

HEPATITIS-B VACCINATION STATUS AMONG SURGICAL STAFF IN TEACHING HOSPITALS, PESHAWAR

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Abstract

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Copyright @Author Corresponding Author: * Aizaz Ullah **Introduction:** Health workers are at higher risk of acquiring infectious diseases and hepatitis-B is one of the commonest problems. Prophylactic measure like vaccination is a critical preventive strategy to safeguard against infections, especially for those exposed to viral and bacterial agents. Therefore, it is recommended to have three doses of vaccine for every individual working in hospitals irrespective of the nature of job and work experience. Health care staff working in the surgical units are an increased risk of getting infections and further transmission to the vulnerable individuals in the community.

Methodology: It was descriptive study conducted in different hospitals of Peshawar among health professionals of surgical units; including ward, ICUs and Operation theaters. The data were collected on check list made by scholar with help of supervisor after doing thorough literature review. The staff members were requested to fill the questionnaire after their verbal consent. They were helped by author when needed. Convenient approach was used for selection. The data were then put on EXCEL sheet and transformed to SPSS for analysis. Results were presented in descriptive and inferential forms of statistics.

Results: Among 363 employees enrolled in this study 73% were male and 27% female with married status 59% who were Surgical/ Anesthesia technologists, Nurses and doctors. Majority, 344 (94.8%) reported that vaccination against HBV should made whereas 318 (87.6%) believed that Surgical staff are at risk of contracting and spreading HBV, 72.5% were concerned regarding HBV infection while, 66 (18.2%) were not afraid of it. The overall vaccination status of HCWs who are immunized was 199 (54.8%). Regarding the hospital policy about HBV vaccination, 137 (37.7%) said their organization imposes compulsory vaccination against hepatitis B, while 109 (30.0%) said there is no such policy. The compliance to WHO recommendation desired to be followed by 193 (53.2%). Those who tend to follow the WHO recommendation 154(79.8) were vaccinated while 36(28.7%) were yet not vaccinated. Reasons for not Vaccination or non-adherence to the recommendation of WHO/hospital Policy included. The main reason for non-adherence or not vaccination was; unawareness, lack of vaccine, lack of trust on effectiveness, cost, carelessness and lack of time. Comparative analysis shows that 65 (63.1%) doctors, 33 (50.8%) anesthesia staff, 57 (43.5%) surgical technologists and 44 (68.8%) surgical



nurses were positive for vaccination, showing significant difference (p=0.002). **Conclusion**: The health professionals working in surgical units were found to have higher desire for policy ensuring HBV vaccination compulsory for everyone. A higher proportion of doctors and nurses reported that they are fully immunized as compared to surgical and anesthesia technologists.

INTRODUCTION

The viral hepatic infection is the most common, causing inflammation of the liver tissues. There are many viruses which decorate the function of liver but, hepatitis, A, B, C and E viruses are common among them.(1) In the world there are 30% are suffering from HBV infection and nearly 400 million have faced chronic liver disease associated with viral infection especially HBV infection.(2) Furthermore, Hepatitis-C virus has infected 270 million peoples all over the world, which account 3 percent of total population of the globe.(1, 3) the situation in Pakistan reveals that the prevalence of HCV infection is 6% which is equal to the 9-10 million people of the country. (4) if compare with the world almost every 12th person is suffering from chronic HCV infection, particularly, 1 million die due to adverse consequences like cirrhotic diseases of the liver. Blood transfusion is considered the common risk factor. (5, 6) Generally, in the last decade it was observed that in some of the clinic of quacks they reuse the syringes and other sharps instrument without proper sterilization. Even in some of the tertiary care hospital, there are chances of getting infection due to exposure to infected body tissues and fluids especially it put the health care workers at risk.(7, 8) This cause double Burdon of infection,(9, 10) especially in country like Pakistan the burden of disease would increase as contaminated syringes are reused. In hospital the chances of needle injuries are high which causes ranges from and the risk of hepatitis B after a contaminated needle stick injury is 5-20% infection of HBV and 3% of HCV respectively. (11, 12) Because of this chronic infection, the liver develops cirrhosis, liver cancer, liver failure, and death. Hepatocellular lacerations can also appear in different system, most notably the kidney and ultimately leading to an increased case specific mortality rate.(13) Due to their frequent exposure to contaminations of an infected person, health services providers are regarded as the heightened groups for this infection. (14) Contact with contaminated fluid is one of the key methods of transmitting the respective virus. It is estimates that each year, 2 million of the 35 million health HCWs worldwide are exposed to the hepatitis B virus through peripheral blood pathogenic infection.

Staff working in medical and surgical unit play important role in health care provision, however the higher risk of getting infection when they perform their duties in clinical side especially when working with sharp instruments. Thus, the surgical specialist working in surgery and allied medical and allied departments are advised to have vaccination against hepatic B.(15, 16) keeping the importance of the disease and its consequences, Government of Pakistan has included this vaccine in the routine immunization schedule. The students and staff (doctors, nurses and others) of surgical technology are higher risk to HBV because most of the time they have to work with sharp instruments.(17, 18) The staff working in surgical units of different hospital in Pakistan where they are offered vaccination services but it is not common in every institute. The health workers after completion of their course work have to go for their clinical rotation to different hospital where they have to encounter with hepatitis Patients. It is recommended for any health care professional specially for staff of surgical units to complete 3 dose of HBV vaccine before starting the clinical. This vaccine are available free of charge at every government hospital, but unfortunate only few of the staff members are vaccinated.(19, 20) Being the contagious this viral infection now become the global issue and ranked as third most common infection in the world where approximately 400 M persons are infected by Hepatitis-b. The health professionals are at a significantly risk of acquiring HBV infection because of their job nature. They also act as main source of cross infection among patients. WHO estimates that 5.9% of HCWs are exposed to bloodborne HBV infections each year, which equates to about 66,000 HBV infections in HCWs

globally.(21)The cause of such low compliance is not known, this study is therefore designed to determine the vaccination status and factors related to poor compliance.

1.1. Rationale of the study

Prevention is the ultimate treatment option of hepatitis B, hence been included in nation immunization schedule. Every health staff specially are encouraged to complete the three doses of the HBV vaccine before joint the clinical duties, however, the proportion of the vaccination is very low among the staff and this varies across the region and organization due to various reasons. A research study is therefore, needed to have a base line data for the local medical community specially the HCWs of the surgical and allied departments and to determine the reasons for noncompliance.

1.2. Objectives

- 1. To determine the vaccination status against hepatitis-B among surgical staff in teaching hospitals, Peshawar
- 2. To determine the factors influencing the non-adherence to vaccination policy

Materials and Methods Study Design

The study design was cross sectional or snapshot study, all the individuals of the study were interviewed as well as well given the questionnaires one time.

Study Settings

Major tertiary care public hospitals of Peshawar Pakistan were targeted for the study i.e., Lady reading hospital Peshawar, Khyber teaching hospital Peshawar and Hayatabad medical complex Peshawar

Duration of completion

After receiving approval from the department, the project spanned a duration of 8 months until its successful completion.

Sample Size

The sample 350 were collected from 2500+ employees, we took α =0.05, d=95, and \in 0.1



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respectively. Laterally adding 10% expected non-response the calculated sample size is 363.

$$n = \frac{z_{1-\alpha/2}^{2} P(1-P)N}{d^{2}(N-1) + z_{1-\alpha/2}^{2} P(1-P)}$$

Sampling Procedure

Convenient Sampling Technique was used for the study individuals sampling.

Selection

In categorizing the designations and job description of the operation theater or health care worker we included the surgical techs, operation theater attendants, surgeons and staff nurses.

Inclusion Criteria

All surgical staff having least working experiences of half year in surgical units of different departments

Exclusion Criteria:

Those reluctant to participate in the study or any difficulty in giving their information.

Data Collection

As indicated in the university policy that initial step is to get signed approval, so this project also went through this protocol. Secondly, from ethical point of view the consent and permission of the respective head and staff. self-administered Performa including questionnaire pattern of different variables, factors suggested by the supervisor also the CDC protocols and papers-based questions were included.

On completion it was rechecked, any missing of data regarding the variables was kept safe separately and completed data was used for analysis. The data was then entered into IBM SPSS for cross tabulation and analysis, also in excel for a complete safe file.

Data Analysis

Data was entered, coded and values were assigned to categories within the variable. Data was checked for quality and missing values. Both basic and advance level statistic were used where needed and $p \leq 0.05$ was take as enough evidence for making inferences. Frequencies and percentages of all variables were done in the first step while the cross tabulation of every single variable with another was the second



step. Thirdly the statistical tests such as chi square tests of association was applied to find out the distribution and association between the variables of choice depending on their quality and type i.e., categorical variable or quantitative variable. Further analysis by making graphs and tables were made using both SPSS and Microsoft excel for better understanding and comparisons.

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Results

In this, study the total of 363 respondents with mean age 30.16 ± 5.6 . (ranged 20-50 years) were included out of them 265(73%), were male and 98(27%) were female. Their Marital status indicate that 207(59%%) were married while the others were not.



Figure 1. Gender and Marital status

The data collected from multiple institutes, major selected tertiary care hospitals were HMC 121 (33.3%), LRH 118(32.5%) and other local private sectors 124(34.2%).

Regarding qualification, majority 100(27.5%) of the participants were from BS surgical technology followed by FCPS doctors 61 (16.8%), BS nursing 58 (16.0%), diploma holder 45 (12.4%), BS Anesthesia

34 (9.4%), M. Phil/MS 10 (2.8%), MBBS 44 (12.1), MCPS6 (1.7%) and other and CSSD, Cardiology staff.

Regarding the job description, 103 (28.4%) as surgical doctors, 65 (17.9%) Anesthesiologist, 131 (36.1%), S. Technologist and 64 (17.6%) S. Nurse.



Figure 2. Distribution of staff by their designation

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Table 1. Demographic and Educational background							
		Frequency	Percent	Valid Percent	Cumulative		
					Percent		
Institut	Institute						
	НМС	121	33.3	33.3	33.3		
	LRH	118	32.5	32.5	65.8		
	Other	124	34.2	34.2			

Table 2. Designation and Specialty

		Frequency	Percent	Valid Percent	Cumulative Percent
Educati	on				
	BS Anesthesia	34	9.4	9.4	9.4
	BS Cardiology	1	.3	.3	9.6
	BS Nursing	58	16.0	16.0	25.6
	BS Surgical Technology	100	27.5	27.5	53.2
	CSSD	4	1.1	1.1	54.3
	Diploma	45	12.4	12.4	66.7
	FCPS	61	16.8	16.8	83.5
	M.Phil/MS	10	2.8	2.8	86.2
	MBBS	44	12.1	12.1	98.3
	MCPS	6	1.7	1.7	

Opinion about the importance of Vaccination.

When they were asked whether the vaccine against HBV is made compulsory for health care professional working in surgical units in different health care facilities, 344 (94.8%) said it is Compulsory and 16 (4.4%) expressed that it is Optional while only 3 (0.8%) it is Not Needed.

Secondly, they were asked whether hepatitis B vaccination is compulsory for every health care professional regardless of their specialty, Majority said it is required for every health professional but 21 (5.8%) were thinking that it not required for

everyone. Majority 318 (87.6%) believed that Surgical staff are at risk of contracting and spreading HBV while 25 (6.9%) were not thinking so and 20 (5.5%) were not sure. Nearly $3/4^{\text{th}}$ (72.5%) them were concerned regarding HBV infection while, 66 (18.2%) were not afraid of it and 34 (9.4%) were not sure. From the above result the impression reveals that despite the majority of respondents thought that vaccination is compulsory for the specialty they are enrolled in but despite accepting this fact limited number had their vaccines received and were protected.

Table 3. Hospital Policy and concerns 1	regarding being infected with HBV
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		Frequency	Percent	Valid Percent	Cumulative		
					Percent		
What is	What is the Policy of Vaccination in Your Institute						
	Compulsory	344	94.8	94.8	94.8		
	Optional	16	4.4	4.4	99.2		
	Not Needed	3	.8	.8			
	Total	363					



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Is it compulsory for every HCWs regardless of their nature of job						
	Yes	342	94.2	94.2	94.2	
	No	21	5.8	5.8		
Surgical	staff are at risk of contracti	ng and spreading H	BV.			
	Yes	318	87.6	87.6	87.6	
	No	25	6.9	6.9	94.5	
	Not Sure	20	5.5	5.5		
Do you	Do you have concerns regarding being infected with HBV?					
	Yes	263	72.5	72.5	72.5	
	No	66	18.2	18.2	90.6	
	Not Sure	34	9.4	9.4	99.7	

Perception about their current status

About the current status of immunity against HBV among the participants the result show that 199 (54.8%) believed that they immunized while 164 (45.2%) still thinking that they are at risk of getting infection. Among those who are of the view that they are immunized 73 (20.1%) still thinking that they are Susceptible. the respondents believed that surgical staff who has directly involvement with the blood of the patient are at the risk of contracting hepatitis-B. Regarding the hospital policy about HBV vaccination, 137 (37.7%) said their organization imposes compulsory vaccination against hepatitis B (at least 3 doses) while 109 (30.0%) said there is no such policy while 117(32.2%) were not sure about such policy. When they were asked about the compliance on WHO recommendation of getting three dose of hepatitis B vaccine, 193 (53.2%) said they do follow while 170 (46.8%) they have not followed any such recommendation given by WHO. Those who were tends to follow the WHO recommendation 154(79.8) were vaccinated while 36(28.7%) were yet not vaccinated.

Table 4. Perception about their current status

		Freq	Percent	V.%	C.%			
Current s	Current status immunity against HBV							
	Yes	199	54.8	54.8	54.8			
	No	164	45.2	45.2				
If yes please specify (n=246)								
	Immunized	159	43.8	43.8	76.0			
	Susceptible	73	20.1	20.1	96.1			
	Chronic	14	3.9	3.9				
Hospital p	olicy about HBV va	ccination						
	Yes	137	37.7	37.7	37.7			
	No	109	30.0	30.0	67.8			
	Not Sure	117	32.2	32.2	100.0			
Complian	ce with recommend	ed by WHO						
_	Yes	193	53.2	53.2	53.2			
No 1		170	46.9	46.9	99.7			
If yes, hav	If yes, have you completed three doses (n=193)							
	Yes	154	79.8	80.6	80.6			
	No	36	18.7	18.8	99.5			

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Reason for not Vaccination or non-adherence to the recommendation of WHO/hospital Policy The main reason for non-adherence or not

vaccination was; unawareness, lack of vaccine, lack of trust on effectiveness cost, carelessness and lack of time. The result shows that Unavailability of HBV Vaccine was report by 96 (26.4%) while 142 (39.1%) it would not the main reason. Furthermore, 152 (41.9%) said, they have no trust on effectiveness of this vaccines 155 (42.7%) blamed the lack of organization commitment to the policy while 129 (35.5%) said they were unable to get the department where they can receive the vaccination.

Table 5. Reason for not Vaccination or non-adherence to the recommendation of WHO/hospita	l Policy

		Freq	Percent	V.%	C.%		
Unawareness	(n=238)						
	Yes	87	24.0	36.6	36.6		
	No	151	41.6	63.4			
	Total	238	65.6				
Unavailability	y of HBV Vaccine (n=2	238)					
	Yes	96	26.4	40.3	40.3		
	No	142	39.1	59.7			
	Total	238	65.6				
lack of trust o	n effectiveness (n=240))					
	Yes	152	41.9	63.3	63.3		
	No	87	24.0	36.3	99.6		
	Total	240	66.1	100.0			
Lack of organi	ization commitment to	the policy					
	Yes	155	42.7	64.9	64.9		
	No	84	23.1	35.1	100.0		
	Total	239	65.8	100.0			
Don't know v	Don't know where to take the vaccine						
	Yes	129	35.5	53.8	53.8		
	No	110	30.3	45.8	99.6		
	Total	240	66.1	100.0			

The cost was considered as barriers by 110 (30.3%) of the staff while fearlessness about cross infection was reported by 79 (21.8%). Long time schedule of

vaccine was considered the main cause by 126 (34.7%), Lack of time was considered 125 (34.4%) while Poor attitude towards self-health was found 115 (31.7%)

		Freq	Percent	V.%	C.%
Cost					
	Yes	110	30.3	46.2	46.2
	No	128	35.3	53.8	
	Total	238	65.6		
Fearlessness b	eing infected				
	Yes	79	21.8	33.1	33.1
	No	160	44.1	66.9	
	Total	239	65.8		
Long time schedule of vaccine					
	Yes	126	34.7	52.5	52.5



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	No	114	31.4	47.5		
	Total	240	66.1			
Lack of time						
	Yes	125	34.4	52.1	52.1	
	No	115	31.7	47.9		
	Total	240	66.1			
Poor attitude towards self-health						
	Yes	115	31.7	48.1	48.1	
	No	124	34.2	51.9		
	Total	239	65.8			

Immunization status among different cadres

We have elaborated further in cross comparisons in male respondents only 143 out of 265 had their vaccines while in female staff 56 out of 98 had their HBV vaccines received. Those who received their HBV vaccines also had their organizations obligation to show the proof of HBV vaccination and had to undergo vaccination. However, most of their organization had no such policy. Other had their excuse as not availability of free vaccines in their reach. Another factor for not completing their all doses of vaccination was the long schedule of vaccine The respondents believed that surgical staff who has directly involvement with the blood of the patient are at the risk of contracting hepatitis-B. Despite this, majority of respondents thought that vaccination is compulsory for the specialty they are enrolled in but despite accepting this fact only 199 (54.8%) had their vaccines received vaccines against Hepatitis-B.

Another factor for not completing their all doses of vaccination was the long schedule of vaccine. Out of total there were 38 (36.9%) doctors were not vaccinated with HBV while the remaining 65 (63.1%) had completed their vaccine courses

In the second category of anasthesiolists (individuals who handles the anesthesia/sedation process of the patient during a surgical procedure) 33 (50.8%) of them were vaccinated and those refused were almost 32 (49.2%). This category needs to be further evaluated to find out the reason behind such doubtful concept of theirs. The third category of surgical technologists who underwent the BS programs and were appointed as technical staff for surgeries besides surgeons, out of them 57 (43.5%) individuals got vaccinated while 74 (56.5%) were not vaccinated. The last cadre were the surgical nurses out of them 44 (68.8%) were positive for vaccination.

		Current status wi	Current status with HBV vaccination	
		Yes	No	P-Value
	Male	143 (54.0%)	122 (46.0%)	0.5
	Female	56 (57.1%)	42 (42.9%)	0.5
	Doctors	65 (63.1%)	38 (36.9%)	
	Anesthesiologist	33 (50.8%)	32 (49.2%)	0.002
	S. Technologist	57 (43.5%)	74 (56.5%)	0.002
	S. Nurses	44 (68.8%)	20 (31.2%)	
Total		199 (54.8%)	164 (45.2%)	363

Table 6. Comparing the Vaccination status of job description categorical variable.

Discussion

It is required for healthcare workers at tertiary care facilities to get the HBV vaccine as they are at higher risk of getting the hepatitis B infection due to their job nature. It became special concerns for those who are working in surgical units of a tertiary care or other hospital having surgical facilities. These health care facilitators deal with infectious tissues and prone to needle injuries. Even Nevertheless, relatively few organizations have hepatitis B vaccination facilities

for their employees and really have a schedule for them to go through the procedure and receiving all doses of the hepatitis B vaccination. This study revealed that the majority of people who received vaccinations also missed a few doses due to a number of reasons, such as the lengthy schedule for hepatitis B vaccinations, difficulty accessing the vaccines, and uncertainty about whether they should be administered. In our total respondents the percentage of vaccine hesitant individual is fearing as they are in specialty which directly exposes themselves with blood of patient and thus may endanger themselves and others around towards HBV.

The results of the current study in 363 employees' from multi centers out of them 73% were male and 27% female belongs to nursing, anesthesia and surgical technologist and doctors. Majority, 344 (94.8%), said that vaccination against HBV should be implemented, while 318 (87.6%) thought surgical personnel were at danger of catching and spreading the disease. Of them, 72.5% were worried about HBV infection, while 66 (18.2%) were unconcerned about it. 199 people (54.8%) were unvaccinated overall. A cross sectional study conducted in Faisalabad also had the same result shows that the prevalence of vaccination status among health care workers, which was 45 % while we had in Peshawar this value is 54.8%. The conclusion of their study was that, despite of such high-risk group prevalence rates, a fearing figure of 40% didn't vaccinate themselves with HBV vaccine. This goes for our study as well as out of the total 350 respondents 43.1% were vaccine hesitant.(22) The world health organization in recent year also declared that only about 18-30% of the total health care worker in third world countries or on other words the developing countries vaccinates.(23, 24) While this figure in developed world is much higher ranging from 67% to 79% depending on their exposure and professional background.(24) Study conducted in Kenya indicate that 53% health staff were vaccinated for HBV. (25) Another study from Ghana reported 49.4.0% of complete vaccination. (26) In contrast to health care providers a study conducted in volunteer blood donors 60.3% had first dose followed by and 14.5% second and third dose 22.1% respectively. (27) A study conducted in Lahore



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Pakistan with 215 doctors, 11.6% of them had not even taken one dose of the Hepatitis B vaccine, and 14.4% had not finished the needed series of vaccinations. The most frequent excuse given by clinicians for not immunizing was that they had not given it any attention. Of the other clinicians, consultants were more likely to have had a full immunization (83.9% versus 69.9%) (p 0.05). After receiving the immunization, they were also noticeably more likely to be aware of their antibody titer. Injuries from needle sticks were frequent. In the survey, 145 clinicians acknowledged to having experienced at least one needle stick or other sharp injury and 51.6% of them have sustained a needle stick or other sharp injury more than once.(28) In Pakistan, other studies such as two studies conducted in the Province of Sindh concluded that 62% of hospital health care employees vaccinated. Same result upholds for the Hazara division papers as well which approximately declared the figure around 48% only in Abbottabad. There is different variation even in the developing countries as well. For instance, Pakistan has its neighboring states which shows varying result for hep B vaccinations among health care staff, India stands at 76-79%, while Iran and Saudi Al Arabia has 72-73.7% across its different zones. The main factor for such difference can also be the fact that studies conducted are from different settings and clinical backgrounds, as this study was conducted in tertiary care hospitals (public sector) but in private THQ's the vaccination status is higher because of proper surveillance and monitoring from the 3xecutives of institute.(29) In this study it was obvious because about 82.1% of the respondents believed that surgical staff should have their vaccination done as this specialty has greater exposure towards the mentioned virus but despite this higher number of believers the status of vaccination in themselves was not satisfactory as only half of them had their vaccines completed. When asked for the different reasons mentioned in the questionnaire out of the total who did not vaccinate 53% of them had no availability of the vaccines in their respective institute of positing

Regarding the hospital's vaccination policy for HBV, 37.7% claimed their institution requires hepatitis B vaccination as a condition of employment, whereas 30.0% indicated there is no such policy, 53.2% of



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the population wished to follow the WHO's advice. A total of 79.8% people who tended to follow WHO recommendations received vaccinations, whereas 28.7% did not. Included is a justification for not being vaccinated or for not following hospital or WHO policy. The primary causes of non-adherence or non-vaccination were ignorance, a shortage of vaccines, a lack of faith in their affordability and effectiveness, negligence, and a lack of time. Comparative research reveals that 44 (68.8%) surgical nurses, 43.5%) surgical technicians, 33 (50.8%) anesthesia personnel, and 65 (63.1%) doctors were positive for immunization, with a significant difference (p=0.002).

According to study conducted in Peshawar and was based in sample size of (n=824) indicate that HCWs in the hospitals under study had a 2.18% prevalence of HBV positivity. The risk of occupational exposure and HBV infection was higher for nurses and technicians. Significant differences existed between HCWs who had received vaccinations and those who had not, as well as between doctors and all other groups. Despite having strong awareness of the issue, iob (39.8%), carelessness strain (38.8%),unaffordability (20.9%), and unavailability (0.5%) were barriers to full immunization.(30) Comparing this study to earlier research from various parts of Pakistan, where vaccination rates ranged from 37.2% to 66.3%, it showed that the immunization program was successful.(31-33)

Current study showed that majority of health care workers in tertiary care hospitals of Peshawar Pakistan didn't seem to have agreed with the overall policy for vaccination in their institutes. Negative attitude and carelessness about self-affected the overall status of the vaccination among health care staff all over Pakistan and the same is reported by other studies reveals that the result of the present study is in consistence with others.(34) A study in mainsail concluded that in overall respondents of 330 only 111 had their all the here doses of Hepatitis B vaccinations. Even in these individuals the reason for completing their dose majority labeled as mandatory policy of institution or department. Only few 11% declared it as a work safety behavior. In another study conducted in Karachi Pakistan the result of vaccination coverage was 81.3% which is a good indicator but still the overall is not achieved as

despite of availability of hepatitis B vaccines since 2002.(35) Pakistan's overall average vaccination status against hepatitis B in public sector employed health care staff is 34% which is an alarming situation. The rest vaccine hesitant individuals even in the very sector pf health is what makes it a red flag. (30, 36)

A study from Liaquat university of health sciences compared non-Health care individuals versus the health employees and concluded that it had no difference as the health safe behavior of hospital staff should have a vast difference comparing those who are not health care worker (general population).(37) In this study one of the important variables was the different categorical data upon the job description of the individuals. This means all the data was classified into subgroups and the results of these groups such as surgeons, staff nurses, surgical tech and anesthesiologist the vaccine refusal behavior was high among the surgical first attendants or also referred to as surgical technologists in the study. The result came as about two third of the surgical techs were those who didn't vaccinate themselves. Their job description involves the high level of exposure to the blood and blood products also despite of the fact that about 67% of the individuals referred themselves as high-risk individuals for susceptibility of hepatitis b, but still they weren't vaccinated. In a similar study conducted with, physicians reported that they faced difficulty in obtaining vaccines as the most common reason for not vaccinating them. In their study, only 18.5% of her incompletely vaccinated physicians had similar reactions. The majority of physicians participating in the study said that the most common reason for not being vaccinated or completing the required courses was because they didn't think about it. Physicians appear careless in obtaining vaccines, but there is a lack of public health policies to ensure that physicians are fully vaccinated before undergoing professional training.(38) Lack of awareness and carelessness on the part of physicians, combined with disregard for risk, leads to under-vaccination. It is important to ensure that all physicians are fully vaccinated against hepatitis B before starting their professional practice. (29, 39)

The research conducted in Pakistan reported that 54% of HCWs had encountered with sharp injuries

while other study from affiliated hospital of Gondar University reported 49.2% injured due to sharp instruments.(40) This proof highlights the significance of hepatitis B vaccination among HWs specially those working on surgical wards/units. This is especially important for this population given their exposure levels. However, still mejory remain unvaccinated which could be linked to the high cost of vaccines (41%) and lack of availability (36%) and poor attitude for self care. About 3/4th (77.8%) of the staff in current study had accepted that that hepatitis B is a major public health threat, and participants believe their jobs put them at high risk of contracting the disease.(41)

Other contributing factors was the training status of the employees, exposure and risk behavior. The odd of vaccination among trained participants was 2.3 time. Similarly was also positively associated with exposure history (OR-5.5) and experience (OR-3.1). Only a quarter of healthcare workers got the required doses of the vaccine. From the safety perspectives against this contagious disease (hepatitis B) vaccination program for health care workers should be established through multi-stakeholder collaboration.(42)

prevalence The of complete hepatitis В immunization was lower in rural areas as compared to urban one reported by the study in Sindh province. And the same was found in India. The status in Pakistan, indicate 83% of health professionals (doctors/practitioners) were vaccinated. Among non-licensed doctors, only 36.4% were vaccinated while 42% of dispensers/assistants had hepatitis B vaccination, 87% of healthcare workers in a community hospital in rural India had gotten their full dosage of the hepatitis B vaccine, according to study done there.(40)

Regarding the prevalence of hepatitis B vaccination within main Health care worker from the area, we weren't able to locate any additional material. The incidence of hepatitis B vaccination amongst Health care worker working in tertiary care institutions has been documented in a number of Pakistani research, nevertheless. A research from two university hospitals in Hyderabad, Pakistan, found that 65% of the population had received their full dose of the hepatitis B vaccine, including 92.4% health practitioners and 18.9% nursing assistants.(37)



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According to another research from a secondary care facility in Karachi, 52% of individuals had received the full hepatitis B vaccine. (29) The allocation of a vaccination facility at the health center, the work atmosphere, the expenses of a vaccine, consciousness of the efficiency of vaccination, professional certification, and other motivating factors are employed to explain differences in the vaccination status of Health care workers. (29, 43)

Hepatitis-B vaccination for new employees has lately been made available in several private paramedical, nursing, and medical schools in Pakistan; this may have led to greater vaccination rates among fairly young Health care worker than between those 60 years of age and older. Vulnerability to sharp injury/needle stick accident over the previous year was another intriguing univariate finding that did not change much at the multivariate level. In comparison to Health care worker who reported no acute injury in the previous year, those who did have been less likely to have been given the hepatitis B vaccine.(44)

Sharpt injuries in health centers specially during surgery have been established as one of the major risk factors for the spread of blood-borne illnesses like hepatitis B, this finding has significant ramifications. Furthermore, compared to HCV and HIV infection, there is a larger risk of spreading the hepatitis B virus by a contaminated needle stick or sharp injury, especially among uninfected HCWs.(45)

We were unable to locate any primary or tertiary care studies that might have evaluated the relationship between prior injuries from needle sticks and hby Infection immunization. Nevertheless, a study amongst researcher nurses at a tertiary healthcare clinic in Baluchistan Pakistan and a examine amongst HCWs at a tertiary care health facility in North India marked better suitability of hepatitis B vaccine amid individuals with a preceding history of unintentional exposure to blood or blood products. Our finding isn't sturdy with the assumed works. Forthcoming studies in both principal and tertiary care settings are encouraged to appraise the affiliation between vaccination and former exposure to blood or blood products amongst Health care worker.

Although the world health organization, the center for disease control and the government of Pakistan is trying with different private partner shipped NGOs to stabilize the prevalence of hepatitis b among g the health care workers but despite of such high degree compulsory policies the prevalence rate is too high among these HCW's. comparatively males had greater vaccination status as immunized than females, also the age category between 31-37 were immunized completely than other age staff. Marital status didn't influence the behavior. The study showed prevalence for approximately many factors of the health care workers but still a follow up study for interdepartmental comparing and interstate comparison may be required for which this study can be as a background base study.

Conclusion

Nearly, two third of the medical staff working in surgical units including wards ICU and OT were vaccinated. Most of them were in favor of compulsory policy for vaccination against HBV but still there was lack of specific provision of HVBvaccine to the employees, most the place there were no such assigned place from where one can get the vaccine. Compliance to WHO recommendation desired to be followed by more than half of them but still there was lack of compliance among surgical technologists and anesthesia staff. The study was conducted in the tertiary level institutes of the Peshawar city of Khyber Pakhtunkhwa. Different hospitals had different results and factors regarding the vaccination behaviors of completion or refusal. But combining all three data and categorizing on their designation, age, gender and their attitude basis the result was very alarming.

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