KNOWLEDGE, ATTITUDE, PRACTICES, RISK PERCEPTION AND UTILIZATION OF HEPATITIS B VACCINATION AMONG HEALTH WORKERS IN SECONDARY HEALTH CARE FACILITIES IN IBADAN

BY

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DEDICATION

To GOD Almighty, for keeping me throughout the MPH programme and for giving me the grace and courage to execute this work successfully, I am grateful Lord.

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To the people who are suffering from Hepatitis B virus disease, may God continue to sustain them.

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ABSTRACT

Hepatitis B is an inflammation of the liver, usually caused by a viral infection, and sometimes from toxic agents. Hepatitis B virus is highly infectious and easy to transmit from one infected person to another, HBV infection is highly endemic in Nigeria, and its preventive method is vaccination. One major concern that has necessitated this study is the non compliance of health workers to HBV vaccination uptake. Hence this study assessed knowledge, attitude, practices, risk perception and utilization of hepatitis B vaccination among health workers in secondary health care facilities in Ibadan.

A cross-sectional study was conducted among 384 health care workers in Ibadan North and South West Local Governments. Thirteen hospitals were selected by mulistage sampling technique for equal sampling representation. All consenting health workers were recruited for this study. A self administered semi-structured questionnaire was used, which had both open and close ended questions. Analysis was done using SPSS package version 20. A 12 point scale was developed to analyse knowledge; 0-5 as poor knowledge, 6-9 as fair knowledge, 10-12 as good knowledge. A 7 point perception scale was used to assess perception with 1-4 representing negative perception and 5-7 as positive perception. This also apllied to the assessment of attitude on HBV vaccine. An 18 point practice scale was used, using the range 1-5 as low risk healthy practice 6-11 as a moderate unhealthy practice and 12-18 as high risk healthy practice of HBV precaution.

The mean age of the respondents was 35.36±10.56. The majority (91.7%) of the respondents were Yoruba. Designation/Status of the participants included medical doctors, nurses, laboratory attendants, and other health workers. More than half (57.0%) of the respondents had a good knowledge on hepatitis B mode of transmission with the mean knowledge score of 2.55±0.53. Slightly more than half of the respondents (54.9/%) had a positive perception of HBV risk. The mean perception score was 1.59±0.49. The attitudinal scale shows that majority of the respondents (58.9%) had positive attitude towards hepatitis B prevention and the mean attitude score of 1.58±0.49. It was observed that majority (74.2%) of the respondents had unhealthy practice with a moderate risk of contracting hepatitis B viral infection and the mean practice score of respondents was 1.97±0.51. There was no significant relationship between knowledge and the overall

practice of the respondents (p=0.27) using Chi-square test. Meanwhile, there was a relationship between the hepatitis B vaccine utilisation and educational status (p=0.04), designation (p=0.00), age (p=0.02) using Fisher's Exact Test.

The findings of this study shows that there is a low uptake of hepatitis B vaccine among the health workers, most of the respondent had good knowledge, a positive attitude but negative practices, thus, factors such as cost and availability of the vaccine in the health centres, all affect the uptake of the hepatitis B vaccine by health workers. There is a need for sensitization and reorientation of all health workers by the state government through effective communication strategy of health promotion to address this gap.

KEY WORDS: Knowledge, practices, hepatitis B virus, vaccination, health care workers.

Words :496

CERTIFICATION

I certify that this work was carried out by IBITOYE Segun Emmanuel (181160) in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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GLOSSARY OF ABBREVIATION

ACIP	The Advisory Committee on Immunization Practices
CDC	Centre for Disease Control
CHB	Chronic Hepatitis B
DNA	Deoxyribose Nucleic Acid
HBM	Health Believe Model
HBIG	Hepatitis B immune globulin
HBV	Hepatitis B Virus
HBsAg	Hepatitis B Surface Antigen
HCV	Hepatitis C Virus
HCC	Hepatocellular Carcinoma
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
IFNa	Interferon-alpha
I.V	Intravenous
OHBVI	Occult HBV Infection
RNA	Ribonucleic Acid
WHO	World Health Organisation
ACIP	Advisory Committee on Immunization Practices
BCC	Behavioural Change Communication
OPIM	Other Potentially Infectious Materials

OPERATIONAL DEFINITION OF TERMS

1.5 Operational Defination of terms

Hepatitis B is defined as the inflammation of the liver and it is a disease that is 50 to 100 times more infectious than HIV and the tenth leading cause of death in the world. (Ndako,Onwuliri, Adelani-Akande, Olaolu ,Dahunsi And Udo; 2014).

Hepatitis B vaccine is recommended as part of the therapy used to prevent hepatitis B infection following exposure to HBV. Depending on the exposure circumstance, the hepatitis B vaccine series may be started at the same time as treatment with hepatitis B immune globulin (HBIG).

Health seeking behaviour: Health seeking behaviours refer to all voluntary actions and/or activities embarked upon by an individual to prevent, detect, treat or manage diseases at any stage either asymptomatic or symptomatic.

Vaccine: This is an antigenic substance prepared from a causative agent of a disease or a synthetic substitute used to provide immunity against one or several disease.

Vaccination: This is a process of administration of the antigenic material (vaccine) to stimulate an induviduals immune system to develop immunity against the pathogen (disease infectious agent).

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The liver is both a secretory and regulatory organ, it is the largest organ in the body, it weighs about 1.5 kgs in man. It is located at the upper and right side side of the abdominal cavity immediately beneth the diaphragm.

Hepatiitis is inflammation of the liver, usually from a viral infection, but sometimes from toxic agents. Hepatitis B virus (HBV) is the major cause of acute and chronic liver disease, cirrhosis and hepatocellular carcinoma worldwide and has long been recognized as an occupational hazard among health care workers, as non-immune health care workers (HCW) stand a risk of getting infected from their work place (Ndako,Onwuliri, Adelani-Akande, Olaolu ,Dahunsi And Udo; 2014). A third of the world population (two billion people) has evidence of hepatitis B exposure and an estimated 400 million are actively infected (Resende, Abreu, Paiva, Teixeira, & Pordeus, 2010).

Hepatitis B virus is one of the major diseases of mankind and is a serious global public health problem. HBV is transmitted primarily through parenteral and sexual exposure to HBsAg-positive blood or other body fluids from individuals who are chronic HBV carriers or have acute hepatitis B infection, such infected individuals are at high risk of death from cirrhosis of the liver and liver cancer, diseases that kill about one million people each year (World Health Organisation 2009). Hepatitis B virus (HBV) is a double-stranded DNA virus belonging to Hepadnaviridae family. The incubation period is six weeks to six months (Kolawole, Wahab, Adekanle, Sibanda, & Okoh, 2012). Hepatitis B is a potentially life-threatening liver infection caused by hepatitis B virus. It is a major global health problem and the most serious type of viral hepatitis. It can cause chronic liver disease and put people at high risk of death from cirrhosis of the liver and liver cancer (Asadpour, Arabbaniassad, Bidaki, Moazzeni, Shabani,and Sayadi, 2012). The primary method of transmission reflects the prevalence of chronic HBV infection in a given area. In low prevalence areas such as the continental United States and Western Europe, where less than 2% of the population is chronically infected, injection drug abuse

and unprotected sex are the primary methods, although other factors may be important (Redd, Baunbach and Kohn:2007). Transmission of hepatitis B virus results from exposure to infectious blood or body fluids containing blood. Possible forms of transmission include (but are not limited to) unprotected sexual contact, blood transfusions, re-use of contaminated needles and syringes, and vertical transmission from mother to child during childbirth. In countries where HBV is highly endemic (hepatitis B surface antigen (HBsAg) prevalence rate of 8% or higher), most infections occur during infancy and early childhood. Infection occurs commonly in all age groups, although the high rate of chronic infection is primarily maintained by transmission during infancy and early childhood.

As the professional duties of doctors, nurses, dental and other health professions involve the use of small, sharp instruments contaminated with blood or other fluids, there is ample opportunity for inadvertent skin wounds to the operator and staff. Such accidents include the possibility of transmission of hepatitis B, hepatitis C and human immunodeficiency virus (HIV) (Resende et al., 2010). The hepatitis B vaccine has been available since 1982 and, since 1990, has been recommended for healthcare workers whose activities frequently expose them to blood. However, 5 to 10% of normal subjects do not produce the anti-hepatitis B surface antibody (anti-HBs) after receiving a standard course of HBV vaccine (Sofola etal 2008).

Hepatitis B Virus is one of the most important causes of chronic liver disease in the world and the second most important carcinogen after tobacco (Nwokediuko,2010). It continues to be a global public health problem despite large-scale efforts to eliminate this chronic viral disease via education, screening, and vaccination programs (Luo, Li, & Ruan, 2012).

1.2 Statement of the problem

An estimated two billion persons worldwide have been infected with Hepatitis B virus and more than 350 million have chronic lifelong infections. The virus is an established cause of acute and chronic hepatitis and Cirrhosis. It is the cause of up to 80% of hepatocellular carcinomas (CDC, 2012).The disease has caused epidemics in parts of

Asia, Africa and it is endemic in parts of China (Barker et al., 1996). According to WHO, an estimated 600,000 people die every year in relation to the infection (Res, Mboto, Etok, Akinjogunla, & Iniewe, 2014). About 5-10% of infected adults become chronic carriers. Over time, approximately 15- 25% of people with chronic hepatitis B develop serious liver problem (CDC, 2012). Emechebe, Emodi, Ikefuna, Ilechukwu, Igwe, Ejeofor., (2009) reported that Hepatitis B virus carriage rate in Nigeria ranges from 9-39%, and a carrier rate above 7% in a population is classified as hyper endemic. Hepatitis B is a contagious disease and blood transfusion has become a major mode or route of transmission of HBV in high prevalence areas such as sub Saharan Africa. Transfusion of infected blood or blood products and unprotected sex are two key transmission routes of HBV.

In Ibadan, Oyo state, the prevalence of hepatitis B vaccination is at 20- 50% (Ogoina, Pondei, Adetunji,Chima, Isichei, Gidado, 2014). Similar results were obtained in a study conducted among health workers in the University College Hospital, Ibadan Nigeria with a vaccination rate of 38.7%- 58.2% (Ola, Akere, Otegbayo, Bamgboye, 2011). Hepatitis B also known as homologous serum hepatitis, is one of the most infectious diseases in the world and constitutes a major global public health threat. About 5% of the world's population are asymptomatic carriers and 350 million people worldwide are chronic carriers of hepatitis B virus (HBV). An estimated 600,000 persons die each year due to the acute or chronic consequences of Hepatitis B (WHO, 2012). Health facilities around the world employ over 59 million workers who are exposed to a complex variety of health and safety hazards every day (Makori, Mbakaya, and Karanja 2014). They need protection from these workplace hazards. Healthcare workers are often viewed as immune to injury or illness,this is because their patient comes first (WHO, 2007). National and regional prevalence rates of HBV infection vary widely, It is reported to be between 8-10% Sub-Saharan Africa and South East Asia, 2-7% in Eastern and Southern Europe, and 0.5-2% in the United States and Northern Europe. The disease has also been reported to be almost 100 times more infectious than HIV (Daboer, Chingle, and Banwat, 2010).

The prevalence of HBV among health workers varies between 15 to 39% (Ugwuja and Ugwu, 2010). Consequently, the risk of occupational exposure to HBV among HCWs in Nigeria remains high. A few studies conducted on selected HCWs in Nigeria revealed low rates of HBV vaccination coverage of 20%–50% (WHO, 2012). Eradication of Hepatitis B is a global agenda, and its benefits are fully non-rival and fully non-excludable; non-rivalry and non-excludability are the two defining features of a public good. Non-rivalry implies that one person's consumption of the positive benefits spill over effects of living in an HBV-free world detracts nothing whatsoever from others' ability to equally consume these benefits. Additionally, non-excludability means that no one can be barred from consuming the positive spill over effects of living in an HBV-free world because the disease would no longer exist anywhere if we start from the local health facilities and make it universal and global. The classic free rider and collective action dilemmas come into play when referencing global disease eradication as well as elimination and control efforts. Nigeria is a holoendemic area for HBV with carrier rate of 15-37% and an estimated 12% of the total population being chronic carriers of HBsAg (Ugwuja and Ugwu, 2010).

Since detecting Hepatitis B Surface Antigen (HBsAg) in Serum is indicative of either acute or chronic phase of HBV infection. Exposure of healthcare workers to sharps, blood and body fluids makes them vulnerable to blood borne infections like HIV, hepatitis C and hepatitis B to mention a few. Any effective infection control and injection safety control program should have modalities clearly spelt out to address the following;

1. Implementation of standard precautions 2. Education of workers and health systems managers 3. Development of surveillance systems 4. Immunization against hepatitis B and 5. Implementation of appropriate post-exposure follow-up including Prophylactic medication (Centers for Disease Control and Prevention 2005).

The World Health Organization estimates a high global burden of 40% for hepatitis B among Health Care Workers (HCWs) (Obi and Ofili, 2013). The prevalence of Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) infections worldwide vary by region,

ranging on average from 0.5 to 10% for hepatitis B and from 1 to 4% for hepatitis C. Studies have shown that the carrier state for Hepatitis B surface antigen in Nigeria is high and have been reported in various studies ranging between 10- 30% and for Hepatitis C antibody between 12–14% (Halim, Madukwe, Saheeb and Airauhi, 2001). Hepatitis B vaccination is yet to be offered en masse to health care workers in Nigeria who are more occupationally at risk of the infection, despite this known fact on hepatitis B Virus infection among health care workers, the uptake is still very low ranging from 20- 40% (Obi and Ofili, 2013).

Hepatitis B is a contagious disease, blood transfusion has become a major mode or route of transmission of HBV in high prevalence areas such as sub Saharan Africa. Transfusion of infected blood or blood products and unprotected sex are two key transmission routes of HBV. Indeed, the WHO has documented that between 5 and 10% of Human Immune Deficiency Virus (HIV) infections worldwide are transmitted through the transfusion of contaminated blood and blood products. Thus, indicating that many more recipients of blood products are infected by HBV, Hepatitis C Virus (HCV), Syphilis and many other infectious agents.

Among health care workers, operating room personnel such as doctors, nurses,ward attendants are at a high risk of infection with blood-borne pathogens through blood contact. This group of health workers has been shown not to follow standard precautions and not to report all percutaneous injuries. (Taylor, 2006). Unfortunately, researchers have also not shown enough interest in evaluating their knowledge of hepatitis B virus infection or the vaccine. Most previous studies in health care workers in developing countries have revealed inadequate knowledge of hepatitis B virus infection and inadequate practice of preventive measures against the disease. (Kiesieme, Irekpita, Dongo, Bwala and Alegbeleye 2011).

1.3 Justification of the study

Hospital is the place where patients get well and recover from disease, it is also possible that people, who are working in them will get diseases due to their negligence or accidents and expose themselves to potentially harmful wastes and by-products from

hospitals and other healthcare establishments like laboratories and blood banks, these wastes cover a diverse range of materials including infectious wastes, sharps, chemicals, genotoxic, radio-active, heavy metals etc. These wastes are a reservoir of potentially harmful pathogens in sufficient concentrations to cause disease thus puting the workers at risk of infection. The HCW like doctors, nurses, paramedical staff, ward boys, sanitary workers, patients and their attendants and rag pickers are at risk of infection with Human immunodeficiency Virus and Hepatitis B and C viruses for which there is strong evidence of transmission via healthcare waste (Yenesew, Moges and Woldeyohannes, 2012). One of the most important infections that most health workers are at risk of is, Hepatitis B virus as the health care workers are often exposed to blood in the course of their jobs. Many people who are chronically infected will suffer from serious problems such as cirrhosis (scarring of the liver) or liver cancer thus endangering their own lives and that of the others. Therefore, it is important to change the perception of the Nigerian health care workers towards hepatitis B vaccination.

The use of Hepatitis B vaccine usually creates a long-term immunity, help in eliminating the risk of HBV infection and also decreases the risk of chronic liver disease, cirrhosis of the liver and liver cancer (Azodo, Ehigiator and Ojo 2010).
Anyone can get Hepatitis B, but workers in the hospitals are at high risk, thus, the best way to prevent Hepatitis B is through routine vaccination of health care workers against Hepatitis B virus in order to eradicate HBV disease (Adekanle, Ndububa, Olowookere, Ijarotimi, and Ijadunola, 2015).

The findings from this study will further add to literature regarding the use of health promotion and education strategies in the control of HBV infection and transmission among health workers. This study will also add value to the field of Health Promotion and Education on HBV vaccination uptake among health workers and will serve as a reference point for future researchers who wish to conduct further research in this area.

One major concern that has necessitated this study is non-compliance of health workers to HBV vaccination uptake as seen from previous literatures, therefore, the findings from this study could help in designing necessary information to help in increasing the uptake

of the vaccine as well as encouraging proper health seeking behaviours in relation to the HBV infection is highly important. The results of this study will be used as a basis for advocacy for institutional policy change to facilitate the mass use of HBV vaccines among all health workers in hospitals and also as a means for mass needle stick safety policy implementation in all hospitals in the nation. The findings from this study could help in identifying prevention programs that should be implemented to help lessen the burden hepatitis B virus. Also, little has been done about the knowledge, risk perception and practices of vaccination uptake among health workers in relation to the HBV infection.

This study describes health workers' knowledge of HBV infection, their perception of the risks of the disease and associated practices; this will fill the dearth in literature in this area among this target group and add to the increasing body of knowledge in this field. Few studies have focused on knowledge and use of hepatitis B vaccines use among health care workers, it is an attempt to fill the knowledge gap that this study was conducted.

1.4 Research questions

1. What is the knowledge of health workers as regards hepatitis B virus.

2. What is the risk perception of health workers towards hepatitis B virus.

3. What is the attitude of health workers towards hepatitis B virus.

4. What practices can influence their risk of contracting hepatitis B virus.

5. What is the level of hepatitis B vaccine utilization by health workers.

1.5 Broad Objective

To investigate knowledge, attitude, practices, risk perception and utilization of hepatitis B vaccination among health workers in secondary health care facilities

1.5.1 Specific Objectives:

The specific objectives of this study were to;

1. Assess the knowledge of health care workers about Hepatitis B vaccination.
2. Determine risk perception of health care workers towards hepatitis B vaccine implementation.
3. To determine the attitude of health workers towards hepatitis B prevention
4. To identify the practices that can influence their risk of contracting hepatitis B virus.
5. To determine the level of utilization of hepatitis B vaccine among health care workers.

1.6 Hypothesis

1. There is no significant association between the demographic characteristics of the respondents and their knowledge of hepatitis B virus disease .
2. There is no significant association between the sociodemographic characteristics of the respondents and their practices that influences the risk of hepatitis B infection.
3. There is no significant association between the sociodemographic characteristics of the respondents and their hepatitis B screening status.
4. There is no significant association between the respondents' knowledge of hepatitis B and the practices that influences their risk of contracting hepatitis B infection.
5. There is no significant association between the sociodemographic characteristics of the respondents and their hepatitis B vaccine utilisation status.

CHAPTER TWO

LITERATURE REVIEW

2.0 Nature of Hepatitis B virus.

Hepatitis B virus (HBV) is a double-stranded DNA virus belonging to Hepadnaviridae family. The incubation period is six weeks to six months. Hepatitis B is a potentially life-threatening liver infection caused by hepatitis B virus. It is a major global health problem and the most serious type of viral hepatitis. It can cause chronic liver disease and put people at high risk of death from cirrhosis of the liver and liver cancer (Kolawole et al., 2012). Hepatitis B is a serious liver disease which causes inflammation of the liver, it is extremely infectious and is transmitted through sexual intercourse or contact with blood or body fluids. It is one of the major leading diseases of human and has caused serious health problems (Adoga, Gyar, Pechulano, Bashayi, Samuel, Zungwe T., and Agwale, 2010).

The hepatitis B virus was discovered in 1965 when Blumberg and co-workers found the hepatitis B surface antigen which was originally called the Australia antigen because it was found in serum from an Australian patient (Blumberg et al, 1965, 1977). Dr Baruch Samuel Blumberg was awarded the 1976 Noble Prize in Physiology or Medicine for this discovery. The virus was fully described in the 1970s, in recent times, the rapid and continuous discoveries of the viral disease around the whole world have improved the understanding of the complexity of this unusual virus. Although there has not been any substantial decrease in the overall prevalence of HBV, there is the hope that the next generation will see a decline in both the worldwide carrier rate and the incidence of new HBV infections if current HBV vaccinations are intensified.

2.1 Transmission routes of Hepatitis B virus

Hepatitis B virus gains entrance into the body through a break or mucous membrane or by injection into the blood. The virus is transported to the hepatocytes where the core protein alone enters the cell nucleus initiating self multiplication of the viral genome. The most remarkable epidemiological features of HBV infection in man is the incubation

period which extends from 2 to 6 months before the development of clinical disease. Identified risks, factors for HBV infection include intravenous (IV) drug use, exposure to infected blood products and intranasal drug use (Ndako, Nwankiti, Kwari, Echeonwu, Adekeye, Agbontale, Gyang, Uzoechina, Akwaowo, Olawuyi and Dalyo, 2012). High risk factors includes sexual activity, multiple sexual partners, history of sexually transmitted disease (STD), tattoo and skin piercing, multiple sexual partners or an injecting drug user stands a higher chance of being infected with HBV (CDC, 2002). Mesfin and Gibret (2013) stated that HBV may be transmitted horizontally and vertically, horizontal transmission occurs during adolescence or childhood, throughout sexual exposure, needle stick (both accidental or through intravenous drug use), and blood transfusion (Emechebe et al, 2009). Exposure to blood is also by means of open wounds in households and other close contacts and multiple transfusions in hemophiliacs (Meheus, 1995).

A vertical transmission occurs when an infected mother transmits the virus directly to the neonate during child birth. Such transmissions are usually possible when the expectant mother suffers an acute infection of hepatitis B during pregnancy or if she is a chronic carrier during that period. The mode of this vertical transmission is not clear cut, but indications are that, infection might occur through a placenta cutting during childbirth. Majority of countries in Southeast Asia, the Western Pacific and Africa have high endemicity of HBV. In these settings the major mode of HBV transmission has been identified as vertical, where by mothers directly transmit virus to their infants during prenatal periods or where infected siblings, playmates, other members of different households transmit the virus to their younger ones (Maynard et al, 1988). In less developed countries, the use of crude methods during injections such as reused unsterilized or improperly sterilized needles and syringes are estimated to cause millions of cases of hepatitis B and C as well as HIV and other blood borne diseases globally (Kane, 1998).

2.1.1 Signs and symptoms of hepatitis B infection

The majority of acute HBV infections are not clinically recognised. Acute hepatitis B infection is usually asymptomatic in children, but symptomatic disease with jaundice occurs in about 30–50% of infected adults. (Mast, Plotkin, Orenstein, and Offit, 2008). Clinical symptoms and signs of viral hepatitis are not specific to hepatitis B, and may include systemic symptoms like fever, malaise, fatigability, anorexia, nausea and vomiting, abdominal pain, and myalgia. In patients who develop jaundice, it usually appears 1–2 weeks after onset of systemic symptoms, and lasts about 1–3 weeks. (Koziel and Thio, 2010). The incubation period from virus exposure to onset of jaundice ranges from about 45 to 180 days, with an average of 90 days. (WHO 2009). During convalescence, fatigue and malaise can persist for up to several months. Potentially fatal fulminant hepatitis occurs in approximately 0.5% of acute adults cases, but is rarer in children. A very high proportion (up to about 90%) of children infected with HBV in early infancy will become chronically infected. (Edmunds, Medley and Nokes, 1993).

Chronic HBV infection is identified by persistence of hepatitis B surface antigen (HBsAg) in the blood for at least 6 months. Clearance of HBsAg among the chronically infected is unusual, occurring in <1% per year.1 Chronic HBV infection can lead to liver cirrhosis and/or hepatocellular carcinoma (HCC), which are the major contributors to morbidity and mortality of chronic HBV infection. (Koziel and Thio; 2010). Some chronically HBV infected persons may remain asymptomatic. Symptoms of chronic hepatitis B disease are usually non-specific, unless there is cirrhosis or HCC, and do not correspond to disease severity. It is estimated that about 25% of people chronically infected with HBV may develop serious hepatic complications and 15–25% of people with chronic hepatitis B may die from liver cirrhosis or HCC. (Shepard, Simard, Finelli 2006)s. Prognostic factors include age of HBV acquisition, HBV viral load, histological type of chronic hepatitis and aggravating factors like alcohol consumption and co-infection with other hepatotropic viruses. (WHO 2011).

2.2 Diagnosis of hepatitis B

Specific diagnosis of HBV infection is based on serologic and/or nucleic acid testing. Hepatitis B surface antigen (HBsAg) and antibodies to the hepatitis B core antigen (anti-HBc antibodies) are markers of infection. The hepatitis B early antigen (HBeAg) is associated with a high level of viral replication and, hence, high infectivity. (Koziel etal; 2010). Nucleic acid tests are also used in diagnosis and sensitive tests can detect HBV DNA in the serum of an infected person 10–20 days before detection of HBsAg. (Mast, Ward, Plotkin,Orenstein, Offit, Saunders etal 2008). Antibody against hepatitis B surface antigen (anti-HBs antibody) is a marker of immunity, acquired after either natural infection or vaccination.

2.3 Prevention and treatment of hepatitis B virus

Despite the fact that HBV has become a major source of health concern worldwide, we should also be reminded by the good news that it is the only STD that can be prevented by vaccination (CDC, 2002). The prevention of HBV globally has become one of the topmost priorities of major political actors and decision makers in recent years. The disease is prevented by the use of safe and effective vaccine which became available in 1982 through funding and implementation of hepatitis B immunization programs. Measures for HBV prevention have been geared towards avoidance of unsafe blood exposure or blocking of transmission before the advent of the vaccine. Unsafe blood transfusion has been a major force in the transmission of HBV globally (WHO 2012). The enactment of a law for the donation and management of blood in blood banks across the world has aggressively fought this channel of HBV transmission. This notwithstanding with current researches have shown that blood transfusion is regaining its position as one of the major risk factors for HBV transmission globally. This finding is attributed to the presence of occult HBV infection (OHBVI) among blood donors (Shang et al, 2007). It is also worth mentioning that the global acceptance of the auto-disposable syringes (ADS) has considerably reduced the incidence of HBV infections that occur due to unsafe injections. Also, as a result of the extensive use of invasive medical procedures, iatrogenic HBV infections are no longer frequent. There have also been speculations that

dental care operations which are capable of causing oral mucous membrane injuries is becoming a major route to HBV transmission if steps are not taken to prevent it (Zhang et al, 2008). HBV per se, does not have a permanent treatment; therefore, the surest antidote to the global epidemic is prevention. There has not been any universal agreement on drugs used for the temporary treatment of the HBV in the world even though two therapeutic agents such as interferon-alpha (IFNa) and lamivudine are currently used by many countries for the treatment of the disease. Interferon-alpha is a potent cytokine with antiviral and immunomodulating actions which is produced in response to viral infection (Sen & Ransohoff, 1993). Temporary treatment of the disease is therefore aimed at suppressing viral replication, reducing the risk of progressing to advanced liver disease or inflammation of the liver and the development of complications such as liver failure or liver cancer. Chronic hepatitis B is therefore easily managed rather than treated. Some of the general management strategies for HBV recommended by medical experts include;

2.3.1 Strategies for prevention of the hepatitis B infection

1. Avoidance of heavy alcohol consumption.

2. Avoid unprotected sexual intercourse with partners who are not vaccinated.

3. Prevent sharing of needles or other items that potentially contain blood such as shavers or toothbrushes

4. Avoid the donation of blood or organs by infected persons.

5. Screening of family members and sexual partners for HBV infection and vaccination of those who are sero-negative.

6. Patient education and long-term follow-up with regular testing of liver biochemistry and surveillance of hepatocellular carcinoma in high risk groups.

7. Adherence to standard precaution procedures by all health care workers.

2.4 Hepatitis B epidemiology globally

The threat posed by the global HBV epidemic continues to assume alarming proportions in areas of public health and national development. Globally, two billion people have been infected with HBV at some point in time in their life time and 360 to 400 million people which represents more than 5% of the world's population are chronic carriers with an estimated 600,000 deaths each year due to consequences of HBV(Ndako, Nwankiti, Kwari, Echeonwu, Adekeye,etal 2012). It is estimated to be the tenth cause of deaths worldwide (WHO, 2008). Hepatitis B virus mostly affects the liver and can cause liver cancer. The disease is 50 to 100 times more infectious than the deadly human immunodeficiency virus (HIV) and can remain on an untreated part of the body for close to seven days (Hepatitis Foundation International, 2006). The incidence of acute hepatitis B varies greatly from country to country as a result of insufficient reliable data and comparisons between countries is often difficult due to different reporting systems with limited quality (Grob, 1995). The WHO has therefore demarcated the world according to chronic hepatitis B prevalence into three major blocks which include high, intermediate and low prevalence. High prevalence areas have a prevalence of chronic hepatitis B infection that is equal to or greater than eight (8%) made up of countries from North America, South America, Sub-Saharan Africa and most Asian countries. Intermediate prevalence areas have a prevalence rate which ranges between 2% and 7% and include countries from South America, North Africa, Western Europe, Eastern Europe and the Indian subcontinent. Low prevalence areas are estimated to have a prevalence of chronic infection less than (2%) which includes most of the North American countries, Australia and most of Western Europe including the United Kingdom (UK). Hepatitis B transmission route varies according to the prevalence rate of the virus. Countries with very high prevalence rate usually have vertical transmission as the main route of transmission which is mostly found during childhood. Countries with intermediate prevalence rates normally have horizontal transmission as its major route where the disease is transmitted through sexual contact or through injecting of drugs. In countries with low prevalence rates such as the United Kingdom, the epidemic is mostly acquired during adulthood through sexual intercourse or injecting of drugs. (WHO 2006).

According to the National Institute for Health and clinical Excellence (2006), chronic hepatitis infection can be treated in high income countries with the combination of drugs and that people with severe liver cases are given liver transplants as well as surgery and chemotherapy for liver cancer patients to prolong their lives. These options are unfortunately unavailable to those in low income countries due to the expensive nature of these treatments. Hence the only option for them is to stick to the saying that, "prevention is better than cure" through the use of vaccine. The WHO (2006) reported that hepatitis B vaccine has an excellent record of safety and effectiveness with over one billion doses used worldwide since 1982 and that it has a 95% capacity to prevent children and adults from contracting chronic infection if they are not already infected with the disease. Completion of the hepatitis B vaccination series is the safest and the most effective way of protecting against hepatitis B. The World Health Organization has targeted hepatitis B as one of eight infectious diseases that should be controlled through vaccination efforts. For the purpose of propagating this agenda the WHO in 1991 instructed all countries to incorporate hepatitis B vaccination into their national vaccination programs. But as of 2006, only 164 countries have acted according to the directive with most countries coming from East and South East Asia, the Pacific, Islands, Australia, Western Europe and the Middle East (WHO, 2006).

2.5 Epidemiology of hepatitis B in Africa

Africa, the second largest continent in the world covers 3,030,000 km^2 of land i.e. one fifth of the global land area. Despite the fact that it is sparsely populated with an estimated 800 million inhabitants, it accounts for 12% of the world's population. Although, the high prevalence of infectious HBV has been well documented worldwide in well-equipped correctional facilities, such information on the exact prevalence of the deadly disease has been so sparse in Africa. This could be attributed to underreporting and ineffective data collection strategies in the continent. However, from the few data available, it is estimated that out of the 360 million chronic global carriers of HBV, about 65 million of these chronic carriers live in Africa (WHO, 2004). In addition, of the estimated 1.3 million deaths recorded annually due to HBV related causes, about 250,000 come from Africa (Kew, 1992).

2.6 Epidemiology of hepatitis B in Nigeria

The prevalence of HBV among health workers varies between 15 to 39% (Ekuma, Mawak, Uwakwe, Ogbu, Okoh, Maduka Agah andNnachi; 2014). However, there are limited studies on laboratory workers (The health team in a hospital consists of doctor, nurses, paramedical professionals, laboratory scientists, laboratory technologists, chemical pathologists, haematologists and also sanitary workers like hospital attendants and laboratory attendants) in Nigeria which constitute an important part of health care settings. Currently, HBV is the leading issue of concern in society and medicine particularly in our under-resourced health care system which lacks the safety measures necessary to avert the risks of infection (Askarian et al, 2011).

2.6 .1 Epidemiology of hepatitis B Vaccination in Oyo state

In Ibadan, oyo state, the prevalence of hepatitis B vaccination is as 20- 50% (D Ogoina, K Pondei, B Adetunji,G Chima, C Isichei, S Gidado, 2014). Similar results were obtained in a study conducted among health workers in the University College Hospital, Ibadan Nigeria with a vaccination rate of 38.7%- 58.2% (Ola, Akere, Otegbayo, Bamgboye, 2011).

2.6.2 Control of HBV infection

There are broadly three strategies for dealing with HBV infection in the developed countries, immunization for at risk population, antiviral drugs (lamivudine, adeforvir dipivolix and dipivoxil) and immunostimulatory therapy with alpha-interferon for those affected. Immunization is the most effective means of controlling and HBV world-wide. (Emechebe, Emodi, Ikefuna, Ilechukwu, Igwe, Ejifor, Ilechukwu, 2009)

The Hepatitis B vaccine has an outstanding record of safety and efficacy, and it is 95% effective in preventing development of the chronic carrier state. In Africa, vertical transmission accounts for 1 – 5% of cases, while most children are infected with HBV between ages of 2-11years through horizontal transmission, hence universal immunization at birth has been adopted. As cost effective measure it has been incorporated into WHO expanded programme on immunization (EPI) on global basis

according to Yaounde declaration at the International conference on the control of HBV held in 1991. In addition to the above measures where it is feasible, HBV infection in Nigeria can be prevented or drastically reduced through health education of the general population on the various mode of transmission of HBV and preventive measures. Such measures include careful handling of blood and body fluid since they are potentially infectious. Also discouraging communal sharing of blade/sharp instruments used for shaving, barbing, manicure and body piercing/cutting and high level sexual networking. Prechewing of solid for children by an adult, especially those at risk for HBV infection should be discouraged because saliva is known to transmit HBV.

WHO recommends universal screening of blood and plasma for HBsAg by sensitive method before transfusion.8 Even when all blood donations are screened for HBsAg, donations from volunteered non remunerated donors have been proved to be safest. About 2 out of 1000 units screened plasma donations, negative for HBsAg using a very sensitive test are still infectious because the sensitivity of the third generation test is not 100%. Addition of a low dose hepatitis B immunoglobulin to potentially infectious plasma appears to be reliable measure to eliminate the hepatitis B transmission. This is preferred to other methods for labile plasma derivatives. Where possible only donations from immunized donors with a detectable amount of anti-HBs should be collected either for transfusion or for preparation of plasma derivative. Pasteurization of plasma derivatives like albumin, factors iii and viii at 600 C for at least 10 hours is essential for the elimination of HBV. Because of risks of blood transfusions, it should be given only when it is absolutely necessary as it was said that most blood transfusions were not necessary. Babies born to HBsAg positive mother should be given hepatitis B immunoglobulin at birth and active immunization should commence immediately.

Post exposure prophylaxis with hepatitis B immunoglobulin should be given promptly in all cases of suspected blood or body fluid inoculation as this could reduce HBV infection. In Nigeria most of these control measures, are poorly observed safe blood for transfusion are not easily accessible. Socio-economic and living condition of most Nigerians encourage transmission of HBV.(Emechebe, Emodi, Ikefuna, Ilechukwu, Igwe, Ejiofor, Ilechukwu 2009).

2.6.3 Hepatitis B vaccination, prevention and treatment in Oyo state.

Although vaccination against HBV began in 1984 first with a plasma-derived vaccine among non- immune children under the age of 5 years in the Gambian villages of Keneba and Manduar, and later a recombinant DNA-derived vaccine (Ola, Akere , Otegbayo, Bamgboye, etal, 2011).

Active programme for the vaccination of HCWs against HBV commenced at UCH, Ibadan in 1994 and has spread across the state. This study showed that the programme was not only commenced but has been sustained and has evolved from few numbers of participants at onset to sixty fold by the sixth year. It showed a commendable effort being made by the hospital and government at controlling HBV infection primarily among the staff and secondarily in the community.

2.6.4 Factors affecting the uptake of hepatitis B vaccination among health workers

In a previous study conducted among health care workers in University Teaching Hospital Ibadan by (Ola, Akere, Otegbayo, Bamgboye, 2011). The gender distribution of the participants being predominantly males in the initial three years of the vaccination programme is probably secondary to the presence of highest vaccination rate among the doctors who also are predominantly males although the cultural belief that the health of the man takes precedence over those of the other members of the family could not be ruled out despite the fact that the utilization of health facilities should be without consideration of status of any member of the family. It was also noted that the improvement in the gender utilization of the service is in consonance with increasing education of the females since they formed the bulk of HCWs right from foundation of the health care institution.

In a study conducted in 1994 by (Ola, Akere, Otegbayo, etal; 2011), it was observed that there was a generally low number of participants in the studies conducted in 1994 to 1997 which could be attributed to poor knowledge about HBV among HCWs in 1994 as well as the non-availability of the protective vaccine. However, with increasing knowledge of the usefulness of the vaccine vis a vis the consequences of lack of protection, acceptability of the vaccination programme by the staff and the determination

of the hospital administration to protect its staff against the virus could be responsible for the rise in the number of the participants over the study period. The downward trend in the number of the participants from 1999 to 2001 could be secondary to the coverage of greater proportion of the staff particularly in 1999 with only new entries being added thereafter although there may be low drive of the HCWs towards their being vaccinated against HBV. Furthermore, the low participation of subjects above 40 years of age could be due to the presence of more staff in the younger age groups however the knowledge that the sequalae of the infection is predominantly in the 2nd to 5th decades of life among Nigerians could be the motivating force inspiring the greater participation of the younger adult population in comparison to the older adults. (Ola, Akere, Otegbayo, Bamgboye EA, etal, 2011). Low level of awareness among the HCWs of their risk status for the infection could also affect their knowledge (Olubuyide, Ola , Aliyu et al. 1997).

2.7 Knowledge, risk perception and practice of HBV.

2.7.1 Knowledge

Knowledge is formed through interaction with the surroundings where individuals themselves construct their understanding of the world through experience. Its exchange is an integral part of learning as well as helping the individual to shape his or her abilities by converting theoretical and practical skills into new knowledge. Human knowledge is mostly acquired through communication and its processes. Knowledge is the key to prevention and education is the key to knowledge. However, knowledge about the deadly disease in Nigeria is low. Studies have shown that, majority of Nigerians have little or no knowledge or understanding of the importance of their liver condition for good health. This lack of knowledge or awareness is not only limited to only hepatitis B but also their overall well-being in terms of health. There is high prevalence of HBV infection among blacks (Adekanle, Ndububa, Ayodeji, , and Folorunso, 2010), as well as high rate of infection among hospital workers. Moreover, hospital workers have low participation in vaccination programmes, especially those whose work exposes them to the risk of HBV infection.

2.7. 2 Factors affecting the knowledge of hepatitis B

Predictors of good knowledge include age less than 35 years, male sex, being a medical doctor, previous HBsAg test, and complete HBV immunisation. Identified challenges to control hepatitis include lack of hospital policy, poor orientation of newly employed health workers.

Among health care workers, operating room personnel are at a high risk of infection with blood-borne pathogens through blood contact. This group of health workers has been shown not to follow standard precautions and not to report all percutaneous injuries . Unfortunately, researchers have also not shown enough interest in evaluating their knowledge of hepatitis B virus infection or the vaccine. Most previous studies in health care workers in developing countries have revealed inadequate knowledge of hepatitis B virus infection and inadequate practice of preventive measures against the disease .

A good knowledge of HBV virus means and modes of infection as well as adequate vaccination may reduce infection rate. The knowledge of HBV is generally low among the populace in a study carried out among Turkish community in Netherland (Van Der Veen, Voeten, De Zwart, and Richardus, 2010) . On the other hand, studies carried out among health care workers in Sudan and Morocco revealed that most of them had a good knowledge of blood as a medium of infection but lacked adequate vaccine coverage, (Bakry, Mustafa, Eldalo, and Yousif, 2012). HBV could be transmitted through many other routes, and inadequate knowledge of HBV among health workers may reflect their behavioural pattern to vaccination and safety measures.

There are a lot of factors impeding efforts put up by established institutions like WHO and other world organizations to curb the menace of hepatitis B globally. Notably among these is the lack of knowledge and awareness among health care providers, social service professionals, adolescents, members of the public and even policy makers. It is an established fact that though there has been a safe and effective vaccine for hepatitis B over the past 20 years, universal vaccination is still lacking in many countries. One of the major obstacles identified for this drawback is the lack of commitment to preventive medicine and vaccines. Due to the apparent lack of knowledge about hepatitis B, most governments which are supposed to be the major financiers of public health activities have seriously not considered hepatitis B prevention as a topmost priority in health care

and have opted for selective prevention strategies. Most interventions aimed at reducing HBV prevalence among high risks groups have failed because of the inability to access these groups. There is also lack of perceived risk among these high risk groups and over 30% of those with acute hepatitis B infection do not have identifiable risk factors (Mangtani, 1995).

2.8.1 Attitude

Atkinson and Hilgard et al (2003) defined attitude as the favorable or unfavorable reaction to objects, people, situations or other aspects of the world. Other social psychologists considered attitudes to include factors such as cognition, affection and behavior (Kruglanski et al, 2007). They further explained the cognition aspect of a person to mean a person's knowledge of something, the affective component represents an individual's feelings and evaluations that influence the standpoint for or against something and the behavioral aspect to be, the way people act towards a situation or a person and the motivation to make changes. Attitudes as suggested by psychologist are formed through experiences in lifetime and are usually determined by beliefs and the evaluation of such beliefs. Attitudes formed by individuals in society can be comprehensive as well as unspecific.

Fishbein et al (1975) indicated that comprehensive attitudes are more stable and are usually strongly held by the owners therefore, very difficult if not impossible to be influenced as compared to unspecific attitudes. A person's behaviour can be predicted by using the strength and consistency of his or her attitude. In this regard, any intervention that is aimed at changing the behaviour of an individual must first of all have enough information about his or her attitudes and then employ methods that will help change these attitudes. Attitudes of which one is aware of or that are based on one's own experience can predict behavior to a higher degree than attitudes that do not meet these criteria (Hilton, Patterson, Smith, Bedford, & Hunt, 2014).

Hilton et al., (2014) indicated those possible factors that could help influence the attitudes of an individual include, the nature of the sender (e.g. the nurse, doctor, health worker or professional in a counselling situation), the receiver (e.g. the patient), the message itself

and the social context in which the information was communicated. Trustworthiness, expertise and interpersonal attraction are important signs that should be exhibited by the sender in order to influence a person's attitude. It is important to state that for a sender to be able to make an impact on the attitude of a receiver, factors such as sex, age, self-esteem and knowledge have an important role to play. Knowledge does not necessarily influence a person's attitude. People may be knowledgeable about a particular risk behaviour but may still go ahead to do it. Knowledge about hepatitis B is necessary but the provision of knowledge alone is not sufficient since it does not necessarily lead to the behaviour change. Attitudes, values and beliefs (including perceptions about personal vulnerability to infection) as well as cultural norms and the influence of family, peers and the media are all important determinants of whether or not appropriate behaviour is adopted by health personels (Emmons et al, 1986).

2.8.2 Factors affecting attitude of health care workers towards hepatitis B vaccine

It was also documented in a study that, senior cadres of doctors and nurses, those with longer work experience and those with prior training were more likely to be vaccinated than other HCWs, since routine HBV vaccine was not offered to HCWs in study sites, it is plausible that younger HCWs had poorer vaccine uptake probably due to their lower access to HBV vaccine or poorer knowledge of the need for HBV vaccination. (Sofola, Uti 2008). Results of the study also indicated that the senior cadres of HCWs with more years of professional experience were less likely to complete HBV vaccination. A similar finding was also reported in Greece (Maltezou, et al. 2012). Where younger HCWs were shown to be more likely to complete HBV vaccination. Other driving factors are motivation, access to vaccines, cost implications, and risk perception are some variables proposed to determine vaccine completion rates. (Ogoina, Pondei, Gidado, 2014).

2.9 Practice and use of hepatitis B vaccination

Social psychologist defined it as the process of putting an intended behaviour into action. Practice may be executed consciously or unconsciously which may lead to positive or negative outcomes. Individuals in society do different things for reasons best known to them. The practices that constitutes a threat among health workers toward Hepatitis B

contraction includes practices relating to unsafe injection practices of needle re-use and non adherence to standard precautionary practices. In a study conducted by (Kesieme, Uwakwe, Irekpita,Dongo, Bwala and Alegbeleye 2010). Revealed that a significant percentage of operating room personnel believed the vaccine to be safe and will recommend it to another colleague. This may be attributable to their good knowledge of the vaccine and risk factors for HBV infection. Perception of vaccine safety has been identified as the most important predictor for acceptance and for willingness to recommend HBV vaccination to other heath care workers. Vaccinated HCWs were more likely to recommend vaccination to other healthcare personnel as were those younger than 40 years of age.

2.9.1 Practices predisposing health workers to hepatitis B infection

Hepatitis B Infection is one of the most important problems in health care services worldwide. It constitutes one of the most important causes of morbidity and mortality associated with clinical, diagnostic and therapeutic procedures. Health care workers (HCWs) are at a high risk of needle stick injuries and blood-borne pathogens as they perform their clinical activities in a hospital (Azodo, Ehigiator, & Ojo, 2010). They are exposed to blood borne pathogens, such as human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV) viruses, from sharp injuries and contacts with blood and other body fluids. According to a WHO estimate, in the year 2002, sharp injuries resulted in 16,000 hepatitis C Virus, 66,000 hepatitis B virus and 10,000 HIV infections in health care workers worldwide. There is no immunization for HIV and hepatitis C. It becomes important to prevent infection by preventing exposure. Recapping, disassembly, and inappropriate disposal increase the risk of needle stick injury. The incidence rate of these causative factors is higher in developing countries for the higher rate of injection with previously used syringes. The World Health Organization (WHO) estimates that about 2.5% of HIV cases among HCWs and 40% of hepatitis B and C cases among HCWs are the result of these exposures (Abdulraheem, Amodu , Saka , Bolarinwa and Uthman, 2012). Irrational and unsafe injection practices are rife in developing countries. The practice of recapping needles has been identified as a contributor to incidence of needle stick injuries among HCWs. It is believed that only

one out of three needle stick injuries are reported in the US, while these injuries virtually go undocumented in many developing countries such as our country Nigeria. In a study conducted by Adebamowo and Ajuwon (1997), their study showed a 9.3% incidence of clinical HBV infection, poor perception of risk of infection, poor local availability of vaccines, and low uptake where vaccine was available among Nigerian surgeons.

It has been estimated that each year, as many as three million HCWs all over the world experience percutaneous exposure to blood-borne viruses Hepatits C and B and HIV viruses (World Health Report, 2002). The most important mechanism of spread of these pathogens is via the contaminated hands of the healthcare givers or relatives/friends of the patients, contaminated environmental surfaces, drugs, intravenous solutions or by foodstuffs are all potential sources of infection. Standard precautions are intended to protect the patient by ensuring that healthcare personnel do not transmit infectious agents to patients through their hands or equipment during patient care (Siegel, Rhinehart, Jackson, Chiarelo, 2007). The Centers for Disease Control (CDC) has recommended that standard precautions be used on all patients, regardless of knowledge about their infectious status. Compliance with standard precautions measures is therefore essential to prevent and control healthcare associated infections in both health care workers and patients. Employee exposure to blood borne pathogens from blood and other potentially infectious materials (OPIM) occur because employees are not using universal precautions.

The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, anybody fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids should all be treated as hazardous in health care settings to avoid the risk of HBV.

1. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and
2. HIV containing cell, tissue cultures, organ cultures, and HIV or HBV " containing culture medium or other solutions, and blood, organs, or other tissues from experimental animals infected with HIV or HBV should be handled with care.

2.10 Practices of hepatitis B vaccine utilization among health workers

The general participation of health workers could be due to poor knowledge about HBV among HCWs and non-availability of the protective vaccine and low uptake of the vaccines where it is available. The hepatitis B vaccine has been available since 1982, and since 1990, has been recommended for healthcare workers whose activities frequently expose them to blood (Resende, AbreuPaiva Teixeiraand Pordeus 2010). However, 5 to 10% of normal subjects do not produce the anti-hepatitis B surface antibody (anti-HBs) after receiving a standard course of HBV vaccine (Van Damme and Van Herck 2007). Thus, post-vaccination testing one to three months following the third dose of vaccine is recommended for healthcare workers who have contact with blood. Previous studies carried out in other countries have revealed different proportions of self-reported vaccination, ranging from 40.3% to 97.0% (Uotomi 2005) However, there is little information on factors associated to adherence to the vaccination and the evaluation of immunization status regarding hepatitis B among health care workers.

2.11 Conceptual Frame Work

2.11.1 The Health Belief Model The Health Belief Model (HBM) can be useful in analyzing these people's inaction or noncompliance.

The HBM was one of the first models that adapted theory from the behavioural sciences to health problems, and it remains one of the most widely recognized conceptual frameworks of health behaviour. It was originally introduced in the 1950s by psychologists working in the U.S. Public Health Service (Hochbaum, Rosenstock, Leventhal, and Kegeles). Their focus was on increasing the use of then-available preventive services, such as chest x-rays for tuberculosis screening and immunizations such as flu vaccines. They assumed that people feared diseases, and that health actions were motivated in relation to the degree of fear (perceived threat) and expected fear reduction potential of actions, as long as that potential outweighed practical and psychological obstacles to taking action (net benefits).

Six main constructs influence people's decision about whether to take action to prevent, screen for and control illness. In other words, people are ready to act if they:

- Believe they are susceptible to the condition (Perceived susceptibility)
- Believe the condition has serious consequences (perceived severity)
- Believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits).
- Believe costs of taking action are overweight by the benefit (perceived barriers)
- Are exposed to factors that prompt action (e. g, mass mobilization community awareness) (cue to action).
- Are confident in their ability to successfully perform an action (self efficacy).

It is important to note that personal susceptibility to disease condition as well as perceived seriousness of the disease varies from person to person. The perception is also dependent on the level of knowledge about the health problem, the modifying factors which includes the demographic, socio psychological and structural variables.

These concepts were proposed as accounting for people's "readiness to act." An added concept, cues to action, would activate that readiness and stimulate overt behaviour to help to better fit the challenges of changing habitual unhealthy behaviours, such as being sedentary, smoking, or overeating.

Originally, the HBM was developed to help explain health-related behaviours. It could guide the search for "why" and help identify leverage points for change. It can be a useful framework for designing change strategies, too. The most promising application of the HBM is for helping to develop messages that are likely to persuade individuals to make healthy decisions. The messages can be delivered in print educational materials, through electronic mass media, or in one-to-one counselling.

2.11.2 Perceived Susceptibility: One's opinion of chances of getting a condition. this will help to define the population(s) at risk, their risk levels; personalize risk based on a person's features or behaviour. The perceived susceptibility will be heighten if found to be too low (see appendix I, section D question 35 for details).

2.11.3 Perceived Severity : This concept assesses the level of seriousness of the disease, do they even see hepatitis B as a serious disease or they see it as just a minor disease. Do they see themselves as been susceptible to hepatitis B disease? If yes, they will likely take the vaccine for hepatitis B. If they do not see the see themselves as been susceptible to hepatitis B, they will not take the vaccine even if it is free. This concept will evaluate the opinion of health workers on how serious hepatitis B condition and its sequelae with the specific consequences of the risk and the diseased condition (See appendix I, section C for details).

2.11.4 Perceived Benefits: The health worker's perceived benefits of going for hepatitis B vaccination, do they see any benefit in taking the vaccine, do they think the vaccine can prevent or protect them from contracting hepatitis B. their opinion of the efficacy of the advised action to reduce risk or seriousness of impact. the benefits of taking hepatitis B vaccines includes immunization against the disease, prevention of liver complications, long healthy lives among other benefits.

Define action to take; how, where, when; clarify the positive effects to be expected such as long life free of hepatitis B infection.

2.11.5 Perceived Barriers: This concept will help to understand the constraints towards the uptake of hepatitis B vaccination of health workers, this will also help to understand their opinion of the tangible and a possible psychological costs of taking the advised vaccine (see appendix I, section F question 60).

2.11.6 Action to reduce perceived barriers : this concept will help to Identify and reduce barriers such as the cost of the vaccine, availability of the vaccine, attitude of colleagues in the vaccination centres, institutional policy to support hepatitis B vaccination through campaign, advocacy, subsidization of the vaccine price, reassurance, incentives, assistance and distribution of free hepatitis B vaccine to all state government hospitals.

2.11.7 Cues to Action: These are the strategies needed to activate "readiness" Provide information on how-to get vaccinated against HBV, promote awareness for the

vaccination exercise, reminders to facilitate uptake of hepatitis B vaccines by health care workers, supportive institutional policies such as compulsory routine vaccination for all clinical health workers who have been working for the past six months in the hospital and the provision of free hepatitis B vaccination for all health workers in the hospitals.

2.11.8 Self-Efficacy: This concept help to understand the impact of their knowledge, educational level, their working experience as it relates to their ability to go for hepatitis B vaccination. The information gathered from their self appraisal of capacity and willingness to go for screening was translated as Confidence in one's ability to take action which can be reinforced by Providing training, guidance in performing. Do the the health workers feel capable of going for hepatitis B vaccination, do they feel capable of going for the screening .

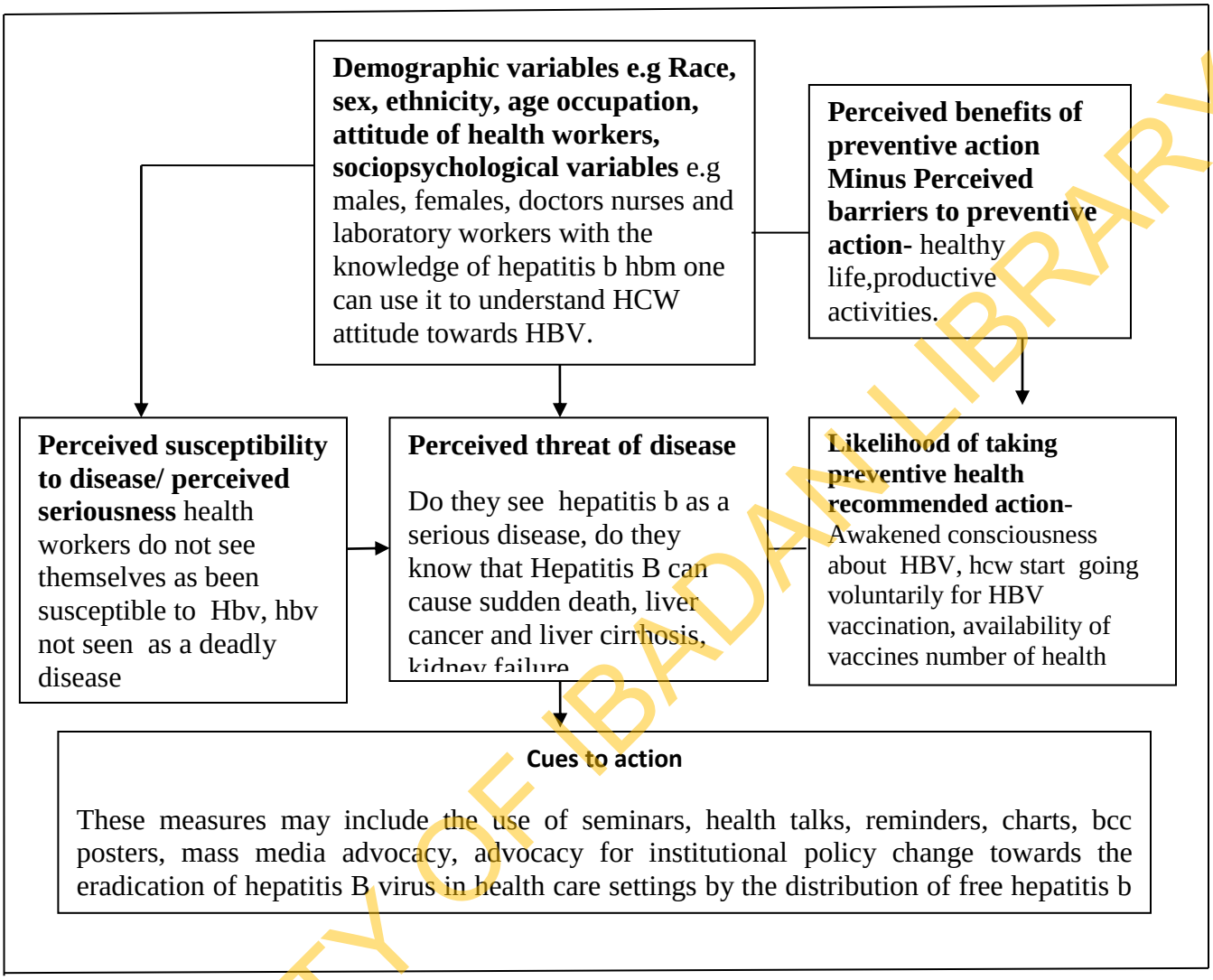
2.11.9Action: This refers to the messages that are suited to health educate health workers towards hepatitis B vaccination for hepatitis B control among health workers in hospitals. this measures may include the use of seminars, health talks, reminders, charts, bcc posters, mass media advocacy, advocacy for institutional policy change towards the eradication of hepatitis B virus in health care settings by the distribution of free hepatitis B vaccines.

Before one will accept a diagnosis of hepatitis B and follow a prescribed treatment regimen, one must believe that one can have the condition without symptoms (is susceptible), that hepatitis can lead to liver cirrhosis and cancer (the severity is great), and that taking prescribed medication or following a recommended vaccination program will reduce the risk (benefits) without negative side effects or excessive difficulty (barriers). Print materials, reminder letters, or pill calendars might promote consistent adherence (cues to action). And if the individual has had a hard time losing weight and keeping it off in the past, a behavioural contracting strategy might be used to establish achievable short-term goals so that his or her confidence can increase (self-efficacy).

The HBM has a "good fit" when the problem behaviour or condition evokes health motivation, since that is its central focus. While HBM concepts also can be stretched to relate to social or economic motivations (for example, greater attractiveness after weight

loss, saving money by quitting smoking), these matters might be better addressed by other theories and models. The application of Hbm to hepatitis B vaccination use among health workers is shown in the figure 1 diagram bellow.

Table 2.1. Application of HBM to the use of hepatitis B vaccination



CHAPTER THREE

METHODOLOGY

This chapter consist of the study design, description of the study area, scope of the study, as well as the inclusion and exclusion criteria, the section also consists of the methods and instruments used for data collection, data analysis including the validity and reliability of the research instruments and ethical considerations.

3.1 Research design

The study is a cross-sectional descriptive survey designed to document the knowledge and perceived susceptibility relating to hepatitis B among health workers in secondary health care facilities in Ibadan North and South West Local Government Areas of Oyo State.

3.2 Variables

3.2.1 Independent Variables:

1. Socio- demographic : Sex, age, religion, education level, ethnicity, designation or status of health care worker.
2. Access to vaccine
3. Uptake of hepatitis B vaccine

3.2.2 Dependent variables

1. Knowledge of the causes of hepatitis B and hepatitis B vaccination
2. Risk perception of health workers towards hepatitis B.
3. Attitude of health workers towards hepatitis B
4. Practices of standard precautions in hospitals
5. Availability of hepatitis B vaccine in hospitals.

3.3 Scope of the study

The scope of this study is limited to health workers from selected secondary government hospitals in Ibadan North and Ibadan South-West Local Government Areas in Oyo state, Nigeria.

3.4 Description of the study area

The study was carried out in Ibadan North and South West Local Government Area located in the city of Ibadan in Oyo State, Nigeria.

Ibadan North local government has an estimated population of 2,550,593 (Federal Government of Nigeria National Population Census, 2006) with 6 health care facilities (Oyo state Ministry Of Health, Hospital Health Records Department March, 2015). There are eleven Local Government Areas located within Ibadan city; Akinyele, Egbeda, Ibadan North-West, Ido, Oluyole, Ona-Ara, Ibadan North-East, Ibadan South-East, Ibadan South-West, Lagelu and Ibadan North. Ibadan North Local Government Area was selected out of the eleven LGAs in Ibadan for the study. The Local Government has 12 wards and was created by the Federal Military Government of Nigeria on September 27th, 1991 from the defunct Ibadan Municipal Council (IMG) along with four others. The LGA covers the area between Bere round about to Gate, Idi-Ape to Bashorun end of Lagos/Ibadan Express way, Secretariat, University of Ibadan and Agbowo area. It is bounded by other local Government Areas; In the North by Akinyele Local Government Area, in the west by Ido, Ibadan South West and also Ibadan South East LGAs. It is bounded in the east by Ibadan North East and Lagelu LGAs. The population of Ibadan North LGA according to the 2006 FGN population census was 306,795 comprising of 153,039 males and 157,756 females. Therefore, the estimated population of health workers in the LGA can be estimated to be 683 (that is 0.22 % 0f 306,795).

Ibadan NLGA has six secondary health care facilities controlled by the state government within its region, this includes: the government house clinic, secretariat staff clinic, Adeoyo Maternity Hospital Yemetu, and Idera-De Clinic and Polytechnic staff clinic, with a total of six hundred and eighty three staffs (683). The tertiary Hospital in the local government is the University College Hospital (UCH) and a secondary facility, University of Ibadan Jaja Clinic controlled by the university of Ibadan management.

3.2.1 Study Area Two

Ibadan South West Local Government Area was carved out of the defunct Ibadan Municipal government(IMG) in 1991. The administrative headquarters is located at

Oluyole Estate, It covers a land mass of 133,000 square kilometers with a population density of 2,401 persons per square kilometer. The 2010 estimated population for the area was projected at 320,536 people using a growth rate of 3.2% from 2006 population census (Federal Government of Nigeria National Population Census, 2006). The local government area is bounded by Ibadan North West and Ido local government areas to the north, Oluyole Local Government to the south, Ido local government area in the West, Ibadan North and South East Local Government in the east. Therefore, the estimated population of health workers in the LGA can be estimated to be 432 (0.14% of 320,536).

Ibadan SWLGA has eight secondary health care facilities controlled by the state government within its region, this includes: Jericho Nursing Home, Ring Road State Hospital, Adeoyo Government Chest Hospital jericho, Cholera unit Jericho, Oni Memorial Hospital, Jericho Specialist Hospital, Maternal and child health unit Apata, Dental Centre Jericho with a total of four hundred and thirty two health workers 432.

3.2.2 Description of the secondary health facilities

The secondary health facility is an institution for health care service delivery typically providing specialised treatment for inpatients (including overnight shifts) stays. Some of these hospitals primarily admit patients suffering from a specific disease or infection , or are reserved for diagnosis and treatment of a condition affecting a specific age group. Other have a mandate that expand beyond offering dominantly curative and rehabilitative care services to include promotional, preventive and educational roles as primary health care approach. Most of these hospitals are funded by the state government. The hospitals have mostly professional doctors, nurses, pharmacist, physiotherapist and other paramedic clinicians. These hospitals has different units and wards, laboratories where tests are done on biological specific samples in order to get information on the health of a patient for use in the blood banks, emergency care centres, emergency obstetric unit, and in some cases,ambulatory surgery centres which serves as a first point of contact with a health professional which provides out patient medical, nursing,dental, and other types of basic care services for the patients.

3.3 Study population

The study population for this study were all consenting health workers (The health team in a hospital consists of doctor, nurses, paramedical professionals, laboratory scientists, laboratory technologists, haematologists and also sanitary workers like hospital attendants and laboratory attendants) in Ibadan North and South West local government health facilities who are always in direct contact with patients and are vulnerable to HBV infection through their involvement in blood transfusion, injection, and surgical operations which has to do with blood thus putting them at a risk of contracting hepatitis B virus.

3.4 Inclusion criteria

For the purpose of this study, all consenting health workers who has been working in the hospital for a period of six months to one year were invited to participate in this study.

3. 5 Exclusion criteria

This study excluded all non medical practitionals in the hospitals, and those who did not give consent (informed dissent) from the study because their voluntary participation was fully respected in the study.

3.6 Sample size calculation

The estimated population of Ibadan North LGA is 306,795 (FGN National Population Census, 2006) and the 2010 estimated population for the area was projected at 320,536 people using agrowth rate of 3.2% from 2006 population census, therefore, the sample size for the study was a total of 384 Health workers which was determined by using Leshe Kish Formula (Araoye 2004).

The prevalence of HBV vaccination coverage among health workers is given as 50% (Ogoina, Pondei, Adetunji, Chima, Isichei, Gidado, 2014).

$$N = \frac{z^2pq}{d^2}$$

Where n= minimum sample size required

Z= confidence limit of survey at 95% (1.96)

d = Level of Precision (0.05) 50% prevalence of hepatitis B vaccination among health care workers. (Ogoina, Pondei, Adetunji, Chima, Isichei, Gidado, 2014).

Where q = 1-p

$$N = \frac{z^2pq}{d^2} \qquad \text{Where } n = \frac{1.96^2 \times 0.5 \times 0.5}{0.5 \times 0.5} = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.0025} = 384.16$$

Applying the Leshe Kish Formula formula above will give a sample size of 384.

However, 10% of the calculated sample size was used for pre-test.

10% of 384 = 38.4 = 38, Thus 38 questionaires were used for pretest

Sample size =384 = 384 questionnaires.

3.7 Sampling Technique

A Multi-stage sampling technique was used in selecting 384 respondents from public secondary health facilities in Ibadan North and Ibadan South West Local Government hospitals in Oyo State.

Stage 1: Eleven Local Governments in Ibadan metropolis were enlisted in the study

Stage 2: A simple random sampling was used to select two from the four with the largest .number of health care workers.

Stage 3: Two Local governments in Ibadan were selected for the study which were Ibadan North and South-West local governments were selected for the study.

List of the health facilities used are :

1. Sectariat Clinic (Ibadan North)
2. Government House Clinic(Ibadan North)
3. Ring Road State Hospital Adeoyo (Ibadan South West)
4. Polytechnic Health Centre (Ibadan North)
5. Idera de Clinic Health is Wealth (Ibadan North)
6. Government Chest Hospital jericho (Ibadan South West)

7. University Health Service Jaja (Ibadan North)
8. Adeoyo Teaching Hospital Yemetu (Ibadan North)
9. Jericho Specialist Hospital (Ibadan South West)
10. Cholera unit Jericho (Ibadan South West)
11. Oni Memorial Hospital (Ibadan South West)
12. Maternal and child health unit Apata (Ibadan South West)
13. Dental Centre Jericho (Ibadan South West)

Stage 4: Proportionate sampling was used to select the number of respondents from each of the secondary health care facilities in the two local governments.

Table 3.1 Sample size calculations and distribution of health workers in different health facilities.

Local Government	Nameof facility	Total no of Health worker	Sample size determination	Number of Resspondents	Percentage (%)
Ibadan North	Government House Clinic	19	19 x 384/1411 = 5	3	0.8
Ibadan North	SectariatClinic	39	39x384/1411 = 11	21	5.5
Ibadan South West	Ring Road State Hospital Adeoyo	200	200x 84/1411 =55	86	22.3
Ibadan North	Polytechnic Health Centre	30	30 x 384/1411=8	12	3.1
Ibadan North	Idera de Clinic Health is Wealth	25	25x 384/1411=6.5	2	3.1
Ibadan South West	Government Chest Hospital jericho	41	41x384/1411=11	8	2.1
Ibadan North	University Health Service Jaja	60	60x384/1411=16	30	7.8
Ibadan North	Adeoyo Teaching Hosital Yemetu	600	600x384/1411= 163	106	27.6
Ibadan South West	Jericho Specialist Hospital	162	162x384/1411=44	54	14.1
Ibadan South West	Cholera unit Jericho	24	24x 384/1411=6.5	6	1.6
Ibadan South West	Oni Memorial Hospital	92	54 x 384/1411=25	30	7.8
Ibadan South West	Maternal and child health unit Apata	58	58 x 384/1411=16	5	1.3
Ibadan South West	Dental Centre Jericho	61	61 x 384/1411=17	11	2.9
Total		1411	384	384	100.0

3.8 Instrument for data collection

This was achieved by the use of self-administered semi-structured questionnaires. The questionnaire was developed using information gotten from literatures on knowledge, attitude, practices and perception of hepatitis B vaccine utilization. The questionnaire was divided into six sections; the first section was designed to collect personal/demographic information of the respondents. The second section assessed informaion on knowledge of hepatis B, the third section was designed to collect information on risk perception of hepatitis B infection and vaccine implementation, the fourth section collect information on the respondents attitude towards hepatitis B virus infection, the fifth section collected information on practices that influences the risk of contracting hepatitis B and the six section was designed to collect information on the level of utilization of Hepatitis B vaccine.

3.9 Validity of the study

A draft of the questionnaire was developed. The questions in the questionnaire which was drawn in English since the study population are health workers and the acceptable language at their level is English language considering their level of education. The questions was formed from information gathered from relevant literatures guided by the research objectives. The instrument was further validated by giving them out to peers and lecturers in the department for review and corrections. Furthermore, the questionaires were given to a professional for translation in to english language and back translation in to yoruba language after which it was giving to another professional to futher remove the inconsistencies in back translation to yoruba languge.

3.10 Reliability of the Instrument

Reliability of the instrument (Questionnaire), was ensured by conducting a pre-test among 38 health workers (10% of 384 sample size) with a draft of the questionnaire to determine its consistency and accuracy, the pre-tested data was administered among thirty eight (38) health workers in Ibadan North East Local Government Area in Oyo State at Sainrt Peter Aremo, which has a similar characteristics with Ibadan North and South West Local Government area and has a large number of health workers.

Furthermore, Cronbach's Alpha Formula was applied to the pre-test data to determine the reliability co-efficient, descriptive statistical analysis were used by running the frequencies of the pretested data in order to ensure that question items were adequate for soliciting desired responses to the variables of interest and to remove ambiguity and misinterpretation and the reliability co-efficient is important because the closer the co-efficient is to 1, the more reliable the instrument is, thus, the reliability coeficient result obtained was 0.745 on SPSS chronbachs alpha.

3.11 Data collection procedure

The questionnaires were serially numbered for control and recall purposes. Two (2) research assistants were trained to administer and retrieve the questionnaires; both research assistants worked in the thirteen identified hospitals. The research assistants were given adequate training on data collection to avoid probable mistakes that may affect the results of the study. The data collection process was carried out over the course of three weeks, September 7th – September 28th from Mondays to Fridays at the various health facilities. The administration of the research instrument lasted for four hours on a typical data collection day as most of the health workers are usually busy.

The researcher provided an adequate supervision to the research assistants on the basic principles of ethics which entails informed consents to be taken from research participants before starting the study, upholding the principle of ethics of respect for persons, beneficence, non maleficience, justice in the recruitment and collecting data, thus, only the consenting health workers were recruited for the study. The data collection process involved the following steps; Identification of necessary gatekeepers such as the consultants at the clinic, the officials in each wards such as matrons in the clinic for formal introduction and to seek for permission to conduct the study. Rapport was established with an eligible respondent after greetings. This was followed by disclosure of the nature and objectives of the study. The possible inconveniences and the potential benefits that maybe involved were also disclosed. Either written informed consent or verbal consent was obtained from the consenting participants.The questionnaires were then administered to the respondents who consent to participate in the study. Finally, after each interview session, the research assistants submitted the filled questionnaires

collected from the field to the researcher who checked the data for completeness and accuracy on a daily basis.

3.12 Data Management and analysis

The following were put in place to ensure proper and effective management of data.

The questionnaires were serially numbered for control and recall purposes.
Two (2) RAs were trained to administer and retrieve the questionnaires; The candidates were fluent in both English and Yoruba Languages. The research assistants submitted the filled questionnaires collected from the field to the researcher who checked the data for completeness and accuracy everyday.

The data were sorted, cleaned, edited and coded manually. Frequency counts were run to detect missing cases during cleaning.
The data analysis were carried out using the Statistical Package for Social Sciences (SPSS) version 20**.** The descriptive analysis such as mean, standard deviation and inferential analysis such as Chi–square was used for data analysis. The questionnaire was stored in a place that safe from destruction by water or fire and where unauthorized person would not have access to them.

The researcher also checked the questionnaire collected by the research assistants to ensure that they are well-filled. A coding guide was developed to facilitate data entry. A correct answer earn one (1) mark while a wrong answer or a non response earns a zero mark.

Each questionnaire was numbered, coded and entered into a computer facilitated by the developed coding guide. The data collected was treated using descriptive statistics such as mean, median and mode and inferential statistics such as chi-square. Analysis was done using SPSS package version package 20. The results obtained from the SPSS analysis was summarized and presented in tables. A 12 point scale was developed to analyse knowledge, based on the following scales: 0-5= poor knowledge, 6-9 fair knowledge, 10-12 good knowledge on hepatitis B mode of transmision. A 7 point scale was used for attitude and perception where 1-4 represents poor perception or attitude

while 5-7 represents a good attitude or good perception of Hbv. The practice scale was attained by using an 18 point practice scale, using the range 1-5 as low risk- healthy practice, 6-11 as a moderate risk- unhealthy practice and 12-18 as a high risk- unhealthy practice on hepatitis B virus prevention (n=384).

3.13 Ethical considerations

The researcher secured an approval from the Ministry of Health Ethics Review Committee before starting the research. (see appendix V for details).

A letter introducing the researcher and the purpose of the research was collected from the department of Health Promotion and Education and then taken to the selected hospitals for permission to carry out the study in the hospitals. The recruitment of respondents was based on their voluntary participation. Written informed consent was attached to the questionnaires to ensure adherence to the principle of ethics and respect for persons. To ensure confidentiality of research participants, names and information that can reveal the identity of research participants was not included in the research instruments and all identifiers was removed from the questionaires. The data that was collected from this study were analyzed and kept in a password-protected computer to ensure confidentiality of the research participants information in line with the principles of ethics on confidentiality of the study participants information.

3.14 Limitation of study

Currently, Oyo State Ministry of Health has no data on the prevalence of hepatitis B vaccination in the state, showing that there is limited knowledge on the disease vaccination coverage. This therefore posed limitation to the study in calculation of the sample size. To solve this, the researcher used an assumed proportion of 0.5, which is 50 %. Another limitation was the unavailability of respondents who did not have enough time to participate in the study as a result of their busy clinical schedule, maternity leave, study leaves therfore these study only interviewd the health workers who were available for the study. The researcher met with the hospital authorities of the selected secondary health facilities to get an internal permision to carry out the study. However, some of the health workers did not consent to participate in the study and they were not forced to

participate in line with the ethical principle of informed consent and respect for persons. One of the important limitations of this study is its reliance on information obtained from the respondents about their vaccination status. Thus, there is a possibility of the respondents overreporting vaccination. However, there is no way to accurately or verify objectively the claims of the respondents.

CHAPTER FOUR

RESULTS

4.1 Demographic Characteristics

Table 4.1 depicts the number of respondents and their sociodemographic characteristics. Majority (79.4%) of the respondents were females, while (20.6%)were males. Less than half (40.8%) of the respondents were less than 30 years of age. One hundred and four (28.2%) were of the 31-41years age group. Others (20.9%), (10.1%) fell into the 41-50 and 51-60 years of age groups respectively. The mean age of respondents was 35.36 ±10.562 years with the minimum age of 18 years and maximum age of 59 years. Most (91.7%) of the respondents were of the Yoruba ethnic group, while (6.8%) were Igbo. Two hundred and sixty nine (70.1%) had university degree, few (10.9%) were National Certificate Examination and Ordinary National Diploma holders, while (8.1%) had Higher National Diploma certificates. Majority of the respondents were of the Christian faith (77.2%), some (22%) were of the Islamic faith while few (0.8%) were of the traditional religion.

Majority of the respondents (60.7%) were married while (39.3%) were single. A little above average (53.9%) of the research participants were Nurses, (14.8%) were medical doctors, few (6.3%) consist of pharmacist, some (4.9%) were medical laboratory scientists, (3.9%) were medical laboratory technician , (3.6%) were Physiotherapists (see table 4.2).

It was observed that the year of practice of the respondents varies with the respondents who had practiced for <10 years =231 (40.8%), 11-20 years of practice 82(28.2%), 21-30 years of practice, 45 (20.9%), 31-40 years of practice, 15 (10.1%) had 11-20 years of practice,the mean year of practice is 9.96 ±9.32 with a maximum year of practice of 39 years, a minimum of 1 year of practice and a median of 6.0 years. This is shown in figure 4.1.

Table 4.1 Table the socio-demographic characteristics of the respondents

Demographic Characteristics	No	%
Sex		
Male	79	20.6
Female	305	79.4
Actual age in years(Age in groups)* (N=368)		
<30	150	40.8
31-40	104	28.2
41-50	77	20.9
51-60	37	10.1
Total	368	100
Ethnicity		
Yoruba	352	91.7
Igbo	26	6.8
Others**	6	1.6
Total	384	100
Highest Level Education (N=384)		
Primary school	2	0.5
Secondary school	12	3.1
NCE and OND	42	10.9
Higher National Diploma	31	8.1
University	269	70.1
Post Graduate and Above	28	7.3
Religion (N=381)		
Christianity	294	77.2
Islam	84	22
Traditional	3	0.8
Marital Status (N=384)		
Married	233	60.7
Single	151	39.3

*Mean=2, Median=2, Range=3 **Edo 3 (0.8) Urobho 2 (0.5) Igala1 (0.3)

Table 4.2: Table showing the respondents' designation or status

Designation/ Status	No	%
Nurse	207	53.9
Medical Doctor	57	14.8
Pharmacist	24	6.3
Medical Laboratory Scientist	19	4.9
Laboratory Technician	15	3.9
Physiotherapist	14	3.6
Hospital Health Attendant	13	3.4
Laboratory Assistant	7	1.8
Health Administrator	5	1.3
Pharmacist Technician	5	1.3
Dental Technologist	5	1.3
Laboratory Attendants	3	0.8
Community Health Officer	2	0.5
Health Information manager	2	0.5
Dental Therapist	2	0.5
Dental Technician	1	0.3
Medical Social Worker	1	0.3
Medical Radiologist	1	0.3
Ward Attendant	1	0.3
Total	384	100.0

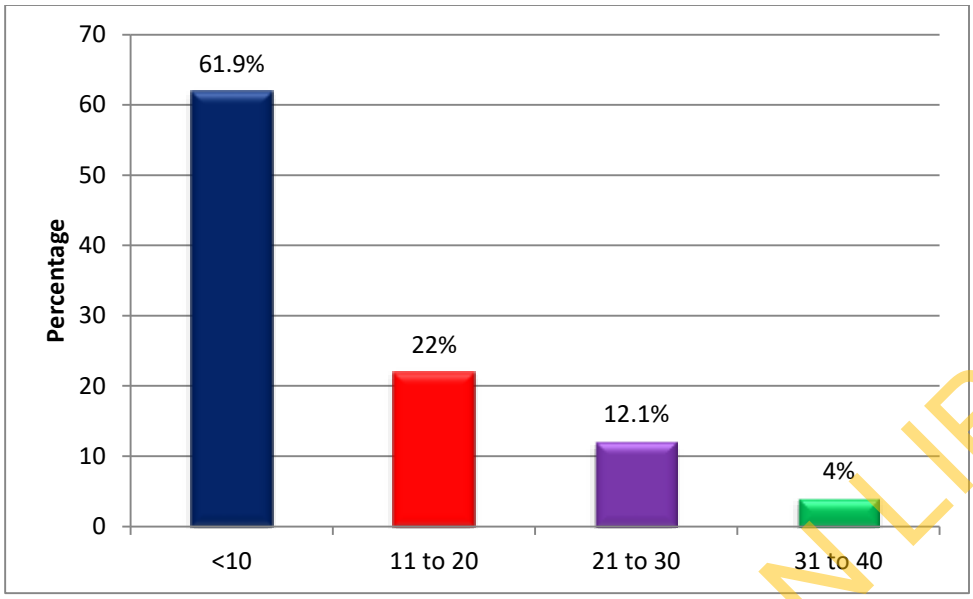


Figure 4.1 Year of practice of respondents in years (N= 373)

4.2 Knowledge of hepatitis B infection

Majority 378 (99.0%) of the respondents said that hepatitis B was caused by a virus, while 4(1.0%) of the respondents said otherwise. Majority 318(83.0%) of the respondents said Hepatitis B is a common disease in Nigeria as against 63(17.0) who said it was not a common disease. Almost all, 370 (97.0%) of the respondent said "Yes, hepatitis B can affect all age groups, while few 13 (3.0%) said "No". Over three quarter of the respondents 345 (90.0%) agreed that hepatitis B can be transmitted through used blades of barbers, pins, lancet, needles and other sharp objects as few 38 (10.0%) who said No. More than half 237 (62%) of the respondents believed hepatitis B cannot be transmitted by polluted water or food while 145 (38.0%) believed it can be transmitted by polluted water. Majority of the respondents 309 (81.0%) believed that HBV can be contracted through unprotected sexual relationships while 72 (19.0%) said No.

Many of the respondents (68.0%) said "Yes, hepatitis B is a curable disease while less than half 121(32.0%) said that the disease is not curable. Majority of the respondents 366 (97.0%) ascertained that HBV has vaccination as against 13(3.0%). Majority, 293 (80.0%) of the health workers said "Yes, that needle stick injury has 10% risk of resulting in to an infection compare to few 74 (20.0%) of the respondents who said "No. Most 227 (62.0%) of the respondents said "Yes, Health worker to patient transmissing of hepatiti b is as common as the reverse situation compare to less than half 142(38.0%) who said "No. Slightly more than half of the respondents 201 (57.0%) said "Yes, hepatitis B infection indicatespresence of a new strain of hepatitis b while 151(43.0%) said No .

A little above one third of the respondents 144 (39.0%) said that HIV carries a greater risk to health workers than getting hepatitis B while more than half of the respondents 227(61.1%) No to the statement. Most 227(61.1%) of the respondents said that hepatitis B core antigen carried no clinical importance while less than half, 148 (39.0%) of the respondents said Yes (see Table 4.3 for details).

More than half 219 (57.0%) of the respondents had a good knowledge on hepatitis B mode of transmition, a little less than half, 159 (49.4%)of the respondents had a fair knowledge about hepatitis B, while few 6 (1.6%) of the respondents had poor knowledge on the hepatitis B infection (As seen in Table 4.4).

Table 4.3 knowledge of the respondents on hepatitis B virus

KNOWLEDGE STATEMENTS	True(%)	False(%)	TOTAL
Hepatitis B is caused by a virus	378(99.0)*	4(1.0)	382 (100)
Hepatitis B is a common disease in Nigeria	318(83.0)*	63(17.0)	381(100)
Hepatitis B can affect all age groups	370(97.0)*	13(3.0)	383 (100)
hepatitis B can be transmitted by used blades of barbers, pins, lancet, needles and other sharp objects	345 (90.0)*	38(10.0)	383(100)
hepatitis B can be transmitted by polluted water or food	145 (38.0)	237 (62)*	382(100)
HBV can be contracted through unprotected sexual relationships	309 (81.0)*	72(19.0)	381(100)
Hepatitis B is a curable disease	255 (68.0)*	121(32.0)	376(100)
Hepatitis B has vaccination	366 (97.0)*	13(3.0)	379(100)
Needle stick injury has 10% risk of resulting in to an infection.	293 (80.0)*	74(20.0)	367(100)
Health worker to patient transmission of HBV is as common as the reverse situation	227 (62.0)	142(38.0)*	369(100)
Hepatitis B infection indicates infection with a new subtype of hepatitis B	201 (57.0)*	151(43.0)	352(100)
HIV carries a greater risk to health workers than getting hepatitis B	144 (39.0)*	230(61.0)	374(100)
Hepatitis B core antigen carries no clinical importance	148(39.0)	227(61.1)*	375(100)

* Indicate correct responses

Table 4.4 Table showing the knowledge category of respondents

Knowledge score*	Frequency (No)	Percentage (%)
Poor Knowledge	6	1.6
Fair Knowledge	159	41.4
Good Knowledge	219	57.0
Total	384	100

*Mean knowledge score =2.6 ± 0.53.

A 12 point scale was developed to analyse knowledge, based on the following scales:

0-5= poor knowledge, 6-9 fair knowledge, 10-12 good knowledge on hepatitis B mode of transmision.

4.3 Relationship between the demographic characteristics and knowledge the respondents.

Ho: TEST OF HYPOTHESES 1

The first hypothesis stated that there is no significant association between the sociodemographic characteristics of the respondents and their respective knowledge scores.

In other to have a clear view of the association between variables, Fisher's exact Test statistics set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the sociodemographic variables with the knowledge scores of the respondents on hepatitis B virus infection.

Most, 42 (53.2%) of the male respondents had a good knowledge on hepatitis B virus, 36(45.5%) had a average knowledge, while 1 (1.3%) had a poor knowledge on hepatitis B virus. Most 177 (58) of the female respondents had a good knowledge on hepatitis B virus, 123 (40.4%) had average knowledge on hepatitis B virus, while 5(1.6%) had a poor knowledge on hepatitis B virus. Therefore, the association between the sex and knowledge scores of the respondents was not statistically significant (X^2=0.76, df =2, p-value=0.781). Therefore, we fail to reject the null hypothesis (Table 4.5).

Most, 85 (56.7) of the respondents within 31-40 years of age has the highest good knowledge, followed by 85 (56.7%) with respondents of <30 years of age with good knowledge, followed by respondents within the age range of 41-50 years of age with 43 (55.8%) of them with good knowledge while 19(51.4%) of those within the age range of 51-60 years who had good knowledge on hepatitis B virus. Therefore, the association between the age and knowledge scores of the respondents was not statistically significant (X^2=3.40, df =6, p-value=0.751). Therefore, we fail to reject the null hypothesis (Table 4.5).

Majority, 10 (71.4%) of the respondents with secondary education had good knowledge, while the some, 6(40%) had a goodd knowledge on hepatitis B virus infection. Therefore, the association between the level of education and knowledge scores of the respondents was not statistically significant (X^2=15.27, df =6, p-value=0.10). Therefore, we fail to reject the null hypothesis (Table 4.5).

Table 4.5A Relationship between demographic characteristics and knowledge of the respondents

Demographic variables	Low Knowledge	Average Knowledge	Good Knowledge	Total	*X^2	D.f	P. value	Null hypothesis
Sex								
Male	1(1.3)	36(45.5)	42(53.2)	79 (100.0)	0.76	2	0.781	Accepted
Female	5 (1.6)	123 (40.4)	177 (58.0)	305 (100)				
Total	6	159	219	384				

Table 4.5 B Relationship between demographic characteristics and knowledge of the respondents

Age in group	Low Knowledge	Average Knowledge	Good Knowledge	Total	*X^2	D.f	P. value	Null hypothesis
<30	3(2)	62(41.3)	85 (56.7)	150 (100.0)	3.40	6	0.751	Accepted
31-40	0(0.0)	42(40.4)	62 (59.6)	104 (100.0)				
41-50	1(1.3)	33(42.9)	43 (55.8)	77 (100.0)				
51-60	1(2.7)	17(45.9)	19 (51.4)	37 (100.0)				

Table 4.5 C Relationship between demographic characteristics and knowledge score the respondents

Highest level of education	Low Knowledge	Average Knowledge	Good Knowledge	Total	*X^2	D.f	P. value	Null hypothesis
Primary	0(0.0)	1(50.0)	1(50.0)	2 (100.0)	15.27	10	0.10	Accepted
Secondary school	0 (0.0)	6 (50.0)	6 (50.0)	12 (100.0)				
NCE	2(4.8)	23 (54.8)	17(40.5)	42 (100.0)				
HND	0(0.0)	17 (54.8)	14(45.2)	31 (100.0)				
BSC	4(1.9)	105 (39.1)	160 (59.0)	269 (100.0)				
Post graduate diploma and above	0 (0.0)	7 (60.0)	21 (40.0)	28 (100.0)				
Total	6	157	219	382				

***Fisher's exact test was used**

4.4 Risk perception of health care workers towards hepatitis B vaccine usage

Majority of the respondents 143(40.7%) were not worried at all about the side effects of the hepatitis B vaccine usage, 104 (29.6%) are worried a lot about the side effects, 84(24.0%) were worried a little, while, 20 (5.7%) were unsure of their perception to their susceptibility to the vaccine side effects (see figure 4.2 for details). Most 47 (56.6%) of the nurses among the respondents were worried a lot about the side effects that will be encountered from Hepatitis-B vaccine usage, follwed by hospital health attendants 7 (6.9%), while the least worried were dental therapist and dental technicians 1(1.0) see table 4.6 for details.

Majority of the respondents 101 (53.7%) said they were worried about the side effects that might be encountered from hepatitis B vaccine use because of complications or death, while 44 (23.4%) respondents said because of the nature of their job, 16(8.5%) said the vaccine is very effective in preventing hepatitis B virus infection, 12(6.4%) said they dont know why they are worried, 12(6.4%) said the vaccine is for the prevention of the disease, while 3(1.6%) of the respondents said that it is a safe vaccine and has no side effects. (Table 4.7).

It was observed that, the perception of the respondents varies, majority of the respondents 322 (84.0%) agrees that hepatitis-B is a highly contagious disease, while 49 (13.0%) disagree with the statement while 11 (3%) are undecided (n=382).

Most, 252 (67%) think that their current sexual behaviour puts you at risk of infection with Hepatitis-B , Some 87 (23%) of the respondents agreed that their current sexual put them at risk, while few 40 (10%) of the respondents were undecided (n=379). Slightly more than half of the respondents 199 (51.8%) perceived that getting tested for Hepatitis-B makes people scared that they may really have the disease, Less than half, 172(44.8%) of the respondents disagreed with the statement, while few, 13 (3.4%) were undecided (n=384).

Majority of the respondents, 336 (87.5%) said that hepatitis B cannot be caused majorly by spiritual attack, 32 (8.3%) agreed that hepatitis-B is caused majorly by spiritual attack, while 16 (4.2%) of the respondents are undecided on the statement (n=384). Most of the respondents, 206 (54.0%) agreed that if they have received hepatitis B vaccine, they

cannot get the disease, 132 (35%) of the respondents disagreed, while 42(11.0%) were undecided whether they can still contract the disease state or not even after receiving the vaccine (n=380).

More than seventy percent of the respondents, 304 (79.4%) disagrees that having more than one sexual partner can reduce the risk of contracting hepatitis B, few, 70 (18.3%) percent of the respondents agreed that having more than one sexual partner can reduce the risk of having hepatitis B infection, while 9 (2.3%) of the respondents were undecided (n=383).

Many, 315(82.0%) of the respondents perceives that hepatitis-B is an important health concern for all, while 51(13.3%) perceives that it is a key area for health concern for all, meanwhile, 18 (4.7%) were undecided (n=384). The details of these explanation are shown in table 4.8 below for details.

It was observed that slightly more than half of the respondents 211 (54.9 %) had a positive perception about hepatitis B viral infection and vaccine usage while 173(45.1%) has negative perception about hepaitis b. The perception scale was obtained by using a perception scale of 7, using the range 1-4 as negative perception and 5-7 as a positive perception on hepatitis B infection and vaccine implementation. With a mean of 1.59±0.49. (n=384). See table 4.9 for details.

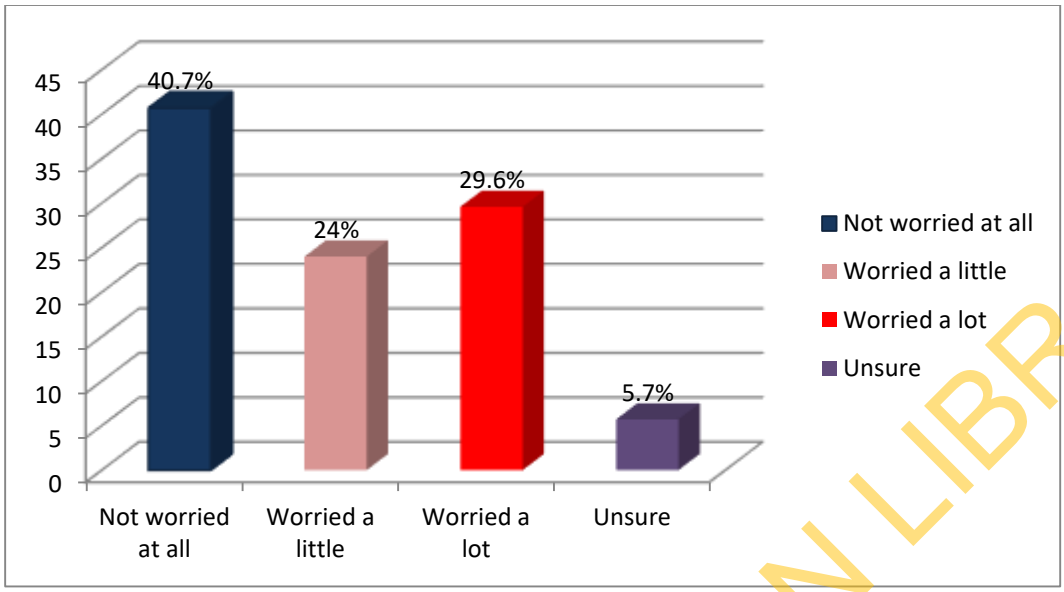


Figure 4.2 Perceived susceptibility of respondents to the side effect that will be encountered from hepatitis B vaccine usage (N=351).

Table: 4.6 Representation of how worried respondents are about the side effects that will be encountered from Hepatitis-B vaccine usage

Designation/ Status	Not worried at all	%	Worried a little	%	Worried alot	%	Not sure	%	Total	%
Doctors and Clinicians	105	42.5	56	22.7	72	29.1	14	5.7	247	72.0
Laboratory staffs	15	40.5	9	24.3	12	32.4	1	2.7	37	10.8
Paramedics	9	47.4	1	5.3	7	36.8	2	10.5	19	5.5
Pharmacists	7	26.9	11	42.3	5	19.2	3	11.5	26	7.6
Total	139	100	83	100	101	100	20	100	343	100

Table 4.7 Reason why the respondents are worried about the side effects that will be encountered from Hepatitis-B vaccine use

N=176

Statement	No	%
Because of complications or death	101	57.4
It is a safe vaccine and has no side effect	3	1.7
The vaccine is very effective is preventing hepatitis B	16	9.1
Because of the nature of our job	44	25.0
It is for the prevention of the disease	12	6.8
Total	176	100.0

Table 4.8 Risk perception of hepatitis-b infection by the research participants

Perception statements	RESPONSE Agree(%)	Disagree(%)	Undecided (%)	TOTAL
Hepatitis-B is a highly contagious disease.	322(84.0)	49(13.0)	11(3.0)	382(100)
Do you think that your current sexual behaviour puts you at risk of infection with Hepatitis-B	87(23.0)	252(67.0)	40(10.0)	379(100)
Getting tested for Hepatitis-B makes people scared that they may really have the disease.	199(51.8)	172(44.8)	13(3.4)	384(100)
Hepatitis-B is caused majorly by spiritual attack	32(8.3)	336(87.5)	16(4.2)	384(100)
If I have received Hepatitis-B vaccine, I cannot get the disease.	206(54.0)	132(35.0)	42(11.0)	380(100)
Having more than one sexual partner can reduce the risk of having Hepatitis B.	70(18.3)	304(79.4)	9(2.3)	383(100)
I do not think hepatitis-B is an important health concern for all	51(13.3)	315(82.0)	18(4.7)	**384**(100)

Table 4.9 Overall distribution of respondents by overall perception category

Variable	No	%
Negative perception	173	45.1
Positive perception	211	54.9
Total	384	100.0

The mean perception score of 1.6±0.49.

*Mean+Sd perception of 1.59±0.49.

Scale 1-4= Negative perception, 5-7 = Positive perception.

4.5 Attitude of health workers towards hepatitis B prevention

Most of the respondents 260 (67.7%) said that hepatitis B is a major health problem in Nigeria, while 124 (32.3%) said that it is not a major problem in Nigeria(n=384). Majority, 281 (73.4%)of the espondents said that they can encourage someone to safely accept blood transfusion when the blood has been screened for Hepatitis virus, while some, 102 (26.6%) of the respondents said that they cannot encourage someone to safely accept blood transfusion even when the blood has been screened for Hepatitis B virus (n=383).

Most, 217 (57.0%) of the respondents believes that they cannot have hepatitis B because they were knowledgeable about it and that they take precautions, while close to half, 165 (43%) of the respondent believed that they can contract the disease (n=382).

Most of the respondents, 201(53.0%) said that a person infected with hepatitis B should not be isolated away from the people to prevent the spread of the infection while less than half, 180 (47.3%) of the respondents said that they prefer a person infected with hepatitis B to be isolated away from the people to prevent the spread of the infection to the populace (n=381). Majority of the respondent 322(84%) said that they have the confidence to ask for ask for screening of blood for hepatitis-B before transfusion to avoid cross contamination, while few, 61(16.0%) of the respondents said that thay cannot ask for screening of blood for Hepatitis B before transfusion (n=383). Majority of the respondents, 357(93%) said that they would like to get vaccinated for hepatitis B while 26(7%) said that they do not want to be vaccinated for hepatitis B (n=383). Majority of the respondents 367(96.6%) also showed their willingness to undergo further test if found possitive for hepatitis B virus, while few, 13 (3.4%) said they would not want further tests or treatments following diagnosis with hepatitis B virus (n=380). see table 4.10 for details.

The attitudinal score of the respondents shows that majority of the respondents 226 (58.9%) have a positive attitude towards hepatitis B prevention and care for the patients while 158 (41.1%) of the respondents had a negative attitude towards hepatitis B prevention and care.

The attitudinal scale was obtained by using an attitudinal scale of one to seven (1- 7), using the range 1-4 as negative attitude and 5-7 as a positive attitude towards the subject (n=384). Please refere to table 4.11 below for further details.

Table 4.10 Health workers attitude towards hepatitis-b prevention

ATTITUDINAL STATEMENT	Yes(%)	No(%)	Total
Hepatitis B is not a major health problem in Nigeria	124 (32.3)	260(67.7)	384 (100)
On the issue of Hepatitis-B, I cannot encourage someone to safely accept blood transfusion even when the blood has been screened for Hepatitis-B.	102 (26.6)	281(73.4)	383 (100)
I cannot have Hepatitis B because I am knowledgeable about it and I take precautions	217 (57.0)	165 (43)	382 (100)
I prefer a person infected with hepatitis B to be isolated away from the people to prevent the spread of the infection	180 (47.3)	201(53.0)	381 (100)
I cannot ask for screening of blood for Hepatitis-B before transfusion	61(16.0)	322 (84)	383(100)
I would like to get vaccinated for hepatitis B	357(93)	26 (7)	383 (100)
If you are found positive for hepatitis B, would you like to have further tests or treatment	367(96.6)	13 (3.4)	380 (100)

Table 4.11 : Overall attitude distribution of the respondents

Atitude	No	%
Negative Attitude	158	41.1
Positive Attitude	226	58.9
Total	384	100.0

*Mean score=1.6±0.5

Scale: 1-4 as negative attitude and 5-7 as a positive attitude

4.6 Practices that influences the risk of contracting Hepatitis B

Most of the respondents 244 (64.7%) said they have you done screening for Hepatitis B Virus before while, Alittle above one third, 126 (33.4%) of the respondents said they have never done screening for Hepatitis B Virus before, while few, 7 (1.9%) said they don't know if they have done the screening test before (n=377).

Almost all of the respondents 244 (92.4%) said that they always for a new syringe before use in the hospital, 18 (6.8%) signified that they do not always for a new syringe before use in the hospital, while very few, 2 (0.8%) of the respondents said that they don't know if they adhere with such practice or not (n=264).

Majority of the respondents 261(68.5%) said that they have not undergone blood transfusion before, while, 112 (29.4%) said they undergone blood transfusion before and the blood was screened. Few, 8 (2.1%) of the respondents said they don't know if they have ever undergone transfusion before or not (n=381).

Most, 205 (53.5%) of the respondents, said they have shared tooth brushes, razors, needles, pins and hair clippers with someone before,while slightly less than half, 177 (46.2%) of the respondents had shared tooth brushes, razors, needles, pins and hair clippers with someone before, while 1(0.3%) said he or she do not know if he or she has ever shared tooth brushes, razors, needles, pins and hair clippers with someone before(n=383).

Majority, 314 (83.7%) of the respondents said that they usually protect their fingers when breaking glass ampoule or injection bottle, while some 54(14.4%) said they do not protect their fingers when breaking glass ampoule or injection bottle and few, 7(1.9%) said they do not know if they protect their fingers when breaking glass ampoule or injection bottle (n=375).

A total of 243(63.8%) said have injected a restless patient before, 132(34.6%) said they have never injected a restless patient before, 6 (1.6)said they do not know (n=381). Most, 228(60.2) of the respondents said they do not currently inject a restless patient, 144(38%) currently inject a restless patient, 7(1.8%)said they do not know if they currently inject a restless patient (n=379).

Above three quarter 320 (85.3%) of the respondents said they protect their fingers when breaking glass ampoule or bottle, while soime, 54(14.4%) said they do not protect their fingers when breaking glass ampoule or bottle, while 1(0.3%) said they do not know (n=375). Majority, 277(73.3%) of the respondents said that they separate needles and syringe from other wastes before disposal, while some 91(24%) said they not separate needles and syringe from other wastes before disposal, 10 (2.7%) said they do not know see table 4.12 for details.

It was observed that majority, 285 (74.1%) of the respondents had an unhealthy practice with moderate risk of contracting hepatitis B viral infection, while 55 (14.1%) had healthy practice with a low risk of contracting hepatitis B viral infection while less than a quarter 44(11.5%) of the respondent had an unhealthy practice with a high risk of contracting hepatitis B virus. The practice scale was attained by using a practice scale of 18, using the range 1-5 unhealthy practice with a low risk of HBV infection and 6-11 as an unhealthy practice with a moderate risk of contracting HBV and 12-18 as an unhealthy practice with a high risk of contracing hepatitis B virus (n=384). Please refere to table 4.13 for further details.

Note: The higher the score, the higher the risk of the disease, the lower the score, the lower the risk of contracting hepatitis B virus (i.e using a direct relationship).

Table 4.12 Practices that influences the risk of contracting hepatitis B

Question /Statement	Yes(%)	No (%)	I don't know(%)	Total(%)
Ever screened for Hepatitis B Virus	244(64.7)	126(33.4)	7(1.9)	377(100)
Always insist for a new syringe before use in the hospital	228(93.5)	14 (5.7)	2(0.8)	244(100)
Ever undergone blood transfusion without screening	112(29.4)	261(68.5)	8(2.1)	381(100)
Ever shared tooth brushes, razors, needles, pins and hair clippers with anyone	177(46.2)	205(53.5)	1(0.3)	383(100)
Protect your fingers when breaking glass ampoule or injection bottle	314(83.7)	54(14.4)	7(1.9)	375(100)
Ever injected a restless patient	243(63.8)	132(34.6)	6(1.6)	381(100)
Currently inject a restless patient	144(38)	228(60.2)	7(1.8)	379(100)
Protect fingers when breaking glass ampoule/bottle	320(85.3)	54(14.4)	1(0.3)	375(100)
Separate needles and syringe from other wastes before disposal	277(73.3)	91(24)	10(2.7)	378(100)

Table 4.13 Overall distribution of respondent by overall practice category

N= 384

Practice	Frequency	Percentage(%)
Low Risk (healthy practice)	55	14.3
Moderate Risk (Unhealthy Practice)	285	74.2
High Risk (Unhealthy Practice)	44	11.5
Total	384	100

Scale: A practice scale of 18, using the range 1-5 unhealthy practice with a low risk of HBV infection and 6-11 as an unhealthy practice with a moderate risk of contracting HBV and 12-18 as an unhealthy practice with a high risk of contracing hepatitis B virus

4.7 Relationship between the sociodemographic characteristic and the practice that influences the risk of hepatitis B infection.

Ho: TEST OF HYPOTHESES 2

The second hypothesis stated that there is no significant association between the sociodemographic characteristics of the respondents and their practices that may influences their risk of contracting hepatitis B infection.

In other to have a clear view of the association between variables, Chisquare Test statistics set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the sociodemographic variables with the practice that influences their risk of contracting hepatitis B infection.

Most, 55(69.6) of the male respondents had a moderate risk perception of hepatitis B virus, 13(16.5) had a high risk perception, while 11(13.9) had a low risk perception of hepatitis B virus infection, most 230(75.4) of the female respondents had a moderate risk perception of hepatitis B virus, while 31(10.2%) had a high risk perception and 44(14.4%) had a a low risk perception of hepatitis B virus infection.Therefore, the association between the sex and total practice score of the respondents was not statistically significant (X^2=2.46, df =2, p-value=0.29). Therefore, we fail to reject the null hypothesis. (Table 4.14).

Most, 181(77.7) of the married respondents had moderate risk practices related to hepatitis B virus infection, some, 26(11.2) had a high risk practices and 26(11.2) had a a low risk practice related to hepatitis B virus infection. Most 104 (68.9%) of the rspondents who were single had a moderate risk practice related to hepatitis B virus infection, 29(19.2) had a a low risk practice related to hepatitis B virus infection and 18(11.9) had a high risk perception of hepatitis B virus infection. Therefore, the association between the marrital status and total practice score of the respondents was statistically significant (X^2=1.15, df =2, p-value=0.07). Therefore, we reject the null hypothesis (Table 4.14).

Table 4.14 Relationship between demographic variable and practice scores of the respondents

Demographic	Low Risk	Moderate Risk	High Risk	Total	X^2	D.f	SD	P-Value	Hypothesis
Sex									
Male	11 (13.9)	55(69.6)	13 (16.5)	79 (100)	2.46	2	0.508	0.29	Accepted
Female	44 (14.4)	230(75.4)	31 (10.2)	305 (100)					
Marrital Status									
Married	26 (11.2)	181(77.7)	26 (11.2)	233 (100)	1.15	2	0.508	0.07	Accepted
Single	29 (19.2)	104(68.9)	18 (11.9)	151 (100)					

4.8 Relationship between demographics and the number of respondents who have done screening for Hepatitis B virus

Ho: Test of hypotheses 3

The third hypothesis stated that there is no significant association between the sociodemographic status of the respondents and their hepatitis B screening status In other to have a clear view of the association between variables, Chisquare Test statistics set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the sociodemographic status of the respondents and their hepatitis B screening status. Majority of the respondents 196 (65.1%) of the females population have done screening for hepatitis B virus compare to 48 (62.4%) of the males population who said that they have done screening for hepatitis B virus, however, there is no significant relationship between the sex of the respondents and undergoing screening for Hepatitis B virus (p≥ 0.05). Therefore, the association between the sex of the respondents and their hepatitis B screening status was found not to be statistically significant (X^2=6.21, df =1, p-value=0.65). Therefore, we fail to reject the null hypothesis (Table 4.15A).

Majority of the respondents 160 (69.6) who were married population have done screening for hepatitis B virus compare to 84 (56.7%) of the respondents who were still single of the males population who said that they have done screening for hepatitis B virus, however, there is no significant relationship between the sex of the respondents and undergoing screening for Hepatitis B virus (p≥ 0.05)**.** Therefore, the association between the marrital status of the respondents and their hepatitis B screening status was found not to be statistically significant (X^2=6.45, df =1, p-value=0.11). Therefore, we fail to reject the null hypothesis (Table 4.15A). Majority, 82(58.2) of the respondents who were within the age range of<30 years have done screening for hepatitis B virus compare to 79 (76.7) of the respondents who were within the age range of 30-41 years who said that they have done screening for hepatitis B virus, 52(68.4) of the respondents who were within the age range of 40-50 years population have done screening for hepatitis B virus compare to 21(58.3) of the respondents who were within the age range of 50-60 years who said that they have done screening for hepatitis B (p≤ 0.05) virus**.** Therefore, the association

between the age of the respondents and their hepatitis B screening status was found to be statistically significant (X^2=13.14, df =3, p-value=0.04). Therefore, we reject the null hypothesis (Table 4.15A). In other to have a clear view of the association between the variables below, Fisher's Exact Test set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the socio-demographic characteristics with their hepatitis B screening status.

Most, 175 (67.6%) of the respondents who had a university education had done screening for hepatitis B virus compare to 17 (68%) of the respondents who were had a post graduate education said that they had done screening for hepatitis B virus, 20 (64.5%) of the respondents who had higher national diploma have done screening for hepatitis B virus compare to 27(64.3%) of the respondents who had Nce and Ond certificates said that they had done screening for hepatitis B compare to 3 (25%) of the respondents who had a secondary school leaving certificates said that they had done screening for hepatitis B virus ($p \leq 0.05$). Therefore, the association between the level of education of the respondents and their hepatitis B screening status was found to be statistically significant (X^2=*9.87*, df =5, p-value=0.06). Therefore, the null hypothesis is rejected(Table 4.15B).

Most, 190 (65.7%) of the respondents were Christians had done screening for hepatitis B virus while, 50 (60.2%) of the respondents were of the Islamic faith said that they had done screening for hepatitis B virus, while, 1 (33.3%) of the respondents who were of the traditional religion said that they had done screening for hepatitis B virus ($p \leq 0.05$). Therefore, the association between the religion of the respondents and their hepatitis B screening status was found to be statistically significant (X^2=*2.93*, df =3, p-value=0.36). Therefore, we reject the null hypothesis (Table 4.15B). Most, 225(66.2%) of the respondents were Yoruba had done screening for hepatitis B virus while, 15(60%) of the respondents were Igbo said that they had done screening for hepatitis B virus, while, 2(66.7%) of the respondents who were Edo said that they had done screening for hepatitis B virus, while, 1(50%) of the respondents were Urogbo, 1(100%) were Igala ($p \leq 0.05$).Therefore, the association between the ethnicity of the respondents and their hepatitis B screening status was found to be statistically significant (X^2=*1.30*, df =4, p-value=0.88). Therefore, we reject the null hypothesis (Table 4.15B).

Table 4.15A Relationship between demographics and the number of respondents who have done screening for Hepatitis B virus

Demographics	Ever tested for hepatitis B virus before			X^2	Df	P value	Null hypothesis
	Yes (%)	No (%)	Total (%)				
Sex							
Male	48(62.4)	29(37.6)	77(100)	0.21	1	0.65	Accepted
Female	196(65.1)	105(34.9)	301(100)				
Marrital status	**Yes**	**No**	**Total**				
Married	160(69.6)	70(30.4)	230(100)	6.45	1	0.11	Accepted
Single	84(56.7)	64(43.2)	148(100)				
Age in groups	**Yes**	**No**	**Total**				
<30	82(58.2)	59(41.8)	141(100)	13.14	3	0.04	Rejected
31-40	79(76.7)	24(23.3)	103(100)				
41-50	52(68.4)	24(31.6)	76(100)				
51-60	21(58.3)	15(41.7)	36(100)				

Table 4.15B Relationship between demographics and the number of respondents who have done screening for hepatitis B virus

Demographics	Ever tested for hepatitis B virus before			*X^2	Df	P value	Null hypothesis
	Yes (%)	No (%)	Total (%)				
Highest level of Education	**Yes(%)**	**No(%)**	**Total (%)**	***X^2**	**Df**	**P value**	**Null hypothesis**
Primary school	2(100.0)	0(0.0)	2(100.0)	9.87	5	0.06	Accepted
Secondary School	3(25.0)	9(75.0)	12(100.0)				
NCE and OND	27(64.3)	15(35.7)	42(100.0)				
Higher National Diplomal	20(64.5)	11(35.5)	31(100.0)				
University	175(67.6)	84(32.6)	259(100.0)				
Post Graduate and Above	17(68.0)	8(32.0)	25(100.0)				
Religion	**Yes(%)**	**No(%)**	**Total(%)**				
Christianity	190(65.7)	99(34.3)	289(100.0)	2.93	3	0.36	Accepted
Islam	50(60.2)	33(39.8)	83(100.0)				
Traditional	1(33.3)	2(66.7)	3(100.0)				
Ethnicity	**Yes(%)**	**No(%)**	**Total(%)**				
Yoruba	225(66.2)	115(33.8)	340(100.0)	1.30	4	0.88	Accepted
Igbo	15(60.0)	10(40.0)	25(100.0)				
Edo	2(66.7)	1(33.3)	3(100.0)				
Urogbo	1(50.0)	1(50.0)	2(100.0)				
Igala	1(100.0)	0(0.0)	1(100.0)				

***Fishers Exact test**

4.9 Practice that can increase the respondents' risk of contracting hepatitis B virus

Most, 161(43.3%) of the respondents said that have recapped, detached needle from syringe or manipulate needles used for hepatitis B patients (bending, breaking needles), 211(56.7%) said they have not recapped, detached needle from syringe or manipulate needles used for hepatitis B patients (bending, breaking needles) (n=372). Majority, 255 (69.5%) of the respondents do not currently Recap, detach needle from syringe or manipulate needles (bending, breaking needles) used for hepatitis B patients, while smoe, 112 (30.5%) said that currently recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients. see table 4.16 for details.

A total of 248(65.3%) of the respondents said that they recap needle from syringe after use, 131(34.4) said they always recap needle from syringe after use, 1(0.3%) said they never recap needle from syringe after use (n=380). Majority of the respondents 300 (79.4%) said that they sometimes manipulate needles, 76(20.1%) said they always manipulate needles, 2(0.5%) said they never manipulate needles (n=378). Many of the respondents, 291 (76.7%) said they sometimes bend needles, 87(23.0%) said they always bend needles, 1 (0.3%) never bend needles (n=379). Most of the respondents, 331 (87.6%) said that they sometimes break needles with their hands, 46 (12.1%) said they always break needles with their hand after use, 1(0.3%) said they never break needles with their hands after use (n=378) see table 4.17 for details.

A total of 279(75.5%), have not recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months, while 66 (18%) of the respondents said that they have recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months, while 24 (6.5%) of the respondents said they do not know if have recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months. (see table 4.18 for details). Half, 178(50%) of the respondents, have accidentally pierced themselves before, while 178(50%) said they have never accidentally pierced themselves before (n=356) see the table 4.19 bellow for details.

Majority of the respondents 80(45%) said they took post exposure prophylaxis and tested the patient 51(28.6%) said they washed their hands under running water and applied antiseptic lotion and menthylated spirit and jik solution to the pierced site, 17(9.6%) said they did nothing 10 (5.6%) said they cleaned it with cotton wool , spirit gentile violent or alcohol solution, 7(3.9%) after they were accidentally pierced by needle stick and 6(3.4 %) said they did nothing about it.(n=178) see table 4.20

Majority of the respondents 133 (35.2%) said they never made use of water proof gowns, 128 (33.9%) they sometimes made use of water proof gowns, 117 (30.9%) said they always make use of water proof gowns in the hospitals. Many of the respondents 185 (48.7%) said they always make use double gloving and visors, 127(33.4%) of the respondents said that they sometimes use double gloving and visors, 68 (17.9%) (n=380). many of the respondents 177 (46.5%) said they always make use of single surgical gloves during operations, 148 (38.8%) never make use of make use of single surgical gloves during operations, while 56(14.7%) said that they sometimes make use of single surgical gloves during operations.(n=381). More than half of the respondents, 214 (56.0%) said that they always make use single surgical gloves when attending to patients, 93 (24.4%) said they sometimes 14 (56.0%) said that they always, while 75 (19.6) said that they never make use single surgical gloves when attending to patients(n=382) see table 4.21 for details.

Table 4.16 Practices of recapping needle

Statement	Yes(%)	No(%)	Total(%)
Ever recapped, detached needle from syringe or manipulate needles used for hepatitis B patients (bending, breaking)	161(43.3)	211(56.7)	372(100)
Currently recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients	112(30.5)	255(69.5)	367(100)

Table 4.17 Respondents Hepatitis B related risk practices

Statement	Always (%)	Sometimes (%)	Never (%)	Total
Recap needle from syringe after use	131(34.4)	248(65.3)	1(0.3)	380(100)
Manipulate needles	76 (20.1)	300(79.4)	2(0.5)	378(100)
Bending of needle	87 (23.0)	291(76.7)	1(0.3)	379(100)
Break needles with your hand after use	46 (12.1)	331(87.6)	1(0.3)	378(100)

Table 4.18 Respondents practices of recapping, detaching needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months

Statement	Yes (%)	No (%)	I don't know %)	Total (%)
Have you Recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months	66(18%)	279(75.5%)	24(6.5%)	369

Table 4.19 Accidental needle stick piercing and injuries among respondents

Statement	Yes (%)	No (%)	Total
Have you accidentally pierced yourself before	178(50)	178(50)	356

Table 4.20 Post-accidental piercing practices of respondents

VARIABLE	No	%
I took post exposure prophylaxis and tested the patient	80	45
I washed under running water and applied antiseptic lotion and menthylated spirit and jik	51	28.6
I did nothing	17	9.6
I cleaned it with cotton wool , spirit gentile violent or alcohol	10	5.6
I pressed out the blood	7	3.9
I covered it with cotton wool and plastered it.	7	3.9
Non response	6	3.4
Total	178	100

Table 4.21 How often respondents used the following barrier methods

Barrier Method Used	Never (%)	Always (%)	Sometimes (%)	Total
Use of water proof gowns	133 (35.2)	117 (30.9)	128 (33.9)	378 (100)
Use double gloving and visors	68 (17.9)	185 (48.7)	127(33.4)	380 (100)
Use single surgical gloves during operations	148 (38.8)	177 (46.5)	56 (14.7)	381 (100)
Use single surgical gloves when attending to patients.	75 (19.6)	214 (56.0)	93 (24.4)	382 (100)

4.10 Level of utilization of hepatitis B vaccine by the respondents in the various health facilities.

Most of the respondents 222 (58%) said they have used hepatitis B vaccine before, 145 (38%) said they have not used the vaccine before, 16(4%) said they do not know if they have used the vaccine before (n=383).

Majority of the respondents 244 (64%) said they do not use hepatitis B vaccine often, while 125 (33%) said they often use hepatitis B vaccine,12 (3%)do not know if they often use hepatitis B vaccine (n=381).

Majority of the respondents 225(58.9%) said that hepatitis B vaccine readily available for use at the hospital, 93(24.3%) said they do not know if it is available at the hospital, while64(16.8%) said that it is not readily available at the hospital (n=382).

More than half of the respondents 218 (57.2%) said that the cost of the vaccine affordable to them, 91 (23.9 %) said they do not know, 72(18.9%) said the cost is not affordable to them.

Many of the respondents, 256(67.2%) said that hepatitis B vaccination is offered in their hospital, 79(20.7%) said it is not offered in their hospital, while 46 (12.1%)said that they do not know if it is offered in their hospital (381).

Most of the respondent, 222(57.9%) have you ever sought out hepatitis B vaccine on their own 146(38.2%) said that they have sought out hepatitis B vaccine on their own, 15 (3.9%) said that they do not know if they have sought out hepatitis B vaccine on their own before (n=383) see table 4.22 for details.

From this table, it was shown that respondents with less than ten years of practice had the least uptake of hepatitis B vaccine (31%), while respondents with 21-30 years of practice had the highest usage of the hepatitis B vaccine (37.8%) see table 4.23 for details.

Table 4.22: Level of utilization of Hepatitis B vaccine by the respondents in the various health facilities.

Statement	Yes (%)	No (%)	I don't know (%)	Total
Ever being vaccinated with hepatitis B vaccine before	222 (58)	145 (38)	16 (4)	383(100)
Currently have a schedule use hepatitis B vaccine	125 (33)	244 (64)	12 (3)	381(100)
Is hepatitis B vaccine readily available at your hospital	225(58.9)	64(16.8)	93(24.3)	382(100)
Cost of the vaccine affordable to you	218(57.2)	72(18.9)	91 (23.9)	381(100)
Hepatitis B vaccination offered in your hospital	256(67.2)	79(20.7)	46 (12.1)	381(100)
Ever sought out hepatitis B vaccine on your own	146(38.2)	222(57.9)	15 (3.9)	383(100)

Table 4.23 How often respondent use hepatitis B vaccine and the Years of practice

Vaccine Use	Year of Practice in years				
	<10	**11-20**	**21-30**	**31-40**	**Total**
Yes	71(31.1%)	26(31.7%)	17(37.8%)	5(33.3%)	119
NO	157(68.9%)	56(68.3%)	28(62.2%)	10(66.7%)	239
Total	228(100%)	82(100%)	45(100%)	15(100%)	370

4.11 Relationship between knowledge and practice score of the respondents

Ho: TEST OF HYPOTHESES 4

The fourth hypothesis stated that there would be no significant association between the respondents knowledge of hepatitis B and the practices that influences their risk of contracting hepatitis B infection.

In other to have a clear view of the association between variables, Chisquare Test statistics set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the knowledge with the practice that influences their risk of contracting hepatitis B infection.

Six (2.2%) of the respondents with poor knowledge engaged in unhealthy practices which exposed them to the risk of contracting HBV while none engaged in healthy practices. More than one-third (40.5%) of the respondents who had fair knoweldge about HBV engaged in unhealthy practices while 57.3% with good knowledge also enagaged in unhealthy practices (Table 4.24). Therefore, the association between knowledge and the practice that influences their risk of contracting hepatitis B infection was not statistically significant (X^2=2.61, df =12, p-value=0.27). Therefore, we fail to reject the null hypothesis (Table 4.24).

Table 4.24 Relationship between knowledge and total practice

*Total Knowledge Group	*Unhealthy practice	*Healthy practice	Total	X^2	d.f	P-value	Null Hypothsis
Poor Knowledge (0-5)	6(2.2%)	0(0.0%)	6	2.61	12	0.27	Accepted
Fair Knowledge (6-9)	111 (40.5%)	48 (43.6%)	159				
Good Knowledge (10-12)	157 (57.3%)	62 (56.4%)	219				
Total	274 (100%)	110 (100%)	384				

*Knowledge sScale: 1-5=poor knowledge, 6-9 fair knowledge, 10-12 good knowledge

*Practice scale: A practice scale of 18, using the range 1-5 unhealthy practice with a low risk of HBV infection and 6-11 as an unhealthy practice with a moderate risk of contracting HBV and 12-18 as an unhealthy practice with a high risk of contracing hepatitis B virus

4.12 Relationship between sociodemographic characteristics of the respondent and Hepatitis B vaccine utilisation.

Ho: TEST OF HYPOTHESES 5

The fifth hypothesis stated that there would be no significant association between demographic characteristics of the respondents and their hepatitis B vaccine utilisation status.

In other to have a clear analysis of the association between variables, Chisquare Test statistics set at p-value < 0.05 was used to ascertain the true association of all the variables being considered in the socio-demographic characteristics with hepatitis B vaccine utilisation of the health workers.

Of the 79 male and 304 female interviewed, 40 (50.6%) of the male had used hepatitis B vaccine before and 39 (49.4%) had not used hepatitis B vaccine before, while 182 (59.9%) of the female had used hepatitis B vaccine before and 122 (40.1%) had not used hepatitis B vaccine before,. Therefore, the association between sex and hepatitis B vaccine utilisation there was not statistically significant (X^2=2.20, df =1, p-value=0.14). Therefore, we fail to reject the null hypothesis (Table 4.25A).

Majority, 139(60%) of the 233 respondents who were married had used hepatitis B vaccine before while 94(40%) had not used hepatitis B vaccine before, while 83(55.3%) of the respondents who were single had used hepatitis B vaccine before 67(44.7) had not used hepatitis B vaccine.

Respondents between the ages of <30 years were found to have the highest hepatitis B vaccine usage with 82(55.8%), while 67(45.6) had not used hepatitis B vaccine before, followed by those in ages group 31-40 years with 72(69.2%) who said they had used hepatitis B vaccine before, while 32(30.8) had not used hepatitis B vaccine before, followed by those in ages group 41-50 years with 36(46.8%) had used hepatitis B vaccine before 41(53.2%) had not used hepatitis B vaccine before, while those in age group 51-60 years with 22(59.5%) had used hepatitis B vaccine before, while 15(40.5) had not used hepatitis B vaccine before.Therefore, the association between ages of the respondents and their uptake of hepatitis B vaccine was found to be statistically

significant (X^2=9.93, df =3, p-value=0.02). Therefore, we reject the null hypothesis (Table 4.25A).

Respondents with university education were found to have the highest rate of vaccine usage 153(57.1%) who had used the vaccine were 115(42.9%) had not used hepatitis B vaccine before, followed by Nce and Ond certificate holders 24(57.1%) had used hepatitis B vaccine before, while 18(58.1%) had not used hepatitis B vaccine before, followed by postgraduate holders with 22(78.6%) who had used hepatitis B vaccine before and 6(21.4) had not used hepatitis B vaccine, amog those with higher national diploma, 18(58.1) had used the vaccine while 13 (41.9%) had not used hepatitis B vaccine before, while among secondary school certificate holders, 3(25%) who had used the vaccine before while, 9 (75%) had not used hepatitis B vaccine before, while among those with Primary education 2(100%) had used hepatitis B vaccine before and 0(0) had not used hepatitis B vaccine before, The association between level of education of the respondents and attitude towards the u their uptake of hepatitis B vaccine was found to be statistically significant (X^2=11.77, df =5, p-value=0.04).

Nurses were found to had the highest level of hepatitis B vaccine usage with majority, 13(65.5) while 71(34.5) had not used hepatitis B vaccine before, followed by medical doctors with 13(54.2%) who had used hepatitis B vaccine before while 17(29.8%) had not used hepatitis B vaccine before, followed by pharmacists with 11(45.8%) who had used hepatitis B vaccine, while 40 (70.2%) had not used hepatitis B vaccine before, the lowest was Medical Social worker 0(0%) had used hepatitis B vaccine while 0(100%) had not used hepatitis B vaccine before. Therefore, the association between the designation of the respondents and their uptake of hepatitis B vaccine was found to be statistically significant (X^2=45.22, df =18, p-value=0.00) As shown in table 4.25B.

Respondents with >10 years practice had the highest frequency of HBV vaccine usage 71 (31.1%), follwed by those with 11-20 years experience 26(31.7%). However, the relationship between the frequency of hepatitis B vaccine usage and the respondents year of practice was found to be statistically insignificant (X^2=45.22, df =18, p-value=0.77) As shown in table 4.25C.

Table 4.25 Relationship between sociodemographic characteristics of the respondent and hepatitis B vaccine utilisation.

Demographics	Ever used hepatitis B vaccine before			X^2	df	P-value	Null hypothesis
	Yes (%)	No (%)	Total (%)				
Sex							
Male	40(50.6)	39(49.4)	79(100.0)	2.20	1	0.14	Accepted
Female	182(59.9)	122(40.1)	304(100.0)				
Marital Status							
Married	139(60.0)	94(40.0)	233(100.0)	0.70	1	0.40	Accepted
Single	83(55.3)	67(44.7)	150(100.0)				
Age in groups							
<30	82(55.8)	67(45.6)	147(100.0)	9.93	3	0.02	Rejected
31-40	72(69.2)	32(30.8)	104(100.0)				
41-50	36(46.8)	41(53.2)	77(100.0)				
51-60	22(59.5)	15(40.5)	37(100.0)				
Highest Level of Education							
Primary	2(100.0)	0(0.0)	2(100.0)	11.8	5	0.04	Rejected
Secondary	3(25.0)	9(75.0)	12(100.0)				
Nce and Ond	24(57.1)	18(42.9)	42(100.0)				
Higher National Diploma	18(58.1)	13(41.9)	31(100.0)				
University	153(57.1)	115(42.9)	268(100.0)				
Post-gradute and Above	22(78.6)	6(21.4)	28 (100.0)				
Designation							
DRs and Clinicians	179(66.1)	92(33.9)	271(100.0)	45.2	18	0.00	Rejected
Lab.Staff	22(32.4)	46(67.6)	68(100.0)				
Pharmacist Staff	14(48.3)	15(51.7)	29(100.0)				
Paramedics	6(37.6)	10(62.4)	16(100.0)				
Other Staffs	1(0.0)	7(100.0)	8(100.0)				
Total	222	161	384				
Year of practice							
< 10 Years	71(31.1)	157(68.9)	228(100)	0.77	3	0.85	Rejected
11-20 Years	26(31.7)	56(68.3)	82(100)				
21-30 Years	17(37.8)	28(62.2)	45(100)				
31-40 Years	5(33.3)	10(66.7)	15(100)				

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Socio-demographic characteristics of the respondents.

This study shows that most of the respondents were females, this is similar to the findings of the study conducted by Okwara, Enwere, Diwe, Azike and Chukwulebe (2012) most of the respondents were also female. Most of the respondents were married and this was also similar to that of the study conducted by Adebamowo, Odukogbe and Ajuwon (1998). Their ages range from 18 years to 59 years with those whose ages were less than 30 years of age constituting the largest group and those with the least representation are those with ages 51-60 years of age. This study also showed that the years of practice of the respondents varies with the mean practice year of 9.96±9.32years. This result is in line with the results of the study conducted by Koria & Lala, (2012).

5.2 Knowledge of Hepatitis B

Majority of the respondents had good knowledge of hepatitis B and this could be affiliated to the fact that all of the respondents were health workers and they had residual knowledge about HBV. Majority of the respondents agreed that Hepatitis B is a common disease in Nigeria and this was also supported by Musa, Bussel, Borodo, SamaliaFemi (2015). This study also found out that majority of the respondents were familiar with the routes of transmission of HBV; the routes were through contacts with infected blades of barbers, unprotected intercourse, pins, lancet, needles and other sharp objects. This findings was similar with the study conducted by Ugbebor, Aigbirior,Osazuwa, Enabudoso, and Omorogbe 2011. However, few of the respondents were not aware of the routes of transmission of HBV which indicated a significant problem in the health sector (Oyewusi, 2015).

The level of knowledge about HBV was better among respondents with higher educational level irrespective of their departments. This could be because of their level of exposure and experiences within the health sector which broaden their knowledge base in respect to HBV. (Okwara, Enwere, Diwe, Azike and Chukwulebe, 2012). Despite their

relatively high level of education, and the advanced level of knowledge about the modes of transmission of the pathogens, there were great disparities among health practitioners in attitudes and practices of health workers (Koria and Lala, 2012). This study also discovered that majority of the respondents accertained that the hepatitis B core antigen carried no clinical importance. This is contrary to the study conducted by Ning, Zhang, Chen, Feng, Xu, Chen, Liu, Chen, Liu (2012) where it was stated that the hepatitis B core antigene is the viral particle responsible for an active viral replication which means that an infected person can infect others with the virus thus it carries a great clinical importance.

5.3 Risk perception of heaptitis-b infection and HBV vaccine implementation

It was observed that slightly more than half of the respondents had a good perception about hepatitis B infection and its vaccine usage since routine HBV vaccine was not offered to HCWs in study sites, it is plausible that younger HCWs had poorer vaccine uptake probably due to their lower access to HBV vaccine or poorer knowledge of the need for HBV vaccination. (Ogoina , Pondei and Adetunji 2014).

The result of this study also indicated that the senior cadres of HCWs with more years of professional experience were more likely to complete HBV vaccination. The motivation for such maybe; access to vaccines, cost implications, and risk perception are some variables proposed to determine vaccine completion rates by the health workers this result however contradicts the findings of the research done by (Ogoina, Pondei, Adetunji, Chima and Isichei,Gidado, 2014).

5.4 Perceived susceptibility towards Hepatitis B

Majority, 252(67%) of the respondent believed that their current sexual behaviour does not put them at risk of HBVinfection, similarly, most of the respondents believed that they cannot have Hepatitis B virus because they are knowledgible about it thus they have a very low percieved susceptibility to the disease despite their high knowlege on HBV thus, this can affect their Hepatitis B vaccination uptake as the perception of one's susceptibility can on the long run affect screening behavior. Other reasons given for not

undergoing the screening test include fear of pain, fear of outcome of the test and lack of awareness. The findings of these study contradicts the research conducted by Ziraba, Bwogi, Namale, Wainaina and Mayanja-Kizza 2010 among health workers in Uganda where 60% of the respondents belived they are susceptible to HBV infection, thus the need for vaccination to protect their health.

5.5 Perceived severity of Hepatitis B virus.

Majority, 322(84%) of the respondents belives that Hepatitis B is a highly contagious disease this is similar to the result of the study conducted by Kesieme E. B., Uwakwe K., Irekpita E., Dongo A., Bwala K.J, and Alegbeleye B.J. 2011).

5.6 Perceived benefits of Hepatitis B virus.

The benefits of the vaccination include a reduction in sick leaves related to Hepatitis B infections, vaccination of the staffs, increased access to vaccine, reduced risk of infections and cross contaminations to both patients and HCWs, thus with this knowledge, one might view vaccination as important through an increased percieved benefits and decrease in barriers to vaccine uptake as a late vaccination may reduced the cost effective benefit of HBV vaccine in the respondents therefore an early vaccination is critical to the success of HBV vaccination uptake (Daboer J.C, Chingle M.P, and Banwat M.E. 2010).

5.7 Perceived barriers to Hepatitis B vaccine uptake.

The results of this study shows that, more than half, 225 (57.2%) of the respondents see the high cost of the vaccine as a major barrier, while most,256(67.2%) of the respondents view the non availability of the vaccine as a major barrier towards their uptake of the vaccine. Other identified factors are inadequate level of awareness and negative attitudes were the main reasons for refusal for the uptake of hepatitis B vaccine by health care workers in a vaccination programme against hepatitis B virus. It was also observed that slightly above three quarter 146 (38.2%) of the respondents has sought out the HBV vaccine on their own before, which points to a low level of awareness of the vaccination program ammong health care workers. Studies have shown that, the acceptance of

hepatitis B vaccine has been found to be strongly related to social influence (physicians, supervisors, role models, friends, and spouse) and knowledge of the disease and vaccine whereas refusal has been found to be primarily related to concern about vaccine side effects and problems with vaccine access (Doebbeling B. N., Ferguson K. J., and. Kohout F. J, 1996).

5.8 Attitude towards Hepatits B prevention

The attitudinal score of the respondents shows that majority of the respondents 226 (58.9%) have a good attitude towards hepatitis B prevention during care for the patients but their practices of hepatitis B vaccination uptake and the consistent use of standard precaution is low (Samuel, Aderibigbe, Salami, & Babatunde, 2009), (Adebamowo.; Odukogbe and ;Ajuwon, etal 1998). Most of them had a good knowledge of blood as a medium of infection but lacked adequate vaccine coverage. HBV could be transmitted through many other routes, and inadequate knowledge of HBV among health workers may reflect their behavioural pattern to vaccination and safety measures. (Adekanle, Ndububa and Olowookere, etal , 2015). Kamolratanakul et al. found out that lack of knowledge and negative attitudes were the main reasons for refusal, in a vaccination programme against hepatitis Bvirus. These were found to improve significantly after the dissemination of information, with acceptance rates increasing from 56.9% to 77.7% . (Kamolratanakul, P. Ungtavorn, S. Israsena, and Sakul- rarnrung .R 1994).

5.9 Practices that influences the risk of contracting Hepatitis B virus

It was observed that more than half of the respondents has a poor practice of standard precaution that may influence the risk of contracting hepatitis B viral infection through needle recap and manipulations.

The risk of non-percutaneous exposure may account for a significant proportion of HBV transmission in the healthcare setting. Hepatitis B virus can survive in dried blood for up to a week and thus may be transmitted via discarded needles or fomites, even days after initial contamination. Indeed, some healthcare workers infected with HBV cannot recall an overt needle stick injury, but can remember caring for a patient with hepatitis B. New staffs with less than ten years of practice may be at a higher risk of acquiring hepatitis B

infection in the hospitals as they are learning to do procedures and may be less cautious than other health workers. They are also less likely to practice universal precautions and are more likely to sustain needle stick injuries due to inexperience. Immunization with hepatitis B vaccine is the most effective means of preventing hepatitis B infection and its consequences. The recommended strategy for preventing this infection is selective vaccination of persons with identifiable risk factors (Paul and Peterside, 2015)

It was observed that more than half of the respondents 274 (71.4%) has a poor practice that may influence the risk of contracting hepatitis B virus infection, while 110 (28.6%) has a good practice that may reduce the risk of contracting hepatitis B virus infection. Almost half (46.4%) of the respondents have been accidentally pierced before which is high compare to similar studies.

The study has shown that general hygienic measures as well as protective equipment used in the hospitals in Nigeria to reduce the risk of HIV/Hepatitis B infections among health workers are insufficient. Most of the inadequacies resulted from lack of supplies. However even when available, they are inconsistently or improperly used. A finding corroborated by earlier studies by Ansa (2002).

Insufficient equipment and inadequate use of hygienic measures as well as poor safety practices and non adherance to standard precaution are thus likely to increase the risk of HIV/ Hepatitis B infection. Poor practice in the use of barrier methods such as the use of water proof gowns, use of single surgical gloves during operations, make use single surgical gloves when attending to patients. The main reason for this may be attributed to poor practice of universal precautions owing to organizational problems and a lack of necessary materials such as gloves and proper needle-disposal facilities. Also, data on the frequency and circumstances of occupational exposures in developing countries are sparse especially in Nigeria, frequency of exposures and prevention criteria, circumstances of exposures, and post exposure practices are poorly managed and only few incidences are documented in the hospitals which could be one of the risk factors for hepatitis B virus spread among health workers.

5.10 Level of utilization of hepatitis B vaccine by the respondents in the various health facilities.

From the results of the study, one third 71(31.0%) of the respondents with less than ten (10) years working experience are more likely to participate in Hepatitis B vaccination than other respondents withn more years of practice.The most likely reason for this high uptake level HB vaccine maybe due to the fact that, the majority of the respondents were doctors or nurses and so are more educated than the lower cadre of health care workers with more years of practice.

The result of the study also indicates that about one third 125(33.0%) of the respondents have taken at least one dose out of the recommended three doses of hepatitis B vaccine before, while at least 125 (33%) of the respondents have taken more than one dosage of the vaccine, thus, factors such as availability of the vaccine in their respective health centres, low level of awareness on the availability of the vaccine to health workers at vaccination centres, the cost of vaccine which costs up to #5,000 per vaccine may be one of the factors responsible for the low uptake of the vaccine as stated by 72 (18.9%)of the respondents which may be responsible for the low uptake of the vaccine by the heath care workers as seen in similar studies conducted by (Okwara, Enwere, Diwe, Azike, Chukwulebe, 2012). There is also a significant reletionship between their level of education and HBV vaccine utilization which could be an evidence of increased awareness of the benefits of HBV with increased educational status.

5.11 Implication for Health Promotion and Education

According to the findings of this study, it was deduced that the level hepatitis B vaccination was low though the knowledge of the health workers about the hepatitis B disease was high, but their practice of hepatitis B vaccination uptake and the practice of hepatitis B prevention was unhealthy. Thus, the findings from this study has a significant health promotion and education implication and thereby the need for multiple interventions for tackling the identified phonomenone in other to improve and promote

the health of the health workers as the health system itself is not a safe system. (Paul and Peterside 2015).

5.12 Awareness and health education: There is a need for more awareness programme on hepatitis B vaccination and health education of all health workers on the risk factors associated with hepatitis B infection through routine clinical practices.

Public Enlightenment programmes including campaign and awareness has been shown to reach a large number of people and can also influence their knowledge, perception, attitude and hepatitis B vaccination uptake. The Advisory Committee on Immunization Practices (ACIP) recommends hepatitis B vaccine for every one who is 18 years of age and younger as well as for adults over 18 years of age who are at risk of hepatitis B infection. Adults who are at increased risk of infection and who should receive vaccination include: sexually active heterosexual adults with more than one sex partner in the prior 6 months or a history of sexually transmitted disease; men who had sex with men, illicit injection drug users, hemodialysis patients and persons at occupational risk of infection. The use of information, education and communication materials like the use of leavelets, callendas, posters, documentary, jingles, billboard to deseminate important informations on the benefits of hepatitis B vaccination uptake could reach a larger number of the health workers thus influncing their knowledge and practice.

5.13.1 Training : This should be provided to health workers on the need for the adherence with standard precaution precation and basic hepatitis B vaccination benefits.

Training: is a process of acquiring skills and knowledge to improve individual potentials. It is an educational process designed for helping people to carry out some task well, with emphasis on knowledge and skill acquisition. The strategies for training include, health education using behavioural change communication (BCC) materials with the aid of pamphlets, handbills, posters, leaflets to enable them to take care of themselves and actions to improve their health and stay healthy. The Ministry of Health (MOH) and Ministry of Education should liaise together to train the health workers through seminal presentation on the job training, return courses among others in order to train the health workers about the hepatitis B vaccine uptake and HBV prevention practices.

5.13.2 Advocacy- This is one of the cardinal health promotion and education strategy that can be used to assist the marginalized or neglected group of people in the community to benefit from the programme that is available. It is a way of giving support to a course on behalf of a group of people who cannot defend their interest. It involves speaking, acting, writing with minimal conflicts of interest on behalf of disadvantaged group to promote , protect and defend their welfare, justice and rights.

The world health organisation has recognised advocacy as one of the most effective strategies in addressing vaccination uptake among health workers. Advocacy can bring about change in policies, laws and practices of the health workers in preventing hepatitis B infection. Hepatitis B vaccine has been found to effectively reduce the prevalence of HBV infection. Studies have shown that introduction of compulsory free HBV vaccination contributes in decreasing HBV incidence rates. After a standard 3-dose vaccination regime at 0, 1, and 6 months, the rate of response on the basis of an anti-HBsAg increases significantly.(Peterside, Duru, Adeyemi, Kunle-Olowu, Kunle-Olowu and Akinbami 2012). Thus, advocacy should be made to the right hospital management boards, institutions to provid a quick diagnosis, treatment and vaccination programmes where applicable for all health workers as well as a continued and sustained awareness campaigns, social mobilisation should target health policy makers, hospital mangement board members, health ministers, education ministers and the information minister.

5.14 Conclusion

This study indicates that our medical specialists are not alert enough to HBV. They must be sufficiently well informed to be able to improve the knowledge, attitudes and behaviour of other HCWs and patients. It also seems evident that additional research on HBV is needed in this regard.

In conclusion**,** the Hepatitis B vaccination rate among health workers in Ibadan North and South west local government area is low and this might represent the general status in the country. This study shows that, the present system of vaccination, in which the health workers has to take the initiative and sometimes pay is not very efficient, therefore a national and institutional legislation for adult vaccination against Hepatitis B needs to be

promulgated especially for all health workers who are at higher risk. Thus, the hospital workers of this institution have moderate perceived risk of HBV infection and low vaccination coverage despite a high awareness of HBV vaccine.

5.15 Recommendation

The following recommendations were made in light of the findings of this study.

1.The govermemt should create awareness among all health workers in Ibadan North and South West local government on the risk factors of HBV and education on infection control and other strategies for infection control need to be strengthened.

2. There is an urgent need to increase the level and quality of training among HCWs in in Ibadan North and South West local government to prevent the spread of hepatitis B virus through exposure to blood.

3. A pre-operative routine screening (of all patients being prepared for surgery) for HB virus, HIV should be put in place in all health care facitiies in in Ibadan North and South West local governments.

4. All doctors and other health workers should be vaccinated at the start of their carrier in Ibadan North and South West local government areas.

5. It is recommended that the Ministry of Health should consider offering subsidized or free Hepatitis B vaccination to HCW who are at a high risk of HBV infection and such HCW vaccination should be considered as a matter of policy in Ibadan North and South West local government areas.

5.16 Conflict of interest and funding

The author have not received any funding or benefits from any individual or industry in order to conduct this study.

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APPENDICES

APPENDIX I

INFORMED CONSENT FORM

TITLE OF THE RESEARCH: KNOWLEDGE, ATTITUDE, PRACTICES, RISK PERCEPTION AND UTILIZATION OF HEPATITIS B VACCINATION AMONG HEALTH WORKERS IN SECONDARY HEALTH CARE FACILITIES IN IBADAN.

Name and affiliation(s) of researcher(s) of application(s): This study is being conducted by IBITOYE Segun Emmanuel, Department of Health Promotion and Education, University of Ibadan.

Purpose(s) of research: To investigate knowledge, attitude, practices, risk perception and utilization of hepatitis B vaccination among health workers in secondary health care facilities in Ibadan.

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the research: All consenting health care workers at the selected Ibadan North and Ibadan South West Local government area hospitals will will be administered a semi-structured questionnaire. Participants will be required to give correct information that was required by the questionnaire.

Expected duration of research and of participant(s)' involvement: You are expected to be involved in this research for just a day. You will be required to give correct information during the day hours. Required information will be collected just once.

Risk(s): You will not be exposed any risk whatsoever during your participation in this research. No risk will be incurred by filling the questionnaire.

Cost(s) to the participants, if any, of joining the research: Your participation in this study will not cost you anything. It will only take about 10minutes only.

Benefit(s): This is to help policy makers in develop policy and strategies that will help in the adoption of measures that will help in revising existing health policies, increase funding of health system and enactment of healthy public policies that will be favourable to both the health system and help reduce the prevalence of hepatitis B virus.

Confidentiality: All information collected in this study will be given code numbers and no name will be recorded. This cannot be linked to you in anyway and your name or any identifier will not be used in any publication or reports from this study.

Voluntariness: Your participation in this research is entirely voluntary.

Due inducement(s): You will not be paid any fees for participating in this research.

Modality of providing treatments and action(s) to be taken in case of injury or adverse event(s): No injury or adverse events whatsoever are envisaged in this study.

What happens to research participants and communities when the research is over: The outcome of this study will be made available to the hospital through the Chief Medical Director of the Health institution. There will be proper briefing about the benefits of the research.

Statement of person obtaining informed consent: I have fully explained this research to _____ and have given sufficient information, including about risks and benefits, to make an informed decision.

DATE:…… SIGNATURE:……..

NAME:……
…….

Statement of person giving consent: I have read the description of the research or have had it translated into language I understand. I understand fully that my participation is voluntary. I am aware of the purpose, methods, risks and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and additional information sheet to keep for myself.

DATE:_____SIGNATURE: _____

S/N_____

Detailed contact information including contact address, telephone, fax, e-mail and any other contact information of researcher(s), institutional HREC and head of the institution.

If you have any question about your participation in this research, you can contact the principal investigator, Name: IBITOYE Segun Emmanuel of the department of Health Promotion and Education, Phone: 08135567066 and E-mail: Segunmanuelgcfr@.com

OR

Professor, A.J. Ajuwon

Address: Department of Health Promotion and Education, Faculty of Public Health, University College Hospital Ibadan.

08034892561

E-mail: Ajajuwon@yahoo.com

Appendix II

KNOWLEDGE, ATTITUDE, PRACTICES, RISK PERCEPTION AND UTILIZATION OF HEPATITIS B VACCINATION AMONG HEALTH WORKERS IN SECONDARY HEALTH CARE FACILITIES IN IBADAN

Dear Respondent,

My name is **Ibitoye Segun Emmanuel**, a Postgraduate student of the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am part of the team undertaking a research titled "knowledge, attitude, practices, risk perception and utilization of hepatitis B vaccination among health workers in secondary health care facilities in Ibadan" The research is a part of requirement for award of the masters degree. I intend to gather information from you on the topic and will be very grateful if you can spare some minutes to participate in the study by completing the questionnaire.

No name is required and utmost confidentiality of your identity, response and opinion will be ensured. You are requested to please provide honest responses as much as possible as you complete the questionnaire.

Research Identification Number ----------
Date of the research ----------
Location of the research ----------
Name of researcher ----------

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Instruction: *Please, mark* **[√]** *in the boxes provided (as appropriate)*

1. **Sex**
   1. Male **[ ]** 2. Female **[ ]**
2. **Name of facility**..... **Location**.....
3. **Actual age in years** (last birthday)…….years
4. **(Year(s) of Practice** .....
4b **Marital status**.....
5. **Ethnicity group**:

   1.Yoruba **[ ]** 2.Igbo **[ ]** 3.Hausa **[ ]** 4.Others (please specify) _____
6. **Designation / Status**

1. Medical doctor **[ ]** **2.** Nurses **[ ]** **3.**Pharmacist **4.** Pharmacist Technician
5. Laboratory Technician **[ ]** **6.** Laboratory attendant **[ ]** **7.** Laboratory assistant **[ ]**
8. Health Administrator **[ ]** **9.** Hospital health attendant **[ ]** **10.** Ward attendant **[ ]**
11.OthersPlease(specify)……**12**Medical Laboratory Scientist **[ ]**

13.Physiotherapist **[ ]** **14.** Medical laboratory Technologists **[ ]**

6b.**What is your highest educational qualification**…**……**

7. Religion

1.Christianity **[ ]** 2. Islam **[ ]** 3. Traditional **[ ]** 4. **Others Please (specify)**……

SECTION B: KNOWLEDGE OF HEPATITS-B

8. Have you heard about Hepatitis-B? 1.Yes [ ] 2.No [ ]

8b. If Yes please specify your source(s) of awareness / information .....

Instruction: *The table below contains a set of statements/questions to assess your knowledge on Hepatitis-B. Please tick (√) the most suitable answer.*

S/N	QUESTIONS/STATEMENTS	True	False
9	Hepatitis B is caused by a virus		
10	Hepatitis B is a common disease in Nigeria		
11	Hepatitis B can affect all age groups		
12	hepatitis B can be transmitted by used blades of barbers, pins, lancet, needles and other sharp objects		
13	hepatitis B can be transmitted by polluted water or food		
14	HBV can be contracted through unprotected sexual relationships?		
15	Hepatitis B is a curable disease		
16	Hepatitis B has vaccination		
17	Needle stick injury has 10% risk of resulting in to an infection		
18	Health worker to patient transmission of HBV is as common as the reverse situation		
19	Hepatitis B infection indicates infection with a new subtype of hepatitis B		
20	Hiv carries a greater risk to health workers than getting hepatitis B Hepatitis B core antigen carries no clinical importance		

21. How often do you routinely screen patients for hepatitis B in order to avoid cross contamination to other patients? 1. routinely **[ ]** sometimes**[ ]** **Never[ ]**

22. How often do you routinely screen patients for hepatitis B after a major operation or procedure.

1. routinely **[ ]** **2** sometimes**[ ]** **3.** Never**[ ]**

22b Please give treasons for your answer in above……

23. If you had symptoms of Hepatitis B, at what stage would you will go to the health facility?

S/N	**STATEMENT**	**Yes**	**No**
A	After 3-4 weeks of the appearance of symptoms?		
B	As soon as I realize the symptoms are of Hepatitis B?		
C	When the symptoms fail to disappear?		
D	Will not go to a health facility		

SECTION C: RISK PERCEPTION OF HEAPTITIS-B INFECTION AND HBV VACCINE IMPLEMENTATION

Instruction: *For the following questions Kindly tick [√] the best option as applied to each question*

24. How worried are you about the side effects that will be encountered from Hepatitis-B vaccine use?

1.Not worried at all **[ ]** 2.Worried a little **[ ]** 3.Worried a lot **[ ]** 4. Unsure **[ ]** 5.No response **[ ]**

25. Please give treasons for your answer in above……

S/N	**QUESTIONS**	**Agree**	**Disagree**	**Undescided**
26	Hepatitis-B is a highly contagious disease.			
27	Do you think that your current sexual behaviour puts you at risk of infection with Hepatitis-B			
28	Getting tested for Hepatitis-B makes people scared that they may really have the disease.			
29	Hepatitis-B is caused majorly by spiritual attack			
30	If I have received Hepatitis-B vaccine, I cannot get the disease.			
31	Having more than one sexual partner can reduce the risk of having Hepatitis-B.			
32	I do not think hepatitis-B is an important health concern for all			

SECTION D: ATTITUDE TOWARDS HEPATITS-B PREVENTION

Instruction: *Please Kindly tick [√] one option as applied to the questions in the table below;*

S/N	**QUESTIONS/STATEMENT**	**Yes**	**No**
33	Hepatitis B is not a major health problem in Nigeria		
34	On the issue of Hepatitis-B, I cannot encourage someone to safely accept blood transfusion even when the blood has been screened for Hepatitis-B.		
35	I cannot have Hepatitis B because I am knowledgeable about it and I take precautions		
36	I prefer a person infected with hepatitis B to be isolated away from the people to prevent the spread of the infection		
37	I cannot ask for screening of blood for Hepatitis-B before transfusion		
38	I would like to get vaccinated for hepatitis B		
39	If you are found positive for hepatitis B, would you like to have further tests or treatment		

40. What worries you most if you will be diagnosed with Hepatitis B. (***Instruction:*** *Please Kindly tick [√] one option only as applied to the question.)*

S/N	STATEMENT	Yes	No
A	Fear of death		
B	Fear of disease spread to family		
C	Cost of treatment		
D	Isolation from the society		

SECTION E: PRACTICES THAT INFLUENCES THE RISK OF CONTRACTING HEPATITIS B

Instruction: *Please Kindly tick [√] one option as applied to the questions in the table below;*

S/N	Question /Statement	YES	NO	DON'T KNOW
41	Have you done screening for Hepatitis B Virus before? (If No skip 42).			
42	Do you always insist for a new syringe before use in the hospital			
43	Have you undergone blood transfusion before? If yes Was the blood screened before transfusion			
44	Have you ever shared tooth brushes, razors, needles, pins and hair clippers with anyone			
45	Do you protect your fingers when breaking glass ampoule/ injection bottle			
46	Have ever injected a restless patient before			
47	Do you currently inject a restless patient			
48	Do you separate needles and syringe from other wastes before disposal			

49. Have you ever Recapped, detached needle from syringe or manipulate needles used for hepatitis B patients (bending, breaking)? **Yes[ ] No[ ]**

50. Do you currently Recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients? **Yes [ ] No[ ]**

51. How often do you do any of the following things

S/N	Type of Needle Handling Method Practice	Always	Never	Sometimes
A	Recap needle from syringe after use			
B	manipulate needles			
C	Bending of needle			
D	Do you break needles with your hand after use.			

52. Have you Recap, detach needle from syringe or manipulate needles (bending, breaking) used for hepatitis B patients in the last three months? **Yes [ ] No [ ] I don't know [ ]**

53a. Have you accidentally pierced yourself before? **Yes [ ] No [ ]**

53b. What did you do about the accidental piercing?.....

54. How often do you use the following barrier methods?

S/N	Barrier Method Used	Never	Always	Sometimes
A	Use of water proof gowns			
B	Use double gloving and visors			
C	Use single surgical gloves during operations			
D	Use single surgical gloves when attending to patients.			

SECTION F; LEVEL OF UTILIZATION OF HEPATITIS B VACCINE

S/N	Statement	Yes	No	I don't know
55	Have you ever used hepatitis B vaccine before			
56	Do you often use hepatitis B vaccine			
57	Is hepatitis B vaccine readily available for use at the HBV vaccine centre			
58	Is the cost of the vaccine affordable to you			
59	Is hepatitis B vaccination offered in your hospital			
60	Have you ever sought out hepatitis B vaccine on your own			

Appendix III

IBEERE NI EDE YORUBA

IMO,IWA, ISESI, EWU ATI ISAMULO ABEERE AJESARA AISAN ẸDỌWÍWÚ LAARIN AWON OSISE ELETO ILERA TI EKE ILERA IJOBA IPINLE OYO NI ILU IBADAN

IBEERE

Imo,iwa, isesi, ewu ati isamulo abeere ajesara aisan Ẹdọwíwú Laarin awon osise eleto ilera ti eke ilera ijoba ipinle oyo ni ilu Ibadan Ipinle Oyo.

Eyin oludahun wa nitoto,

Mo ki yin o, oruko mi ni IBITOYE SEGUN EMMANUEL, Akeko ile iwe giga ti unifasiti ti ilu ibadan Eka ti Igbelruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan. Mo je ikan lara awọn egbe ti ohun gbe igbese lati se iwaadi kan ti akole re je "Imo,iwa, isesi, ewu ati isamulo abeere ajesara aisan Ẹdọwíwú Laarin awon osise eleto ilera ti eke ilera ijoba ipinle oyo ni ilu Ibadan"

Awon olukopa ninu iwadi yi ni ao yan ni ipele, ni ipele isapẹrẹ ilana. Awọn ọna ti data gbigba jẹ nipasẹ Questionnaires ati ni-ijinle Ìfọrọwánilẹnuwò.

Iwadi yi yio se iranlowo lati file ipele lori imo nipa aisan edọwíwú- ati igbelaruge isesi daradara laarin awon osise ilera lati din isẹlẹ ati itankalẹ ti arun na ni awujo.

Iwadi yi yoo tun se itọkasi ati ojuami ni ṣiṣẹda awọn ohun elo fun ijoba ati ile ise tikiise ti ijiba (NGOs) lati gbero ati sise ifilole anan ati iseto fun ipese abere ajesara ati iseto ilera larin awon osise eleto ilera lori idenan aisan edọwíwú nipa gbigba abere ajesara. Ikopa rẹ ninu iwadi yi koni na o lohunkohun, opan dandan ki kikopa re ninu iwadiyi jẹ atinuwa patapata. O le yan lati yọra kuro ninu iwadiyi ni igbakigba ti o ba fẹ.

Awọn ibeere yi ni o ni isori maarun (A si E); ni isori kọọkan ninu awọn ibeere wọnyi, aroyin lati dahun àwọn ìbéèrè wonyi lotioto ati boseye, eyi ni lati ṣe aridaju wiwulo awọn esi iwaadi ti aba kojopo lati ara iwadi yi. Lati saridaju ifi pamo awon idahun yin ninu iwadi yi, gbogbo ami Ìdánimọ yin,gegebi oruko ni ati yo kuro ninu ibeere wonyi, gbogbo awon esi yin ninu iwadi yi niyio wa ni asiri ati ni fififpamo laarin wa aosi lo fun idi ti omowe yi fi hun se iwadi nikan.

IWE IFOWOSI

Bayi tiati salaye idi iwadiyi daradara fun mi timo siti gbo agboye ipa mi ninu iwadiyi, mo se ipinnu atinuwa bayi lati kopa ninu iwadi yi.

Jowo se amin idahun re si (√) 1. Beeni [ ] tabi **2. Beeko [ ]3. Nkomon[ ]**

Ese pupo.

Nomba Idanimo: ----------

Oruko agbe gbe ti ati se iforowani lenu wo:

Ojo ti ase iforo wanilenu wo----------

Oruko oluforo wanilenuwo ----------

IPIN A: won nkan idanimon nipa yi (**SOCIO-DEMOGRAPHIC INFORMATION)**

Atoka: Jọwọ, samisi [√] ninu awọn apoti ti a pese (bi yẹ)

1. Okurin **[ ]** 2. Obirin **[ ]**

7. Oruko ile iwosan.....

3. Ejowo omo odun melo ni ese ni ojo ibi ti ese kehin.....(Odun)

4 Oto odun melo ti eti bere ise .....

4b Ipowo ni ewa nipa igbeyawo? Motigbeyawo 2. Motigbeyawori 3. Nko ti gbeyawo ri

5. Omo eya wo ni yin? 1.Yoruba **[ ]** 2.Igbo **[ ]** 3.Hausa **[ ]** 4.Eya imiran (eso pato)...

6 Eka tise Ọjọgbọn iwosan eyi ti eje

1. Dokita alabere [] 2. nosi [] 3. yàrá Onimọn ẹrọ ti ayewo eje ati omiara. [] 4.Amugba legbe ni yàrá Onimọn ẹrọ ti ayewo eje ati omiara [] 5. oluranlọwọ yàrá ayewo eje fun ile ayewo eje[ ] 6. Olusakoso eto imon ilera ti iwosa n [ ] 7. amugbalegbe eke ilera ile iwosan []

8. Amugbalegbe Wardu [ ] 8..Others Jọwọ (Esopato) .....

6b Ejowo iwe melo ni eka ti oga ju lo.....

7. Elesin woni yin

1.Kristiani **[ ]** 2. Musulumi **[ ]** 3. Elesin Abalaye **[ ]** 4. **Imiran eso pato (edaruko)**……

IPIN B: imo nipa aisan edowiwu

8. Nje oti gbọ nípa aisan Ẹdọwíwú-B ri?

1.Beeni [ ] 2.Beeko [ ] Nkomo [ ]

8b. If Yes, tick [√] your sources of awareness/ information (multiple sources are allowed) Ti o ba ti Bẹẹni, ami [√] nyin orisun ti imo / alaye (agbayi laaye lati mu ju idahun kan lo)

Itoka: Awọn tabili tio wani isalẹ ni awon gbólóhùn tabi ibeere lati se ayẹwo yin lori imo yin lori aisan edọwíwú-B. Jowo ko ami maaki (√)si idahun ti o dara julọ idahun.

S/N	**Koko oro (ibeere)**	**Beeni**	**Beeko**
9	Nje kokoro virusi ni ohun fa arun Ẹdọwíwú**.** bi?		
10	Nje ati šakiyesi aarun Ẹdọwíwú nigbagbogbo ninu orilẹ-ede wa (Nigeria)		
11	Nje gbogbo eniyan loleko aarun Ẹdọwíwú bi?		
12	Nje aleko aarun Ẹdọwíwú nipa pipin abe fele ati obe lo pelu eniyan miran		
13	Nje aleko aarun nipa omi tabi ounje aimọ?		
14	Nje ẹniyan leko aarun kogboogun eedi nipase nini ibalopo lailo roba idaabobo?		
15	Ǹje omọ nipa eto abere ajesara Ẹdọwíwú?		
16	Nje abere ajesara wa funaarun Ẹdọwíwú bi?		
17	Ajalu egbo abere laarin awon osise eleto ilera lesokunfa idasimewa ninu kiko kokoro Ẹdọwíwú		
18	Awon osise Ilera ni ipa lati ninu awọn iṣakoso ti itankale ti aarun Ẹdọwíwú?		
19	Aarun Ẹdọwíwú je apere fun irufe aarun Ẹdọwíwú imiran		
20	Aarun kogboogun lewu pupo fun awon osise eleto ilera ju aarun Ẹdọwíwú lo		
20B	Nini egboogi-HbS AG ati odi HBsAg tọkasi wipe eniyan koni kokoro Ẹdọwíwú.		

21 Emelo ni eman se ayewo eje fun aarun Ẹdọwíwú fun awon alaisan nitori ati denan aarun Ẹdọwíwú

Loore kore [ ] Leekokan [ ] Lailai akiise rara [ ]

22. Emelo ni eman se ayewo eje fun aarun Ẹdọwíwú fun awon alaisan kiwonto lo fun ise abe

Loore kore [ ] Leekokan [ ] Lailai akiise rara [ ]

22b Ejowo eso idi fun idahun yin loke.....

23. (**Itọnisọna:** EJọwọ Esami si [√] ese aṣayan si awon ibeere bi oba seye.)

S/N	**Gbólóhùn /koko óró**	Mofaramo	Nkofaramo	Nkomo
A	Lẹhin ose meta si merin ti aisan farahan			
B	Ni kete ti mo bati ri awon apere aisan Ẹdọwíwú			
C	Nigbati awọn apere aisan Ẹdọwíwú ba kuna lati farahan			
D	Emi konilo si ile iwosan?			

IPIN C: EWU IRO TI AARUN EDO WIWU

ATOKA: Nitori awọn wọnyi ibeere wonyi jowo samisi [√] ti o dara ju si aṣayan loro si ìbéèrè kọọkan

24. Bawo ni àìníyàn re yio ti ri ti oba lero wipe eti ni ikolu arun Ẹdọwíwú?

1.Ko bami leru rara [ ] 2.O bami leru kekere [ ] 3. Obami leru pupo gan [ ]

4.Nko ma [ ] 5.Nko Lesi/ nko ledahun [ ]

25. Ejowo eso idi fun idahun yin loke.....

S/N	**IBEERE / gbólóhùn /koko óró**	**Mofaramo**	**Nkofaramo**	**Nkomo**
26	Mo ri aarun Ẹdọwíwú gegebi aarun ti olewu pupo ti osi nse iku pa eniyan gan?			
27	Ṣe elero wipe isesi iwa ere ibalopo yin ọni ewu fun ikolu tia aarunẸdọwíwú-Bi?			
28	Lilo fun ayewo aarunẸdọwíwú- ma deruba awon eniyan wipe nwọn leti ko arun na.			
29	Nje elero wipe arun Ẹdọwíwú ni nkan se pelu ẹmí okukun?			
30	Nje elero wipe ti eba gba abeere ajesara kokoro tabi Ẹdọwíwú ekole ko aarun na mo?			
31	Nini ibalopọ pelu ololufe kan lo le din ewu ti nini aarun Ẹdọwíwú			
32	Emi ko ro pe Ẹdọwíwú -B jẹ ẹya aarun ailera pataki fun gbogbo gboo?			

IPIN D: IWAAWON OSISE ILE IWOSAN SI AARUN EDOWIWU

Atoka:: Awọn tabili tio wani isalẹ ni awon gbólóhùn tabi ibeere lati se ayẹwo yin lori imo yin lori aisan edọwíwú Jowo ko ami maaki (√)si idahun ti o dara julọ idahun.

S/N	I**BEERE / gbólóhùn /koko óró**	Mofar amo	Nkofar amo	Nko mo
33	Aarun Ẹdọwíwú ki se aarun to tankale ni orilede Nigeria lowo lowo			
34	Lori oro aarun Ẹdọwíwú nko le gbani niyanju lati lo Gba eje, koda ti won ba ti se ayewo eje na fun aarun aarun Ẹdọwíwú			
35	Nkoleko aarun Ẹdọwíwú nitori wipe moni imo nipa re			
36	Ni ero titemi emife ki wan fi enikeni ni ti oba ni aarun Ẹdọwíwú pamo kuro lawujo ki omo ba ko ran awan elomiran			
37	Nkò tie daba lati bere fun ayewo eje fun aarun Ẹdọwíwú kin to gba eje ni ile iwosan			
38	Emi yoo nifẹ lati gba abere ajesara funaarun Ẹdọwíwú			
39	Ti esi ayewo yin ba sowipe eti ni aarun Ẹdọwíwú, se eyin yio ni ifesi ayewo imiran si tabi itoju?			

40. Kí ni iṣoro ti ole koju yin julọ ti o ba diwipe esi ayẹwo aisan Ẹdọwíwú/ B. **(itosona**: Ejowọ jesami [√] kan aṣayan nikan bi loo si awọn **Ìbéèrè**.)

S/N	**Gbólóhùn /koko óró**	Beeni	Beeko
A	Iberu ti iku		
B	Iberuwipe arun na letan sarin awon ebi		
C	Owo itọju		
D	ipinya kuro laarin awujo		

IPIN E: isesi ti ojẹmọ aisan si Ẹdọwíwú

Atoka: Jọwọ jowo ami [√] kan aṣayan bi loo si awọn ibeere ni tabili ni isalẹ;

S/N	**Ìbéèrè / gbólóhùn /koko óró**	Mofaramo	Nkofar amo	Nko mo
41	Nje o ṣe ayewo fun Ẹdọwíwú ri? Ti o ba je wipe "beeko"o foo ogo ji din meji			
42	Nje ema beere fun lilo abere titun ninu iwosan ile iwosan ki eto gba abere?			
43	Nje eti gba eje ri ni ile iwosan ? Ti obajewipe beeni nje won sayewo eje na ki won to faa si yin lara			
44	Nje o lailai pín pako ifonu, abee razors, abere, ati abee ige irun pẹlu ẹnikẹni ri?			
45	Nje eman dabobo owo yin ti ebanfo igo abere			
46	Nje eti lailai fun alaisan ti ko gbaraduro labere ri			
47	Nje esin fun alaisan ti ko gbaraduro labere lowolowo bayi			

48	Nje eman dabobo owo yin nigbati ebafe te abere			
49	Nje eman yoo abere soto kuro laara sirigi kiet juunu			

50. Nje eti lailai te abere, fi owo yo abere, tabi loo abere lenu pelu owo(tite abere,tabi fifi owo kan abere) ri ? Beeni [ ] Beeko [ ]

51. Nje ema te abere, fi owo yo abere, tabi loo abere lenu pelu owo(tite abere,tabi fifi owo kan abere) lowolowo? Beeni [ ] Beeko [ ]

52. Emelo ni eman se ikan ninu awon nkan towa nile nan

S/N	**Ìbéèrè / gbólóhùn /koko óró**	Nigbogbo igba	Nko lo ri	Lekokan
A	Nje eman bo enu abere leyin lilo			
B	Nje eman lo abere lenu leyin lilo			
C	Nje eman te enu abere			
D	Nje eman fi owo yin kan enu abere simeji leyin lilo			

53. . Nje eti lailai te abere, fi owo yo abere, tabi loo abere lenu pelu owo(tite abere,tabi fifi owo kan abere) ti won ti lo fun awan alaarun Edowiwu ri

53B. Nje abere ti sesi gun yin lowo ri Beeni [ ] **Beeko[ ]**

54 Ise nipa owo Idenan aisan

S/N	**Ìbéèrè / gbólóhùn /koko óró**	Nko lo ri	Nigbogbo igba	Lekokan
A	Nje ema lo aso ise abe(water proof gown) ni gbogbo igba			
B	Nje ema roba ibowo oni meji (double gloving)			
C	Nje ema lo roba ibowo (glove) ni gbogbo igba ti eba ti se awon ise abe			
D	Nje ema bo roba ibowo ti oba tutun ni ti eban sise lowo?			

IPIN F: Ajo eto imulo abere ajesara fun aarun Ẹdọwíwú.

S/N	**Imulo abere ajesar aarun Ẹdọwíwú**	Beeni	Beeko	Nkomo
55	Nje oti gba abere ajesara aarun Ẹdọwíwú**.** ri?			
56	Nje eman gba abere ajesara edowiwu loore kore			
57	Nje Ipese ati wiwa isatilẹyin pelu imulo abeere ajesara ni ile iwosan gbogbo yo sa mu gbooro gbigba abere ajesara na?			
58	Nje iye owo ayewo aati itoju aarun Ẹdọwíwú le se idena fun lilo abere ajesara aarun na			
59	Nje ajo ati imulo ti oyege lori abere ajesara fun aarun Ẹdọwíwú wa ni ile iwosan yi			
60	Nje eti lailai lofun abere ajesara fun aarun Ẹdọwíwú wa lowo tiyin ri			

APPENDIX IV

INFORMED CONSENT FORM (YORUBA)

AKORI IWADI: IMO, IWA, ISESI, EWU ATI ISAMULO ABEERE AJESARA AISAN ẸDỌWÍWÚ LAARIN AWON OSISE ELETO ILERA TI EKE ILERA IJOBA IPINLE OYO NI ILU IBADAN.

Oruko ati Ile-iwe Oluwadi : Eniti ohun se iwadi yi ni IBITOYE Segun Emmanuel, akeko ile iwe giga ti unifasiti ti ilu ibadan Eka ti Igbelruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan.

AKORI IWADI: Imo,iwa, isesi, ewu ati isamulo abeere ajesara aisan Ẹdọwíwú Laarin awon osise eleto ilera ti eke ilera ijoba ipinle oyo ni ilu Ibadan agbegbe ijoba ibile Ariwa,ati ijoba ibile guusu-iwọ oorun.

Ilana fun iwadi, ati iye olukopa ti yio darapo mowa ninu iwadi yi: Gbo gbo awon osise eleto ilera ti ijoba ibile ariwa,ati ijoba ibile guusu-iwọ oorun ipinle oyo tioba gba lati kopa ninu iwadi yi ni aofun ni yio ni anfani lati dahun awon ibeere ti owa ninu iwe ibeere yi. Aro awon olukopa lati fun wa ni esi ti okun oju osuwon lotito ati lododo.

Iye akoko ti alero wipe iwadi naa yi o gba ati ilowosi awon oludahun wa: Gbogbo oludahun yio lo bi iseju mewa ni ojo ti aba funwon ni iwe ibeere yi lati dahun awon ibeere won yi.

Ewu: Ko si ewu ipalara kokan ti o le ti inu iwadi yi wa, sugbon ti awon ibeere kookan ba niyin lara lati dahun, e ni oreofe lati ma dahun awon ibeere na.

Inawo si olukopa ninu iwadi yi: Didarapo mowa ninu iwadi yi koni nanyi ni nkankan, iseju aiya mewa pere ni yio gbayin.

Anfani: Ko si anfaani kiakia fun yin sugbon awon alaye ti aba ri gba ninu iwadi yi yio wulo lati se awon ofin ati agbekale imo ati ogbon, ti yio se iranlowo fun itewogba fun awon igbese ti yio mu ayewo baa awon ofin lori eto ilera ati lati mu afikun le eto inawo lori eto ilera ati igbekale ofin lori eto ilera ar ilu ti yio se anfani fun gbogbo gboo lati gbogun ti aarun edowiwu.

Asiri pipamo ati igbekele: Gbogbo alaye ti a ba ri gba ninu iwadi yi ni ako ni fi oruko si sugbon. Awon idahun yin ko ni se fi lati wadi yin. Ati wipe oruko yin ko ni jade ninu abajade iwadi yi.

Atinuwa: Ko pon dan dan fun yin lati kopa ninu iwadi yi ti e ko ba fe, e si le dawo ikopa yin duro nigba ti o ba wu yin.

Etan ni pa owo sisan: Akoni funyin ni owo rara fun kikopa ninu iwadiyi.

Ona pipese itoju fun ewu ti oroo mo kikopa ninu iwadi yi: Kosi ipalara kankan tabi ikolu bi otin wu kio kere mon ti yio sele si yin ninu kikopa ninu iwadi yi.

Nti yio sele si awon olukopa ninu iwadi yi leyin ti iwadi nan ba wasi : Awon esi ti oba jeyo ninu iwadi yi ni aofi sowo si awon oludari ni ile iwosan yin, nibi ti eyin nan yioti ni anfani lati ni ilaloye lori awon esi abajade iwadi yi.

The outcome of this study will be made available to the hospital through the Chief Medical Director of the Health institution. There will be proper briefing about the benefits of the research.

Iwe ifowosi ti oluwadi fun olukopa: Moti salaye lekun rere fun olukopa_____ mosi ti yan nanan ifun eti edo lori ewu ati anfani ni kikun na lati gba iwe ifowo si atinuwa.

OJO TI ASE IWADI....:…… SIGNATURE:…….

OROKO:……

Oro lati enu olukopa ninu iwadi: Mo to]ika akole ati ijuwe iwadi yi, won si ti se ogbufo re si ede ti oye mi saka saka. Oye mi dajudaju wipe didarapo mi pelu iwadi yi je lati inumi wa. Mo ni ilaloye lori idi, igbese, ewu, anfani ti oroo mon iwadi yi, lati se ipinu atinuwa wipe mofe darapo mon iwadi yi, oyemi daju wipe, mole dawo ikopa mi duro nigbakigba ti o ba wumi. Moti gba edaa iwe ifowosi kikopa atinuwa lati fi pamo fun ara mi gege bi eri ni ojo iwaju.

OJO TI ASE IWADI:_____SIGNATURE: _____

NOMBA IDANIMO_____

Awon nkan idani mo nipa oluwadi gege bi ibugbe, nomba ero ibanisoro, leta ayara bia asa, oruko lori ero ayelu jara (e-mail address) ati awon nkan idani mon miran nipa oluse iwadi yi,ile eko wa, ati ajo ti ohun se abojuto lori iwadi imo eto ilere gbogbo (HREC) ati oludari ile eko.

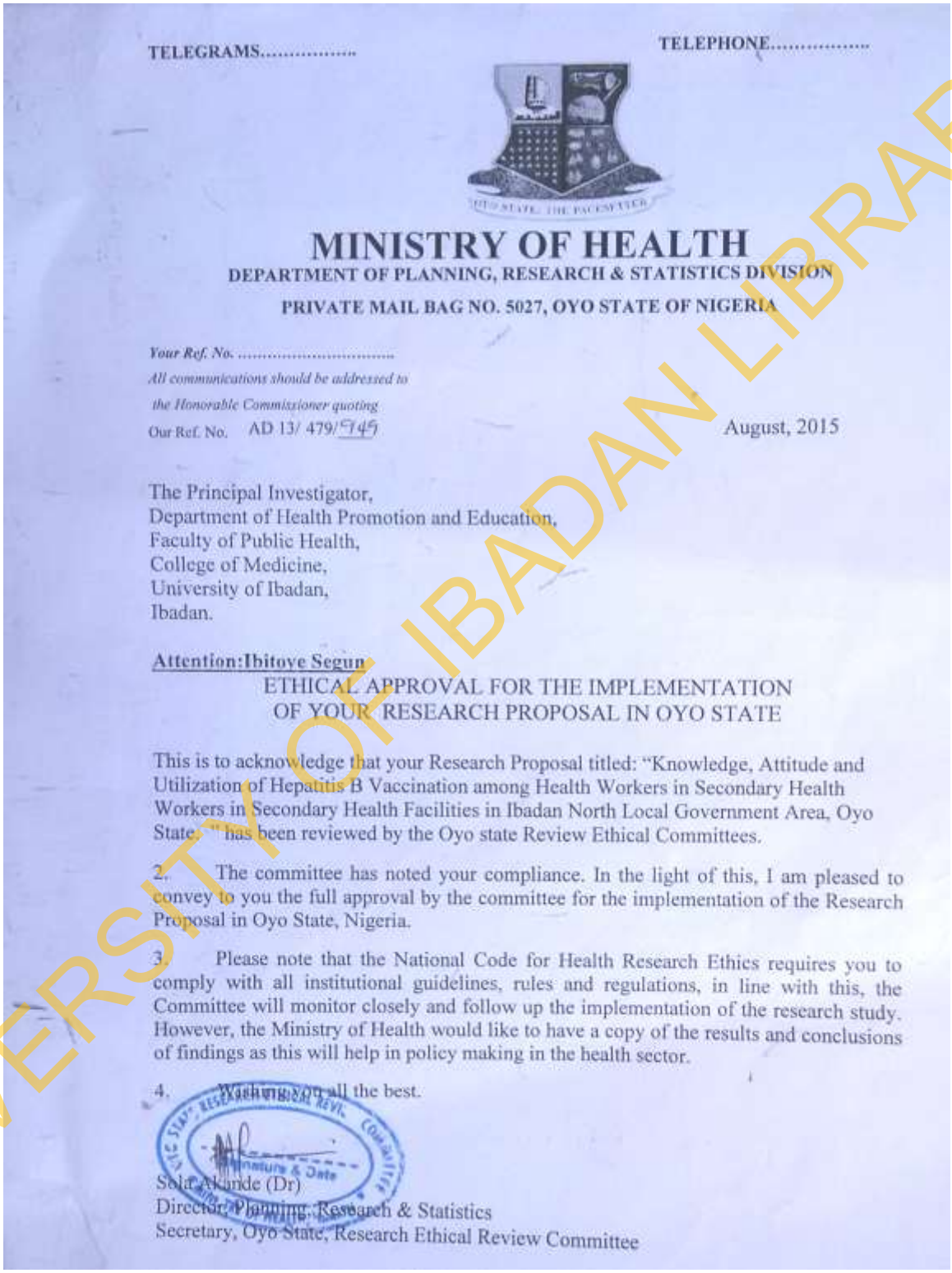
Ti eba ni ibeere kankan lori ikopa yin ninu iwadi yi, ejowo ekan si oludari iwadi yi, oruko mini: IBITOYE Segun Emmanuel, akeko ile iwe giga ti unifasiti ti ilu ibadan Eka ti Igbelruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan, Ero ibanisoro mi ni: 08135567066 ati ero ayelujara (E-mail) mi si ni: Segunmanuelgcfr@.com

Tabi ki ekan si,

Professor, A.J. Ajuwon

Ile ise: Ile iwe giga ti unifasiti ti ilu ibadan Eka ti Igbelaruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan.

Ero ibanisoro: 08034892561.



TELEGRAMS..... TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to the Honorable Commissioner quoting

Our Ref. No. AD 13/ 479/5149

August, 2015

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention:Ibitoye Segun

ETHICAL APPROVAL FOR THE IMPLEMENTATION OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Knowledge, Attitude and Utilization of Hepatitis B Vaccination among Health Workers in Secondary Health Workers in Secondary Health Facilities in Ibadan North Local Government Area, Oyo State." has been reviewed by the Oyo state Review Ethical Committees.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Signature & Date

Solat Akande (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee