International Journal of Advanced Biotechnology and Research (IJBR)
ISSN 0976-2612, Online ISSN 2278–599X,
Vol-8, Issue-3, 2017, pp1684-1690
http://www.bipublication.com

Research Article

Prevalence of injuries caused by sharp instruments among personnel of Imam Reza hospital, Kermanshah University during 2009-2012

Alireza Janbakhsh and Narsis ghahramani

Department of Infectious Diseases, Faculty of Medicine,
Kermanshah University of Medical Sciences, Kermanshah, Iran.
Email: narsisghahramani@yahoo.com

ABSTRACT

The healthcare workers are exposed to a wide range of business risks. Damage caused by sharp objects and win, the most common injury that threatens all people working in the health care system. In this study, we described the needle stick; an estimate of average annual risk is based on various positions.

Method of research: The study was cross-sectional sample consisted of 459 questionnaires Addicts completed by staff in Kermanshah Imam Reza Hospital during a four-year period (2009 to 2012) were studied.

Results:459 cases of needle stick recorded that 58% of them were female and 73%had a history of job opportunity less than or equal to 15 years, the incidence of 0.115 to average experienced over the years under study. The growing trend of injury caused by sharp objects, implying an increase of 56.6% in the last year compared to the base year. Needle stick the needle with 46.6% of the total, was allocated the largest share. Out of the hospital, the emergency rate of 0.2 the highest average risk, and Department of Radiology, was the least likely. The results showed that the risk of needle stick injury, the injury risk is independent of sex workers and hospital staff, and the highest was 6.45 times more than residents.

Conclusion: Due to the high risk of needle stick and the nursing staff And services need to be reviewed due to needle stick injury surveillance system, it seems quite sensible and requirements.

Keywords: needle stick, Needling, occupational injury

INTRODUCTION

Health workers are exposed to a wide range of hazards in the workplace. Injuries from sharp objects, one of the most common injuries that people working in the health care system - health threatening (1). Annually, about 500,000 injuries caused by sharp instruments among health care workers occur (2).

Penetrating injuries caused by medical skin sharp (needle stick), if infected blood or secretions of patients, the greatest danger that can threaten health workers (3). The most common needle sharp instrument is used among health care providers, which is why most of needle stick injuries to be allocated. Insistence on re-cap the needle can't be crushing needle devices, mandatory instructions and busy hospital personnel assigned top.

Studies have shown that most cases of needle stick in the morning happen that such a large amount of damage in the morning can be attributed to the workload of staff in the morning, high Statistics Admission and references to the operating room and higher sampling and business are attributed to this shift. As well as the high incidence of needle stick injuries in various sectors such as the emergency room, operating room, surgical ward, and ICU internal references (6-4).

In a study in Mazandaran, Iran showed that 57.3% of medical staff, had a history of exposure to needles. This ratio of 64.9% was reported in the study of Kurdistan (8 and 9). In addition to the risk of illness and death,

disability and long-term psychological trauma, phobias, stress and anxiety are to follow (10).

In this nakao 20%, 3/7% and 4/0% of needle stick injury infected with hepatitis C, hepatitis B and HIV (11) In this botsashoily Anti-HBc and HBsAg, respectively, 29% and 2% of healthcare workers have been reported, as well as the risk of hepatitis B among nurses was 6.2 times more likely (12). According to a serious case of blood-borne infections can cost the equivalent of a million dollars for testing, follow-up, costs associated with disability and loss of work time.

The economic cost of back injuries with sharp objects such as needles In the US, about 51 to 3766 dollars is estimated that approximately 14 to 839 people per 100 people of working age to be included in the clinical unit (13).

The injury with sharp objects based on the type and conditions of work, expertise and location of different activities (14). This study dive in the history of sharp objects between 18.7% to 28% of children and 46.9% of staff in the surgical department staff. In this study, Smith (2004), 95% of nurses had experienced needle stick during his service. In this study, Gershon (2009) only 14% of nurses had needle stick injury the past three years (15 and 16).

However, existing reports and check the status of needle stick in personnel and factors affecting it can correct and logical understanding of the incident to give us and to refresher courses, improve working conditions and reduce the incidence of adverse prevent this happening. Although the study with the same default by Khatooni and colleagues over a period of 6 months of 2012.

The frequency of injuries Needle stick to just the surgeons working at the University of Medical Sciences, Kermanshah meet the ever study of all aspects of the possible in this regard, there have not been conducted. Researchers believe that the described cases of needle stick estimate of the average annual risk assessment based on their different positions.

MATERIALS AND METHODS

This study is a cross-sectional study over a period of 4 years From 2009 to 2012 the incidence of needle stick in Health Hospital staff Imam Reza has examined Kermanshah. The final sample size was 459 registered cases of needle stick.

Infection control standard questionnaire consisted of demographic data including age, gender, work experience, academic degree, occupational field, including data related to needle stick incident involves a type of device, part of the infection.

Analysis of data obtained by the methods of descriptive statistics (frequency, percentage, mean, standard deviation) and statistical tests, chi-square and by using SPSS software version 18 and taking into account the significant level of was $P \leq 0/05$.

FINDINGS

The results of this study showed that the average annual incidence of needle stick in a 4-year study of 459 cases were estimated equivalent 115/0 That 95% of 104/0 to 126/0 parameter will be the population under study. Sex distribution of cases showed that 58 percent of those who suffer needle stick the needle stick were female And the highest incidence of job tenure with 4/48 percent of employees with work experience less than 5 years (Table 1).

The largest share by type of needle stick needles attributable to the 64.6% of the total cases were respectively (Table 2).

Table 1. Distribution of hospital staff of Imam Reza (AS) during 2009-2012

Work experience	percentage	count
Less than 5 years	48/4	222
between5-15 years	24/6	113
more than 15 years	9/8	45
Unknown	17/2	97
Total	100	459

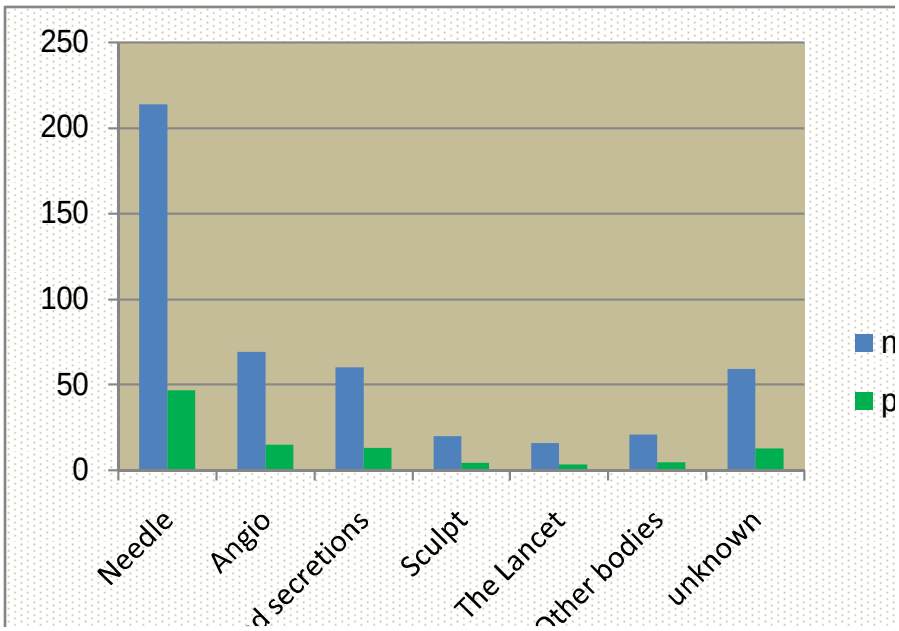

Figure 1: share various means of needle stick injuries

The report documented the damage caused by sharp objects and won during the period under study has shown that the lowest of the year 2009 and most of the 5/54 percent increase compared to the base year of 2012 (the last year of the study, respectively).

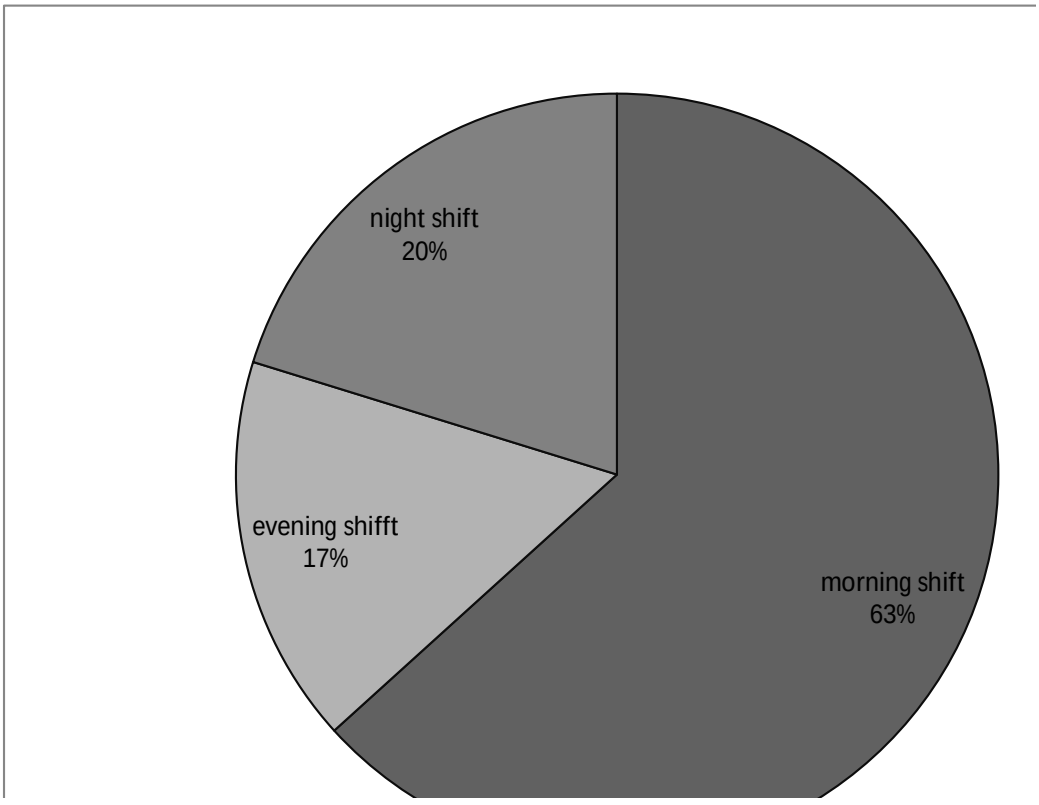

Figure 2: of the needle stick in terms of shifts in Kermanshah Imam Reza Hospital during the 2009 to 2012

Among the highest average annual incidence of hospital emergency departments and surgical annual average of 0.2 and 0.198 ,The lowest average annual incidence of radiology and CCU with an average of 0.017 and 0.055 respectively.

This difference was statistically significant proportion of the risk for emergency department radiology department was 11.8 (p<0/0001) Results revealed that the incidence of needle stick between the sexes there is a significant statistical difference was higher in women (P= 0.03)

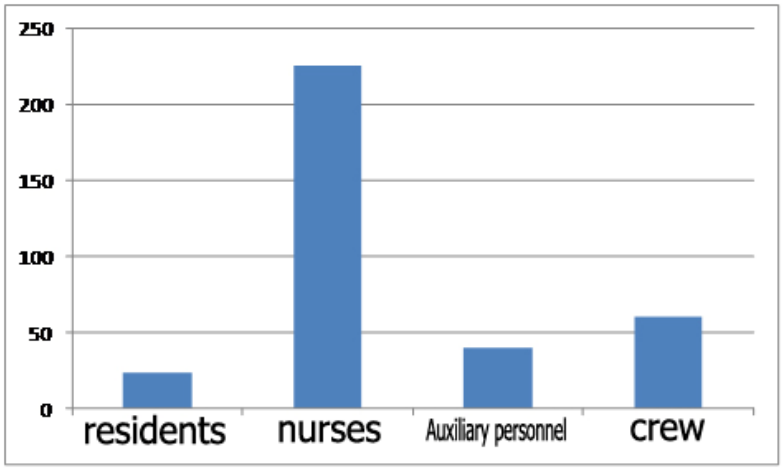

Figure 3 : high annual incidence rate based on academic and career

Compare the average annual incidence of injuries from sharp objects in the positions indicated it was important during the study, the highest risk of incidence of 0.2 and 0.1, respectively, with the crew and support staff. The difference between the two groups with the highest cumulative incidence was statistically significant, so that the relative risk was estimated for the crew of 2.9 times higher than the support staff ($p<0.0001$).The results also show that 362 patients (78.8 %) of the samples examined have received hepatitis B vaccine In respect of actions during this period to 18 after exposure to antiretroviral drugs were administered immediately after exposure to hepatitis B vaccine was inoculated 61 people. During the examination of evidence 8 personnel in this period through a needle stick with the blood of HCV-positive and 17 with the HBS positive and 8 people with the HIV, 1 person with someone who is HIV and HCV and HBS same time, and 3 people patients infected with HCV and HBS at the same time, they were faced .The investigation revealed that none of these patients have not been infected.

DISCUSSION

Needle stick (Needle stick) to damage said to be caused by a needle or a piece of broken needles or other sharp needle with blood or body fluids that probably had been caused (17). Often during activities such as blood transfusion and blood products, sampling, needle disposal, collection and disposal of blood and secretions caused (18). The damage from the most dangerous occupational injuries among health care providers and more than 20 pathogen can be transmitted through needle stick injuries (4).

In the present study recorded the needle stick in a 4-year period in the hospital Kermanshah Imam Reza Hospital were investigated. Our results showed that 58% of women who have had needle stick And between the sexes, the incidence of needle stick, there was a statistically significant difference ($P =0.03$).The findings of the study results in Borujen and LORDEGAN Heydari was also shinning in Zahedan Medical Sciences University study was in line (1, 19). The results Bhardwaj and colleagues found that the incidence of needle stick injuries reported in men more different in (20).

Therefore, this finding could indirectly reflect the inevitability of the needle stick was independent of traits such as sex. The highest incidence of job tenure in the study (48.4 %) of employees with work experience less than 5 years. This result is consistent with the findings of studies Rezai and colleagues (2009), Clarke et al (2007) matched (22 and 23). Low and low-service training experience can cause high levels of needle stick in the ground for the less experienced personnel. The results also show that the largest share of the needle stick, as in needles (64.6 %). In this rakhshani et al (2009) the highest amount of damage caused by the needle (19). The findings in studies Zeighami et al (2014), Cho et al. (2013), Afridi et al (2013), Nsubuga (2005) was also observed That the high incidence of needle stick injuries in various sectors such as the emergency room, operating room, surgical ward, ICU internal and pointed (4, 5, 25 and 26).

It is also necessary to bring safe injection training, including safety principles. Cover again, the lack of safety box and other possible causes could be involved in this issue. Results of this study showed that the majority of needle stick (63%) occurred in the morning. Due to the high volume of work in the morning was also expected. The studies Adib Haj Bagheri et al. (2013), Mbaisi et al. (2013) and Khaloei et al (2010) also noted a high incidence of needle stick in the morning (18, 27, 28).

The results showed that the highest average annual incidence of emergency and surgical departments with an average annual incidence of 0.2 and 0.198 The lowest average annual incidence of radiology and CCU with an average of 0.017 and 0.055 respectively. This difference was statistically significant proportion of the risk for emergency department radiology department was 11/8 (P <0.0001). Ghasemi consistent with the study, but study results are inconsistent Wicker Germany (2-3). In similar studies, including study Zeighami et al. (2014) working in the emergency department, traveler et al (2011) works in the ICU, Cho et al. (2013), Afridi et al (2013), Nsubuga (2005) works in the surgery, Hosseini majestic (2003) and Poorolajal (2004) work in the operating room, Azap (2005) works in the interior of the risk of needle stick have been reported (4, 5, 6, 25, 26, 30, 31 and 32). Nurses had the highest number of registered cases of needle stick. Numerous other studies as well as Kebede (2012) in Ethiopia, Lmgyr (2008) in Canada, Palm Ahmadi (2007) in Iran have shown that nurses and other health care workers at higher risk of needle stick (24, 33, 34). Afridi et al. (2013) and Nsubuga (2005) also increase the risk of needle stick nurse (25 and 26). With the help of immunizations to prevent a significant role in reducing the incidence of needle stick. As noted in the study, 362 patients (8/78%) of the samples examined have received hepatitis B vaccine.

The investigation revealed that none of these patients have not been infected. In similar studies, including the study Zeighami (2014) almost one hundred percent of nurses and all healthcare workers exposed anbari study, were vaccinated (4 and 35). In a study Afridi et al (2013) Needle stick injury in patients receiving booster dose of hepatitis approximately two against others (25).

In this Butsashvili, Anti-HBc and HBsAg, respectively, 29% and 2% of healthcare workers have been reported, as well as the risk of hepatitis B among nurses was 6.2 times more likely (12).

CONCLUSION

In this study, nurses were most vulnerable and at risk of needle stick highest to themselves. Therefore, special attention should be to protect the safety of our personnel. prevention of needle stick and how to deal with this problem by way of seminars, training boards awareness, pamphlets and workshops to provide nurses. To prevent injury or reduce its occurrence, providing training in the form of conferences and workshops, safety measures and standards, recommends the use of protective equipment, strengthen the practical skills of employees, staffing, according to the coverage of vaccination against hepatitis B and Evaluation of antibody after that, strengthening of disease surveillance and reporting, accurate completion of medical records personnel and diagnostic procedures, adequate and appropriate treatment and support. Among the limitations of this study are not available samples for direct use recorded data as well as the possibility of registration does not agree needle stick because of fear of side effects prophylaxis, lack of awareness, negative consequences career, busy up, ashamed , secrecy, lack of previous use of tools damage, fear of blame and create trouble, risk down the source of infection, the belief that needle stick it to someone irrelevant and meaningless the report, no one responsible for reporting, follow-up dissatisfaction, lack of familiarity with the reporting process, lack of understanding of risk. Given the findings of this study as a process of self-reporting employees BUH and with little attention to the findings of studies diverse in terms of damage caused by sharps that small part of the damage for care after exposure to refer (35). Should be reviewed to take care of needle stick injuries take urgent action While providing the appropriate data for functional studies of avoidable cases also be prevented.

REFERENCES:

1. Heydari, M. Q Shahbazi. The frequency of injuries from sharp instruments stained with the blood of the patient in the operating room staff of LORDEGAN and Borujen hospitals , 2011. Journal of Faculty of Nursing and Midwifery, Rafsanjan, 2011, 5(1):. (Persian).
2. Wicker s, jung j, allwinn r, Gottschalk r, rabenau hf, prevalence and prevention of needlestick injuriesamong health care workers in a german university hospital. Int arch occup environ health. 2007:8.
3. Ghasemi S, etemad sh, Pourmohamadjan n, Bashir j, Habib zadeh sh. Needle stick injury and factors in two groups of nurses and hospital workers are covered by medical university if ardebil, affiliated with the Infectious Disease Society of Tropical Infectious Diseases 2010, 46: 6(Persian).
4. Zeighami R, Azimian J, Haghi M, Kaboodi B, Bijani B, Haghi M. A comparison between the risk of needle stick injuries among nurses in emergency wards and nurses in other wards of hospitals. Modern Care 2014, 10 (4): 272-278. (Persian).
5. Cho E, Lee H, Choi M, Park SH, Yoo IY, Aiken LH. Factors associated with need stick and sharp injuries among hospital nurses: A cross-sectional questionnaire survey. International Journal of Nursing Studies 2013; 50: 1025-1032.
6. Rahnavard F, Reza Masouleh Sh, Seyed Fazelpour F, Kazemnejad Leili E. Study factors related to report the needle stick and sharps injuries report by nursing staffs of the educational and therapeutic centers of Guilan university of medical sciences, Rasht. Holistic Nursing and Midwifery Journal 2011; 65 (21): 30-37. (Persian).
7. Prüss-Üstün A, Rapiti E, Hutin Y. Global burden of disease from sharps injuries to health-care workers. World Health Organization ,Protection of the Human Environment, Geneva 2003
8. Babamahmoodi F. Study of Hepatitis B and C in Razi and Hazrat Fatemeh Zahra Hospital staff of Mazandaran Univrsity of Medical Sciences in 1375. Journal of Mazandaran University of Medical Sciences 2000. 25: 25-9
9. Mobasherizadeh S, Abne-Shahidi SA, Mohammadi NA, Abazari F: Intervention study of needle stick injury in Iran. Saudi Med J 2005;26: 1225-7.
10. Jagger J, Berguer R, Phillips EK, Parker G, Gomaa AE. Increase in sharp injuries in surgical settings versus nonsurgical settings after passago of national needlestick legislation. AORN Journal 2011; 93 (3): 322-330.
11. Nagao Y, Baba H, Torii K, Nagao M, Hatakeyama K, Linuma Y, et al. Along-term study of sharp injuries among health care workers in Japan. Am J Infect Control 2007; 35: 407-11.
12. Butsashvili M, Kamkamidze G, Kajaia M, Morse DL, Triner W, DeHovitz J, McNutt LA. Occupational exposure to body fluids among health care workers in Georgia. Occupational Medicine 2012; 62: 620-26.
13. Lee JM, Botteman MF, Xanthakos N, Nicklasson L. Needlestick injuries in the united states epidemiological, economic and quality life issues. AAOHN J 2005: 53: 117-133.
14. Khatooni a, Abdi a, vafaei k. The frequency of reported cases of injuries with sharp objects and their brand of surgical team of Kermanshah University of Medical Sciences, 2012. Iranian Journal of Surgery,2012, 6: 4 (Persian).
15. Smith DR, Wei N, Wang RS. Needle sticks and sharps injuries among Chinese hospital nurses. Advances in Exposure Prevention 2004; 7 (1): 11-12.
16. Gershon RR, Pearson JM, Sherman MF, Samar SM, Canton AN, Stone PW. The prevalence and risk factors for percutaneous injuries in rejistered nurses in the home health care sector. Am J Infect Control 2009; 37: 525-33.
17. Nouhi E, Khoshnood Z, Seyed Adel M. Needle stick and sharp object injuries among nursing & midwifery students of Kerman University of Medical science, 2007. IJNR. 2010; 5 (18):18-23 (Persian).
18. Adib-Hajbegheri M, Lotfi MS. Behavior of healthcare workers after injuries from sharp instruments. Trauma Monthly 2013; 18 (2): 75-80.
19. Rakhshani F, Heidari M, Barati S. Prevalence of Needlestick Injuries among the Healthcare Professionals in Zahedan Medical Sciences University. irje. 2009; 4 (3 and 4):87-91. (Persian).

20. Bhardwaj A, Sivapathasundaram N, Yusof MF, Minghat AH, Swe KMM, Sinha NK. The Prevalence of Accidental Needle Stick Injury and their Reporting among Healthcare Workers in Orthopedic Wards in General Hospital Melaka, Malaysia .Malays Orthop J. 2014; 8(2): 6-13.
21. Roqers B, Goodno L. Evaluation of intervention to prevent needle stick injuries in health care occupations. Am J Prev Med. 2000; 18(4): 90-8.
22. Rezaei Sh, Rabi Rad N, Tamizi Z, Fallahi Khoshkenab M, Mohamad Nejad E. An investigation in to occupational hazarda faced by nurses in pediatrics hospitals of Tehran University of Medical Sciences, 2006-2009. IJBNM 2013; 1 (4): 200-207.
23. Clarke SP. Hospital work environments, nurse characteristics, and sharps injuries. Am J Infect Control 2007; 35: 302-9.
24. Kebede G, Molla M, Sharma HR. Needle stick and sharps injuries among health care workers in Gondar city, Ethiopia. Safety Science 2012; 50: 1093-1097.
25. Afridi AK, Kumar A, Sayani R. Needle stick injuries-risk and preventive factors: a study among health care workers in tertiary care hospitals in Pakistan. Global Journal of Health Science 2013; 5 (4): 85-92.
26. Nsubuga F, Jaakkola MS. Needle sticks injuries among nurses in sub-Saharan Africa. Tropical Medicine and International Health 2005; 10 (8): 773-781
27. Mbaisi EM, Nganga Z, WanzalaP, Omolo J. Prevalence and factors associated with percutaneous injuries and splash exposures among health-care workers in a provincial hospital, Kenya, 2010. Pan African Medical Journal 2013; 14: 10-18.
28. Khalooei A, Iranpoor A, Hamzavinejad S, Rahmanian K. Study on epidemiology of needle sticke injury among nursing personnel of Kerman university hospital, Kerman, Iran in (2006-2007). Jornal of Jahrom University of Medical Sciences 2010; 7 (3): 42-49. (Persian).
29. Hashemi SH, Torabian S, Momani M, Moazen Dehkorfdi Sh. The Prevalence of Needlestick and Sharps Injuries among Health Care Workers in Hamadan, Iran. Scientific Journal of Hamadan University of Medical Sciences 2011; 18 (4): 41-46. (Persian).
30. Azap A, Ergonul O, Memikoglu KO, Yesilkaya A, Altunsoy A, Bozkurt G, et al. Occupational exposure to blood and body fluids among health care workers in Ankara, Turkey. Am J Infect Control 2005; 33: 48-52.
31. Hoseini Shokouh SJ, Ahmadi M. Knowledge and practice of health care workers about needle stick injury and blood borne pathogens in army 505 hospitals. JAUMS 2003; 2 (1): 119-124. (Persian).
32. Poorolajal J, Haddadi A, Asasi N, Mohammad K. Frequency of occupational exposure to blood or other potentially infectious materials and related factors in healthcare workers in Hamadan-2003. Iranian Journal of Infectious Diseases 2004; 27 (9): 1-9. (Persian).
33. Alamgir H, Cvitkovich Y, Astrakianakis G, Yu S, Yassi A. Needlestick and other potential blood and body fluid exposures among health care workers in British Columia, Canada. Am J Infect Control 2008; 36: 12-21.
34. Nakhle Ahmadi H, Khazaei T. Assessing the performance and knowledge of the medical staff of Imam Reza & Vali-asr hospitals in Birjand on the injuries resulting from needle stick. modern care j. 2007; 4 (1) 4 (1) :41-46. (Persian).
35. An bari K, Ghanadi K, Nazer M, Dortaj F, Mahdavian A. Study of occupational exposure to blood and body fluids of patients and related factors in health care workers employed in Khorramabad Shohada Ashayer hospital . Yafteh. 2013; 14 (5):5-11. (Persian).