



## Nurses' knowledge about work accidents

### Conhecimentos de enfermeiros sobre acidentes de trabalho

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**Objective:** to understand the knowledge of nurses about work accidents. **Methods:** qualitative research carried out with ten nurses working in Primary Health Care Services. Data collection was performed through recorded semi-structured interview. The speeches were transcribed and analyzed using the categorization technique. **Results:** two categories emerged in the participants' speeches: Knowledge about scope and concept of Work Accident; Knowledge about prevention and measures after exposure to biological material. Actions based on changes in the work process and in the qualification of the nursing professional become necessary for adequate and safe care. **Conclusion:** there was an incipient knowledge of the majority of the interviewees regarding some aspects of occupational health and the need for interventions capable of reducing the occurrence of these accidents.

**Descriptors:** Occupational Risks; Accident Prevention; Occupational Health; Occupational Health Nursing.

**Objetivo:** compreender o conhecimento de enfermeiros sobre acidentes de trabalho. **Métodos:** pesquisa qualitativa realizada com dez enfermeiros que trabalham em Unidades de Atenção Primária à Saúde, cuja coleta de dados se deu por entrevista semiestruturada gravada. As falas foram transcritas e analisadas por meio da técnica de categorização. **Resultados:** emergiram duas categorias nas falas dos participantes: Conhecimentos sobre a abrangência e conceito de Acidente de trabalho; Conhecimentos sobre prevenção e medidas pós-exposição a material biológico. Ações baseadas nas mudanças no processo de trabalho e na capacitação do profissional de enfermagem tornam-se necessárias para uma assistência adequada e segura. **Conclusão:** observou-se conhecimento incipiente da maioria dos entrevistados em relação a alguns aspectos da saúde do trabalhador e a necessidade de intervenções capazes de reduzir a ocorrência desses acidentes.

**Descritores:** Riscos Ocupacionais; Prevenção de Acidentes; Saúde do Trabalhador; Enfermagem Ocupacional.

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## Introduction

The latest Social Security Yearbook released showed that, in Brazil, 704 thousand work accidents were registered in 2014, in which 2,783 workers died and 13,833 were permanently disabled. In national terms, Ceará State is in the 12th place in the ranking; and in the Northeast region, Ceará occupies the third position, with 13,315 workers who had suffered work accidents in 2014, an average of 36 cases per day. Of the total, 60 workers died and 276 were permanently incapacitated for work<sup>(1)</sup>.

In the health field, nursing is often exposed to several risks in its work environment. Despite that, apparently, a large number of these risks go unnoticed by professionals. However, these have been objects of investigation regarding the deepening and identification of these hazards in the daily work of these workers, their related factors, consequences and forms of prevention.

In this sense, exposure to biological material constitutes a risk factor for the occurrence of work accidents. In fact, nursing is considered one of the most affected professions. However, the number of occupationally infected individuals in Brazil suggests there still has been low rate of reports. The nursing team develops its activity through health care, and a large part of its work day in direct contact with the patient. Prolonged exposure, physical exhaustion and insecurity are some of the occurrences that contribute to the professional becoming vulnerable to accidents at work<sup>(2)</sup>.

Due to the contact with blood and secretions, these professionals are susceptible to diseases and health problems. In this context, the nursing team must be attentive to the fulfillment of standard precautions, such as to the adequate use of personal and collective protection equipment.

The highest incidence of accidents occurring with the nursing team is related to cuts with sharp materials (60.7%), mainly due to the handling of ne-

edles and the use of scalpels<sup>(3)</sup>. In addition, disposing of sharps in unsuitable locations or in crowded containers, handling unprotected needles, disconnecting the needle from the syringe and re-capping needles are considered causes for such accidents<sup>(4-5)</sup>.

Professionals who deal with patients' health are often more concerned with the care provided to patients than with the risks inherent in performing their activities, and there is also the excess of self-confidence acquired through years of professional experience<sup>(6)</sup>. However, work accidents are sometimes ignored and not notified due to the lack of knowledge of the mandatory character of this procedure, due to the non-characterization of the episode as an accident and the fear of making the notification<sup>(7)</sup>.

Regarding this topic, the literature is mostly focused on hospital or emergency care. Nevertheless, in the context of Primary Health Care, professionals are also susceptible to occupational risks such as accidents with sharp material during venipuncture procedures, blood glucose test, medication administration, dressings and sutures, dental procedures, material disposal and administration of vaccines<sup>(8)</sup>.

Although many institutions have adopted standard precautions as measures to protect workers, researchers<sup>(3,5,7-8)</sup> have shown that exposure and infection continue to occur in a frequent manner among these professionals. In addition to this, there has been underreporting of accidents, so that the real dimension of the problem is not identified. This issue also needs to be investigated in Primary Health Care since work accidents are inherent to any level of care, and are not exclusive only to hospital institutions<sup>(9)</sup>.

Based on the above, the present research intends to provide subsidies for nursing professionals to understand the importance of notification and conducts after an accident at work, and for managers to be aware of the relevance of a permanent education targeted at these professionals.

Therefore, the aim of the study was to understand the knowledge of nurses about work accidents.

## Methods

This was a qualitative research carried out in the Primary Health Care Services of the municipality of Tamboril-CE, Brazil, in the first half of 2016. The municipality has eleven Primary Health Care Services, in which eleven nurses work. However, a nurse could not attend because she was on vacation during data collection. Thus, only ten nurses composed the list of subjects interviewed, since they met the criterion of inclusion of being in full work activity.

Semi-structured interviews were conducted through a questionnaire covering the following aspects: understanding of work accidents; situation of accident experienced at work; behaviors that must be taken; diseases to which nursing professionals are exposed in cases of work accidents; related vaccines; forms of prevention taken; guidance received on the subject. Professionals were also asked about their vaccination status.

The interviews were recorded in mp4 format (MPEG Layer 4) with the consent of participants, and they were performed individually at the health secretariat or at the health service where the interviewee worked (according to their preference), in a private room, which guaranteed privacy to the respondents. Interviews took place at times previously agreed upon with the participants.

In order to guarantee anonymity, the statements of the interviewees were numbered according to the order of participation in the research (example: Nurse 1, Nurse 2 ... Nurse 10). After the transcription of the speeches, authors sought to identify the outline structure and to organize groupings by themes. Thereafter, readings were taken in order to regroup and compile the possible titles of categories. Finally, condensation and the highlight of information (categories) emerged for analysis, resulting in inferential interpretations, which are defined by intuition, reflexive and critical analysis<sup>(10)</sup>.

The study complied with the formal requirements contained in the national and international

regulatory standards for research involving human beings.

## Results

Participating nurses had ages ranging from 25 to 34 years (n=10), with an average of 29 years. Most of the interviewees were single (n=7) and were from the city of Tamboril (n=8). As for the time since graduation, they had graduated from 2 to 11 years ago, with an average of 4.2 years since graduation. Regarding professional information, four had attended specialization postgraduate courses. As for the working hours, all worked 40 hours a week. As regards the employment relationship, four worked hired by the government.

After the analysis of the speeches, two categories emerge, namely: I. Knowledge about scope and concept of work accident and II. Knowledge about prevention and measures after exposure to biological material.

### Category I - Knowledge about scope and concept of work accident

The interviewed nurses evidenced that their concept of work accident is related to the loss or functional disability of the injured person, as shown in the lines: *For me, it is when an accident occurs during work at a company, causing bodily injury or functional disability* (Nurse 1). *Accident at work is when the professional/employee engages in an accident that causes both temporary and permanent damage to their health. This can be at the company or on the way to it* (Nurse 2).

The concept of work accident was also linked to situations of death: *I believe that it encompasses every accident that occurs in the exercise of its activities, causing death or functional disturbance that leads to reduction of the capacity to work* (Nurse 7). *It is related to any injury occurring in the work environment that may affect the worker's physical integrity and health* (Nurse 8).

In addition, participants associated work accidents with sporadic harmful events, and there were also professionals who related them to occupational

diseases, according to the statements: *The professional can acquire several diseases such as Repetitive Strain Injury, mental illnesses related to stress and infectious diseases (Human Immunodeficiency Virus - HIV, Syphilis, among others)* (Nurse 8). *Professionals are exposed to communicable diseases, namely HIV, syphilis, hepatitis B and C as well. Not to mention that they are also prone to ergonomic diseases and psychological problems* (Nurse 10).

## Category II - Knowledge about prevention and measures after exposure to biological material

When questioned about preventive measures, respondents answered positively about their behaviors, such as the use of Personal Protection Equipment and immunization. *I always try to use personal protective equipment and I try not to re-cap contaminated needles* (Nurse 1). *I often wash hands, use personal protective equipment, protect myself against sharp objects, and seek to keep my immunization schedule updated* (Nurse 2).

For some nurses, prevention was linked to permanent education in their workplace. *I try to do the procedures in the proper way and use personal protective equipment. I also pay attention to the nursing technicians, supervising and advising them on the care they must take to avoid any accidents. At this point, health education must be valued* (Nurse 9).

Although permanent education was mentioned, only two interviewees reported receiving some kind of orientation or qualification in the work environment: *I have not received any guidance at the workplace regarding care. My knowledge comes from college and refreshing courses that I always seek to attend* (Nurse 10). *They advised on attention when dealing with sharps and the importance of notification* (Nurse 2).

Finally, notification was cited by only three nurses. *Notification is of fundamental importance because through it the accident will be evaluated and the appropriate conducts will be drawn* (Nurse 2).

Regarding the measures to be taken against possible exposure to biological material, the following reports arose: *Regardless of the type of accident, the person should seek medical care immediately, so that the appropriate measures are taken* (Nurse 1). *Washing the area affected, notifying, seeking care and undergoing exams* (Nurse 3).

Only one interviewee mentioned chemoprophylaxis as one of these post-exposure measures: *It must be provided care to the exposed area, serology for the source-patient, referral for chemoprophylaxis, if necessary, and recording of the work accident* (Nurse 7).

## Discussion

This study presents as a limitation the impossibility of checking on the vaccination card of the professionals interviewed, relying only on their self-report. In addition, the results found should not be generalized due to the specificity of the analyzed context and the restricted universe, since it is a qualitative research that, despite the small sample size, allows a greater depth in its results<sup>(11)</sup>.

Adopting approaches that can implement interventions capable of increasing the knowledge of nursing professionals about work accidents, preventive measures and behaviors to be taken in these situations is recommended.

In this context, the identification of knowledge of nurses aims at obtaining information that can contribute to evaluate their conceptions about the risks of work accidents, seeking to highlight the importance of planning strategies for prevention and clarification among professionals about this subject, with the aim of reducing the incidence of work accidents to which these professionals are exposed.

Participants associated work accidents with sporadic harmful events, and some mentioned occupational diseases. However, work accidents differ from occupational diseases due to the fact that the latter occurs due to the workers' routine exposure to harmful agents present in the scope of work and stand out because of inadequate working environment, whereas work accidents are unforeseeable, but preventable, events.

None of the nurses reported having suffered an accident at work, nor had they reported any work-related accident in the municipality, evidencing the possibility of underreporting. This fact may also re-

flect the adherence of these professionals to standard precautionary measures, since, when asked about what they used to do to avoid suffering any type of accident, all interviewees reported the frequent use of personal protective equipment and disposal of sharp material at a suitable location. However, none of the interviewed nurses mentioned the use of alcohol gels at 70.0% for antiseptics of the hands as a post-exposure measure, and this practice should be routine regardless of the occurrence of a work-related accident or with a sharp device.

In this sense, risks are mainly related to the degree of exposure, and the use of personal protective equipment in order to protect both the professional and the patient is of utmost importance<sup>(12)</sup>. The role of continuing education in the awareness of professionals about the need to protect themselves is also highlighted.

In addition, knowledge becomes an important ally in the prevention of work accidents as well as in the proper conduct of the professional after an accident. A study carried out with 1,215 nursing professionals found that 52.3% stated that they had undergone occupational exposure to biological material during the course of their work in the institution. Most of the injured professionals who sought the specialized service (84.1%) reported that they had received specific training on the prevention of accidents with biological material and on the use of standard precautions. Also, the demand for specialized care was higher among professionals who reported having received more than 10 trainings (100.0%)<sup>(13)</sup>.

Research carried out in four Family Health Services with 12 nursing professionals verified the report of existence of several risks among them, demonstrating that these professionals had the necessary knowledge about the risks they are exposed and were able to point out changes in order to reduce the incidence of this exposure<sup>(14)</sup>.

Attention should be paid to exposure to biolo-

gical hazards due to the seriousness of accidents that can be caused by biological material and due to the high rate of pathogenicity acquired by the worker<sup>(10)</sup>. Inappropriate work conditions can be considered as causes for accidents, such as poor lighting, inadequate staff dimensioning, lack of safe and quality materials, physical and mental fatigue, night work, psychological stress and the professional's working time, as they tend to feel more confident, and to neglect of the use of personal protective equipment<sup>(5)</sup>.

Therefore, preventive and educational actions are extremely important to reduce the incidence of accidents with biological materials and to improve post-exposure behavior. Isolated care is considered to be ineffective. Thus, the nursing team needs to be motivated to implement such care as a work routine, aiming at their personal protection as well as the safety of their patient/client<sup>(15)</sup>.

In addition, the provision of information by the employer institution contributes to the development of a permanent education among professionals. Some interviewees indicated gaps in the training process or continuing/permanent education, since they did not receive information so they could establish the relationship between caring and educating. Their knowledge originated from their initiative, exclusively, through courses and readings or from graduation.

It should be emphasized that the health professional's performance scenarios are very diverse and in constant modifications and updates. In addition to involving emotional intelligence and interpersonal relationships in their routine, there is need of something beyond graduation, which will make professionals always able to work in a way to ensure their safety, as well as users' safety<sup>(16)</sup>.

Thus, it is the managers' responsibility not only to hire health professionals, but also to train them so that they know how to prevent work-related accidents and the services' flowcharts in relation to behaviors that should be taken if a accident occurs.

In this sense, Regulatory Norm 32 recommends that health institutions should implement actions to promote, protect and recover the health of workers working in all activities aimed at providing health care<sup>(17)</sup>.

The lack of knowledge of the majority of respondents about the relevance of notification to the service was evidenced. Although work accidents can be experienced by several professionals and, in some cases, they achieve the due visibility, in other cases they may go unnoticed, as there is an evident underreporting of these accidents among health workers. In this respect, Brazilian data on work-related accidents with sharps are considered insufficient, especially due to the underreporting and lack of follow-up of the injured professional<sup>(5)</sup>.

Therefore, an exposure can only be evaluated if its notification occurs and if the serological follow-up recommended by the Ministry of Health is carried out<sup>(18)</sup>. These types of accidents should be evaluated immediately after the occurrence, using conducts that differ according to each type of virus<sup>(19)</sup>.

Professionals must have their vaccine situation updated, especially in relation to Hepatitis B vaccine, since it is considered to be extremely safe and effective (90 to 95.0% of vaccine response in immunocompetent adults). Regarding Hepatitis C virus, studies are currently underway, so the only measure to eliminate the risk of infection with the Hepatitis C virus is by preventing the occurrence of the accident<sup>(20)</sup>.

Prophylaxis regarding the transmission of HIV virus is complex and should be recommended to the healthcare professional that has been exposed to a significant risk of HIV infection. Faced with this reality, estimates show that the risk of acquiring the HIV virus after accidents with sharp material involving a patient that is positive source for the virus is 0.3% to 0.5%. In relation to hepatitis B virus infection, the risk of occupational transmission after a work-related accident, specifically with sharp material, may reach up to 62.0% in situations in which the source-patient has

reactive HBeAg serology. For hepatitis C, the estimate is around 1 to 10.0%<sup>(4)</sup>.

In view of the above, the first conduct after exposure to biological material should be exhaustive washing of the affected area, followed by the evaluation of the source-patient and the injured person regarding possible infections, conduction of serological tests, notification and, if necessary, chemoprophylaxis<sup>(18)</sup>.

Given the magnitude of the occurrence of accidents, vaccination contributes as one of the forms of prevention for possible health problems to the worker. In this aspect, all the interviewees in the present analysis reported that they had their vaccination schedule updated, but there was no information on the evaluation of the vaccine response, which does not rule out the possibility of a lower percentage of immunoprotection. Thus, this brings the need of the Anti HBs test for verification of vaccine response. Many practitioners, although vaccinated, may not be protected against Hepatitis B virus infection, probably because they did not complete the vaccination schedule or because they did not have an adequate vaccine response.

Work accident is often one of the most visible signs of worker's wear. The health professional, specifically the nurse, is constantly exposed to several risks in their work environment. Exhaustive workload, physical and mental exhaustion and the lack of permanent education are some of the best known factors for the occurrence of these types of accidents. In addition, precarious infrastructure and lack of preparation and knowledge are triggers of many of these accidental occurrences.

## Conclusion

The interviewees related the concept of work accident to the loss or functional reduction of the injured person, as well as to death and occupational diseases. In addition, they have associated the use of

Personal Protection Equipment, immunization and permanent education as preventive measures for work accidents. Regarding the measures taken after exposure to biological material, the behaviors mentioned by interviewees consisted of notification, search for medical care, care actions to the exposed area, performance of tests and chemoprophylaxis. Undoubtedly, actions such as serological follow-up, training on occupational health on the risks, prevention and notification of these diseases are capable of favoring a considerable reduction in the rates of work accidents.

## Collaborations

Oliveira BSB and Oliveira RKL contributed to the design, analysis and interpretation of data. Melo FMS and Bezerra JC contributed to the writing and relevant critical review of the intellectual content. Silva MJN and Joventino ES contributed to the final approval of the version to be published.

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