

## Knowledge, Attitude and Practices regarding Hepatitis B and C among Paramedics

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### Abstract

#### Background

Hepatitis B and C is not uncommon in healthcare workers. We aim this study to determine the baseline knowledge regarding causation, transmission and prevention of hepatitis B and C in health care persons. We also would like to observe the current clinical practices of paramedics regarding prevention of transmission of HBV and HCV from one patient to other.

#### Methods

This cross-sectional study involving 45 paramedics was conducted in Allied hospital Faisalabad in duration of one month from January 2017 to February 2017. Each respondent was asked about their relevant personal health history and their knowledge and practices regarding the occurrence, transmission and prevention of hepatitis B and C. chi-square test were used to determine the association between level of practices and knowledge.

#### Results

Out of 45 paramedics, 6 (13.4%) were having average knowledge regarding hepatitis B and C and remaining 39 (86.6%) participants had good knowledge. All participants know that blood transfusion, shaving razors and use of infected surgical/medical instruments are definitive sources of transmission of these infections. All participants were aware that use of separate new syringe for every patients helps to prevent the transmission of these infections. 88.9% paramedics had the habit of discarding the syringe after use. Only 40% dispensers had the habit of wearing gloves before doing any invasive procedure. Level of practice regarding prevention of HBV and HCV infection was good in only 26.6% dispensers, average in 53.3% dispensers and poor in 20.0% dispensers. There was no significant difference in level of practice in preventing the transmission of infection in dispensers who have good knowledge about hepatitis B and C and those having average knowledge (p-value 0.53).

#### Conclusion

The practice level of paramedics regarding prevention of

hepatitis B and C virus transmission is average and only one-third of the paramedics follow good practices regarding prevention of hepatitis B and C virus infection.

#### Key Words

Hepatitis B virus, Hepatitis C virus, Paramedics.

#### Introduction

One of the important questions for medical practitioners today is that how much this are competent and well-informed these are and what is there practical approach while dealing with the patients of hepatitis B and C. Because these parameters play a major role in the prevention, and eradication of these communicable diseases.<sup>1</sup> According to WHO approximately 3% (about 170 million) of our biosphere's population is infected with HCV (Hepatitis C Virus) and HBV (Hepatitis B Virus) and 3.4 million persons are diagnosed as new cases every year.<sup>1,2</sup>

Hepatitis virus primarily effects liver resulting in liver cirrhosis, followed by liver failure and ultimately death. Other complications include hepatocellular carcinoma which is the 5<sup>th</sup> most common malignancy in Pakistani population.<sup>3</sup> Pakistan has alarming rate of outbreaks of HCV and HBV with a prevalence rate of 1.1-11.9% in general population.<sup>4,5</sup> According to Bosan et al. one person in every ten suffers from either hepatitis B or C in Pakistan.<sup>6</sup> Hospital based researches have publicised prevalence rates of HCV of 2.45–20.89% in Pakistan with about 20–30% of rate of total hospitals admissions.<sup>7,8</sup> About 30–40% of total deaths in general hospitals in Pakistan are due to Hepatitis B or C with an expected mortality of 140,000 deaths/year.<sup>9</sup>

Medical experts have subordinated that fast increase in Hepatitis B and C infection is due to the ignorance and lack of appropriate preventive measures. Intravenous drug use, blood transfusion, haemodialysis, needle-stick injuries, tattooing, sexual intercourse and prenatal infections are the most common means of transmission of HCV.<sup>6</sup> Therapeutic contaminations from re-used needles, syringes and improper sterilization of invasive medical equipment's are the major source of transmission of blood-borne organisms including HBV, HCV and HIV. Overuse and unsafe practices are responsible for nearly 8 to 16 million Hepatitis B virus infections and 2 to 5 million Hepatitis C virus infections globally.<sup>6</sup>

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This shows how health care associated Hepatitis B and C outbreaks can occur. In order to reduce the risk of health-care associated Hepatitis B and C outbreaks, we need to focus on the knowledge and practices undertaken by our doctors and particularly the nurses and paramedics as they have more clinical encounters with patients as far as injections and infusions are concerned. In this study, we determined the baseline knowledge of paramedics regarding causation, transmission and prevention of hepatitis B and C.

## Material and Methods

This cross-sectional study involving 45 paramedics was conducted in Allied hospital Faisalabad in duration of one month from January 2017 to February 2017. Data was collected on a structured questionnaire and informed consent by visiting various wards of Allied Hospital, Faisalabad. Each respondent was asked about their relevant personal health history and their knowledge and practices regarding the occurrence, transmission and prevention of hepatitis B and C. The questionnaire was made in Urdu language to help respondents to understand each question clearly. We informed all participants about the significance of the study before filling the questionnaire. Paramedics working in wards of hospital were included in this study. Paramedics working in administrative department and Paramedics who have hepatitis B and C were excluded. Statistical analysis of our research was done using the computer software SPSS (Statistical Package for Social Sciences) version 19 and various frequency tables were prepared and the graphical representation was done in form of charts. Statistical significance was recorded by the comparison between level of practices and knowledge by using chi-square test.

## Operational Definitions

### ● Knowledge

Knowledge of individual paramedic was considered regarding various means of transmission of Hepatitis B and C. Self-administered questionnaires were used as a measuring tool and obtained scores were classified into two groups (average and good level of knowledge). Respondents who scored from 11-15 were classified as Good level and Respondents who had 6-10 scores were classified as average level.

### ● Practice

Practice of standard and transmission-based precautions by paramedic was practically observed and then answered in the questionnaire. Rating in the questionnaire was from 1 to 5. Good practices were considered greater than 4. Average practices included rating from 2 to 4 while poor practices were designated below 2.

## Results

Total respondents in this study were 45, out of this 6 (13.4%) were having average knowledge regarding hepatitis B and C

and remaining 39 (86.6%) participants had good knowledge. The common sources of knowledge about HCV and HBV was friends & relatives 60.0%, lectures 48.8% and newspapers & magazines 33.3% (Table 1).

Regarding knowledge about transmission of HBV and HCV infection, all participants know that blood transfusion, shaving razors and use of infected surgical/medical instruments are definitive sources of transmission of these infections. While 97.7% also know that tattooing and use of contaminated syringes is also a source of transmission. The detailed information of knowledge of transmission is given in Table 2.

**Table 1. Baseline Knowledge about Hepatitis B and C Transmission**

Variable	Frequency	Percentage
<b>Level of Knowledge about Hepatitis B and C</b>		
Paramedics having average knowledge	6	13.4
Paramedics having good knowledge	39	86.6
<b>Source of Knowledge about Hepatitis B and C</b>		
Lectures	22	48.8
Books	11	24.4
Pamphlets/Posters	4	8.8
Newspaper/Magazine	15	33.3
Friends & Relatives	27	60.0

**Table 2. Knowledge about transmission of Hepatitis B & C through different sources**

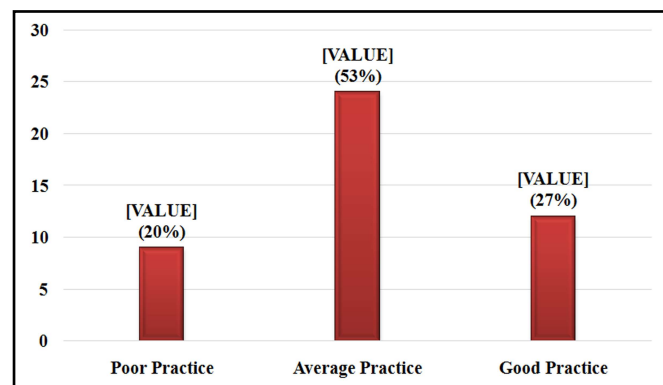
Variable	Frequency	Percentage
Hand shake	1	2.2
Coughing and sneezing	6	13.3
Mosquito bite	10	22.2
Sharing food and drink	22	48.8
Sharing utensil	18	40.0
Sexual contact	40	88.8
Mother to child	43	95.5
Living/ working with the patient	8	17.7
Nose or ear piercing	43	95.5
Contaminated syringes	44	97.7
Tattooing	44	97.7
Surgical or medical instrument	45	100
Shaving razors	45	100
Blood transfusion	45	100

Regarding practice to prevent transmission of HBV and HCV infection, all participants were aware that use of separate new syringe for every patients helps to prevent the transmission of these infections. 88.9% paramedics had the habit of discarding the syringe after use. 73.3% dispensers know that disposal of syringe in a specific container also helps to prevent transmission of virus. 40% dispensers had the habit of wearing gloves before doing any invasive procedure with the patients and 64.4% were using cutter to discard syringe after use (Table 3).

Level of practice regarding prevention of HBV and HCV infection was good in only 26.6% dispensers, average in 53.3% dispensers and poor in 20.0% dispensers (Fig. 1). There was no significant difference in level of practice in preventing the transmission of infection in dispensers who have good knowledge about hepatitis B and C and those having average knowledge (p-value 0.53). (Table 4)

**Table 3: Practices relating to Prevention of Hepatitis B and C Transmission**

Variable	Frequency	Percent
Wearing of gloves	18	40
Use separate syringe	45	100.0
Use of Cutter	29	64.4
Does he discard syringe	40	88.9
Disposal of syringe in specific Container	33	73.3



**Fig 1. Level of Practice for Prevention of Hepatitis B and C virus Infection**

**Table 4. Association of knowledge level of hepatitis with practice level of prevention of hepatitis B and C infection**

Level of Practice	Knowledge Level		P-value
	Average Knowledge	Good Knowledge	
Poor Practice	2 (4.4%)	7 (15.5%)	0.53
Average Practice	2 (4.4%)	22 (48.8%)	
Good Practice	2 (4.4%)	10 (22.2%)	

## Discussion

In this study, the knowledge of the paramedics about the means of transmission of HBV and HCV in health care settings was adequate. All the paramedics who participated in the study were fully aware that hepatitis could be transmitted via contaminated medical and surgical instruments, transfusion of blood and blood products and sharing of razors. The full awareness of the paramedics regarding this means of transmission reflects knowledge and awareness among paramedics.

Of all the paramedics who participated, 97.7% were aware that contaminated syringes were a possible source of transmission, while 97.7% and 95.5% respectively knew that contaminated needles for tattooing and contaminated needles for nose and ear piercing were also a possible hazard for the transmission of these viruses. 86.6% of the paramedics correctly identified that the disease was not transmitted by coughing and sneezing. 95.5% of the participant paramedics correctly identified that children born to infected mothers were at risk. Studies have showed that the virus can be transmitted vertically from mother to child during childbirth. Without intervention, a mother who is positive for the HBsAg confers a 20% risk of passing the infection to her offspring at the time of birth. The risk is as high as 90% if the mother is also positive for the HBeAg.<sup>10</sup> 88.8% of the paramedics were aware that the disease could be transmitted via unprotected sexual contact. 82.2% of the paramedics were aware that living and working with the infected persons was safe while only 40.0% and 48.8% respectively were aware that sharing utensils and eatables was safe. The study revealed that 77.8% of participant paramedics lacked the knowledge that Hepatitis B and C did not spread through mosquito bite.

Regarding the practices of the paramedics, all the participant paramedics were observed to use sterile, single-use, disposable needle and syringe for each injection given and used separate syringes for each patient. Injection safety is crucial for preventing the transmission of the disease. Ezzati et al. has reported that therapeutic injections which are commonly over-used and administered in an unsafe manner in developing countries are estimated to account for 721 million new HBV infections and approximately 2 million new HCV infections each year worldwide.<sup>11</sup>

After the use of the syringes, only 88.9% of the paramedics discarded the syringe in the yellow box reserved for sharps and 73.3% of them disposed-off the needle in specified containers reserved for needles, while 64.4% used needle cutter for the disposal of the needle.

However, the use of gloves for giving injection to the patients was limited to only 40% of the paramedics. This is slightly more as compared to another study published by Gurubacharya et al.<sup>12</sup> In their study, only 22.3% of health care workers were in the habit of wearing gloves for phlebotomy procedures. The

paramedics should be made aware of the importance of wearing gloves while doing any procedure that might expose them to blood. It has been shown that the volume of blood transmitted by a needle-stick is reduced by 50% when the needle first passes through a glove.<sup>13-15</sup>

Awareness campaigns in the wards and other similar educational efforts play an important role in the knowledge and practices of paramedics, therefore consistent efforts should be put in all the institutes in this regard.. It is important that this knowledge be implemented. For this purpose, consistent, on-going training programs should be conducted to scrutinize and improve the settings in which paramedics practice their health-care duties, because these simple procedures hold great potential for the transmission and spread of lethal and fatal infectious diseases like Hepatitis in the Community. The spread of hepatitis in health-care settings is preventable if strict adherence to the Recommended Guidelines of CDC (Centre for Disease Control and Prevention) are observed.<sup>16</sup> fortunately; Hepatitis B and C, currently among the leading diseases in Pakistan, are also preventable. Health Care Settings if improved, provide a suitable platform where health-care related preventive measures can reduce transmission and thus contribute to the overall decrease in prevalence of the disease, therefore the responsibility lies on the Health Care Personnel.

However, the knowledge revealed by this study is a significant contribution to the diminished pool of resources in Pakistan.

The main drawback of this study is that it is a hospital-based data of one Centre only. Also, to completely assess the role of the paramedics in the transmission of the disease, a record of the serologic tests for hepatitis B and C of the patients, before entering and after leaving the hospitals, should have been kept, assessed and analysed to aid the current study.

In summary, though the knowledge of paramedics regarding the transmission of hepatitis B and C in health care settings is adequate, their practices are not up to the mark, therefore implementation of the knowledge and relevant training is essential if health-care related spread of Hepatitis B and C is to be prevented.

More awareness regarding hepatitis B and C should be provided to the paramedics by conducting awareness seminars and lectures relating to HBV and HCV basic knowledge, transmission and prevention of these life-threatening diseases. Paramedics should be encouraged to follow the guidelines to prevent the transmission of Hepatitis B and C

## Conclusion

We have found out good level of knowledge regarding hepatitis B and C transmission in study participants. The practices regarding prevention of hepatitis B and C transmission is average and only one-third of the paramedics follow good practices regarding prevention of hepatitis B and C virus infection.

## QUESTIONNAIRE

<b>Knowledge and Practices Regarding Hepatitis B &amp; C Transmission among Paramedics Working at Allied Hospital, Faisalabad, Pakistan</b>	
S.No: _____	Date: _____
Name of interviewer: _____	R.No: _____
<b>A. Profile of Paramedic</b>	
1. Name of Respondent: _____	
2. Educational Status: _____	
3. Ward/Unit of working: _____	
<b>B. Assemsment of Knowledge regarding Hepatitis B &amp; C:</b>	
4. Do you have any knowledge about hepatitis B & C? <span style="float: right;">YES <input type="checkbox"/> NO <input type="checkbox"/></span>	
If No (No further questioning)	
5. If YES	
From where you got the knowledge?	
Lectures <input type="checkbox"/> Books <input type="checkbox"/> Pamphlets/Posters <input type="checkbox"/> Newspapers & Magazine <input type="checkbox"/> Friends & Relatives <input type="checkbox"/>	
6. Is it a Transmissible disease? <span style="float: right;">YES <input type="checkbox"/> NO <input type="checkbox"/></span>	
If No (No further questioning)	
7. If YES	
How it is transmitted from patients to others? (Mark the relevant options according to the answer given)	

Continue on next page

- Shaking hands with patient. ☐
- Coughing and sneezing of patient. ☐
- Through mosquito bite. ☐
- Sharing food/drinks with patients. ☐
- Sharing utensils with patients. ☐
- Sexual Contacts with patients. ☐
- Mother to Child during pregnancy and lactation. ☐
- Living or working with patients. ☐
- Contaminated Instruments for Nose & Ear piercing. ☐
- Contaminated instruments for Tattooing. ☐
- Contaminated Syringes. ☐
- Contaminated Surgical and Medical Instruments. ☐
- Sharing of Razor. ☐
- Transfusion of Contaminated Blood and Blood products. ☐

**C. Assesment of Practices Regarding Hepatits B & C:**

- |                                                      | YES                      | NO                       |
|------------------------------------------------------|--------------------------|--------------------------|
| 8. Does she/he wear gloves while working?            | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Is she/he using separate gloves for each patient? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Does she/he use needle cutter?                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Does she/he discard the syringe?                 | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Does she/he throw the syringe in specified box?  | <input type="checkbox"/> | <input type="checkbox"/> |

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