

## How Intern Doctors Deal with Hepatitis B in Riyadh and Eastern Saudi Arabia

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### ABSTRACT

**Background:** Hepatitis B is one of popular health problem and is considered as major global infectious hazard. It represents an occupational risk for all people who are working in healthcare, including doctors, nurses, laboratory staff, and training interns as well as the student who is trained in hospitals. This can be correlated with their contact with body fluids during clinical rotations and activities. However, protection from getting any infection logically is mandatory for healthcare worker. **Aim:** Our problem in this study was to assess how our new doctors in Saudi Arabia, specifically those in Riyadh Region and Eastern Region are safe and are protected from hepatitis B infection by evaluating their knowledge, attitude and practice towards Hepatitis B. **Method:** That was a cross-sectional study which was conducted to intern doctors in Riyadh and Eastern Regions. Random sampling technique was used to select 350 intern doctors. Study tool was a self-administrated questionnaire that is made online by using Google drive forms and sent as an internet link to all interns via WhatsApp mobile application. Data analysis was done using computer application SPSS 24. Comparison between results and many variables was done using Chi-Square test and statistical significance is considered when P-Value < 0.05.

**Result:** In this study, 131 intern doctors participated out of 350 who received the questionnaires (response rate 94.6%). Regarding the level of knowledge, attitude, and practice, around 86% of participants have good knowledge, 63% of them have a positive attitude and 85% have a good practice. Chi-Square test was applied to compare our results of KAP with gender and region. No difference between males and females was found in the level of knowledge and attitude (P-value > 0.05). Males were better than females in practice (P < 0.05). Intern doctors in Riyadh region were better than those in Eastern region in knowledge and attitude (P-value < 0.05), no difference was found between them in practice (P-value > 0.05). **Conclusion:** It was obvious that our new doctors in Eastern and Riyadh regions have good knowledge, attitude and practice for Hepatitis B. People in Eastern region have less knowledge and attitude compared to those in Riyadh with a significant difference between them. Also, males interns have a better practice than females interns in general.

**Keywords:** Hepatitis B, Saudi Arabia, Intern Doctors, Riyadh region, Eastern region.

### INTRODUCTION

Viral hepatitis is an inflammation of the liver that leads to chronic liver disease, liver cirrhosis, and hepatocellular carcinoma and finally, may cause fulminant hepatitis. Hepatitis B is one of the most common viral hepatitis in addition to hepatitis C [1]. Hepatitis B is one of the popular health problems and is considered as a major global infectious hazard. It also represents the occupational risk for all people who are working in healthcare, including doctors, nurses, laboratory staff, and training interns as well as the student who is trained in hospitals, due to their contact with body fluids during clinical rotations and activities [2]. Hepatitis B is highly prevalent all over the world, in which average of two billion people

infected and around 240 million developed chronic hepatitis B infection, with a mortality rate of one million every year [3]. However, Hepatitis B is highly prevalent among healthcare workers and it is two to ten times more than others [4].

In Saudi Arabia, the story of hepatitis B, in general, is better due to Hepatitis B vaccination that was started in 1989 and immunization program that was started at 1990 included health care workers as well as other people at risk of getting hepatitis such as children in school [5]. So, this is considered a good indicator of the efforts done by the Saudi government to protect healthcare workers from getting infected with their clinical exposure. Epidemiologically, in 2007 ministry of health in

Saudi Arabia considered hepatitis as second most common viral infection (after chickenpox) by average nine thousand new diagnosed cases in that year. In which there was 52% of them was hepatitis B [6]. However, protection from getting any infection logically is mandatory for healthcare worker. Our objective in this study was to assess how we keep our new doctors in Saudi Arabia, specifically those in Riyadh Region and Eastern Region safe and protected from hepatitis B infection by evaluating their knowledge, attitude and practice towards Hepatitis B.

**METHODOLOGY**

In this study, our aim was to focus on Kingdom of Saudi Arabia, specifically Riyadh and Eastern Regions. And the research work has been conducted at the college of medicine in King Saud University in Riyadh, college of medicine in King Faisal University in Hofuf and college of medicine in Imam Abdulrahman Alfaisal University in Dammam. Training medical interns are the study population, most of them finished 6 years study in medical school and they are at practice year. Random sampling technique was used to select 350 intern doctors from these three medical schools.

That was a cross-sectional study which was conducted to evaluate knowledge, attitude, and practice of our sample toward hepatitis B prevention. And that was within one month which is September 2017.

Study tool was a self-administrated questionnaire that was made up of three parts in addition to part of demographic data. In demographic data, we ask about gender, nationality, and residency, we assumed that most of them at the same age. The first part was evaluating knowledge by the scoring system in which we can categorize interns by knowledge into interns with good knowledge who answers 70% of questions or more correct or poor knowledge for those who didn't. Same as the evaluation of attitude in which participants who answers 70% of attitude items or more can correct will be categorized to have a positive attitude and those who can't be categorized to have a negative attitude. Also, in practice part of the questionnaire, we have people with good practice if they answered 70% or more of practice items correctly, and we have poor practice for those who didn't. However, our study questionnaire was quoted from the same study that was done in Ethiopia [Table 2, 3, 4] [4].

The online questionnaire was made by using Google drive forms and sent as internet link to all interns via WhatsApp mobile application.

Data analysis was done using computer application SPSS 24. Comparison between results and many variables was done using Chi-Square test and statistical significance is considered when P-Value < 0.05.

Ethically: we took permission from each participant before sending the link and we explained to each one of them about the study and its aims.

**The study was done after approval of ethical board of King Faisal university.**

**RESULTS**

In this study, 131 intern doctors participated out of 350 who received the questionnaires (response rate 94.6%). Male participants were 188(56.8%) and females were 143(43.2%). Most of the participants were Saudis; they are 318(96.1%). People from the eastern region were 160(48.3%) and those from Riyadh region were 171(51.7%). Most of the participants were from cities 315(95.2%). [Table 1]

In knowledge assessment part, we found that

**Table 1**

	Frequency (%)	
<b>Gender</b>	Male	188(56.8)
	Female	143(43.2)
<b>Nationality</b>	Saudi	318(96.1)
	Non-Saudi	13(3.9)
<b>Region</b>	Eastern	160(48.3)
	Riyadh	171(51.7)
<b>Residency</b>	City	315(95.2)
	Village	16(4.8)
<b>Total</b>	331(100)	

most of the participants know that Hepatitis B carriers may affect others (77%), holding hand can't transmit Hepatitis B (84.9%), contact with open wound can transmit Hepatitis B (83.7%), Hepatitis B can cause liver cancer (77%), Vaccination can prevent Hepatitis B infection (90%), contaminated blood can transmit Hepatitis B (95.8%), Non-sterile syringes and surgical instrument can transmit Hepatitis B (92.1%), Unsafe sex can transmit Hepatitis B (77.9%). Only 65.5% of participants agreed that Hepatitis B is curable and treatable and 68% agreed that there was prophylaxis post-exposure to Hepatitis B. [Table 2]

**Table 2: Knowledge Assessment**

	Yes (%)	No (%)	Don't know (%)
<b>Hepatitis B carriers may infect others</b>	255(77.0)	64(19.3)	12(3.6)
<b>Holding of hands can transmit Hepatitis B</b>	33(10.0)	281(84.9)	17(5.1)
<b>Contact with open wounds can transmit Hepatitis B</b>	277(83.7)	38(11.5)	16(4.8)
<b>Hepatitis B can cause cancer in liver</b>	255(77.0)	36(10.9)	40(12.1)
<b>Vaccination can prevent Hepatitis B infection</b>	298(90.0)	20(6.0)	13(3.9)
<b>Contaminated blood and blood product can transmit Hepatitis B</b>	317(95.8)	5(1.5)	9(2.7)
<b>Nonsterile syringes, needles and surgical instruments can transmit Hepatitis B?</b>	305(92.1)	17(5.1)	9(2.7)
<b>Unsafe sex can transmit Hepatitis B</b>	258(77.9)	47(14.2)	26(7.9)
<b>Hepatitis B has specific laboratory test</b>	311(94.0)	13(3.9)	7(2.1)
<b>Hepatitis B is curable as well as treatable</b>	217(65.5)	81(24.5)	33(10.0)
<b>There is prophylaxis post exposure to Hepatitis B</b>	225(68.0)	50(15.1)	56(16.9)

Regarding attitude assessment, most of the participants agreed that they are at risk of getting Hepatitis B (71%). Most of them believed on Hepatitis B vaccine (94%). Only a few of participants agree that changing gloves between each patient during blood test and collection is west of time (9.7%). Around half of our participants (50.2%) agreed that all patients should be investigated for Hepatitis B before giving health care for them. There is around 21% of participants don't like to treat patients with Hepatitis B. Most of the participants (92.7%) trust infection control guidelines to protect them from Hepatitis B. [Table 3]

**Table 3: Attitude Assessment**

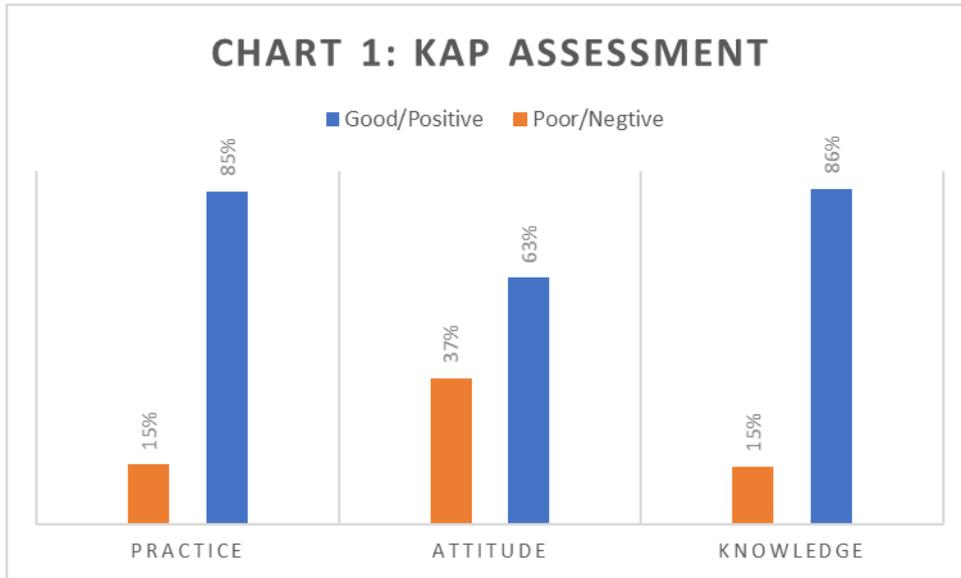
	Agree (%)	Disagree (%)	No Idea (%)
<b>You are NOT at risk of Hepatitis B</b>	73(22.1)	235(71.0)	23(6.9)
<b>I do not believe in vaccine of Hepatitis B</b>	10(3.0)	311(94.0)	10(3.0)
<b>It is west of time when we change gloves during blood test and collection</b>	32(9.7)	293(88.5)	6(1.8)
<b>We should test all patient for Hepatitis B before giving them health care</b>	166(50.2)	136(41.1)	29(8.8)
<b>I do not like to treat any patient with hepatitis B</b>	70(21.1)	248(74.9)	13(3.9)
<b>I can protect myself from Hepatitis B by following infection control guidelines</b>	307(92.7)	14(4.2)	10(3.0)

Regarding practice assessment, around 15% didn't screen for Hepatitis B. Most of participants got the vaccine for Hepatitis B. Around 96% of respondents used to change gloves during blood taking for each patient. There were 16.6% of our participants got needle prick injuries and 23% of participants don't report needle prick injuries. [Table 4]

**Table 4: Practice Assessment**

	Yes (%)	No (%)
<b>Did you do screening for Hepatitis B</b>	282(85.2)	49(14.8)
<b>Did you get Hepatitis B vaccine?</b>	301(90.9)	30(9.1)
<b>I used to change gloves during blood taking for each patient</b>	319(96.4)	12(3.9)
<b>Did you get a needle prick injury?</b>	55(16.6)	276(83.4)
<b>Do you report for needle prick injuries</b>	255(77.0)	76(23.0)

Regarding the level of knowledge, attitude, and practice, around 86% of participants had good knowledge, 63% of them had a positive attitude and 85% had a good practice. [Chart 1]



Chi-Square test was applied to compare our results of KAP with gender and region. No difference between the male in the female in the level of knowledge and attitude (P-value > 0.05). Males were better than females in practice (P < 0.05). Intern doctors in Riyadh region were better than those in Eastern region in knowledge and attitude (P-value < 0.05), no difference between them in practice (P-value > 0.05). [Table 5]

**Table 5: Chi-square Test**

		Knowledges				Attitude				Practice			
		Good Knowledge		Poor Knowledge		Positive Attitude		Negative Attitude		Good Practice		Poor Practice	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Gender	Male	166	88.3%	22	11.7%	119	63.3%	69	36.7%	169	89.9%	19	10.1%
	Female	117	81.8%	26	18.2%	89	62.2%	54	37.8%	112	78.3%	31	21.7%
P- Value		0.097				0.843				0.004			
Region	Eastern	127	79.4%	33	20.6%	87	54.4%	73	45.6%	131	81.9%	29	18.1%
	Riyadh	156	91.2%	15	8.8%	121	70.8%	50	29.2%	150	87.7%	21	12.3%
P- Value		0.002				0.002				0.138			

**DISCUSSION**

Our study concentrated on interns because they are a starting point of their medical life and they must know how to protect themselves from Hepatitis B from the beginning. Actually, exposure of health care workers to Hepatitis B and other pathogens is one of occupational hazard that should be under control and keen supervision; prevention should be from health care worker, hospital administration, and government as well. In this study, we were

evaluating how health care workers specifically intern participating in prevention and what are weak points that they have on this issue to be solved.

Selecting two regions to apply this study may cause some bias if we want to include all intern doctors, because in Saudi Arabia we have thirteen admirative regions, that we may include them in next researches on the same subject. Although, Number of people living in villages is obviously less

than those in cities, and the same in nationality, in which Saudis are obviously more than Non-Saudis.

In general, we found that participants have good knowledge by high percentage (86%) which was very close to the same evaluation which was done in Ethiopia (86.2%), very higher and better than Iraq, in which 14% of medical students there got good knowledge and 45% of them have acceptable knowledge<sup>[4, 7]</sup>. There were around 22% of intern doctors don't know that Hepatitis B carriers can transmit the infection to others, and that is risky because this encourages them to deal with any patient with no symptoms of hepatitis B without infection control guidelines because they believe that they don't have Hepatitis B infection. Around 34% of participants don't believe that Hepatitis B is curable and treatable. Around 32% don't know or don't believe in post-exposure prophylaxis.

The positive attitude was more than half of participants (63%), but, still, there was 37% of the participants have a negative attitude. This negative response should be considered and evaluated to reduce this (37%) as much as possible. However, the present ratio is still better than that of people in Ethiopia when they carried the same study (54.5% positive attitude)<sup>[4]</sup>. Around 22% of the participants don't agree that they are at risk of getting Hepatitis B infection, and this is either due to unawareness or overconfidence. In this study, more than half (50.2%) of participants agreed that we should test every patient for Hepatitis B before giving health care to him. More than 21% of the participants don't like to treat a patient with Hepatitis in addition to 3.9% who don't know either they agree to do or not.

Practice part is acceptable, in which 85% of participants have a good practice. Around 23% of intern doctors don't report needle prick injuries. So, we need to encourage them to report to solve this issue as soon as possible.

## CONCLUSION

It is obvious that our new doctors in Eastern and Riyadh regions have good knowledge, attitude and practice for Hepatitis B. Still there are interns having poor knowledge, practice and negative

attitude. However, we suggest activating the rule of infection control department in each hospital to teach new health care providers and assess their awareness continuously. Also, we suggest preventing any intern from contacting with patients without getting screening and vaccination for Hepatitis B. People in the Eastern region have less knowledge and attitude than those in Riyadh with a significant difference between them. Also, male interns have a better practice than female interns in general.

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