Rev. Latino-Am. Enfermagem
2012 Mar.-Apr.;20(2):217-25
www.eerp.usp.br/rlae

Original Article

Accidents at work and its impact on a hospital in Northern Portugal

Matilde Delmina da Silva Martins[1]
Norberto Anibal Pires da Silva[2]
Teresa Isaltina Gomes Correia[3]

In order to describe accidents at work at a hospital in Northern Portugal and analyze their main impact in the period from 2008 to 2010, we conducted a retrospective cross-sectional study. The information was obtained from the notification records of accidents at work for 387 workers. The highest prevalence levels of accidents referred to superior health technician (56.1%), female workers (81.9%), in the age group 30-39 years (37.2%), with a secondary education degree (55.8%), working in shifts (72.4%) and in-patient services (35.9%). Needle pricks were the main cause (45.7%) and hands were the main injury location (37.5%). Wounds (32.6%) were the most frequent type of injury, followed by sprains and strains (23%). In total, 27.4% resulted in absence from work, with sprains and strains as the main reason. Preventive strategies should be adopted, aiming to promote these workers' health.

Descriptors: Accidents Occupational; Occupational Health; Occupational Risks.

[1] Doctoral student, Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Portugal. Collaborating, Centro de Investigação em Desporto, Saúde e Desenvolvimento Humano, Universidade de Trás-os-Montes e Alto Douro, Portugal. Assitant Professor, Escola Superior de Saúde, Instituto Politécnico de Bragança, Portugal.

[2] MSc, Serviço de Hemodiálise, Centro Hospitalar do Nordeste, Unidade de Bragança, Portugal.

[3] PhD, Centro de Investigação em Desporto Saúde e Desenvolvimento Humano, Universidade de Trás-os-Montes e Alto Douro, Portugal. Coordinator Professor, Escola Superior de Saúde, Instituto Politécnico de Bragança, Portugal.

Corresponding Author:
Matilde Delmina da Silva Martins
Instituto Politécnico de Bragança. Escola Superior de Saúde
Departamento de Ciências de Enfermagem
Avenida Afonso V, 5300. 121
Bragança, Portugal
E-mail: matildemartins@ipb.pt

Acidentes de trabalho e suas repercussões num hospital ao Norte de Portugal

Com o objetivo de descrever os acidentes de trabalho num hospital ao Norte de Portugal e analisar as suas principais repercussões, no período de 2008 a 2010, realizou-se este estudo transversal retrospectivo. A informação foi obtida recorrendo-se ao registro de notificação dos acidentes de trabalho, referentes a 387 trabalhadores. A maior prevalência de acidentes recaiu nos técnicos superiores de saúde (56,1%), em trabalhadores do gênero feminino (81,9%), no grupo etário entre 30 e 39 anos (37,2%), com escolaridade superior ao 12º ano (55,8%), trabalhando por turnos (72,4%) e nos serviços de internamento (35,9%). A principal causa de acidentes foi a picada de agulha (45,7%) e a lesão mais prevalente verificou-se nos membros superiores (43,2%). As feridas representaram o tipo de lesão mais frequente (32,6%), resultando em ausência ao trabalho (27,4%), sendo as entorses/distensões o principal motivo. Estratégias preventivas devem ser adotadas objetivando a promoção da saúde desses profissionais.

Descritores: Acidentes de Trabalho; Saúde do Trabalhador; Risco Ocupacional.

Accidentes de trabajo y su impacto en un hospital en el norte de Portugal

Para describir los accidentes de trabajo en un hospital del norte de Portugal y analizar su impacto principal en período 2008 a 2010, se realizó un estudio retrospectivo de corte transversal. La información se obtuvo mediante la notificación de registro de accidentes de trabajo de 387 trabajadores. La mayor prevalencia de accidentes cayó en los técnicos superiores de salud (56,1%), en el sexo femenino (81,9%), con edad 30-39 años (37,2%), con la educación superior a los 12 años (55,8%), trabajando en turnos (72,4%) y servicios de hospitalización (35,9%). La causa principal fue el pinchazo de aguja (45,7%) y la lesión se produjo principalmente en las manos (37,5%). Las heridas (32,6%) fueran el tipo más frecuente de lesión. Dieron lugar a la ausencia del trabajo 27,4%, con esguinces y distensiones la principal razón. Las estrategias preventivas deben ser adoptadas con miras a la promoción de la salud de los profesionales.

Descriptores: Accidentes de Trabajo; Salud Laboral; Riesgos Laborales.

Introduction

According to Portuguese legislation, occupational accidents are considered as "accidents verified in the workplace and during work time, which directly or indirectly produce body injuries, functional problems or illnesses that reduce work performance or income gaining abilities or result in death". This law also covers some extensions of this concept, also considering certain accidents that occur beyond the workplace or time and on the road to or from work (*in itinere* accident) as occupational accidents[1].

In the global contexts, occupational accidents represent a source of concern for governments and organizations, due to the economic and social implications they entail. About 2.2 million people die every year around the world due to occupational accidents and professional illnesses, with 5700 mortal accidents in Europa and 370 in Portugal[2-4]. The most recent statistics appoint a drop in occupational accidents in Europe, but Portugal still displays very high occupational accident rates, with risk levels of 5.5% in 2002[5]. Work conditions and the type of job activity represent two determining factors of occupational health and are associated with the main cause of occupational accidents[6].

A large number of risks characterize the hospital environment, ranging from physical to chemical, biological, psychological and ergonomic risks, which are enhanced and affect workers' physical health and integrity and expose them to greater occupational accident and professional illness risks[7-9]. Hospitals are peculiar "*companies*", conceived in function of users' needs, with very particular technical and organizational systems that offer their workers, whether these are health technicians or not, often precarious work conditions, frequently worse than in many other activity sectors[5]. Health workers are in permanent contact with pain, suffering and death. This situation, associated with the complexity of certain technical actions, the responsibility level and speed inherent in some decisions, work regimen, frequent need to mobilize heavy patients and equipment, deficient quality of many installations and equipment, precarious bonds at work, the pressure and demands work entails and competitive relations in the work environment, represent a permanent aggression to these workers' mental and physical health, exposing them to accidents more frequently[8,10-12].

The Portuguese National Health System (NHS) employs more than 130 thousand professionals, who are obviously subject to the earlier mentioned risks[9-10,13]. While accident levels dropped in industrial sectors, in the health area, an increase occurred in Portugal, exceeding mean rates for the European Union by 34%[14]. The most recent data published in Portugal about occupational accidents at health institutions, between 1997 and 2007, point towards a 12% rise in incidence rates[15].

In Portugal, there is little or no epidemiological research on occupational accidents in hospitals that permit better and actual knowledge on work conditions and the consequences these can entail in public health terms. Therefore, it seems fundamental to get to know the conditions in which occupational accidents take place in Portuguese hospitals, in different professional groups and determining circumstances, so as to produce evidence that permits safe interventions in the different variables, promoting health and preventing illnesses at work.

The goal of this study was to describe occupational accidents notified at a central public hospital in Northern Portugal between 2008 and 2010 and to analyze their main repercussions.

Method

This retrospective and cross-sectional epidemiological research covered the period from January 1st 2008 till December 31st 2010. It was developed at a central public hospital in the Metropolitan region of Porto, Northern Portugal, involving 2084 workers in 2008, 2226 in 2009 and 2300 in 2010, distributed across different sectors and functions. As the place of study is a central hospital, services are offered in different health specialty areas.

The study sample comprised 387 workers who were victims of accidents and notified the human resource service during the study period.

The accident incident level was calculated based on the number of occupational accidents per year and the total population of workers for each year under analysis. Thus: Incidence Level = (No. of Accidents year/Total workers year) X 100. In this study, accident with absence from work was considered as any accident that resulted in the worker's absence, due to the occupational accident, for one day or more.

Information was obtained from the occupational accident notification records, through an anonymous survey of the General Human Resource Board in Health, comprising three groups of closed questions. The first refers to the victim's characteristics (age, gender, degree, professional category, work experience, job contract and work shift), the second to accident characteristics (place, injuring agent, location, day, month, time, number of hours worked at the moment of the accident, day of the accident towards the most recent weekly rest day, first-aid delivery and action that led to the injury) and the third to the accident's consequences (injury type, body part injured, disability provoked, absence from work and number of days lost).

The study was previously submitted for approval and authorization from the Board of Administrators at the study hospital, under protocol number 0695/11, whose response is based on the opinions of the respective ethics committee and different hierarchical levels at the institution, including the opinion of the human resource service and the occupational health service directors. In addition, all data that were consulted and treated were provided anonymously, following all legally established procedures in this situation[16].

Information collection was previously scheduled and performed by one of the researchers at the institution's

occupational health service, between 9 a.m. and 5 p.m., on workdays, in April 2011.

Data were coded, inserted and analyzed in an SPSS® (Statistical Package for Social Sciences) version 18.0 for Windows database, so as to guarantee secrecy. To characterize the sample, descriptive statistics was used, including absolute and relative frequency calculations. The Kolmogorov-Smirnov test was applied to check the normality of variables. As the variables followed a normal distribution, parametric tests were used. Pearson's correlation served to analyze the association between accidents with absence from work and different variables. To compare proportions, bivariate analysis was applied through the Chi-Square test or Fisher's Exact test, so as to describe the relation between two variables. ANOVA I was used for multiple comparison of means. Significance was set at 0.05.

Results

During the study period, in total, 387 job accidents were notified, which corresponds to a mean incidence level of 5.9% in the three-year period. The distribution across the three years in absolute figures and in incidence levels was as follows: 122 (5.8%) in 2008, 135 (6.1%) in 2009 and 130 (5.6%) in 2010. Concerning the 106 (27.5%) accidents that resulted in absence from work across the three years, a 3% increase was found (7.3% in 2008 and 10.7% in 2010). The number of days lost decreased by 313 (1428 in 2008 and 1115 in 2010).

Concerning the accident victims' characteristics, 87.5% were fixed staff members. Among Superior Health Technicians (SHT), nurses were responsible for 48.3% of the accidents, followed by Medical Auxiliaries (MA) 39%, female workers (81.9%), more than 12 years of education (55.8%) and less than 9 years of education (34%). Shift work corresponded to 72.4% of the accidents, with higher prevalence rates in the morning shift (51.9%). Significant differences were found in the proportion of accidents with absence from work according to professional group, degree, work time and age group (Table 1).

Table 1 - Distribution of accident victims according to accidents without and with absence from work, number of days lost in accidents with absence from work, professional group, degree, work shift and age group in years, at a hospital in the region of Porto, Portugal, 2008-2010 (N=387)

Variables	Accidents without absence from work		Accidents with absence from work			Total accidents		*Chi-square*
	N	%	N	%	No. days	N	%	
Professional Group								
SHT	180	46.6	37	9.6	1253	217	56.1	$X^2_{(2)}$=29.2 PPp=0.000
Adm./others	14	3.6	5	1.3	256	19	4.9	
MA	87	22.5	64	16.6	2410	64	39.0	
Total	281	72.6	106	27.5	3919	387	100	
Degree								
<12th year	102	26.4	69	17.8	2666	171	44.2	Fisher's p=0.000
>12th year	179	46.3	37	9.8	1253	216	55.8	
Total	281	72.6	106	27.6	19	387	100	
Shift								
Morning 8-14	152	39.3	49	12.7	1433	201	51.9	
Aftern. >14-20	90	23.3	27	7.0	1299	117	30.2	$X^2_{(2)}$=10.9 p=0.004
Night >20<08	39	10.1	30	7.8	1187	69	17.8	
Total	281	72.6	106	27.4	3919	387	100	
Age group								
18-29	99	25.6	19	4.9	805	118	30.5	
30-39	103	26.6	41	10.6	1280	144	37.2	$X^2_{(3)}$=13.6 p =0.003
40-50	49	12.7	31	8.0	984	80	20.7	
>50	30	7.8	15	3.9	850	45	11.6	
Total	281	72.6	106	27.4	3919	387	100	

SHT = Superior Health Technician, Adm./others = Administrative workers and other non-specialized technicians, MA = Medical Auxiliary, Aftern. = Afternoon

About 8.8% of accidents are characterized as *in itinere*, while the remaining 91.2% are typical accidents. Most accidents occurred at the hospitalization unit (35.9%), with the highest notification rates (15.5%) at the medical service, followed by the emergency service (11.4%), the zone between services/corridor

(10.3%) and the surgery unit (8.8%). On average, the accidents took place at 12.30 p.m. (SD±4.5h), with 45.5% of accidents happening in the first three hours of work. On the first day of work after the weekly rest day, 36.7% of the notifications were registered. Eighty-two percent of victims received first aid at the emergency service. The main action that led to the injury was a needle prick or cut by an object (45.7%), followed by the fall of workers/objects (28.7%) and excessive efforts/inadequate movements (18.9%). This trend is inverted when we analyze accidents with absence from work. In that category, the fall of workers/objects ranks first as the injuring action (12.1%), followed by excessive efforts/inadequate movements (8.8%). Tools/utensils were responsible for 33.5% of the accidents, the paving for 17% and patient mobilization for 13.4%. These data also differ for accidents without absence from work, where paving is the main responsible (7.5%), followed by patient mobilization (5.2%.) (Table 2).

Table 2 - Distribution of accident victims according to accidents without and with absence from work, number of days lost in accidents with absence from work, action that led to the injury and accident site, at a hospital in the region of Porto, Portugal, 2008-2010 (N=387)

Variables	Accidents without absence from work		Accidents with absence from work			Total accidents		*Chi-Square*
	N	%	N	%	No. days	N	%	
Action that led to the injury								$X^2_{(3)}$=50.2 P=0.000
Fall of worker/objects	64	16.5	47	12.1	2219	111	28.7	
Needle prick/cut by objects	153	39.5	24	6.2	627	177	45.7	
Excessive effort/inadequate movements	39	10.1	34	8.8	1067	73	18.9	
Exposure to harmful substances	25	6.5	1	0.3	6	26	6.7	
Total	281	72.6	106	27.4	3919	387	100	
Accident site								$X^2_{(9)}$=41.5 P=0.000
Hospitalization	108	27.9	31	8.0	865	139	35.9	
Zone between services/stairs	27	7.0	13	3.4	826	40	10.3	
Emergency Unit	30	7.8	13	3.4	433	43	11.1	
Surgical Unit	27	7.0	7	1.8	345	7	1.8	
External Consultation	40	10.3	4	1.0	99	44	11.4	
Pharmacy/laboratory	6	1.6	2	0.5	24	8	2.1	
Imaging services	9	2.3	1	0.3	10	10	2.6	
External zone	11	2.8	4	1.0	118	15	3.9	
In itenere	11	2.8	23	5.9	999	34	8.8	
Others	12	3.1	8	2.1	200	20	5.2	
Total	281	72.6	106	27.4	3919	387	100	

Others= Kitchenette, laundry and administrative area.

The injuring action and the accident site were significantly associated with accidents with absence from work and with the number of days lost. Higher proportions of accidents with absence from work were found for the fall of workers/objects and *in itenere* accidents, as well as a larger number of days lost (Table 2).

The injuring agent was also associated (p=0.000) with absence from work, with higher proportions for paving and patient mobilization.

Wounds appeared as the most prevalent injury type (32.6%) and Upper Limbs (UL) as the most affected body part (43.2%). In total, 106 accidents (27.4%) resulted in total disability, with a mean 10.2 days of work lost per accident, increasing to 37 days if considering only accidents with absence from work, ranging between 1 and 245, totaling 3919 workdays lost. This absence from work exceeded 30 days in 37.5% of the accident victims. The injury type (p=0.000) was also associated with accidents that entailed absence from work, with sprains/strains being responsible for 10.9% of accidents with absence from work and for 1650 workdays lost (Table 3).

Table 3 - Distribution of accident victims according to accidents without and with absence from work, number of days lost in accidents with absence from work, body part injured and injury type, at a hospital in the region of Porto, PT, 2008-2010 (N=387)

Variables	Accidents without absence from work		Accidents with absence from work			Total accidents		*Chi-square*
	N	%	N	%	No. days	N	%	
Affected body part								$X^2_{(4)}$=37.5 P=0.000
Head and Face	39	10.1	4	1.0	136	43	11.1	
Trunk	32	8.3	23	5.9	770	55	14.2	
Upper Limbs	140	36.2	28	7.2	828	168	43.2	
Lower Limbs	45	11.6	38	9.8	1869	83	21.4	
Multiple	25	6.5	13	3.4	316	38	9.8	
Total	281	72.6	106	27.4	3919	387	100	
Injury Type								$X^2_{(6)}$=87.2 P=0.000
Bruises/compressions	46	11.9	23	5.9	875	69	17.8	
Wounds	119	30.7	7	1.8	163	126	32.6	
Burns	4	1,0	2	0,6	30	6	1,6	
Sprains/strains	45	11,6	42	10,9	1650	87	22,5	
Fractures	0	0,0	9	2,3	617	9	2,3	
Dislocations	5	1,3	8	2,1	318	13	3,4	
Others	62	16	15	3,9	253	77	19,9	
Total	281	72,6	106	27,4	3919	387	100	

Professional category, degree, shift and accident site significantly influenced the mean number of workdays lost, with MA, workers with less than 12 years of education, the morning shift and *in itinere* accidents showing the highest mean number of days lost. A significant positive correlation was found between professional experience (p=0.016) and accidents with absence from work. Age also revealed a positive correlation with accidents that entailed absence from work, as well as with the number of workdays lost (p=0.001), as well as the work shift (p=0.01), showing increased accidents with absence from work and more workdays lost in the morning shift. Degree was negatively correlated with accidents with absence from work (p=0.000), as well as with the number of days lost, i.e. the lower the education level, the greater the probability of an accident with absence from work and the more workdays are lost.

Discussion

During the three years analyzed, 387 occupational accidents were found, registered through a survey of occupational accident notifications at the Human Resource Service in Health of a large hospital where care is delivered to users of different complexity levels. It should be mentioned that the number of accidents analyzed corresponds to notified accidents. Others exist, not included in the lists due to formal lack of knowledge on these events. Some situations of incomplete information in some reports should also be underlined, like the event description, which 25% of the participants did not complete. Seventy percent of the victims do not complete the use of Individual Protection Equipment (IPE) and only 25% indicated the Emergency Service procedures. Although these do not represent losses, these cases of incomplete information made it difficult to analyze the problem, impeding the inclusion of the variables mentioned in the study.

As for the accidents' distribution over time, notifications did not change, except for more severe accidents, which increased by approximately 3%, while the number of days lost decreased. These data differ from Portuguese studies, which appoint a global rise in accident number and workdays lost, indicating an annual mean growth rate of 5.23% between 1996 and 2007[15]. The changes that took place in work characteristics may have contributed to this increase. The introduction of new technologies, the lack or non-use of IPE and professionals' considering these accidents as more relevant may have contributed to higher notification levels. Portugal has specific legislation to enhance safety and health in the workplace, obliging employers

to provide IPE and workers to use them, which does not always happen in practice[17].

The highest accident prevalence rate in this study was found for SHT, which includes physicians, nurses and diagnostic and therapeutic technicians, and essential in the professional category of nurses (48.3%). In this study, proportionately, nurses correspond to 81% of SHT. This proportion follows trends in other studies, as well as these professionals more representative role in health institutions[15,18-22]. Female professionals (81.9%) and workers with more than 12 years of education (55.8%) were the most frequent accident victims.

The fact that nurses are the most frequent accident group can be related to this category's greater representativeness in health institutions. On the other hand, we know that nursing is a mainly female profession, starting with the Bachelor's degree in Portugal, and that these professionals are also responsible for the major part of direct care delivery, ranging from the most simple to the most complex care actions, uninterruptedly, which exposes them to additional occupational risks. This can explain why more accidents are found among female workers and professionals with more than 12 years of education. Some American studies go against these results, appointing the group of nursing auxiliaries as the most frequent victim category[23]. This can be due to the fact that, in these countries, nursing auxiliaries have functions that are part of nurses' intervention area in Portugal, such as patient positioning, medication preparation and administration, hygiene care and comfort, among others. On the other hand, in our study, the most severe accidents and the highest numbers of workdays lost are found among MA (16.6%) and in people with less than 12 years of education (17.8%). These data are in line with other studies, which indicate that less qualified people with less specialized tasks and low wages are the most exposed to severe accidents[7,11,18].

Most accidents affected shift workers (72.4%) and professionals working daytime and morning periods (51.9%), coinciding with the time when work is more intense. It should be highlighted that most therapeutic procedures, test sample collections, elective surgeries, diagnostic auxiliary examinations, patient hygiene and comfort care, mobilization and transfer happen in that period. The same is the case for non-therapeutic procedures, such as patient meal preparation and nutrition, cleaning and laundry tasks, reparations and equipment maintenance, gardening, etc.[7,15,21]. Most accidents happened on the first workday after the weekly rest (36.7%), with approximately half of the accidents registered until the third work hour. In a way, this fact may be related to some lack of adaptation to the job activity, and also the more intense work volume and rhythm at the start of each shift. These data are in line with Portuguese studies[15], but somewhat different from Brazilian studies that appoint higher accident incidence levels between the third and fifth hour, which may be related to the different organization of work in this country's hospital institutions[7,11].

Hospitalization services recorded the highest percentage of accidents (35.9%), among which the medical service stood out with 15.5%, followed by the EU with 11.4%, the zone among services/corridor (10.3%), the SU (8.8%) and an equal proportion for *in itinere* accidents, in line with different studies[11,15,22-23]. Accidents at hospitalization services entail greater accident risks, given the characteristics this performance is based on (contacts with patients representing risks, mobilization of bedridden patients, handling of piercing and cutting materials, shift work, among others). At the EU and SU, accident numbers can be due to the intensive work rhythm in emergency contexts and the large number of invasive procedures. Among hospitalization services, the medical service is responsible for half of the events, which can be explained by the fact that, at this service, patients are mostly elderly, which high levels of comorbidities and limitations, often obese, demanding greater physical effort from health professionals for their mobilization. In addition, professionals adopt incorrect postures when performing these activities and there is a lack of mobilization support equipment at this institution.

As for the action that led to the injury, needle pricks/cuts by objects are responsible for the main part (45.7%), followed by falls of workers/objects (28.7%). These data are in line with different study results in the area[11,15,21-22]. In our study, based on the accident description, we found that most needle prick accidents occurred during or after the use and in the attempt to recap them, and also due to the habit of putting them in a container that was already too full, a practice that should have been abandoned and goes against international orientations published in 1997[24]. When relating the injuring action with accidents with absence from work, statistically significant differences were verified ($p<0.000$), in which the falls of workers/objects (12%) and excessive efforts/inadequate movements (8.8%) led to most accidents that caused absence from work. The relation between accidents with absence from work and the injuring agent showed significance ($p=0.000$), in which the pavement/stairs

were responsible for most accidents with absence from work (10%), followed by patient mobilization (7%) and transportation means (4%)[11,25]. Accident descriptions revealed that floors were often wet or contained out-of-place objects, which provoked many of the falls and once again arouses reflections on the bad practice of safety rules. The mobilization of heavy patients and the use of incorrect postures often leads to workers' absence, due to musculoskeletal problems[15-18]. The injury type and affected body part were significantly associated (p=0.000) with accidents that caused absence from work, with more accidents with absence from work among people victims of sprains and strains and other lower limb accidents[7,11,21-22].

Accidents with piercing-cutting material are the most frequent, mainly affecting the hands. Nursing professionals and MA are the most frequent victims of this accident type, probably due to the characteristics inherent in their professional practice, in which this type of material is continuously used. Accidents that affected the LL and trunk were more severe, which are the body parts that are most subject to sprains/distensions, resulting from falls and these workers' inadequate physical efforts/movements.

Of all accidents, 27.4% resulted in temporary disability, entailing leaves for more than 30 days (37.5%), followed by between 16 and 30 days (23.6%). These results differ from Portuguese and international statistics, in which leaves for less than 15 days were predominant[11,15]. These results may be due to the large proportion of musculoskeletal disorders in this study, demanding workers' leave for often extended rest and treatment periods.

Conclusion

These research results demonstrate the predominance of occupational accidents among superior health technicians, women, between 30-39 years, more than 12 years of education, working in hospitalization services and in the morning shift. Needle pricks were the main accident cause, mainly affecting the hands and consequently provoking wounds. The highest prevalence rate, considering accident severity, was found among MA with less than 12 years of education and falls as the main cause, resulting in sprains and strains and essentially affecting the lower limbs.

Some conducts can and should be adopted to bring down occupational accidents in terms of number and fatal consequences, such as better organization and articulation among different services at the institution, implementation of professional education and prevention policies about this problem, continuous and systematic occupational risk monitoring with a view to health promotion at the workplace and, consequently, a better quality for the care these professionals deliver.

Further research is suggested to improve knowledge on the current situation, at other health institution, and also about the reality of care delivery, the dimension of professional risks, results of intervention actions, consequences of occupational accidents or technical education and worker awareness-raising requirements, so as to obtain essential elements to plan intervention and prevention actions, with a view to promoting the health of workers who dedicate their professional life to care for other people's health.

References

1. Lei n. 98 de 4 de Setembro de 2009 (PT). Acidentes de trabalho. Diário da República. I Série A. 4 de set 2009:5894-7.

2. Agência Europeia para a Segurança. Segurança e Saúde no Trabalho (OSHA). Estatísticas de acidentes de trabalho [Internet]. 2009. [acesso 29 jan 2011]. Disponível em: http://pt.osha.eu.int/statistics/static.smt.

3. International Labor Organization (ILO). Safety in Numbers [Internet]. Geneba.2003. [acesso 25 abr 2009]. Disponível em: http://www.iol.org/public/English/protection/safework

4. Ministério do Trabalho e da Solidariedade Social (MTSS) (PT). Gabinete de estratégia e Planeamento (Por). Acidentes de trabalho 2006. Lisboa: Ministério do Trabalho e da Solidariedade Social, 2008. p. 11-3.

5. Uva AS. Salud y Seguridade del trabajo em Portugal. Rev Med Segurid Trabajo. 2009;55(214):12-25.

6. Serralheiro F, Uva AS, Sousa P, Leite ES. Segurança do doente e saúde e segurança dos profissionais de saúde: duas faces da mesma moeda. Rev Saúde Trabalho. 2009;7:5-29.

7. Sêco IAO, Robazzi MLCR, Shimizu DS, Rúbio MMS. Acidentes de trabalho típicos envolvendo trabalhadores de hospital universitário da região sul do Brasil: epidemiologia e prevenção. Rev. Latino-Am. Enfermagem. [periódico na Internet]; 2008 [acesso 13 jan 2011]. 16(5):824-31. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692008000500005&lng=en. http://dx. Doi: 10.1590/S0104-11692008000500005.

8. Uva AS, Prista J. Necessidades e expectativas em Saúde e Segurança dos técnicos e restantes trabalhadores da saúde. J Ciênc Méd 2004;168(1):25-4.
9. Marziale MHP, Rodrigues CM. A produção científica sobre acidentes de trabalho com material perfurocortante entre trabalhadores de enfermagem. Rev. Latino-Am. Enfermagem. 2002;10(4):571-7.
10. NishideVM, Benatti MCC, Alexandre NMC. Ocorrência de acidente de trabalho em uma unidade de terapia intensiva. Rev. Latino-Am. Enfermagem. 2004;12(2):204-11.
11. Ruiz MT, Barbosa DBS, Zaida ASGS. Occupational accidents: a study regarding this occurrence in a general hospital. Rev Arq Ciênc Saúde. 2004;11(4):19-24.
12. Centro de Reabilitação Profissional de Gaia. Doenças e Acidentes em Portugal. Da Relação com Deficiências e Incapacidades. Vila Nova de Gaia: Centro de Reabilitação Profissional de Gaia; 2008.
13. Ministério da Saúde. Direcção Geral da Saúde (PT). Elementos Estatísticos Informação Geral Saúde/2007. Lisboa: Ministério da Saúde; 2009. p. 104-5.
14. EU-OSHA. Estatísticas Europeias em Segurança e Saúde no Trabalho. 2010. [acesso 21 jan 2011]. Disponível em: http://osha.europa.eu/pt/statistics.
15. Administração Central do Sistema de Saúde (ACSS) (PT). Acidentes de Trabalho 2007. Lisboa: Unidade Funcional de Planeamento de Estudos e Recursos Humanos; 2009.
16. Lei n. 12 de 26 de Janeiro de 2005 (PT). Informação genética pessoal e informação de saúde. Diário da República. I Série A. 26 de jan. 2005:607.
17. Lei n. 102 de 10 de Setembro de 2009 (PT). Regime jurídico da promoção da segurança e saúde no trabalho. Diário da República. I Série A. 10 de set. 2009:6170-6171.
18. Martins M. Acidentes de Trabalho nas Instituições de Saúde do Distrito de Bragança. Rev Invest Enferm. 2009;(19):81-90.
19. Monteiro CM, Benatti MCC, Rodrigues RCM. Acidente do Trabalho e Qualidade de Vida Relacionada à Saúde um Estudo em Três Hospitais. Rev. Latino-Am. Enfermagem. 2009;17(1):101-7.
20. Spagnulo RS, Baldo RCS, Guerrini IV. Epidemiological analysis of accidents with biological material reported to the worker`s Health Reference Center in Londrina-PR. Rev Bras Epideliol. [periódico na Internet]. 2008; [acesso 13 jan 2011]. 11(2):315-23. Disponível em: http://www.scielo.br/pdf/rbepid/v11n2/13.pdf doi: 10.1590/S0034-89102008005000057.
21. Izidoro JS, Iwamoto H H, Camargo FC. Delineamento dos acidentes de trabalho em instituições de saúde de uma micro região de Minas Gerais. Cogitare Enferm. 2010;15(3):521-7.
22. Ribeiro PC, Ribeiro ACC, Júnior FPBL. Perfil dos acidentes de trabalho em um hospital de Teresina, PI. Cogitare Enferm. 2010;15(1):110-6.
23. Pinho LMP, Rodrigues CM, Gomes GP. Perfil dos acidentes de trabalho no Hospital Universitário de Brasília. Rev Bras Enferm. 2007 [periódico na Internet] ;60(3):291-4. [acesso 13 jan 2011]; Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672007000300008&lng=en. http://dx.doi.org/10.1590/S0034-71672007000300007.
24. Centers for Disease Control and Prevention (CDC). Evaluation of safety devices for preventing percutaneous injuries among health-care workers during phlebotomy procedures. Minneapolis. St. Paul, New Tork City, and San Francisco, 1993-1995. MMWR. 1997;46(2):21-5.
25. Barbosa MA, Figueiredo VL, Paes MSL. Acidentes de trabalho envolvendo profissionais de enfermagem no ambiente hospitalar: um levantamento em Baco de dados. Rev Enferm Integrada-Ipatinga: Unileste-MG. 2009;2(1):176-86.

Received: July 20th 2011
Accepted: Feb. 29th 2012