Original Article

Occupational accidents among nursing professionals in a home care service in the state of São Paulo

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ABSTRACT

This is a cross-sectional study whose objective is to identify and describe accidents with biological material as told by nursing professionals in a home care service in a city in the state of São Paulo. Of the 30 subjects who provided that service in the data collection period, 28 agreed to participate and 12 (42.8%) claimed to have suffered at least one accident with biological material while carrying out professional procedures for that service. Most of the exposures were percutaneous (91.7%) and blood was the most often involved fluid (75%). Regarding procedures, 75% of the individuals were administering drugs when the accident happened and 50% admitted that they were recapping hollow needles. The current study enabled the identification of situations described by the professionals and which led to the occurrence of accidents with biological material during home care. These findings can support preventive measures and guide future studies that involve this type of accident at homes.

Descriptors: Exposure to Biological Agents; Nursing, Team; Home Care Services; Accidents, Occupational.

INTRODUCTION

The work environment in the healthcare area holds various risks to the professionals who work within them and the nursing team is the most vulnerable to biological risks.(1) The greatest risks of epidemiological relevance are the human immunodeficiency virus (HIV), the hepatitis B virus, (HBV) and the

hepatitis C virus (HCV)[2].

Nursing professionals hold the highest rates of seroconversion to HIV[3] and, although the occupational transmission of HBV has been described for a number of years[4], it was after the first record of occupational transmission of HIV[5]to which greater emphasis was given to this mode of transmission.

Most studies of occupational accidents involving biological material have been conducted in hospitals[6-7]. However, with new healthcare demands from the population, other types of care such as home care service (HCS) have been gaining ground in Brazil and in various countries worldwide. Decree nº 963 of May 27 2013 establishes it as a replacement or complementary service to hospitalization or outpatient treatment. The decree oversees the management and operationalization of home care multiprofessional teams (HCMT) and home care multiprofessional support (HCMS). It understands three modalities in the scope of the SUS. Modality AD1 is carried out by the professionals of primary care for patients who present controlled problems of health, with some difficulty or physical impossibility of locomotion until a UBS, and that need care of lesser intensity, with fewer visits and minor necessity of health resources. In modality AD2 and AD3, the visits are carried through by the specific teams of the HCS and/or the HCMT, a time that, the taking care of patients who possess problems of health of greater gravity and need high frequency of care and continuous accompaniment by the professionals of the healthcare area[8].

Thus, home care occurs because the domiciliary visitation of chronic patients, until the domiciliary establishment of a healthcare apparatus of great complexity of care as in hospitalization to domiciles[8].

Other forms of care also integrate the attendance of the hospital environment, as giving palliative care to patients in the terminal phase, with the objective to alleviate suffering and to promote a better quality of life[9]. The Home Care Service is responsible for the management and operationalization of HCMT and HCMS, that includes in the attendance modality type the two users with necessity of palliative care[8].

Infection control of the hospital environment still is incipient. In addition studies that evaluate the work conditions and the occurrence of accidents with biological materials among nursing professionals who act in the area of home care in Brazil are scarce[10]. The objective is to identify and describe accidents with biological material as told by nursing professionals at a particular home care service provider in the state of São Paulo.

METHODOLOGY

This is a cross-sectional study conducted with professionals who worked at the Municipal Health Department's HCS in the city of Ribeirão Preto, state of São Paulo. The eligible population at the moment of the collection of data was 30 nursing professionals who comprised the team coordinating and district teams of the HCS of 23 UBS of the city of Ribeirão Preto. The second list was supplied for the City Department of Health and were comprised of 28 individuals during a time when two professionals had refused to participate.

The data were collected from May 1 to November 1, 2014, when all of the eligible professionals had been approached and invited to participate in the study. It was necessary to return to the unit three times

until all of the professionals were invited. For the collection of data, a structured interview script that comprised open and closed questions was used. Previously, it had been submitted to the appreciation of seven experts (pre-test), who were asked to evaluate the clarity and relevance of the questions and was considered adequate for reaching the established objectives. The first part comprised sociodemographic and professional data, and the second part included data concerning accidents with biological material. After the consent by the HCS center coordinator and by the nurses responsible for each health unit, professionals were addressed near the end of their work day. The interviews were conducted individually by the researcher and one research assistant who had been duly trained to conduct interviews, in a private room, for a period between seven and 15 minutes.

The data were entered in an Excel for Windows 2003 spread sheet. After the correction of typos, it was transferred to the Statistical Package for the Social Science (SPSS), version 17.0 for Windows program, where the final database was structured. The analysis of the data was made by means of descriptive statistics.

Permission by the HCS and by the Municipal Health Department was issued for the conduction of the study. It was approved by the Ribeirão Preto College of Nursing's Research Ethics Committee under CAAE protocol nº 19461013.2.0000.5393/2014. The professionals who accepted to participate in this research signed a Free and Informed Consent Form.

RESULTS

Of the 28 interviewed subjects, 12 (42.8%) said they had had accidents with biological material in homes. Most of the professionals that suffered occupational accidents were female (83.3%), nursing aides (50.0%), had a university degree (75%), had received training on preventing accidents with biological material (83.3%), and had more than 20 years of professional experience (66.7%). Finally, 33.3% had been working in the HCS for less than five years (Table 1). All of the professionals said that they had received the three doses of the vaccine for hepatitis B.

Most of the exposures were percutaneous (91.7%), and the fluid most often involved was blood (75%). Half of the individuals said they had been exposed more than once in the previous five years (Table 2).

Table 1: Distribution of nursing professionals of a Home Care Service according to exposure to biological materials and variables of this study. Ribeirão Preto, São Paulo, Brazil, 2014.

Variables	Exposure to biological material					
	Yes (N=12)		No (N=16)		Total (N=28)	
	N	%	N	%	N	%
Sex						
Female	10	83.3	12	75	22	78.6
Male	02	16.7	04	25	06	21.4
Age (years)						
20 |—| 29	01	8.4	00	00.0	01	3.6
30 |—| 39	02	16.6	02	12.5	04	14.3
40 |—| 49	02	16.6	05	31.2	07	25.0
≥50	07	58.4	09	56.3	16	57.1
Schooling (years)						
≤11	03	25.0	10	62.5	13	46.4
>11	09	75.0	06	37.5	15	53.6
Job						
Nurse	05	41.7	03	18.7	08	28.6
Nursing specialist	01	8.3	02	12.5	03	10.7
Nursing aide	06	50.0	11	68.8	17	60.7
Training						
Yes	10	83.3	14	87.5	24	85.7
No	02	16.7	02	12.5	04	14.3
Experience in Nursing(years)						
≤05	00	00.0	00	00.0	00	00.0
06 |—| 10	25.0	02	12.5	05	03	14.3
11 |—| 20	01	8.3	03	18.7	04	14.3
>20	08	66.7	11	68.8	19	71.4
Experience at HCS (years)						
≤05	04	33.3	09	56.3	13	46.4
06 |—| 10	03	25.0	00	00.0	03	10.7
11 |—| 20	04	33.3	07	43.7	11	39.3
>20	01	8.4	00	00.0	01	3.6
Yes	12	100.0	16	100.0	28	100.0

Table 2: Distribution of nursing professionals of a Home Care Service who suffered occupational accidents with biological material according to accidents' characteristics. Ribeirão Preto, São Paulo, Brazil, 2014.

Variables	N	%
Type of exposure		
Percutaneous	11	91.7
Cutaneous/mucosa	01	8.3
Cutaneous	00	00
Fluid involved in the exposure		
Blood	09	75.0
Another body fluid with blood	01	8.3
Another body fluid without blood	02	16.7
Number of exposures		
01	06	50.0
02 |—| 05	06	50.0
Time of the last exposure (years)		
< 01	04	33.3
01 |—| 05	04	33.3
06 |—| 10	03	25.0
>10	01	8.4

Regarding the procedure, most of the professionals were administering medicines at the moment of the accident (75%) and the most common cause was needle recap (50%). It is important to emphasize that there was a single accident with exposure of the mucous membrane of the eyes and nasal mucosa to the wound exudate during the performance of the dressing. The professional claimed he was not wearing protective eyeglasses and a mask (Table 3).

Table 3: Distribution of nursing professionals of a Home Care Service who suffered occupational accidents with biological material according to procedure, cause of accident, and object. Ribeirão Preto, São Paulo, Brazil, 2014.

Variables	N	%
Procedure		
Drug administration	09	75.0
Blood collection	01	8.3
Vein puncture	01	8.3
Dressing	01	8.3
Cause of accident		
Needle recap	06	50.0
During needle discard	02	16.7
Disconnecting needle from blood collection device	02	16.7
Patient's sudden movement	01	8.3
Did not use protection eyeglasses	01	8.3

DISCUSSION

The occurrence of occupational accidents with biological material can vary considerably according to health institution type, sector, clientele seen, and country where the study was conducted. A study conducted in a teaching hospital in the state of São Paulo found that 52.5% of the interviewed professionals had claimed to have had accidents with biological materials at their professional activities[7]. A study conducted at a university hospital in Nigeria showed the accident rate was 70.7%[11] and research conducted with nurses of surgical centers at 247 hospitals in Thailand showed that the percutaneous accident rate was 23.7%[12].

Home care is a new type of health care and it uses hard technology in a scenario that differs from that of hospitals; therefore, accidents with biological material occurring in this site have been little explored in scientific research in terms of their biosafety.

In the current study, of the 28 interviewed individuals, 12 (42.8%) claimed they had suffered at least one accident with biological material when performing their HCS activities. Different results were seen in research conducted with nurses that performed home care services in the United States, whose rate was 14%. However, it is important to highlight that the interviewees said they had suffered at least one percutaneous accident in the past three years[13]. This difference can be explained once this study questioned professionals about the occurrence of accidents throughout their professional experience, not exclusively in the past three years.

Most of the professionals who had an occupational accident were female (83.3%). According to data from the Brazilian Federal Nursing Council, 90% of the nursing team members in Brazil are women[14]. The

accidents were more frequent among nurses (5/8), that is, 62.5% when compared to nursing aides (6/17), which totaled 35.2%. A recent study conducted with professionals in pre-hospital care found that most of the accidents also occurred with nurses (28.7%)[15]. The authors of this study highlight that the activities required for health care in some sectors are exclusively performed by professional nurses. This might clarify the higher rate of accidents among these professionals. Another factor that may influence the accident rate in the different professional categories refers to the number of members of each category in the teams assessed.

Most of the professionals in this study said they had received training on preventing accidents with biological material (83.3%). Nonetheless, this variable must be carefully analyzed because the authors claim that informative training alone is not enough to ensure the adoption of safety measures in the work environment and suggest that collective discussion may help identify professionals' difficulties and increase their perception concerning the benefit of adopting safer measures[16]. Research conducted in the state of Minas Gerais concluded that the fact that workers have knowledge of standard precautions and occupational control of infection and risks was not enough to diminish the occurrence of occupational accidents[17]. However, a study conducted in Italy that assessed the safety environment of 33 dialysis clinics showed that training and regular communication with the healthcare professionals enhanced the safety environment perception[18].

Considering that the occurrence of occupational accidents with biological material is not exclusively related to individual factors, aspects concerned with behavioral change must be focused on training courses to stimulate the self-health promotion and consequently change the accident scenario, as well as the knowledge of the working conditions in each scenario of care.

In this study, most of the exposures were percutaneous (91.7%) and blood was the fluid most often involved (75%). A study of the occurrence of industrial accidents with professionals who worked at public healthcare units in the city of Ribeirão Preto, state of São Paulo found that, of the 155 reported accidents, 40% had involved biological material and 72.5% had occurred with nursing professionals. It is worth highlighting that, in 82.3% of the accidents, the biological material involved was blood[1].

The most frequent cause of occupational accidents at homes was needle recap (50.0%). Data from the Reporting System of the Municipal DST/AIDS Program in the city of Rio de Janeiro, updated in October 2008, pointed out that the inadequate discard of sharps and needle recaps were the main causes of occupational accidents with biological material[19].

A study conducted with nursing professionals who worked at home care services in Belgium showed that most of the accidents occurred when using insulin pens, followed by needles for subcutaneous injections, and lancets for checking capillary blood glucose. The accidents occurred as a result of needle recap and with needles left in inappropriate places such as tables and beds[20].

Regarding the procedure that the professional was performing at the moment of the accident, the most frequent was medicine administration (75%). Research that followed 159 visits to homes in the state

of São Paulo identified that, of the 347 observed procedures, the most common ones were dressings (31.1%), capillary blood glucose check (14.4%), and vascular access (3.1%). It is necessary to conduct additional studies in the future to observe the visits to domiciles, so that the risk situations for the occurrence of this type of accident can be assessed and compared with similar data from other cities and/or countries[21].

One piece of data that must be highlighted is the occurrence of one single accident when performing a dressing, when blood exudate splashed in the eye of a professional who did not wear protective eyeglasses and a mask, that is, an accident that could have been totally prevented through the use of personal protection equipment. This type of procedure has been one of the most common in homes[22].

PPE use offers protection to health care professionals; however, their compliance to this practice is still low. In 2003, a case was published of a nurse who acquired HIV and VHC upon contact of her hand, which had excoriations and fissures, with fluids without visible blood such as urine, feces, and vomit of a terminal AIDS patient during home care[23]. Therefore, it is pressing to assess how the distribution of PPE occurs in this context, in addition to professionals' adhesion in an environment where supervision is often not made.

As a limitation of this study, the authors point out the fact that the data were collected from interviews and are subject to memory biases. Additional research must be made in the future to assess the risk situations the professionals are exposed to during visits to homes, outside a hospital environment that is planned and organized for providing healthcare.

CONCLUSION

This study concludes that 42.8% of nursing professionals who worked in a HCS in the state of São Paulo said they had suffered accidents with biological material when performing their activities at homes. The accidents happened mainly during medicine administration because of the recapping of hollow needles, in addition to one accident caused by the lack of PPE use. The authors highlight that the risks in home care are similar to those at hospitals, once the procedures are the same. However, some difficulties still prevail at homes such as the very space for care giving, lighting, and availability of material resources. Nonetheless, the measures adjusted for domiciles are still scarce. Thus, the current study enabled the identification of situations described by the professionals and which led to the occurrence of accidents with biological material during home care. These findings can support preventive measures and guide future studies once the data on this type of accident in homes are less scarce.

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