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ORIGINAL ARTICLE

Progress on the elimination of viral hepatitis in Zimbabwe: A review of the policies, strategies and challenges

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Abstract

Very few low-income countries have developed national plans to achieve the viral hepatitis elimination targets set in the World Health Organization (WHO) strategy. We reviewed the policy environment, strategies and challenges on the fight against viral hepatitis in Zimbabwe. The review focussed on the Ministry of Health and Child Care (MoHCC) policy documents, strategic plans and reports. We performed key informant interviews to enhance evidence generated from the document review. Twelve documents were reviewed and interviews with 10 key informants were completed. The MoHCC established a technical working group to work towards elimination of viral hepatitis. The technical working group drafted a strategic plan for elimination of viral hepatitis; however, it is still awaiting implementation. Key strategies that are working well include screening of donated blood for transfusion, safe injection practices and hepatitis B virus (HBV) three-dose vaccination. Current challenges in the drive towards elimination of viral hepatitis include poor to non-existent surveillance systems, lack of epidemiological data, absence of the HBV vaccine birth dose and lack of systematic screening and treatment services for viral hepatitis. In conclusion, despite political will demonstrated towards achieving viral hepatitis elimination, substantial investment and work are required to implement the strategic plan and realize significant success.

KEYWORDS
hepatitis B virus, hepatitis C virus, viral hepatitis, Zimbabwe

Statement of Significance

This research paper summarizes the progress made so far in the elimination of viral hepatitis in Zimbabwe. The manuscript spells out the strategies that are working and identifies the areas that are lagging behind. Information presented in this paper is helpful to the general public and policymakers to raise awareness and help them formulate strategies to achieve elimination

Abbreviations: AU, African Union; DAAs, directly acting antivirals; EDLIZ, Essential Medicines List and Standard Treatment Guidelines for Zimbabwe; HBV, hepatitis B virus; MCAZ, Medicines Control Authority of Zimbabwe; MoHCC, Ministry of Health and Child Care; NAT, Nucleic acid testing; NBSZ, National Blood Services Zimbabwe; NDSS, Notifiable Disease Surveillance System; PCR, polymerase chain reaction; SADC, Southern African Development Committee; TDF, tenofovir disoproxil fumarate; TTIs, transfusion transmissible infections; WHO, World Health Organization; ZIMPHIA, Zimbabwe Population-based HIV Impact Assessment.

targets, respectively. Other low-to-middle-income countries can also draw lessons from the strategies that are working well highlighted in this paper.

1 | INTRODUCTION

Viral hepatitis is a public health threat due to its increasing contribution to morbidity and mortality.[1,2] Although there are five hepatotropic viruses (A, B, C, D, E), hepatitis B (HBV) and C (HCV) account for 91% morbidity and 96% mortality.[3] In 2015, complications linked to chronic HBV and HCV accounted for 1.34 million deaths globally, more deaths than due to HIV/AIDS.[1] Sub-Saharan Africa bears a substantial burden of viral hepatitis, with 60 million and 10–15 million people living with chronic HBV[4] and HCV[5] infection, respectively.[6]

There are limited data on the general population prevalence and number of deaths caused by viral hepatitis in Zimbabwe. The WHO scorecard (2019) estimated the seroprevalence of HBV at 10.1% and approximately 1.6 million chronic infections.[7] Modelling studies estimated the prevalence of HBV to be 9% with 2500 deaths occurring annually.[8] Currently, there are no official national estimates of HCV burden. Experts estimate the prevalence of HCV to be around 1–2% in the general population but likely higher in high-risk populations. A greater proportion of the chronically infected people remains unaware of their status. The two infections have long latent periods where the infected are asymptomatic making viral hepatitis a silent killer.

In 2016, WHO launched an ambitious but achievable global strategy to eliminate viral hepatitis as a public health threat by 2030.[9] The availability of highly effective directly acting antivirals (DAAs) therapy for HCV makes the elimination targets achievable.[10–12] Furthermore, modelling studies predicted the feasibility of the global elimination of viral hepatitis.[13–15] Micro elimination, defined as a strategy where one group of people or one geographical area is targeted at a time,[16] has been proposed to achieve national elimination targets for HCV. Despite all these advances, most African countries lag behind in formulating policies and implementing strategies to achieve elimination. Lack of national coordination, political will and financial resources are the major reasons for the slow pace at which elimination efforts are moving.[4,5,17] In Zimbabwe, it is unclear whether achieving the elimination targets by 2030 is feasible, hence evaluating the status quo is pivotal. Several countries including, for example Rwanda, Georgia and Egypt, which have reported substantial progress towards elimination used different frameworks to fight viral hepatitis.[18] Universal health coverage, development of national plan, development of investment case and testing and linkage to care have been used in these countries as drivers for elimination.[18] The choice of the framework largely depends on the epidemiological, health policy, financial and political context. In this study, we aimed to review the policy environment, strategies and gaps and make recommendations towards the elimination of viral hepatitis in Zimbabwe.

2 | METHODS

We reviewed health policy documents and interviewed key informants to collect data. Policy documents, strategy documents and reports from the MoHCC that are relevant to the fight against viral hepatitis were identified and reviewed. Inclusion of the documents in the review and the review was based on the alignment of their objectives; policy directions and strategies to the five priority areas identified by WHO in the Global Health Sector Strategy on Viral Hepatitis.[9] These priority areas are *information for focussed action*, *interventions for impact*, *delivering equity*, *financing for sustainability and innovation for acceleration*. The documents were obtained by searching the terms 'health policies of Zimbabwe' and 'health strategies of Zimbabwe' on google and google scholar. Additional policy documents were suggested and provided by the key informants. Appendix 1 provides a summary of the documents that we reviewed. The key informants were representatives from the MoHCC, Medicines Control Authority of Zimbabwe (MCAZ), National Blood Services Zimbabwe (NBSZ), pharmaceutical wholesalers and gastroenterologists. These stakeholders were chosen because they are involved in policy formulation or in activities spelt out in the WHO strategy.

2.1 | Data analysis

The written data scripts obtained from the policy review and the key informant interviews were analysed using thematic analysis.[19] The five priority areas in the WHO Global Health Sector Strategy on Viral Hepatitis were adopted as themes for the analysis.

2.2 | Ethical considerations

Ethical approval to conduct the study was granted by the Joint Research Ethics Committee for University of Zimbabwe College of Health Sciences and Parirenyatwa Hospitals (JREC/111/2020). All the key informants signed informed consent before participating in the study.

3 | RESULTS

3.1 | Policy environment

A total of 15 and 39 documents were obtained from the MoHCC and UNICEF Zimbabwe websites, respectively. Forty-five documents were not relevant to viral hepatitis and were not reviewed. Three

additional documents were suggested and provided by the key informant at the MoHCC and were included in the review. In total, 12 documents were reviewed as shown in Figure 1.

The Constitution of Zimbabwe stipulates the right to have access to basic healthcare services for every person[20] and the Public Health Act lists viral hepatitis as a notifiable disease.[21] The Viral Hepatitis Rapid Assessment carried out in 2017[22] provided a basis for the drafting of Strategic Plan for Control and Elimination of Viral Hepatitis in Zimbabwe.[23] The strategic plan covers the period 2019 to 2022, focussing mainly on HBV and HCV. The objectives and priorities of the plan are summarized in Table 1. The overarching goals of the plan are to reduce incidence of viral hepatitis by 90% and mortality by 65% by 2030. The strategic plan is premised on a public health model where viral hepatitis services will be offered from the primary healthcare centre up to the tertiary level. However, the strategic plan does not explicitly state-specific institutions that are responsible for implementation or the timelines for accomplishing the activities that are listed.

One of the strategic documents reviewed was the National Health strategy (2016–2020)[24] which had its motto as '*equity and quality*: *leaving no one behind*.' Equity and quality are key principles guiding the elimination of viral hepatitis. The situational analysis presented in the National Health strategy identifies viral hepatitis as a common cause of chronic liver disease and ranks viral hepatitis 18th out of the top 20 most common causes of death in Zimbabwe. The ranking provides the basis for identifying priority diseases areas, which feed into the Zimbabwe National Medicines Policy which directs efforts to ensure availability and access to essential medicines.[25] The policy provides for drafting of Essential Medicines List and Standard Treatment Guidelines for Zimbabwe (EDLIZ).[26] Although the management of complications of cirrhosis is described in EDLIZ, treatment guidelines for HCV or HBV are not explicitly described. Other key pieces of policy that were reviewed were the Health Financing policy and strategy documents.[27,28] These documents spelled out approaches to ensure adequate resource mobilization, equitable resource allocation, efficient purchasing mechanisms and household financial protection in health care.[27,28] These strategies include strengthening domestic funding, risk pooling and cross subsidizing and incentivizing provision efficient healthcare services. Although there is no explicit mentioning of viral hepatitis, the policy directions are broad and applicable to the elimination drive. The Zimbabwe Extended HIV and AIDS Strategy described strategies to increase condom use, which is also useful in reducing sexual transmission of HCV.[29]

3.2 | Strategies towards elimination

3.2.1 | Information for focussed effort

Despite having all forms of viral hepatitis listed as notifiable in the Public Health Act,[23] notifications are not happening in practice. The Notifiable Disease Surveillance System (NDSS) requires reporting, aggregation and analysis of all suspected and confirmed cases of viral hepatitis from all health facilities.[30] The MoHCC attributed the lack of reporting to lack of knowledge among health workers and lack of diagnostic kits. Laboratory-based surveillance occurred in the past but stopped due to unknown reasons. Surveillance of sequelae of chronic viral hepatitis is also unavailable. However, mortality data from liver cancers are available from the Zimbabwe National Cancer Registry.[31] As of 2015, liver cancers contributed 6% to the total deaths due to cancer.[31] The cancer registry largely depends on post-mortem and death certificates data and, therefore, does not provide information on the

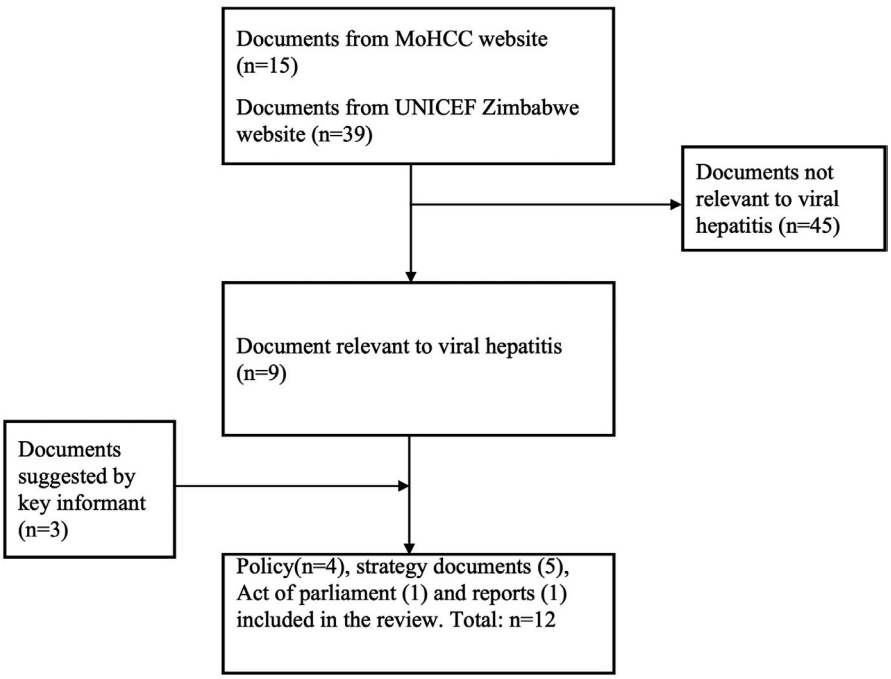

FIGURE 1 Flowchart of the documents included for review. MoHCC, Ministry of Health and Child Care, UNICEF, United Nations Children's Fund

TABLE 1 The Zimbabwe national viral hepatitis strategic plan objectives and priorities

Strategic objective 1: Integrated, comprehensive and coordinated national response. Priority area 1: Comprehensive public health responses Priority area 2: Building health care workers capacity Priority area 3: Advocacy and awareness	Strategic objective 2: Provision of diagnostics, care and treatment services Priority area 1: Access to diagnostics Priority area 2: Comprehensive care and treatment Priority area 3: Clear referrals and linkage to care
Strategic objective 3: Prevent transmission of viral hepatitis Priority area 1: Safety of blood and blood products Priority area 2: Vaccination against hepatitis Priority area 3: Infection prevention and control—injection safety Priority area 4: Access to safe food and water Priority area 5: Harm reduction Priority area 6: Transmission prevention in correctional services	Strategic objective 4: strategic information systems, surveillance, monitoring and evaluation Priority area 1: Monitoring and evaluation Priority area 2: Health information systems Priority area 3: Viral hepatitis surveillance system Priority area 4: Operations research

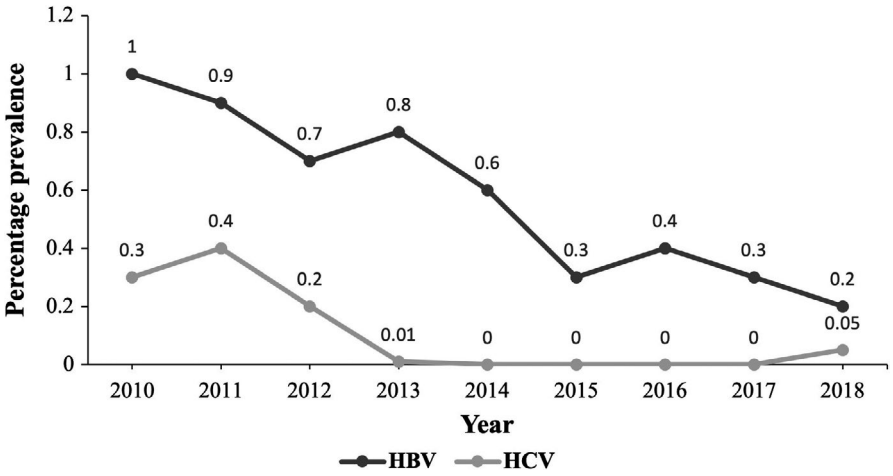

FIGURE 2 Transfusion Transmissible Infections Surveillance (2010–2018): Reproduced with permission from National Blood Services Zimbabwe Annual Report 2018.[62] HBV, hepatitis B virus, HCV, hepatitis C virus

aetiology of the liver cancers. Data on the prevalence of HBV or HCV are limited to very small studies, old studies, or studies in pregnant women and blood donors.[32–34]

3.3 | Interventions for impact

3.3.1 | Blood donor screening

Blood donor screening is performed by the NBSZ. The NBSZ stated that they adhere to WHO blood safety guidelines.[35] The first line to ensure blood safety is the education on HIV, viral hepatitis and syphilis to equip potential donors with information allowing them to self-screen. In the second level of screening, prospective donors complete the donor and enrolment and assessment form which explore their risk profile pertaining to HIV, HCV, HBV, syphilis, drug abuse and sexual practices. After enrolment, further counselling is done to provide the donors with more information on transfusion transmissible infections (TTIs). In the laboratory, all collected blood is screened using highly sensitive tests for initial screening and highly specific tests for confirmation. The prevalence of TTIs in donated blood over an eight-year period is shown in Figure 2. The NBSZ is currently using the Abbott Architect i2000SR serology platforms. Nucleic acid testing (NAT), a more sensitive and specific method for virus detection, has been introduced in many blood centres globally and shown to improve blood safety. In an economic evaluation, the introduction of NAT for testing of TTIs compared with serology-based screening was deemed not cost effective in Zimbabwe.[36] Viremia is not being confirmed or quantified for anti-HCV reactive cases due to unavailability of polymerase chain reaction (PCR) tests.

3.3.2 | Vaccination

The WHO recommended universal HBV vaccination for children under five led to significant decline in HBV in that population in Africa.[1,37] The MoHCC indicated that Zimbabwe adopted the universal HBV vaccination in 1996. A pentavalent vaccine is given at 6, 10 and 14 weeks. Figure 3 shows the HBV vaccination coverage over a 24 year period. In 2009, the WHO recommended that all countries include an HBV birth dose where a monovalent vaccine should be administered within 24 h of birth.[38] Evidence shows that full vaccine coverage with three doses and the inclusion of the birth dose is vital in reducing vertical, and horizontal transmission in early life.[39] Despite this evidence, the birth dose is not routinely administered in Zimbabwe due to limited funds, unavailability of cold chain facilities and difficulty in reaching infants within 24 h of birth. However, the MoHCC reported that the birth dose had been imprinted onto the paediatric immunization cards and planned for introduction. The card contains an immunization schedule and serves as a reminder

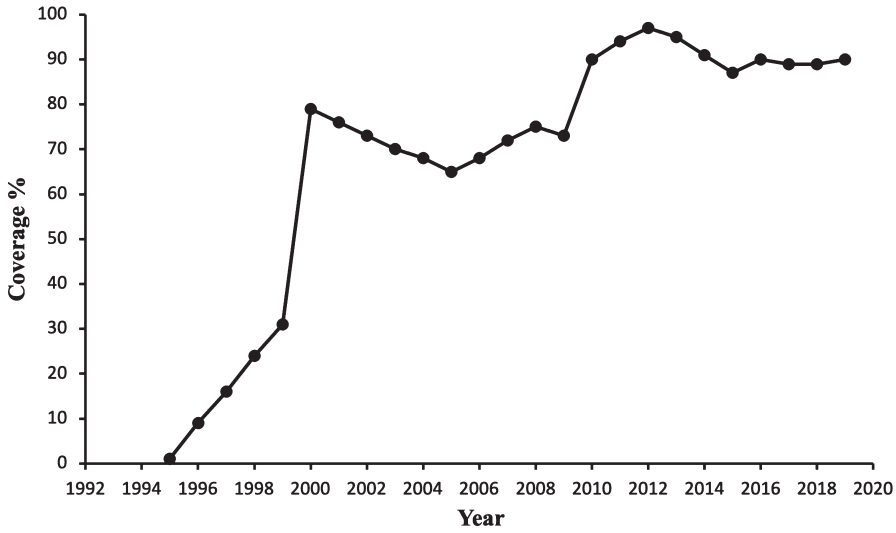

FIGURE 3 Trends in Hepatitis B vaccination coverage in Zimbabwe (1995–2019)

and monitoring tool for healthcare providers and the mother of all the required vaccines.

3.3.3 | Harm reduction interventions

The MoHCC reported availability of the national infection prevention and control guidelines, which were being adhered to at most health institutions at all levels. The guidelines spell out establishment of infection control teams, personal protection equipment, injection safety, handling and sterilization of surgical equipment and waste disposal.[40] The MoHCC reported that all health professionals in the institutions do use one syringe and needle per patient per time. Harm reduction interventions in terms of sexual behaviour ride on HIV prevention programmes, with no specific programme aimed at viral hepatitis. The messages include desisting from multiple sexual partners and consistent use of condoms. Viral hepatitis harm reduction interventions in men who have sex with men, people who inject drugs and commercial sex workers are currently not available in Zimbabwe. The size and behaviour of these populations are poorly characterized because of stigma and criminalization; hence, it is very difficult to design interventions that specifically target them. The Centre for Sexual Health and HIV/AIDS Research Zimbabwe, a private voluntary organization has done research to estimate the size and to understand HIV dynamics among commercial sex workers.[41,42] The harm reduction interventions are very functional in health institutions but need to be extended to key populations.

3.3.4 | Screening and Treatment

The MoHCC, Laboratory directorate and medical officers revealed that routine viral hepatitis screening is currently not available. Screening for HBV and HCV is only done based on clinical suspicion of liver disease. The major constraint is limited laboratory capacity to carry out serology tests. HCV PCR quantification tests are currently unavailable in the public sector. Although infrastructure like laboratory buildings are available, equipment, reagents and assay kits are scarce. Most patients are referred to the private sector where they are required to pay high costs for diagnostic testing.

TABLE 2 The registration status of drugs used in viral hepatitis in Zimbabwe

Treatment	Dossier submitted	Approximate time to registration
Hepatitis C		
Sofosbuvir	Yes	Registered in 2017
Daclatasvir	Yes	Estimated 2020
Hepatitis C combination		
Sofosbuvir/daclatasvir	Yes	Estimated 2020
Sofosbuvir/ledipasvir	Yes	Registered in 2019
Hepatitis B		
Entecavir	Yes	Registered in 2019
Telbivudine	Yes	Estimated 2020
Hepatitis B vaccine	Yes	Registered in 2029
Hepatitis A		
Hepatitis A vaccine	Yes	Registered in 2014

Guidelines on the management of sequelae of viral hepatitis are available in the EDLIZ 2015 edition; however, HBV and HCV treatment are not covered. HIV/HBV co-infected patients are reportedly treated with tenofovir disoproxil fumarate (TDF) containing antiretroviral regimen, and the mono-infected patients are treated using TDF monotherapy. A survey by the MoHCC in 2017 revealed that only 20 patients in the public sector had been on TDF monotherapy over a period of 3 years.[20] Low levels of HCV and HBV treatment coverage is due to limited drug supply. The MCAZ and the private pharmaceutical wholesaler companies revealed that a number of drug molecules useful in the treatment of HCV (DAAs) and HBV were either registered or in the process of registration as shown in Table 2. Wholesalers indicated there are drugs that are used in

the management of viral hepatitis that are registered but not commercialized due to perceived lack of market. Although many DAAs are not yet registered, doctors have been importing them using a special import permit for unregistered medicines issued by MCAZ. One wholesaler reported importing 70 units of sofosbuvir/ledipasvir (28 s) from India in 2019 under this facility. Another wholesaler reported importing HBV and Hepatitis A vaccines to augment government supplies. The pharmaceutical wholesalers reported having financial and warehousing capacity to import medicines in large quantities which can feed into the public health system. High cost of DAAs is a barrier to access of HCV treatment. Generic sofosbuvir/ledipasvir was wholesaling at US$1125 for 12 weeks supply at the time of the study, a price out of reach for many patients. Treatment coverage of viral hepatitis unknown but is thought to be very low.

3.4 | Financing for sustainability and delivering equity

The MoHCC revealed that the viral hepatitis strategic plan will be costed to determine the financial resources required for implementation. The major funding for the fight against viral hepatitis will be provided by the government. With the current economic challenges in the country, funding from the government is not expected to sufficiently finance all the activities in the strategic plan. Other potential sources of funding include public-private partnerships, external funding and out of pocket payments. Due to severe budget deficit, the government has been failing to contribute significantly to overall health funding. The 2020 health budget is 10% of the total budget (US$21 per capita), falling short of both the Abuja declaration and WHO recommended threshold.[43] External funding and out of pocket expenditure reduce universality, equity and financial protection.[44]

One key component of universal health coverage is equity. The MoHCC indicated that the Public Health Act of Zimbabwe establishes access to health services as a right to all individuals. Every individual chronically infected with HBV or HCV has a right to access high-quality health services. Despite this strong legal basis for equity, some commercial sex workers, people who inject drugs, men who have sex with men and prisoners were highlighted as populations facing access barriers. Access barriers include police arrests, societal discrimination, stigma and insufficient community-based capacity. Stigma from healthcare workers was highlighted as one of the main barriers.

4 | DISCUSSION

The availability of a viral hepatitis strategic plan in Zimbabwe is an important step towards the elimination drive because it ensures a coordinated and systematic way for tackling viral hepatitis. The elimination of viral hepatitis also depends on other health policies, for example the overall health, health financing policies and corresponding strategic plans. Currently, these policy documents lack the prioritization of viral hepatitis. Malaria, HIV/AIDS and noncommunicable diseases are identified as priority areas. There is a dire need for dedicated funding towards viral hepatitis to address gaps identified in this manuscript. Another key factor to the elimination drive concerns the drafting of clear HCV and HBV treatment guidelines. Treatment guidelines and the essential drug list inform clinical practice and impact on drug access.

The strategic plan does propose a public health model to manage viral hepatitis in Zimbabwe. This model aims to achieve the widest coverage of viral hepatitis services at population level. The public health approach was previously implemented in Rwanda and elimination of HCV is expected by 2024.[45,46] Due to the high costs of DAAs, micro-elimination in specific areas and groups has been suggested and implemented as an alternative model for the elimination of HCV in some settings.[47,48] HCV burden is estimated to be low and may be prevalent in specific groups of people in Zimbabwe, making the micro-elimination strategy worth considering. Further work is required to characterize these groups in terms of size and burden of HCV. Micro-elimination requires modest investments and brings quick gains that can be used to build momentum and argue for further investments towards national elimination.

We highlight the paucity of epidemiological data on viral hepatitis in Zimbabwe. Other African countries also lack robust viral hepatitis epidemiological data.[4,5] This data are critical to inform the formulation of precise and effective interventions for elimination. The existence of the NDSS, cancer registry and health information systems are opportunities that require utilization. Integration of viral hepatitis surveillance into the existing health information systems and training healthcare workers on the collection of viral hepatitis data is urgently required. Modelling studies have been used globally to estimate baseline incidence and prevalence and predict impact of implementing treatment programmes.[8,13,15] A model predicting HCV transmission dynamics among drugs users was developed in 2014 for the Zimbabwean population.[49] The model needs updating with new data on treatment regimens. Another way for estimating the prevalence of HBV and HCV is inclusion of viral hepatitis in HIV population-based surveys. A good example is the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) in which population-based HIV counselling, testing and syphilis testing are conducted.[50] A convenient and cheaper way of estimating the prevalence of HCV and HBV would be to use archived specimens from the ZIMPHIA surveys. Modelling studies and integration of viral hepatitis surveys to existing data collection platforms are recommended for gathering of important information for action.

The coverage of HBV universal vaccination was at 90%,[51] and this is satisfactory progress according to WHO targets.[9] Efforts to increase uptake of HBV vaccination should be directed at the underperforming districts to improve the figure. The programmatic challenges in implementing the HBV birth dose reported in this study are evident in other African nations.[52] Training staff, integration of birth dose with maternal and new-born care, reaching infants born out of health institutions, task shifting, pregnancy tracking and birth notification have been suggested as strategies, which may increase birth

dose coverage.[53] The Zimbabwean health system has community health workers who can be trained, track pregnancies and administer the birth dose in the communities. Community health workers have been used effectively in HIV programmes,[54] distribution of malaria diagnostics and treatment[55] and contraceptives. Other nations have implemented selective vaccination as opposed to universal vaccination and found this to be highly cost effective.[56] This needs to be explored and considered as an alternative in Zimbabwe.

Screening and treatment are key to achieving elimination of viral hepatitis as demonstrated in other low-middle-income countries including Egypt and Rwanda.[18] These countries embarked on nationwide HCV screening, universal provision of DAAs and are on track to achieve WHO elimination targets. In Zimbabwe, population screening will be costly and not feasible; hence, targeted screening is recommended. People who received blood and blood products before 1990, HIV positive, pregnant women, people who inject drugs, healthcare care workers and commercial sex workers should be considered for screening for HBV and HCV. Programmatic integration of viral hepatitis screening services with established health services such HIV clinics, TB clinics and antenatal care is highly recommended. The gold standard for fibrosis assessment is liver biopsy but may not be feasible to implement due to high costs. Non-invasive tests such as aspartate aminotransferase to platelet ratio index have been recommended in sub-Saharan Africa.[4,5]

HBV mono-infected patients have limited treatment options and the single TDF formulation is not widely available. Those with HBV-HIV co-infection are often inadvertently treated with TDF-based first-line antiretroviral regimens. This poses a risk of HBV flares, if TDF based regimens are changed due to treatment failure or kidney injury. The registered DAAs provide a sufficient arsenal to treat HCV. The pan-genotypic regimen sofosbuvir/daclatasvir is recommended to eliminate the need for genotyping.[57] The government should engage suppliers for DAA price negotiations and promote use of generic drugs. Zimbabwe is covered under the voluntary licence agreement from manufacturers such as Gilead and Bristol Myers Squibb, which allows procurement of generic DAAs at lower prices.[58] Lower prices can also be achieved through establishing collaborative agreements for pooled procurement of the DAAS with existing regional structures such as the Southern African Development Committee (SADC) and the African Union (AU). The procurement by the government can be refined by using tendering that can potentially lower the price by eliminating the middleman.

Despite its commitment to increase local funding in viral hepatitis at the Cairo meeting of African Union Ministers of Health,[59] the Zimbabwean government is yet to fulfil the commitment. The limitations in government funding are evident in the fight against HIV/AIDS, which is mainly funded by Global Fund and PEPFAR.[60] Since HBV/HIV or HCV/HIV co-infection is possible, advocacy for the inclusion of viral hepatitis in the funding cycles of these external agencies is required. To aid advocacy, a full investment case-based analysis based on the strategic plan is required. South Africa pioneered a national viral hepatitis investment case based on national guidelines.[61] A multidisciplinary team looked at costing, impact modelling, cost-effectiveness analysis and fiscal space considerations for scaling up a national HCV and HBV screening and treatment programme. The South African investment framework estimated that a five-year investment of US$270million would avert 13,000 HBV-related deaths and 7000 HCV-related deaths.[61] The analysis can be useful as a tool to lobby for funding and establishing implementation parameters. We do recommend that the South African investment framework be adapted and adopted in Zimbabwe.

5 | CONCLUSION

Work towards the elimination of viral hepatitis has commenced with the constitution of the viral hepatitis technical working group and drafting of the strategic plan in Zimbabwe. Strategies on track to contribute towards achieving the WHO elimination targets include universal three-dose hepatitis vaccination, blood donation screening, safe injection practices and condom distribution. The challenges in the path to elimination of viral hepatitis include paucity of epidemiological data, lack of funds, lack of the HBV vaccine 24 h birth dose and very low to non-existent levels of screening and treatment.

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CONFLICT OF INTEREST

No conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX

DOCUMENTS REVIEWED IN 'PROGRESS ON THE ELIMINATION OF VIRAL HEPATITIS IN ZIMBABWE: A REVIEW OF THE POLICIES, STRATEGIES AND CHALLENGES'.

Act of parliament

1. Public Health Act [Chapter 15:17]

Policy documents

1. Zimbabwe National Health Financing Policy-Resourcing Pathway to Universal Health Coverage 2016
2. National Medicines Policy 2011
3. Zimbabwe Health Laboratory Policy

Strategy documents

1. Strategic plan for the control and elimination of Viral Hepatitis in Zimbabwe 2019–2022.
2. The National Health Strategy for Zimbabwe 2016–2020
3. National Health Laboratory Strategic plan 2017–2021
4. Zimbabwe Health Financing Strategy 2017
5. Extended Zimbabwe National HIV and AIDS Strategic Plan 111 2015–2020

Guidelines

1. 7th Essential Medicines List and Standard Treatment Guidelines for Zimbabwe 2015
2. National Infection Prevention and Control Guidelines of Zimbabwe 2013

Reports

1. Report for the Rapid Assessment of Viral Hepatitis in Zimbabwe-June 2017