

Occupational Exposures in Latin America (including the Caribbean, Central America, and South America)

Bibliography of Country-Specific & Regional Needlestick, Surveillance, and Exposure Risk Studies

ARGENTINA

Miceli M, Herrera F, Temporiti E, Li D, Vila A, Bonvehí P. Adherence to an occupational blood borne pathogens exposure management program among healthcare workers and other groups at risk in Argentina. *Brazilian Journal of Infectious Diseases* 2005;9:454-8.

ABSTRACT- We conducted a retrospective review of 130 occupational blood borne pathogens exposure (BBP-OE) records at Centro de Estudios Médicos e Investigaciones Clínicas, a university hospital with an ongoing educational program and a postexposure management program for healthcare workers (HCWs) since 1995, in order to evaluate adherence to a hospital BBP-OE management program. We compared HCWs from our institution (Group 1) and HCWs from independent institutions that contract our postexposure management program (Group 2). Compliance with standard precautions in Group 1 was inadequate in 77%, 23%, and 16% of nurses, physicians, and others, respectively. A greater proportion of HCWs in Group 1 (74% vs. 40%) reported occupational accidents within two hours after exposure ($p = 0.0001$). No difference was observed regarding compliance with adherence to schedule, partial adherence, and loss at follow-up (14%, 33%, and 53%; $p > 0.05$). Adherence to the standard of care for BBP-OE, including postexposure prophylaxis, was low (HIV: 53% and HBV: 63%). Knowledge of the seropositive status of the source patient did not improve adherence. We conclude that postexposure programs do not guarantee appropriate behavior by HCWs. General interventions and ongoing personnel education to modify individual attitudes are needed, as are continued efforts to assess HCWs' experiences with these programs, as well as the identification of strategies to improve adherence.

BRAZIL

Balsamo AC, Felli VE. Study of work accidents related to human body fluids exposure among health workers at a university hospital. [in Portuguese] *Revista Latino-Americana de Enfermagem* 2006;14:346-53.

ABSTRACT- This descriptive and exploratory study from a quantitative approach aimed to characterize workers who were victims of work accidents related to human body fluids exposure and to evaluate the accident victim care protocol. The population consisted of 48 workers who were victims of work accidents involving exposure to human body fluids, from July 2000 to June 2001. Data were collected through a form and interviews. Results showed that nursing workers presented higher accident risk levels and that 87.50% involved piercing and cutting material, such as needles and butterflies (70%). As to the accident-related situation/activity, the workers indicated that 25% were due to an

"inadequate act during the procedure"; 19.64% mentioned that "it happened" and 29.17% answered that they did not have any suggestion. This study provided important tools to review and elaborate strategies to prevent accidents involving exposure to human body fluids.

Brandi S, Benatti MC, Alexandre NM. [Accidents with sharp instruments in nurses in a university hospital in Campinas, Sao Paulo] [Portuguese] *Revista da Escola de Enfermagem - USP* 1998;32:124-33.

Bredt CS, Monteiro AL, Ramalho M, Orrico G, Santos NJ, Ruiz EA, Felipe E, Caminada S. Rate of underreporting needle stick exposures in a referral center for treatment of patients infected with HIV. 2000 *Int Conf AIDS* (Jul 9-14);13: abstract no. ThPpC1456. **ABSTRACT-** Background: After the official CDC recommendation to use chemoprophylaxis for post exposures injuries with needle sticks, there is no data referring rates of underreported exposures. In the last year, only 18 exposures were reported in our institution, but the underreporting rate is not known. Objective: To evaluate the rate of underreporting exposures with needle stick injuries, possible factors related to this rate and the characteristics of the exposures. Methods: The Center for Referral and Training STD/ AIDS is a public health care facility for treatment of patients with AIDS . Data were collected within a month (10/1/99-10/31/99). Anonymous and voluntary questionnaires were answered by health care workers (HCW) (physicians, registered nurses, nursing auxiliaries, dentists, lab technicians and housekeepers) Results: 164 HCW answered the questionnaire (67.5%, N = 243). 24 exposures were reported in the last year (14.6%); 79% of the exposures occurred in HCW admitted more than 1 year before; 91% of the exposures occurred during daytime and only 54% of the exposures were reported on the same day. 3/6 HCW didn't report their exposures because they judged that there was no risk. From the exposures reported, 58.3% occurred among nurses, 17% among housekeepers, 12.5% among lab technicians and 12.5% among physicians and dentists. Conclusions: Others authors report rates of underreporting between 70 and 90% among HCW. We found 21% of underreporting exposures. We believe that this rate is very high in an institution where 100% of the patients are infected with HIV. Educational efforts also must be carried out to reduce the time of reporting after the exposure.

Brevidelli MM, Cianciarullo TI. Analysis of needlestick injuries at a university hospital: occurrence situations and tendencies. [in Portuguese] *Revista Latino-Americana de Enfermagem* 2002;10:780-6.

ABSTRACT- Needlestick injuries remain the major source of risk of acquiring bloodborne diseases (AIDS, hepatitis B and C). Therefore, it is a priority discussing strategies of intervention based in sources of risk. The purpose of this study was to analyze needlestick injuries occurred at a university hospital. A data base construction made possible to identify the situations in which those accidents occur and standards of tendencies along the years. The data pointed out that the majority of needlestick injuries occurred while performing or assisting procedures. The introduction of the first prevention measures (universal precautions) reduced the total number of needlestick injuries. However, changes in needlestick-injury rates related to the recapping were not observed. Authors discussed the use of different prevention strategies: introduction of

safety devices, changing the training focus, and the reorganization of the work environment and work practices.

Brevidelli MM, Cianciarullo TI. Application of the health belief model to the prevention of occupational needlestick injuries. [in Portuguese] *Revista de Saúde Pública* 2001;35:193-201.

ABSTRACT- Objective: To prevent health care professionals from acquiring blood-borne diseases (AIDS, hepatitis B and C), it is recommended that needles should not be recapped. However, these professionals frequently do not comply with this recommendation. The main purpose of this study was to assess this problem by using the Health Belief Model (HBM) to correlate the compliance with the recommendation of not recapping needles with: (1) these professionals' perceptions regarding one's susceptibility and severity to blood-borne infections; (2) their perceptions regarding the benefits and barriers to comply with this recommendation; and (3) the cues received to comply with this recommendation. Methods: Nursing staff at a hospital were asked: (1) how frequently they have recapped needles in the previous month; and (2) their HBM beliefs. To quantify and measure these beliefs, Likert scales were created and went through a validation regarding their content (referees) and construct (exploratory factorial analysis) and their reliability analysis (correlation of two halves and Cronbach's alpha coefficients). The relationship of beliefs and compliance with the recommendation of not recapping needles was obtained through regression analysis. Results: A nursing staff sample was obtained through voluntary cooperation (n=319). In this group, 75% admitted recapping needles at least once. Nursing professionals who most frequently follow the recommendation of not recapping needles have less than two years of professional experience and they are the group who perceive less barriers and more benefits to follow the recommendation. These results initiated a discussion on restructuring the professional training provided by the hospital.

Canini SR, Gir E, Hayashida M, Machado AA. Needlestick injuries among nursing staff members at a university hospital in the interior of São Paulo State. [In Portuguese] *Revista Latino-Americana de Enfermagem* 2002;10:172-8.

ABSTRACT- The risk presented by health care workers of acquiring bloodborne pathogens is well documented by the literature, which shows that Aids and Hepatitis acquired in the work setting is a real fact. This descriptive retrospective study was conducted in a university hospital in 1998 and aimed at analyzing needlestick injuries in nursing workers. Results showed that of the 398 officially reported occupational accidents, 125 (30.40%) were needlestick injuries and that 89 (71.20%) occurred among nursing workers. The most frequent occurrences took place during medication administration (25.78%). Authors concluded that nursing workers were the most frequently victimized workers by occupational accidents involving needlestick injuries.

Canini SR, Gir E, Machado AA. Accidents with potentially hazardous biological material among workers in hospital supporting services. *Revista Latino-Americana de Enfermagem* 2005;13:496-500.

ABSTRACT- Descriptive study was carried out to characterize the occupational accidents involving potentially contaminated material among workers of hospital

supporting services. The study reviewed records of workers involved in these accidents and attended at a specialized outpatient clinic of a large tertiary care hospital between January 1997 and October 2001. A total of 2814 workers from different professional categories were attended during this period. Of these, 147 (5.2%) belonged to the hospital supporting services and were the victims of 156 accidents, auxiliary cleaning personnel (80.2%), and over a third of the workers had not received any dose of hepatitis B vaccine (35.4%). Most accidents were due to sharp injuries (96.8%) caused by inadequately discarded hollow needles. Chemoprophylaxis for HIV was not indicated in only 23.1% of cases. We conclude that these workers are also exposed to the possibility of acquiring blood-borne pathogens and that periodical education programs are needed.

Chiodi MB, Marziale MH, Robazzi ML. Occupational accidents involving biological material among public health workers. *Revista Latino-Americana de Enfermagem* 2007;15:632-8.

ABSTRACT: This descriptive research aimed to recognize the occurrence of work accidents (WA) involving exposure to biological material among health workers at Public Health Units in Ribeirão Preto-SP, Brazil. A quantitative approach was adopted. In 2004, 155 accidents were notified by means of the Work Accident Communication (WAC). Sixty-two accidents (40%) involved exposure to biological material that could cause infections like Hepatitis and Aids. The highest number of victims (42 accidents) came from the category of nursing aids and technicians. Needles were responsible for 80.6% of accidents and blood was the biological material involved in a majority of occupational exposure cases. This subject needs greater attention, so that prevention measures can be implemented, which consider the peculiarities of the activities carried out by the different professional categories.

de Almeida CAF, Benatti MCC. Occupational exposure of health care workers to organic fluids and adhesion to chemoprophylaxis. [in Portuguese] *Revista da Escola de Enfermagem da USP* 2007;41:120-6.

ABSTRACT- This study was aimed at investigating the characteristics of occupational accidents and of the workers that suffered them, and at evaluating the adhesion to chemoprophylaxis and to control and follow up tests after occupational accidents with risk of contamination by the human immunodeficiency virus and of the hepatitis B and C virus. This is a descriptive epidemiological study whose data was collected from the notifications of one of the administrative regions of the State of São Paulo's Secretary of Health between 2000 and 2001. It was observed 7.3% of refusals for chemoprophylaxis against human immunodeficiency virus by antiretrovirals, and that 40.6% of the care workers who accepted the chemoprophylaxis did not complete the treatment in the four weeks estimated for it. This diagnosis highlights the need for the institutions involved to establish strategies that make possible an increase in the adherence of health workers to these care procedures.

de Almeida CB, Pagliuca LM, Leite AL. Labor accidents involving the eyes: assessment of occupational risks involving nursing workers. [in Portuguese] *Revista Latino-Americana de Enfermagem* 2005;13:708-16.

ABSTRACT- The study aimed at identifying nursing workers who were victims of eye accidents and the type of accident; describing the measures taken and proposing Health Education methods. A descriptive and exploratory study was carried out at a public maternity hospital from September 2002 to January 2003. Data were collected through direct observation of the environment and interviews with workers. Subjects were ten professionals (one nurse, two technicians and seven nursing auxiliaries) who were victims of work accidents involving the eye. The accidents were grouped according to the type of material that caused the trauma: chemical substances (4), medication (3), mechanical trauma (1), scalp (1) and urine (1). The results reveal that hospital workers are vulnerable to labor accidents because the environment presents biological, chemical and physical risks. An important step to prevent the occurrence of new accidents would be the prevention of human mistakes through permanent training and the use of protection glasses.

Garcia LP, Blank VLG. Management of occupational exposures to potentially infectious materials in dentistry. [in Portuguese] *Revista de Saúde Pública* 2008;42:279-86.

ABSTRACT- Objective: To evaluate whether post-exposure measures referred by dentists and dental assistants are in line with those recommended by Brazilian health authorities. Methods: An epidemiological survey was carried out in a city of Southern Brazil, in 2003. Subjects (289 dentists and 104 dental assistants) were selected through random systematic sampling. Data were collected through self-reported questionnaires. Results: Washing the exposure site was the most common measure taken by dentists (98.5%) and assistants (89.2%) after sustaining a percutaneous injury. More dentists asked the patients if they carried blood-borne viruses after sustaining a percutaneous injury (44.6%) than a splash to a mucous membrane (14.3%). Taking post-exposure prophylaxis, notifying the accident and requesting blood tests to patients were the least remembered and taken measures by dentists and assistants. After sustaining an occupational exposure to potentially infectious materials, 10.8% of dentists and 2.7% of dental assistants sought medical care. Conclusions: Based on the Brazilian Ministry of Health recommendations, post-exposure management among the study population was considered, in general, inadequate, especially among dental assistants.

Garcia LP, Blank VLG, Blank N. Adherence to personal protection against hepatitis B among dentists and dental assistants. [in Portuguese] *Revista Brasileira de Epidemiologia* 2007;10:525-35.

ABSTRACT- Objective: The Hepatitis B virus poses a recognized occupational risk to dental careworkers. All dental care workers must be protected through immunization, with completion of vaccine series, and monitoring of vaccine response. This study examined the adherence to personal protection against hepatitis B, including vaccination and use of personal protective equipment, among dentists and dental assistants in the city of Florianópolis, South of Brazil. Methods: In this cross-sectional study, data were collected through self-reported questionnaires. Responses were obtained from 289 dentists and 104 dental assistants. Results: The prevalence of complete hepatitis B series vaccination was 73.4% among dentists and 39.4% among dental assistants. Only 32.1% and 21.9% of them, respectively, monitored vaccine response. A complete vaccine series was associated with year of graduation as of 1997 (PR = 1.16; IC95% = 1.01-1.33)

and working mainly in a surgical specialty (PR = 1.24; IC95% = 1.02-1.51) among dentists, and with attending a training program among assistants (PR = 1.96; IC95% = 1.23-3.14). The proportion of always wearing gloves, masks, and protective eyewear was higher among dentists than assistants. Conclusion: Campaigns are necessary to vaccinate those who neither have been vaccinated nor have completed vaccine series and to inform about the need of vaccine response monitoring. Educational training is recommended to improve adherence to personal protection, specially focused on dental assistants.

Grande Gimenez Marino C, El-Far F, Barsanti Wey S, Servolo Medeiros EA; Hospital Epidemiology Committee, Federal University at Sao Paulo, SP, Brazil. Cut and puncture accidents involving health care workers exposed to biological materials. *Brazilian Journal of Infectious Diseases* 2001;5:235-42.

ABSTRACT- The first report of occupational acquisition of HIV appeared in 1984, and, by June, 1997, the Centers for Disease Control and Prevention (CDC) had reported 52 documented cases of sero-conversion following occupational exposure to HIV-1 by health care workers of those cases. 47 (90.3%) were exposed to blood. The most frequent type of accident reported was percutaneous needlestick injury. Prospective studies have estimated that the risk of HIV transmission following percutaneous exposure to infected blood is 0.3% (Confidence Interval 95% = 0.2% to 0.5%). Following a mucous membrane exposure, the risk is 0.09% (CI 95% = 0.006% to 0.5%). The risk of hepatitis B acquisition ranges from 6% to 30%, and hepatitis C acquisition, 3% to 10%.

Since 1992, the São Paulo Hospital's Hospital Infection Prevention and Control Service (SPCIH) has notified and treated all workers exposed to accidents involving biological materials. In the last six years, we have handled approximately 1,300 cases of reported accidents, of which 90% were percutaneous, most involving needlesticks. Such cases were frequently caused by the inadequate disposal and recapping of needles. In these accidents, 20% of the source patients were HIV positive, 10% were hepatitis C positive, and 7.6% were hepatitis B positive. This review summarizes the guidelines for a standardized response when dealing with accidents involving health care workers. Transmission of hepatitis B and HIV can be reduced if adequate preventive measures are taken in advance. If proper prophylaxis is not being done, it should be initiated immediately.

Machado AA, da Costa JC, Gir E, Moriya TM, Figueiredo FC. [Risk of infection by the human immune deficiency virus (HIV) among health professionals.] [in Portuguese] *Revista de Saúde Pública* 1992;26:54-6.

ABSTRACT- To investigate the occupational risk of infection by HIV among health professionals, 36 cases of occupational accidents involving exposure to material potentially infected with HIV, reported at a Brazilian General Hospital (HCFMRP), were studied. Of the injured workers 75% were female and 25% male (ranging from 23 to 49 years old) and just one of them had high-risk behavior of HIV infection. Of these health professionals, 52.8% were nursing auxiliaries, 19.4%, nurses, 13.9%, nursing attendants, 5.5%, laboratory technicians, 2.8% surgery instrumentalist, 2.8% accountants and 2.8% nursing technicians. In 47.2% of cases the workers had a parenteral exposure to blood (needlestick injuries). The right hand and fingers were the body areas most affected. The serologic test to detect HIV antibodies by the ELISA method was required of all the

workers. The results were negative and no seroconversion was registered during the one year follow-up period. The professionals were retested one month, 2 months, 6 months and one year after the exposure. In conclusion, the risk of infection by HIV among health professionals of HCFMRP seems to be very low. Continuing education should be provided for health care workers with a view to reinforcing the use of universal precaution, especially those to prevent injuries cause by needles or other sharp instruments.

Machado AA, Martinez R, Haikal AA, Rodrigues da Silva MC. Advantages of the rapid HIV-1 test in occupational accidents with potentially contaminated material among health workers. *Revista do Instituto de Medicina Tropical de São Paulo* 2001;43:199-201.

ABSTRACT- In occupational accidents involving health professionals handling potentially contaminated material, the decision to start or to continue prophylactic medication against infection by Human Immunodeficiency Virus (HIV) has been based on the ELISA test applied to a blood sample from the source patient. In order to rationalize the prophylactic use of antiretroviral agents, a rapid serologic diagnostic test of HIV infection was tested by the enzymatic immunoabsorption method (SUDS HIV 1+2, MUREX®) and compared to conventional ELISA (Abbott HIV-1/ HIV-2 3rd Generation plus EIA®). A total of 592 cases of occupational accidents were recorded at the University Hospital of Ribeirão Preto from July 1998 to April 1999. Of these, 109 were simultaneously evaluated by the rapid test and by ELISA HIV. The rapid test was positive in three cases and was confirmed by ELISA and in one the result was inconclusive and later found to be negative by ELISA. In the 106 accidents in which the rapid test was negative no prophylactic medication was instituted, with an estimated reduction in costs of US\$ 2,889.35. In addition to this advantage, the good correlation of the rapid test with ELISA, the shorter duration of stress and the absence of exposure of the health worker to the adverse effects of antiretroviral agents suggest the adoption of this test in Programs of Attention to Accidents with Potentially Contaminated Material. MEDEIROS, Eduardo Alexandrino Servolo, BAKOWSKI, Elcio, SASSI, Silvia Janice Gomes et al. Adverse events relating to antiretroviral prophylaxis for occupational accidents. *Rev. Saúde Pública*, Apr. 2007, vol.41, no.2, p.294-296. ISSN 0034-8910. The objective of the study was to describe adverse events detected clinically or in the laboratory that were secondary to the use of antiretroviral agents among individuals undergoing antiretroviral prophylaxis. Evaluations were performed on 37 teaching hospital employees who underwent prophylaxis using four regimens of antiretroviral medication following occupational exposition to contaminated fluids from patients with human immunodeficiency virus infection. Thirty-two (86.5%) developed adverse events detected clinically or in the laboratory. The prophylaxis administered to two professionals (5.4%) had to be suspended because of the reactions that occurred. Adverse events relating to prophylaxis for HIV infection in health care workers who were victims of occupational accidents were frequent. However, it was rarely necessary to withdraw the antiretroviral medication.

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Management of occupational bloodborne exposure in a dental teaching

environment.

Machado-Carvalho HP, Martins TC, Ramos-Jorge ML, Magela-Machado D, Paiva SM, Pordeus IA.

ABSTRACT- The aims of this cross-sectional study were to investigate the prevalence of reporting occupational accidents regarding exposure to biological material among undergraduate students of dentistry at an institution of higher education and to estimate risk factors associated with underreporting. Data were collected by means of a questionnaire, which had an 86.4 percent rate of return. The sample was made up of 286 undergraduate dental students enrolled in the clinical component of the curriculum, corresponding to the final six semesters of study. The average age of the subjects was 22.4 years. Descriptive, bivariate, simple logistic regression and multiple logistic regression (Stepwise Forward Procedure) analyses were performed, with the significance level set at $p < 0.05$. Of the total 167 individuals who had been exposed to biological material, 120 (71.9 percent) failed to report the accidents. The variables that were statistically associated with the nonreporting of occupational accidents were nonexposure to blood (OR=4.0; CI 95%: 1.7-10.0) and the fact that the students considered the exposure to be minor or of low risk (OR=8.8; CI 95%: 3.5-23.0) or considered the protocol adopted by the institution to be inadequate (OR=5.2; CI 95%: 1.2-17.1). The development of a procedure review policy is recommended with the aim of establishing continuous vigilance and encouraging the reporting of bloodborne exposure.

Marziale MHP, Nishimura KYN, Ferreira MM. Contamination risks caused by occupational accidents with cutting and piercing material among nursing workers. *Revista Latino-Americana de Enfermagem* 2004;12:36-42.

ABSTRACT: This study aimed to identify, among nursing workers from four hospitals in the region of Ribeirão Preto-SP, Brazil, victims of occupational accidents with cutting and piercing material, who were sent for evaluation at a service specialized in treating infectious diseases, individuals who were contaminated and the conduct adopted as a result of the accidents. This is a descriptive field research. The sample consisted of 30 subjects and data were collected by consulting the workers' medical files. The results showed that none of the workers had been contaminated by HBV, HCV or HIV. However, it was observed that only 23.33% of them had kept all the scheduled appointments in order to verify a possible serum conversion. Concerning the conducts adopted as a result of the accident, the use of chemoprophylaxis was recommended in 76.67% of the cases, serological tests in 100% and immunization against Hepatitis in 9.99%. Due to the high occurrence of percutaneous accidents, according to official estimates from other countries, it was concluded that more attention must be given to the prevention of these accidents, as well as to the strict follow-up of workers after occupational exposure.

Marziale MHP, Rodrigues CM. The scientific production on occupational accidents with needlestick materials among members of the nursing team. [in Portuguese] *Revista Latino-Americana de Enfermagem* 2002;10:571-7.

ABSTRACT- This study has the purpose to identify methodological approaches used in research articles published in the last 16 years by periodicals indexed to the Lilacs and Medline databases. Its authors searched for studies on occupational accidents involving

needlestick materials in order to identify the facts that predispose this kind of accident among nursing workers. Fifty-five articles were analyzed, of which thirty-nine were international and sixteen were national. The most frequently used methodological approaches were field description, action research and bibliographic research. Among the factors that predispose this kind of accident in various countries, the inadequate practice of recapping needles and inadequate material disposal can be distinguished.

Nishide VM, Benatti MCC, Alexandre NMC. [The occurrence of work accidents at an intensive care unit.] [in Portuguese] *Revista Latino-Americana de Enfermagem* 2004;12:204-11.

ABSTRACT- This descriptive study identified the work accidents that occurred among nursing staff working at an intensive care unit and correlated the accidents with the procedure being executed by the worker at the time of the accident. Data were collected through individual interviews realized with 68 workers during 2001. It was verified that the accidents were primarily due to contact of blood and secretions with skin and mucosa, injuries due to perforating objects, falls and vertebral column lesions. The accidents were related to orotracheal tube aspiration, handling of excreta/secretions, preparation of medication, blood collection, wet floor and patient transport. It was concluded that changes in the work environment and prevention programs are needed to reduce accidents during patient care procedures.

Rapparini C. Occupational HIV infection among health care workers exposed to blood and body fluids in Brazil. *American Journal of Infection Control* 2006;34:237-40.

ABSTRACT- Background: Exposure to bloodborne pathogens poses a serious risk to health care workers (HCWs). Surveillance systems of occupationally acquired human immunodeficiency virus (HIV) infection have been developed in several countries, mainly in the developed world. The purpose of this study was to identify cases of occupationally acquired HIV infection among HCWs in Brazil. Methods: A systematic literature review was conducted. The databases searched were MEDLINE and LILACS (1981 to 2004), academic dissertations and theses (1987 to 2004), abstracts from national and international meetings during the last 10 years, and local and national bulletins. Reference lists to identify other relevant articles were checked. Results: The database searches generated a total of 60,770 titles. Two hundred and nineteen references were finally analyzed. Four documented cases of occupational HIV infection were identified. All of the cases involved nursing staff and were percutaneous exposures. Seventy-five percent occurred after a procedure involving a needle placed directly into a vein or artery. Most (75%) had source patients with probable high viral load and low CD4 count. Two cases represented HIV seroconversion despite initiation of postexposure prophylaxis. Only one case (1/4; 25%) presented acute retroviral illness. Conclusion: After an extensive literature search, 4 documented occupational HIV infection cases were identified, only 1 of which had been published in a scientific journal. Our findings were consistent with the majority of documented infections worldwide. Surveillance systems are indispensable to establish and formulate rational policies for minimizing the risk of occupational infection, not only from HIV but also from hepatitis B and C viruses and other bloodborne pathogens.

Rapparini C, Saraceni V, Lauria LM, Barroso PF, Vellozo V, Cruz M, Aquino S, Durovni B. Occupational exposures to bloodborne pathogens among healthcare workers in Rio de Janeiro, Brazil. *Journal of Hospital Infection* 2007;65:131-7.

ABSTRACT- Healthcare workers (HCWs) frequently face the risk of occupational infection from bloodborne pathogens following exposure to blood and body fluids. This study describes the results of a surveillance system of occupational exposure to bloodborne pathogens among HCWs in Rio de Janeiro, Brazil, during an eight-year period. A total of 15 035 exposures reported from 537 health units were reviewed. Six circumstances comprised nearly 70% of the reported exposures: recapping needles (14%), performing surgical procedures or handling surgical equipment (14%), handling trash (13%), during disposal into sharps containers (13%), performing percutaneous venepuncture (10%) and during blood drawing (5%). Easily preventable exposures, such as incidents related to recapping needles, handling trash, and sharps left in an inappropriate place, represented 30% of the exposures reported. Post-exposure prophylaxis (PEP) for human immunodeficiency virus (HIV) was initiated for 46% of exposed HCWs. Although Brazilian guidelines indicate that PEP is usually not recommended for exposures with insignificant or very low risk of HIV infection, PEP was prescribed to a large proportion of exposed HCWs under these circumstances. The prevention of occupational exposure to bloodborne pathogens among HCWs and their safety must be considered as a public health issue. Although infection-preventative measures such as antiretroviral drugs and rapid tests are available, this study shows that there are still a high number of easily preventable exposures. The implementation of more effective prevention strategies is urgently required in this country.

Reis RK, Gir E, Canini SR. Accidents with biological material among undergraduate nursing students in a public Brazilian university. *Brazilian Journal of Infectious Diseases* 2004;8:18-24.

ABSTRACT- During their academic activities, undergraduate nursing students are exposed to contamination by bloodborne pathogens, as well as by others found in body fluids, among which are the Human Immunodeficiency (HIV), Hepatitis B and C viruses. We developed a profile of victimized students, characterizing accidents with biological material occurring among undergraduate nursing students at a public university in São Paulo State, Brazil. We identified the main causes and evaluated the conduct adopted by students and their reactions and thoughts concerning the accidents. Seventy-two accidents were identified, of which 17% involved potentially contaminated biological material. Needles were the predominant cause of accidents. The most frequently involved topographic areas were the fingers. Only five students reported the accidents and sought medical care. Among these, two students were advised to begin prophylactic treatment against HIV infection by means of antiretroviral drugs. It was found that the risk of accidents is underestimated and that strategies such as formal teaching and continual training are necessary in order to make students aware of biosafety measures.

CAIXETA, Roberta de Betânia and BARBOSA-BRANCO, Anadergh. Work-related accidents in health care workers from public hospitals in Brasilia, Brazil, 2002/2003. *Cad. Saúde Pública*, May/June 2005, vol.21, no.3, p.737-746. ISSN 0102-311X.

This study evaluates the knowledge and acceptance of biosafety measures by health care professionals in light of the potential risk of occupational transmission of HIV. The

survey assessed 570 health care workers from 6 hospitals, randomly selected from all hospitals in the Federal District (Brasilia), Brazil. The sample corresponds to 15.0% of the all health professionals in the selected hospitals. These professionals answered a semi-structured questionnaire on knowledge of biosafety and universal precautions, risk of occupational HIV transmission, work-related accidents, use of personal protective equipment (PPE), and acceptance of chemoprophylaxis and HIV testing. The overall accident coefficient was 39.1. Dentists, physicians, and laboratory technicians were those who most frequently suffered such accidents. The accident coefficient was inversely proportional to the hospital capacity. The professionals' knowledge of biosafety concepts and the fact that written norms were displayed in their workstations did not positively affect the work accident coefficient.

Reis JM, Lamounier Filho A, Rampinelli CA, Soares EC, Prado Rda S, Pedroso ER. [Training-related accidents during teacher-student-assistance activities of medical students.] [in Portuguese] *Revista da Sociedade Brasileira de Medicina Tropical* 2004;37:405-8.

ABSTRACT- A survey was done to determine the most common hospital accidents with biologically contaminated material among students at the Medical College of the Federal University of Minas Gerais. Six hundred and ninety-four students (between fifth and twelfth semesters of the college course) answered the questionnaire individually. Three-hundred and forty-nine accidents were reported. The accident rate was found to be 33.9% in the third semester of the course, and increased over time, reaching 52.3% in the last semester. Sixty-three percent of the accidents were needlestick or sharp object injuries; 18.3% mucous membrane exposure; 16.6% were on the skin, and 1.7% were simultaneously on the skin and mucous membrane exposure. The contaminating substances were: blood (88.3%), vaginal secretion (1.7%), and others (9.1%). The parts of the body most frequently affected were: hands (67%), eyes (18.9%), mouth (1.7%), and others (6.3%). The procedures being performed when the accidents occurred were: suture (34.1%), applying anesthesia (16.6%), assisting surgery (8.9%), disposing of needles (8.6%), assisting delivery (6.3%), and others (25.9%). Forty-nine percent of those involved reported the accident to the accident control department. Of these 29.2% did not receive adequate medical assistance. Eight percent of those involved used antiretroviral drugs and of these 86% discontinued the treatment on receiving the Elisa method applied to the patient (HIV-negative); 6.4% discontinued the treatment due to its side-effects; and 16% completed the treatment.

Rissi MRR, Machado AA, Figueiredo MA. Health care workers and AIDS: a differential study of beliefs and affects associated with accidental exposure to blood. *Cadernos de Saúde Pública* 2005;21:283-91.

ABSTRACT- The aim of this study was to analyse the affective and cognitive determinants of the professional work of individuals caring for patients with HIV/AIDS, in view of the risk and/or experience of accidental exposure to blood. We used the theoretical-methodological references of Fishbein & Ajzen and Maslow's theory. Fifty health care workers at the Special Unit for Treatment of Infectious Diseases Department, University of Sao Paulo, Sao Paulo, Brazil were evaluated using an attitudes questionnaire, and a needs and motivations instrument [date not given]. The differences

between the answers by health care workers who had never suffered accidents and those who had already experienced accidental exposure to blood, were determined. Health care workers did their work activities as motivated by the need for self-fulfillment, and valued their own performance when they were able to meet the patients' emotional needs. Among health professionals who had never experienced accidental exposure to blood, the predominant beliefs was that patients feel remorse over having expose themselves to HIV. Accidental exposure to blood raises difficulties in personal life. Technical aspects are also associated with the possibility of accidental exposure to blood.

Robazzi MLC, Marziale MHP. Regulatory standard 32 and its implications for nursing workers. [in Portuguese] *Revista Latino-Americana de Enfermagem* 2004;12:834-6.
ABSTRACT- Workers in health care institutions often face inappropriate work situations without considering them as dangerous, however, even if scientific evidence demonstrates the presence of various occupational risk agents in work environments. This text aimed to present Regulatory Standard (RS) 32, about Safety and Health at Work in Health Care Institutions. This RS is important in the Brazilian scenario, due to the absence of federal legislation about work safety and health issues in the health sector and due to the fact that existing regulations are dispersed and joined with other RS and resolutions, which were not developed specifically for this purpose. It is concluded that the implantation of this RS may result in beneficial changes, since protection procedures and measures will have to be taken, promoting safety at work and occupational accident prevention among health workers.

Sailer GC, Marziale MHP. Living experience of nursing workers faced with the use of antiretrovirals after occupational exposure to biological material. [in Portuguese] *Texto & Contexto - Enfermagem* 2007;16:55-62.
ABSTRACT- This study is based on the Health Belief Model, using a quanti-qualitative approach by means of percentage calculations as quantitative data, while presenting qualitative data through content analysis. This study aims to analyze significant beliefs among nursing workers who were victims of occupational accidents while exposed to biological material, either adhering to chemoprophylactic treatment or not with antiretroviral medication. This study evidenced and reveals the need to consider physical, personal, and emotional aspects of worker injuries when providing them care and to implement actions that minimize the occurrence of such injures.

Toledo ACC, Ribeiro FA, Ferreira FGF, Greco RMF. Knowledge, attitudes and behavior in relation to occupational risk for HIV among medical students of the School of Medicine Universidade Federal de Minas Gerais. [in Portuguese] *Revista da Sociedade Brasileira de Medicina Tropical* 1999;32:509-15.
ABSTRACT- The objectives of this study were to evaluate the occupational risk of medical students, their knowledge and practice of universal biosafety measures and hepatitis B immunization coverage. A specific questionnaire was applied to 136 medical students of the Universidade Federal de Minas Gerais: 87 (64%) students were involved in surgical procedures, 68 (50%) had been exposed to blood, 90 (66.2%) knew the universal biosafety measures and 33 (24.3%) knew the procedure in case of blood exposure. Thus, this population has a high risk of blood exposure and although there is a

low formal knowledge about universal biosafety measures, most of these were generally used. New strategies, such as formal teaching of universal biosafety measures, in loco supervision, and biosafety teams, are necessary to change this situation.

DOMINICAN REPUBLIC

Moro PL, Moore A, Balcacer P, Montero A, Diaz D, Gómez V, Garib Z, Weniger BG. Epidemiology of needlesticks and other sharps injuries and injection safety practices in the Dominican Republic. *American Journal of Infection Control* 2007;35:552-9.

ABSTRACT- Background: Contaminated sharps, such as needles, lancets, scalpels, broken glass, specimen tubes, and other instruments, can transmit bloodborne pathogens such as HIV, hepatitis B (HBV), and hepatitis C viruses (HCV). Methods: Observation of facilities and injections and questionnaire-guided interviews were conducted in 2005 among health care workers (HCWs) in 2 public hospitals in Santo Domingo and 136 public immunization clinics (IC) in the Dominican Republic. Injection practices and sharps injuries (SIs) in health care facilities in the Dominican Republic were assessed in cross-sectional surveys to identify areas in which preventive efforts might be directed to make injection practices safer. Results: Of the 304 hospital HCWs and 136 ICs HCWs interviewed, 98 (22.3%) reported ≥ 1 SIs during the previous 12 months. ICs had a lower incidence (13 per 100 per person-years [p-y]) of SIs than hospitals (65 per 100 p-y) ($P < .0001$). Unsafe needle recapping was observed in 98% of all injections observed at hospitals but in only 12% of injections at ICs ($P < .0001$). Sharps were observed improperly disposed in regular waste containers in 24 (92%) of 26 areas at which injections are prepared at the hospitals but in only 11 (8%) of 136 ICs ($P < .0001$). Training in injection safety was received by 4% of HCWs in hospitals but by 77% in ICs ($P < .001$). Of 425 HCWs, 247 (58%) were fully immunized against hepatitis B. There was a higher risk of SIs among staff dentists (adjusted relative risks [aRR], 5.9; 95% confidence interval [CI]: 2.8-12.6), resident physicians (aRR, 3.5; 95% CI: 1.8-6.9), and those who gave ≥ 11 therapeutic injections per day (aRR, 1.6; 95% CI: 1.1-2.4). Conclusion: Injection practices at ICs were safer than those found at public hospitals. Preventive strategies to lower SIs in public hospitals should include regular training of hospital staff to minimize needle recapping and improper disposal, among other interventions to reduce the dangers of needles.

MEXICO

Kato-Maeda M, Ponce-de-Leon S, Sifuentes-Osornio J, Rangel-Frausto MS, Calva-Mercado J, Infante-Surez L, Villareal FM, Ponce-de-León S. Bloodborne viral infections in patients attending an emergency room in Mexico City: estimate of seroconversion probability in healthcare workers after an occupational exposure. *Infection Control and Hospital Epidemiology* 2000; 21:600-2.

ABSTRACT: The frequency of hepatitis C (HCV), hepatitis B (HBV), human immunodeficiency virus (HIV), and human T-cell lymphotropic virus (HTLV) I/II was determined in the emergency room of a teaching hospital. Of 909 patients, 19% had at least one infection; 7.8% had HCV, 6.9% HBV, 3.3% HIV, and 2.8% HTLV I/II. The probability that a healthcare worker would have an accident with an infected patient and seroconvert was 4.99 to 24.9 per 100,000 venipunctures for HBV, 5.6 to 8.4 for HCV, and 0.12-0.16 for HIV in our emergency room.