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# Knowledge and Beliefs Among Health Care Workers Regarding Hepatitis B Infection and Needle Stick Injuries at a Tertiary Care Hospital, Karachi

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## ABSTRACT

Hepatitis B virus (HBV) infection is a recognized occupational risk for health care workers (HCWs). This study aimed to assess the knowledge and beliefs of HCWs regarding HBV transmission and needle stick injuries (NSIs). A cross-sectional questionnaire based KAP study was conducted at Civil Hospital, Karachi, during the period of January to September 2006. HCWs were inquired about possible modes of HBV transmission and association with NSIs. Data were entered using EpiInfo 6.04d software. Statistical analysis was performed using SPSS 12.5 software. A total of 343 HCWs participated, and those answered at least 5 correct modes of HBV transmission were considered knowledgeable. Knowledgeable group was more likely to report NSIs ( $p < 0.006$ ), more vaccinated ( $p < 0.001$ ) and were also more likely to attend awareness session ( $p < 0.009$ ). Overall knowledge were inadequate and behaviour and attitude towards clinical practices were found compromised. To reduce the occupational risk, effort should be focused to establish effective infection control program and training of staff.

**Key words:** Hepatitis B virus. Occupational risk. Health care workers. Knowledge and beliefs. Needle stick injury.

Hepatitis B viral (HBV) infection is a well recognized occupational risk for health care workers (HCW). As per World Health Organization, globally 40% of HBV infections among HCWs were due to occupational exposure.<sup>1</sup> In health care settings, most exposures are caused by blood or body-fluids especially due to needle stick injuries (NSIs) which carry substantial risk.

Infection control is not an integral part of the curriculum in local setting. The knowledge, beliefs and practices regarding HBV transmission vary widely among HCWs. If initial assessment of knowledge and beliefs of HCWs are available, appropriate interventions may be taken. In this study, the knowledge and beliefs of the HCWs at a public tertiary care hospital were assessed regarding HBV transmission as well as the role of NSIs in relation to its transmission.

A cross-sectional questionnaire based knowledge attitude and practices (KAP) study was conducted at Civil Hospital, Karachi, during January and September 2006. HCWs were selected through convenient sampling. Data were entered and analyzed using EpiInfo 6.04d

software. Statistical analysis was performed using SPSS 12.5 software. A p-value of  $< 0.05$  was considered as statistically significant.

Knowledge regarding HBV transmission was assessed by asking the possible modes of its transmission which included; sharing razors, NSIs, oro-fecal route, sexual contact, blood transfusion, splash of blood on eye, respiratory droplet, and eating from same utensils of a positive HBV patient. The HCWs answering at least 5 correct modes of HBV transmission were regarded as knowledgeable.

Out of the 343 participants, 72 (20%) were senior doctors, followed by house officers 122 (36%), medical students 122 (36%) and paramedical staff 27 (8%). Fifty one percent of participants were found knowledgeable. A total of 228 (66%) reported having a NSI at least once during their clinical practice. Among all, 197 (57%) had attended sessions on HBV awareness.

When asked about knowledge regarding possible mode for HBV transmission, 95% reported through blood transfusion, 92% through NSIs, 82% by sharing razors, 78% through sexual contact, 28% from splash of blood on eye followed by transmission by oro-fecal route (27%) and eating from same plates used by a person infected by HBV (11%).

Only 28% believed that this infection is self limiting, 65% believed that all HCWs are at risk and 89% believed that vaccination provides protection. Majority (82%) responded that scalpel and blade injuries are as serious as NSIs in transmitting infection. About 97% agreed that education can reduce the incidence of NSIs.

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**Table I:** Comparison of different variables among knowledgeable with non-knowledgeable HCWs.

Variables	Knowledge		No knowledge		p-value
	n = 176	Percentage	n= 167	Percentage	
Received full course of vaccination	150	57%	112	43%	0.001
Ever had a NSI in the past	129	57%	99	43%	0.006
Attend sessions on hepatitis B awareness	113	57%	84	43%	0.009
Experience					
< 2 Years	63	46%	74	54%	0.34
2-5 Years	60	60%	51	46%	
5-10 Years	32	32%	29	48%	
> 10 Years	21	21%	13	38%	

P-value calculated through chi-squared test, significance  $p \leq 0.05$

Knowledgeable group attended more session on HBV awareness, compared to non-knowledgeable group ( $p < 0.009$ ), was more likely to report NSIs ( $p < 0.006$ ) and were found vaccinated compared to non-knowledgeable group ( $p < 0.001$ , Table I). This is understandable as they were aware of devastating effect of this infection. In this study, frequency of vaccinated HCWs was higher than a study published from Egypt, where only 15% of HCWs were found immunized.<sup>2</sup>

Around two third of participants had experienced NSI in the past, which is higher than the operating room staff, a report previously published from Pakistan.<sup>3</sup> Following a NSI, only 20% of the HCWs reported the incident, which is low but in concordance with the results of a study conducted by Gurubacharya, in his study incident reporting was 21%.<sup>4</sup> In that setting, low reporting probably reflects lack of awareness of staff and non-existing occupational health department which usually facilitate these activities.

NSIs occurred during disposal of used syringe recapping during specimen collection manipulating a syringe needle bending handling IV line passing cannula and collision with someone. These findings highlight the dire need of stringent practices for safe disposal of sharps and also careful handling of syringes and needles during their use. To avoid injuries due to recapping, policy of no recapping should also be implemented. Only in unavoidable scenario, single hand recapping should be allowed.<sup>5</sup>

Given the serious consequences of sharps injuries, it is crucial that preventive measures should be taken and re-inforced. Therefore, it is high time to introduce syringes with safety devices and other engineered equipments as their use in the developed world had already reduced NSIs significantly.<sup>6</sup>

It is encouraging to note that the overall knowledge regarding HBV transmission was adequate but on the contrary only around half of the participants were found vaccinated. Many HCWs had attended sessions on HBV awareness in the past but due to non-availability of funds they could not complete immunization course.

This piece of information highlights that the educational activities that have been organized previously has an impact on the knowledge.

Limitation of this KAP study is that subjects may have responded positively to all risk factors introduced, knowing that the study was about transmission of HBV and role of NSIs in relation to that, so we may have overestimated their knowledge. Another limitation of this study is the small number of paramedical staff, who generally have poor knowledge about modes of transmission and seriousness of diseases and have no opportunity for vaccination or to attend awareness seminar.

It is concluded that infection control education should be an integral part of the curriculum of all disciplines including medical, dental, nursing and paramedics. Additionally, in all health settings, effective infection control measures should be implemented and mandatory reporting of sharp injuries should be organized. It is hoped that with the passage of time knowledge, attitude and practices of HCWs will improve.

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