

## Vaccination Status and Awareness of Hepatitis B among Undergraduate Medical Students of Two Medical Colleges in Bangladesh

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### Abstract

Hepatitis B is a pandemic disease affecting millions of people. Vaccination and preventive knowledge is crucial for all especially health care professionals. To evaluate the vaccination status and level of knowledge and awareness regarding hepatitis B among undergraduate medical students ranging from first to fifth year. This is a cross-sectional study which was conducted in Dhaka Medical College, Dhaka during July 2012 to July 2015. Total 217 students participated in the study (36.4% male and 63.6% female). Data was collected using a structured questionnaire. Statistical analysis was done using SPSS version 20. Most of the responders were female (63.6%) and from first year (31.3%). Only 41.4% were vaccinated properly and another 9.2% received incomplete doses. Those who had more knowledge regarding hepatitis B were practicing more preventive measures. The present study showed that there is much lack of knowledge and awareness about hepatitis B among medical college students that make them vulnerable to acquire the disease. Moreover, the vaccination status is also not satisfactory which should be taken seriously.

**Key Words:** Hepatitis-B, Knowledge, Awareness.

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### Introduction

Hepatitis B is an important cause of inflammation of the liver that is potentially life threatening as well as preventable. According to World Health Organization, 7.8 million people die each year from hepatitis B infection globally and another 240 million people are chronically infected (defined as positive HBsAg for minimum 6 months)<sup>1</sup>. Nonetheless it's an important occupational hazard for health care professionals. However, through vaccination and safety measures, it can be prevented successfully. Bangladesh is in intermediate zone of prevalence of hepatitis B infection and the lifetime risk of

acquisition of hepatitis B in these areas is 20 to 60 %<sup>2</sup>. In one study the prevalence of hepatitis B in Bangladeshi general population was 5.4% with a male predominance<sup>3</sup>. Vertical transmission, transmission through unsafe sex, unsafe injections and body fluid like blood remains the most common route of infection for hepatitis B virus<sup>5-8</sup>. Health-care workers have the highest occupational risk for hepatitis B infection<sup>9</sup>.

In a study it was shown that 66,000 hepatitis B infection occur in health-care workers per year as a result of percutaneous injuries<sup>9</sup>. Another important route of entry includes accidental inoculation of minute quantities of blood during the surgical and dental procedures<sup>10</sup>. Prevention through vaccination and safety measures are the cornerstone to avoid this hepatitis B infection. The vaccine against Hepatitis B is available since 1982 and is 95% successful preventing infection and its grave consequences like liver cancer and cirrhosis of liver<sup>1</sup>. In our country hepatitis B vaccination has been integrated into the national EPI program since 2005<sup>11</sup>. Medical students are part of health care delivery force that is equally vulnerable to acquire this deadly disease through their patient handling. They are expected to have a sound knowledge regarding hepatitis B and safety precautions to prevent its acquisition and spreading. Till date, very few studies have been conducted to assess undergraduate medical students regarding hepatitis B. Therefore, this study aimed at assessing the awareness as a whole and vaccination status of medical students.

### Materials and Methods

This cross sectional study was done in Dhaka Medical College in July 2012 to July 2015. Total 217 medical students from first year to fifth year were enrolled voluntarily to participate in this study. The objective, nature and benefits of this study were explained and informed written consent was taken from all participants. All students were interviewed structured self-completed questionnaires consisting of 20 questions. The questionnaire covered 1) Demographic data 2) knowledge of hepatitis B virus 3) vaccination status 4) Hepatitis B prevention. Data was coded, entered and analyzed using statistical package for social science (SPSS) version 20.0. Data was expressed as mean and standard deviation (SD).

### Result

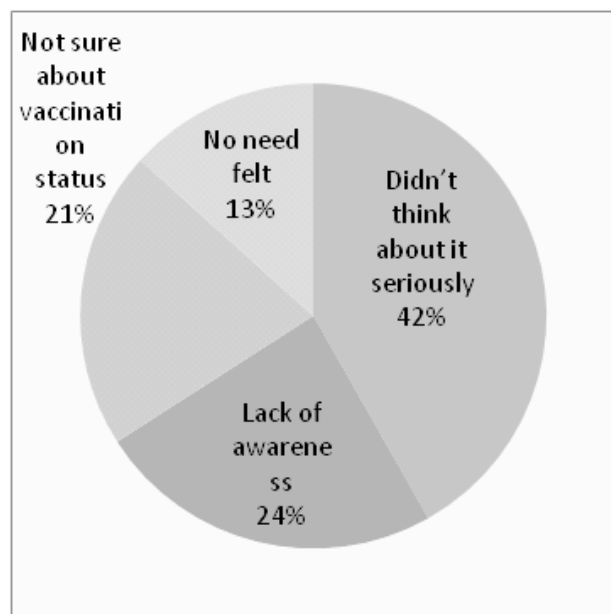
The demographic characteristics of study participants are shown in table I.

**Table-I: Demographic characteristics of study participants (n=217)**

Variables	Respondents (%) (n=217)
Institution	
Public	53 (24.4%)
Private	164 (75.5%)
Gender	
Male	79 (36.4%)
Female	138 (63.6%)
Age	22.4 ± 3.2

Results were expressed as n (%) and mean ± SD

The mean age of the participants was 22.4 ± 3.2. Female were more (63.6%) than male (36.4%). Among them 90 (41.4%) were vaccinated. A significant proportion (9.2%) of students received one or two doses and were waiting for completion of the doses. When asked about the cause of not being vaccinated, the responses were "didn't think about it seriously" (41.8%), "lack of awareness" (24.1%), "not sure about vaccination status" (20.8%) and "no need felt" (13.3%) (Figure 1).

**Figure-I: The reasons of not being vaccinated**

Majority of the students (78.4%) knew that hepatitis B is an infectious disease caused by virus. 68.6% reported to know about the mode of transmission of the disease and that it spreads mainly through blood related procedures in hospital setting. The symptoms of hepatitis B were however well understood by only 85 (39.1%) students. 85.6% students were aware that they are vulnerable

professional group to acquire the disease. We labeled respondents as having "good knowledge" of hepatitis B transmission, importance of vaccination and other safety measures if they could answer correctly 12 out of 20 questions in the questionnaire. Bivariate analysis was done to evaluate association between level of knowledge and level of preventive practice. It showed that, those who had good knowledge were practicing good preventive measures more than those who had poor knowledge ( $p < 0.005$ ). Students knowledge and vaccination status are shown in table II.

**Table-II: Knowledge and vaccination status of Students**

Students Group	Number of Students	Preventive knowledge of Hep B	Symptoms of Hep B	Vaccination Status
First year	68	35.2%	8.8%	41.17%
Second year	40	52.5%	10%	25%
Third year	37	64.8%	51.3%	29.7%
Fourth year	29	68.9%	62%	30.23%
Fifth year	43	93%	88.3%	65.1%
Total	217	59.4%	39.1%	41.4%

Data was expressed as n (%).

Final year clinical students were more knowledgeable (93%) about how to prevent the disease than all other student groups and they were the most vaccinated group (65.1%) also. First year students made the bulk of the study population (31.3%) and had a high proportion (41.17%) of vaccination.

### Discussion

Hepatitis B virus infection is a global problem. It is an important occupational risk for physicians, particularly in developing countries with high career rate. Since the integration of routine vaccination against hepatitis B in our national EPI schedule, the incidence of the disease has decreased much. But to bring it down further and to prevent acquiring the infection in professional milieu, medical students should have sound knowledge about its transmission, prevention and vaccination.

First year students showed poor knowledge regarding hepatitis B, possibly because there is not enough emphasis about the topic in school and college level. The level of knowledge found overall in medical students was low but the result was better than that of the African-American and Vietnamese<sup>12</sup>.

The number of students vaccinated (41.4%) was higher than a study conducted on newly admitted medical students in Chittagong medical college<sup>13</sup> but lower than a study conducted in India<sup>14</sup>. No significant difference in knowledge or status of vaccination was noted between male and female students. Those who are not vaccinated reported lack of seriousness of the disease was the prime cause for not being vaccinated. This may explain the increase in number of vaccination among final year students. Overall knowledge regarding Hepatitis B prevention was only 59.4% in this study. This is a matter of concern because study showed risk of occupational exposure to the virus during undergraduate medical

education is 11 to 50 %<sup>15</sup> and in fact transmission of hepatitis B is 50 times easier than HIV<sup>16</sup>.

The present study shows that, there is remarkable lack of awareness regarding hepatitis B virus and importance of practicing preventive measures. Less than half of the students were vaccinated and some received incomplete doses. As there is a continuous threat of being affected by this virus in hospital set up, measures should be taken promptly to ensure 100% vaccination of medical students at least before the start of their clinical years.

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