate that today it is found that the use of gloves, despite its potential benefits, is becoming an increasing risk of

cross-transmission of infection, perhaps as much or more than not washing hands".¹¹

The use of gloves is one of the factors that makes the health care professional does not perform hand hygiene.¹² The process of hand hygiene should be performed as recommended: before and after the procedures, whether the patient or in procedures in general.

Table 2 shows the second procedure checklist - the examination of the patient involving contact with blood, body fluids, mucous membrane or non-intact skin. The MS advocates in performing this procedure, hand hygiene before and after patient contact, wearing gloves and apron (cloak).¹⁰

Table 2. Distribution of frequencies related to the use of PPE in the examination of the patient involving contact with blood, body fluids, mucous membrane or non-intact skin performed by nurses of emergency department. Fortaleza-CE, 2012.

Procedure	nº	%
Hands washing (n=37)		
Before and after the procedure	16	43,0
Only before the procedure	04	11,0
Only after the procedure	15	40,0
Non performed	02	5,0
Use of gloves		
Yes	36	97,0
No	01	3,0
Use of cloak		
Yes	18	49,0
No	19	51,0
Extra use of PPE: Mask	33	89,0

It is observed that, in Table 04, 11% of nurses did not perform hand hygiene before performing the physical examination and 02 (5%) in any way performed hand hygiene. It calls for attention both professionals who did not have, somehow, hand hygiene, as well as, less than half (43%) of these professionals made hand hygiene, according to the recommendations. Wearing gloves reached the range of 97%, ie, almost all nurses acted as recommended by MOH. It is noteworthy that we observed that some professionals used the same glove in several patients.

Reveals itself as a risk factor for the lack of coat, since 19 (51%) of these professionals do not have the habit of using it. In another study conducted, the nurses stated that they do not always use cloak during patient care.¹³

There was a rate of 89% of the professionals making use of PPE extra: surgical mask, revealing that they are accustomed to this practice. According to MOH, the mask should be used when there is possibility of splattering of blood or other body fluids on mucous membranes of the mouth, nose and eyes.¹⁰

Table 3 shows the third procedure checklist - making dressings. The MOH advocates, in performing this procedure, the handwashing prior to and after patient contact, wearing gloves and apron.¹⁰

Table 3. Distribution of frequencies related to the use of EPI in small and large dressings made by nurses of emergency department. Fortaleza-CE, 2012.

Bandage	n °	%
Hands washing (n=18)		
Before and after the procedure	12	67,0
Only before the procedure	03	17,0
Only after the procedure	01	05,0
Non performed	02	11,0
Use of gloves		
Yes	18	100,0
No	-	-
Use of cloak		
Yes	-	-
No	18	100,0
Use of PPE extra: Mask	18	100,0

Note all 18 used gloves and mask, however not all used capote.

Of the 37 professionals participants of the research, only 18 (48,6%) had the opportunity of making the curative. Of these, there was a membership of hand hygiene 67%. Realizes the necessity of conducting a study of nurses' adherence to this practice, as found in other studies in which a low frequency comes to hand hygiene. Also, in a study conducted in an Intensive Care Unit, the author found that only 50% of the professionals performed conduct of hand hygiene before and after intervention with the patient.¹⁴

Regarding the use of masks, the index was obtained (100%) by the nurses during the course of healing. It is worth noting that the use of mask and goggles is recommended by MOH, only during procedures where there is possibility of splattering of blood or other

body fluids on mucous membranes of the mouth, nose and eyes of professionals.¹⁰

It is noticed that the nurses do not seem to know how to identify the risks they are exposed to during nursing care because sometimes fail to use necessary PPE and recommended by MOH in procedures. This equipment is considered essential to the security of professional and patient.

Table 4 shows the room procedure checklist; this was grouped into four procedures considered invasive and requires the use of such PPE - poll gastrointestinal, bladder catheterization, airway aspiration and lavage. The MOH advocates in performing these procedures, hand hygiene before and after patient contact, wearing gloves, cape, mask and goggles.

Table 4. Distribution of frequencies related to the use of EPI in polling procedures gastrointestinal, bladder catheterization, airway aspiration and gastric lavage performed by nurses of emergency department. Fortaleza-CE, 2012.

	Gastrointestinal poll	Vesical catheterization	Airway suctioning	Gastric Lavage
Hands hygiene (n=37)				
Before and after the procedure	19 (52%)	21 (57%)	18 (49%)	04 (36%)
Only before the procedure	02 (5%)	03 (8%)	01 (2%)	04 (36%)
Only after the procedure	16 (43%)	13 (35%)	18 (49%)	03 (28%)
Cloak use				
Yes	17 (46%)	22 (59%)	18 (49%)	- -
No	20 (54%)	15 (41%)	19 (51%)	11 (100%)
Mask use				
Yes	37 (100%)	36 (97%)	37 (100%)	11 (100%)
No	- -	01 (3%)	- -	- -

Obs. Everyone wore gloves and all didn't wear glasses in the procedures.

The gastrointestinal poll procedure is the introduction of a catheter through the nose or mouth, through the pharynx and esophagus to reach the stomach and/or intestines, with several diagnostic and therapeutic purposes.¹⁵ This procedure should be performed by a skilled professional and legally qualified as

nurses, taking its concept to follow strict biosecurity measures. During the development of activities those constitute the work of nurses in the hospital environment, this professional comes into contact with biological material (blood, secretions and excretions - vomit, urine, feces, semen,

breast milk, sputum, saliva - and other body fluids) those may be harboring microorganisms.¹⁴

According to this table in the gastrointestinal polling procedure, 19 (52%) of occupational hygiene performed before and after the procedure, 02 (5%) just before the procedure and 16 (43%) following the procedure. The disuse of the cloak was 54% and no nurse made the use of goggles. This finding corroborates with the literature to investigate the use of personal protective equipment by the nursing staff of a hospital in the city of Coronel Fabriciano.¹³ Referring to report on the frequency of use of PPE during professional practice, nurses reported that they always wear gloves and a mask, but do not always use glasses and cloak.

It is very important accession gloves use during gastrointestinal poll because it prevents contamination of the hands of nurses for blood and other body fluids. During his handling abrasions can occur in the mucosa of the nasopharynx, highly vascularized, offers a security risk professionals. Also the use of protective eyewear must be essential, since there is no guarantee, you may have spills in the ocular region. With regard to this, study author concludes that only a minority of people constantly uses all devices.¹³

Regarding the bladder catheterization procedure, it is an invasive procedure and involves inserting a catheter through the urethra into the bladder, with the objective of urine drainage, artificially, as this urine cannot be eliminated naturally. This procedure should follow strict aseptic technique to minimize the risk of urinary tract infection, which corresponds to 40% of hospital infections.¹⁵

It is observed that 21 (57%) nurses performed hand hygiene before and after the procedure and the minority (8%) of professionals in performing this procedure does not sanitize their hands before performing the technique.

It is realized the accession of 59% of nurses regarding the use of cloaks and non-use of protective eyewear. In a study conducted in São Paulo, the author concluded that 18,1% of accidents at work with biological material, recorded in a university hospital in São Paulo, involved mucosal.¹⁶

According to studies, 68,5% of professionals do not perform handwashing during suction of endotracheal secretions and airways.¹⁷ In the sample of the data collected, it was found that 49% of professionals performed hand hygiene before and after procedure. Also, 18

(49%) nurses performed the cleaning after the procedure and only one (2%) nurses performed hand hygiene before the procedure. It was observed in the research field that professionals do the cleaning only after performing the airway aspiration. This brought a question: hand hygiene is performed because the hands are soiled by talc gloves?

As regards the use of gloves and masks used was 100% by nurses. In research, the author has reported that gloves were the most widely used and disclosed personal protective equipment in healthcare.¹⁸

Regarding the use of cloaks serving as an own professional protection against splash on skin and clothing, only 18 (49%) of nurses used it in this procedure. Very close to a survey that showed adherence to the use of apron 52,8%.¹⁹

Gastric lavage is the aspiration of gastric contents from the stomach being washed out by a large probe calibre.²⁰ This procedure was seen in patients who had exogenous poisoning. Only 11 (29,7) had the opportunity to perform this procedure, where four (36%) underwent professional cleaning before and after, four (36%) procedures just before the procedure and three (28%) after the procedure. The use of gloves and a mask was 100%. No professional used goggles and wore the coat for protection. The adoption of these measures of prevention requires a change in habits, which many experienced professionals find it difficult to deal with, being one of the obstacles to the prevention of occupational accidents.²⁰

CONCLUSION

The majority of professionals made use of equipment such as gloves and masks. However, many of them stopped using cloak, and all did not use protection glasses, considered as real the need of its use.

Given the above, the increase of scientific research on this topic is needed. So going both institutions as their employees will learn the importance of the correct use of PPE in practical work in safety for the protection of nurses against occupational accidents, preventing them thus reversible or irreversible damage.

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