



## Observing the Safety Precautions Against Blood-Borne Infections by Delivery Agents in Therapeutic and Training Hospitals of Tabriz in 2011-2012

Soheila Bani <sup>1</sup>, Shirin Hasanpour <sup>1\*</sup>

### Article History:

Received 12 October 2013  
Accepted 7 January 2014  
Revised 28 December 2013  
Available online 7 January 2014

### Keywords:

Blood Transmitted Diseases  
delivery agents  
safety precautions

### Corresponding Author:

Shirin Hasanpour, M.Sc in  
midwifery, Instructor of Nursing  
&Midwifery Faculty, Tabriz  
University of Medical Sciences,  
Tabriz, Iran.  
Tel: +989141151057  
Email:  
shirinhasanpoor@yahoo.com

### Abstract

**Objectives:** Blood transferred disease is one of the great difficulties for human and it is counted as one of the serious problems of public health. Although health care is valuable, it has some risks such as contacting with various pathogens, especially blood transferred pathogens, so the aim of this study is to observe the safety precautions against blood-borne infections by delivery agents in therapeutic and training hospitals of Tabriz in 2012.

**Materials and Methods:** This study is a descriptive research and all of the participants were the childbirth agents in 3 hospital of Tabriz (Alzahra, Taleghani, 29 Bahman). All of sample size was 100 persons. After obtaining informed consent, the questionnaires which contain demographic information and 24 statements that they were related to observance of safety points against blood transferred infections in childbirth rooms were given to participants to complete. The data were analyzed with SPSS software (Ver. 13).

**Results:** Results showed that the rate of total observance of safety precautions against blood transmitted diseases was good in 54% of delivery agents and in 46% of them was average.

**Conclusion:** Observing safety precautions against blood transmitted diseases needs motivation, effective education and necessary, that all of them should be in priority of health care planning by relevant authorities to reduce contaminated individuals and the costs of their treatment.

1- M.Sc in midwifery, Instructor of Nursing &Midwifery Faculty, Tabriz University of Medical Sciences, Tabriz, Iran.

## Introduction:

Blood-borne infections are transmitted by way of direct blood contact from one individual to another from injured skin or a mucous membrane. Blood-borne infections can also be transmitted through blood doping and drug abuse and through sexual contact (1).

Three pathogens account for most cases of occupationally acquired blood-borne infection: hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV)(2). Health care workers (HCWs) are at substantial risk of acquiring blood borne infections such as HIV, Hepatitis-B and Hepatitis-C through needle stick injuries (3).

At the end of 2009, an estimated 1,148,200 persons aged 13 and above were living with HIV infection in the United States, including 207,600 (18.1%) persons whose infections had not been diagnosed. CDC estimates that approximately 50,000 persons in the United States are newly infected with HIV each year. In 2010 (the most recent year that data are available), there were an estimated 47,500 new HIV infections. It is estimated that more than 95% of incidence rate and 95% of the mortality rate due to human immunodeficiency virus, occur in developing countries especially in young adults and women(4).

According to the World Health Organization, there are almost 385 million chronic carrier of Hepatitis B in the world now, and almost one million people die as the result of virus complication, annually (5).

Healthcare personnel (HCP) are at risk from occupational exposure to airborne and bloodborne pathogens, and the risk of infection among HCP is greater than among the general population.(6)

The hospital work environment contains many safety hazards such as wet floors, flammable or explosive liquids. The most common hazards are well-recognized, but others can only be recognized and corrected by trained workers.(7)

Health care workers are at risk of acquiring blood born infections in their workplace. Needle stick injuries, blood and body fluids contact to non-intact skin and accidental splash to the mucus membrane are known to transmit infections. (8).personal protective

equipment includes gloves, goggles, aprons, respirators, muffs, and boots. Although the use of such equipment is generally the least desirable way to control workplace hazards. The equipment should be available. Personal protective equipment is frequently uncomfortable and difficult to work in, and it must be adequately maintained. Maintenance requires constant supervision and training..(7)

In a study, A total of 618 health care workers were interviewed about exposure in the past three months prior to this interview. Needle stick injury was reported in 106 health care workers (17.2%), 348 (56.3%) had contact of blood and body fluid to their skin and 154 (24.9%) reported exposure to their mucous membrane. Working in the delivery room (80.4%) and gynecological wards (75%) had higher risk of exposure to the skin. Regarding their knowledge to preventive measures, only 254 (41.1%) of all health care workers said they wash their skin immediately and 318 (51.5%) flash their eyes with clean water or saline if their skin and mucous membrane are exposed. Incorrect method of processing instruments were practiced by high number of health care workers, namely, decontamination by 47.5%, disinfection by 46.5% and sterilization by 41.5% of them. (9).

As the most important way to contrast with these diseases is to prevent contact with blood and body liquids of persons in the healthcare units, so, in 1987, the center of disease control (CDC) had presented the general prevention principles for reducing contact of health care personnel with blood and body liquids(8). These rules consist of using the principles of general prevention of exposure to the blood, Amnion fluid, cerebrospinal fluid, pericardial fluid, peritoneum fluid, Saliva, Semen, Sino vial fluid and secretion of vagina (10). Baggaley and coworkers in a study found that Infectivity estimates following a needlestick exposure ranged from 0.00 to 2.38%. The quality of the only estimate of infectivity per contaminated medical injection (1.9-6.9%) was assessed(11).

While there is not a large body of research on health workers, the existing evidence documents that health workers in most

countries are not prepared to serve as HIV prevention leaders (12).

Whereas the health care providers are exposed to blood and body fluids of the individuals who are unaware of the contamination and prevention of them, and always the prevention is more economical than treatment

,therefore,we decided to carry out a study in order to observe safety tips by deliveryagents blood transmitted diseases in educational - treatment centers of the hospitals of Tabriz in 2012.

### Material & Methods:

This research was a descriptive study .The participants were the delivery agents in three hospitals of Tabriz (Alzahra,Taleghani,29 Brahman).The sample size consisted of 200 person : 20 residents,160 midwives and midwifery students and 20 interns. The Method of carrying out the research was in this manner that, after receiving the license from research deputy of the faculty and by referring to mentioned hospitals and expressing the research objectives to authorities of delivery rooms and controlling the infection ,the permission of carrying out the research was obtained and the researcher to delivery rooms in the morning ,evening and night shifts and the prepared check list was completed by her at the time of delivery .Then ,delivery agent's demograohic information was completed by authorities ofc delivery room and midwifery educators.

In this research, the tool of data collection was a check-list that was completed through the observation. The check list was designed in 2 parts.The first part consisted of the individual and social characteristics and the second part included 24 statements related to observance of safety tips against blood-born infection (blood-transmitted infections) in the delivery rooms. The data was analyzed using Spss/13. Descriptive statistics was used in order to describe the frequency, average and standard deviation and x2 test was used in order to determine the relation between variables.

### Results:

This study showed that, 10% of the delivery agents were residents, 80% midwives and midwifery students and 10% of them were interns.77% of midwives had BS degree, 3% had MSc and 20% of them were midwifery students. Average age of the delivery agents was 25.93 years with standard deviation of  $\pm 5.97$ . The other demographic characteristics of delivery agents has been shown in Table 1.

The finding of Research about the observance of safety tips showed that almost all of the participants (100%) were using each pair of gloves only once , and were discarding the syringe and it's needle after each injection. If their hand was being injured, they were changing their gloves. The results showed that, none of delivery agents were pressing their finger, when the needle was being inserted into it,and they were not putting injured finger in the water for 5 minutes.The results relateded to aim of this study (Determining the rate of observance of safety tips agains blood-born infections) had been shown in table 2.

Chi-square test was used in order to determine the relationship between the observance of safety tips and some of demographic characterstics , and the results showed that the rate of observance of safety tips between single delivery agents was more than married agents.(  $p < 0.001$ ).Also ,the rate of observance of safety tips in the evening shifts was better than morning and night shifts (  $p < 0.001$ ). Moreover,there was no relationship between emergency and non-emergency delivery and the observance of safety tips ( $p = 0/4$ ).

### Discussion:

Our study showed that, the majority of delivery agents were using each pair of gloves only once, they were also using a separate syring and needle after each injection and were disinfecting their hands after taking the gloves off. Mahmoodi in his study reported that the rate of hand washing immediately after carrying out the delivery was 73.3%. none of delivery agents were pressing their finger, when the needle was being inserted into it, and they were not putting injured finger in the water for 5 minutes.The results of the study mentioned above was consistent with our study(13). Of

the estimated 384,000 needle-stick injuries occurring in hospitals each year, 23 percent occur in surgical settings(14).

Siziya and coworkers in a cross sectional study reported that The percentages of midwives reporting hand washing after every contact with a patient, using gloves all of the time and wearing aprons were 54.0%, 53.7% and 44.1% respectively. None of the occupational factors was associated with HIV infection(15).

In General, the results of this study showed that, the observance of safety tips between midwives and midwifery students was more than the residents and the observance of safety tips between this group was also more than the interns. The cause of this difference was probably related to method of training among these three groups . midwifery students among the delivery with their educator, whereas there is not any direct control on quality of resident's work. Also , residents have the responsibility of managing all patients at the same time .On the other hand, the interns are trained under supervision of the residents.. Delivery agent's beliefs about the transmission of infection is very important , because if a person believes that the infection is easily transmitted, she will observe safety tips.

The results of this study showed that, there is a significant relation between marital status and the rate of the observance of safety tips. It seems that this issue is related to high workload of married persons in comparison with single persons. In General the results showed that ,50% of delivery agents did n't observe safety tips well and they need motivation, training and promotion of knowledge and behavior level.

### **Conclusion :**

Considering that ,the people are not aware of their disease and don't refer for treatment until advanced stages of the disease, the prevention is more economical than treatment and delivery agents should prevent the transmission of disease by observing safety tips. This issue requires strong motivation, effective training and necessary and comfortable possibilities for prevention that, all of these issues should be placed in priority of the health cares

planning by related authorities in order to reduce the number of affected individuals and the costs related to their treatment.

### **Conflicts of interest:**

Authors declare that there is no any conflict of interest.

### **Acknowledgments:**

We thank all delivery agents of Tabriz Alzahra, Taleghani and 29 Brahman hospitals.

**Table 1.** Demographic characters of participant.

Demographic characters	Number	Percent
<b>Marriage</b>		
Married	67	33.5
Single	133	67.0
<b>Condition of delivery</b>		
Emergency	9	4.5
Non emergency	191	95.5
<b>Work Time</b>		
Morning shift	79	39.5
Evening shift	94	47.0
Night shift	27	13.5

**Table 2** Safety points observance in child birth agents.

Agents	Good	Average	weak
Midwives	61.27%	38.73%	0%
Residents	45%	55%	0%
Interns	0%	100%	0%
Total	54%	46%	0%

**References:**

1. Pirozzolo JJ, LeMay DC, blood borne infections. Clin Sports Med. 2007; 26(3):425-31.
2. Deuffic-Burban S, Delarocque-Astagneau E, Abiteboul D, Bouvet E, Yazdanpanah Y. Blood-borne viruses in health care workers: prevention and management. J Clin Virol. 2011; 52(1):4-10
3. Afridi AA, Kumar A, Sayani R. Needle stick injuries--risk and preventive factors: a study among health care workers in tertiary care hospitals in Pakistan. Glob J Health Sci. 2013 ; 14;5(4):85-92.
4. CDC's HIV Surveillance Report: Diagnoses of HIV Infection and AIDS in the United States and Dependent Areas, 2011; Vol. 23.

5. Motamedi M, Camali A. The guidance of prevention of HIV and the hepatitis B and C transition to health workers .The center of disease management . 2002; 2:15.
6. Wicker S, Rabenau HF, von Gierke L, François G, Hambach R, De Schryver A. Hepatitis B and influenza vaccines: important occupational vaccines differently perceived among medical students. *Vaccine*. 2013; 31(44):5111-7.
7. Guidelines for protecting the safety and health of health care workers. public health service centers for disease control; National institute for occupant safety and health division of standards development and technology transfer. 1988; 12-14.
8. Gessesew A, Kahsu A. Occupational exposure of health workers to blood and body fluids in six hospitals of Tigray region (August 1-30, 2006): magnitude and management. *Ethiop Med J*. 2009; 47(3):213-9.
9. Gessesew A, Kahsu A. Occupational exposure of health workers to blood and body fluids in six hospitals of Tigray region. *Ethiop Med J*. 2009; 47(3):213-9.
10. Saffar M. The serologic prevalence of A,B and C hepatitis in the health workers and vaccinated of sensitive people in buali hospital in Sari .The science and search magazine of Mazandaran university of medical sciences.2002; 15(47):67-68.
11. Baggaley RF, Boily M-C, White RG, Alary M. Risk of HIV-1 transmission for parenteral exposure and blood transfusion: a systematic review and meta-analysis. *AIDS* 2006;20:805-12.
12. Kathleen F .Lilian Ferrer, Rosina Cianelli, Kathleen S. Crittenden, Lisette Irarr\_azabalB\_altica Cabieses, Alejandra Araya, Margarita Bernales. Peer Group Intervention for HIV Prevention Among Health Workers in Chile. *JOURNAL OF THE ASSOCIATION OF NURSES IN AIDS CARE*, 2012; Vol. 23, No. 1, 73-86.
13. The survey of elements of prevention of patients blood which were surgeried by the workers of surgical operations in one of the medical science hospitals in Tabriz. The Thesis of nursing BS. Tabriz University of Medical Science. The nursing and midwifery faculty . 2001;pp:34.
14. Jagger J, Berguer R, Phillips EK, Parker G, Gomaa AE. Increase in sharps injuries in surgical settings versus nonsurgical settings after passage of national needlestick legislation. *Journal of the American College of Surgeons*. 2010; 210:496-502.
15. Siziya S, Marufu T, Kaona F. Was there evidence of occupational exposure to human immunodeficiency virus (HIV) infection among nurse midwives ten years into the epidemic in Zambia? *Afr J Health Sci*. 2000; 7(3-4):75-8.