



# International Journal of Advanced Community Medicine

E-ISSN: 2616-3594  
P-ISSN: 2616-3586  
IJACM 2019; 2(3): 176-179  
Received: 18-07-2019  
Accepted: 21-08-2019

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## To study the prevalence of Hepatitis B and hepatitis C in non-teaching staff of Subharti University and their awareness about the disease and its vaccination

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DOI: <https://doi.org/10.33545/comed.2019.v2.i3c.100>

### Abstract

**Aims and objectives-** To study prevalence, awareness, education of Hepatitis B and Hepatitis C in non-teaching staff and to understand their knowledge about the vaccination (Hepatitis B).

**Material and methods-** This Prospective Observational was conducted on 150 non-teaching staff of Subharti University above 18 years of age. Demographic and epidemiological data were collected through direct personal interviews with each non-teaching staff carried out by me.

**Results-** Transmission of hepatitis from exposure to blood and blood products, unsafe sexual contact, sharing razors and tooth brushes, reuse of syringes, surgery and dental procedures, Tattooing/Ear piercing, during dialysis, food prepared by an infected person, handshake and hug was observed in 94.7%, 76%, 85.3%, 88%, 54.7%, 38.7%, 27.3%, 21.3%, 8% of study population respectively. History of contact with known case of Hepatitis B was observed in 39% of study population. History of contact with known case of hepatitis C was observed in 23% of study population. 0.5% (1 case) had known chronic hepatitis C. There were 2 cases of Hepatitis B and 1 case of Hepatitis C among non-teaching staff.

**Conclusion -** Non teaching staff in our hospital have adequate knowledge regarding hepatitis B & C infection, modes of transmission and prevention which suggests that they should be motivated more and given the opportunity to learn more about hepatitis B & C infection and its health effects as these are the people who will be vulnerable to infection from patients.

**Keywords:** Hepatitis B and hepatitis C, Subharti University, awareness about the disease, vaccination

### Introduction

Hepatitis B (HB) and Hepatitis C is a serious blood born infection that affects the liver and caused by hepatitis B virus (HBV). It is infectious and the most common cause of chronic hepatitis, liver cirrhosis and hepato-cellular carcinoma. <sup>[1]</sup> Hepatitis B is a very important public health problem affecting almost 10% of the world population. <sup>[2]</sup> According to 2009 WHO report, about 2 billion people are affected with HB worldwide, more than 350 million suffered from chronic lifelong infection and, more than one million of individuals die because of cirrhosis and liver cancer every year. <sup>[3]</sup>

Prevention against any disease is proportional to knowledge, attitude and practice (KAP) of the population and reflection of the importance that is paid to health related issue by the society. Health care workers should familiarize themselves with “universal precautions”, which is defined by Center for Disease Control, as a set of precautions designed to prevent transmission of Human immunodeficiency virus (HIV), HBV, and other blood-borne pathogens when providing first aid or health care.

Non-teaching staff are exposed to the of risk as other health care workers when they come in contact with patients and contaminated instruments. They are expected to undertake activities related to patient care, as on date, very few studies have been conducted to find out the knowledge and practice of medical students about Hepatitis B and C in India. This study assessed the knowledge and practice of Non-teaching staff towards hepatitis transmission and prevention in Subharti University.

### Aims and Objectives

To study prevalence, awareness, education of Hepatitis B and Hepatitis C in non-teaching staff and to understand their knowledge about the vaccination (Hepatitis B).

## Material and methods

**This** Prospective Observational was conducted on 150 non teaching staff of Subharti University above 18 years of age Patients qualifying by fulfilling all inclusion criteria and exclusion criteria were be enlisted in the study after informed consent. Institutional ethics committee permission was taken prior to study. Study was conducted for a period of 1 year (June 2018- May 2019).

Demographic and epidemiological data were collected through direct personal interviews with each non- teaching staff carried out by me. These data include sex, age, professional activities and practices, type of work, place and duration of work in the hospital as well as any history of hepatitis B vaccination. The data was anonymous and linked to the blood sample tube only by a code.

A blood sample (5–10 ml) was extracted from each person and transported immediately to the Subharti Central Laboratory. Both the HBsAg and Anti-HCV antibody results were considered positive (reactive) or negative (non-reactive) according to the interpretation parameters provided by the manufacturers.

## Statistical analysis

The data was analyzed in SPSS statistical software version 19.0. Descriptive statistics in the form of the mean and standard deviations and the frequency with percentages were calculated for interval and categorical variables, respectively. The Chi-square test was used to identify differences between categorical variables and Student's *t*-test was used for interval variables as appropriate. The results were considered statistically significant when the *p*-value (two-tailed) was less than 0.05.

## Results

**Table 1:** General data

Age group	Frequency	Percent
18-30 years	68	45
31-40 years	36	24
41-50 years	32	21
>50 years	15	10
<b>Sex</b>		
Male	88	59
Female	62	41
<b>Marital status</b>		
Single	41	27
Married	101	67
Divorced	3	2
Widowed	6	4
<b>Smoker</b>		
Yes	53	35
No	98	65
Total	150	100

The most common age group amongst study population was 18-30 years (45%) was followed by 31-40 years (24%), 41-50 years (21%) and >50 years (10%). There was male predominance (59%) amongst study population as compared to females (41%). Most of the study population were married (67%) followed by single (27%). History of smoking was observed in 35% of study population.

**Table 2:** Regarding awareness about transmission of hepatitis

Transmission of hepatitis results from exposure to blood and blood products	Frequency	Percent
Yes	142	94.7
No	8	5.3
<b>Can it result from unsafe sexual contact</b>		
Yes	114	76
No	36	24
<b>Can it be transmitted by sharing razors and tooth brushes</b>		
Yes	128	85.3
No	22	14.7
<b>Reuse of syringes is an important mode of transmission</b>		
Yes	132	88
No	18	12
<b>Hepatitis can be transmitted during surgery and dental procedures</b>		
Yes	82	54.7
No	68	45.3
<b>Tattooing/Ear piercing are known routes of transmission</b>		
Yes	58	38.7
No	92	61.3
<b>It may be transmitted during dialysis</b>		
Yes	41	27.3
No	109	72.7
<b>Hepatitis can be transmitted by food prepared by an infected person</b>		
Yes	32	21.3
No	118	78.7
<b>Hepatitis can be transmitted through handshake and hug</b>		
Yes	12	8
No	138	92
Total	150	100

Transmission of hepatitis from exposure to blood and blood products, unsafe sexual contact, sharing razors and tooth brushes, Reuse of syringes, surgery and dental procedures, Tattooing/Ear piercing, during dialysis, food prepared by an infected person, handshake and hug was observed in 94.7%, 76%, 85.3%, 88%, 54.7%, 38.7%, 27.3%, 21.3%, 8% of study population respectively.

**Table 3:** Regarding awareness about prevention of hepatitis

Wearing gloves can protect about hepatitis	Frequency	Percent
Yes	144	96
No	6	4
<b>Safe disposal of hospital waste is important against spread of infection</b>		
Yes	134	89.3
No	16	10.7
<b>Hepatitis B is preventable by vaccine</b>		
Yes	138	92
No	12	8
Total	150	100

Awareness about prevention of hepatitis by wearing gloves, safe disposal of hospital waste, prevention of hepatitis by vaccine was observed in 96%, 89.3% and 92% of study population respectively.

**Table 4:** Personal history

Have received hepatitis B vaccine before	Frequency	Percent
Yes	104	69
No	47	31
<b>Did you receive the complete doses of the vaccine</b>		
Yes	84	81
No	16	15
Not sure	4	4
<b>Do you have any chronic illness</b>		
Yes	32	21
No	118	79
<b>Have you had operations before</b>		
Yes	17	11
No	133	89
<b>Have you been exposed to dental procedures before</b>		
Yes	59	39
No	91	61
<b>Have you ever had a needle prick injury before</b>		
Yes	119	79
No	32	21
<b>Have you ever had sexual intercourse with sex worker</b>		
Yes	2	1
No	148	99
<b>Family history of chronic hepatitis B</b>		
Yes	3	2
No	147	98
<b>Any contact with known case of Hepatitis B</b>		
Yes	58	39
No	92	61
<b>Known chronic hepatitis B</b>		
Yes	2	1
No	148	99
Total	150	100

Awareness about prevention of hepatitis by hepatitis B vaccine confers lifelong immunity was observed in 59.3% of study population. Hepatitis B vaccine was received in 69% of study population. 81% of study population received the complete doses of the hepatitis B vaccine. 21% of study population had chronic illness. 11% of study population had history of previous surgery. 65% (11 out of 17 cases) had surgical history of C – Section, 12% (2 out of 17 cases) had surgical history of Hernia repair and 23% (4 out of 17 cases) had surgical history of other surgery. History of exposure to dental procedures was observed in 39% of study population. History of needle prick injury was observed in 79% of study population. History of sexual intercourse with sex worker was observed in 1% of study population.

**Table 5:** Regarding Hepatitis C

Family history of chronic hepatitis C	Frequency	Percent
Yes	2	1
No	148	99
<b>Any contact with known case of Hepatitis C</b>		
Yes	34	23
No	116	77
<b>Known chronic hepatitis C</b>		
Yes	1	0.5
No	149	99.5
<b>Awareness about universal precautions</b>		
Yes	124	83
No	26	17
Total	150	100

Family history of chronic hepatitis B, History of contact with known case of Hepatitis B was observed in 2% and 39% of study population respectively. Family history of chronic hepatitis B, History of contact with known case of Hepatitis C was observed in 23% of study population. 0.5% (1 cases) had known chronic Hepatitis C. 83% of study population had awareness about universal precautions.

### Discussion

Hepatitis B, the potentially life-threatening liver infection caused by the virus Hepatitis B (HBV), is a major global health problem which can cause chronic and often fatal liver diseases, such as liver cirrhosis and cancer. Globally, about two billion individuals have been infected with HBV at some point in time in their lifetimes and 360 to 400 million people (5% of the world's population) are chronic carriers. HBV and its consequences are estimated to cause 600,000 deaths each year, a tenth of deaths worldwide.<sup>4</sup>

### Demographic profile

In the present study, 18-30 years (45%) was the most common age group amongst study population followed by 31-40 years (24%), 41-50 years (21%) and >50 years (10%). This findings was in agreement with the study by Mary Y. Afihene *et al.*, in 76% of study population were of less than 40 years of age.<sup>5</sup>

In the present study, there was male predominance (59%) amongst study population as compared to females (41%). In the present study, most of the study population were married (67%) followed by single (27%). In the present study, history of smoking was observed in 35% of study population.

### Regarding awareness about transmission of hepatitis

In the present study, transmission of hepatitis from exposure to blood and blood products, unsafe sexual contact, sharing razors and tooth brushes, Reuse of syringes, surgery and dental procedures, Tattooing/Ear piercing, during dialysis, food prepared by an infected person, handshake and hug was observed in 94.7%, 76%, 85.3%, 88%, 54.7%, 38.7%, 27.3%, 21.3%, 8% of study population respectively. This findings was in agreement with the study conducted by Khan NR *et al.*, in which most of the respondents (84.5%) stated that hepatitis B mainly transmitted through infected blood transfusion. Majority (59.3%) stated that hepatitis B can be transmitted through unsafe sex but 40.7% did not know whether unsafe sex transmitted hepatitis B or not.

86.0% stated that hepatitis B can be transmitted through same razors and tattooing needles etc but 7.6% stated that it could not be transmitted in such manners and 6.4% did not know whether hepatitis B could be transmitted in such manner or not. Most of the respondents (96.5%) knew that this disease could be transmitted through needle sharing, while 3.5% were unaware about this.<sup>[6]</sup> Three other studies are also consistent with our study. First study by Paudel D *et al.*,<sup>[7]</sup> found 97.7% nursing students, secondly 98% were found among nurses in a study conducted by Mehrabin N *et al* & Singh A *et al.*, found 87% respondents who knew infected blood transfusion as the common mode of transmission of HB.<sup>[8]</sup>

#### Regarding awareness about prevention of hepatitis

In the present study, Awareness about prevention of hepatitis by wearing gloves, safe disposal of hospital waste, prevention of hepatitis by vaccine was observed in 96%, 89.3% and 92% of study population respectively. Awareness about prevention of hepatitis by hepatitis B vaccine confers lifelong immunity was observed in 59.3% of study population. Similarly in the study by Preetha Paul *et al.*, observed that around 93.5% of the students believed that hepatitis B is preventable but only 86% of them were aware of a vaccine for hepatitis B prevention. 81% said that both adults and children should be vaccinated against hepatitis B infection. However, only 73.6% of the respondents were completely vaccinated against hepatitis B infection.<sup>[9]</sup>

This study revealed that healthcare workers who have been exposed to risky conditions of hepatitis B virus had increased chance of receiving complete immunization. This finding is in line with reports from other studies.<sup>[10-12]</sup> This might be because of increased perceived threat of getting such blood-borne disease after exposure to risky conditions. Years of work experience were another important factor that influenced the complete vaccination status of healthcare workers. Similarly, other studies showed that there was an increased chance to get full vaccination with increasing number of years of work experience.<sup>[13, 14]</sup>

#### Conclusion

Non teaching staff in our hospital have adequate knowledge regarding hepatitis B & C infection, modes of transmission and prevention which suggests that they should be motivated more and given the opportunity to learn more about hepatitis B & C infection and its health effects as these are the people who will be vulnerable to infection from patients. They should have first-hand knowledge of all aspects of hepatitis B & C virus infection and its prevention, so that they can not only protect themselves but also play a vital role in creating awareness among other health care workers and the general population as well. The study recommends regular health education programmes of HCWs on occupational risk of HBV and HCV & mandatory vaccination of HCW in prevention of infection. Medical colleges should have occupational health departments that take responsibility of HBV testing, vaccination, response monitoring and providing post exposure prophylaxis. It is also recommended to make vaccines available and accessible.

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