

Assessment of the Knowledge of Hepatitis B Virus Infection in Primary Healthcare Centers in Abuja, Nigeria

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Abstract

Hepatitis B virus (HBV) infection affects the liver and can lead to potentially life-threatening acute or chronic disease. The population with high HBV infection prevalence of $\geq 8\%$, such as Nigeria, presents the highest risk of HBV transmission among health-workers. There is a need to disseminate knowledge of HBV infection and the risk of transmission to health-workers. In this baseline study, the team assessed the knowledge of HBV infection among health-workers in Primary Healthcare Centers (PHCs) in AMAC, Abuja. We conducted cross-sectional descriptive research that studied 168 randomly selected health-workers from 58 PHCs in AMAC, collected data with a pre-tested structured questionnaire, and analyzed it with SPSS version 21.0. The knowledge level of HBV symptoms and transmission ranged from 57.1% to 85.7% and 84.5% to 91.7%, respectively. About 67% demonstrated good knowledge of HBV screening for pregnant women and 69% of Hepatitis B vaccination at birth. All the PHCs (100%) reported the unavailability of guidelines/protocols for HBV infection in pregnancy management and prevention. Furthermore, 51.2%, 53.7%, and 55.6% demonstrated poor knowledge of referral, PMTCT eligibility, and increased need for laboratory tests, respectively. Moreover, 60.2% showed poor awareness of treatment eligibility and 61.2% of choice of drug. Concluding, the respondents demonstrated good knowledge of HBV infection symptoms, transmission, screening for pregnant women, and vaccination schedules to prevent HBV infection. They showed a poor understanding of the referral of pregnant HBV seropositive women from the PHCs to secondary/tertiary hospitals, PMTCT, laboratory requirements for pregnant seropositive clients, and management of chronic HBV in pregnancy.

Keywords: Abuja, Hepatitis B virus Infection, Health-workers, Knowledge, Primary healthcare centers.

Introduction

Hepatitis B is a liver infection that can lead to a potentially life-threatening acute or chronic disease with the hepatitis B virus as the etiologic agent [1]. Hepatitis B virus (HBV)

infection has become a globally recognized public health challenge, affecting almost 300 million people living with chronic hepatitis B as of 2019 and associated with 1.5 million deaths annually [1]. The World Health Organization (WHO) African region reported

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having 81 million infected persons and harbors the second-highest burden of HBV infection in the world after the WHO Western-Pacific region [1]. Nigeria has an HBV prevalence of 11% and is one of the most highly endemic countries in the world. The country has 22 million people infected with the virus [2]. The pattern of HBV infection transmission in highly endemic countries mostly follows vertical transmission from mother to child at birth, the horizontal spread from an infected child to other children during the preschool age (before the age of 5 years), and this mode of transmission leads to 95% chronic HBV infection [1]. The high endemic setting also has the highest risk of infection among health workers including in primary healthcare facilities [3].

HBV can spread through needle stick injuries, re-use of needles and sharp objects contaminated with the Hepatitis B virus in hospitals and communities, and contact with infected blood and body fluid, like menstrual, vaginal, seminal fluid, and saliva during sexual intercourse [1]. The incubation period of the Hepatitis B virus varies from 30 to 180 days, on average about 75 days. The virus may be detected in the blood/serum of an infected person from 30 to 60 days after infection. Moreover, HBV can survive outside the body for up to 7 days and can cause infection if it finds its way into the body of an unimmunized person [4].

The early clinical symptoms of HBV infection include fatigue, loss of appetite, nausea, fever, and jaundice. Others are joint pain, dark urine, extreme weakness, abdominal pain, hepatomegaly, splenomegaly, adenopathy, and itching. The condition may progress to the chronic carrier state, a chronic liver disease condition that may become severe and advance to Hepatocellular carcinoma [5]. Besides relying on symptoms and signs for provisional diagnosis, the clinician confirms HBV infection by detecting positive Hepatitis B surface Antigen (HBsAg) in the person's blood.

Moreover, to differentiate between acute from chronic HBV infections, a further laboratory test is required [6]. Acute HBV infection is confirmed by the presence of HBsAg and HBcAb (immunoglobulin M (IgM) antibody to the core antigen). Also, positive Hepatitis e Antigen (HBeAg) is detected in the acute phase, signifying a highly infectious patient. Chronic HBV infection is established by the persistence of HBsAg for six months or more, with or without concurrent positive HBeAg [7]. Acute HBV infection has no specific treatment. The care for acute HBV infection is symptomatic, relieving the symptoms and maintaining comfort, and adequate nutritional balance and rest. However, the clinician can treat chronic HBV infection using oral antiviral medications or treatment may be deferred with continuous monitoring of the patient in accordance with the WHO guidelines [6].

Hepatitis B can be prevented by the available Hepatitis B vaccines that are safe and effective [4]. The mainstay of hepatitis B prevention is the Hepatitis B vaccine used to vaccinate HBsAg sero-negative individuals. Other relevant strategies for controlling HBV infection include mass health education, screening, and treatment of eligible positive cases. Universal infant vaccination embedded in the routine immunization schedule is effective. Vaccination intervention for at-risk groups like health workers is also recommended [8]. Again, the prevention of mother-to-child transmission of HBV requires universal screening of all pregnant women. This is followed by treating eligible positive cases and maintaining safe labor/delivery practices. In addition, the Hepatitis B Immunoglobulin (HBIG) passive vaccine for neonates born to HBsAg seropositive mothers is given within the first 12 hours.

Then, the active vaccination using the Hepatitis B vaccine within 24 hours as recommended [8]. Other strategies include ensuring safe blood and blood products. Also, making medical injections safe, and adhering to

universal precautions in all surgical procedures. These will significantly contribute to controlling HBV infections in our environment. The use of recommended antiviral drugs for treating all eligible positive cases and harm reduction strategies for intravenous drug users is also another strategy [8]. However, the treatment rate remains low with available effective prevention and treatment; only 16.7% of the people diagnosed were on treatment for Hepatitis B in Nigeria [4]. Moreover, a recent study reported poor knowledge of HBV infection among at least 33% of health workers in a tertiary institution in Nigeria [9]. Another study among healthcare workers in Primary Health Centers in Ibadan, Nigeria, reported 34.8% had poor knowledge of HBV infection [10].

Thus, there is a need to increase awareness and disseminate knowledge of HBV infection and risk of transmission to health workers, as risk perception was the most significant determinant of preventive behavioral intentions for HBV among health workers [11]. Consequently, the researchers sought to assess the knowledge of HBV infection among this cohort of health workers as a baseline survey for an intervention program for HBV infection prevention and further research.

Because preventing HBV infection in infants is relevant for eradicating chronic HBV, the study evaluated the knowledge of HBV screening/referral for positive pregnant women and the preventive vaccination for infants. Further, the team assessed the knowledge of treatment protocol for HBV infection in pregnancy. And lastly, the research evaluated the transmission and symptoms of Hepatitis B virus infection.

The objective is to assess the knowledge of HBV infection among health workers working in PHCs in Abuja Municipal Area Council (AMAC), Federal Capital Territory (FCT), Abuja, Nigeria. **Research Question:** What is the knowledge level of HBV infection among

health workers working in PHCs in AMAC, FCT, Abuja, Nigeria.

Materials and Methods

Study Area

Abuja Municipal Area Council (AMAC), FCT, Abuja, the capital of Nigeria, is the study area. The Municipal area council is the 3rd tier of government responsible for the provision of primary level of health care services in the local council in accordance with the Nigerian constitution.

AMAC has 12 electoral wards, and at the time of the study, AMAC operates 58 functional PHCs with 243 permanent health workers (approximately 70% females and 30% males) administered through the Primary Health Care department. The primary healthcare facilities serve their host and catchment communities delivering healthcare services closer to the people and referrals to secondary and tertiary health facilities when necessary.

Study Population

The 243 permanent health workers serving at the 58 functional PHCs in AMAC constituted the study population.

Study Design

The team conducted a cross-sectional descriptive study from September through November 2021.

Sample Size

The calculated minimum sample size using the formula:

$$n = \frac{z^2 pq}{e^2}$$

Where:

n= Sample size.

z= Standard normal deviate at 95% confidence interval = 1.96.

p= Estimated proportion of the population that has the attribute of interest = 0.11 (11% prevalence) [3].

$$q = 1 - p$$

e = Margin of error set at 5%, (0.05).

$$n = 1.96^2 \times 0.11 \times (1 - 0.11) / 0.05^2.$$

$$n = 3.8416 \times 0.11 \times 0.89 / 0.05^2.$$

$$n = 0.3760 / 0.0025 = 150.$$

Minimum sample size = **150**, however, the study made adjustment for non-responses, attrition, and improperly filled questionnaires at 10%, and rounded off the sample size to **165**.

Sampling Technique

The research team used a simple random sampling technique to select 176 health workers evenly distributed across all the 58 PHCs within the 12 wards of AMAC in proportion to the number of permanent staff members of each PHC.

Data Collection Instrument

The study data was collected using a pre-tested structured questionnaire that was self-administered to the participants. The questionnaire was divided into five sections capturing the socio-demographic information, knowledge of symptoms of HBV infection, HBV infection transmission, the knowledge of HBV screening/referral for positive pregnant women and the preventive vaccination for infants, and the knowledge of treatment protocol for HBV infection in pregnancy. The language of communication for the survey questionnaire was English.

Validity of Questionnaire

The study employed face validation by the research Mentor, and team members to validate the instrument, and the team updated the tool accordingly. It was also pre-tested in a PHC with similar characteristics to the project sites but in another area council within the FCT.

Reliability of the Instruments

The Alpha-Cronbach test was used to determine the reliability coefficient of the questionnaire following the pre-test. A good

reliability index was defined as a correlation coefficient of 0.8 and above.

Data Collection Process

The research team employed the assistance of two health workers who were trained and assisted in data collection. The pre-tested structured questionnaires were self-administered to the participants who completed the questionnaires and returned same to the research assistants.

Data Analysis

The study analyzed 168 questionnaires and excluded eight questionnaires that had incomplete information. The Statistical Package for Social Sciences (SPSS) version 21.0 was employed for the analysis. The results were presented in tables and simple percentages.

Ethical Consideration

The study's ethical approval was received from the Federal Capital Territory Health Research and Ethics Committee (FCT HREC) at the Health and Human Services Secretariat, Federal Capital Territory Administration, Nigeria. Participation was voluntary, and all respondents signed an informed consent form. The team maintained the anonymity and confidentiality of all collected data during and after the field study.

Results

Table 1 reported the socio-demographic characteristics of the respondents. A total of 168 respondents participated in the study, 65.5% were females, and most of the respondents were between the age ranges of 30-39 years (41.7%). Married respondents represented 71.4% while the staff cadre distribution presented the CHEW cadre at 46.4%, Laboratory scientists/technicians were 14.3%, Nurses/midwives at 11.9%, and JCHEW at 10.7%. The Kabusa ward has the greatest number of PHCs (14 PHCs representing a quarter) contributing almost a quarter of the respondents (23.8%), followed by

the Orozo ward with 13.1% of the respondents and the Gui ward contributing 11.9%. Other

wards contributed less than 10% of respondents each.

Table 1. Socio-demographic Characteristics of Respondents

S/n	Variable	Number of Respondents (n = 168)	Percentage (%)
1.	Gender of Respondents		
	Male	58	34.5
	Female	110	65.5
2.	Age Range (Years) of Respondents*		
	18-29	54	32.1
	30-39	70	41.7
	40-49	24	14.3
	50-59	16	9.5
	60-69	4	2.4
3.	Respondents' Occupation		
	Doctor	2	1.2
	Nurse/Midwife	20	11.9
	Community Health Extension Worker (CHEW)	78	46.4
	Community Health Officer (CHO)	12	7.1
	Junior Community Health Extension Worker (JCHEW)	18	10.7
	Lab Scientist/Technician	24	14.3
	Research Assistant	2	1.2
	Environmental Health Officer (EHO)	6	3.6
	Medical Record Officer (MRO)	2	1.2
	Hospital attendant	2	1.2
	Pharmacy Technician	2	1.2
4.	Distribution of Respondents by Wards		
	Wards (Number PHCs in the ward)		
	Gwagwa Ward (5)	16	9.5
	City Center Ward (1)	4	2.4
	Garki Ward (6)	14	8.3
	Orozo Ward (7)	22	13.1
	Gwarimpa Ward (7)	16	9.5
	Gui Ward (8)	20	11.9
	Jiwa Ward (5)	16	9.5
	Nyanya Ward (1)	4	2.4
	Kabusa Ward (14)	40	23.8
	Karshi Ward (2)	8	4.8
	Karu Ward (2)	8	4.8
	Total (58)	168	100.0

*Mean age: 34.1years; standard deviation: 9.4years

Table 2 reported the analysis of the respondent's knowledge of various symptoms of Hepatitis B virus infection. The knowledge of HBV symptoms among the health-workers

ranged from 57.1% to 85.7% with vomiting recording the least score of 57.1% while jaundice recorded the highest score of 85.7%.

Table 2. Respondents' Knowledge of HBV Infection Symptoms

Symptoms	Yes	No	No Idea
	Frequency (%)	Frequency (%)	Frequency (%)
Abdominal pain is a symptom of HBV infection	118 (70.2)	14 (8.3)	36 (21.4)
Fever is a symptom of HBV infection	116 (69.0)	22 (13.1)	30 (17.9)
Joint pain is a symptom of HBV infection	100 (59.5)	34 (20.2)	34 (20.2)
Loss of appetite is a symptom of HBV infection	114 (67.9)	30 (17.9)	24 (14.3)
Nausea is a symptom of HBV infection	100 (59.5)	34 (20.2)	34 (20.2)
Vomiting is a symptom of HBV infection	96 (57.1)	38 (22.6)	34 (20.2)
Weakness is a symptom of HBV infection	114 (67.9)	24 (14.3)	30 (17.9)
Fatigue is symptoms of HBV infection	104 (61.9)	30 (17.9)	34 (20.2)
Yellowness of the skin / whites of eyes (jaundice) is a symptom of HBV infection	144 (85.7)	16 (9.5)	8 (4.8)
Dark urine is a symptom of HBV infection	116 (69.0)	18 (10.7)	34 (20.2)

Table 3 presented the analysis of the health workers' knowledge of Hepatitis B virus transmission. The knowledge level for transmission ranged from 84.5% to 91.7%.

Unprotected sexual intercourse reported 84.5% while transfusion of infected blood reported the highest score of 91.7%.

Table 3. Respondents' Knowledge of HBV Infection Transmission

Risk Factors	Yes	No	No idea
	Frequency (%)	Frequency (%)	Frequency (%)
You may get HBV if you have unprotected sex with someone who is infected.	142 (84.5)	18 (10.7)	8 (4.8)
HBV infection spreads through use of needles and syringes contaminated with blood infected with Hepatitis B Virus.	150 (89.3)	12 (7.1)	6 (3.6)
Pregnant women infected with Hepatitis B Virus can pass the virus to their babies during pregnancy, childbirth & breastfeeding.	144 (85.7)	12 (7.1)	12 (7.1)
HBV infection can be transmitted through transfusion of infected blood.	154 (91.7)	8 (4.8)	6 (3.6)

Table 4 presented the knowledge of the health workers on Hepatitis B screening, routine vaccination programs of neonates, and referral of positive clients to a higher health facility for further care. About 2/3rd of the respondent (66.7%) correctly answered that all

pregnant women should be screened for Hepatitis B virus infection. Also, 2/3rd (69%) of the respondent correctly listed the three vaccines given to neonates at birth, which includes the Hepatitis B vaccine, Oral polio vaccine, and BCG vaccine. Furthermore, 48.8%

correctly answered that a pregnant client who tested positive for the HBsAg screening test should be referred to the appropriate center for

proper management, which implies that 51.2% had poor knowledge of this variable.

Table 4. Respondents' Knowledge of HBV Screening/Referral for Positive Pregnant Women & Preventive Vaccination for Infants

S/N	Variable/Response	Frequency	Percentage (%)
1.	All pregnant women should be screened for HBsAg?		
	Yes	112	66.7%
	No	16	9.5%
	No idea	40	23.8%
2.	Please list vaccines given to newborn at birth within the first 24 hours?		
	BCG, OPV, & HB Vaccine (correct answer)	116	69.0%
	Wrong answer	8	4.8%
	No idea	44	26.2%
3.	What should you as a health-worker in a PHC do for your pregnant client who tested positive to HBsAg screening test?		
	Treat the patients	12	7.1
	Refer to the unit in the higher hospitals for proper management	82	48.8
	Provide counseling on preventive measures	10	6.0
	Treat based on protocol	4	2.4
	Provide vaccine to the new born and treat the mother later	4	2.4
	Examine the level and send for treatment	2	1.2
	Provide Counseling and refer to general hospital	14	8.3
	I don't know	38	22.6
	Provide vaccine immediately	2	1.2

Table 5 reported the analysis of the knowledge of the treatment protocol for hepatitis B infection in pregnancy and the prevention of mother-to-child transmission protocols. The study revealed that all the PHCs (100%) reported the non-availability of a guideline/protocol on the management of HBV in pregnancy. They also documented the unavailability of a guideline/protocol on the prevention of HBV in the newborn of HBsAg-positive Mothers. Less than half of the health workers (46.3%) reported that positive pregnant clients are eligible for the prevention of mother-to-child transmission (PMTCT) strategy. In other words, 53.7% showed poor knowledge of this variable. Similarly, only 44.4% (less than half) of the respondents reported that the PMTCT strategy for HBV infection involves subjecting positive pregnant clients to a series

of recommended tests. Thus, 55.6% demonstrated poor knowledge of the requirement for increased laboratory tests for further evaluation for PMTCT of seropositive pregnant clients. As well, only about 39.8% of respondents agreed that eligible positive pregnant clients are recommended to be treated according to protocol guidelines. Concerning the drug of choice for the treatment of pregnant clients with Hepatitis B virus infection, far less than half of the respondents (38.8%) identified Tenofovir as the drug of choice. The above implies that 60.2% and 61.2% showed poor knowledge of the recommendation for the treatment of eligible seropositive mothers and the drug of choice, respectively. For the vaccination of neonates born to Hepatitis B seropositive women, about 2/3rd of the health workers reported that such neonates should be

given the Hepatitis B vaccine within the first 24 hours (67.9%) and also given Hepatitis B Immunoglobulin within the first 12 hours (66.9%). These represent good knowledge and understanding of the vaccination requirement for prevention of HBV infection.

Table 5. Respondents' Knowledge of Treatment Protocol for HBV Infection in Pregnancy

S/N	Variable/Response	Frequency	Percentage (%)
1.	Do you have a guideline/protocol on management of HBV in pregnancy in this PHC?		
	Yes	0	0.0%
	No	112	66.7%
	No idea	56	33.3%
2.	Do you have guideline/protocol on prevention of HBV in newborn of HBsAg positive Mothers in this PHC?		
	Yes	0	0.0%
	No	108	64.3%
	No idea	60	35.7%
3.	HBV positive pregnant clients are eligible for prevention of mother-to-child transmission strategy?		
	Yes	78	46.3%
	No	8	4.8%
	No idea	82	48.9%
4.	Prevention of Mother to Child Transmission (PMTCT) strategy for HBV infection includes subjecting positive pregnant clients to series of recommended tests?		
	Yes	75	44.4%
	No	12	7.1%
	No idea	81	48.3%
5.	Eligible positive pregnant clients are recommended to be treated according to approved protocol/guideline?		
	Yes	67	39.8%
	No	2	1.2%
	No idea	99	59.0%
6.	TENOFOVIR is the drug of choice in the management of chronic HBV infection in pregnant women?		
	Yes	65	38.8%
	No	14	8.3%
	No idea	89	52.9%
7.	All neonates born to HBV positive mothers should be given hepatitis B vaccine within the first 24 hours?		
	Yes	114	67.9%
	No	10	6.0%
	No idea	44	26.2%
8.	All neonates born to HBV positive mothers should be given Hepatitis B Immunoglobulin (HBIG) within the first 12 hours?		
	Yes	100	66.9%
	No	12	7.1%
	No idea	56	26.0%

Discussions

This study enrolled 168 health workers across all the 58 PHCs in the 12 political wards of AMAC, FCT, Nigeria, ensuring an even distribution across the wards and PHCs in proportion to the number of permanent staff members (Table 1). Females constituted 65.5% of the respondents reflecting the roughly 2:1 ratio of female: male human resources for health in the employment of AMAC. Furthermore, occupational distribution revealed that 46.4% of respondents were Community Health Extension Workers, the Junior Community Health Extension Workers represented 10.7% and the Community Health Officers was 7.1%, bringing a total of 64.2% for this group of staff which is well above the 50% minimum health workforce required for this category at the PHCs in line with the recommendation of the NPHCDA [12]. The mean age of the health workers was 34.1 ± 9.4 and within the range of mean age of 33 years found in recent similar work [13]. This finding reflects a young health workforce and the importance of a robust hepatitis B prevention program for the health workers at these primary healthcare centers.

Concerning knowledge, the respondents demonstrated good knowledge of HBV infection symptoms across the range of ten symptoms assessed in the study. Vomiting recorded the least score where 57% of the health workers identified vomiting as a symptom of HBV infection. Moreover, 85% of the health workers were able to identify jaundice as a symptom of Hepatitis (Table 2). This good knowledge of the symptoms of HBV found in this study is similar to some recent studies carried out among health workers both in the Northern and Southern regions of Nigeria [14-16]. However, in contrast to the findings of this study, there are studies that reported poor knowledge of HBV infection among health workers in a tertiary hospital [17]. And, poor knowledge was

reported among PHC health workers in Ibadan, Nigeria [18]. Regarding HBV transmission, most of the health workers (84% and above) correctly identified the assessed transmission parameters, demonstrating a very good knowledge level (Table 3). Again, some studies in Nigeria reported similar results among health workers, reporting good knowledge of HBV transmission [14,15,16]. The findings from this study can be said to be influenced by the sub-population in this study being health-workers at the PHC level who have been exposed to various Hepatitis B awareness/screening/control programs organized by various Governmental and Non-Governmental Organizations. In contrast, some studies carried out among general populations reported poor knowledge of HBV infection [19].

Additionally, this study reported a good knowledge level (66.7%) among the health workers in terms of universal screening of pregnant women at the PHCs (table 4). Similarly, 69 % of the health workers were able to identify the vaccines given to children at birth, to prevent hepatitis B infection, poliomyelitis, and tuberculosis. This reflects a good routine immunization strategy. It's noteworthy to state that the mainstay preventive strategy for HBV infection prevention is vaccination. Other strategies may include health education, screening, and treatment of eligible positive cases [4]. Globally, most people with Chronic Hepatitis B (CHB) condition got infected at birth (the perinatal period) or in their early childhood [6]. Thus, the prevention of mother-to-child transmission (PMTCT) had become an important strategy for ending the transmission of HBV infection globally. The finding may be a mirror of a good ANC screening and routine immunization strategy at the PHCs in Abuja. The result is like some other studies that assessed the knowledge of hepatitis B among health workers in Nigeria [17, 20]. Notwithstanding, another study reported poor

knowledge of HBV infection among health workers in South-South Nigeria [21].

On the aspect of referral of pregnant women from PHCs to higher medical facilities when they test positive for hepatitis B in PHCs, the study, found poor knowledge of the standard practice of referral among the health workers. The findings revealed that less than half of the responding health workers correctly identified this important part of the management of HBV infection.

This finding may be partly due to the absence of management protocol/guideline for HBV in the PHCs as documented by the study (table 5). HBV in pregnant women is not a disease condition to be managed at Primary Healthcare Centers. It requires the combined management of Specialist Obstetricians/gynecologists and Gastroenterologists/Hepatologist, which are Specialist Medical Practitioners that are not readily available at PHCs in Nigeria [22].

The study further revealed the non-availability of guidelines/protocol on the management of HBV in pregnancy in all the PHCs, as well, as no guideline/protocol for the prevention of HBV in the newborn of HBsAg-positive Mothers (table 5).

This finding may have resulted from the fact that the PHCs are not eligible to treat HBV infection for children, adults, and pregnant women, as they are required to refer positive patients to secondary and tertiary hospitals where the relevant Medical Specialists are available for further investigations and treatment [22]. The respondents demonstrated poor knowledge of the PMTCT requirement for HBV-positive clients. Most of them were not able to demonstrate that the HBV-positive clients are eligible for PMTCT, same with the fact that they require additional laboratory investigations as well as their eligibility for appropriate treatment in line with the guideline (Table 5).

Moreover, the majority of the respondents were not able to identify Tenofovir as the drug of choice for the management of chronic HBV in pregnancy. Nonetheless, these investigations and treatments are not available at the primary health care level and PHCs in Nigeria and could have influenced the findings reported in this study.

Furthermore, the health workers reported good knowledge of vaccination strategy for neonates born to Hepatitis B seropositive women with respect to the Hepatitis B vaccine within the first 24 hours and Hepatitis B Immunoglobulin within the first 12 hours (Table 5). These findings strengthen the aforementioned good routine immunization strategy at the PHC level.

Conclusion

The PHC health workers in this study demonstrated good knowledge of the symptoms and transmission of HBV infection. Also, the universal screening of pregnant women in addition to the vaccination schedule to prevent HBV infection among all neonates and neonates born to HBV seropositive women are areas where good knowledge was also exhibited.

Conversely, they demonstrated poor knowledge of the following domains assessed in the study: referral of pregnant HBV seropositive women from the PHCs to secondary/tertiary hospitals, PMTCT requirement for pregnant HBV seropositive clients, their requirement for additional laboratory investigations, and their eligibility for appropriate treatment per the guideline, in addition to identifying Tenofovir as the drug of choice for the management of chronic HBV in pregnancy.

Recommendation

The study recommends that the Management of the Primary Health Care department should make available a simplified HBV guideline/protocol in all the PHCs in

AMAC. This document should contain clear guidance concerning HbsAg screening of all pregnant women and health workers in AMAC with referrals where necessary.

The document should also present a clear HBV vaccination schedule for all neonates born to HBV seronegative and seropositive women, further investigations, and a treatment regimen for HBV infection in pregnancy. This document will serve as a reference and guide the screening, counseling, and necessary referrals of seropositive clients.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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