

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State



Longe I. O.<sup>1</sup>, Adeniran A. O.<sup>2</sup>, Longe B. E.<sup>3</sup>

<sup>1,2</sup>Department of Statistics, Federal Polytechnic, Ile-Oluji, Nigeria

<sup>3</sup>Department of Health Promotion and Education, University of Ibadan, Ibadan, Nigeria

**ABSTRACT:** Hepatitis B virus (HBV) is one of the viral diseases that is threatening the global health. This study was carried out to analyze knowledge, perception of hepatitis B virus and its vaccine uptake among residents of ondo state, south west of Nigeria. The study was a descriptive survey that involved the use of questionnaire to facilitate the sampling and interview of respondents. This included recruiting residents who gave their consent in three communities (Ile-Oluji, Ondo and Owo) at three different senatorial districts (south, central and North) of the state (one community per senatorial district). Four hundred and fifty consented to participate in the study and were selected. A validated self-administered questionnaire was used for data collection. Descriptive statistics and Chi-square tests were used to analyze the data. It was observed that the Knowledge of the subject matter needed much improvement in all the towns, especially the undeveloped ones in the state on awareness, perception and knowledge of the virus and the availability of its vaccine uptake.

**KEYWORDS:** HBV, epidemiology, disease, chi-square, vaccine.

### 1. INTRODUCTION

Hepatitis was described in the Babylonian Talmud in the fifty century BC, and was referred to by Hippocratic over 2000 years ago. Despite this ancient knowledge, the first human Repetitious virus, Hepatitis B, was not isolated until 1963 (Rodríguez-Frías et al 2001). This was followed quickly by the purification of Hepatitis A in 1973, and more recently by the isolation of viruses C, D, E and G. These viruses are known to infect the human liver (Cristina 2007, Wieland, S. F. (2015). Gerlich, W. H. (2013 Thomas et al 2015). According to Reif. (1981). this disease is a general cause of chronic Hepatitis, liver cirrhosis and hepto-cellular carcinoma worldwide, which translates to a major basis of morbidity and mortality. Although, there are more than twenty other viruses, which infect the human liver, these are not considered "Hepatitis viruses" as these other viruses tend to infect organs other than the liver more seriously. These include common viruses such as Cytomegalovirus (CMV), Mumps, Rubella, Epstein-Barr virus (EBV) as well as Rassa Fever and yellow fever viruses. Any infection that results in inflammation of the liver is called Hepatitis (Greek Hepaticus, liver). However, not all hepatitis is caused by viruses, because, HEPATITIS means "inflammation of the liver", and can also be caused by other types of infection, such as, bacteria, fungi, e. t. c., including toxic drugs; poisons; alcoholism and so on (Drexottetal;2005). But of interest to this study is Hepatitis virus, one of the most common infectious diseases, causing an estimated 1.5million deaths worldwide each year and infects more than 300 million people, it is a common cause of liver disease and liver cancer. HBV, a member of the Hepadnaviridae family, is a small DNA virus with infrequent structures similar to retroviruses. HBV imitates through an RNA transitional and can incorporate into the host genome. The exceptional features of the HBV replication cycle discusses a distinct ability of the virus to persist in infected cells as debated by (Liang, T. J. (2009).

Hepatitis B remains one of the major causes of human miseries in the world notwithstanding a thorough understanding of its transmission and prevention. The Hepatitis B virus is normally transmitted through blood transfusion, contaminated equipment, drug users, unsterile needles, or body secretions (saliva, soren, sweat, breast milk, urine), in a study carried out by Vishal Khandelwal et al, 2017, where he represented the interested of the oral health professionals, through a cross sectional study among 240 students of dental course, reveals that 21% failed to recognize saliva as the mode of transmitting Hepatitis B. This study shows that a reasonable awareness existed among the professionals at risk of contraction, talk less of the illiterates and indigenes of the undeveloped communities. The virus also can pass from the blood of an infected mother through the placenta

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

to infect the foetus. Being a vaccine preventable disease, the vaccination of newborns has dramatically changed the narrative of HBV infection ( Yasobant S, et al, 2017, Jones et al 2011 , Palmeira 2012, Ranger-Rogez & Denis, F. O. (2004)).

The WHO has been on the trail of creating more awareness through campaigns to reduce the HBV infections by 80% globally. A study by Angela O. Eni et al, 2019, shows that the working class has better awareness of the virus than others categories of respondents. Each year an estimated 200, 000 people are infected in Nigeria with HBV and about 1000 person die yearly from hepatitis related cirrhosis and about 5000 people die from HBV related liver cancer. HBV is second only to tobacco as a known cause of rumen cancer. A good knowledge and awareness of the virus may reduce infection rate, an adequate knowledge in a civilized environment will include standard precautionary policy against the virus, apart from lectures on HPV and the annual Hepatitis day.

Worldwide, HBV infects over 300 million people (Schlesinger & Schlesinger, 2001). The clinical signs of Hepatitis B vary widely, most cases are symptomless. However, sometimes fever, loss of appetite, abdominal discomfort, nausea, fatigue, and other symptoms progressively appear following a maturation period of 1 to 3 months. The virus infects liver Hepatic cells and causes liver tissue deterioration and therefore occasions the release of liver associated enzymes (transaminases) into the blood stream. This is followed by jaundice, the accumulation of bilirubin (a breakdown product of hemoglobin in the skin and other tissue which brings about the appearance of the distinctive yellow. The impact of the distinctive yellow jaundice Hepatitis B on the victims' skin has made it an infrequently detectable disease through recorded history. The virus persists in about 10 percent of infected immunocompetent adults, and in as many as 90 percent of infants infected prenatally depending on the ethnic group of the mother. About 350 million people worldwide persistently carries Hepatitis B. Actually, one in twenty infections result in chronic hepatitis, defined as persistent hepatitis virus six months after the onset of the acute illness (Donohue, W., & Benson, J. (2007, WHO 2015).

In a research conducted by Adekanle O et al, 2015 Among health worker, it reveals that health workers of an institution has low perceived risk of the virus infection and low vaccination coverage despite high awareness of the vaccine. Showing that the mode of transmission commonly known at the tertiary hospital is by blood, compared to the knowledge of saliva as a medium of transmission. This case is however different outside Nigeria, where the coverage of knowledge on knowledge of transmission among health workers is higher

According to the study by Taylor et al (2005), which investigated knowledge and awareness of Hepatitis B among randomly selected Vietnamese adults living in the United States, it shows that 81% of the 715 adults that participated in the study had heard of hepatitis B and 67% had been tested for HBV. The knowledge of the infection was generally good, with about three-quarters knowing the different ways of transmission but only 69% knew about infection through unprotected sex.

In a study by Nguyen et al., (2010) carried out in the U.S. among Vietnamese-Americans, 1704 respondents participated in a computer-assisted telephone interview survey. The interviews included questions about knowledge, beliefs and communication regarding HBV testing. The study showed that 17.7% reported a family history of hepatitis B and 61.6% had been tested for hepatitis B. Only 26.5% reported that they had been vaccinated against HBV, which was disappointingly low. Knowledge about modes of transmission was high regarding partaking in needles share and childbirth, moderate concerning toothbrush share and small concerning unprotected sex. A majority of the participants thought erroneously about other possible ways of transmission, that food or respiratory droplets could transmit the disease.

Hwang, Huang and Yi (2008) investigated knowledge about HBV and predictors of HBV vaccination among 251 Vietnamese American college students. More than half of the participants were aware that HBV can be transmitted via unprotected sex and contaminated blood, though most of the participants' thought that HBV was transmitted through food and water. Less than one third knew that Asian Americans have higher risk of being infected with HBV than other people. About 87% had heard about HBV before and they had suggestively better knowledge related to those who had not heard about the disease. The knowledge was also greater among those who had been screened for, or vaccinated against HBV, or had family members diagnosed with HBV or liver cancer. The study also indicated that women had greater knowledge about HBV compared to men. About 43% of the participants reported being vaccinated against HBV and they also had greater knowledge than those who had not been vaccinated. Older participants or participants who were sexually active and/or knew someone with HBV were less possible to have been vaccinated.

The HBV vaccine gives healthy infants, children and adults a protective concentration of anti-HBs in 90-100% of the cases if following the vaccination plan appropriately. The vaccine is typically given in a three-dose series. Persons who are immune suppressed or over 40 years old are less likely to develop protective concentrations (Shepard, Simard, Finelli, Fiore & Bell, 2006). It is not known if the HBV vaccine gives lifelong protection against HBV and if boosters are necessary. However, it is known that the protection is long lasting, at least 10-15 years, if the vaccination schedule is followed correctly (Banatvala, J et al 2000 and

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

Van der Sande et al 2007, Socialstyrelsen. (2008).). Fever and pain at the injection site are the most common side effects of the HBV vaccine, although, allergic reactions have been reported but are not common (Shepard et al., 2006).

The challenges in the area of HBV-associated disease are the lack of knowledge in predicting outcome and progression of HBV infection and an unmet need to understand method of transmission, while looking at our society and hospital, there are cases whereby unscreened blood is transmitted to a patient, and a case of multiple sex partner people having unprotected sex or body secretions (saliva, soren, sweat, breast milk, urine) and making use of sharp objects without any care.

## 2. METHODOLOGY

### 2.1 Study Area

The study was conducted in Ondo State, Nigeria. The state is located in the south-western part of the country and lies between longitude 4031' and 6000' east of the Greenwich Meridian and latitude 5015' and 8015' north of the Equator. It is bounded by Ekiti and Kogi State in the north; Edo State in the east; Ogun and Osun States in the west and the Atlantic Ocean in the south. The state has a population of 3,441,024 (NPC, 2006) and covers an area of 14,793sq.km at 120 kilometres north of the ocean. The state is made up of 18 Local Government Area (LGAs). The tropical climate of the state is broadly of two seasons: rainy season (April-October) and dry season (November-March). Temperature throughout the year ranged between 210C to 290C and humidity is relatively high. The annual rainfall varied from 2,000mm in the southern areas to 1,150mm in the northern areas.

### 2.2 Target Population/ Sample Size

The target populations for the study were the population of Ondo Town, Ile Oluji and Owo. From the above named town 343 respondents participated in the research.

### 2.3 Method of Data Analysis

The data were analyzed using Microsoft Excel. Descriptive statistics was used to illustrate the data in Tables, Bar Chart, and Pie Chart. Measures of central tendency were employed to calculate the Means, Variance and Standard Deviation.

**2.4 Table Presentation:** Tables, which convey information that has been converted into words or numbers in rows and columns, have been used for nearly 2,000 years. Anyone with a sufficient level of literacy can easily understand the information presented in a table. Tables are the most appropriate for presenting individual information, and can present both quantitative and qualitative information.

**2.5 Graph presentation:** Whereas tables can be used for presenting all the information, graphs simplify complex information by using images and emphasizing data patterns or trends, and are useful for summarizing, explaining, or exploring quantitative data.

## 3. DATA PRESENTATION

This division presents data analysis, findings and discussion of the study in line with the research objectives.

**3.1 SECTION A:** This section provides detail on socio demography of the respondents, which includes age, marital status, religion occupation and level of education of respondents.

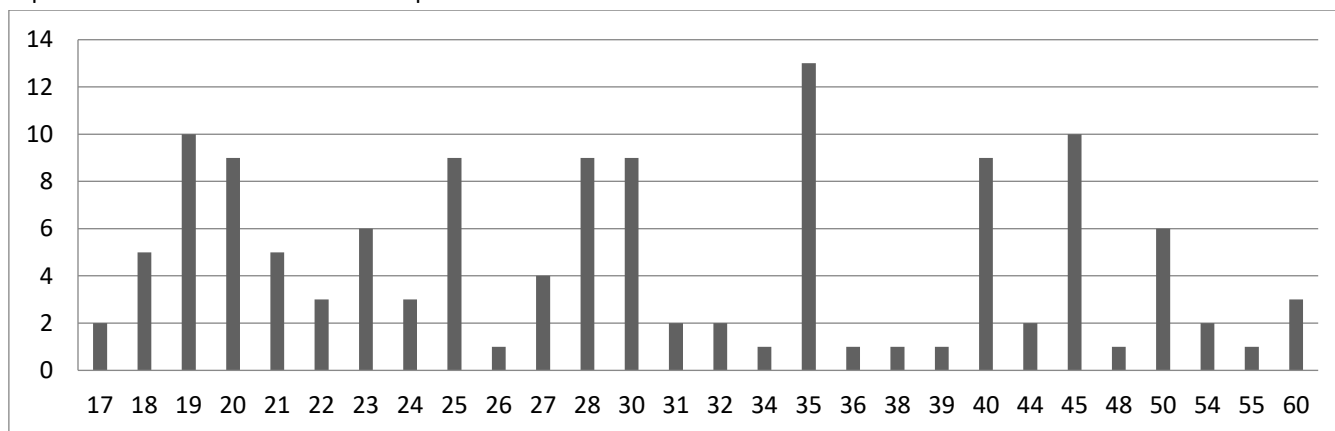
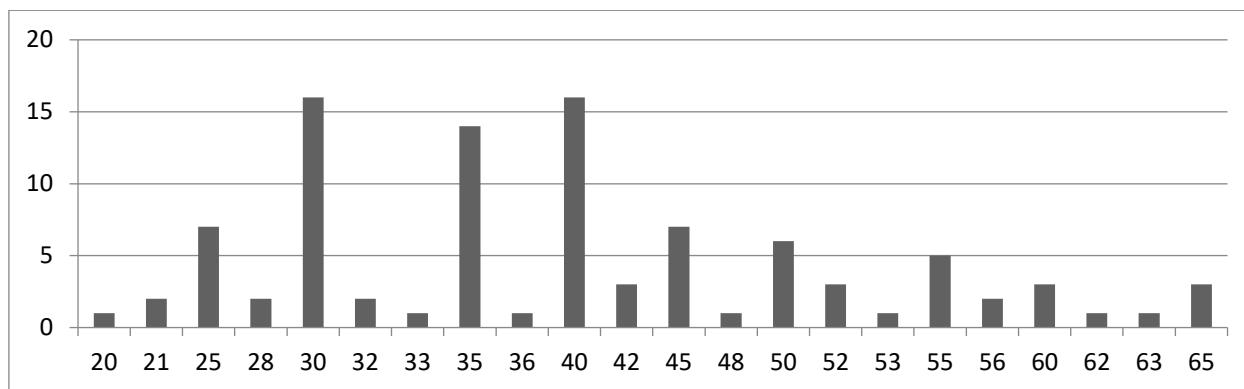


Figure 1: Age frequency of Ondo Respondents

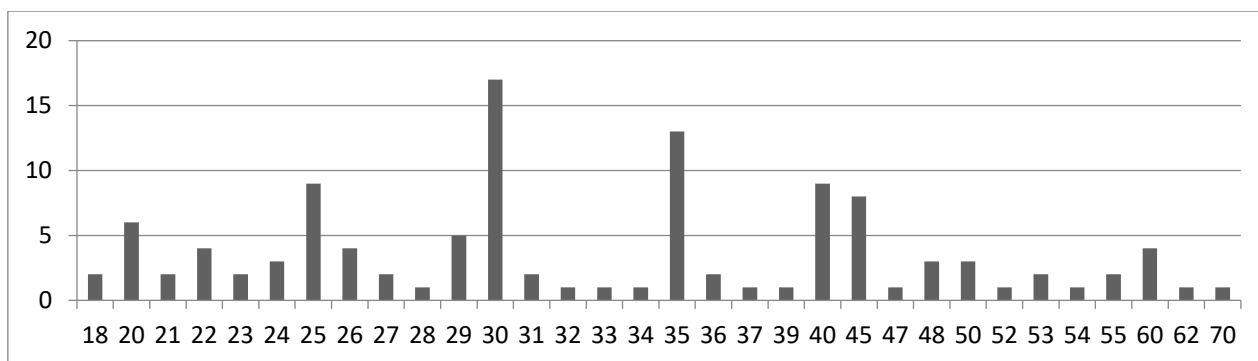
**Interpretation:** The bar chart above illustrates the age distribution of respondents in Ondo town that took part in the research. The mean age of the respondents is 31 years and the mode is age 35 years.

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State



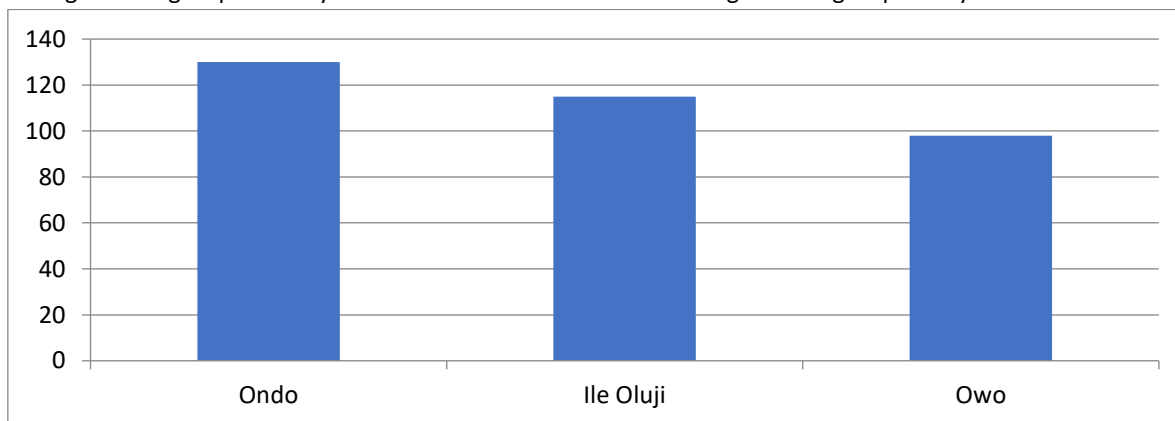
**Figure 2: Age frequency of Owo respondents**

**Interpretation:** The bar chart above illustrates the age of respondents that participated in this study in Owo. The modal age in this group is 40 years.



**Figure 3: Age frequency of Ile-Oluji respondents**

**Interpretation:** The bar chart above illustrates the age of respondents that participated in the research in Ile Oluji. 18 years was the minimum age in this group and 70 years was the maximum. The modal age of this group is 30 years.



**Figure 4: Town(s) under study**

**Interpretation:** The bar chart above illustrates numbers of respondents from the three town under study. The total respondents were 343. Ondo town contributed 37.9%, Ile Oluji 35.5% and Owo contributed 28.6%.

**Table 1: Marital status of respondents**

Marital Status	Ondo (130)	Owo (98)	Ile-Oluji (115)
Single	50.8%	44.9%	44.3%
Married	40.0%	54.1%	49.6%
Divorced	3.8%	1.0%	2.6%
Separated	5.4%	0.0%	2.6%
Cohabiting	0.0%	0.0%	0.9%
Total	100	100%	100%

Source: Research survey

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

**Interpretation:**The above shows the marital status of the respondents for the three towns under survey, larger percentage of respondents in Owo and Ile-Oluji, 54.1% and 49.6% respectively are married while the larger percentage in Ondo (50.8%) are single.

**Table 2: Religion of respondents**

Religion	Ondo (130)	Owo (98)	Ile-Oluji (115)
Christianity	50.8%	91.8%	70.4%
Islam	48.5%	8.2%	29.6%
Traditional	0.8%	0.0%	0.0%
Total	100%	100%	100%

**Source: Research survey**

**Interpretation:**The above statistics shows the religion of the respondents. Christianity is the most practiced religion by the respondents with 50.8%, 91.8% and 70.4% in Ondo, Owo and Ile-Oluji respectively.

**Table 3: Ethnicity of respondents**

Ethnic Group	Ondo (130)	Owo (98)	Ile-Oluji (115)
Yoruba	68.5%	98.0%	88.7%
Igbo	23.1%	2.0%	5.2%
Hausa	8.5%	0.0%	0.9%
Others	0.0%	0.0%	5.2%
Total	100%	100%	100%

**Source: Research survey**

**Interpretation:**The table above shows the ethnic group of the respondents, 68.5%, 98.0% and 88.7% of the respondents in the towns under survey are Yoruba, 23.1%, 2.0% and 5.2% are Igbo while Hausa and other ethnic groups were captured in the research.

**Table 4: Highest education level of respondents**

Education status	Ondo (130)	Owo (98)	Ile-Oluji (115)
Primary	13.1%	25.5%	13.9%
Secondary	42.3%	43.9%	52.2%
Tertiary	44.6%	30.6%	33.9%
Total	100%	100%	100%

**Source: Research survey**

**Interpretation:**The statistics above describes the educational status of the respondents. All respondents have primary certificate but few went further to Secondary and later finished up to tertiary level. 44.6%, 30.6% and 33.9% in the towns under survey went to a tertiary institution.

**Table 5: Occupation of respondents**

Occupation	Ondo (130)	Owo (98)	Ile-Oluji (115)
Trading	52.3%	31.6%	40.0%
Civil Servant	10.0%	3.1%	7.8%
Artisan	13.1%	40.8%	33.9%
Others	24.6%	24.5%	18.3%
Total	100%	100%	100%

**Source: Research survey**

**Interpretation:** The above statistics shows the occupation of the respondents. 52.3% of the respondents from Ondo are civil servant, 40.8% of respondents in Owo are artisans.

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

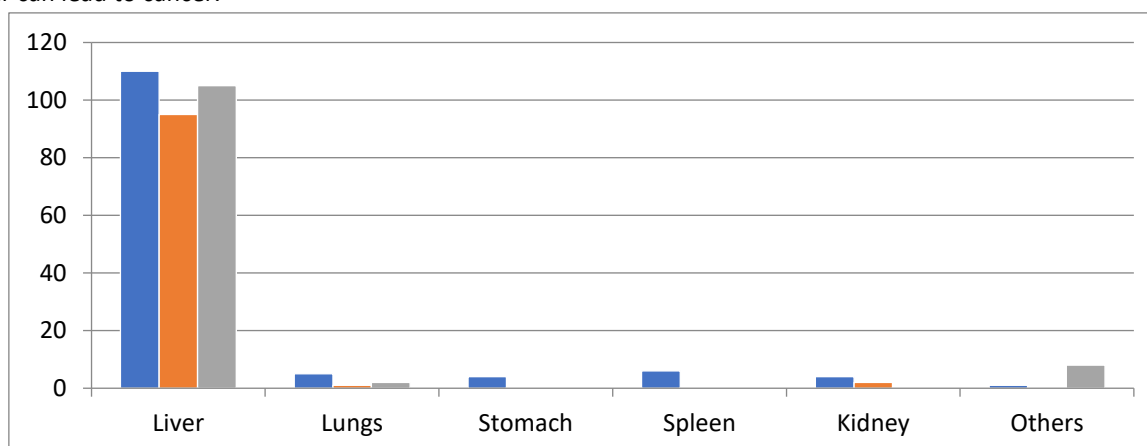
### 4.2 SECTION B: Awareness and general knowledge of Hepatitis B.

**Table 6: Awareness and general knowledge of Hepatitis B**

Have you heard about Hepatitis B before?			
Response(s)	Ondo (130)	Owo (98)	Ile-Oluji (115)
Yes	80.0%	61.2%	59.1%
No	20.0%	38.8%	40.9%
Total	100.0%	100.0%	100.0%
Hepatitis B disease is caused by Hepatitis B virus			
Response(s)	Ondo (130)	Owo (98)	Ile-Oluji (115)
Yes	98.5%	60.2%	91.3%
No	1.5%	39.8%	8.7%
Total	100.0%	100.0%	100.0%
Hepatitis B's attack on the liver cells can lead to cancer			
Response(s)	Ondo (130)	Owo (98)	Ile-Oluji (115)
Yes	78.5%	64.3%	90.4%
No	21.5%	35.7%	9.6%
Total	100.0%	100.0%	100.0%

Source: Research Survey

**Interpretation:** The above statistics were analysis obtained from the questionnaires on the awareness and general knowledge of Hepatitis B. The table above shows that 80%, 61.2% and 59.1% of the respondents are aware and heard of Hepatitis B. The table also shows that a very good significant of the respondents (78.5%, 64.3% and 90.4% respectively) knows that Hepatitis B's attack on the liver can lead to cancer.



**Figure 5: Hepatitis B primary affect which organs**

**Interpretation:** The bar chart illustrates respondents' knowledge of the primarily affected organ in body. Majority of the respondents were aware that the liver is mostly damaged by HBV.

**Table 7: Effect of Hepatitis B on the Body**

S/N	Response(s)	Ondo (130)			Owo (98)			Ile-Oluji (115)		
		True	False	Do not know	True	False	Do not know	True	False	Do not know
1	Liver Failure	88.5%	4.6%	6.9%	70.4%	28.6%	1.0%	90.4%	0.9%	8.7%
2	Cirrhosis	53.8%	31.5%	14.6%	65.3%	31.6%	3.1%	70.4%	16.5%	13.0%
3	Death	90.8%	6.2%	3.1%	70.4%	27.6%	2.0%	90.4%	1.7%	7.8%

Source: Research Survey

**Interpretation:** The table above illustrates respondents' idea on the effect of Hepatitis B on the Body. 88.5%, 70.4% and 90.4% of the respondents in Ondo, Owo and Ile Oluji respectively knows that the disease affects the liver and eventually leads to death.

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

**Table 8: Knowledge of symptoms of Hepatitis B**

S/N	Signs and symptoms of Hepatitis B	Ondo (130)			Owo (98)			Ile-Oluji (115)		
		True	False	Do not know	True	False	Do not know	True	False	Do not know
1	Joint pain	65.4%	20.8%	13.8%	66.3%	31.6%	2.0%	87.0%	4.3%	8.7%
2	Abdominal pain	39.2%	42.3%	18.5%	67.3%	30.6%	2.0%	86.1%	4.3%	9.6%
3	Fever	89.2%	6.9%	3.8%	67.3%	28.6%	4.1%	86.1%	9.6%	9.6%
4	Yellowish skin and white eyes (Jaundice)	46.2%	38.5%	15.4%	59.2%	37.8%	3.1%	73.9%	10.4%	15.7%
5	Dark urine	32.3%	51.5%	16.2%	64.3%	32.7%	3.1%	75.7%	10.4%	13.9%
6	Loss of appetite	86.9%	7.7%	5.4%	65.3%	28.6%	6.1%	83.5%	7.0%	9.6%
7	Nausea and vomiting	73.8%	15.4%	10.8%	64.3%	30.6%	5.1%	82.6%	8.7%	8.7%
8	Weakness and fatigue	82.3%	10.0%	7.7%	66.3%	29.6%	4.1%	84.3%	6.1%	9.6%

Source: Research Survey

**Interpretation:** The statistics above shows how knowledgeable the respondents are on the signs and symptoms of Hepatitis B. In Ondo, 89.2% of the respondents believe that fever is one of the symptoms of HBV, 86.3% believe that loss of appetite is also a symptom and 82.3% of the respondents said weakness and fatigue are signs and symptoms of Hepatitis B.

**Table 9: Knowledge of Hepatitis B transmission mode**

S/N	Mode of transmission of Hepatitis B	Ondo (130)			Owo (98)			Ile-Oluji (115)		
		True	False	Do not know	True	False	Do not know	True	False	Do not know
1	Unprotected sex	88.5%	9.2%	2.3%	72.4%	24.5%	3.1%	81.7%	2.6%	15.7%
2	Sharing of IV drug needles	76.2%	13.1%	10.8%	56.1%	40.85%	3.1%	86.1%	5.2%	8.7%
3	Living in a household with an infected person	14.6%	80.8%	4.6%	60.2%	37.8%	2.0%	72.2%	17.4%	10.4%
4	Human bites	33.1%	44.6%	22.3%	69.4%	25.5%	5.1%	75.7%	12.2%	12.2%
5	Eating food prepared by infected individuals	15.4%	80.8%	3.8%	58.2%	39.8%	2.0%	61.7%	28.7%	9.6%
6	Casual contacts e.g. hugging, holding hands	33.8%	27.7%	38.5%	52.0%	40.8%	7.1%	59.1%	32.2%	8.7%
7	Having job that can expose you to human blood	62.3%	22.3%	15.4%	61.2%	33.7%	5.1%	80.0%	12.2%	7.8%
8	Sharing earrings, razors, toothbrush with infected person	88.5%	33.1%	8.5%	67.3%	27.6%	5.1%	91.3%	0.9%	7.8%
9	Unsterilized needle	58.5%	33.1%	8.5%	62.2%	34.7%	3.1%	90.4%	1.7%	7.8%
10	Mother to child transmission	83.8%	6.2%	8.5%	67.3%	29.6%	3.1%	88.7%	2.6%	8.7%
11	Piercing needle	72.3%	15.4%	12.3%	65.3%	30.6%	4.1%	85.2%	7.0%	7.8%

Source: Research Survey

**Table 10: Knowledge on preventive measures**

S/N	Preventive measures of Hepatitis B	Ondo (130)			Owo (98)			Ile-Oluji (115)		
		True	False	Do not know	True	False	Do not know	True	False	Do not know
1	Hepatitis B vaccine	86.9%	5.4%	7.7%	69.4%	28.6%	2.0%	87.0%	5.2%	7.8%

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

2	Correct condom uses with sexual partners	84.6%	10.8%	4.6%	71.4%	27.6%	1.0%	80.9%	5.2%	7.8%
3	Covering all cuts carefully	53.1%	38.5%	8.5%	66.3%	29.6%	4.1%	88.7%	3.5%	7.8%
4	Washing your hand thoroughly with soap	86.9%	8.5%	4.6%	79.6%	17.3%	3.1%	81.7%	10.4%	7.8%
5	Avoiding direct contact with blood and fluids	87.7%	9.2%	3.1%	68.4%	29.6%	2.0%	86.1%	6.1%	7.8%
6	Proper disposal of sanitary napkins	23.1%	54.6%	22.3%	62.2%	35.7%	2.0%	82.6%	9.6%	7.8%
7	Avoiding sharing sharp items such as razors, nail clippers, toothbrushes, earrings or body rings	80.8%	10.8%	8.5%	74.5%	23.5%	2.0%	80.9%	11.3%	7.8%
8	Make sure new, sterile needles are used for ear or body piercing, tattoos and acupuncture	45.4%	33.1%	21.5%	66.3%	29.6%	4.1%	73.0%	19.1%	7.8%

Source: Research Survey

**Interpretation:** The table above shows the knowledge of Hepatitis B transmission mode and preventive measures of Hepatitis B. Majority of the respondents believed that unprotected sex and piercing needles are common means of how HBV is transmitted but the statistics also shows that in Owo, 60.2%, 58.2% and 52.0% believes that HBV can be transmitted by living with an infected person, eating food prepared by infected person and casual contact with infected persons. Hence, this shows that Owo indigenes require deep sanitization on the mode of transmitting HBV. The second table above also shows that 86.9% of the respondents say it is true that Hepatitis B vaccine and thorough washing of the hands with soap is an effective preventive measure against HBV. 87.7% and 84.6% of the respondents say it is true that correct use of condoms with sexual partner and avoiding direct contact with blood fluids are also good preventive measures.

### 4.3 SECTION C: Perception relating to: Susceptibility, Severity, Barriers, Benefits, Self-Efficacy and Vaccine uptake

Table 11: Perceived susceptibility to Hepatitis B

S/N	Statement	Ondo(130)		Ile Oluji (115)		Owo (98)	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
1	Hepatitis only affects the rich	18.5%	81.5%	20.0%	80.0%	21.4%	78.6%
2	I live in the village; the virus cannot get here	13.1%	86.9%	15.7%	84.3%	18.4%	81.6%
3	Hepatitis B can affect everyone	86.9%	13.1%	81.7%	18.3%	87.8%	12.2%
4	Only women should be worried about Hepatitis B	36.2%	63.8%	14.8%	85.2%	16.3%	83.7%
5	I am of the opinion that a person that does not eat balance diet is at higher risk of contracting Hepatitis B	81.5%	18.5%	29.6%	70.4%	18.4%	81.6%

Source: Research Survey

**Interpretation:** The table above illustrates the perceived susceptibility to Hepatitis B from the three towns under study. 86.9%, 81.7% and 87.8% of respondents from Ondo, Ile Oluji and Owo respectively agree that Hepatitis B can affect everyone. It would be noticed that 81.5% of respondents in Ondo agree that lack of balance diet put people at higher risk of contracting HBV while 70.4% and 81.6% disagree in Ile-Oluji and Owo respectively.



## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

**Table 12: Perceived severity to Hepatitis B**

S/N	Statement	Ondo		Ile Oluji		Owo	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
1	I believe that Hepatitis B is a serious disease	96.2%	3.8%	79.1%	20.9%	80.6%	19.4%
2	Hepatitis B can be fatal	88.5%	11.5%	75.7%	24.3%	77.6%	22.4%
3	If I have liver cancer my career would be endangered	79.2%	20.8%	57.4%	42.6%	75.5%	24.5%
4	If I have Hepatitis B; my financial status will deteriorate	51.5%	48.5%	47.0%	53.0%	70.4%	29.6%
5	If I got liver cancer, it would be more serious than other diseases	76.2%	23.8%	66.1%	33.9%	74.5%	25.5%
6	Adults do not need to test for Hepatitis B	23.8%	76.2%	27.0%	73.0%	17.3%	82.7%
7	Having to test for Hepatitis B is not important because it is not a serious disease	58.5%	41.5%	28.7%	71.3%	20.4%	79.65

**Source: Research Survey**

**Interpretation:** The table shows result in percentage on perceived severity of Hepatitis B. 76.2%, 66.1% and 74.5% of respondents in Ondo, Ile Oluji and Owo agrees that liver cancer would be more serious than other diseases, while 58.5% of respondents in Ondo agrees that testing for hepatitis B is not important.

**Table 13: Perceived benefits of Hepatitis B vaccine**

S/N	Statement	Ondo		Ile Oluji		Owo	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
1	If I Vaccinate my Child against HBV, I do not worry about the child getting cancer later in adulthood	40.0%	60.0%	58.3%	41.7%	65.3%	34.7%
2	Testing is the only way I can find out if I have HBV disease	88.5%	11.5%	48.7%	51.3%	84.7%	15.3%
3	Testing for HBV test will help me find and treat HBV early before it causes liver cancer	90.0%	10.0%	55.7%	44.3%	88.8%	11.2%
4	The HBV test will help you not to worry as much about liver cancer	78.5%	21.5%	46.1%	53.9%	85.7%	14.3%
5	Testing, immunizing against and treating HBV is an easy way to prevent liver cancer	58.5%	41.5%	56.5%	43.5%	87.8%	12.2%
6	Testing for and treating HBV will decrease my chances of dying from liver cancer.	75.4%	24.6%	51.3%	48.7%	87.8%	12.2%
7	If I am tested and found to have HBV, the treatment may not be as treatment for liver cancer	35.4%	64.6%	53.9%	46.1%	85.7%	14.3%
8	I think getting the vaccine is cheaper than treating the disease	83.1%	16.9%	47.8%	52.2%	60.2%	39.8%

**Source: Research Survey**

**Interpretation:** The table result above is about perceived benefits of Hepatitis B vaccine, the result above shows that majority of the respondents agree that HBV test will decrease their chances of dying from liver cancer, 52.2% of respondents in Ile-Oluji disagrees that the vaccine is cheaper than treating the disease.

**Table 14: Perceived barriers to Hepatitis Band Vaccine uptake**

S/N	Statement	Ondo		Ile Oluji		Owo	
		Agree	Disagree	Agree	Disagree	Agree	Disagree

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

1	Compared with other health problems having to test for HBV is not important	32.3%	67.7%	36.5%	63.5%	40.8%	59.2%
2	I am aware that Hepatitis B has a vaccine	75.4%	24.6%	32.2%	67.8%	85.7%	14.3%
3	Getting vaccinated for Hepatitis B when pregnant will result in a miscarriage	73.1%	26.9%	32.2%	67.8%	69.4%	30.65
4	I am afraid to have Hepatitis B test because it might show that I am infected	74.6%	25.4%	41.7%	58.3%	79.6%	20.4%
5	You are worried about having the HBV test because you do not understand what will be done	70.8%	29.2%	47.0%	53.0%	81.6%	18.4%
6	I cannot afford the cost of Hepatitis B vaccine	31.5%	68.5%	45.2%	54.8%	78.6%	21.4%
7	Vaccination centers are too far from where I live	33.1%	66.9%	40.0%	60.0%	73.5%	26.5%
8	Health workers are not friendly at health centers close to me	21.5%	78.5%	33.9%	66.1%	24.5%	75.5%

Source: Research Survey

**Interpretation:** The table result above is about the perceived barriers to Hepatitis B, the result above shows that 70.8% and 81.6% of respondents in Ondo and Owo agrees that they are worried of going for HBV test because they do not know what will be done to them, also, 73.1% and 69.4% of the respondents in Ondo and Owo thinks the vaccine can cause miscarriage for pregnant women.

**Table 15: Perceived self-efficacy to Hepatitis B and Vaccine uptake**

S/N	Statement	Ondo		Ile Oluji		Owo	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
1	I am certain that I can take myself for Hepatitis B test even if I have to pay for the test	82.3%	17.7%	60.9%	39.1%	89.8%	10.2%
2	I am certain that I can take myself for Hepatitis B vaccination, even if I have to pay for the vaccination	83.8%	16.2%	47.8%	52.2%	87.7%	12.2%
3	I believe my job will not be affected even if I am tested positive for HBV	46.2%	53.8%	45.2%	54.8%	86.7%	13.3%
4	If I am tested and found to have Hepatitis B, I am certain that I can take myself for Hepatitis B treatment, even if the treatment center is far from where I live.	86.9%	12.1%	50.4%	49.6%	83.7%	15.3%

Source: Research Survey

**Interpretation:** The table result above is about perceived self-efficacy to Hepatitis B, the result above shows that 86.9%, 50.4% and 83.7% agrees that if tested to and found to have Hepatitis B, they are certain they will take themselves to the treatment center irrespective of where they live. 46.2%, 45.2% and 13.3% agrees that their job will be affected if tested positive for HBV and 52.2% respondent in Ile-oluji disagrees he/she could be vaccinated.

### 4.4 DATA ANALYSIS

**Table 16: Chi Square analysis on the Knowledge of Hepatitis B**

Characteristics	Have you heard about Hepatitis B before?		Chi-Square P-value ( $\alpha=0.05$ )
	Yes	No	
<b>Town</b>			
Ondo	104	26	0.001
Ile-Oluji	68	47	
Owo	60	38	

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

<b>Religion</b>			
Christianity	155	82	0.350
Islam	76	29	
Traditional	1	0	
<b>Level of Education</b>			
Primary	34	24	0.008
Secondary	98	60	
Tertiary	100	27	
<b>Occupation</b>			
Trading	101	44	0.028
Civil Servant	20	5	
Artisans	54	42	
Others	57	20	

Significant factors at  $\alpha = 0.05$

**Interpretation:** The table above shows result of chi square analysis from the cross tabulation of respondents socio-demography characteristics on knowledge of Hepatitis B. At  $\alpha = 0.05$ , the results above shows the town and the level of education of the respondents, which is significantly associated with their response(s) on the knowledge of Hepatitis B.

### 5. CONCLUSION

The results show that knowledge of HBV infection in Ondo State, Nigeria is relatively high, and is unevenly distributed among towns in the state. Knowledge needs to be worked on, so as to improved in all towns especially to smaller ones in the state. To promote future research, and subsequent high-quality translation to health settings, I suggest that guidelines should be developed to ensure consistency for data collection across the state, and hence improve the quality of reporting. For example, the routine recording of age and sex, among other relevant population and individual variables, will support deeper insights into the true HBV situation, and lead to tangible improvements for patients and their communities.

### 6. ACKNOWLEDGEMENT

Researchers hereby acknowledge and sincerely appreciate the academic developer, Tertiary Education Trust Fund (TETFund, Nigeria), for sponsoring this research via its Institutional Based Research (IBR) Intervention. The researchers appreciate the Management of the Federal Polytechnic, Ile-Oluji, Ondo State for the support, and also Jimoh.

### REFERENCE

- 1) Abdulai, I. D. D. R. I. S. U. (2017). Assessing the Knowledge, Attitude and Perception Of Hepatitis B Viral Infection Among Young Adults In Sagnarigu District of The Northern Region (Doctoral dissertation).
- 2) Adekanle, O., Ndububa, D. A., Olowookere, S. A., Ijarotimi, O., & Ijadunola, K. T. (2015). Knowledge of hepatitis B virus infection, immunization with hepatitis B vaccine, risk perception, and challenges to control hepatitis among hospital workers in a Nigerian tertiary hospital. *Hepatitis research and treatment*, 2015.
- 3) Banatvala, J., Van Damme, P., & Oehen, S. (2000). Lifelong protection against hepatitis B: the role of vaccine immunogenicity in immune memory. *Vaccine*, 19(7-8), 87
- 4) Chao, J., Chang, E.T. & So, S.K.S. (2010). Hepatitis B and practices among healthcare and public health professionals in China: a cross-sectional study. *BioMed Central Public Health*, 10(98), 1-11. doi:10.1186/1471-2458-10-98
- 5) Codex. (2013). Forskning som involverar människan - informerats samtycke. Uppsala: Centrum för forsknings- & bioetik. Collected 26th of January, 2013, from <http://www.codex.uu.se/manniska2.shtml>
- 6) Cristina, J., & Costa-Mattioli, M. (2007). Genetic variability and molecular evolution of hepatitis A virus. *Virus research*, 127(2), 151-157.
- 7) Cuthbert, J. A. (2001). Hepatitis A: old and new. *Clinical microbiology reviews*, 14(1), 38-58.
- 8) Dahlström, E., & Funegård Viberg, E. (2013). Knowledge about hepatitis B virus infection and attitudes towards hepatitis B virus vaccination among Vietnamese university students in Ho Chi Minh City:—A quantitative study.
- 9) Donohue, W., & Benson, J. (2007). Hepatitis in refugees who settle in Australia. *Australian family physician*, 36(9).
- 10) Dunford, L., Carr, M.J., Dean, J., Nguyen, L.T., Ta, T.T.H., Nguyen, B.T., Connell, J., Coughlan, S.,
- 11) Nguyen, H.T., Hall, W.W. & Nguyen, T.L.A. (2012) A multicentre molecular analysis of hepatitis B and blood-borne virus coinfections in Viet Nam. *PLoS ONE*, 7(6). doi:10.1371/journal.pone.0039027

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

- 12) Duong, T.H., Nguyen, P.H., Henley, K. & Peters, M. (2009). Risk factors for hepatitis B infection in rural Vietnam. *Asian Pacific Journal of Cancer Prevention*, 10(1), 97-102.
- 13) Eni, A. O., Onile-ere, O. O., Mohammed, I., Kazeem, S. A., & Onyeka, J. (2019). Pre and Post Training Knowledge of Cassava Viral Disease among Farmer and Extension Officer in Nigeria. *Journal of Agricultural Extension*, 23(3), 66-74.
- 14) Eni, A. O., Soluade, M. G., Oshamika, O. O., Efekemo, O. P., Igwe, T. T., & Onile-Ere, O. A. (2019). Knowledge and awareness of hepatitis b virus infection in Nigeria. *Annals of global health*, 85(1).
- 15) Gerlich, W. H. (2013). Medical virology of hepatitis B: how it began and where we are now. *Virology journal*, 10(1), 1-25.
- 16) Glanz, K., Rimer, B.K. & Viswanath, K. (red.) (2008). *Health behavior and health education: theory, research and practice*. (4. ed.) San Francisco: Jossey-Bass.
- 17) Hipgrave, D., Van, N., Huong, V., Long, H., Dat, D., Trung, T., Jolley, D., Maynard, J. & Biggs, B-A. (2003). Hepatitis B infection in rural Vietnam and the implications for a national program of infant immunization. *American Journal of Tropical Medicine and Hygiene*, 69(3), 288-294.
- 18) Hwang, J. P., Huang, C. H., & Yi, J. K. (2008). Knowledge about hepatitis B and predictors of hepatitis B vaccination among Vietnamese American college students. *Journal of American College Health*, 56(4), 377-382.
- 19) Hwang, J., Huang, C-H. & Yi, J. (2010). Knowledge about hepatitis B and predictors of hepatitis B vaccination among Vietnamese American college students. *Journal of American College Health*, 56(4), 377-382. doi:10.3200/JACH.56.44.377-382.
- 20) Jones, C. E., Naidoo, S., De Beer, C., Esser, M., Kampmann, B., & Hesselning, A. C. (2011). Maternal HIV infection and antibody responses against vaccine-preventable diseases in uninfected infants. *Jama*, 305(6), 576-584.
- 21) Khandelwal, V., Nayak, U. A., Nayak, P. A., Iyer, S. S., & Bafna, Y. (2017). Hookah addiction among adolescents of five major cities in Central India. *International Journal of Adolescent Medicine and Health*, 29(6).
- 22) Lee, H-O., Lee, O-J., Kim, S., Hontz, I. & Warner, A. (2007). Differences in knowledge of hepatitis B among Korean immigrants in two cities in the rocky mountain region. *Asian Nursing Research*, 1(3), 165 175. doi:10.1016/S1976-1317(08)60019-5
- 23) Li, Q., Brass, A. L., Ng, A., Hu, Z., Xavier, R. J., Liang, T. J., & Elledge, S. J. (2009). A genome-wide genetic screen for host factors required for hepatitis C virus propagation. *Proceedings of the National Academy of Sciences*, 106(38), 16410-16415.
- 24) Li, W. T., Hwang, D. R., Song, J. S., Chen, C. P., Chuu, J. J., Hu, C. B., ... & Chen, C. T. (2010). Synthesis and biological activities of 2-amino-1-arylidenamino imidazoles as orally active anticancer agents. *Journal of medicinal chemistry*, 53(6), 2409-2417.
- 25) Liang, T. J. (2009). Hepatitis B: the virus and disease. *Hepatology*, 49(S5), S13-S21.
- 26) Ma, G.X., Shive, S.E., Fang, C.Y., Feng, Z., Parameswaran, L., Pham, A. & Khanh, C. (2007).
- 27) Knowledge, attitudes, and behaviors of hepatitis B screening and vaccination and liver cancer risks among Vietnamese Americans. *Journal of Health Care for the Poor and Underserved*, 18(1), 62-73. doi:10.1353/hpu.2007.0013
- 28) Mathur, P., Jain, N., Prajapat, L., Jain, K., Garg, D., & Khandelwal, V. (2017). Effect of intrathecal labor analgesia using fentanyl 25 µg and bupivacaine 2.5 mg on progress of labor. *Journal of Obstetric Anaesthesia and Critical Care*, 7(1), 47.
- 29) Nainan, O. V., Xia, G., Vaughan, G., & Margolis, H. S. (2006). Diagnosis of hepatitis A virus infection: a molecular approach. *Clinical microbiology reviews*, 19(1), 63-79.
- 30) Nguyen, V. L., Nguyen, D. C., Hirata, H., Ohtaki, M., Hayakawa, T., & Nogami, M. (2010). Chemical synthesis and characterization of palladium nanoparticles. *Advances in natural sciences: nanoscience and nanotechnology*, 1(3), 035012.
- 31) Nguyen, V.T.T., Law, M.G. & Dore, G.J. (2008). An enormous hepatitis B virus-related liver disease burden projected in Vietnam by 2025. *Liver International*, 28(4), 525-531. doi:10.1111/j.14783231.2007.01646.x
- 32) Nguyen, V.T.T., McLaws, M-L. & Dore, G.J. (2007). Highly endemic hepatitis B infection in rural Vietnam. *Journal of Gastroenterology and Hepatology*, 22(12), 2093-2100. doi:10.1111/j.14401746.2007.05010.x
- 33) Nguyen-Truong, C. K., Lee-Lin, F., & Gedaly-Duff, V. (2013, May). Contributing factors to colorectal cancer and hepatitis B screening among Vietnamese Americans. In *Oncology nursing forum* (Vol. 40, No. 3).
- 34) Palmeira, P., Quinello, C., Silveira-Lessa, A. L., Zago, C. A., & Carneiro-Sampaio, M. (2012). IgG placental transfer in healthy and pathological pregnancies. *Clinical and Developmental Immunology*, 2012.
- 35) Ranger-Rogez, S., & Denis, F. O. (2004). Hepatitis B mother-to-child transmission. *Expert review of anti-infective therapy*, 2(1), 133-145.

## Knowledge, Perception and Uptake of Vaccine of Hepatitis B Virus among Residents of Ondo State

- 36) Reif, A. E. (1981). The Causes of Cancer: While some cancers are genetically fated to appear, most have now been traced to environmental factors. *American Scientist*, 69(4), 437-447.
- 37) Rodríguez-Frías, F., Quer, J., Taberero, D., Cortese, M. F., Garcia-Garcia, S., Rando-Segura, A., & Pumarola, T. (2021). Microorganisms as Shapers of Human Civilization, from Pandemics to Even Our Genomes: Villains or Friends? A Historical Approach. *Microorganisms*, 9(12), 2518.
- 38) Shepard, C. W., Simard, E. P., Finelli, L., Fiore, A. E., & Bell, B. P. (2006). Hepatitis B virus infection: epidemiology and vaccination. *Epidemiologic reviews*, 28(1), 112-125.
- 39) Shepard, C., Simard, E., Finelli, L., Fiore, A. & Bell, B. (2006). Hepatitis B virus infection: epidemiology and vaccination. *Epidemiologic Reviews*, 28(1), 112-125. doi:10.1093/epirev/mxj009
- 40) Socialstyrelsen. (2008). Vaccination av barn: Det svenska vaccinationsprogrammet. En kunskapsöversikt för hälsovårdspersonal. Socialstyrelsen. Collected 2th of April, 2013, from [http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/8825/2008-126-9\\_20081269.pdf](http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/8825/2008-126-9_20081269.pdf)
- 41) Taylor, V.M., Choe, J.H., Yasui, Y., Li, L., Burke, N. & Jackson, J.C. (2005). Hepatitis B awareness, testing, and knowledge among Vietnamese American men and women. *Journal of Community Health*, 30(6), 477-490.
- 42) Thomas, E., Yoneda, M., & Schiff, E. R. (2015). Viral hepatitis: past and future of HBV and HDV. *Cold Spring Harbor perspectives in medicine*, 5(2), a021345.
- 43) Tilman, D., Fargione, J., Wolff, B., D'antonio, C., Dobson, A., Howarth, R., D Schindler, William H. Schlesinger, Daniel Simberloff, & Swackhamer, D. (2001). Forecasting agriculturally driven global environmental change. *science*, 292(5515), 281-284.
- 44) Van der Sande, M. A., Waight, P. A., Mendy, M., Zaman, S., Kaye, S., Sam, O., ... & Whittle, H. C. (2007). Long-term protection against HBV chronic carriage of Gambian adolescents vaccinated in infancy and immune response in HBV booster trial in adolescence. *PloS one*, 2(8), e753.
- 45) Vu, L., Gu, Z., Walton, J., Peet, A., Dean, J., Dunne, M. & Debattista, J. (2012). Hepatitis B knowledge, testing, and vaccination among Chinese and Vietnamese adults in Australia. *Asian-Pacific Journal of Public Health*, 24(2), 374-384. doi:10.1177/1010539510390205
- 46) Weinbaum, C.M., Mast, E.E. & Ward, J.W. (2009). Recommendations for identification and public health management of persons with chronic hepatitis B virus infection. *Hepatology*, 49(5), 35-44. doi:10.1002/hep.2288
- 47) Wieland, S. F. (2015). The chimpanzee model for hepatitis B virus infection. *Cold Spring Harbor perspectives in medicine*, 5(6), a021469.
- 48) World Health Organization. (2015). Guidelines for the prevention care and treatment of persons with chronic hepatitis B infection: Mar-15. World Health Organization.
- 49) Yasobant, S., Trivedi, P., Saxena, D., Puwar, T., Vora, K., & Patel, M. (2017). Knowledge of hepatitis B among healthy population: A community-based survey from two districts of Gujarat, India. *Journal of family medicine and primary care*, 6(3), 589.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.