



BIOSECURITY AND ADHERENCE STANDARDS BY HEALTH PROFESSIONALS AT A BLOOD CENTER

NORMAS DE BIOSSEGURANÇA E ADESÃO PELOS PROFISSIONAIS DA SAÚDE DE HEMOCENTRO

NORMAS DE BIOSEGURIDAD Y ADHESIÓN DE LAS PROFESIONALES DE LA SALUD DE HEMOCENTRO

Susane Flôres Cosentino¹, Indiara Sartori Dalmolin², Leila Georcelei de Brizola Perdonssini³, Marcelo Machado Sassi⁴,
Jaqueline Silinske⁵, Rodrigo Chagas de Bairos⁶

ABSTRACT

Objective: to address the biosafety work issue of an interdisciplinary health team at a blood center. **Method:** descriptive exploratory study, performed from May 15 to June 5, 2011, with eight professionals from the interdisciplinary health team of a blood center in the northern region of Rio Grande do Sul State, who agreed to participate in the study by signing the Statement of Consent Form. For data collection, the direct observation of non-participatory activities during their work process was used, highlighting the use of Personal Protective Equipment, considering its importance in protecting the health of both professionals and donors, and reducing the inherent on the job risks. It was determined that each professional would be observed during ten procedures. The quantitative data analysis was tabulated using descriptive statistics, with the software SPSS 15.0 (Statistical Package for Social Sciences) and Excel. The research was approved by the Ethics Committee in Research of the Universidade Federal de Santa Maria by protocol: CAAE 0074.0.243.000-11 on 05/10/2011. **Results:** it was found that 100% of the subjects wear gloves and only 12.5% wear glasses and masks during invasive procedures. **Conclusion:** gaps in the practices of health professionals from the blood center studied regarding the use of personal protective equipment were noted, which puts them in a vulnerable situation when performing their daily work activities and also the users of this service. **Descriptors:** biosafety; interdisciplinary health team; blood center; nursing.

RESUMO

Objetivo: abordar a temática biossegurança no trabalho de equipe interdisciplinar de saúde de um hemocentro. **Método:** pesquisa exploratória descritiva, realizada no período de 15 de maio a 5 de junho de 2011, com oito profissionais da equipe interdisciplinar de saúde de um hemocentro de região Norte do Rio Grande do Sul, que consentiram em participar do estudo assinando o Termo de Consentimento Livre e Esclarecido. Para a coleta dos dados, foi empregada a observação direta não-participativa das atividades desenvolvidas durante seu processo de trabalho, destacando o uso dos Equipamentos de Proteção Individual, levando em conta sua importância para a proteção da saúde, tanto dos profissionais quanto dos doadores, e na redução de riscos inerentes ao exercício da função. Foi estipulado que cada profissional seria observado em dez procedimentos. A análise dos dados quantitativos foi tabulada por meio de estatística descritiva, com a utilização do Software SPSS 15.0 (Statistical Package for the Social Sciences) e o Excel. A pesquisa teve aprovação para ser realizada pelo Comitê de Ética em Pesquisa da Universidade Federal de Santa Maria sob o número do CAAE 0074.0.243.000-11 em 10/05/2011. **Resultados:** verificou-se que 100% dos sujeitos usam luvas e apenas 12,5% usam óculos e máscaras em procedimentos invasivos. **Conclusão:** constata-se lacunas nas práticas dos profissionais de saúde do hemocentro estudado quanto ao uso de equipamentos de proteção individual, o que os coloca em situação de vulnerabilidade na realização de suas atividades laborais cotidianas e também aos usuários deste serviço. **Descritores:** biossegurança; equipe interdisciplinar de saúde; hemocentro; enfermagem.

RESUMEN

Objetivo: abordar la cuestión de la bioseguridad en el equipo de trabajo interdisciplinario de salud en un hemocentro. **Método:** estudio exploratorio descriptivo, realizado en el periodo de 15 de mayo a 5 de junio 2011, con ocho profesionales del equipo interdisciplinario de la salud de un hemocentro en la región norte del Estado de Rio Grande do Sul, que consintieron en participar en el estudio firmando el Instrumento de Consentimiento. Para la recolección de datos, se utilizó la observación directa de la participación en las actividades de su proceso de trabajo, destacando el uso de Equipamientos de Protección Individual, teniendo en cuenta su importancia para la protección de la salud de los profesionales y los donantes, y la reducción de los riesgos del trabajo. Fue determinado que cada profesional sería observado en diez procedimientos. El análisis de datos cuantitativos fueron tabulados utilizando estadística descriptiva, utilizando el paquete estadístico SPSS 15.0 (Statistical Package for Social Sciences) y Excel. La investigación fue aprobada para ser realizado por el Comité de Ética en Investigación de la Universidade Federal de Santa Maria con el número CAAE 0074.0.243.000-11 el 10/05/2011. **Resultados:** se observó que 100% de los sujetos usar guantes y sólo 12,5% usa anteojos y máscaras en los procedimientos invasivos. **Conclusión:** tenga en cuenta que brechas en las prácticas de los profesionales de la salud del hemoecentro estudiado en el uso de equipamiento de protección individual, que los pone en una situación vulnerable al realizar sus actividades diarias de trabajo y también para los usuarios de este servicio. **Descritores:** bioseguridad; equipo interdisciplinario de salud; hemocentro; enfermería.

¹Master Professor for the Nursing Course at the Santa Maria Federal University - Higher Education Center, Norte do Rio Grande do Sul, Palmeira das Missões, Rio Grande do Sul, Brazil. Research Advisor. E-mail: susycosentino@hotmail.com; ^{2,3,4}Nursing Course Students at the Santa Maria Federal University - Higher Education Center, Norte do Rio Grande do Sul, Palmeira das Missões, Rio Grande do Sul, Brazil. E-mail: indiarasartoridalmlin@yahoo.com.br, leilaperdonssini@hotmail.com, sassimarcelomachado@yahoo.com.br; ⁴Administration Course Student at the Santa Maria Federal University - Higher Education Center, Norte do Rio Grande do Sul, Palmeira das Missões, Rio Grande do Sul, Brazil. E-mail: jaquelinesilinske@yahoo.com.br; ⁵Nurse, Ulbra - Carazinho, Rio Grande do Sul, Brazil. E-mail: rodrigo-bairros@bol.com.br

INTRODUCTION

Professionals from the Health Field are constantly exposed to the risk of acquiring pathogen-transmitted infections transported by blood and bodily fluids while performing their occupational activities, especially in blood banks, due to the type of the procedures performed there.

The Collegiate Directive Resolution (RDC) nº 153 of 2004 established the technical regulation for hemotherapy procedures, including: collection, processing, testing, storage, transportation, quality control and human use of blood and its components, obtained from venous blood, umbilical cord, placenta and bone marrow.¹ Beyond that, according to this resolution, hemotherapy services must keep written procedures on the biosecurity rules to be followed by all employees.¹ The service must offer the Personal Protection Equipment (PPE) needed for proper employee safety. There should be periodic training for all staff regarding biosafety procedures.

The universal precaution recommendations have been applied for over 25 years. This primary occupational exposure prevention continues to be effective and efficient in protecting health care workers. However, it appears, on the contrary, that adherence to these measures is sometimes discontinued leading to potential risks and substantially increasing biological material exposure.²

In this approach, biosecurity is understood as those measures adopted to eliminate or reduce risks both for professionals and for the community and environment. Through the proper handling of biological, chemical, genetic, physical agents, among others, biosecurity aims to prevent accidents and therefore reduce the inherent risks in activities. The elements that compose biosecurity health standards are: proper hand washing, care in disposal of sharp objects, correct waste separation, use of goggles, gloves, caps, masks, aprons and punctual vaccination updates.

Health care professional biosecurity in a blood center is ensured through the use of PPE, which is any individual device or product used by the worker, for protection against risks likely to threaten health safety at work.³

It is an employer's responsibility to acquire the PPE in accordance with the risk of the activity, to ask the employees to use it, make available PPE approved by the competent national agency, to train the employee in its

use and care and, whenever damaged, to communicate to the person in charge of replacement. An employee should only use the PPE in his period of work, taking responsibility for the its care and placement.³

Given the constant presence of professionals of the nursing field in these institutions, it seems important to note that the Federal Council of Nursing (COFEn) in Resolution 306/2006, brings the attributes of the professional nurse in the area of hemotherapy.⁴ Among such attributions are: planning, execution, co-ordination, supervision and evaluation of the hemotherapy proceedings of health units, aiming to secure the quality of the blood, blood components and blood derivatives.⁴ Also, a Nurse assists in an integral way the donors, receivers and their families, having as base the Code of Ethics of Nursing Professionals and the standards in force.⁴ It is also the nurse's responsibility to promote and spread information about preventive and curative health measures through the education of donors, receivers, relatives and the community in general, aiming at their health and security and the realization of clinical selection, promoting the health and security of donor and receiver, minimizing the risks of complications.⁴

Although the literature indicates that in blood centers biosecurity is already incorporated to the process of work, noting government actions with this objective, developed, for example, by the Co-ordination of Blood and Hemoderivatives of the Ministry of Health and the efforts of professional associations, represented by their Councils, such as the COFEn, it can be verified that in the world of practice such efforts have not always had resonance. This discrepancy between practice and speech, demands that teaching processes be developed with respect to biosecurity currently used in the area of health, so as to become strategic modern pedagogic instruments which produce significant impacts in the world of the work.⁵

Before the facts presented, the research was relevant, since the standards of biosecurity are directly connected with the professional exercise in the area of health. However, little is known about the level of knowledge of health professionals about the subject, or the degree of adhesion to the standards of biosecurity.⁶ On account of the potential ignorance of this reality in the Brazilian institutions of health, it is necessary to establish new policies of health and security for those who take care of the health of the population.

The study identified that the training received by the professionals studied did not affect the accident rate.⁶ Therefore, the authors recommend that this find be explored more thoroughly, since the training appears not to have, in fact, resulted in an improvement in the capabilities of the professionals as to the universal standard of precaution.⁶

Such a suggestion, allied to the experience obtained with the service of hemotherapy, occasioned by the opportunity of teaching and extension activities carried out, and by the theoretical picture already described, led to the development of the present study with a view to answer the following research question: Do the professionals of the interdisciplinary health team of this blood center adhere to the standards of biosecurity?

With such an object, the study had as its aim to learn how much the professionals of the interdisciplinary health team of a blood center adhere to the standards of biosecurity.

METHOD

The question is an exploratory and descriptive inquiry, of the field study type, with a quantitative approach.

The exploratory inquiry begins with some phenomenon of interest and, besides observing and registering the incidence of the phenomenon, it seeks to explore their dimensions, the way in which it reveals itself and other factors with which it is related.⁷

The field study looks much more towards the deepening of the proposed questions than the distribution of the characteristics of the population, according to determined variables.⁸ Also it looks to study a single group or community in terms of its social structure, in other words, emphasizing the interaction between its components. In this form, the field study has a tendency to use the technique of observation much more than that of interrogation.⁸ In this perspective, a descriptive inquiry has as its objectives the description of the characteristics of a determined population or phenomenon, or then, the establishment of relations between variables.⁸

The delineation of the inquiry refers to the general plan of the investigator to respond to the questions or to test his hypotheses. In a quantitative study, the delineation of research presents the strategies that the investigator plans to adopt to develop precise information which can be interpreted.⁷

In this study, the subjects investigated were the professionals who composes the interdisciplinary health team of a blood center in a city of the Northern region of Rio Grande do Sul, composed of a doctor, a nurse, a biochemical pharmacist, a nursing technician and four nursing assistants, totaling eight subjects, who agreed to participate in the study, signing the Terms of Free and Informed Consent.

The collection was carried out through non-participative direct observation of the activities of the professionals of the interdisciplinary health team during their process of work. The inquiry was carried out in the period from the 15th of May to the 5th of June of 2011. To register the data an itinerary of observation was created with items of use/no use of PPE and proceedings, it being stipulated that each professional would be observed in ten proceedings, totaling eighty observations.

The analysis of the quantitative data was tabulated through descriptive statistics, with the use of the Software SPSS 15.0 and Excel. The Software SPSS (Statistical Package for the Social Sciences) is a set of Statistical Programs for the Social sciences, which has the advantage of being able to register and to analyze quantitative data of many different forms and allow also the application of the most complex and, frequently, most appropriate statistical techniques.⁹

The research was approved by the Committee of Ethics in Research of the Federal University of Santa Maria under the number CAAE 0074.0.243.000-11 on 10/05/2011.

RESULTS

According to figure 1 the population investigated consisted of four individuals of the masculine sex (50%) and four of the feminine sex (50%), totaling eight subjects that compose the interdisciplinary health team of the blood center studied.

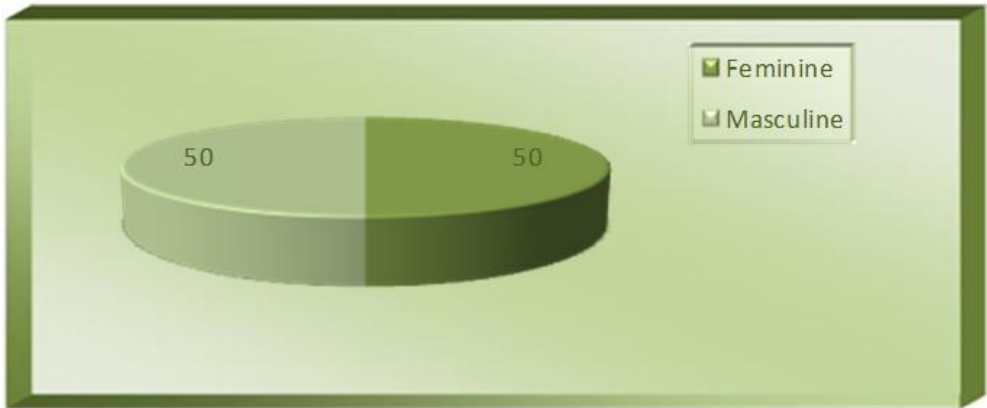


Figure 1. Characterization of the sample. Source: Research Data

All those investigated (100%) report that they have knowledge of biosecurity standards. This conclusion was reached, by means of analysis of the training course for practicing activities in blood therapy service, in which some of the items discussed are the relevance and necessity of the use of PPE in all sectors of blood centers.

As to the practice of washing of hands, independent of the sex, 100% of the professionals who act in the blood center carried out this practice, however it was

observed that none of them did it in the correct form as recommended in the technique of washing hands before and/or after proceedings.

Regarding the use of gloves during the realization of all invasive proceedings, 95.0% of the subjects used and 5.0% did not use them (Figure 2). It was noted that there is no significant difference between the subjects of the feminine and masculine sex regarding the use or not of gloves whenever they do this type of activity (Figure 2).

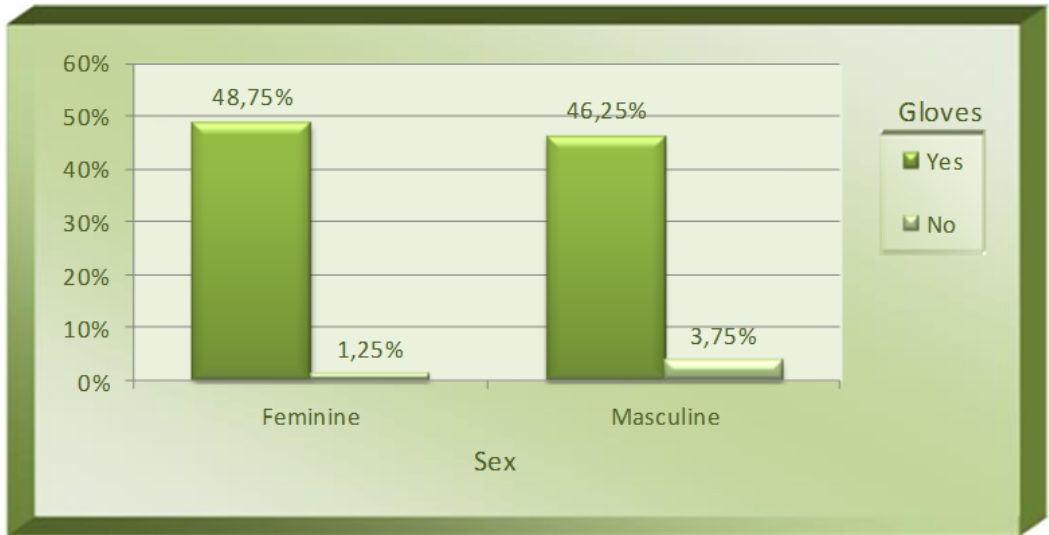


Figure 2. Relation between sex and the use of gloves for the professionals who work in a blood center located in the Northern region of Rio Grande do Sul. Source: Research Data

It was verified that none of the men analyzed used masks and goggles, whereas in the feminine gender 37.5% did not use and 12.5% engaged this protection equipment. This demonstrates that 87.5% of the professionals of the hemocenter do not

usually use masks and goggles and 12.5% use both these two pieces of protection equipment whenever they execute activities in which they are recommended by the legislation. Figure 3 shows these data:

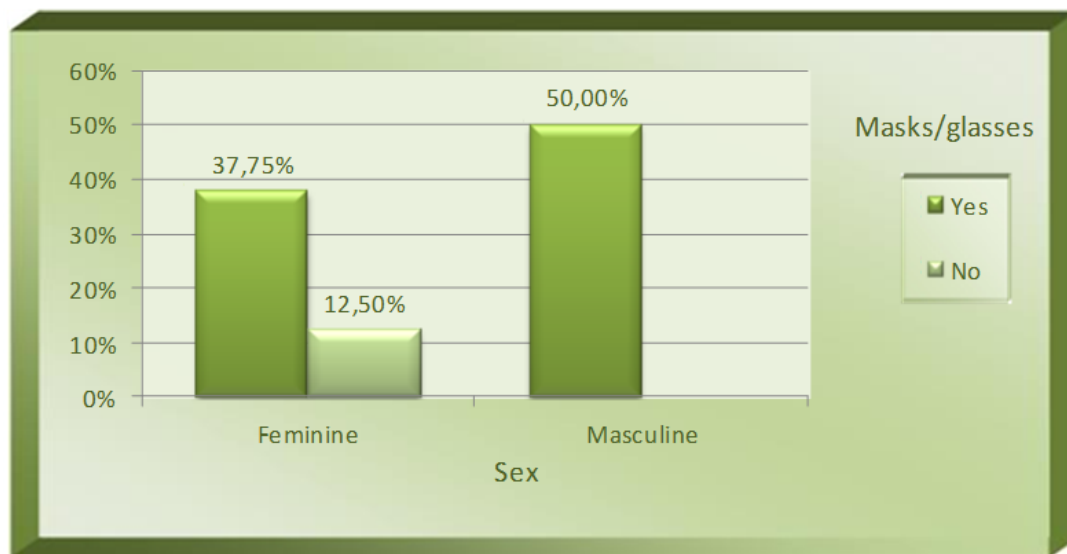


Figure 3. The relation between gender and the use or not of glasses and masks for the professionals of a hemocenter located in the northern region of Rio Grande do Sul. Source: Research Data

As to the correct separation of the residues used in each proceeding, 100% of the subjects carried it out in the form advised by the legislation. Besides this, it was ascertained that among eight observed subjects, only one, of the feminine sex, uses all the PPE, whenever it is advised in the service of her professional practice.

DISCUSSION

Biosecurity is defined as the condition of security reached by a set of actions destined to prevent, control, reduce or remove risks inherent in the activities that could compromise human, animal and vegetable health and the environment.³

In this context Biosecurity does not consist only in standards of prevention and control; its scientific dimension requires of the individuals an education adapted to the understanding and execution of its objectives. In this sense, the education processes of biosecurity must be pedagogically structured so that they are able to produce competence currently demanded for the professionals of health in all levels.¹⁰

The importance of education as an instrument for the fulfillment of the standards of biosecurity has been emphasized by several authors. It is the responsibility of group leaders to orient their personnel and demand the compliance with the rules, they being directly responsible for abuses and lack of professional training in the use of the equipment, reagents and infrastructure.⁵ The figure of the nurse as chief or member of the nursing/health team requires the training, updating and sensibilization of the team of which he/she is part, as to the importance of the correct use of the PPE.

Studies have demonstrated that more than 60 agents can be transmitted by means of

percutaneous exposure through the blood, it being the principal path of transmission of the viruses hepatitis B and C, and of HIV.² Therefore, the relevance of the appropriate use of PPE in order to prevent infections and contamination with corporal fluids is realized.

The data of this inquiry show that the subjects investigated know what the standards of biosecurity envisage. Nevertheless they do not put them into practice. Another study confirms this, so it indicates that the information and the training centered in technical aspects are not sufficient to reduce the incidence of accidents at work.² So, besides considering the technical aspects, it is necessary to pay attention to the conflicts experienced by the worker in the realization of his work and his subjective resources, which also are used to solve problems.

According to epidemiological studies carried out in public Brazilian hospitals, the knowledge of health professionals of the concept and the standards of biosecurity, the availability of these standards in the work environment and the training in biosecurity did not positively influence the reduction of accidents at work.¹¹

This inquiry showed the low acceptance of the glasses and the individual protection masks (12.5%), which must be used whenever the possibility of splashes of biological material exists during the realization of a proceeding. These data corroborate a study which displayed a low acceptance by professionals of the use of protective glasses, varying from 2% to 78%.²

As to the correct washing of the hands, this proceeding which is essential in order that cross-infections be avoided, this inquiry elucidated the fact that 100% of the professionals of the interdisciplinary health team know the importance of using the

correct method, however, none carries it out in the appropriate way. This fact is worrying because the transmission of microorganisms on the hands of health personnel to the patients under their care is the principal cause of cross-infection in hospitals and the most efficient measure for avoiding that is washing the hands.

The residues from health services occupy a place of distinction in our society since their unsuitable management compromises public health and the environment. It is emphasized that in the hemocenter the health service residues are treated and discarded appropriately by the team.

Besides this, the study showed that the gloves from proceedings are the PPE of greater adhesion (95%) for the observed professionals. This fact fits with other research done, in which the gloves from proceedings, the cloth apron, the closed shoes, 97.7%, 86.6% and 75.5% respectively, obtained greater compliance by the health professionals.²

Meantime, another study¹² points out that, in spite of the elevated incidence of accidents with sharp materials, the compliance to the use of the PPE, in general, still finds resistance in some nursing professionals.

From the discussion of the results of this inquiry, it is realized that the PPE are basic in professional practice of the health team, avoiding cross infections and protecting the physical integrity of the workers and of the users. In view of that, the development of studies around hemocenters is relevant, with the intention of knowing the routine of the service, the perception of the interdisciplinary team and the attributions of the nurse, as employee and as coordinator. Such studies are necessary, since only by experiencing the real facts is it possible to proceed to actions aimed at minimizing the risks inherent in hemotherapy services. So, considering the hemocenter a site for future work for nursing, it is essential to know the structural, social and organizational aspects of this service essential in the context of integral health assistance.

CONCLUSION

Upon concluding this study, which consists in a first approximation of the academics, its authors noted gaps in the practices of the health professionals of the hemocenter studied as to the use of PPE, which in the realization of their daily work activities place them and also the users of these services in situations of vulnerability. The attitudes

observed in the field study, can be associated with subjective factors of the subjects observed, which presupposes that they have exaggerated trust in their technical skills, and that, therefore, they believe that they are not at risk of contamination. Such factors can contribute, also, to the distancing between the theoretical and expert knowledge, which agrees with the low adhesion to the use of PPE.

In view of this result, the development of studies around other hemocenters is considered relevant, involving a larger universe of subjects, besides the association of other methods of data collection. Besides this, the theme seems rich for forays of the qualitative type which seek to learn the routine of the service, the attributions of the nurse as employee and coordinator of the service and the perception of the interdisciplinary team.

Such studies seem necessary, since scientific evidence is basic in the projection of actions that have the power to sensitize the health professionals to the necessity of the use of PPE, aiming to minimize the risks inherent in hemotherapy services.

The study of biosecurity standards is considered essential, in the training process of all the professionals in the health field, with the objective of consolidating the knowledge for future professional practice and to look toward the preservation of their own health and that of the users to whom they give care.

REFERENCES

1. Anvisa [Internet]. Agência Nacional de Vigilância Sanitária. Resolução da diretoria colegiada nº 153, 2004. Brasília; 2004 [cited 2011 June 19]. Available from: http://www.chsp.org.br/arquivos/rdc_153.pdf.
2. Neves HCC, Souza ACS, Barbosa JM, Ribeiro LCM, Tipple AFV, Alves SB, et al. O uso de equipamentos de proteção individual por profissionais em unidades de endoscopia. *Rev Enferm UERJ*. 2010;18(1):61-66.
3. Brasil, Ministério da Saúde [Internet]. Diretrizes gerais para o trabalho em contenção com material biológico. Brasília: Ministério da Saúde; 2004 [cited 2011 June 10]. Available from: <http://www.anvisa.gov.br/reblas/diretrizes.pdf>.
4. Cofen. Resolução COFEN 306/2006 [Internet]. Normatiza a atuação do enfermeiro em hemoterapia. Mato Grosso do Sul/RS; 2006 [cited 2011 June 21]. Available from:

<http://www.portalcofen.gov.br/sitenovo/nod/e/4341>.

5. Costa MAF, Costa MFB. Educação em biossegurança: contribuições pedagógicas para a formação profissional em saúde. *Ciênc saúde coletiva*. 2010;15(1):1741-50.

6. Caixeta RBC, Branco AB. Acidente de trabalho com material biológico em profissionais de saúde de hospitais públicos do Distrito Federal, Brasil, 2002/2003. *Cad Saúde Pública* [Internet]. 2005 [cited 2012 Mar 25];21(3):737-46. Available from: <http://www.scielo.br/pdf/csp/v21n3/07.pdf>.

7. Polit DF, Beck CT, Hungler BP. Fundamentos de pesquisa em enfermagem: métodos, avaliação e utilização. 5ª ed. Porto Alegre: Artmed; 2004.

8. Gil AC. Como elaborar projetos de pesquisa. 4ª ed. São Paulo: Atlas; 2009.

9. Bryman A, Cramer D. Análise de dados em ciências sociais - introdução às técnicas utilizando o SPSS. 3ª Ed. Portugal: Celta; 1990.

10. Bonis M, Costa MAF. Educação em biossegurança e bioética: articulação necessária em biotecnologia. *Ciênc Saúde coletiva* [Internet]. 2009 [cited 2012 Mar 25];14(6):2107-2114. Available from: http://www.scielo.br/scielo.php?script=sci_pdf&pid=S1413-81232009000600017&lng=pt&nrm=iso&tlng=pt.

11. Neves TP, Cortez EA, Moreira CDF. Biossegurança como ação educativa: contribuição à saúde do trabalhador. *Cogitare Enferm* [Internet]. 2006 [cited 2012 Mar 25];11(1):50-54. Available from: <http://bases.bireme.br/cgi->

12. Luckwü ÁDGV, Silva EL, Araújo EC. Fatores de exposição do profissional da saúde às substâncias químicas utilizadas nos processos de lavagem e desinfecção no expurgo. *Rev enferm UFPE on line* [Internet]. 2010 Jan/Mar [cited 2012 Mar 25];4(1):254-61. Available from: <http://www.ufpe.br/revistaenfermagem/index.php/revista/article/view/750>.

Sources of funding: No

Conflict of interest: No

Date of first submission: 2011/12/21

Last received: 2012/04/03

Accepted: 2012/04/04

Publishing: 2012/05/01

Corresponding Address

Susane Flôres Cosentino

Av. Independência, Bairro Vista Alegre, 3751

CEP: 98300-000 — Palmeira das Missões (RS),
Brazil