

*Full Length Research Paper*

# Health workers' knowledge, attitude and behaviour towards hepatitis B infection in Southern Nigeria

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Globally, it is estimated that approximately 400 million individuals are chronic carriers of hepatitis B virus and more than a million people die annually from HBV-related causes. This descriptive cross-sectional study was carried out at Irrua Specialist Teaching Hospital in Edo state, Nigeria, to determine health workers knowledge, attitude and behaviour towards hepatitis B infection using a structured questionnaire. Two hundred respondents from the different cadres of health workers in the hospital were recruited by stratified sampling into the study. More than three-quarters of the respondents (81%) had ever heard of hepatitis B infection prior to the study. Of those that were aware of hepatitis B infection, 92% mentioned blood and blood products as route of transmission of Hepatitis B, 68.5% mentioned needles and sharps while only 37% said that the disease can be transmitted through sexual intercourse. Incorrectly identified routes of transmission by the respondents include faeco-oral transmission (14.2%) and transmission through drinking contaminated water (9.3%). On ways of preventing Hepatitis B infection, correctly identified preventive measures include vaccination by a majority (77.2%) of the respondents. More than three quarters of the respondents (80.9%) said that Hepatitis B can be acquired as a nosocomial infection from the hospital while 69.8% said that Hepatitis B infection is widely transmitted like HIV/AIDS. A little more than three-quarters of the respondents (75.5%), were aware of the existence of Hepatitis B vaccine prior to the study. Only 70.2% have actually ever received Hepatitis B vaccine, out of which only 59.4% completed the vaccination schedule. Poor compliance of Health workers to hepatitis B vaccination is an issue that deserves serious attention. There is a need for health education campaigns for health workers so that they can understand the risks that they are exposed to based on the nature of their work.

**Key words:** Health workers, hepatitis B, vaccination, knowledge, attitude, behaviour.

## INTRODUCTION

Hepatitis B virus (HBV) is a DNA virus and one of many unrelated viruses that cause viral hepatitis. The disease was originally known as "serum hepatitis" (Barker et al., 1196). It has caused epidemics in parts of Asia and Africa. Hepatitis B is endemic in China and in various parts of Asia (Williams, 2006).

The proportion of the world's population currently infected with the virus is estimated at 3 - 6% but up to a third has been exposed (Chang, 2007). Globally, it is estimated that approximately 400 million individuals are chronic carriers of hepatitis B virus and more than a

million people die annually from HBV-related causes (World Health Organization, 1999). This high prevalence rate with its sequelae such as cirrhosis of the liver and hepatocellular carcinoma, makes HBV infection a disease of major public health importance worldwide (Chang, 2007; World Health Organization, 1999; Francis, 1977; Amazigo, 1990). More than three-quarters of HBV infections occur in Asia, the Middle East and Africa. Although the prevalence of HBV carriers varies between countries in the same continent, it can be broadly classified into regions of high endemicity (HBsAg prevalence  $\geq 8\%$ ), intermediate (HBsAg prevalence 2 - 7%) and low HBsAg prevalence ( $< 2\%$ ) (Margolis et al., 1991).

HBV infection occurs frequently and is highly endemic in Nigeria (Abiodun and Omoike, 1990; Fakunle et al., 1981)

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**Table 1.** Sociodemographic characteristics of the respondents.

<b>Variable</b>	<b>Frequency (%)</b> <b>(N = 200)</b>
<b>Age group</b>	
20 – 30	56 (28)
31 – 40	91 (45.5)
41 – 50	34 (17)
51 – 60	19 (9.5)
<b>Sex</b>	
Male	84 (42)
Female	116 (58)
<b>Marital status</b>	
Married	132 (66)
Single	48 (24)
Divorced	15 (7.5)
Separated	5 (2.5)
<b>Profession</b>	
Nursing	91 (45.5)
Physician	67 (33.5)
Laboratory Scientist	19 (9.5)
Pharmacy	10 (5)
Others	13 (6.5)
<b>Years on current job</b>	
<10	130 (65)
10 – 19	40 (20)
20 – 29	24 (12)
>=30	6 (3)

1981). Reports from different parts of the country showed varying prevalent rates among selected groups (Olumide, 1976; Ayola and Adelaja, 1986; Ejele and Ojule, 2004; Mutimer et al., 1994; Olusanya et al., 1982; Akinyanju et al., 1977). However, Olubuyide et al found the HBsAg carrier rate of 39.0% among doctors and dentists compared to the national average of 20.0% (Olubuyide et al., 1997). HBV remains an occupational risk to health workers and medical students due to low immunization, with a prevalence rate of 11.0% among medical students in Uganda (Bongomin and Magid, 2005). Prevalence rates of 9.6% was observed among non-vaccinated healthcare workers in Palestine (Rola et al., 2005), while 24.4% (Weiss et al., 1994), and 16.8% (Marinho et al., 1999) were reported among their counterparts in Israel and Portugal respectively. Despite the high prevalence of HBsAg among health workers, studies revealed inadequate knowledge of hepatitis B infection (Table 1) and poor safe practices to prevent its transmission among them (Shaheen et al., 2007; Abdul et al., 2007). The infection which eventually causes liver cirrhosis and liver

cancer, is preventable by vaccination (Pungpapong et al., 2007). The beliefs of health care workers particularly regarding the safety and efficacy of hepatitis B vaccine, have a major impact on their decision to accept or reject vaccination (Henry et al., 1986).

Health care workers are at risk of infection through exposure to blood or contaminated body fluids and should get vaccinated against hepatitis B (Viral Hepatitis, 2008). This study aims to determine health workers' knowledge, attitude and behaviour towards hepatitis B infection at Irrua Specialist Teaching Hospital.

## METHODOLOGY

This descriptive cross-sectional study was carried out at Irrua Specialist Teaching Hospital, located in Irrua, a rural community in Essan Central local government area, in the Northern part of Edo state, Nigeria. It has a population of about thirty five thousand people. The hospital is a referral centre to other hospitals and health centers from neighboring villages and towns both within and outside the state.

**Table 2.** Distribution of the respondents by knowledge of hepatitis B infection.

<b>Variable</b>	<b>Frequency (%)</b>
<b>Ever heard of hepatitis B Infection</b>	
Yes	162 (81)
No	38 (19)
Total	200
<b>*Routes of transmission of hepatitis</b>	
Blood and blood products	149 (92)
Needles and sharps	111 (68.5)
Sexual intercourse	60 (37)
Faeco-oral	23 (14.2)
Contaminated water	15 (9.3)
Others	6 (3.7)
Total	162
<b>Hepatitis B can be transmitted as a nosocomial infection</b>	
Yes	131 (80.9)
No	31 (19.1)
Total	162
<b>Hepatitis B is also widely transmitted like HIV/AIDS</b>	
Yes	113 (69.8)
No	49 (30.2)
Total	162
<b>Health workers are at risk of Hepatitis B Infection by virtue of their work</b>	
Yes	100 (61.7)
No	62 (38.3)
Total	162
<b>*Ways of preventing Hepatitis B infection</b>	
Vaccination	125 (77.2)
Proper disposal of sharps, needles and blood	122 (75.3)
Avoid needle/sharps injury	100 (61.7)
Avoid casual sex or/and multiple sexual partners	61 (37.7)
Avoid drinking contaminated water	10 (6.2)
Avoid food not well cooked	5 (3.1)
Total	162

\*Multiple responses.

The sample size was two hundred, with samples chosen from all cadres and professions of health workers in the hospital, using a stratified sampling technique. Simple random sampling method by balloting was used to select subjects into each group.

The Data was collected using a structured, self-administered questionnaire. Ethical clearance was obtained from the hospital ethical committee while verbal consent was obtained from the respondents before administration of the questionnaires. Data collected were analysed using Epi-Info computer software.

## RESULTS

A total of 200 respondents were recruited into the study

out of which 58% of them were females and 42% were males. Nurses and doctors made up a majority of respondents interviewed accounting for 45.5% and 33.5%, respectively. Laboratory scientists account for 9.5% while pharmacists account for 5% of all the respondents. Other professions include ward maids, records officers and administrative staffs all accounting for 6.5% of all respondents interviewed (Table 2).

More than three-quarters of the respondents (81%) had ever heard of hepatitis B infection prior to the study. Of mentioned blood and blood products as route of transmission of Hepatitis B, 68.5% mentioned needles and sharps while only 37% said that the disease can be

**Table 3.** Distribution of the respondents by knowledge of hepatitis B vaccine.

Variable	Frequency (%)
<b>Aware of Hepatitis B vaccine</b>	
Yes	151 (75.5)
No	49 (24.5)
Total	200
<b>Doses of Hepatitis B Vaccine required for complete protection</b>	
1 - 2	10 (6.6)
3	133 (88.1)
4 – 5	8 (5.3)
Total	151
<b>Expected Interval between last dose and dose preceding it</b>	
< 4 weeks	4 (2.7)
4 weeks	50 (33.1)
> 4 weeks	97 (64.2)
Total	151

transmitted through sexual intercourse. Incorrectly identified routes of transmission by the respondents include faeco-oral transmission (14.2%) and transmission through drinking contaminated water (9.3%).

A majority (77.2%) of the respondents correctly identified vaccination as a way of preventing hepatitis B infection while 61.7% mentioned avoiding needle/sharps injury. However a few of the respondents wrongly mentioned avoidance of drinking contaminated water (6.2%) and avoidance of food that is not well cooked (3.1%) as preventive measures for Hepatitis B infection.

A little more than three-quarters of the respondents (75.5%), were aware of the existence of Hepatitis B vaccine prior to the study. Of those that were aware of hepatitis B vaccine, 11.9% did not know the number of doses required for complete protection. It is noteworthy that only 33.1% of those who knew about the vaccine could correctly identify the dosing interval for the vaccine. (Table 3).

Of those that were aware of hepatitis B infection, 92.6% mentioned wearing of gloves as a way of protecting themselves against contacting Hepatitis B. Incorrectly identified ways of protecting against contacting Hepatitis B infection by the respondents included avoidance of diagnosed patients (29.6%) and use of multivitamin/blood tonic drugs (6.8%). It is noteworthy that almost two-thirds of the respondents who knew about Hepatitis B mentioned the use of antibiotics immediately following contact with an infected person (61.1%) as a way of protecting themselves from contacting Hepatitis B (Table 4).

Most of the respondents (92.6%) who had ever heard of hepatitis B infection prior to the study felt that their jobs puts them at risk of contracting Hepatitis B infection. Almost all the respondents (93.4%) who were aware of the existence of Hepatitis B vaccine prior to the study

considered it necessary to receive hepatitis B vaccine. Only 70.2% have actually ever received Hepatitis B vaccine, while only 59.4% completed the vaccination schedule. It is noteworthy that significantly more females (76.2%) and Nurses (54%) completed the vaccination schedule than the males and other category of health workers ( $p < 0.05$ ).

## DISCUSSION

HBV infection has been reported by many authors to be endemic in developing countries (Abiodun and Omoike, 1990; Fakunle et al., 1981). It is estimated that in Nigeria about 12% of the total population are chronic carriers of HBsAg (Olumide, 1976; Ayola and Adelaja, 1986). Hepatitis B virus is an important occupational hazard for health workers. It is preventable with a safe and effective vaccine (Hepatitis and Fact, 2000). It is easy to generally assume that health workers by virtue of their proximity to the health facility should have adequate knowledge about diseases and other health conditions. This study seems to buttress that by the fact that a majority of the respondents demonstrated a high level of knowledge of hepatitis B infection, the routes of transmission of the infection, the ways of preventing the infection and the fact that the infection can be transmitted as a nosocomial infection. This finding is however at variance with another study done in Karachi (Pakistan) where the respondents demonstrated a very low knowledge of hepatitis B infection (Shaheen et al., 2007; Issa et al., 2006). This finding is encouraging considering the fact that knowledge is usually the first step towards modification of a desirable behaviour. However, despite the respondents high knowledge of the infection, about two-fifth of them is

**Table 4.** Attitude of respondents towards hepatitis B infection.

<b>Variable</b>	<b>Frequency (%)</b>
<b>Your job puts you at risk of Hepatitis B infection</b>	
Yes	150 (92.6)
No	12 (7.4)
Total	162
<b>Your lifestyle puts you at risk of Hepatitis B infection</b>	
Yes	29 (17.9)
No	133 (82.1)
Total	162
<b>You need to be protected from Hepatitis B infection</b>	
Yes	153 (94.4)
No	9 (5.6)
Total	162
<b>A health worker can infect patients with Hepatitis B infection</b>	
Yes	143 (88.3)
No	19 (11.7)
Total	162
<b>Considered it necessary to receive vaccine</b>	
Yes	141 (93.4)
No	10 (6.6)
Total	151
<b>*Your children received Hepatitis B Vaccine</b>	
Yes	89 (60.1)
No	59 (39.9)
Total	148

\*Respondents with children

of the opinion that they are not at risk of contacting the infection. This gap in knowledge of risk perception calls for concern among all stakeholders seeing that health workers have a high risk of being infected with Hepatitis B virus because of their high frequency of exposure to blood and other body fluids coupled with the high contagiousness of hepatitis B virus (HBV) (Viral Hepatitis, 2008).

A vaccine against hepatitis B infection has been available since 1982 (Hepatitis and Fact, 2000). Hepatitis B vaccine is 95% effective in preventing HBV infection and its chronic consequences, and it is the first vaccine against a major human cancer (Hepatitis and Fact, 2000). Vaccination rates however have been found to be low among health care providers who paradoxically, given their level of exposure are supposed to have higher vaccine coverage rates (Elizabeth and Ross, 2001). In this study, though many of the respondents had a positive attitude towards the hepatitis B infection and vaccine, only 70.2% of them had ever received Hepatitis

B vaccine. Whilst this is similar to findings in a tertiary setting where 66.4% ever heard Hepatitis B vaccination, it is high compared to some other studies where it is as low as 5.1% (Abdul et al., 2007; Elizabeth and Ross, 2001). There are many potential reasons for low vaccination coverage (Table 5): busy schedules, lost time (and perhaps income) while getting the vaccination, procrastination, lack of knowledge about severity and vaccine efficacy, perception of low risk status, the bother of a sore arm (Abdul et al., 2007; Elizabeth and Ross, 2001). It is however noteworthy that only 59.4% of those that started the vaccination programme completed the schedule (Table 6). This is in line with studies done on viral hepatitis in Germany where 41.2% of vaccinated participants received the three doses (Viviane et al., 2008). It is however higher than findings from Sofola et al. (2007) and Adebamowo (1998) in their studies done among health workers in which only 37.9 and 18.1% of their respondents respectively were reported to be fully vaccinated against Hepatitis B infection. This lack of

**Table 5.** Behaviour of respondents towards Hepatitis B vaccination.

Variable	Frequency (%)
<b>*Measures taken to protect against hepatitis infection</b>	
Wearing of gloves	150 (92.6)
Wearing of goggles	25 (15.4)
Adequate disposal of sharps	122 (88.9)
Avoid patients diagnosed With hepatitis B	48 (29.6)
Multivitamin/Blood Tonic	11 (6.8)
Use antibiotics after contact	99 (61.1)
Others	4 (2.5)
Total	162
<b>Ever received hepatitis B Vaccine</b>	
Yes	106 (70.2)
No	45 (29.8)
Total	151
<b>Reason for not being Vaccinated</b>	
No reason	20 (44.4)
Can't be infected with hepatitis B	9 (20)
I am very careful	6 (13.3)
No time/too busy	10 (22.2)
Total	45
<b>Number of doses of vaccine received</b>	
1	15 (14.2)
2	28 (26.4)
≥ 3	63 (59.4)
Total	106
<b>Completed vaccination schedule</b>	
Yes	63 (59.4)
No	43 (40.6)
Total	106

\*Multiple response

**Table 6.** Association between sex, profession and completion of vaccination schedule.

Variable	Completed vaccination		Chi-square and P Value
	Yes (%)	No (%)	
<b>Sex</b>			
Male	15 (23.8)	35 (81.4)	$X^2 = 31.74$ P = 0.00
Female	48 (76.2)	8 (18.6)	
<b>Profession</b>			
Nursing	34 (54)	8 (18.6)	$X^2 = 23.85$ P = 0.00
Physician	14 (22.2)	29 (67.4)	
Laboratory Scientist	7 (11.1)	2 (4.7)	
Pharmacist	3 (4.8)	3 (7)	
Others	5 (7.9)	1 (2.3)	

compliance to hepatitis B vaccination among health workers calls for concern among stakeholders seeing that the only way to prevent hepatitis B infection among health workers is through effective vaccination programmes and adherence to universal precaution which oftentimes cannot be guaranteed. This is evidenced from this study where some of the respondents still don't wear gloves (7.4%), (Table 4 and 5) or dispose off Sharps adequately (11.1%) in the course of their work. Poor compliance of Health workers to hepatitis B vaccination is an issue that deserves serious attention for which some authors (Gunson et al., 2003; Saffar et al., 2005) have advocated for mandatory vaccination programmes. There is a need for health education campaigns for health workers so that they can understand the risks that they are exposed to based on the nature of their work.

## REFERENCES

- Barker LF, Shulman NR, Murray R (1996). Transmission of serum hepatitis, 1970. *JAMA* 276 (10): 841-844. PMID 8769597
- Williams R (2006) Global challenges in liver diseases. *Dol*: 10.1002/hep.21347. PMID 16941687. *Hepatology*. 44(3): 521-526.
- Chang MH (2007). Hepatitis B virus infection. *Doi*:10. 1016/j. siny. 2007. 01.013. PMID 17336170 *Semin fetal Neonatal Med.* 12(3): 160-167.
- World Health Organization (1999). *World Health Report*: Geneva: WHO
- Francis TI (1977). *Epidemiology of viral hepatitis in the tropics*. *Bull NY Acad-Med.*, 51:501-507.
- Amazigo UO, Chime AB (1990). Hepatitis B virus infection in rural and urban populations of Eastern Nigeria; prevalence of serological markers. *East Afr. Med. J.*, 67(8): 539-544
- Margolis HS, Alter MJ, Hadler SC (1991). Hepatitis B: evolving epidemiology and implications for control. *Semin Liver Dis.* 11:84-92.
- Abiodun PO, Omoike IV(1990). Hepatitis B surface Antigenaemia in children in Benin-City Nigeria. *Niger. J. Paediatrics*. 17:27-31
- Fakunle YM, Abdurahman MB, Whittle HC(1981). Hepatitis B virus infection in children and adults in Northern Nigeria: a preliminary survey. *Trans. Roy. Soc. Trop. Med. Hyg.* 75: 626-629.
- Olumide EA (1976). The distribution of HbsAg in Africa and the Tropics: Report of a population study in Nigeria. *Int. J. Epidemiol.* 5(3): 279-289.
- Ayola EA, Adelaja AB(1986). Sub-determinants and incidence of Hepatitis B antigen in carriers of HBsAg. *Niger. Med. practitioner*. 11(5,6): 133-136
- Ejele OA, Ojule AC (2004). The prevalence of Hepatitis B surface Antigen (HBsAg) Among prospective Blood Donors and patients in Port Harcourt, Nigeria. *Niger. J. Med.* 13(4):336-338.
- Mutimer DJ, Olomu A, Skidmor S(1994). Viral hepatitis in Nigeria – sickle cell disease and commercial blood donors . *J. Med.*, 87:407-411.
- Olusanya O, Williams B, Thomas CO, Adebayo JO (1982). Prevalence of hepatitis B associated antigen in Ile-Ife, Nigeria. *Niger. Med. Pract.*, 4(5,6): 164-167.
- Akinyanju OO, Lesi O, Lesi FEA (1977). Some aspects of the epidemiology of Australian antigen in Lagos, Nigeria. *Niger. Med. J.* 7(2):129-132.
- Olubuyide IO, Ola SO, Aliyu B, Dosumu OO, Arotiba JT, Olaleye OA (1997). Prevalence and epidemiological characteristics of hepatitis B and C infections among doctors and dentists in Nigeria. *East Afr. Med. J.* 74:357-361.
- Bongomin P, Magid K (2005). Prevalence of hepatitis B virus(HBV) infection among Makerere University Medical students. *Afr. Health Sci.* 5(2):93-95.
- Rola IJ, Ghaleb MA, Nael SA, Kamel MA (2005). Prevalence of hepatitis B virus markers among high risk groups in Palestine. *Med. J. Islamic World Academy of Sci.* 15(4):157-160.
- Weiss Y, Rabinovitch M, Cahaner Y, Noy D, Siegman-Igra Y (1994). Prevalence of hepatitis B virus markers among hospital persons in Israel: correlation with some risk factors. *J. Hospital Infect.* 26:211-218.
- Marinho RT, Moura MC, Pedro M, Ramalho FJ, Velosa JF(1999). Hepatitis B vaccination in hospital personnel and medical students. *J. Clin. Gastro.* 28:317-322.
- Shaheen S, Nighat N, Majid HQ. knowledge Regarding Hepatitis B among EPI vaccinators working in district south, Karachi. *Pakistan J. Med. Sci.*, 23(4):538-541
- Abdul RM, Munit AS, Salahuddin A(2007). Hepatitis B vaccination status and knowledge, attitude, practices of health care workers (HCWS) regarding Hepatitis B and C in a tertiary care setting of Karachi. *Pak. Med. Net.* 16(4):105-107
- Pungpapong S, Kim WR, Poterucha JJ (2007) Natural history of hepatitis B virus infection: an update for clinicians. *Mayo clin. proc.* PMID 1767306682 (8):967-975.
- Henry CB, John PF, Peter DK(1986). Acceptance of hepatitis B vaccine among hospital workers. *AJPH.* 76(3): 252-255.
- Viral Hepatitis. <http://www.cdc.gov/hepatitis/B/bFAQ.htm>. printed 20/08/2008.
- Hepatitis B(2000). Fact Sheet N: 204. Geneva, World Health Organization, 2000. <http://www.who.int/mediacentre/factsheet/fs204/en/>
- Fiona B, Mirian N, Issa M (2006). Hepatitis B infection among health workers in Uganda. *Sci. Direct.* 24:6930-6937
- Elizabeth R, Ross U (2001). The ethics of infection prevention among health care workers. *Canadian Med. Asso. J.*, 164(10): 1447-1448
- Karl S, Doris R, Viviane B(2008). Viral Hepatitis B in Germany; Poor vaccination coverage and little knowledge about transmission in target groups. *BMC Public Health.* 10:1186/1177-2458-8-132
- Sofola OO, Folayan MO, Denloye OO, Okeigbemen SA (2007) Occupational Exposure to Bloodborne Pathogens and Management of Exposure Incidents in Nigerian Dental Schools. *J. Dent. Edu.* 71(6):832-837
- Adebamowo CA (1998). Knowledge attitude and practices related to hepatitis B virus infection among Nigerian obstetricians and midwives. *J Obst. Gynae.*, DOI: 10.1080/01443619866255. 18(6): 528- 532.
- Gunson RN, Shouval D, Rogendorf M, Zaaier H, Nicholas S, Holzmann H (2003). Hepatitis B virus (HBV) and hepatitis C virus (HCV) infection in health care workers (HCWs): guidelines for prevention of transmission of HBV and HCV from HCWs to patients. *J. Clin. Virol.* 27:213-230.
- Saffar MJ, Jooyan AR, Mahdavi MR, Khalilian AR (2005) Hepatitis B vaccination status in health-care workers . *Indian J. Gastroenterol.*, 24:82-83.