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USE OF PERSONAL PROTECTIVE EQUIPMENT FOR NURSING PROFESSIONALS IN PRIMARY HEALTH CARE

USO DOS EQUIPAMENTOS DE PROTEÇÃO INDIVIDUAL POR PROFISSIONAIS DE ENFERMAGEM NA ATENÇÃO PRIMÁRIA À SAÚDE

USE OF PERSONAL PROTECTIVE EQUIPMENT FOR NURSING PROFESSIONALS IN PRIMARY HEALTH CARE

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ABSTRACT

Objective: to describe the adherence in the use of Personal Protective Equipment by the nursing staff in primary health care. **Method:** descriptive study held with nursing professionals. Data were collected with a form and interview. The content analysis technique was used for qualitative data; the quantitative data were submitted to Frequency analysis using the SPSS program. **Results:** the majority of nurses (93.8%) and nursing technicians (95.7%) have contact with organic material while performing some procedures, from one to five times per shift. Adherence to the use of Personal Protective Equipment does not happen in all these moments. Some reasons shown for no use them were: avoid the patient's embarrassment and professional negligence. **Conclusion:** the increase in the use of Personal Protective Equipment is not equivalent in these professionals and does not happen at all times when it is necessary. **Descriptors:** Work Nursing; Worker's Health; Communicable Diseases; Infection.

RESUMO

Objetivo: descrever a adesão ao uso do Equipamento de Proteção Individual por parte da equipe de enfermagem na Atenção Primária à Saúde. **Método:** estudo descritivo realizado com profissionais de enfermagem. Os dados foram coletados através de um formulário e entrevista. Utilizou-se a Técnica de Análise de Conteúdo para os dados qualitativos; estes foram submetidos à análise frequencial por meio do programa SPSS. **Resultados:** a maioria dos enfermeiros (93,8%) e técnicos em enfermagem (95,7%) tem contato com matéria orgânica durante a realização de alguns procedimentos, de uma a cinco vezes por turno de trabalho. A adesão ao uso do Equipamento de Proteção Individual não acontece em todos estes momentos. Alguns motivos mostrados para o não uso foram: evitar o constrangimento do paciente e a negligência do profissional. **Conclusão:** a adesão ao uso do Equipamento de Proteção Individual não é equivalente entre esses profissionais e não acontece em todos os momentos em que ele se faz necessário. **Descritores:** Enfermagem do Trabalho; Saúde do Trabalhador; Doenças Transmissíveis; Infecção.

RESUMEN

Objetivo: describir la adherencia al uso del Equipamiento de Protección Individual por parte del equipo de enfermería en la Atención Primaria de Salud. **Método:** estudio descriptivo realizado con profesionales de enfermería. Los datos fueron recogidos con un formulario y una entrevista. Se utilizó la Técnica de Análisis de Contenido para los datos cualitativos; los datos cuantitativos fueron sometidos al análisis de frecuencia por medio del programa SPSS. **Resultados:** la mayoría de los enfermeros (93,8%) y técnicos en enfermería (95,7%) tienen contacto con materia orgánica durante la realización de algunos procedimientos, de una a cinco veces por turno de trabajo. La adherencia al uso del Equipamiento de Protección Individual no acontece en todos estos momentos. Algunos motivos mostrados para el no uso fueron: evitar vergüenza del paciente y la negligencia del profesional. **Conclusión:** la adherencia al uso del Equipamiento de Protección Individual no es equivalente entre esos profesionales y no acontece en todos los momentos en que él se hace necesario. **Descriptores:** Enfermería del Trabajo; Salud del Trabajador; Enfermedades Transmisibles; Infección.

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INTRODUCTION

The adoption of biosecurity standards is fundamental to the protection of workers in any area. Through these regulations, it is possible to prevent the transmission of different diseases during the development of professional activities.¹

Biosecurity in health work should begin with the adoption of standard precautions (SP) as “hand washing, use of personal protective equipment (PPE) and collective protection (EPC), proper management of waste in health and immunization services”,^{2:104} to protect clients and healthcare professionals against exposure to biological fluids.

In Brazil, biosafety in health work is ensured by Norm number 32 (NR 32). This norm recommends the adoption of preventive measures for each risk situation to promote the safety of workers in the health services; use of PPE is highlighted among these measures.³

It is worth noting that the use of PPE does not eliminate all risks to which workers are exposed but minimizes them, reducing the possibility of accidents and cross infections.⁴ When not use them , they expose the professional diseases and their respective complications.

However, the most important is the use adherence together with proactive attitudes by each professional to comply with accident prevention measures and seek the protection of the patient, co-workers and themselves. Thus, it is necessary that confidence in the work routine, their internalization and mastery of technique do not affect the health risks at work.⁵

Risks are inherent in health working, in particular for the nursing staff due to the scope of their operations. Because it is a professional category present in all Health Care levels, and in each of these levels (primary, secondary or tertiary) it is in direct contact with patients.

The professionals of the nursing team working in Primary Health Care (PHC) do not always use the PPE; or use them when they previously know the diagnosis of an infectious disease in a given patient.

However, in the PHC, the previous diagnosis is not always known; which makes this contradictory in the biosafety standards and guidelines before facing the workers' health.

OBJECTIVES

- To describe the adherence in the use of Personal Protective Equipment by the nursing staff in Primary Health Care.

- To identify the activities developed by the nursing team professionals that require the use of PPE.

METHOD

Article elaborated from the monograph << Adherence to the use of personal protective equipment for nurses in primary health care >> presented to the Nursing School, Department of Nursing of the University of Rio Grande do Norte/UERN. Mossoró-RN, Brazil. 2014

It is a descriptive research carried out in Basic Health Units in the city of Mossoró-RN. The sample consisted of professional nurses and nursing technicians. The inclusion criteria were: have effective employment relationship with the municipality; and as exclusion criteria, be institutionally away from their professional activities.

To obtain the sample, a relevant calculation from the study of the universe was carried out, with a sampling error of 5% and 90% confidence level; the required sample was 84 professionals. Data collection took place from June to December 2013, conducted in two stages; in the first stage, a semi-structured interview was held with the following guiding questions: in their daily work, when assisting the users of this unit, do you at some point handle organic material such as blood, feces, vomit, urine, phlegm, pus, or other bodily fluids? Tell examples of situations in which such manipulation occurs. If handling body fluids, what are they? What are the reasons for not using PPE during your professional activities?

In the second stage, a form with questions about the use of PPE in specific situations was applied. It has been organized into the following topics: handling of organic material, use of PPE during activities in the PHC and reasons for not using the PPE.

Data from the qualitative moment were analyzed by Bardin Content Analysis Technique. The following categories were produced: activities developed by the nursing team professionals that require the use of PPE and justifications for not using PPE.

Data from the quantitative moment were typed in Microsoft Office Excel spreadsheet and analyzed from the Statistical Package for Social Sciences (SPSS) for Windows version 16.0; the analysis was the Frequency type.

The subjects were informed about the topic and the research objectives and they signed the free and informed consent form, as required by Resolution 466/2012 of the National Health Council.

The project was approved by the Research Ethics Committee of the University of Rio

Grande do Norte State (CAAE No 12623813.6.0000.5294) approved with the opinion number 240531 of June 4, 2013.

RESULTS

The activities developed by the nursing team professionals that require the use of PPE were grouped into the following categories: performing tests, administration of drugs and biopharmaceuticals; healing; removing stitches; nursing consultations; home visit and sterilization products (surgical instruments used in performing healing).

It was found that most professionals, both nurses (93.8%) and nursing technicians (95.7%) claim to have contact with organic material while performing some procedures ($p<0.001$) and that it happens one to five times per shift (60%).

It was noticed that at least one of the PPE is not used during the manipulation of organic material and that the most used are the mask, glove and the coat. Table 1 shows this frequency when they were questioned about what PPE use when handling the organic material.

Table 1. Frequency of the use of PPE according to nurses enfermeiros and nursing technicians working in PHC, by type of PPE, during the performance of procedures exposed to contacto with organic material.

PPE	Frequency of use %
Gloves and coat	2.5%
Mask and gloves	8.8%
Mask, gloves and coat	37.5%
Mask, gloves and goggles	1.3%
Mask, gloves, cap and coat	25%
Mask, gloves, goggles and coat	6.3%
Mask, gloves, goggles and cap	1.3%
Mask, gloves, goggles, cap and coat	13.8%
Not applied	3.5%
Total	100%

When asked about the specific use of each PPE at all times when they need to have contact with some type of organic material, 88.8% of professionals said to wear gloves; 38.8% mentioned the mask; 7.5% mentioned the goggles and 67.5% used the coat, confirming that there is a percentage not using even when exposed to contact with organic material.

On the frequency of use of each PPE, professionals assumed that they do not do it at all times they should, or never use some PPE such as goggles (73.8% never used) and cap (55% never used).

While the mask is used by 40% of professionals at all times when they should use

it, 35% use it in half the time and 2.5% of the subjects said they never wear the mask. The gloves are used every time by 78.8% of professionals and in half the time by 12.5%. The coat is used every time by 63.7%, half the time by 16.3% and 8.8% never used it.

When they said they do not use the PPE, this answer was justified for the reasons given in the following table:

Table 2. Justifications presented by nurses and nursing technicians who work in PHC, for not using PPE while performing procedures that are exposed to contact with organic material.

Reason	PPE			
	Mask	Gloves	Goggles	Coat
Not available in the unit	3.8%	0.0%	42.5%	2.5%
It is available, but there are many assistance to carry out; and the time to pick it up and use it may undermine the progress of other activities.	13.8%	1.3%	5%	1.3%
Hinders the performance of the procedure.	0.0%	1.3%	2.5%	1.3%
Not using it is due to oblivion, out of habit.	6.3%	6.3%	21.3%	13.8%

Comparing between the professions studied, they are almost equivalent percentage as the adherence in the use of PPE (Table 3). However, this equivalence is most aggravating considering that the number of procedures

performed by the nurses is significantly lower than by the nursing technicians.

In this sense, although adherence to the PPE by the nursing technicians is equivalent to the nurses, in percentage terms, it shows a

situation where those professionals are exposed to a greater risk for developing greater

quantitative procedures.

Table 3. Comparison of adherence in the use of PPE by nurses and nursing technicians who work in the PHC for each type of PPE while performing procedures that are exposed to contact with organic material.

PPE	Nurses		Nursing technician		P-Value
	Yes	No	Yes	No	
Mask	96.9%	3.1%	93.6%	6.4%	p= 0.517
Gloves	96.9%	3.1%	97.9%	2.1%	p= 0.782
Goggles	25%	75%	21.3%	78.7%	p= 0.699
Cap	46.9%	53.1%	36.2%	63.8%	p= 0.341
Coat	93.8%	6.2%	83%	17%	p= 0.158

Focusing in the use of PPE during the performance of routine procedures at UBSs such as the execution of dressing, it was found that while the gloves are used by all the professionals (96.3%), the goggles are used by only 7.5%. According to 48.8% of them, this PPE is not available in UBSs; the mask is used by 81.3% of professionals and the coat is used by 77.5%.

When asked about the use of gloves at all times when they need to perform parenterally medication administration, it was found that 61.3% of professionals use them and 7.5% said they do not use them because they hinder the procedure. Analyzing this data by professional category, it was identified that 37.5% of nurses and 12.8% of nursing technicians do not wear gloves during administration of medication (p <0.001).

DISCUSSION

Contact with organic material happens in different activities within the PHC. In the tests mentioned by the professionals, the risk of contact with the organic material can be described specifically for each situation. In the Neonatal Screening Test (newborn screening) there are risks due to the sharp object handling, enabling the contact with blood due to an unexpected reaction of the child, for example.⁶

While gathering material for sputum smear microscopy to diagnose tuberculosis, the patient can eliminate aerosols that remain in the environment for several hours.⁷ When carrying out the hemoglucotest (HGT) the patient may be frightened by the pain during fingerstick and the professional can be predispose to the risk of accident with the lancet used.⁶

The administration of medication is a common procedure in the PHC where nursing professionals are exposed to contamination. The parenteral route is one of the most used to administer both drugs and immunobiological; its use favors the risk of contamination evidenced by a sharp object handling, which enables contact with blood.⁸

The immunobiological administration in PHC is by oral route (vaccine against polio and rotavirus), by intradermal (BCG), subcutaneous (viral tetrahydro vaccine) and intramuscular (pentavalent vaccine against hepatitis B, tetanus, pneumococcal, meningococcal, influenza).⁹ Therefore, administration of vaccines is a procedure that requires use of PPE as much as for the administration of medication. When the professional perform them, they have contact with blood and secretions of the patient. There is an inherent risk to the nursing job in the PHC, which is also imminent when considering that the main form of transmission of hepatitis type B and C is the direct contact with contaminated blood.⁹

It is important to highlight that in the Vaccination Policy Manual of the Ministry of Health and Procedures Manual for Vaccination, there are guidelines regarding the care of BCG lyophilisate handling. However, there is no recommendation for routine use of PPE (glasses) during the preparation and application of this vaccine.¹⁰

While conducting healing or removal of stitches of surgical incision, there is the possibility of contact with not full skin, with blood and secretions potentially contaminated with viruses, bacteria or other microorganisms.¹¹ Thus, these procedures require the use of PPE in every moment of its realization; even when they have no injury or purulent bloody discharge.

The nursing consultation is carried out in the PHC and meets specific programs for each life cycle. Each assistance exposes professionals to different risks, for which the use of PPE is essential. Among the consultations, there were the monitoring of Children Growth and Development (C and D), where there is a risk of contact with feces, urine, vomit, blood or secretions of the umbilical stump when performing the child's physical examination. As well as in consultation with patients on TB treatment there is a possibility of contact with aerosols through talking, coughing, sneezing or during the collection of the first sample for smear, which is right at the time of the respiratory symptomatic identification.⁷

During the home care, the risks are also inherent as there are procedures performed such as removal of bladder or nasogastric tube. When providing palliative care for the elderly with respiratory infections and healing on infected wounds, they are activities that suggest the risk of accidents if the proper PPE is not used.

Processing of articles and hospital surfaces exposes the nursing professional to contact with organic material, whether it be performed in hospitals, clinics or PHC. Due to purge be considered a soiled area and for the cleaning of articles (tweezers, scissors, tubs, trays) used in various procedures, nursing professionals involved in the treatment of these materials are exposed to blood splatter, secretions and percutaneous injuries.¹²

Since the cleaning of items to the sterilization, the professional is exposed to contact with body fluids, which may be contaminated in brushing, rubbing and rinsing steps. Another possibility of exposure is handling articles contaminated without the correct use of PPE.¹³ All the situations mentioned above require the use of PPE, because the professionals are at risk of occupational accidents since the time they handle sharp instruments. Also, there is the exposure to organic material in patients who may be infected by viruses such as HIV and hepatitis viruses B and C.²

As to the reasons for not using the PPE during their professional activities, the following significant categories were produced: activities developed by the nursing team professionals that require the use of PPE and justifications for not using PPE. Some professionals have fear of using the mask for the care and cause some sort of embarrassment to patients; they claimed, wrongly that patients can assign a loathing behavior or discrimination by professionals.

It was found that professionals admitted to not using PPE when necessary citing a lack of habit or discomfort related to them. Therefore, acting to overlook the risks. These risks have been identified, for example, in drug administration by parenteral route where the professional does not use disposable gloves that prevents contamination and cross-infection.⁸

It was evident not using gloves in performing some procedures because according to the subjects, their use produced discomfort and decreased sensitivity to touch. At the same time, not using glasses was cited due the fog and obstruction of visibility while conducting activities. However, it is worth noting that not using the equipment when necessary, it may cause problems.¹⁴

When the professionals disregard the intermittent exposure for their work and, selectively judge situations where the PPE is necessary, they do not recognize the susceptibility to the risks they are exposed; there is a prior judgment that occupational exposure is routine and is under control by the professional.¹⁵

This situation was observed in procedures requiring the use of gloves and masks when hosting the patient, triage and administration of medication or parenteral vaccine. To acquire technical mastery over time they carry out these activities, many times the professionals dismiss the PPE and disregard their vulnerability exposing themselves to the risks of contamination.¹⁶

Most professionals when asked why they do not use the protective goggles cited the unavailability of PPE. Also to the coat, although it was available, they said that the quantity is not enough for continued use. According to the NR 32, PPE must be at worker's disposal in sufficient quantity in their workplace.³

It is noticed that there is already a culture of negligence regarding the use of PPE. Therefore, it is always presented an explanation to justify the exposure of the professional. It was found that the professional produces this thought. Studies that prove the embarrassment by patients on the use of PPE by professionals were not identified. If this embarrassment happens, it can and should be worked through health education; conversations between professionals and patients in the waiting room, becoming useful to clarify why the use and the importance of using PPE.

When professionals said they did not use the PPE due to lack of habit, discomfort, forgotten or simply do not like them, it is sure that there is a denial of the principles of biosafety; professional practice disregards the relationship with occupational exposure to which they are susceptible.

As this is a reality repeated in several UBS, it appears that there is not an effective investment at the local level to reverse this problem. Because of this neglect, the Ministry of Health (MOH) and the World Health Organization (WHO) launched the Patient Safety National Program (PNSP). Its guidelines are based on the need to avoid the occurrence of adverse events in health care. For this, they develop strategies, products and actions that support both professionals and patients and managers.¹⁷

This program emerges in a context where health care has been linked to numerous diseases that could be minimized through the

adoption of standard precautions, using PPE, measures for the prevention and control of infection.¹⁷ However, it is worth pointing out that these measures should be part, in a sectional way, of the vocational training in health. But, if there is a need for a program to strengthen its membership, it means there is a neglect of its execution.

It is evident that many professionals do not have the knowledge needed to measure the exposure and the risks to which they are susceptible. This becomes clear when some professionals responded not having contact with organic material in their daily work at the PHC. Denying that contact is wrong, since it is known that contact with organic material exists from the moment that professionals perform activities involving direct and indirect patient care at any level of care complexity.¹⁸ In other words, to touch them and handle them directly or through materials and surfaces used by them.

Directly or indirectly, contact with organic material happens either through invasive procedures, those that allow contact with mucous membranes and non-intact skin, or through speech, coughing or sneezing. The professionals had some justification for not using them, highlighting: by not considering necessary, because of the discomfort arising from their use, due to their availability, considering that the PPE hinders the execution of technical procedures and the fear to embarrass the patient.

Other identified reasons can be summarized in concern with the time required to get PPE. According to the interviewees, they could jeopardize the progress of other activities due to the large quantity of care. They mention simply to not like the PPE. Thus, it is verified that the use of PPE is neglected by nurses and nursing technicians who work in PHC. Therefore, these professionals are more exposed to the risk of accidents.¹⁹

Some professionals said to be unnecessary the use of PPE in certain activities such as the administration of drugs and biopharmaceuticals, which said that only handwashing would be enough. They also stated that during the course of healing, the mask is only needed when the wound presents; there are wrong concepts to justify an inadequate protection. Among the SP, hand washing and use of PPE are recommended in all procedures in health care.² However, it was observed that the use of PPE does not occur at all times when the professionals handle organic material.

Hand washing should be performed before and after any procedures because it is a measure of extreme importance in the

prevention and control of infections related to health care.²⁰

In the administration of drugs and biopharmaceuticals, as well as hand hygiene, it is also necessary to use gloves to protect both professionals and patients against crossed infections.⁸ Together with this, studies show that nationwide, most accident working with biological material that happen in UBS affect the hands and fingers. Therefore, professionals should be more attentive to the use of gloves.¹⁹

According to the NR 32, the use of PPE is required in all procedures developed at UBS and they should be made available by the employer.^{3,8} Thus, it is up to the professional to add their use and pay attention to the protection of patients and using PPE properly or requiring, if not available. It was noticed that due to routine work, these professionals end up neglecting and not using the PPE; often they consider their unnecessary use or ignore their purpose.

CONCLUSION

It was identified that contact with organic material is part of the routine work of nurses working in PHC to develop activities such as examinations, administration of drugs and biopharmaceuticals, dressings and removal of stitches, nursing visits, home visits and sterilization. Thus, it is necessary the use PPE in all these moments, however the identified analytical categories show that the PPE is not used at all times when they are needed. Some reasons given by the professionals were: avoid the embarrassment of the patient, the professional's negligence, by hindering the execution of techniques, choice of situations where it is believed there is a selective exposure or unavailability of PPE.

The data obtained for nurses when compared to those obtained for the nursing technicians, have shown an equivalence in the results in percentages. This equivalence reveals a greater risk to which the nursing technicians are submitted for the quantitative procedures that expose them to contact with organic material being higher as compared to those carried out by nurses.

Since nurses provide direct care to people possibly carriers and transmitters of some diseases due to the handling of sharps, bodily fluids and blood, the use of PPE at all times of their role is essential in the PHC.

The increase use of PPE is still neglected by nurses due to lack of awareness about existing occupational risks in the PHC and susceptibility to these risks for the profession.

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