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**Prevalence and Barrier of HBV Vaccines among the Nurses in  
Hassaheasa Government Hospitals 2017**

A Thesis Submitted in Partial Fulfillment of the Requirements for the Master  
Degree in Medical Surgical Nursing

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# الآية

قَالَ تَعَالَى:

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ وَأَنْفِقُوا فِي سَبِيلِ اللَّهِ وَلَا تُلْقُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ وَأَحْسِنُوا إِنَّ اللَّهَ يُحِبُّ الْمُحْسِنِينَ ﴾



صدق الله العظيم

البقرة: الآية ( ١٩٥ )

## **Dedication**

For every one who light the other mind by his knowledge or gave ideal instruction we dedicated this research for my fathers who are not scant for us by anything at any time.

For my mothers who are gave us love and kindness.

we say to them: you are gave me life, hope and enjoyment of learning.

For my sisters, my brothers

For that man who gave me a confidence and he always say :be sure you are right.

for everyone who teach me letter that light my road, my teachers and all staff of Shandi university ,my college and all staff in Hassaheasa teaching hospital.

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## **LIST OF ABBREVIATIONS**

- Anti-HBs:** Hepatitis B surface antibody
- Anti-HBc :** Hepatitis B core antibody
- AIDS:** Acquired immunodeficiency syndrome
- BBV:** Blood-borne viruses
- CDC:** Centers for Disease Control
- DNA:** Deoxyribonucleic acid
- DTP:** Diphtheria, tetanus and peruses
- EPI-SA:** Expanded Programmers on Immunization-South Africa
- FDA:** Food and Drug Administration
- HAV:** Hepatitis A virus
- HBV:** Hepatitis B virus
- HCV:** Hepatitis C virus
- HBe Ag:** Hepatitis B endogenous antigen
- HBIG:** HBV immune globulin
- HBs Ag:** Hepatitis B surface antigen
- HCW:** Health care worker
- HEI:** Higher Educational Institutions
- HIB:** Homophiles influenza type B
- HIV:** Human immunodeficiency virus
- IV:** Intravenous
- NDOH:** National Department of Health
- PCR:** Polymerase chain reaction
- PEP:** Post exposure prophylaxis
- NSI:** Needle sticks injury
- PHC:** Primary hepatocellular carcinoma
- SAVIC:** South African Vaccination and Immunization Centre
- SHEA:** Society for Healthcare Epidemiology of America
- WHO:** World Health Organization

## **ABSTRACT**

Hepatitis B is a serious liver disease caused by the hepatitis B virus (HBV), with an estimated 360 million chronic infections worldwide, about a million of which die each year from chronic liver diseases. Sudan is classified among the countries with high hepatitis B virus seroprevalence. Exposure to the virus varied from 47%–78%, with a hepatitis B surface antigen prevalence ranging from 6.8% in central Sudan to 26% in southern Sudan. Studies pointed to infection in early childhood in southern Sudan while there was a trend of increasing infection rate with increasing age in northern Sudan.. Chronic HBV carriers have the potential of transmitting HBV parent rally in the hospital setting, thus health Nurses are at risk of contracting HBV, with the most likely exposure being via a needle stick injury (NSI). There is an effective vaccine against HBV which is recommended by the Department of Health, yet previous studies have shown that most are not Nurses vaccinated. Aim and objectives: The study aimed to investigate the Prevalence and Barrier regarding hepatitis B vaccination amongst in the Nurses Hassaheasa hospitals Objectives were to determine: (1) the level of prevalence of about vaccine Nurses nation against HBV; (2) the barrier of Nurses towards vaccination against HBV; .Methodology This was a descriptive study which made use of a self-administered questionnaire that was sent to Hassaheasa state nurses who were working in All Hassaheasa Teaching hospitals .Result :the study group were well qualified and expertise more the half of them were vaccinated(58,6%) while other were vaccinated but were not complete full dose ,while other were not vaccinated because they were fear, noncompliance and were think that is not important to vaccinated Recommendation: based on study result ,recommended that to provide education program and information about HBV vaccination and recommended to solutions for barrier that interrupted HBC vaccination.

## الملخص

التهاب الكبد B هو مرض خطير في الكبد بسبب فيروس التهاب الكبد B، مع ما يقدر بنحو 360 مليون التهاب مزمن .

ويصنف السودان بين البلدان التي لديها ارتفاع معدل انتشار فيروس التهاب الكبد B. وتراوح نسبة التعرض للفيروس من 47٪- 78٪، مع انتشار لقاح التهاب الكبد B من 6.8٪ في وسط السودان، في وسط السودان إلى 26٪ في جنوب السودان. وأشارت الدراسات إلى العدوى في مرحلة الطفولة المبكرة في جنوب السودان في حين كان هنالك اتجاه لزيادة معدل الإصابة مع تزايد العمر في شمال السودان، وبالتالي حاملي فيروس التهاب الكبد المزمن لديهم القدرة على نقل التهاب الكبد الوبائي الأم، في وضع المستشفى، الممرضات في خطر الإصابة به مع التعرض الأكثر احتمالاً عن طريق إصابة عصا الإبرة.

هناك لقاح فعال ضد التهاب الكبد الوبائي الذي أوصت به وزارة الصحة، ولكن الدراسات السابقة أظهرت أن معظم الممرضات لم يأخذوا اللقاح.

**الهدف والغايات:** هدفت الدراسة إلى التعرف على مدى انتشار المرض والحوازر فيما يتعلق بالتطعيم ضد التهاب الكبد الوبائي بين ممرضات المستشفيات في الحاصحايصا كانت الأهداف تحدد مستوى انتشار اللقاح للممرضات ضد فيروس التهاب الكبد الوبائي و حاجز الممرضات تجاه التطعيم ضد التهاب الكبد الوبائي، **المنهجية:** كانت هذه الدراسة الوصفية جعلت من الاستخدام ذاتيا الاستبيان الذي أرسل إلى ممرضات ولاية الحاصحايصا الذين كانوا يعملون في جميع المستشفيات التعليمية.

**النتيجة:** كانت مجموعة الدراسة مؤهلة تأهيلا جيدا وخبرة؛ بأن أكثر من نصفهم تم تطعيمهم (6،58٪)، في حين لم يتم تطعيم البعض الآخر لأنهم كانوا خائفون، ولم يكملوا التطعيم ، وكانوا يعتقدون أنه ليس من المهم أن يأخذوا التطعيم.

**التوصيات:** استنادا إلى نتيجة الدراسة، أوصت الدراسة بأن يتم توفير برنامج التعليم والمعلومات حول التطعيم ضد التهاب الكبد B وأوصت بوجود الحلول اللتي تعوق تطعيم التهاب الكبد B.

# **CHAPTER 1**

## **Introduction, Objectives, Rationale**

## 1.1 INTRODUCTION

Hepatitis B is a disease caused by the hepatitis B virus (HBV), which is transmitted through percutaneous or mucosal exposure to infectious blood or body fluids (Center for Disease Control (CDC), 2006). It is a major problem because it can cause chronic infection, resulting in cirrhosis of the liver, liver cancer, liver failure, and death. In addition, several extra-hepatic lesions occur because of HBV infection, with this; there is deposition of immune complexes in different organs of the body especially, the kidney (Beveller & Dibisceglie, 2000). Persons with chronic infection also serve as the main reservoir for continued HBV transmission (CDC, 2006).

HBV accounts for community-acquired infections (World Health Organization [WHO], 2006) with about a million who die each year from chronic liver diseases (South African Vaccination and Immunization Centre [SAVIC], 2008).

Most persons who become chronic carriers of the virus live in Asia and Africa (Braining Institute, 2006). These regions are said to be highly endemic for hepatitis B. In South Africa (SA), over 50% of the population have been infected by the virus, and at least 3 million people are chronic HBV carriers (SAVIC, 2008).

The major route of HBV transmission in sub-Saharan Africa is horizontal (i.e. transmission unrelated to recognized sexual, prenatal, or parenteral exposure) (CDC, 2002.) in children under 5 years of age; however, percutaneous /parenteral transmission is also an important mode of spread (Hollinger, 2001).

Nurses may be exposed to the risk of infection with blood-borne viruses (BBVs) such as HBV, hepatitis C virus (HCV) and human immunodeficiency virus (HIV) via contact with blood (and other body fluids) in the course of their work (SAVIC, 2008). The form of exposure most likely to result in occupational BBV infection is a needle stick injury (NSI).

HBV can be prevented by strict adherence to standard microbiological practices and techniques, and routine use of appropriate barrier precautions to prevent skin and mucous membrane exposure when handling blood and other body fluids of all patients in health care settings (SAVIC, 2008).

Following exposure to blood or body fluids, post-exposure prophylaxis can be administered as a combination of passive immunization with hepatitis B immunoglobulin (HBIG) and vaccination with the hepatitis B vaccine (SAVIC, 2008). However, the most

cost-effective method to prevent and control hepatitis B is through pre-exposure vaccination (SAVIC, 2008)

It is important Nurses to know their HBV status by being screened for the HBV surface antigen (HBs Ag) antibody (anti-HBs), and to be vaccinated against hepatitis B if found to be unprotected. This will protect them from being infected, and prevent them from spreading the virus which can infect patients. The vaccine has been found to be safe and effective, and can protect one for a lifetime (SAVIC, 2008).

Education and prevention of infection with HBV should be emphasized, and all patients should be regarded as potential HBV carriers regardless of their medical history or condition. Hepatitis B Virus (HBV) may progress to serious consequences and increase dramatically beyond endemic dimensions that transmits to or from healthcare workers (HCWs) during routine investigation in their workplaces.(SAVIC,2008).

Basic aim of this study was to canvass the safety of HCWs and determine the prevalence of HBV and its possible association with occupational and non-occupational risk factors. Hepatitis B vaccination coverage level and main barriers to vaccination were also taken in account.(SAVIC,2008).

## **1.2 Objectives**

### **1.2.1 General Objectives**

The aim of this study was to investigate the Prevalence and barrier regarding hepatitis B vaccination among. Nurses in the Hassaheasa teaching hospitals.

### **1.2.2 Specifics Objectives**

- To identify the Prevalence about vaccination against HBV.
- To identify the barriers of towards vaccination against HBV

### **1.3 Rationale**

HBV is a priority occupationally acquired infection that is associated with serious public and personal health consequences, and is considered to be the most important cause of occupationally acquired viral hepatitis amongst nurses. Nurses are at an increased risk for exposure to HBV when they come into contact with human blood products, or potentially infectious bodily fluids. The level of risk depends on the number of patients with the infection in the healthcare facility, the precautions the nurses observe while dealing with these patients, and whether or not the nurses are successfully vaccinated against HBV.

A safe and effective vaccine against HBV is available throughout the world, yet many nurses in resource-poor countries remain at risk because they are not vaccinated against HBV (Suckling et al, 2006).

This has been demonstrated in the study done at a Johannesburg hospital where a large number of nurses were found to be not vaccinated (Vardasetal, 2002). This is because although the vaccine is recommended by the Department of Health, it has not been made mandatory for nurses in this country. Thus a personal choice is made by each nurse, and this choice depends on the prevalence and barrier that the nurses have, regarding vaccination against HBV.

## **CHPTETER 2**

### **Literature Review and Previous Study**

## **2.1 LITERATURE REVIEW**

### **2.1.1 Etiology of Viral Hepatitis:**

Viral hepatitis is a systemic illness which affects the liver predominantly by causing inflammation of liver cells. The illness results from infection by any of the hepatotropic viruses, namely HBV, hepatitis A virus (HAV), hepatitis C virus (HCV) and hepatitis D virus (HDV). (O'Grady et al., 2000).

### **2.1.2 Epidemiology of HBV:**

The following factors have a significant impact on the host antibodies that are produced by the different HBV proteins: age at which the host gets infected the immune status of the host, and genetic factors such as the host's class II HLA genotype (Lok & McMahon 2007).

Antibodies to the core antigen (anti-HBc) and to the endogenous antigen (anti-HBe) are the first to be produced after an attack by HBV. Anti-HBc persists indefinitely while anti-HBe vanishes after some time. Recovery is anticipated once the aforementioned antibodies appear, but the appearance of antibodies to the surface antigen (anti-HBs) confirms convalescence. (Chen 2000)

The virus is destroyed when the anti-HBs binds to the major neutralizing epitomes on the HBs Ag. Life-long protection against HBV is provided after this. Thus, HBs Ag is used in all HBV vaccines. A good response (i.e.  $\geq 10$  ml U/ml) will impart long-lasting immunity [Kane et al, 2000].

It is important to emphasize that adherence to licensed hepatitis B vaccination schedules results in a protective concentration of anti-HBs that is 10 ml U/ml in 90-100% of healthy infants; children and adults (Sheppard, 2006).

### **2.1.3 The Virus Particle (Wikipedia):**

The following are the routes of transmission: vertical (mother to child, which is mostly prenatal and rarely in uterus), horizontal transmission in under 5 year-olds (mainly unexplained but thought to involve bites, lesions, and sanitary habits), and horizontal transmission in adult life (through sexual contact, and parenteral exposures, which include intravenous drug use, and exposure through medical procedures such as blood transfusions, and accidental exposures in the health care setting) (Custer, 2004).

There are marked geographic variations in the importance of these routes of transmission in relation to HBs Ag seroprevalence, and the predominant mode of transmission in different areas is strongly related to the degree of HBV endemicity. In highly endemic regions, disease transmission is commonly by exposure to chronically infected family members (including mother to child transmission and horizontal routes) (Ho- Hosing et al, 2003).

Several studies have established that the transmission of HBV in sub-Saharan Africa occurs predominantly in early childhood, and is by the horizontal route rather than by per natal transmission. There are different ways in which horizontal transmission is thought possible in this region, namely through saliva or traces of blood, as well as unsterile needles or tribal scarification (Engle & Med 2004).

There is low rate HBe Ag positivity in women of child-bearing age in sub-Saharan Africa as compared to those found in South East Asia, which is whimper natal transmission is not a major route of transmission in the region (JCO May 20, 2009).

Injecting drug use, sexual intercourse, and body piercing are the common routes by which HBV is acquired in low endemic countries (Sheppard, 2006).

Bites by bloodsucking vectors have not been proven to play a role in HBV transmission (Sheppard, 2006).

#### **2.1.4 Prevalence of HBV:**

The prevalence of chronic HBV infection in a given area is reflected by the primary method of transmission. The continental United States and Western Europe are the low prevalence areas in the world with less than 2% of the population that is chronically infected. Their primary method of transmission is drug abuse injection and engaging in unprotected sex. Despite this, there could be other methods present, though they are not as significant as the aforementioned (Red, et al, 2007).

Eastern Europe, Russia, and Japan, is regions of moderate prevalence, where 2-7% of the population is chronically infected, and all age groups are at risk. China, South East Asia, and sub-Saharan Africa are the high prevalence areas, where  $\geq 8\%$  of the population is chronically infected. (lock &McMahon 2007).

The HBs Ag carrier rate in sub-Saharan Africa ranges from 9.6% in South Africa, to 20.6% in Zaire, while past exposure to HBV in adults ranges from 56.2% in Kenya to 91% in Senegal (Kyrie, 1996).

The HBV prevalence in South Africa shows clear regional differences, with higher prevalence in rural areas as compared to urban areas. A study done in South Africa demonstrated a vast difference in the carrier rate of HBV Between children that were born in Soweto and those born in rural areas (1.1% versus 9.7-15%) and also a difference in women of childbearing age in the respective communities (2.7% versus 4.6-11%) This depicts a country with ‘intermediate HBV endemicity and pockets of high endemicity’ (Mphahlele et al, 2002).

### **2.1.5 Laboratory Diagnosis:**

#### **2.1.5.1 Serological Markers:**

Antigens and antibodies associated with HBV infection include HBs Ag and antibody to HBs Ag (anti-HBs), hepatitis B core antigen (HBc Ag) and antibody to HBcAg (anti-HBc), and hepatitis B e antigen (HBe Ag) and antibody to HBe Ag (anti-HBe). At least one serological marker is present during each of the different phases of HBV infection (; Hollinger et al, 2001).

The presence of a confirmed HBsAg-positive result in serum indicates active HBV infection. All HBsAg-positive persons should be considered infectious. In newly infected persons, HBsAg is the only serological marker detected during the first 3 to 5 weeks after infection. The average time from exposure to detection of HBsAg is 30 days, ranging from 6-60 days (Ann Med. 2002).

In persons who recover from HBV infection, HBsAg is eliminated from the blood; anti-HBs develop within 3-4 months. The presence of anti-HBs indicates immunity from HBV infection. Persons who recover from natural infection will be positive for both anti-HBs and anti-HBc, whereas persons who respond to hepatitis B vaccine have only anti-HBs. Persons who become chronically infected, HBsAg and anti-HBc persist for life (Mahon et al, 2001).

### **2.1.6 Treatment:**

There is no specific treatment for acute hepatitis B. Care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea (WHO, 2004).

There are few treatment options that exist if the condition progresses to chronic hepatitis B. Treatment can cost thousands of dollars per year and is not available to most patients in developing countries. Antiviral: These are aimed at suppressing or destroying HBV by interfering with viral replication (Beveller & Di Bisceglie, 2000).

### **2.1.7 Immune modulators:**

They are aimed at helping the human immune system to mount a defense against the virus. The following are the common drugs to treat chronic HBV infection (Mayo clinic, 2006).

### **2.1.8 Prevention and Control:**

General precautions in the health care setting.

### **2.1.9 Screening of Blood Products;**

There are other forms of prevention of hepatitis B infection that were used before the introduction of hepatitis B vaccines. These include the screening of blood donors, and methods for the preparation of plasma-derived products which render HBV to be ineffective.

### **2.1.10 Injection safety:**

The WHO defines safe injection as one that does not injure the recipient, does not expose the HCW to any preventable risk, and does not result in any waste that is likely to cause great harm to the community (Simonsen, 2000).

Injections have become one of the frequently used procedures in health care. Patients go as far as requesting for them as they believe medication is received stronger and faster. Doctors prescribe them with the belief that it will satisfy the patient. Over 70% injections given in some instances in a health care setting are unnecessary or could have been given in an oral formula, as 9 out of 10 patients receive an injection (Simonsen, 2000).

There is no harm caused by a safe injection. Harm only results once safe control measures are not practiced, predisposing to severe infections. Harm results when syringes and needles are re-used in the absence of sterilization as seen in some areas in developing countries. Unsafe injection use occurs when needles or syringes have been repeatedly used, a practice that often occurs in impoverished countries (Kermode, 2005).

Common practices that are seen in most countries that expose nurses to BBVs is poor collection and disposal of dirty injections. There are several suggestions that have been made to prevent and limit sharps injuries among nurses, for instance, health education for behavior change (e.g. not recapping needles), introduction of barriers to protect the nurses, safe techniques and devices (e.g. needleless and self-sheathing equipment) and improved organizational factors (e.g. better staffing levels) (Mahfouz, 2009).

Notwithstanding, unsafe injection practices are a powerful source to transmit blood-borne diseases, HBV. Because infection with these viruses initially presents no symptoms, it is a silent epidemic. However, the consequences of this are increasingly recognized as a global challenge. It is indicated that each year unsafe injections cause an estimated 1.3 million early deaths, a loss of 26 million years of life, and an annual burden of USD 600 million in direct medical costs (Miller2000).

As a result, the WHO hosts and coordinates the Safe Injection Global Network (SIGN), which assembles all major stakeholders to promote and sustain injection safety worldwide.

#### **2.1.11 Universal precautions:**

Effective ways of implementing universal precautions and guidelines for continuous education of Doctors & nurses should be practiced by all health care institutions (Baker et al, 2001). Health authorities should abide by providing health care institutions with adequate equipment and supplies in order to avoid contravening the nurses right to protection against BBVs. There are four basic elements of universal precautions which have to be implemented in all health care settings; (1) body fluids should be handled with the same precautions as blood; (2) avoidance or limiting the use of sharp objects; (3) avoidance of skin or mucous membrane contamination; and/or (4) cleaning/ disinfecting/ sterilizing (Barker et al, 2001).

It has been established that the application of universal precautions is virtually impossible in the emergency admitting rooms. This is because of the urgency associated with work in these settings. As previously mentioned, NSIs are the most common injuries associated with BBVs. In this case it is important to promote the use of safe injections in all settings, as this is the commonest mode of transmission of BBVs. The use of unsafe injections has been associated with an estimated 8 – 16 million HBV infections which occur annually in the world (SIGN, 2008).

Wearing protective clothing during procedures, especially gloves and goggles, being careful, and knowing what to do after a NSI to prevent HBV infection is most important in the prevention of the spread of the virus.

#### **2.1.12 Hepatitis B infected Nurse's:**

There are guidelines in place restricting the working practices of certain hepatitis B infected nurses. The guidelines aim to reduce further the risk of transmission of infection from providers to patients. Additional tests are recommended on hepatitis B infected nurses who are also HBeAg negative. When these nurses perform exposure

prone procedures, they should have their working practices restricted if their viral load is elevated. Hepatitis B infected Nurses refer to those who are HBsAg positive.

The Society for Healthcare Epidemiology of America (SHEA) emphasizes the use of appropriate infection control procedures. They recommend that HBeAg positive nurses should routinely use double gloves and should not perform those activities that have been identified epidemiologically as associated with a risk for provider-to-patient HBV transmission despite the use of appropriate infection control procedures.

The Centers for Disease control and Prevention (CDC), issued guidelines for HIV and HBV infected nurses. This was done in July 1991 after the national and international publicity surrounding iatrogenic HIV infection associated with a Florida dentist (CDC, 2000).

Amongst the guidelines issued, there is one where there is a need to classify a subset of invasive procedures as “exposure-prone.” These procedures is where the workers gloved hands may be in contact with sharp instruments, needle tips, or sharp tissues inside a patients open body cavity, wound, or confined anatomical space where the hands or fingertips may not be completely visible at all times. These procedures should not be performed by a nurses who is HBeAg positive (UK DoH, 2001). This is because there is a markedly high viral burden that is associated with e-antigen positivity (100 million to 10 billion HBV particles per milliliter of blood) (CDC, 1985). As a result, barriers may not be relatively effective in preventing transmission. All nurses should be:

- Educated to understand the mechanisms of blood borne pathogen transmission
- Shown methods to prevent transmission, and
- How to use those methods in all circumstances.

The principle that all blood and hazardous body fluids must be considered infectious, irrespective of a patient's diagnosis, applies also to nurses infected or potentially infected with BBD.

If an unvaccinated nurses find himself exposed to blood or body fluid of an individual known to be positive for HBV, he should then receive the first dose of the vaccine and one dose of HBIG within 24 hours if possible, and the remaining 2 doses to be given 1 and 6 months after the first dose. He should then be tested 1-2 months after the vaccine doses have been completed. Even if the hepatitis B status of the source is unknown, the nurses should commence hepatitis B vaccine doses as soon as possible. Thereafter, testing of protective antibodies should be done (CDC, 2001).

### **2.1.13 Vaccination programmers':**

The Expanded Program on Immunization (EPI) was initiated in 1974 by the WHO with the goal of making vaccines available to all children throughout the world. The goal of the EPI is to reduce morbidity and mortality from vaccine-preventable diseases, and as such it is an essential element Primary health care. The original EPI vaccines were BCG (Bacillus Calmette-Guerin),

DTP (diphtheria-tetanus-pertussis), oral polio, and measles. In a span of thirty years, immunization coverage has increased from 5% to about 80% of all children demonstrating the success of the program. In Sudan, additional vaccines were introduced during the 1990s (hepatitis B [Hep B), Homophiles influenza type b [Hib]], and in Sudan vaccinated against rotavirus started on 17 -7-2011 the rotavirus, pneumococcal, and inactivated polio vaccines were introduced (SAVIC, 2009).

Universal HBV vaccination of infants in Sudan started in April 2005 (Tsebe et al, 2001). The EPI-Sudan schedule is based on the WHO accelerated schedule, with no hepatitis B vaccine given at birth. Hepatitis B vaccine is given at the same time as DPT-Hib: at 6, 10, and 14 weeks of life. There has been a significant reduction in HBsAg carriage amongst children in the first five years (1995-1999) after universal childhood HBV vaccination was introduced, as demonstrated by a study done in the Northern Province (Tsebe et al, 2001).

These findings were supported by a KwaZulu-Natal study which showed a significant reduction in the incidence of HBV-associated membranous nephropathy (MN) in children after a period of 6 years following the introduction of the HBV vaccine into the EPI-SA (Bhīma et al, 2003).

To date there is no national or provincial registration system available for assessing number of adults vaccinated with hepatitis B except the vaccinations that were administered through the childhood vaccinations registration. Employers are found not to keep any registry of staff that have accepted and received hepatitis B vaccine due to occupational exposure.

In addition to hepatitis B vaccine being included in the childhood immunization programmers, the WHO recommended that it also be given to high risk groups such as intravenous drug users, nurses with frequent blood exposure, and to children born to mothers who are HBsAg positive.

Nurses as professionals are major role players in the implementation of successful vaccination coverage as seen in the study done in Stockholm. The reason for non-vaccination amongst children was because parents stated that it had not been recommended by health professionals (Dannetun, 2006).

The aforementioned point is brought into consideration as it is evident that among educated health professionals there is a need for professional guidance as concerns one's own immunization.

It is thus recommended that all nurses be vaccinated with HBV in the commencement of their profession and before they are exposed to potentially infectious blood borne diseases from their patients (NACI). Although HBV infection is recognized as one of the most dangerous transmissible diseases in the workplace, most Doctors & nurses remain unprotected from it despite it being a preventable disease (CDC, 2001).

This is because the vaccine has not been made compulsory and health centers avoid providing it free of charge after nurses have received the vaccine, they should have their HBsAg levels tested 4-6 weeks after completion of the doses to make sure that they have built up protection against HBV infection. No routine antibody testing or vaccine boosters are recommended once the nurses blood test shows that they are protected (CDC, 2001).

Nurses, who demonstrate that they have not developed protective antibodies after completion of the vaccine doses, should have all the three doses repeated and anti-HBs tested after 4-6 weeks after completion of the additional second doses. (Dannetun, 2006).

#### **2.1.14 Occupational HBV exposure:**

- **Introduction:**

According to the WHO, the estimated global number of Doctors & nurses is between 35 million to 100 million when including all health care related staff such as doctors, nurses and midwives who are in active practice. Assuming that the HBV prevalence rate is similar to that of the general population, it is thus obvious that the number of infected Doctors & nurses is a cause for concern, especially in under-resourced health systems (Viral Hepatitis Prevention Board [VHPB], 2005).

The risk of transmission of HBV to nurses from patients is higher than that of nurses to patients (VHPB, 2005).

It has been demonstrated that the risk of transmission varies greatly amongst different disciplines, with surgery, gynecology, and orthopedic services having the greatest risk (Maugham et al, 2007).

Needle stick injuries, especially those involving hollow needles, have been reported as the most common route of transmission (Alam, 2002; De Villiers et al, 2007). It is essential that nurses acknowledge the risk, and exercise caution, nurses have to be taught about all potential sources of risk, not only the most common or important, and when injuries occur, it is important that they are reported and Post Exposure Prophylaxes provided. Standardization of the reporting procedures would help the process of data collection and analysis considerably.

A number of studies on the prevalence and barrier practices of nurses regarding HBV infection from around the globe have been reviewed, since all of these studies include HBV vaccination as the most important practice in preventing the occupational risk of HBV infection.

- **Prevalence:**
- **Prevalence about occupational risks:**

Nurses tend to underestimate the prevalence of HBV infection at the work place, as well as the risk for exposure. This is illustrated by a Bloemfontein study, where doctors were more worried about HIV than HBV. Amongst doctors who had been exposed to the HBV, 59.8% did not see the need to take PEP, and those who did, did not always complete the course of treatment. It was also found that there were two Doctors & nurses that had seroconvert to HBV that were reported, as compared to none from HIV signifying that HBV was more infectious than HIV. (De Villiers et al, 2007).

In contrast, 82% of nurses in a study done in Dublin, Ireland, knew that HBV transmission was 100 times more infective than HIV (McGrane et al, 2003).

These findings are supported by those from other countries, with only 21.4% nurses from Iran and the UK respectively, knowing that HBV can be transmitted by NSI (Maugham et al, 2007; Stein et al, 2003).

In the study done in Iran, only 21.4% of surgeons demonstrated good knowledge about seroconversion rates of HBV after a NSI, with most (77.9 %) of them not knowing the seroconversion rate after a NSI from HBV infection. This is a worrying finding, because the risk of exposure for general surgeons is about three to four times greater than other disciplines (Fry, 2006).

A study from Nigeria found a discrepancy in knowledge between doctors and nurses concerning the risk of acquiring HBV after a NSI, with 50.3% (72/143) of nurses and demonstrating knowledge of the risk (Adebamowo et al, 2000).

#### **2.1.15 Prevalence about the hepatitis B vaccine:**

In a study conducted in Egyptian nurses where poor vaccination coverage was reported, it was found 38% did not know how effective the vaccine is, whilst 47% were not sure of how long they would be protected by the vaccine (El-Awady, 2000).

In contrast, vaccine effectiveness, and the belief that they were at risk of exposure were cited as reasons for being vaccinated by registered nurses in a study from Houston, USA, where high vaccination coverage was reported (McEwen et al, 2005).

In addition, a study done in Nigeria showed a variation in knowledge about the hepatitis B vaccine amongst nurses with doctors showing better knowledge than nurses, 48% and 36% respectively (Adebamowo et al, 2000).

In an earlier study from the same author on Nigerian surgeons, it was found that lack of awareness about the vaccine was one of the factors leading to poor vaccination rates (Adebamowo et al, 2000).

A study in Dublin, Ireland, found that whilst the majority of nurses were vaccinated against HBV and also checked their immunity, this was influenced by the knowledge about the benefits given by the vaccine (McGrane et al, 2003).

However, in contrast to these findings, a Nigerian study on hospital personnel found that knowledge is inversely related to practice, since those with the least knowledge (non-clinical workers) were more likely (69.5 -76.3%) to be fully vaccinated than doctors (40.3%) and nurses (39.7%) (Fatusi et al, 2000).

The study shows that slightly more surgeons wore gloves based on the appearance of the patient, with 92.1% of surgeons wearing gloves when the patient had active hepatitis as compared to 89.4% when a patient was a hepatitis B carrier. Patients with active hepatitis B look clinically ill, there is gradual onset of tiredness, abdominal discomfort, decreased appetite, the liver becomes enlarged, and sometimes become jaundiced and may develop painful joints, skin rashes or inflammation of the liver, whereas a patient where a carrier state exists is not clinically ill (Prometheus Healthcare, 2001).

#### **2.1.16 Barrier towards vaccination:**

The main barrier to compliance with the guidelines to vaccination in a study done in Sweden was the employers willingness to pay for the hepatitis B vaccine, with about

77% of unvaccinated staff showing interest to be vaccinated against HBV if it was offered to them for free by the employer (Dannetun et al, 2006).

Similarly, a study in Dublin, Ireland, found that the vaccine being offered free of charge influenced staff to be vaccinated against HBV (McGrane et al, 2003).

In contrast, in a study done in Nigeria on surgeons, it was found there was generally poor perception of risk of infection by HBV. However, in agreement with the previous studies, the costs of vaccines were cited as another reason for not being vaccinated (Adebamowo et al, 1997).

Another Nigerian study (where all interested employees at a teaching hospital were provided with a free recombinant hepatitis B vaccine under a vaccination programme which was conducted within the hospital grounds) demonstrated that 91.9% of the participants received at least one dose of the vaccine, and 53.8% managed to receive all three doses of the vaccine (Fatusi et al, 2000).

The study further pointed out that amongst the participants, workers thought to have greater knowledge about HBV infection (doctors and nurses) were the one who were less interested in receiving the vaccine. Non-clinical workers (medical record personnel [76.3%] and engineering staff [69.5%]) demonstrated greater compliance, whilst clinical professionals (nurses [39.7%] and doctors [40.3%]) showed less compliance (Fatusi et al, 2000).

This study highlighted greater apathy to the vaccination programme amongst clinical professionals, and that it was not about the cost of the vaccine, in contrast to the findings of the Swedish and Nigerian studies (Dannetun et al, 2006).

In the study done by EL-Awady, 80.9% of participants felt that the work place was the best place to issue HB vaccine. The majority of the participants, 95.2%, gave their final opinion that the vaccine should be funded and only 60.9% thought the vaccine was unaffordable.

In a study done in Texas, USA, 8% of participating registered nurses were not willing to be vaccinated against hepatitis B, since they perceived themselves to be at low risk as they stated they were not practicing as nurses, they also declined because of concerns about side effects, lack of concern about getting the illness, and doubts about the vaccines' effectiveness. Participants who were willing to be vaccinated believed that the vaccine was effective and also perceived them to be at risk of exposure, and the fact that the vaccine was provided free of charge also influenced their decision. (McEwen et al, 2005).

This was supported by a study done in Dublin where 83% of staff were vaccinated with all the required 3 doses of hepatitis B vaccine. Reasons to be vaccinated were their understanding of the benefits provided by the vaccine and that it was issued free of charge (McGrane et al, 2003).

A study done in Thailand where the vaccine was issued free of charge, their initial acceptance rate for vaccination was 65.7%, with 10.0% non acceptance and 24.3% of nurses being undecided. Those that accepted the vaccine had confidence in the vaccine efficacy and in its safety, whereas those that refused had different types of fear (Israsena et al, 2001).

In developed countries, the safety of staff has been promoted by applying different interventions, namely, Universal Precautions, provision of personal protective equipment, routine hepatitis B vaccination, PEP, engineered safety devices, injury surveillance, and enactment of relevant legislation (Kermode et al, 2005).

In sub-Saharan Africa, the aforementioned practices are lacking despite a high prevalence of diseases caused by BBVs. Infection control practices in these countries are not optimized in that there is no available information on the reporting of occupational exposure to infected blood (Kermode et al, 2005).

In a study done in Saudi Arabia, 52 subjects (74%) out of 70 had experienced a NSI, and of those 34 (67%) had 1-2 pricks per year. Out of these, only 4 subjects (8%) reported the injuries to get PEP. A majority of them (48/52 [92%]) did not report the incident (Alam, 2002).

Similarly, an Iranian study found that only 3.2% of surgeons stated they always reported NSIs, 6% sometimes, 12.4% occasionally, 19.9% rarely, and 59.6% never reported NSIs (Maugham et al, 2007).

This was despite the fact that 100% of them said they knew that HBV was transmitted through a NSI; only 27% said they wore gloves all the time for Phlebotomy procedure, 69% said occasionally and 4% stated they did not wear gloves at all (Maugham et al, 2007).

In the same study, only about 13 % of surgeon's nurses used double gloves when performing a surgical procedure based on the perceived risk of transmission. The findings were worse with older surgeon's nurses who were found never to use double gloves (Maugham et al, 2007).

### **2.1.17 Vaccination:**

Staff needs to be protected against HBV by being vaccinated. The vaccine is safe and effective and it can protect one for a lifetime. Unfortunately it has been shown that a large number of staff in developing countries is not vaccinated against HBV as demonstrated by the following studies.

A study of 554 staff conducted in Kenya to establish their immunization status, found that only 12.8% (71/554) of staff had received vaccination previously and none had been screened for immunity or hepatitis B surface antigen (HBsAg) (Suckling et al, 2006).

These results are consistent with those found in the study done in Johannesburg, South Africa, which found only 21.2% of staff had a history of past immunization against HBV, although 30.6% were immune either from past vaccination or natural infection (Vardar et al, 2002).

In contrast to these low vaccination rates, a study on South African doctors in Bloemfontein found that 81% had previously been vaccinated (De Villiers et al, 2007). It is also important for staff to complete the full vaccination schedule, and to check their HBV immune status thereafter. Although it was found that 93.3% of staff had been vaccinated in a study done in Iran, 23.7% had not completed the full vaccination schedule, and only 56.8% had checked their antibody levels (Maugham et al, 2007).

In addition, the study done in Birmingham demonstrated that only 40% of staff were fully vaccinated against hepatitis B. Amongst the staff who were partly vaccinated, the most common reason that was given for not having completed the vaccination course was that it had been forgotten (Dannetun, 2006).

The importance of checking antibody levels after vaccination is illustrated by the South African study carried out in Bloemfontein, where it was found that 81% of doctors exposed to NSIs said they had previously been vaccinated against hepatitis B infection. Moreover, amongst staff that was exposed to a NSI, there were two of them that seroconvert, and it was found that they had not been previously vaccinated. Seemingly, most assumed they were immune since only 21.7% underwent serological testing for HBV directly after the NSI (De Villiers et al, 2007).

Gaps in the literature that will be addressed by this study

Despite the availability of the vaccine in SA, and the fact that the DoH strongly recommends vaccination, staff are not being vaccinated, and the reasons why they are not being vaccinated are not understood in our context since there have been very few studies

conducted on this topic in SA. A study done on the higher educational institutions (HEIs) of South Africa which offer degrees in healthcare, identified that there were policies in place regarding the issuing of hepatitis B vaccine to the students, but that they were not adequate enough to protect the students against acquiring occupational HBV infection (Fernandez,).

#### **2.1.18 Previous Study**

- **Knowledge ,attitude and practices regarding the prevention of hepatitis B virus infections in final year college student nurses in Gauteng provinc.**

- **Introduction:**

Hepatitis B infection is a serious blood-borne disease caused by the hepatitis B virus (HBV) which attacks the liver, and is the leading cause of liver cancer and cirrhosis of the liver. HBV can be transmitted through exposure to infected blood and human secretions through needle stick / sharps injuries and splashes. Thus nurses are at high risk for BV infection.

- **The aim of the study:**

To investigate the knowledge, attitudes and practices (KAP) regarding the prevention of hepatitis B virus infections, in final year college student nurses in Gauteng province.

Results: Of 350 questionnaires distributed, 312 student nurses returned completed forms (response rate: 89.14% [312/350]). The majority were females (86.8% [270/331]) and were below 31 years of age (30.1% [93/309]). The majority (87.6% [271/310]) had good knowledge of the causes and prevention of HBV. The unvaccinated respondents had fairly low positive attitudes, with a mean, mode and median score of 1 (possible score from -4 to +4). The majority (79% [244/310]) practiced good compliance with universal precautions of, and the majority (64.9% [202/311]) were vaccinated. College A displayed significantly higher knowledge ( $p < 0.001$ ), positive attitudes ( $p = 0.001$ ) and safer practices ( $p < 0.001$ ) than college B and C.

- **Health workers' knowledge, attitude and behaviour**

towards hepatitis B infection in Southern Nigeria

- **RESULTS**

A total of 200 respondents were recruited into the study out of which 58% of them were females and 42% were males. Nurses and doctors made up a majority of respondents interviewed accounting for 45.5% and 33.5%, respectively. More than three-quarters of the respondents (81%) had ever heard of hepatitis B infection prior to the study. Of those mentioned blood and blood products as route of transmission of Hepatitis B, 68.5% mentioned needles and sharps while only 37% said that the disease can be transmitted through sexual intercourse.

A majority (77.2%) of the respondents correctly identified vaccination as a way of preventing hepatitis B infection while 61.7% mentioned avoiding needle/sharps injury. A little more than three-quarters of the respondents (75.5%), were aware of the existence of Hepatitis B vaccine prior to the study. Of those that were aware of hepatitis B vaccine, 11.9% did not know the number of doses required for complete protection. It is noteworthy that only 33.1% of those who knew about the vaccine could correctly identify the dosing interval for the vaccine.

Of those that were aware of hepatitis B infection, 92.6% mentioned wearing of gloves as a way of protecting themselves against contacting Hepatitis B. Incorrectly identified ways of protecting against contacting Hepatitis

B infection by the respondents included avoidance of diagnosed patients (29.6%) and use of multivitamin/blood tonic drugs (6.8%). It is noteworthy that almost two-thirds of the respondents who knew about Hepatitis B mentioned the use of antibiotics immediately following contact with an infected person (61.1%) as a way of protecting themselves from contacting Hepatitis B.

Almost all the respondents (93.4%) who were aware of the existence of Hepatitis B vaccine prior to the study considered it necessary to receive hepatitis B vaccine.

Only 70.2% have actually ever received Hepatitis B vaccine, while only 59.4% completed the vaccination schedule. It is noteworthy that significantly more females (76.2%) and Nurses (54%) completed the vaccination schedule than the males and other category of health workers.

# **CHAPTER 3**

## **Methodology**

### **3. Methodology**

The aim of this study was to investigate the prevalence and barrier regarding hepatitis B vaccination amongst nurses in the Hassaheasa State in general public hospitals.

#### **3.1 Study design:**

A cross-sectional descriptive study was conducted. The study followed a quantitative approach, and participants completed a self administered questionnaire to assess their prevalence and barrier regarding HBV vaccination. Done during period from (8) to (10) weeks.

#### **3.2 Study area**

The study was conducted in Hassaheasa in Gazers state which away about 121Km, 75ml from Khartoum and 46km, 28ml from Wad Mandeni.

#### **3.3 Setting:**

The study was conducted in the Hassaheasa teaching hospital in the Hassaheasa state built in 1963 as general hospital, in 2004 separated to deferent hospital, General ,pediatric, ophthalmic, dental and obstetrics hospital.

#### **3.4 Study population**

All nurses working at government hospitals in Hassaheasa state who consented to take part in this study were included.

#### **3.5 Exclusion criteria**

National Service, training and nursing in holyday.

#### **3.6 Sampling and sample size**

##### **3.6.1 Sampling technique**

Simple random sample was used.

### **3.6.2 Sample size:**

Nurses whose working in Hassaheasa teaching hospital, Pediatric and Obstetrics hospital who selected by toes. (70)nurses

### **3.7 Data collection tools**

Data was collected through a questionnaire which was formulated by the researcher, based on the literature review. The questionnaire was divided into three sections.

#### **3.7.1 Demographics**

Questions comprised of respondents age, gender, qualification, duration as health care worker (years).

#### **3.7.2 Exposure to and Protection against HBV**

This was concerned with exposure to and/or protection against hepatitis B virus. Information concerning vaccination, such as, have you been vaccinated against hepatitis B virus?, if vaccinated, how many doses?, was your immunity against hepatitis B checked after vaccination?, how many times during your working lifetime have you experienced a needle stick or sharps injury involving a needle or sharp instrument that had been used on a patient?, how many times in the last year have you experienced blood or body fluids splashing in your eyes or mouth?, and do you wear protective clothing when handling blood or body fluids

The analysis identified the level of practice of nurses about vaccination against HBV. Respondents had to choose one of the options, namely, for vaccination: 1 dose, 2 doses or 3 doses; for immunity: checked and not checked; protected and not protected; for universal precautions: always, sometimes and never.

#### **3.7.3 Barrier.**

Questions consisted of: hepatitis B vaccination should be compulsory for nurses; hepatitis B vaccination is too expensive; I am scared of being vaccinated because it hurts; I am not at risk for hepatitis B because I am always careful when examining patients and taking specimens; I am not at risk for HBV because I am a healthy person; I don't trust

vaccinations; and vaccination is against my religion or traditional beliefs. From these questions respondents had to choose one of the options: agree and disagree and formulated as scoring for high risk, moderate and not at risk.

### **3.8 Data collection technique**

A questionnaire, designed by the researcher to collect data on HBV Prevalence and barrier was printed. For nurses working at Hassaheasa hospitals, the selected participants were initially informed about the study at their place of work, and those who consented were given a questionnaire.

Initially, an appointment for 30 minutes was made with the individual prospective respondents to answer questionnaires in the researcher presence. However, the respondents were found to be too busy with their routine work, thus the questionnaires were filled in by the respondents on their own, and left with the sisters in charge of the different departments and collected the following day.

Data from the questionnaires were captured using SPSS 16.6. These included answers to questions on demographics, prevalence and barrier about hepatitis B vaccination.

### **3.9 Data Analysis**

Data were coded and then analyses manually and computerize soft ward SPSS and EXIL were used.

Different statically measure used frequency, percentage, SD, medium and CHI test then presented in table and figure.

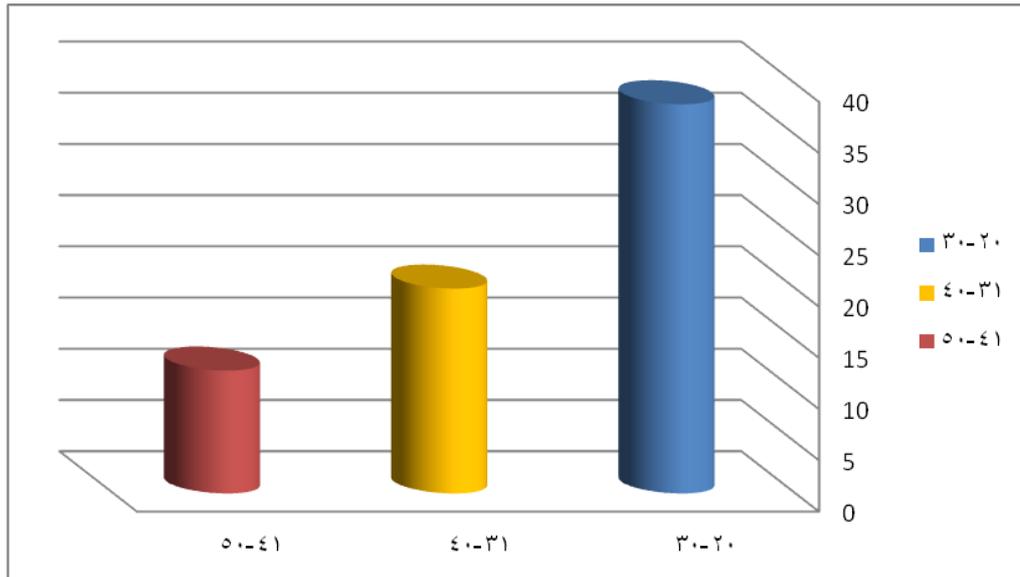
### **3.10 Ethical Considerations**

The proposal was approved by the Ethical Scientific Committee, permit ion was taken from the director of the hospital and head nurse and also permit ion from participant verbal and take chance to stop or refused.

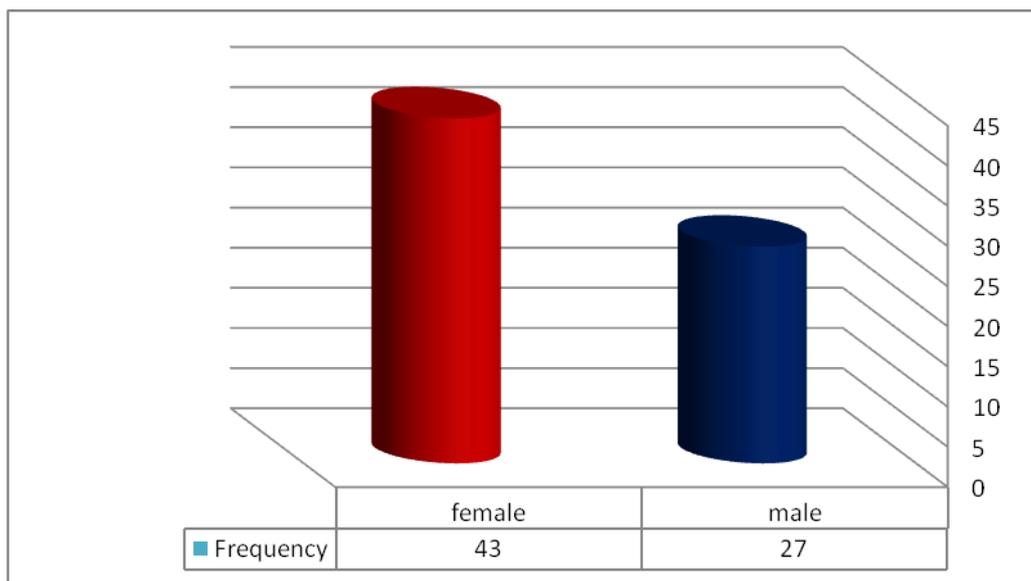
# **CHAPTER 4**

## **Result**

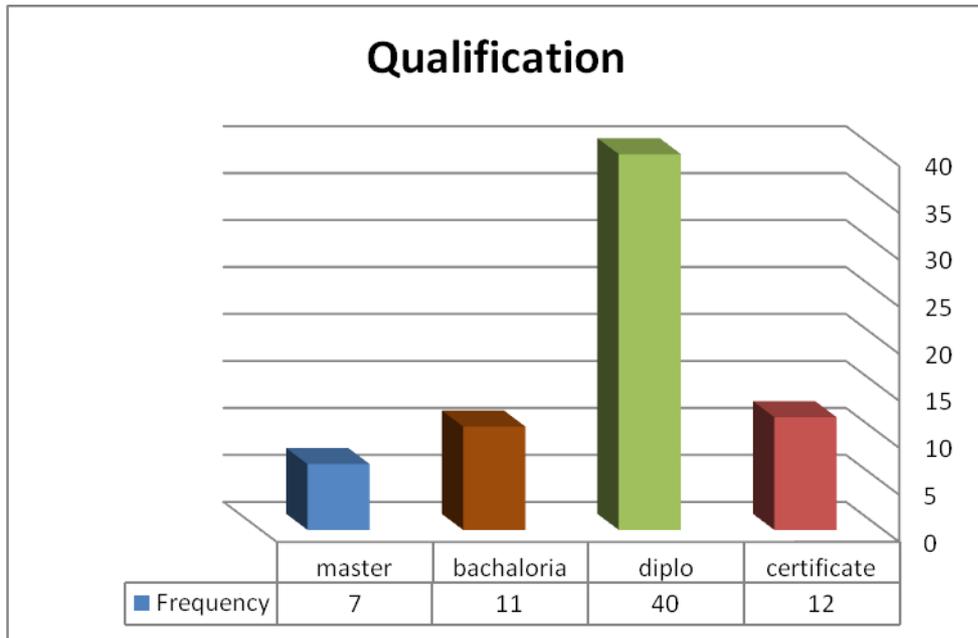
## 4. Result



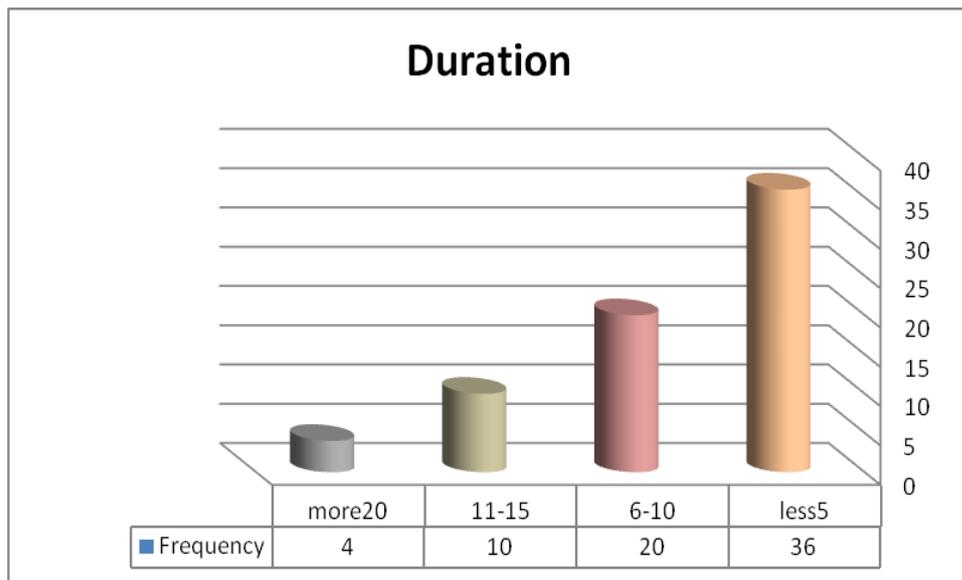
**Figure (3.1) showed the age of the study group**



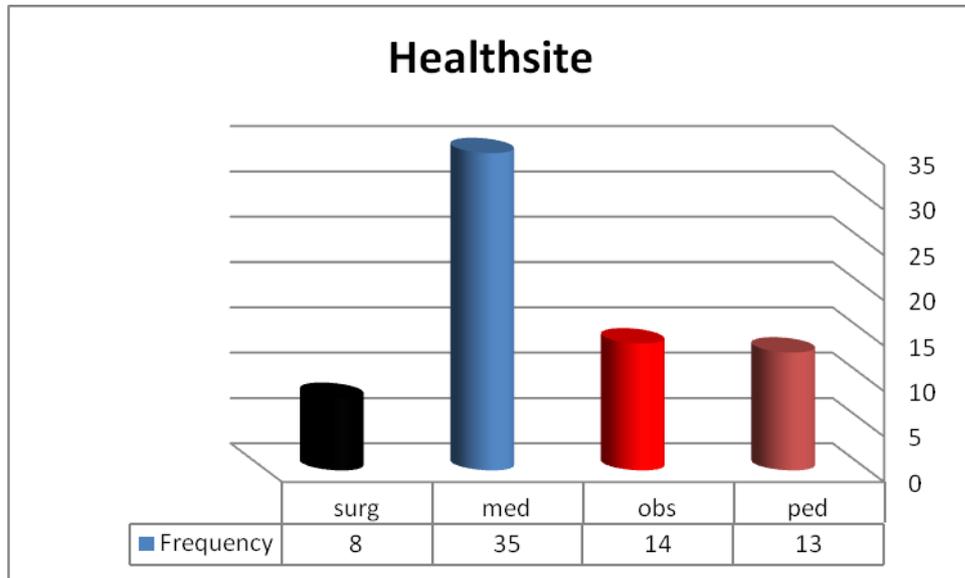
**Figure (3.2) showed the gender of the study group**



**Figure (3.3) showed the qualification of the study group**



**Figure (3.4) showed the duration of work of the study group**



**Figure (3.5) showed the duration of health site of the study group**

**Table (3.1) frequency distribution of nurses by vaccination**

	Frequency	Percent
Yes	41	58.6
No	29	41.4
Total	70	100.0

The above table showed that (58.6) of the above groups are vaccinated and (41, 1) Were not vaccinated,

**Table (3.2) frequency distribution of nurses by number of doses of HBV**

	<b>Frequency</b>	<b>Petcent</b>
One dose	44	62.9
Three doses	20	28.6
Full doses	6	8.6
Total	70	100.0

The above table showed that (62.9) of the study groups have one dose and (28, 6) have 3 doses and (8, 6) have full dose.

**Table (3.3) frequency distribution of nurses whom check for HBV before dose**

	<b>Frequency</b>	<b>Percent</b>
<b>checked</b>	8	11,4
Not checked	62	88.6
Total	70	100.0

The above table showed that (88, 6) of Study group your immunity against HBV Not checked and (11,4)your immunity were checked.

**Table (3.4) frequency distribution of nurses whom taken free test of HBV**

	<b>Frequency</b>	<b>Percent</b>
Yes	53	75,7
No	17	24,3
Total	70	100,0

The above table showed that (24, 3) of the study group would not like to have Free test.

**Table (3.5) frequency distribution of nurses whom don't vaccinated against HBV**

	<b>Frequency</b>	<b>Percent</b>
fear	9	12,9
Cost	22	31,4
Not agree	3	4,3
Availability	36	51,4
Total	70	100,0

The above table showed that (12, 9) of the study groups were fear from vaccination (31, 4) from cost, (4, 3) were not agree and (51,4 from availability of vaccines .

**Table (3.6) frequency distribution of nurses whom don't protected after checked**

	<b>Frequency</b>	<b>Percent</b>
Protected	6	8.6
Not protected	64	91,4
Total	70	100,0

The above table showed that (91.4) of the study group not protected after checked.

**Table (3.7) frequency distribution of nurses whom experienced a needle stick or sharp injury**

	<b>Frequency</b>	<b>Percent</b>
<b>Never</b>	15	21.4
<b>Once</b>	9	12.9
<b>2-5</b>	35	50.0
<b>More 6</b>	11	15.7
<b>Total</b>	70	100,0

The above table showed that (21, 4) of the study group never have experienced a needle stick or sharp injury (12, 9) once, (50, 0) 2-5, (15, 7) more than 6 times.

**Table (3.8) frequency distribution of nurses whom if have experienced a needle stick or sharp injury were reported them**

	<b>Frequency</b>	<b>Percent</b>
Always	13	18.6
Some time	31	44.3
Never	26	37.1
Total	70	100.0

The above table showed that (18, 6) of study group if have experienced needle stick injuries always reported them (44, 3) sometimes and (37.1) never reported them.

**Table (3.9) frequency distribution of nurses whom were given post prophylaxes**

	<b>Frequency</b>	<b>Percent</b>
Yes	26	37.1
No	44	62.9
Total	70	100.0

The above table showed that (37, 1) of study group were given post prophylaxes and (62, 9) not were given.

**Table (3.10) frequency distribution of nurses whom experienced blood or body fluid**

	<b>Frequency</b>	<b>Percent</b>
Never	22	31.4
Once	9	12.9
2-5	32	45.7
6-10	7	10.0
Total	70	100.0

The above table showed that (45, 7) 2-5 of the study group have expressed blood or body fluid splashing in your eyes or mouth and (31, 4) never expressed to blood or body fluid.

**Table (3.11) frequency distribution of nurses if wearing protective clothing when handling blood or body fluid**

	<b>Frequency</b>	<b>Petcent</b>
Always	19	27.1
Sometime	51	72.9
Total	70	100.0

The above table showed (27, 1) of study group always were wearied protective clothing when handling blood or body fluid and (72, 9) sometimes were wearied protective clothing,

**Table (3.12) frequency distribution of nurses and our range to exposure to HBV**

	<b>Frequency</b>	<b>Percent</b>
High risk	10	14.3
Modrate	38	54.3
Not at risk	22	31.4
Total	70	100,0

The above table showed that (14,3) of the study group high risk to exposure to HBV ,(54,3)moderate to exposure and (31,4) not at risk to exposure to HBV.

## **CHAPTER 5**

### **Discussion Conclusion and Recommendation**

## 5. 1 DISCUSSION

This study was conducted to the nurses to investigate the prevalence and barrier regarding HB vaccination, the present descriptive study on Hassaheasa teaching hospitals .the study group involve 70 nurses, This study was informed in (4) part according to consequences of question and it is answer.

Part (1) demographic information; the present study showed that the age group of nurse range below (20-30)for about54%and most of them were female 61%while there qualification was diploma 57% more than half ,regarding of the duration the above third 36% were less than 5years.the above result indicated that there level of knowledge and years of expertise were allowed them to know the important of vaccinated by HBV Vaccination.

Part (2):protection against HBV: conducted more explanations about study group. The study present have you vaccinated against HBV, the result showed most participant of study group 58,6% were vaccinated, and if vaccinated does not tacked full doses of vaccine, the result showed that most participant of study group(62,9%) have one dose, similar study present the majority of student nurses (87%)in guening province in 2010 had good knowledge about prevention measure in Hassaheasa teaching hospital nurses need more health education about important of HBV vaccine recommended to hospital maninger to provide vaccine for all staff. Study also present that if your immunity checked after vaccinations so most of study group 88.6%% were not checked ,the result showed that the most participant of study not checked 88,6% and 11,4% were checked immunity,, and also present protection of study group after checked unfortunately were more less 8,6%, the result showed 8,6%were protected and 91,4% are not protected so similar study done in health care worker to assess prevention measures in Sothern Nigeria present a majority (77.2%)of respondents correctly identify vaccine as a way of prevention of HBV while (61.7%)mentioned avoiding needle an sharp injury , so that the study present the group of study would like to have free test ,the result showed that most participant 75,7% like to have free test and 24,3% not like to have free test, and why don't vaccinated, the result showed 12,9 from fear,31,4 from cost ,less participants 4,3% not agree and most participants 51,4% from availability of vaccine.(barrier of vaccination) second objective of study.

Part (3); Exposure to HBV; which present times during works experienced to needle stick or sharp injuries so half of group study about (2-5)times experienced to needle stick and sharp injury, the result showed 21,4% never,12,9%once,50,0%(2-5) and 15,7% more than 6times, table(8) present reported of experienced to needle stick or sharp injury ,the result showed 18,6%always,44,3% sometimes the most of study group reported experienced to needle stick or sharp injury,37,1% never reported ,so the study present failure of tacked of post exposure prophylaxes more than half of study group would like to have post prophylaxes 62,9%, the result showed that the most group of study answerno62.9% and other answer yes 37,1%.and present how many times expressed blood or body fluid ,the result showed answers 31,4% never, 12,9%once,45,7%2-5,10,0 6-10 times. present do you wear protective clothing when handling blood or body fluid while more than half 72,9% sometime don't wearing protective clothing ,the result showed answer 27.1%always ,72,9% sometimes. Part (4); About Agree or not agree to HBV vaccine; the study present exposure to HBV, the result showed 14, 3% high risk, 54, 3% moderate, 31, 4% not at risk.

similar study in southern Nigeria to assess knowledge regarding HB present of mentioned blood and blood product as route of transmission of HB (68.5%)mentioned needle and sharp while only (37%)said that the disease can transmitted through sexual intercost incorrectly identified routes of transmission by respondents include faeco-oral routes transmission.

## **5.2 Conclusion**

Based on study result the study group were well qualified and expertise and more half of them were vaccinated 58,9% but did not completed to full doses while other were not vaccinated because they were fear , noncompliance and were think that is not important to tacked vaccine.

## 5.3 Recommendation

Based on study result, recommended that:

**A:For nurses:**

1. Provide education program about HBV vaccination.
2. -provide information about important of completing of vaccination doses, checked and protected of our immunity after vaccination.
3. -provide education about take tension during working, handling with instrument that had been used on patients.
4. -provide information of reporting any exposure to needle stick injury and take post prophylaxes.
5. -provide information of wearing protective clothing when handling blood or body fluid.

**B:For manager of hospital:**

- 1-put program to found solution of barrier that interrupted HBV vaccination.

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# **APPENDIX**

**University of Shandi**  
**The Graduate College**  
**Medical and Health Studies Board**

**Research on Prevalence and barrier of HBV vaccines among the nurses in  
Hassaheasa government 2017**

Serial no : (            )

Part (1)

**Demographic Information:**

**Age:**

20 – 30	31 – 40	<b>c) 41 – 50</b>	<b>D) more than 50</b>
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**Gender:**

Male	Female
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**Qualification:**

nursing certificate	B) diploma	<b>c. bachelor</b>	<b>d. master</b>
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**Duration as health care worker (in years):**

≤ 5	<b>B) 6 – 10</b>	<b>c) 11 – 15</b>	<b>D) more than 20</b>
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**Health care site:**

Pediatric hospital	<b>B)OBS</b>	<b>C) medicine</b>	<b>D)Surgery</b>
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**c Your exposure to / protection against hepatitis B:**

Have you been vaccinated against hepatitis B virus?

Yes	No
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If vaccinated, how many doses?

one dose	Two doses	Three dose	Full dose
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Was your immunity against hepatitis B checked after vaccination?

Checked	Not checked
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If checked, are you....

a) Protected	b) Not Protected
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How many times during your working lifetime have you experienced a needle stick or sharps injury involving a needle or sharp instrument that had been used on patient?

a) Never	b) Once	c) 2-5	d) <6
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If you have experienced needle stick injuries have you report them...

Always	Sometimes	Never
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If you have reported a needle stick injury were you given post exposure prophylaxes that include the hepatitis B. ‘

a) Yes	b) No
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How many times in the last year have expressed blood or body fluid (e.g. amniotic fluid or liquor ) splashing in your eyes or mouth?

a) Never	b) Once	c) 2-5	d) 6-10
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Do you wear protective clothing when handling blood or body fluid?

Always	Sometimes	Never
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10) Would you like to have a free test ascertain if you are protected against hepatitis B?

Yes	No
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11. Why you don't vaccinated against hepatitis b

a. fear	b ,cost	c .not agree	d .availability
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**c. Your exposure to / protection against hepatitis B:**

A/ Hepatitis <b>B</b> vaccination is to expensive	Agree	Disagree
B/ I am scared of being vaccinated because it hurts	Agree	Disagree
C/ I am scared of being vaccinated because it hurts	Agree	Disagree
D/ I am not at risk for hepatitis B because I am always carefully when examining patients and taking specimens.	Agree	Disagree
E/ I am not at risk for HBV because I am healthy person.	Agree	Disagree
F/ I do don't trust vaccinations.	Agree	Disagree
G/ vaccination is against my religion / traditional beliefs	Agree	Disagree
H/ Hepatitis B vaccination should be compulsory for nurses	Agree	Disagree

**Thanks....**