

11th IVHEM



INTERNATIONAL VIRAL
HEPATITIS ELIMINATION MEETING

HYBRID MEETING | 12-13 SEPTEMBER 2025 | **SEOUL, SOUTH KOREA**

11th
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ABSTRACT BOOK

International Viral Hepatitis Elimination Meeting
Seoul, South Korea | 12-13 September 2025

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ORAL ABSTRACT PRESENTATIONS

11th International Viral Hepatitis
Elimination Meeting (IVHEM) 2025

Hybrid Meeting

12 – 13 September 2025
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1

Evaluating the Progress of 11 Asian Countries/CT Toward the WHO's 2030 Hepatitis Elimination Targets

Manning J¹, Ward J¹, Hiebert-Suwondo L¹

¹The Task Force For Global Health : Coalition For Global Hepatitis Elimination, Decatur, United States

Background: An estimated 254 million people were living with hepatitis B (HBV) and 50 million were living with hepatitis C (HCV) in 2022. The WHO Southeast Asia (SEARO) and Western Pacific (WPRO) regions account for more than 60% and a 50% of the global burden of HBV and HCV, respectively. To monitor progress toward HBV and HCV elimination, the Coalition for Global Hepatitis Elimination (CGHE) has collaborated with local partners to develop Hepatitis Elimination Profiles to assess the current status of plans, policies, strategic information, and equitable services.

Materials and Methods: Profiles were prioritized based on the highest HBV and HCV burden and others on request. Data were collected through a review of the scientific literature, government reports, and other sources (e.g. WHO). Local stakeholders from government, clinical practice, and civil society validated collected data. Policy scores were calculated where each adopted policy had a maximum score of 1. A partially adopted policy was 0.5 and a policy not adopted was 0. To date, profiles have been developed for 10 countries and Chinese Taipei (CT) from the SEARO and WPRO regions, including Australia, Bangladesh, China, Japan, South Korea, Indonesia, Myanmar, Thailand, Vietnam, the Philippines, and CT.

Results: Only 3 of these countries/CT met or were below the WHO interim HBV mortality target for 2025 (7 per 100,00). Four countries/CT met or were below the WHO HCV mortality interim target for 2025 (3 per 100,00)

Five countries/CT have adopted universal or age-/birth-cohort HBV screening strategies. Four countries/CT have adopted a system to monitor HBV diagnosis and treatment. These four countries/CT have also met the WHO 2025 targets for diagnosis coverage. No country/CT has

achieved the WHO interim 2025 target of 50% of persons living with HBV receiving appropriate treatment.

Five countries/CT have adopted universal or age-/birth-cohort HCV screening strategies. To date, Australia (81%) and the Republic of Korea (70%) have achieved the 2025 WHO target of 60% or more persons diagnosed, and Australia (55%) is the only country to meet the WHO 2025 target of 50% of persons treated.

10/11 countries have implemented policies for universal hepatitis B birth dose (BD) vaccination and antenatal screening. Six of those countries/CTs have achieved the WHO 2025 interim target of 70% BD coverage.

Access to clean needles and syringes for PWID per year ranges from (0-636), with 5 countries/CT meeting the WHO 2025 target of 200 needles-syringes per PWID per year.

CT had the highest HBV policy score of 19.5 out of a maximum score of 21, closely followed by Australia. For HCV, Australia scored the highest with 22 out of a maximum of 26.

Conclusion: The analysis reveals significant disparities in hepatitis elimination progress. Three countries show strong progress in HBV diagnosis, overall treatment coverage for HBV and HCV falls short of WHO targets. Despite most countries having policies for BD coverage varies widely. Harm reduction services remain inadequate. These findings highlight the urgent need for improved surveillance systems, policy implementation, and equitable service delivery to achieve elimination goals in the region.



2

Progress Towards Hepatitis Elimination in APAC: A Policy Update

Sarno R

¹APAC Liver Disease Alliance, Singapore, Singapore

Background: Hepatitis remains a significant public health challenge in the Asia-Pacific (APAC) region, where it is the leading cause of liver-related morbidity and mortality. Chronic infection with hepatitis B (HBV) and hepatitis C (HCV) viruses contributes to an alarming number of deaths annually. Despite the availability of effective treatments, many individuals remain undiagnosed and untreated, exacerbating the burden of disease. This study aims to assess the progress of policy efforts towards APAC hepatitis B and C elimination by updating previously published infographics from 2023 to evaluate any advancements and areas requiring further action.

Material and Methods: This study builds on comprehensive research conducted in 2023, updating key indicators of hepatitis elimination in the APAC region. A targeted literature review examined recent developments and changes in national hepatitis strategies and action plans. The findings were validated through consultation with over 20 experts across 13 health systems, ensuring that insights from frontline stakeholders were incorporated into the analysis.

Results: Progress towards hepatitis elimination in APAC is mixed. While progress is evident in some health systems, several still face challenges in scaling up their elimination efforts, particularly in funding and full implementation of national strategies. Japan remains the gold standard in hepatitis elimination, setting a benchmark with its comprehensive strategies, while Australia and Taiwan also demonstrate regional leadership across the indicators. Thailand and South Korea have emerged as case studies for rapid improvement in the region; with notable strides in political commitment, with Thailand also stepping up in terms of funding and improvements to its national action plan. Pakistan has developed its national action plan and political commitment in

the past two years, paving the way for greater elimination efforts.

Conclusions: While Japan, Australia, and Taiwan are leading the way, and systems such as Pakistan, Thailand, and South Korea are progressing, achieving hepatitis elimination by 2030 remains challenging for many APAC nations. Key to success will be expanding national strategies, securing sustainable funding, and addressing gaps in political commitment. Building on the achievements of Japan, Australia, and Taiwan, APAC health systems must prioritize comprehensive hepatitis prevention, testing and treatment to meet the WHO's 2030 elimination targets.



3

Hepatitis Cannot Wait: Subnational Leadership in Niger State's Push for Viral Hepatitis Elimination by 2030 - Progress, Challenges, and Strategic Imperatives

Tukur B¹, Gana M¹, Idris I¹, Bisallah C², Osemwenkha I², Onyilo M³, Mairiga S¹, Yakubu A⁴, Alhaji Shehu M³, Umaru Jerry K¹, Adepoju V⁵, Umebido C⁵, Oniyire A⁵, Strachan M⁶, Grabbe K⁶

¹Niger State Ministry Of Secondary And Tertiary Healthcare, Minna, Nigeria, ²General Hospital, Minna, Nigeria, ³National HIV/AIDS, Viral Hepatitis and STIs Control Programme, , Nigeria, ⁴Niger State Agency for the Control of AIDS, Minna, Nigeria, ⁵Jhpiego Nigeria, an affiliate of John Hopkins University, HIV and Infectious Diseases, Abuja, Nigeria, ⁶Jhpiego USA, affiliate of Johns Hopkins University, Baltimore, United States

Background: Nigeria has estimated 20 million cases of viral hepatitis B (HBV) and C (HCV), a daunting public health challenge, particularly in light of other chronic disease threats such as HIV. In Niger State alone, 759,000 people are estimated to have HBV and 621,000 with HCV of the total 6.9 million population. Certain districts in the state report prevalence rates as high as 40%. While most elimination efforts have been driven at the national level, the importance of subnational leadership is paramount in a country where health responsibilities are decentralized across states. In 2023, Jhpiego Nigeria, with support from the Unitaied-funded STAR Project, provided technical support in translating the Nigeria Viral Hepatitis Strategic Framework (2022-2026) into Niger State's tailored Viral Hepatitis Strategic Plan (2024-2026). The objective is to highlight the state's progress, key achievements, challenges, and strategic imperatives.

Method: From September-October 2023, Jhpiego facilitated a consultative process to co-design Niger State's three-year Strategic Plan (2024-2026). This plan was developed in partnership with the Niger State AIDS, Viral Hepatitis, and STI Control Program, key ministries, health agencies, partners, and private sector. The plan aligns with the five WHO pillars for hepatitis elimination. Three additional pillars were incorporated to address local context: leadership and governance,

advocacy and social mobilization, and monitoring, evaluation, research, and learning. The plan outlined specific objectives, activities, and budgets, with a focus on vulnerable groups such as pregnant women, people living with HIV(PLHIV) healthcare workers, and key populations.

Result: Following the launch of the strategic plan in 2024, Niger state government allocated \$100,000 in its 2024 budget to support viral hepatitis implementation across the states. Healthcare workers from ten pilot facilities were trained and began reporting data through the National Data Reporting System (NDARS). Viral hepatitis monitoring and supervision were integrated into the workload of HIV clinical mentors, and the State established a VH Technical Working Group (TWG) in September 2024, including sub-committees driving each strategic pillar. To support PMTCT triple elimination efforts, dual testing for HIV and syphilis has started, complemented by a 50% subsidy program to address gap in HBV PCR testing and tenofovir prophylaxis among HBV positive pregnant women. While HBV birth-dose vaccination within 24hr of delivery was adopted, home delivery remains a challenge in reaching full coverage. To enhance viral hepatitis diagnostic capacity and access, the state optimized a GeneXpert machine for decentralized testing and improved laboratory infrastructure to ensure 24-hour operation with consistent power supply.

Conclusion: Niger State has started on the right track toward hepatitis elimination, driven by strong leadership and partnerships. However, challenges like limited vaccine coverage, slow fund release, and the need for greater participation of CSOs and individuals with lived experience of viral hepatitis persist. Optimizing additional GeneXpert for improved access to viral load and sustaining efforts through additional resources from domestic investment, donors, and philanthropy are critical immediate next steps.



4

Advancing Global Hepatitis Elimination: Priorities for Research, Service Delivery, and Advocacy

Farquharson L¹

¹Created By Leone (Every Horizon), Toronto, Canada

Background: Viral hepatitis remains a major global health threat, with Hepatitis B and Hepatitis C responsible for significant morbidity and mortality worldwide. Despite advances in treatment and prevention, barriers to elimination persist, particularly in areas related to equitable access to healthcare, diagnosis, and treatment delivery. The 11th International Viral Hepatitis Elimination Meeting (IVHEM) seeks to address these barriers by fostering collaboration among clinical researchers, public health officials, and civil society.

Materials and Methods: Data from ongoing hepatitis elimination programs were collected from global regions, with a focus on the progress toward WHO's hepatitis elimination goals. This analysis was coupled with the examination of service delivery models, policy frameworks, and advocacy strategies implemented in diverse settings. Interactive discussions and expert-led presentations were used to highlight key areas requiring further research and innovation, particularly in low-resource settings.

Results: Key findings indicated that while significant progress has been made in scaling up treatment and prevention efforts, gaps remain in diagnostic infrastructure, particularly in remote and underserved communities. Innovative community-based screening programs and mobile health units were shown to improve diagnosis rates, while the integration of telemedicine into treatment models increased patient retention. Policy frameworks that prioritize equity and access were identified as critical to overcoming these barriers, with several successful case studies presented from Asia and Africa.

Conclusions: The elimination of Hepatitis B and Hepatitis C requires a multifaceted approach that combines research, service delivery innovations,

and advocacy. Moving forward, efforts must prioritize equity and access in all regions, with particular emphasis on vulnerable populations. The discussions at the 11th IVHEM provided a clear path forward for global hepatitis elimination, underscoring the need for continued collaboration and data-driven solutions to address remaining challenges.



5

Kambar: Paving the Way to HCV-Free Sindh, Pakistan - Making Elimination a Reality (Through Public-Private Partnership) in LMIC's

Ali Z¹, Rizvi L², Qureshi H³, Jawaid A², Dharejo Z⁴, Niaz S²

¹Jinnah Sindh Medical University, Karachi, Pakistan, ²Nigahban Trust, Karachi, Pakistan, ³National Hepatitis Strategic Framework (NHSF), Islamabad, Pakistan, ⁴Hepatitis Prevention & Control Program Sindh Hyderabad, Sindh, Hyderabad, Pakistan

Background: Pakistan faces the highest hepatitis C virus burden across the globe. The "Kambar" project represents a comprehensive, community-based approach to HCV elimination in Sindh, Pakistan, serving as a model for low- and middle-income countries.

Materials & Methods: Taluka Kambar has a total population of 350,000, with an estimated target population of 191,500 (people 12-years and above). The duration of the study was 9 months (Dec 2022-September 2023). Using a public-private partnership model, the Sindh government contracted out the HCV screening, testing, and treatment to an NGO (Nigahban Trust) in one selected Taluka of district Kambar. To reach the population, initially all 20 primary health care facilities in the district were upgraded, and staff was trained on point-of-care (POC) rapid testing, data entry, & PCR sampling. Roche Cobas 5800 was installed for PCR at the district hospital Kambar. Venous blood for HCV-RNA, complete blood count (CBC), and SGOT was collected in the same visit for cases who were anti-HCV reactive based on WHO-prequalified POC testing kits. A multiphased approach was used where existing government healthcare infrastructure and a trained workforce were used with some added incentive. Phase 1 focused on bringing the people for screening, testing, and treatment to the nearby health facilities. In phase 2, we engaged 88 lady health workers for door-to-door dissemination of HCV related issues in community & motivating public for screening, Screening at their health houses and referral of positive cases to nearest primary health facilities.

In the Phase 3, mobile teams undertook field-based screening and testing, for hard-to-reach areas with POC test & on spot PCR, CBC & SGOT sample collection and transportation to laboratory at district hospital. Patients received their treatment either at selected health facilities or at their homes by our field staff. All patients were treated with Sofosbuvir & Daclatasvir 12 or 24 weeks based on APRI score using cutoff of 1.5.

Results: A total 186,710 individuals were screened out of 191,500 persons (97%). The anti HCV seroprevalence was 2% (3,522 individuals). PCR were sent in 3336 cases and was detected in 1,539 (44%). There were 679 males and 860 females with highest exposure seen in 31-50 years age bracket and female gender. 1,530 people (99%) received treatment and completed it. Only 857 (56%) cases came back agreed for SVR-12, and virus was not detected in 830 (97%). Out of total population 4,790 (3%) refused for screening, testing was refused by 186 (5%) & only 9 (0.5%) refused for treatment.

Conclusion: The Kambar pilot project successfully used public-private partnerships to serve populations with limited resources and timeframe. Sindh's multi-pronged, phased, community-based HCV elimination strategy seems promising. By integrating screening, testing, and treatment into existing healthcare systems and using trained health care personnel and community workers, 97% screening and 100% treatment objectives were met quickly. We achieved 97% SVR-12 with Sofosbuvir and Daclatasvir, which is outstanding and cost-effective for all LMICs. This methodology shows how similar programs may be scaled out to eliminate HCV in Pakistan and other resource-limited countries.



6

Micro-Elimination in Action: Integrating Hepatitis B, C, and HIV Care for PWIDs in Mizoram's Challenging Terrain

Kaur K¹, Beri A¹, Zomawia E², Hahnar L³, Lalthlengliani P⁴, Chadha S⁵, Shilton S⁵

¹FIND India, New Delhi, India, ²National Health Mission, Aizawl, India, ³All India Institute of Medical Sciences (AIIMS), Gorakhpur, India, ⁴Mizoram State AIDS Control Society, Aizawl, India, ⁵FIND Geneva, Switzerland

Background: Mizoram, India, with a population of 1.09 million, faces a significant public health challenge due to high drug use, among its 14,783 estimated people who inject drugs (PWIDs). The state's challenging hilly terrain and porous borders exacerbates the issue. In Aizawl district, 97% of PWIDs registered with harm reduction services tested positive for Hepatitis C via rapid diagnostic tests (RDT), indicating a severe disease burden. Although hepatitis screening has been integrated with HIV services at harm reduction sites, barriers such as the high cost of baseline tests, limited funding, and logistical challenges in drug procurement persist. The absence of precise epidemiological data further complicates assessment of disease burden and treatment planning. To address these issues, State Hepatitis Control Program Unit, State AIDS Control Society, and National Viral Hepatitis Control Program, in partnership with FIND, launched hepatitis elimination initiative for early diagnosis and treatment for PWIDs.

Material and Methods: We implemented the project in Aizawl, Mizoram, focusing initially on pilot district. RDTs for anti-HCV and HBsAg were performed for all PWIDs visiting harm reduction sites or screening camps. Those tested positive received reflex blood draw for baseline tests, liver staging, HCV RNA and HBV DNA testing. We engaged community members to promote trust and encourage participation. Liver staging was determined by APRI and FIB-4 scores (non-cirrhotic - APRI <2 & FIB-4 <3.5 ; cirrhotic - APRI >2 & FIB-4 >3.5). Non-cirrhotic patients with HCV viremia started treatment at harm reduction sites, while HCV cirrhotic and confirmed Hepatitis B cases

were referred to specialists at Model Treatment Center in tertiary Hospital, Aizawl.

Results and Discussion: From September 2023, to April 2024, of 632 PWIDs registered at harm reduction sites in Aizawl 506 (80%) were screened for hepatitis B and C. Of these, 97% (491) tested positive for anti-HCV using RDTs. Following confirmatory test, 320 individuals (65%) were found to have Hepatitis C RNA. Additionally, 10 PWIDs were diagnosed with Hepatitis B, with 2 eligible for treatment. Among Hepatitis C cases, 172 (57%) were initiated on treatment, along with both persons diagnosed with Hepatitis B. Integrating hepatitis screening with HIV services at harm reduction sites significantly improved access to care for this hard-to-reach population. Nonetheless, high baseline test cost hindered programmatic scale-up, prompting advocacy for free testing. Additionally, lower estimates of drug forecast due to insufficient epidemiological data caused treatment delays. Timely support from Ministry of Health in securing the necessary drugs was crucial.

Conclusion: The successful implementation of this integrated hepatitis elimination initiative with HIV services highlights urgent need for scalable strategies to address high prevalence of viral hepatitis among marginalised populations in Northeast India. Ensuring treatment continuation and monitoring for sustained virological response (SVR) is critical for long-term success. To overcome ongoing challenges such as funding for baseline tests and securing reliable drug-supply, collaboration with state health authorities is essential. This pilot program not only demonstrates potential for effective hepatitis management within vulnerable communities but also serves as model for broader regional and global replication in fight against viral hepatitis.



7

Improvement of Linkage to Hepatitis C Care and Treatment Through Peer-Centered Interventions among Persons Who Inject Drugs in Georgia

Gulbiani L¹, Butsashvili M¹, Kamkamidze G¹, Stvilia K⁴, Tsereteli M⁴, Shadaker S³, Glass N³, Tskhomelidze I², Baliashvili D², Tohme R³

¹Health Research Union, Tbilisi, Georgia, ²TEPHINET, Tbilisi, Georgia, ³Centers for Disease Control and Prevention, Atlanta, USA, ⁴National Center for Disease Control and Public Health, Tbilisi, Georgia

Background: Georgia has a significant burden of hepatitis C and one of the highest prevalences of injection drug use globally, with an estimated 51,000 people who inject drugs (PWID). Among Georgians aged 18–64 years, the estimated prevalence of injection drug use is 2.2%. In 2015, the country initiated its Hepatitis C Elimination Program, aiming to reduce hepatitis C virus (HCV) prevalence by 90%. A bio-behavioral survey conducted in 2022 in Georgia found that 18% of PWID were HCV RNA positive, indicating a need for enhanced linkage to treatment. This study aimed to improve HCV linkage to care among PWID through a pilot peer-driven intervention.

Materials and Methods: The project was conducted during May 2023 – May 2024. Participants were recruited from two harm reduction sites in two different regions of Georgia. Peer educators—former or current PWID who previously had HCV infection and completed direct-acting antiviral (DAA) treatment—were trained to promote HCV diagnosis and treatment among PWID peers. Peer educators identified and recruited PWID targeting those who were anti-HCV reactive but had not undergone HCV RNA testing at least three months post-screening, as well as those with detectable HCV RNA or core antigen who had not initiated treatment at least three months after HCV RNA testing. Peer educators provided promotional messages regarding the importance of HCV treatment and described their own treatment experience. A financial incentive was provided to recruited PWID on the day they

took their first dose of DAA. The initial amount of incentive was 15 USD, which later (from January 2024) increased to 40 USD to enhance enrollment rates. Peer educators also received a 10 USD incentive for each successfully recruited individual.

Results: A total of 55 PWID who previously tested anti-HCV reactive and were lost to follow up were recruited by peer educators and underwent HCV RNA testing. Among these, 33 (60.0%) had detectable HCV RNA, and all of them initiated treatment. Additionally, 46 individuals who were previously confirmed to have current HCV infection but had not initiated treatment were recruited by their peers and started DAA therapy. In total, 79 PWID with HCV infection started HCV treatment as a result of this intervention. Increasing financial incentives from 15 USD to 40 USD improved linkage to care, with the average recruitment rate rising from 1.9 persons per month during May–December, 2023 to 4.2 during January–May, 2024.

Conclusions: The peer-driven intervention improved linkage to hepatitis C care and treatment among PWID, with financial incentives playing a key role. Improved enrollment after increasing the amount of incentive demonstrated the impact of monetary motivation combined with peer outreach.



8

Strengthening Primary Healthcare Systems for Integration, Decentralization, and Coordination of Prevention of Vertical Transmission of HBV, HIV, and Syphilis in Vietnam

Vu Ngoc B¹, Do Tuan K¹, Hoang Quoc K², Le Thi H², Chu Trong T², Tran Thi Huong L¹, Tran Khanh A¹, Green K¹

¹PATh, Hanoi, Vietnam, ²Nghe An Center for Disease Control, Vinh City, Vietnam

Background: Vietnam estimates 6.6 million people living with hepatitis B virus (HBV). Despite the high prevalence (10%-13%), pregnant women have low coverage of HBV testing and treatment with less than 70% tested during pregnancy but among those tested the majority received it in third trimester or before labor, missing opportunity for maternal antiviral prophylaxis. The country commits triple elimination of vertical transmission of HBV, HIV, and syphilis by 2030, however, there is a large gap between policy and implementation. We implemented a three-year initiative to demonstrate an integrated, decentralized, and coordinated approach to accelerating access to and uptake of HBV testing and treatment among pregnant women in two districts of a rural province of Nghe An.

Description: We engaged 50 primary health care facilities, including 46 commune health stations (CHS), two private health facilities (HF), and two district hospitals (DH) in providing systematic testing for HBV, HIV, and syphilis for pregnant women seeking antenatal care (ANC), using rapid HBsAg and dual HIV/syphilis tests. Those who have positive/reactive test results were offered linkage to care for HBV DNA or HBeAg testing, evaluation of treatment eligibility, and antiviral prophylaxis initiation at district and/or provincial hospitals. The linkage to care was proactively facilitated and coordinated by district health centers and DHs to ensure providing continuum of care for mothers and newborns.

Lessons learned: During July 2022 and August 2024, among 8,269 pregnant women seeking ANC at the 50 facilities, 8,209 (99.3%) accepted HBsAg testing and 8,182 (98.8%) opted for dual HIV/syphilis testing. The vast majority (87%) of pregnant women tested at CHS (71%) and private HF (16%). Notably, the decentralized testing enabled screening 73% of pregnant women earlier in the first and second trimesters instead of the third trimester as the standard of care (SOC). The dual HIV/syphilis testing had a significant higher proportion of pregnant women screened for syphilis than the SOC offering single HIV and syphilis testing (98.9% vs. 28.8%). Among those tested for HBsAg, the positivity rate was 5.8%. Of 473 HBsAg+ individuals, 59.8% received HBeAg or HBV DNA testing, and 30.4% were eligible for HBV prophylaxis, and 53.5% initiated treatment. Of those tested for dual HIV/syphilis we found one with reactive HIV result and four with a positive syphilis result, and all of them confirmed diagnosis and initiated treatment of HIV or syphilis.

Conclusion/Next steps: The integrated, decentralized, and coordinated approach is effective to accelerating uptake of services for prevention of vertical transmission of HBV as well as HIV and syphilis. The model enabled early screening and timely initiation of HBV antiviral prophylaxis among pregnant women. Evidence of the project informed and successfully advocated for development and approval of the provincial action plan on triple elimination of vertical transmission of HBV, HIV, and syphilis towards 2030 in Nghe An. However, further work is needed to address the remaining barriers, such as out-of-pocket payment, access to HBV viral load testing and antiviral prophylaxis, supply of commodities, and dedicated funding to achieve the triple elimination goal by 2030.



9

Epidemiological Trends and Future Forecast of Hepatitis B in China Using Time-Series Analysis of Global Burden of Disease Data

Xu S¹

¹Sun Yat-sen University, Shenzhen, China

Background: Combating viral hepatitis is integral to achieving the United Nations Sustainable Development Goals (SDGs). The World Health Organization (WHO) has established specific elimination targets for hepatitis B (HBV) in its Global Health Sector Strategy on Viral Hepatitis (WHO-GHSS) and Interim Guidance for Country Validation of Viral Hepatitis Elimination. Given the huge public health burden of HBV in China, this study used data from the Global Burden of Disease (GBD) Study 2021, assessing the burden of HBV in China by analyzing and forecasting its incidence, mortality, and disability-adjusted life years (DALYs). These estimates allow the assessment of progress in China during the past decades toward WHO's HBV elimination targets and identify remaining gaps and challenges that must be overcome to achieve HBV elimination in China.

Materials and Methods: The incidence and mortality of hepatitis B were summarized by age group and gender to identify high-risk populations. The Autoregressive Integrated Moving Average (ARIMA) model was used for time-series forecasting. After preprocessing the data to ensure stationarity, we selected the optimal ARIMA model based on the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC). This model was then employed to project hepatitis B statistics for 2022 to 2026, providing valuable insights for future epidemiological trends and public health strategies.

Results: From 1990 to 2021, China reported 765,131,969 cases of acute HBV. The age groups with the highest number of cases are <20 years, followed by 25–29 years, 30–34 years, and 20–24 years. The analysis also showed fewer cases in the elder age groups, with the lowest number in the 65–70-year-old age group. From 1990 to 2021,

China reported 221,302 deaths due to acute HBV, decreasing from 16,094 cases in 1990 to 2,424 cases in 2021. The age-standardized incidence rate/100,000 of HBV decreased from 2378.2 (95% confidence interval (CI) 1865.7–2894.0) in 1990 to 978.3 (95%CI 711.4–1302.2) in 2021. The forecasted incidence rate of HBV will be 944.4 (95%CI 898.8–990.1) in 2022 and 777.7 (95%CI 612.4–943.0) in 2026. The age-standardized death rate per 100,000 Chinese individuals with HBV decreased from 1.69 (95%CI 1.21–2.25) in 1990 to 0.13 (95%CI 0.10–0.17) in 2021. The forecasted HBV death rate will slightly decrease to 0.12 (95%CI 0.09–0.14) in 2022 and 0.06 in 2026. DALYs decreased greatly from 74.9 (95%CI 52.0–98.7) in 1990 to 6.8 (95%CI 5.3–8.6) in 2021. The forecasted DALYs of HBV will slightly decrease to 6.3 (95%CI 5.0–7.6) in 2022 reaching 4.0 in 2026.

Conclusions: Despite considerable progress in reducing HBV incidence and mortality over the past 32 years, hepatitis B remains a significant public health burden in China. Younger populations are more significantly impacted by HBV than older ones, underscoring the need for targeted prevention efforts among youth and other high-risk populations. China remains committed to intensifying surveillance, expanding vaccination, and ensuring equitable access to treatment as part of its strategic effort toward HBV elimination, aligned with WHO's goals.



10

Cost-Effectiveness of Antiviral Therapy in Patients with Chronic Hepatitis B in the High Viremic Gray Zone

Choi W¹, Jang S², Kim H³, Lim Y¹

¹Asan Medical Center, Seoul, South Korea, ²Sungkyunkwan University, Suwon, South Korea, ³Sahmyook University, Seoul, South Korea

Background/Aims: Growing evidence suggests that chronic hepatitis B (CHB) patients with high viremia are at a high risk of developing hepatocellular carcinoma (HCC) even with normal alanine transaminase (ALT) levels. This study aimed to evaluate the cost-effectiveness of initiating antiviral therapy in such patients.

Methods: A cost-utility analysis was conducted using a Markov model to compare the incremental cost-effectiveness ratio (ICER) of initiating antiviral therapy at the gray zone ("treat-GZ") versus delaying treatment until the immune-active phase ("untreated-GZ"). A hypothetical cohort of 10,000 patients with CHB in the gray zone (60% male, HBV DNA levels 4–8 log₁₀ IU/mL, ALT levels <40 IU/L, 50% HBeAg-positivity) was simulated over a 10-year horizon. Input parameters were obtained from a Korean multicenter historical cohort.

Results: From a healthcare system perspective, the ICER of the treat-GZ strategy was US\$12,050/quality-adjusted life year (QALY), indicating cost-effectiveness under the local willingness-to-pay threshold of US\$25,000/QALY. From a societal perspective, the ICER of the treat-GZ strategy was less than 0, indicating lower costs compared with the untreated-GZ strategy, thus representing a dominant strategy. A U-shaped association was identified between baseline HBV DNA levels and the ICER, as HBV DNA levels of 6–7 log₁₀ IU/mL were associated with the lowest ICER (US\$2,018/QALY), followed by 5–6 (US\$7,233/QALY), 7–8 (US\$19,677/QALY), and 4–5 log₁₀ IU/mL (US\$24,570/QALY), in accordance with the order of HCC risk.

Conclusions: Initiating antiviral therapy in high viremic gray zone CHB patients with normal ALT

levels was cost-effective compared with delaying treatment until the immune-active phase.



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HBV Care Continuum and Associated Factors in Rwanda: A Population-Based Study from 2016-2023

Makuza J¹, Jeong D¹, Law M¹, Puyat J¹, Ramji A¹, Soe P¹, Morrow R¹, Velásquez García H¹, Nisingizwe M¹, Serumondo J¹, Tuyishime A¹, Janjua N³

¹University of British Columbia, School of Population and Public Health, Vancouver, Canada, ²British Columbia Center for Excellence in HIV/AIDS, Vancouver, Canada, ³Rwanda Biomedical Center, Kigali, Rwanda

Background and Aims: The global burden of viral hepatitis B (HBV) is substantial, and monitoring progress across the care cascade is essential to plan elimination strategies. In Sub-Saharan Africa, data on the HBV care cascade are limited. We examined the HBV care cascade in Rwanda from 2016 to 2023.

Methods: In this population-based retrospective cohort study, we used routinely collected data from the District Health Information System 2 (DHIS-2), which included over 4.6 million people ≥ 2 years old screened for HBV from January 2016 to June 2023. The HBV care cascade was analyzed across six stages: (1) lifetime prevalence, (2) diagnosis, (3) enrollment in care, (4) eligibility for treatment, (5) treatment initiation, and (6) treatment continuation. Infection was defined as the presence of at least one reactive hepatitis B surface antigen (HBsAg). Lifetime prevalence was estimated as the sum of diagnosed and estimated undiagnosed cases. Hierarchical logistic regression was used to identify progression-related factors through the different cascade stages.

Findings: Among 4,604,468 individuals screened, 138,512 tested positive for HBsAg. In the DHIS-2 data on 57,520 cases, 52,827 (91.8%) had HBV mono-infection and 4,693 (8.2%) were co-infected with HIV. Of those diagnosed, 21,247 (37.0%) were enrolled in care, and 6,429 (30.3%) of the enrolled individuals were eligible for treatment. Of those eligible, 4,893 (76.1%) initiated treatment, and 4,839 (98.9%) were retained on treatment at one year post-initiation. Individuals aged 35–54 were more likely to engage in care (adjusted odds ratio

[aOR], 1.19; 95% CI: 1.12–1.27), initiate treatment (aOR, 1.45; 95% CI: 1.14–1.86), and be retained on treatment (aOR, 2.88; 95% CI: 1.09–7.63) compared to those under 35. Individuals living 30 minutes to 1 hour from a health facility were less likely to engage in care or remain on treatment compared to those living closer.

Interpretations: Overall, engagement with care was low, which highlights the need to strengthen awareness among the general population regarding HBV prevention and control. Younger individuals and those living farther from health facilities were less likely to engage in care and remain on treatment. Strengthening lower-level health facilities by expanding the number of trained healthcare providers and improving infrastructure is critical to enhancing HBV prevention and treatment at the community level.



12

Remaining Chronic Hepatitis C Treatment Gaps Impact on the Care Cascade of HCV-Related Hepatocellular Carcinoma

Flores J^{1,2}, Thompson A^{1,2,3}, Hong T¹, Roberts S⁴, Majeed A⁴, Kemp W⁴, Nicoll A⁵, Sawhney R⁵, Valaydon Z⁶, Sinclair M⁷, Mishra G⁸, Howell J^{1,2,3}, Howell J

¹St Vincent's Hospital Melbourne, Fitzroy, Australia, ²University of Melbourne, Parkville, Australia, ³Burnet Institute, Melbourne, Australia, ⁴Alfred Health, Melbourne, Australia, ⁵Eastern Health, Box Hill, Australia, ⁶Western Health, Footscray, Australia, ⁷Austin, Heidelberg, Australia, ⁸Monash Health, Clayton, Australia

Background: Direct acting antivirals (DAAs) for chronic hepatitis C (HCV) were made universally available in Australia in 2016. In this study, we aimed to describe the cascade of HCV care in people with HCV-HCC, and describe the impact of achieving SVR on HCC stage at diagnosis, treatment receipt and survival.

Methods: Incident HCC cases were retrospectively identified between 1st January 2018 to 31st December 2021 from six tertiary hospital networks in Melbourne, Australia and followed up to 31st October 2023. Bivariable analysis was conducted using Chi square and Wilcoxon rank-sum test, and Cox multivariable regression models determined factors associated with overall survival.

Results: 1013 incident cases of HCC were diagnosed, 35% (n=348) due to HCV and male predominance (80%, n=279). Those with HCV-HCC were significantly younger than non-HCV-HCC cases (median age of 61 years IQR 57, 65; vs 70 years IQR 63, 76.5) ($p<0.0001$). Cirrhosis was present in 95% (331/348) of HCV-HCC cases compared to 77% (509/665) non-HCV-HCC ($p<0.0001$); of these, 72% (238/331) had known cirrhosis compared to 60% (305/509), respectively ($p<0.0001$). More HCV-HCC cases had at least one surveillance scan in the 12 months preceding HCC diagnosis (45%, 158/348 vs 37%, 248/665) ($p=0.012$). There were no significant differences between HCV-HCC and non-HCV cases with respect to: proportions of early BCLC ($p=0.162$), timely MDT review within 2 weeks ($p=0.133$), timely treatment receipt within 4 weeks ($p=0.388$)

and proportion that received first line curative therapies ($p=0.199$).

SVR data were available for 98% (341/348): 61% with HCV-HCC (208/341) had SVR from antiviral treatment with median time to HCC diagnosis from documented SVR of 1043 days (IQR 574, 1532). SVR associated with a lower proportion of documented previous/current: intravenous drug use (26%, 54/208 vs 41%, 55/133; $p=0.003$) and alcohol misuse (27%, 56/204 vs 43%, 57/133; $p=0.003$). 8% (18/208) had not been assessed as having cirrhosis prior to HCC diagnosis, 11 of whom had additional risk factors for cirrhosis. Significantly more cases with SVR had at least one surveillance scan in the year prior to HCC diagnosis (64% 133/208 vs 18%, 24/133; $p<0.001$); however, 36% (75/208) with SVR had no surveillance scans in the preceding 12 months. More HCV-HCC cases with SVR had early BCLC stage (59%, 122/208 vs 40%, 52/130) ($p=0.001$) and first line curative therapy (40%, 83/208 vs 27%, 27/133) ($p=0.015$). Fewer deaths occurred in individuals with SVR (42%, 74/178 vs 59%, 67/114; $p=0.004$) and median time to death following HCC diagnosis in the SVR group was 11.9 months (IQR 5.3, 21.4) compared to 6.0 months (IQR 2.7, 15.7) ($p=0.02$). SVR was associated with improved survival post HCC diagnosis (log rank HR 0.57; 95% CI 0.41-0.79; $p=0.001$).

Conclusion: Despite widespread availability of DAAs, a significant proportion of people with HCV-HCC remain untreated, have not been evaluated for cirrhosis and have not been enrolled in surveillance. Greater investment in health promotion and education to identify patients with HCV, increase uptake of liver fibrosis assessment and retention in specialist care and HCC surveillance is urgently needed to improve outcomes and reduce deaths from HCV-HCC.



13

Yes It Can Happen: A Success Story from Punjab, India - Integrated Model of Service Provision of Hepatitis C

Badgujar S¹

¹International Drug Policy Consortium (idpc), Bangkok, Thailand

Background: People who use and/or inject drugs (PUD) is fast becoming the primary cause of new Viral Hepatitis C (HepC) infection in several countries. Punjab, a state in India, has a high number of PUD and the prevalence of chronic HepC among PUD was 8-10% in comparison to 3.6% among the general population. Hence, the Government of Punjab launched an initiative to provide free treatment for HepC, to reduce its transmission in the state.

Method or Approach: The government of Punjab launched the “Mukh Mantri (Chief Minister) Punjab Hepatitis-C Relief Fund (MMPHCRF)” in 2016 to provide free treatment of HepC to all patients in the State. Further, in 2017, recognizing the need to reach out to most at-risk populations (MARPs), the approach was changed from passive screening to active screening. Active screening for HepC was undertaken among People Living With HIV/AIDS (PLHIV) at Antiretroviral therapy (ART) centres, PUD at Opioid Treatment Programs or Opioid Agonist Treatment sites and in prisons, across the state. Four laboratories were established for viral load testing and sample transport networks were mapped to screening centres thus minimizing the sample transport distance, reducing costs, and optimizing lab capacities.

Results: In 4 years, more than 200,000 people were screened and 85,000+ HepC patients were initiated on treatment. Out of these, 69,000+ patients have completed treatment and 52,000+ were completely cured. The initiative has contributed in reducing the HepC burden in the state. Besides that, the financial burden on the State, for tests and medicines was greatly reduced through largescale procurement and negotiations with suppliers.

Conclusion: Punjab's comprehensive approach to HepC management shows the feasibility of large-scale screening and treatment in public healthcare settings. Its success highlights the importance of treatment as a prevention approach and the need to reduce the financial burden among vulnerable patients.



14

Utilizing Health Administrative Data and Infectious Disease Modeling to Track Hepatitis C Elimination

Wong W¹

¹University Of Waterloo, Kitchener, Canada

Background: Despite the availability of highly effective direct-acting antiviral therapy, chronic hepatitis C (CHC) continues to cause a major public health burden. In many high-income countries, treatment rates have been declining, which was exacerbated by the impact of the COVID-19 pandemic, threatening the ability to meet the World Health Organization (WHO)'s targets for eliminating hepatitis C virus (HCV) as a public health threat by 2030. The goal of this study is to develop a proper infectious disease model, utilizing the highly reliable health administrative data to track HCV elimination process in Ontario, Canada.

Materials and Methods:

We developed an agent-based model (ABM) to characterize the HCV epidemic in Ontario, Canada, a resource-rich country with ongoing immigration from HCV-endemic regions; which relies exclusively on risk-based screening for case identification. Combinations of prevention such as harm-reduction, screening, and treatment strategies were considered. Model parameters were estimated from the literature and calibrated against with the highly reliable health administrative HCV data. Sensitivity analyses were performed to assess uncertainty.

Results:

Under the current status quo of risk-based screening, we predict the incidence of CHC-induced decompensated cirrhosis (DC), hepatocellular carcinoma (HCC), and liver-related deaths (LD) would decrease by 79.4%, 76.1%, and 62.1%, respectively, between 2015–2030, but CHC incidence would only decrease by 11.1%. With aggressive screening and treatment strategy, DC, HCC and LD would decrease by 85.6%, 83.4% and 72.6%, respectively, between 2015–2030, but CHC incidence would only decrease by 18.2%. On the other hand, the enhanced harm reduction strategy

was the most effective strategy in reducing CHC incidence, from 28.7 cases per 100,000 population in 2015 to 9.4 cases in 2030 or by 67.2%. Results were sensitive to HCV transmission rate and annual number of people initiating treatment.

Conclusions: Our findings showed that in countries or regions like Ontario, Canada, where there is ongoing immigration from places where HCV is common, the current HCV screening and treatment policies are insufficient to achieve the WHO hepatitis elimination goals by 2030. With extensive scale-up in screening, and treatment, the mortality target may be achievable, but the target for preventing new CHC cases is unlikely reachable, highlighting the importance of developing enhanced harm-reduction strategies for HCV elimination.



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Molecular Epidemiology, and Variants of Hepatitis B Virus and Hepatitis D Prevalence in Nigeria: A Population-Based Study

Adewuyi O^{1,2,3}, Shakir Balogun M^{4,5}, Abimiku A⁶, Eghelakpo Akar S², Agbakizua Ahumibe A^{2,3}, Ilori E³, Mba N³, Babatunde O³, Okunromade O³, Ahmed A³, Akinpelu A³, Ochu C³, Christopher Avong J³, Saleh F³, Olaide J¹, Anh Luong Q¹, Otomaru H¹, Ihekweazu C^{3,7}, Toizumi M¹, Ifedayo A^{3,8}, Idris J³, Yoshida L¹

¹Department of Paediatric Infectious Diseases, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan, Nagasaki, Japan, ²Graduate School of Biomedical Sciences, Nagasaki University, Japan, Nagasaki, Japan, ³Nigeria Centre for Disease Control and Prevention, Abuja, Nigeria, Abuja, Nigeria, ⁴Nigeria Field Epidemiology and Laboratory Training Programme, Abuja, Nigeria, ⁵African Field Epidemiology Network, Nigeria, Abuja, Nigeria, ⁶Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, ⁷WHO Hub for Pandemic and Epidemic Intelligence, Berlin, Germany, ⁸Foundation for Innovative New Diagnostics, Geneva, Switzerland

Introduction: Approximately 300 million people are infected with hepatitis B virus (HBV) worldwide and Nigeria, with an HBV prevalence of 8.1%, is one of the countries with the highest burden of HBV infection in the world. HBV and HDV coinfection can lead to the most severe form of viral hepatitis. Information on circulating HBV genotype, drug-resistant variant, and HDV coinfection is crucial for efficient control and management of HBV. We therefore investigated the genomic and epidemiological characteristics of HBV and the prevalence of HDV in Nigeria.

Materials and Methods: A population based, nationally representative Nigeria HIV/AIDS Indicator and Impact Survey study which also tested for HBV was conducted recently. Our study utilised 777 HBV positive samples (763 plasma; 14 DBS) and epidemiological data selected from the two-stage sampled NAIS study. Extracted HBV DNA from 732 samples with detectable viral loads (VL) were assessed for (sub)genotypes, and variants by pre-amplification, nested PCR of the s- and pol-gene, and BigDye Terminator sequencing.

HDV serology was conducted using Cusabio's IgG ELISA kit.

Results: Nineteen out of the 36+1 states in Nigeria have a high prevalence of HBV ($\geq 8\%$) with the north-central geopolitical zone having the highest prevalence (10.4%). The 25–29-year age group had the highest proportion of HBV seroprevalence [male= 19.5% (16.0 – 23.6)%, female= 17.0% (13.4 – 21.1)%]. Up to 33.2% [CI: 30.0 – 36.6)%] of all participants had detectable VL of ≥ 300 c/mL with about half of these being $>10,000$ c/mL. From about 80.6% of the samples whose genotypes were detected, the HBV genotypes circulating in Nigeria were genotypes E, 98.4% (97.1 – 99.1)%, and A, 1.6% (0.9 – 2.9)% with A2, A3, C2, D1, D3, E, F4, and G subtypes. Several known and new drug-resistant HBV variants were detected in 9.7% (7.8 – 12.0)% of the samples against Adefovir, Entecavir, Lamivudine, and Telbivudine out of five nucleos(t)ide analogues (no resistance against Tenofovir), with three immune escape variants (137W, 137Y, and 145K) were detected. The seroprevalence of HDV was 7.34% [CI: (5.5 – 9.2)%].

Conclusion: Nigeria has a high HBV burden with subtype E being the major genotype with a substantial number of variants. To eliminate HBV— and therefore HDV —by 2030 as scheduled by the WHO, there is a need to deploy and/or intensify HBV control strategies including affordable, accessible genotyping, and targeted management in Nigeria with a focus on the north-central geopolitical zone.



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Understanding the Barriers to Scaling Up Hepatitis Delta Responses - Findings from a Global Survey

James C¹, Hicks J¹, Pokuah C¹

¹World Hepatitis Alliance, Geneva, Switzerland

Background: Globally, it is estimated that 12 million people are living with hepatitis D. In comparison to people living with hepatitis B monoinfection, people with both hepatitis B and hepatitis D are at increased risk of liver cancer and are more likely to progress to cirrhosis at a much faster rate. Despite this, the response has been slow with a lack of data on hepatitis D impeding efforts to scale up programmes. To address this, the World Hepatitis Alliance (WHA) conducted a Global Hepatitis D Landscape Survey to better understand the gaps in knowledge, the current landscape and barriers to accessing testing and treatment for hepatitis D.

Materials and Method: WHA developed an online survey consisting of a set of general questions followed by specific questions tailored to each stakeholder group: community-based organisations, healthcare professionals (HCPs) and policy makers. The survey was fielded from 18 September 2024 – 16 October 2024 and was distributed via Survey Monkey in English, French and Spanish.

Results: 572 participants from 100 countries responded to the survey, with the majority of respondents from Nigeria, USA, Spain, UK and Australia. HCPs made up 45.2% of respondents and while they reported being more familiar with hepatitis D than either policy makers or community-based organisations, almost a third of HCPs (29%) reported being either not familiar or slightly familiar with hepatitis D. 40.9% of respondents reported that hepatitis D testing was available and fully accessible in their country but only 12.9% of respondents stated that hepatitis D treatment was both available and accessible. General lack of knowledge (51.5%), direct costs (26.6%) and lack of knowledge of HCPs (25.4%) were reported as the top three barriers to hepatitis D testing by HCPs compared to

community-based organisations and policy makers who included lack of public health policies and difficulties accessing healthcare facilities in the top three barriers. Lack of information (45%), direct costs (32%) and lack of specialists providing treatment (27.2%) were reported as the top three barriers to hepatitis D treatment by HCPs compared to community-based organisations and policy makers who reported that lack of public health policies were in the top three barriers.

Conclusion: Findings from the survey highlight the need for increased awareness and access to testing and treatment of hepatitis D. Significant gaps remain in knowledge among HCPs, policy makers and community-based organisations and findings show that whilst testing is more widely available, access to treatment is limited. Major barriers to testing and treatment such as lack of knowledge of HCPs, direct costs, lack of public health policies and difficulties accessing healthcare facilities require urgent action. By bridging these gaps, global efforts to eliminate hepatitis can be accelerated and patient outcomes improved.



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Current Status of Hepatitis C Treatment and Its Barriers in Jeonbuk, Korea

Kang J¹, Ahn H¹, Moon Y², Park J², Lee C³, Kim I³, Lee J^{2,4}, **Gwack J**^{2,4}

¹Infectious Disease Control Department, Jeonbuk State, Jeonju, Korea, ²Jeonbuk State Center for Infectious Disease Control and Prevention, Jeonju, Korea, ³Department of Internal Medicine, Jeonbuk National University Medical School, Jeonju, Korea, ⁴Department of Preventive Medicine, Jeonbuk National University Medical School, Jeonju, Korea

Background: Hepatitis C is designated as a nationally notifiable infectious disease, with an average of 9,691 cases reported annually in Korea since 2018. However, the cascade from detection to treatment and cure of hepatitis C in Korea remains incomplete, with an estimated treatment rate of only 56.8%. To assess the diagnosis-treatment linkage and identify barriers to treatment for hepatitis C patients, the Korean Association for the Study of the Liver and Jeonbuk State collaborated on a campaign and survey project.

Material and Methods: Patients diagnosed with hepatitis C and reported to Jeonbuk State between January 2023 and June 2024 were individually interviewed by telephone between July and September 2024. The survey assessed whether they had received treatment, the type of treatment received, and the reasons for non-treatment among those who had not received treatment.

Results: A total of 311 cases were reported during the study period, of which 208 (66.9%) were investigated, excluding 67 cases lost to follow-up or deceased. The mean interval between reporting and investigation for each patient was 355 days. Among the respondents, 66.8% (139 cases) were female, and 52.4% (109 cases) were aged 70 or older. Of those surveyed, 71.2% (148 cases) reported ever receiving treatment, with only 78.4% (116/148 cases) receiving direct-acting antivirals (DAAs). Treatment failure or relapse was reported in 2.6% (3 cases). Among the 92 respondents who had never received treatment or received treatments other than DAAs, the reasons for non-treatment were as follows: asymptomatic

(25.0%), inability to afford medication (22.8%), lack of awareness of the need for treatment (20.7%), presence of comorbidities (19.6%), perceived incurability (13.0%), difficulty accessing clinics (4.3%), and lack of information about treatment clinics (3.3%).

Conclusions: These results indicate that only 55.8% (116/208) of confirmed and reported HCV cases received curative DAA treatment. Among non-treated patients, the primary barriers included a lack of accurate information and disease awareness (58.7%) and limited access to treatment (30.4%). With the anticipated increase in newly detected HCV cases due to HCV antibody screening in Korea's 2025 national health check-ups, strategies to enhance patient awareness and access to treatment are essential. These strategies should support the seamless linkage of hepatitis C patients to the full cascade of care, as identified in this study.



POSTER ABSTRACT PRESENTATIONS

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Bending the Curve of Hepatitis C Virus Infection in Machar Colony: A Mass Screen and Treat Intervention in a Slum Settlement in Karachi, Pakistan

Aslam M¹, de Glanville W¹, Wailly Y¹, Miazek M¹, Hamid S², Isaakidis P³

¹Medecins Sans Frontieres, OCB, Brussels, Belgium, ²Agha Khan University Hospital, Karachi, Pakistan, ³Medecins Sans Frontieres-SAMU, Cape Town, South Africa

Background: Long-standing impacts of marginalization suggest people living in slums are likely to be at higher risk for hepatitis C virus (HCV) infection than the wider urban population in settings with generalized epidemics. People living in slums therefore represent a key but typically neglected group for elimination and there is a need for innovative approaches to reach them. From March 2022 through March 2024, we implemented a community-based HCV screen and treat intervention targeting the whole population of Machar Colony, a large slum in Karachi, Pakistan. Here, we describe the expected impact of this intervention in reducing population-level HCV prevalence. Further, we report outputs from a cascade analysis aiming to identify steps in the cascade where improvements would be expected to have the greatest impact.

Methods: Door-to-door mobilization for HCV screening was conducted across Machar Colony. People aged 12 and above were screened in their homes or in a screening van. A reflex blood sample was collected for confirmatory PCR. Sampled people were asked to attend a nearby clinic to collect PCR results and for free-of-cost treatment initiation (90-days sofosbuvir-daclatasvir, with sofosbuvir-velpatasvir and sofosbuvir-velpatasvir-voxilaprevir second- and third-line, respectively). Machar Colony residents could also “walk-in” to this clinic for screening. Using programmatic data, we characterized each step in the cascade from mobilization to cure as a series of conditional probabilities. Multiplication of these probabilities gave the expected reduction in population-level HCV prevalence during the intervention. Uncertainty, including in infection status of people

lost to follow-up after treatment initiation, was incorporated through simulation. “Cascade gain” was the additional number expected to be cured if a given step in the cascade had performed optimally.

Results: We performed 74,658 screening tests, of which 7,037 (9.4%) were positive. There were 78,753 eligible people resident in Machar Colony, with 78% (61,808) mobilized for screening. Among these, 83% (51,137) agreed to test and 90% (6,363) of people with positive tests to reflex sampling. Among 2,329 with positive PCR (37% of 6,260 tests), 76% (1,779) collected results with 94% (1,674) initiated on treatment. An additional 437 walk-ins were also initiated. Loss to follow-up after initiation was high (48%, 1,014), but the majority (69%, 704) were lost after receipt of at least 60-days therapy. Sustained virologic response (SVR) after 90-days sofosbuvir-daclatasvir was 94% (982 of 1,042). Including expected (i.e., simulated) outcomes for people without an SVR result, we estimate to have achieved cure in 1,883 people (99% Uncertainty Interval (UI) 1,701, 2,055) and a 46.8% (99% UI 42.3, 51.1) reduction in population-level HCV prevalence. Steps with the highest cascade gain were collection of PCR results (462 additional cured) and mobilization for screening (410).

Conclusion: This intervention is estimated to have achieved cure in around half of all people living with HCV in Machar Colony, with the remainder still infected due to losses throughout the care cascade. Future interventions in similar settings should prioritize mobilization and linkage to care after screening to maximize impact, for example through approaches such as self-testing, flexible screening times, and treatment initiation in the community.



18

From Policy to Practice: Strengthening Viral Hepatitis Responses in Delta State through Universal Health Coverage and Systems Support Toward Elimination by 2030

Onojaeme J¹, Okeowo P¹, Tetsola C¹, Peter-Enyi L¹, Igweh K¹, Ezeadife S¹, Okinedo P², Adepoju V³, Umebido C³, Oniyire A³, Strachan M⁴, Grabbe K⁴

¹Delta State Ministry Of Health, Asaba, Nigeria, ²Hepatitis Advocacy Foundation, , Nigeria, ³Jhpiego Nigeria, an affiliate of John Hopkins University, HIV and Infectious Diseases, Abuja, Nigeria, ⁴Jhpiego USA, affiliate of Johns Hopkins University, Baltimore, United States

Background: Viral hepatitis (VH) remains a substantial public health concern in Delta state, Nigeria, where an estimated 884,000 of the 6.8 million population are affected by the disease (13%). Efforts to combat VH have been inconsistent, with lack of a clear roadmap to guide implementation. The need for a structured plan to strengthen the state VH response prompted the development of the Delta State Viral Hepatitis Strategic Plan (2024-2026). The objective is to highlight the state's progress, key achievements, challenges, and learnings towards the establishment of sustainable VH elimination systems.

Methods: In February 2024, with support from the Unitaid-funded STAR project, Jhpiego Nigeria facilitated a series of collaborative stakeholder engagements to strengthen Delta state viral hepatitis response. The engagement identified critical areas relevant for strengthening the state's response such as integrating viral hepatitis services into existing interventions, increasing uptake of HBV birth dose within 24hrs, expanding screening of pregnant women at ANC and other priority population, M&E systems, advocacy and community engagement. These priorities led to the development of the Delta State VH strategic plan (2024-2026). The development process deployed a collaborative, participatory and co-creation approach, engaging key stakeholders across relevant ministries including Delta State AIDS, Viral hepatitis and STI Control Program,

Contributory Health Commission (DHCHC), CBOs, CSOs, Network of People Living with HIV/AIDS, implementing partners, and tertiary institutions. The Plan revolves around the WHO strategic pillars for viral hepatitis elimination and outlines state-specific objectives, activities, sub-activities, and associated budget to combat viral hepatitis.

Results: Following the development and dissemination of the strategic plan in April, 2024, notable progress has been made to implement the Plan. Healthcare workers from thirteen pilot health facilities were trained and six health facilities have commenced viral hepatitis data reporting on the National Data Reporting System (others will commence by year-end). HBV testing for pregnant women at ANC recorded a 44% increase across the pilot facilities. Also, three facilities have initiated structural changes such as availability of HBV vaccine in the labour and delivery unit and training of midwives/nurses on administering HBV birth dose to ensure newborns receive timely HBV BD within 24hrs. Additional efforts, including integrating viral hepatitis services into existing HIV service delivery, partner coordination meetings and supportive supervisory visits to health facilities have been implemented to leverage established systems and resources. Community voices have been amplified, with CSOs now leading advocacy efforts to reduce cost of diagnosis and treatment through access program that subsidizes prices of medication. A VH Technical Working Group was established in September 2024 to drive the strategic pillars. The advocacy, communication and social mobilization unit of the state are preparing to launch a state-wide campaign with key messages focused on viral hepatitis. Furthermore, joint advocacy visits by CSOs, state representatives and partners have resulted in tangible outcomes such as the inclusion of free screening of hepatitis B and C for all pregnant women receiving antenatal care under DHCHC.

Conclusion: These efforts highlight the importance of coordinated partnerships and multisectoral approach in driving the state closer to its elimination goal. Though screening has been optimized, challenges still exist especially in the area of diagnosis and treatment. To accelerate progress, new and existing donors will be essential to support State government efforts. The significance of advocacy and community engagement in driving change is evident, as they play a critical role in resource mobilization and awareness creation.



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Hepatitis B Core-Related Antigen Rapid Test (HBcrAg-RDT) to Identify Women at High Risk of HBV Vertical Transmission in Cambodia, Cameroon, and Burkina Faso

Shimakawa Y¹, Vincent J, Ségéral O, Kania D, Borand L, Adoukara J, Pivert A, Koné A, Tiendrebeogo A, Tall H, Schaeffer L, Vray M, Sanou A, Njouom R, Hashimoto N, Miura T, Sugiura W, Sovann S, Yang J, Delvallez G, Lunel-Fabiani F, Tanaka Y

¹Institut Pasteur, Paris, France

Background: In addition to timely administration of hepatitis B birth dose vaccine, identifying high-risk pregnant women and providing antiviral prophylaxis is crucial for the global elimination of mother-to-child transmission (MTCT) of hepatitis B virus (HBV). However, resource-limited countries face challenges due to limited availability of HBV DNA testing and the absence of accurate hepatitis B e antigen (HBeAg) rapid tests. We evaluated the diagnostic performance of a newly developed hepatitis B core-related antigen rapid test (HBcrAg-RDT) in identifying hepatitis B surface antigen (HBsAg)-positive women eligible for antiviral prophylaxis.

Materials and Methods: We retrospectively validated HBcrAg-RDT using stored sera from HBsAg-positive pregnant women enrolled in cohort studies in Cambodia and Cameroon, and prospectively with finger-prick capillary blood from postpartum mothers in rural health centres in Burkina Faso. We estimated the sensitivity and specificity of HBcrAg-RDT to diagnose high HBV DNA levels ($\geq 200,000$ IU/mL) using real-time PCR as the reference.

Results: Among HBsAg-positive women, the sensitivity and specificity were 94.0% (345/367, 95%CI: 91.1-96.2) and 95.2% (787/827, 93.5-96.5) in Cambodia (n=1,194), 90.9% (80/88, 82.9-96.0) and 92.7% (383/413, 89.8-95.0) in Cameroon (n=501), 89.7% (35/39, 75.8-97.1) and 93.9% (216/230, 90.0-96.6) in Burkina Faso (n=269). In

Burkina Faso, we also prospectively evaluated in HBsAg-negative women with a specificity of 99.7% (3179/3188, 99.5-99.9). The median turnaround time from sample collection to result was 46.5 days [IQR 31-72] for HBV DNA and within the same day for HBcrAg-RDT for all participants.

Conclusions: HBcrAg-RDT may facilitate integration of HBV PMTCT into decentralized antenatal care services in resource-limited countries.



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Decentralized Hepatitis C Testing and Treatment in a Rural Health Centre: A Simplified Model of Care Integrated into an Existing Primary Health Service in Karachi, Pakistan

Aslam M¹, Mazzilli S¹, Ahmed M¹, de Glanville W¹, Wailly Y¹, Miazek M¹, Isaakidis P², Le Paih M³

¹Medecins Sans Frontieres, OCB, Brussels, Belgium, ²Medecins Sans Frontieres, SAMU, Cape town, South Africa, ³Hepatitis C PACT,

Introduction: Pakistan has the highest prevalence of Hepatitis C Virus (HCV) infection globally. The burden on tertiary care government hospitals is immense, and there is an urgent need to decentralize care by simplifying treatment pathways. The education and involvement of non-specialists in HCV screening and treatment at the primary care level could significantly enhance access and reduce pressure on specialised facilities. In August 2022, Médecins sans Frontières (MSF), in collaboration with the Ministry of Health, aimed to implement a pilot HCV screening and treatment program at the Rural Health Centre (RHC) in Baldia Town, Kemari District, a suburban, peripheral area of Karachi.

Methods: This retrospective cohort study includes residents of Baldia Town aged 12 and above, who were screened at the RHC based on identified risk factors. Screening began with pre-test counseling, followed by HCV serological testing using a rapid diagnostic test (RDT) on capillary blood. For positive cases, venous blood samples were collected for HCV viral load testing via GeneXpert, with results available on the same day or the following working day. Treatment with sofosbuvir (400 mg) and daclatasvir (60 mg) was initiated in patients with confirmed HCV viraemia, to be taken orally once daily for 12 or 24 weeks, depending on the presence of decompensated cirrhosis. HCV cure was defined as a sustained virological response at 12 weeks post-treatment (SVR12), with an HCV viral load of <10 IU/mL.

Results: Between August 2022 and July 2023, 3,505 individuals were screened at the Baldia RHC. Of these, 613 (17.5%) were tested HCV antibody-positive, and 610 received HCV viral load testing (three refused). Among those tested, 225 (37.9%) were confirmed HCV viraemic. The median time from HCV antibody-positive diagnosis to viral load result was one day (IQR 0–1). Of the 225 viraemic patients, 160 (71.1%) initiated treatment, while 20 (8.9%) were deemed ineligible. The median time from diagnosis to treatment initiation was five days (IQR 2–9). Among the 148 patients for whom prior infection awareness was reported, 119 (80.4%) already knew they were HCV viraemic. Of the 124 patients who underwent the SVR12 test, results were available for 111 individuals, 107 (96.4%) of whom achieved cure.

Discussion: This pilot program demonstrates that decentralizing HCV care to a primary health facility is feasible, with rapid diagnostic and treatment initiation times. However, only 71.1% of viraemic patients initiated treatment, indicating barriers such as logistical challenges or patient reluctance. The high SVR12 ratio (94.3%) among tested patients shows the effectiveness of the DAA regimen, although the 22.5% lost to follow-up signals the need for improved patient retention strategies. Additionally, 80.4% of viraemic patients were aware of their status prior to screening, suggesting missed opportunities for earlier treatment or challenges in accessing care. Overall, this program highlights the potential for scaling HCV care at the primary care level, which is critical for broader national elimination efforts.



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Health Related Quality of Life in Chronic Hepatitis C Patients on Direct Acting Antivirals

Sajjad S¹, Ahmer Z², Baig L³

¹NIH, HRI Research Centre, JPMC Karachi, Karachi, Pakistan,

²APPNA Institute of Public Health, Jinnah Sindh Medical University, Karachi, Pakistan, ³APPNA Institute of Public Health, Jinnah Sindh Medical University, Karachi, Pakistan

Introduction: Health related quality of life (HRQOL) is a multi-dimensional concept which involves the physical, social and psychological wellbeing of the patient. Chronic hepatitis C (HCV) adversely affects the quality of life. New oral antiviral drugs for HCV introduced in 2015 have a much better response rate as compared to interferon and ribavirin therapy. However there are few studies on the effect of these drugs on the patients' quality of life.

Methods: This was a quasi experimental study, one group pretest and post test study design conducted at Health Research Institute, Research centre, Jinnah Post graduate Medical Centre, JPMC Karachi for a duration of eighteen months. Chronic HCV patients were initiated with sofosbuvir 400 mg and daclatasvir 60mg once daily for three months. Data was collected using Rand SF36 at baseline, during treatment and 12 weeks after completion of treatment. The scores ranged from 0 (worse) to 100 (best) for each domain.

Results: Direct acting antivirals (DAAs) significantly improved HRQOL from baseline to post treatment for all domains of Rand Short form 36 (Rand SF36) ($p < 0.001$). The mean difference in scores from baseline to during treatment was significant for six out of eight domains. Largest increase from baseline to during treatment was observed in energy (diff: 10.02) and pain (diff: 10.55), from baseline to post treatment, role physical (diff: 13.2) and pain (diff: 13.59). Positive predictors of HRQOL included age ≤ 40 years, male gender, being unmarried and time of diagnosis ≤ 5 months.

Conclusion: DAAs significantly improved HRQOL in chronic HCV patients from baseline to post treatment for all domains of Rand SF36. Positive predictors of HRQOL included age ≤ 40 years, male gender, being unmarried and time of diagnosis \leq

5 months. Studies with longer follow up are needed to properly evaluate whether these treatments have lasting impact on HRQOL of HCV patients.



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Behavioral Economics Interventions to Improve the STD Care Cascade: A Systematic Review of Randomized Controlled Trials

Zhao M^{1,2}, Ji F¹, Zhang L²

¹The Second Affiliated Hospital of Xi'an Jiaotong University, Xi'an, China, ²Xi'an Jiaotong University, Xi'an, China

Background: The rising incidence of sexually transmitted diseases (STDs), including HIV, HPV, HBV, and HCV, poses a significant threat to global health. Novel approaches are urgently needed to enhance the STD care cascade across all stages. Behavioral economics interventions, which leverage behavioral economics principles to design and implement interventions that nudge individuals towards decisions beneficial to themselves or society, hold promise in this regard. This systematic review synthesizes evidence on the value and impact of behavioral economics interventions in addressing the STD care cascade.

Methods: We conducted a systematic review to determine the effectiveness of behavioral economics interventions in improving outcomes across the STD care cascade. Our search strategy utilized Medical Subject Headings (MeSH) and non-MeSH terms to identify randomized controlled trials (RCTs) related to behavioral economics interventions and STDs in six research databases: PubMed, Embase, CINAHL (EBSCOhost), Web of Science, Scopus, and Cochrane. We screened 2,612 titles and assessed them following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The Cochrane Risk of Bias tool for RCTs was used to evaluate the quality of the included studies.

Results: This review included 30 articles from eight countries with a high burden of STDs, encompassing three key stages of the STD care cascade: awareness, uptake, and adherence. Nine behavioral economics interventions were identified and analyzed. These interventions included financial incentives such as lotteries (n=9), conditional cash transfers (CCTs, n=11), or vouchers (n=4); framing approaches to influence

how information is presented and perceived (n=4); changes in default settings (opt-in, opt-out, active choice, n=3); social norms (n=2); commitment strategies (n=4); planning prompts (n=2); and reminders (n=2). The majority of studies (n=18) were conducted in local medical facilities or clinics, followed by community-based settings (n=5) and NGOs (n=3). One study was conducted online. Evidence for defaults was most promising in the context of HCV screening. Conditional cash transfers, vouchers, lotteries, and framing showed promising results in promoting prevention behaviors, increasing HIV/chlamydia screening rates, and improving linkage to care, treatment initiation, retention in care, adherence to treatment, and viral suppression for HIV.

Conclusion: Behavioral economics interventions demonstrate potential for improving the STD care cascade, but further evidence is needed to develop clear recommendations. The ongoing global burden of STDs underscores the urgency of conducting further research focused on behavioral economics interventions.

Trial Registration: International Prospective Register of Systematic Reviews (PROSPERO): CRD42024541068



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Significant Gaps in the Cascade of Care Contribute to Poor Liver Cancer Outcomes among People with Hepatitis B: A Retrospective-Prospective Longitudinal Cohort Study

Moussa D^{1,2,3}, Flores J^{2,3}, Ryan M², Hong T², Knowles B², Fox A², Jhamb A², Sutherland T², Roberts S^{4,5}, Kemp W^{4,5}, Majeed A⁴, Sinclair M^{3,6}, Sawhney R^{4,7}, Bloom S^{4,7}, Nicoll A^{4,7}, Valaydon Z^{3,8}, Mishra G⁹, Sood S¹⁰, Lewis D¹⁰, Thompson A^{2,3}, Howell J^{1,2,3,4}

¹Burnet Institute, Melbourne, Australia, ²St Vincent's Hospital, Fitzroy, Australia, ³University of Melbourne, Parkville, Australia, ⁴Monash University, Clayton, Australia, ⁵Alfred Health, Melbourne, Australia, ⁶Austin Health, Heidelberg, Australia, ⁷Eastern Health, Box Hill, Australia, ⁸Western Health, Footscray, Australia, ⁹Monash Health, Clayton, Australia, ¹⁰Northern Health, Broadmeadows, Australia

Background: Hepatitis B (HBV) is a major cause of hepatocellular carcinoma (HCC) in Australia. In this study, we aimed to describe the characteristics, cascade of HBV care and outcomes among people with HBV-related HCC in Victoria, Australia.

Methods: We conducted a retrospective and prospective cohort study of HCC cases diagnosed across six tertiary health networks. Bi-variable analysis was performed using chi square test. Multivariable logistic regression modelling was used to determine variables associated with HBV treatment and surveillance uptake. Cox proportional hazards modelling was used to identify variables associated with survival from HCC diagnosis.

Results: 1203 incident HCC cases were identified, of which 219 (18.2%) were due to HBV. The proportion of HCC cases due to HBV declined from 24% in 2019 to 15% in 2022. Most people with incident HBV-HCC were male (89%) and of Asian ethnicity (60%). Though most HBV-HCC occurred in people aged 56-75 years (61%), 25% were in young people aged 36-55 years. Compared to people with HCC due to other aetiologies, people with HBV-related HCC were more likely to have a family history of HCC (7% vs 1%, $p<0.001$), but were less likely to have other risks for chronic liver disease,

such as alcohol misuse (23% vs 54%, $p<0.001$), type 2 diabetes (28% vs 39%, $p=0.003$) or obesity (6% vs 15%, $p=0.001$).

HBV status was known in all HBV-HCC cases at time of HCC diagnosis. 64% had cirrhosis; however 26% were diagnosed with cirrhosis at HCC diagnosis. 60% of people with HBV-HCC were eligible for HBV treatment at the time of HCC diagnosis, yet 27% were not on treatment. On multivariable analysis, being referred from primary care (adjOR 0.18, 95% CI 0.03-0.96, $p=0.04$) and being admitted to hospital at the time of HBV-HCC diagnosis (adjOR 0.09, 95% CI 0.02-0.34, $p<0.001$) were associated with not receiving guideline-based HBV treatment.

48% of people with HBV-HCC were enrolled in surveillance at time of HCC diagnosis, compared to 40% of those with non-HBV related HCC ($p=0.03$). 85% of those referred by specialist hepatology services were enrolled in surveillance compared to 16% among those referred by primary care and non-liver specialists ($p<0.001$).

Median survival from time of HCC diagnosis was longer among those with HBV (1540 days) compared to non-HBV HCC (979 days). A greater proportion of HBV-HCC were diagnosed at early BCLC 0/A stage and therefore received curative therapy (46%)

compared to non-HBV related HCC (33%).

On multivariable analysis, factors associated with greater mortality in people with HBV-HCC were low performance status (HR 1.53, 95% CI 1.14-2.05, $p=0.004$), alcohol misuse (HR 2.30, 95% CI 1.29-4.10, $p=0.005$) and advanced BCLC stage at diagnosis (HR 2.21, 95% CI 1.70-2.88, $p<0.001$). Attending a liver specialist service, being enrolled in surveillance and being on HBV treatment were associated with early BCLC stage HCC at diagnosis (all $p<0.001$).

Conclusion: HBV-related HCC incidence is reducing in Australia, however a significant proportion are not receiving guideline-based care. Greater investment in non-specialist health-worker education in HBV care and a national registry approach to HCC surveillance are needed.



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Epidemiological Shift of Hepatitis A Causing Diagnostic and Treatment Challenges in Ethiopia: A Need for Guideline and Vaccine

Shewaye A¹, Assefa K², Daniel A²

¹Addis Ababa University, Addis Ababa, Ethiopia, ²Adera medical and surgical center, Addis Ababa, Ethiopia

Background: Hepatitis A is an acute viral infection of the liver caused by hepatitis A virus (HAV) that is acquired through the feco-oral route. It is ranked first in terms of incidence rate among the four major acute forms of viral hepatitis (A, B, C, and E) and usually occurs in early childhood. However, the prevalence acute hepatitis A has recently increased among teenagers and young adults, and it is usually misdiagnosed. This study emphasizes the significance of awareness among healthcare workers about the increasing incidence of acute hepatitis A among this group to ensure accurate diagnosis and appropriate management.

Materials and Methods: A hospital-based retrospective cross-sectional study was employed. Fifty-eight confirmed acute HAV patients who visited Adera Medical and Surgical Center (AMSC) between August 2023 and January 2024 were enrolled. Sociodemographic, clinical, and laboratory parameters and documented management data, including hospitalization and any trial of antibiotic treatment before considering HAV or in the course of the illness, were collected. The data were entered and analyzed using SPSS (SPSS, Version 26.0).

Results: The sex ratio was similar, with a slight male predominance (M/F = 1.07). The mean age [\pm SD] of the patients was 19.3 [\pm 8.8] years. Thirty-nine (67.2%) of the patients were students, and all of the patients were from Addis Ababa. Vomiting (82.8%), anorexia (70.7%) and yellowish discoloration of the eyes (62.1%) were the most common presenting symptoms, while icteric sclera 44 (75.9%) and epigastric tenderness 17 (29.3%) were the most common physical findings. More than half of the patients (55.2%) were initially misdiagnosed with typhoid fever (TF) (46.8%),

peptic ulcer disease (PUD) (31.2%) or urinary tract infection (UTI) (15.6%). All patients recovered fully, and liver function tests (LFTs) normalized with supportive care within 2-4 weeks.

Conclusions: This study revealed the shift in the age of HAV susceptibility and subsequent infection towards adolescents and young adults (mean [\pm SD] age 19.31 [\pm 8.8] years) in our cohort, with more than half of the patients (55.2%) initially being misdiagnosed with TF, PUD or UTI, causing diagnostic and treatment challenges. This necessitates heightened awareness among healthcare workers and the public. Early HAV diagnosis through targeted laboratory investigations and avoiding unnecessary antibiotics are crucial for effective management and prevention via hygienic and immunization strategies.



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Road to Viral Hepatitis Elimination: Japan's Progress and Projections Toward 2030 Goals

Tanaka J¹, Ko K¹, Sugiyama A¹, Kurisu A¹, Akita T¹

¹Hiroshima University, Hiroshima, Japan

The World Health Organization (WHO) has set ambitious targets to eliminate viral hepatitis by 2030. Each target serves as an indicator for assessing progress toward viral hepatitis elimination in individual countries. While all countries are working toward these goals, some have successfully met all targets for eliminating HCV, while others have only achieved certain targets for HBV elimination.

Japan is one of the leading countries globally in implementing the countermeasures against viral hepatitis. Since 1986, a national project has used HBIG and vaccines to prevent mother-to-child transmission of HBV. An HCV screening system for blood donors was introduced in 1990, and free screenings for residents over 40 began in 2002. Japan has an incidence rate of both HBV and HCV that is close to zero, and mortality is decreasing dramatically. According to a nationwide questionnaire survey conducted in 2020, the screening rate for HBV was 85.5%, while the rate for HCV was 76.4%. The Basic Act on Hepatitis Measures was established in 2010. In Japan, the subsidy system provides support for comprehensive examinations for those who test positive for HBV or HCV, complete antiviral treatment including direct-acting antivirals (DAAs), follow-up observations for disease progression using non-invasive methods such as ultrasound and fibroscan, and the high-cost treatments for those diagnosed with hepatocellular carcinoma (HCC).

At the meeting, I will present the updated data and the current progress toward achieving Japan's viral hepatitis elimination targets by 2030.



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Assessing Knowledge, Attitude and Practices of Barbers, Tattooists and Manicurists Regarding Prevalence of Hepatitis B and C Virus Infection

Jargalsaikhan A¹

¹Gastroenterologist And Endoscopist, Ulaanbaatar, Mongolia

Background: In a study in 2008, people who were infected by hepatitis C virus accounted for 15.6% and 98.8% of the C virus genotype 1b were tested among the entire population of Mongolia. The prevalence of hepatitis C virus infection in 2013 was 10.5% and 9.9% in 2017. It was determined that the prevalence of Hepatitis B virus among the total population of our country is 11.8%. Mongolia ranks first in the world in terms of deaths due to liver cancer, which is 6 times higher than the world average. Moreover, HBV and HCV infections have also been implicated as an occupational hazard of barbers, tattooists and manicurists in developing countries.

Purpose: To estimate infection rate and to assess knowledge, attitude, practice among barbers, tattooists and manicurists regarding Hepatitis B and Hepatitis C infection in Mongolia.

Materials and Methods: 361 people working as barbers, tattooists and manicurists will be selected and subjected to the study by random sampling using a cross-sectional study of observational research.

Results: In our study, 58 (16%) of the participants were men and 303 (84%) were women. 230 (64%) study participants, barbers, tattooists, and manicurists who participated in the survey were 20-35 years old, and 112 (31%) were 35-50 years old, 19 (5%) are 50 years old. The average score of participants knowledge about hepatitis B and C viruses was 4.14 ± 1.87 . The level of knowledge is $63.03 \pm 26.8\%$ which is good. Only 62 (17%) of the participants answered that they had been vaccinated against hepatitis B. 277 (76.7%) participants said they use disposable razor blades, tweezers, needle syringes, and tattoo needles in

their workplace. 210 (58%) of participants washed instruments with water, 296 (82%) used 70% alcohol for disinfection, and 275 (76%) used disinfectant solution.

Following are the results of when comparing the answers to the questionnaire to assess the risk prevention practices of the barbers, tattooists involved in the process of manual work with the practices during the provision of care at the workplace. In the practice of washing hands before serving customers was 95%, during observation 50%, and the practice of washing hands after serving customers was 83%, but during observation it was 47%. Which is, these numbers were 36-45% lower than during observation. When determining the prevalence of hepatitis B and C virus infection among 104 participants, 7 (6.73%) had hepatitis C virus, 8 (7.69%) had hepatitis B virus, and there were no co-infected people. If we consider the occurrence of viral infection by each profession, 6 (5.7%) of hairdressers are infected with hepatitis, 6 (5.7%) of manicurists and 3 (2.8%) of tattoo artists are infected.

Conclusion: 1. Hepatitis B virus infection is 7.69% and hepatitis C virus infection is 6.7% among the study participants.

2. The level of knowledge of hepatitis B and C among participants is $63.03 \pm 26.8\%$. Depending on the profession, 35.2% of barbers, 39.2% of manicurists, and 42.2% of tattoo artists have a positive attitude. According to the questionnaire, 68.1% of infection prevention practices and 58.6% by observation.



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Uncovering the Demographic Distribution of Individuals Diagnosed with Hepatitis C Through Automated Screening in the Emergency Department

Monegro Soriano N¹

¹JCMC - RWJ Barnabas Health Jersey City Medical Center, Jersey City, United States

Background: According to the United States Department of Health and Human Services (U.S. HHS), in 2022 about one-third of individuals with hepatitis C (HCV) were not aware of their status (2024). Approximately 75%-85% of people living with acute HCV show no symptoms, posing a challenge on true impact of HCV (U.S. HHS, 2024). To address this issue, JCMC implemented automated HCV screening in their ED using a Best Practice Advisory (BPA) alert within the Electronic Health Record (EHR) system, EPIC, which identifies eligible individuals who are yet to be diagnosed with HCV. The aim of this study is to identify individuals who are unaware of their HCV status and examine their demographics to highlight the importance of automated screening in the ED. Barriers to linkage will also be identified in this abstract.

Materials and Methods: According to the United States Department of Health and Human Services (U.S. HHS), in 2022 about one-third of individuals with hepatitis C (HCV) were not aware of their status (2024). Approximately 75%-85% of people living with acute HCV show no symptoms, posing a challenge on true impact of HCV (U.S. HHS, 2024). To address this issue, JCMC implemented automated HCV screening in their ED using a Best Practice Advisory (BPA) alert within the Electronic Health Record (EHR) system, EPIC, which identifies eligible individuals who are yet to be diagnosed with HCV. The aim of this study is to identify individuals who are unaware of their HCV status and examine their demographics to highlight the importance of automated screening in the ED. Barriers to linkage will also be identified in this abstract.

Results: Since the BPA launch, 349 individuals were identified as HCV antibody positive. From

those identified, 102 individuals diagnosed with HCV have an active infection. Out of those 102 individuals with HCV, 77 (75%) are male and 25 (25%) are female. The age distribution of individuals with HCV included two (2%) aged 13-24, 10 (10%) aged 25-34, 19 (19%) aged 35-44, 13 (13%) aged 45-54, and 58 (57%) aged 55 and over. Regarding racial groups, 38 (37%) individuals with HCV identified as Black or African American, followed by 27 (26%) White, 25 (25%) Bi-Racial or Multi-Racial, 11 (11%) Don't Know, and one (1%) Asian. Taking into consideration the populations most affected, linkage services are tailored to meet them where they are. The HCV linkage rate to the first appointment is 26%, with current barriers including individuals expiring prior to linkage (two), terminally ill (one), incarcerated (seven), declining linkage or care (four), and having incorrect contact information (38).

Conclusions: The implementation of the BPA alert in EPIC successfully identified 102 individuals who have an active HCV infection with 27 individuals having attended their first appointment. Automated screening in the ED proved effective in detecting undiagnosed individuals, particularly among those who identify as men, Black or African American, and aged 55 and over. These findings emphasize the importance of automated HCV screening across various demographics. Future research should address barriers to linkage.



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Barriers to Hepatitis C Treatment in Vietnam: A Cross-Sectional Study on Access and Decentralization of Healthcare

Do B¹, Nguyen Thi C², Kim T³, Holt B⁴, Dao D³

¹University Of California, San Diego, San Diego, United States,

²University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam, ³Center of Excellence in Liver Diseases at Johns Hopkins Medical School, Baltimore, United States,

⁴Program in Global Primary Care and Social Change at Harvard Medical School, Boston, United States

Background: As of 2024, the Ministry of Health of Vietnam has approved testing and treatment for hepatitis C (HCV) at district hospitals to reduce barriers to hepatitis healthcare access. However, most patients still choose to receive care at tertiary hospitals. This study sought to understand the barriers to hepatitis healthcare access faced by adults who tested positive for HCV RNA at the University Medical Center of Ho Chi Minh City, Vietnam, and to address these barriers by improving district hospital hepatitis care.

Materials and Methods: We conducted a cross-sectional study, consecutively recruiting 79 patients aged 18 and over who tested positive for HCV RNA at the University Medical Center of Ho Chi Minh City outpatient liver clinic. Participants were surveyed about the barriers they faced related to the diagnosis and treatment of HCV, their reasons for seeking care at tertiary hospitals instead of district hospitals, and the distance traveled and wait times to receive hepatitis healthcare. Sociodemographic information as well as social and behavioral factors were also documented.

Results: Seventy-nine study participants with complete data were included in the analysis. Among these participants, 10.3% (8 of 78) refused to undergo treatment for various reasons despite physician consultation. The most common barriers to initiating hepatitis C treatment were lack of funds (44.9%, 35 of 78), distance to receive hepatitis treatment (66.7%, 52 of 78), and lack of time to seek hepatitis treatment (59.0%, 46 of 78). Conversely, a lack of understanding of their results

(17.9%, 14 of 78) and fear of side effects (19.2%, 15 of 79) were perceived as much less significant barriers. When surveying patients on why they chose to seek hepatitis healthcare at tertiary hospitals instead of their district hospitals, the results indicated that 52.6% (41 of 78) of patients believed that the tertiary hospital had more comprehensive testing, 29.5% (23 of 78) were unaware that they could seek treatment at their district hospital, 44.9% (35 of 78) did not trust the hepatitis treatment at their district hospital, 83.3% (65 of 78) believed they would receive better hepatitis treatment at tertiary hospitals, and 73.1% (57 of 78) believed they would receive better overall hepatitis healthcare at tertiary hospitals. However, 38.5% (30 of 78) of patients expressed that they would be open to seeking hepatitis healthcare and treatment at their district hospital if it could provide the same standard of care as tertiary hospitals. The average wait time at the tertiary clinic was 4.55 hours and the average distance traveled to seek hepatitis care was 165.65 km.

Conclusion: Our interviews and surveys reveal that financial constraints, time, and travel distance are the main barriers to initiating hepatitis C treatment at tertiary hospitals. However, patients are open to seeking healthcare at their district hospitals if they can provide the same standard of care as tertiary hospitals. Our results support the argument for the decentralization of hepatitis healthcare in Vietnam, which is crucial for reaching the targeted goals of HCV elimination.



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Epidemiological Analysis of Hepatitis C and B Virus Infections in South Korea Using Serum Samples from the Korea National Health and Nutrition Examination Survey

Lee C¹, Choi H², Choi G³, Han S⁴, Choi W⁵, Kim G⁶, Ahn J⁷, Kim K⁸, Ki M², Jeong S³, Kim I¹

¹Department of Internal Medicine, Research Institute of Clinical Medicine of Jeonbuk National University-Biomedical Research Institute of Jeonbuk National University Hospital, Jeonbuk National University Medical School, Jeonju, South Korea,

²Cancer Control and Population Health, Graduate School of Cancer Science and Policy, National Cancer Center, Goyang, South Korea, ³Department of Internal Medicine, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, South Korea, ⁴UiJeongbu Eulji Medical Center, Department of Internal Medicine, Eulji University School of Medicine, UiJeongbu, South Korea, ⁵Department of Gastroenterology, Liver Center, Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea, ⁶Department of Internal Medicine, Kyung Hee University School of Medicine, Seoul, South Korea, ⁷Department of Internal Medicine, Hanyang University College of Medicine, Guri, South Korea, ⁸Department of Internal Medicine, Inje University Ilsan Paik Hospital, Goyang, South Korea

Backgrounds: The World Health Organization has announced the goal of eliminating viral hepatitis as a public health problem by 2030, and many countries are developing strategies to achieve this target. Our aim was to assess the current status of hepatitis C virus (HCV) and hepatitis B virus (HBV) infections in South Korea.

Materials and Methods: We analyzed a total of 159 blood samples positive for HCV antibodies collected from 2016 to 2020, and 137 samples positive for HBV surface antigen collected in 2020 from participants of the Korea National Health and Nutrition Examination Survey (KNHANES), all stored at the National Biobank of Korea.

Results: The analysis of HCV samples revealed a 15.7% HCV RNA positivity rate, reflecting a 52.54% decline from the 33.5% rate documented in the 2012-2015 KNHANES results. Applying an HCV antibody positivity rate of 0.70%, the prevalence of HCV RNA-positive individuals was 0.11%, with an estimated 52,211 people infected with HCV. The HCV RNA positivity rate showed no differences by

gender, but it varied significantly by age group, with a rate of 0% among those aged 10–39 and 23.4% in those aged 70 and above. HCV RNA-positive individuals exhibited higher levels of AST and ALT, and a greater proportion with a FIB-4 index above 3.25 (24.0% vs. 5.2%, $p < 0.001$). The analysis of HBV samples revealed detectable HBV DNA levels in 62% of cases. The prevalence of detectable HBV DNA was highest among individuals aged 10 to 39 years and decreased with age. Elevated AST, ALT, and FIB-4 index levels were more common in participants with undetectable HBV DNA or levels between 10^5 and 10^8 IU/ml. According to the survey results, hepatitis C awareness was 20.1% among HCV antibody-positive individuals and 32.0% among those with detectable HCV RNA. For HBsAg-positive patients, hepatitis B awareness was 14.6%, with a treatment rate of 22.6%.

Conclusions: Analysis of KNHANES blood samples showed an HCV RNA positivity rate of 15.7% among individuals with HCV antibodies, with a prevalence of 0.11%. Elevated AST, ALT, and FIB-4 index were observed in HCV RNA-positive individuals for hepatitis C, and in hepatitis B cases with undetectable HBV DNA or levels between 10^5 and 10^8 IU/ml.



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Prevalence of NS5A Resistance Associated Substitutions in Patients with Prior Exposure to Velpatasvir or Pibrentasvir

DeStefano C¹, Slim J¹, Tempalski B¹, Leyden K¹, Levaggi E¹, Duprey S¹

¹NJCRI, Newark, United States

Background: Clinical trials with NS5A inhibitors have shown that treatment failure may lead to resistance-associated substitutions (RAS), which can persist for years. NJCRI has a large database of patients treated for hepatitis C in New Jersey, USA. Our goal was to study the prevalence of NS5A RAS after exposure to sofosbuvir/velpatasvir (SOF/VEL) or glecaprevir/pibrentasvir (GLE/PIB).

Method: We analyzed epidemiologic and clinical data on patients who received NS5A inhibitors resistance testing. We divided them into two groups: 1. treatment naïve (TN) to NS5A inhibitors, and 2. treatment experienced (TE) with NS5A inhibitors. We also examine the TE group for a difference in prevalence after exposure to SOF/VEL or GLE/PIB.

Results: A total of 76 patients received NS5A inhibitor resistance testing. In the TN group, 38 individuals had a 15.8% prevalence of RAS, while the TE group, 38 individuals had a 29.7% prevalence of RAS. Among the TE group, 18 had prior exposure to SOF/VEL, with a 22.2% RAS prevalence, and 17 had prior exposure to GLE/PIB, with a 29.4% RAS prevalence.

Conclusion: Our study indicates that RAS to NS5A occurs more frequently after SOF/VEL or GLE/PIB treatment. Notably, the two treatment options did not differ in RAS prevalence. Understanding the impact of NS5A resistance is essential for developing effective retreatment strategies and evaluating the long-term clinical outcomes of patients with NS5A resistance. Further research is warranted to enhance the management and treatment of hepatitis C infections in the presence of NS5A inhibitor resistance.



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Programmatic Gaps and Service Delivery Barriers Related to Treatment of Children with Hepatitis B and Hepatitis C Infection

Malik F¹

¹The University of Lahore, Lahore, Pakistan

Background: Viral Hepatitis B (HBV) and C viruses (HCV) infections are a major cause of acute and chronic liver disease and associated morbidity and mortality worldwide. However, global progress in scale-up of hepatitis testing and treatment has been slow in adults and children. There is limited understanding of the service delivery barriers faced by health care workers (HCWs) on expanding treatment, especially to younger age groups. A greater understanding of facilitators and barriers to providing paediatric treatment is critical to optimise models of care and inform scale-up of treatment.

Objectives: To ascertain the programmatic gaps and service delivery barriers faced by HCWs caring for children and adolescents living with HBV and/or HCV infection.

Method: Two cross-sectional online surveys were conducted between 2021 and 2023 to inform updated World Health Organization (WHO) guidelines. The surveys were circulated by the WHO to nine networks providing care to children and adolescents living with HBV infection, with respondents requested to cascade further within their networks.

Results: A total of 150 health care workers from 41 countries across all six WHO geographic regions responded to the HBV survey and 137 individuals from 38 countries responded to the HCV survey. The majority were paediatricians, paediatric infectious disease specialists or paediatric hepatologists based in tertiary centres.

The main service delivery barriers in paediatric HCV treatment identified by the respondents were the unavailability of paediatric DAA formulations (58%), lack of national policies and guidelines

recommending treatment (43%), lack of awareness of treatment among patients and parents (42%), and DAAs not being registered for use in paediatric populations (39%).

Respondents reported that the main barriers they faced in treating children and adolescents with HBV infection were the unavailability of paediatric DAA formulations (56%), lack of awareness among patients (47%), lack of awareness among healthcare professionals (45%), and lack of national policies and guidelines recommending treatment (45%).

Respondents highlighted the lack of curative treatment for HBV as a barrier, pointing out “We need more “cure” approaches in children!” Other barriers highlighted were the lack of studies showing a long-term advantage for children treated compared to untreated children, and lack of paediatric/child friendly formulations of tenofovir disoproxil fumarate/ tenofovir alafenamide (TDF/TAF).

Conclusion: To achieve the ambitious hepatitis elimination targets, it is essential to improve access to treatment for all, including the children and adolescents living with viral hepatitis. These surveys have identified pressing programmatic challenges and service delivery barriers that will need to be addressed to improve service delivery and scale up treatment for children. Future priorities include updating national policies to incorporate case-finding strategies and treatment for the paediatric population and more focused work on improving service delivery for children.



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A Prospective and Longitudinal Korean Chronic Hepatitis B Cohort

Lee J¹, Kim B¹, Lee H¹, Kim S¹, Kim D¹, Ahn S¹, Kim S², Cho E³, Hong Y⁴, Yoon K⁴, Seo Y⁵, Park J¹

¹Yonsei University College of Medicine, Seoul, South Korea,

²Soonchunhyang University Bucheon Hospital, Bucheon, South Korea,

³Wonkwang University College of Medicine, Iksan, South Korea, ⁴Pusan National University Hospital, Busan, South Korea,

⁵Korea University Anam Hospital, Seoul, South Korea

Background: We aimed to report the clinical outcome of Korean chronic hepatitis B (CHB) patients from a prospective longitudinal cohort.

Materials and Methods: This cohort, supported by the Korea Disease Control and Prevention Agency (2022E190400), was established in 2015. Voluntarily enrolled patients with CHB serially provided their clinical data and blood samples during the ten-year follow-up.

Results: From 2015 to 2022, 2949 patients (1812 male) with a mean age of 52.6 years participated in this study. Annual 16 mL of blood sampling was collected (median three times) from 1391 volunteers. Male patients had more smoking and hazardous alcohol intake ($P < 0.001$). At the enrollment, most patients were receiving antiviral therapy (AVT) ($n = 2359$, 80.0%), whereas 515 (17.4%) patients were AVT-naïve. Cirrhosis was noted in 646 (21.9%) patients. The most favored AVT regimen was tenofovir disoproxil fumarate (TDF) (40.0%), followed by entecavir (33.0%). However, during the recent two years, an increasing proportion of patients have started the first AVT with tenofovir alafenamide (5.9% to 13.5%) or besifovir dipivoxil maleate (2.8% to 7.5%). Most patients receiving AVT with a high-genetic barrier experienced a complete virologic response (more than 80% at week 48). Crudely, the incidence of an increase in chronic kidney disease stage ≥ 1 was significantly higher in TDF users than ETV users (7.56 vs. 4.56 per 100 person-years, $P < 0.001$). Hepatocellular carcinoma occurred in 33 (1.9%) patients after 50.3 months of median follow-up, most of which were within Milan criteria. Cirrhosis was independently associated with hepatocellular carcinoma occur (adjusted hazard ratio, 5.005, $P = 0.002$).

Conclusions: This cohort study will evaluate long-term liver-related outcomes among Korean CHB patients. Future research using the cohort data and blood samples after the data purification could reveal the unmet needs to manage CHB.



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Integrated Hepatitis C, HIV, and Hepatitis B Screening Among Key Populations in Johannesburg: Enhancing Treatment Readiness and Preventative Care

Msolomba V¹, Majam M¹, Hatzold K²

¹Ezintsha a division of Wits Health Consortium (Pty) Ltd, Johannesburg, South Africa, ²Population Services International, Johannesburg, South Africa

Background: In Johannesburg, South Africa, hepatitis C virus (HCV) infection poses a high risk for key populations (KPs), including people who inject drugs (PWID) and people who use drugs (PWUD). To improve treatment readiness and prevention among these vulnerable groups, integrated testing for HIV and hepatitis B (HBV) was conducted for participants who tested positive for HCV as part of a broader screening initiative with Hepatitis C self-tests.

Methods: From May 2023 to February 2024, participants who tested positive for HCV were screened for co-infections with HIV and HBV to facilitate comprehensive care prior to HCV treatment initiation. Screening was integrated with existing HIV services, allowing immediate linkage to preventative and therapeutic care where needed.

Results: Among 854 participants testing positive for HCV through PCR, 353 were screened for HBV, with 17 individuals testing positive. Additionally, 62 participants received HBV vaccinations as a preventative measure. For HIV, 415 participants were tested or retested, yielding 200 HIV-positive individuals; among these, 102 were already on antiretroviral therapy (ART).

Conclusion: This study highlights the importance of integrated HCV, HBV, and HIV screening to improve comprehensive care and treatment readiness for key populations. Through coordinated testing and vaccination efforts, barriers to hepatitis and HIV care can be minimized, supporting the health of vulnerable groups in Johannesburg. Sustainable integration of

HCV, HBV, and HIV services is essential for progress toward broader infectious disease elimination goals in these communities.



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HBV Surface Antigen Loss Prediction: A Challenging Yet Achievable Goal

Soliman R^{1,2}, Agwa R^{1,4}, Soliman R^{2,5}, Ghoniem K², Elmalky N¹, Shiha G^{1,2}

¹Hepatology and Gastroenterology Unit, Department of Internal Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt, ²Egyptian Liver Research Institute and Hospital (ELRIAH), Sherbin, El-Mansoura, Egypt, Sherbin, Egypt, ³Endemic Medicine Department, Faculty of Medicine, Helwan University, Cairo, Egypt., , Egypt, ⁴Department of Internal Medicine, Albaha University, Kingdom of Saudi Arabia, , Kingdom of Saudi Arabia, ⁵Department of Tropical Medicine, Faculty of Medicine, Port Said University,, Sherbin, Egypt

Introduction and aim: Seroconversion of hepatitis B surface (HBs) antigen is an infrequent event of cure during treatment of chronic hepatitis B virus (HBV) patients. It was estimated to be about 1-2% annually in Asian and Western cases. The aim of our study is to assess factors that could predict HBV surface (HBs) antigen loss in chronic HBV patients treated by nucleos(t)ide analogues.

Methods: A total of 510 chronic HBV patients treated by (lamivudine, entecavir and tenofovir) with a median treatment time of 3.5 years (2.1-4.2 years). HBs antigen levels, HBV DNA levels, liver stiffness by FibroScan, liver functions tests, complete blood counts and prothrombin time were assessed at baseline and during follow up visits every 6 months.

Results: Out of the 510 treated chronic HBV patients; 34 patients achieved HBs antigen loss. Multivariate regressive analysis showed that HBs antigen levels and HBV DNA levels were significantly lower in patients achieving HBs antigen loss compared to whom don't achieve with median [IQR] values of (2.53 [2.15-2.89] log₁₀ IU/ml and 3.73 [3.66-3.83] log₁₀ IU/ml) versus (3.24 [2.81-3.68] log₁₀ IU/ml and 3.88 [3.69-4.22] log₁₀ IU/ml), with p <0.001 and p= 0.022; respectively. Interestingly, 4/34 (11.8%) and 26/34 (76.5%) patients with HBs antigen loss had baseline HBs antigen levels below 100 IU/ml and ranging 100-1000 IU/ml respectively compared to 276/476 (58.0%) patients failed to achieve HBs antigen loss had baseline HBs antigen levels >1000 IU/ml (p value <0.001) and there were only 5 (14.7%) cases of cirrhosis (liver stiffness > 13.4 kPa)

in HBs antigen loss group and 29 (85.3%) had no cirrhosis (p value 0.057). The cut-off point of basal HBs antigen quantitation to detect on-treatment HBs antigen loss was found to be 489 IU/ml with sensitivity 0.876 (95% CI 0.843 to 0.904), specificity 0.618 (95% CI 0.436 to 0.778), positive predictive value 0.970 (95 CI 0.939 to 0.977) and negative predictive value 0.262 (95% CI 0.213 to 0.436). The HBs antigen clearance group showed log₁₀ reduction of HBs antigen quantitation by 0.42 after 24 weeks of treatment in comparison to 0.04 in the failure group (p value <0.001). Regarding treatment type in HBs antigen loss group; 19 cases was treated by entecavir and 15 by tenofovir.

Conclusions: Low HBs antigen, HBV DNA levels, and absence of liver cirrhosis could be considered as baseline predictors of HBs antigen loss. Rapid decline of HBs antigenemia with treatment and absence of treatment relapses are on-treatment indicators of HBs antigen clearance.



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Incidence and Predictors of HBV Functional Cure in HIV/HBV Co-Infected Patients: A Retrospective Cohort Study in China

Zhang Q¹, Chen H

¹Sun Yat-sen University, Shenzhen, China

Background: By using a large retrospective cohort, for the first time, we investigated the association of baseline clinical factors with the rate of HBsAg clearance in Chinese HIV/HBV co-infected patients treated with combination antiretroviral therapy (ART).

Methods: Our retrospective cohort included 431 HIV/HBV-coinfected patients treated with TDF-containing ART, the median follow-up of which was 6.26 years. Logistic regression was used to investigate the association of baseline variables with HBsAg clearance and cox regression was used to investigate the association of baseline variables with time to HBsAg clearance.

Results: The clearance rate of HBsAg in our study was 0.072 (95%CI 0.049~0.101). In the multivariate logistic regression, advanced age (OR=1.1, P=0.007), high level of CD4 cell count (OR=2.06, P=0.05), and HBeAg positive (OR=8.00, P=0.009) were significantly associated with the rate of HBsAg clearance. And the AUC of the model integrating the above three predictors was 0.811. Similar results were found in the multivariate cox regression (HR = 1.09, P = 0.038 for age, HR = 1.05, P = 0.012 for CD4 count and HR = 7.00, P = 0.007 for HBeAg).

Conclusions: Long-term TDF-containing ART can lead to a 7.2% of HBsAg clearance in Chinese HIV/HBV co-infected patients. Advanced age, high level of CD4 cell count, and positive HBeAg at baseline could be regarded as the potential predictors and biological markers for HBsAg clearance in HIV/HBV co-infected patients.



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Prognosis after Sustained Virologic Response of Chronic Hepatitis C Related Cirrhosis Patients Treated with Direct-Acting Antiviral Treatment; Interim Analysis of Multicenter Prospective Observational Study

Kim J¹, Yoon J², Kim J³, Kim S⁴, Kim T⁴, Kim G⁵, Park Y⁵, Na S⁶, Lee H⁶, Lee Y⁷

¹Konkuk University Medical Center, Seoul, South Korea,

²Chonnam National University Hospital, Gwangju, South Korea,

³Hallym University Dongtan Sacred Heart Hospital, Hwaseong,

South Korea, ⁴Hallym University College of Medicine, Anyang,

South Korea, ⁵Kyung Hee University School of Medicine, Seoul,

South Korea, ⁶Inje University Sanggye Paik Hospital, Seoul,

South Korea, ⁷Korea University Medical Center, Seoul, South Korea

Background and Aims: Direct-acting antiviral (DAA) therapy can cure chronic hepatitis C (CHC), and DAA was introduced to Korea in 2016. A good prognosis is expected in patients who achieved sustained virologic response (SVR) after DAA treatment. However, information about the prognosis of Korean CHC related liver cirrhosis (LC) patients who achieved SVR after DAA treatment is still limited. We aimed to investigate the prognosis of these patients.

Methods: This is a multicenter prospective observational study. The CHC related LC patients achieved SVR after DAA treatment were enrolled and final follow-up date was June 2023. The primary end-point was hepatocellular carcinoma (HCC) occurrence. Recurrence or reinfection and decompensation were the secondary end-point. At last one time in a year, we checked about this end-point.

Results: Total 386 patients were included in this analysis and mean follow-up duration was 38.9 months. Male was 189 patients (49.0%) and median age was 64 years. Genotypes were 1 (197, 51.1%), 2 (187, 48.4%), and 3 (2, 0.5%). Significant alcohol intake prevalence was 72 (18.7%). Mean Child-Pugh score and AFP level were 5.2 and 12.8 ng/mL. HCC occurrence cases were 34 patients

(8.8%) for up to 5 years. HCC patients had older age (69 years vs. 64 years, $p=0.070$), male predominance (64.7% vs. 47.4%, $p=0.072$), higher AFP level (7.5 ng/mL vs. 5.1 ng/mL, $p=0.017$), higher APRI (1.1 vs. 0.8, $p=0.012$) and FIB-4 (5.4 vs. 4.1, $p=0.014$). Cox regression analysis showed male ($p=0.045$) and AFP over 6.93 ($p=0.014$) were significant risk factors for HCC occurrence. Recurrence or reinfection occurred in 2 patients (0.5%) at 3 and 31 months after SVR each. New decompensation occurred in 8 patients (2.1%) and 4 among them were related with HCC occurrence.

Conclusion: The prognosis of LC patients achieved SVR after DAA treatment was generally good. However, HCC risk was not completely removed especially in patients with male and high AFP level. Furthermore, HCC occurrence can lead to decompensation. Recurrence or reinfection is also possible. Therefore, regular follow-up surveillance is still warranted.



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Epidemiology of HDV Infection at UC San Diego Health

Sanghani S¹, Rajagopal A, Karim A

¹University Of California, San Diego, San Diego, United States

Background: Chronic HDV infection remains an underdiagnosed condition worldwide. Globally, it is estimated 350 million people have chronic HBV infection, and among them, 5-10% are co-infected with HDV. In the US, less than 10% of HBsAg-positive individuals are estimated to be screened for HDV infection. In this study, we seek to identify the prevalence of HDV screening and diagnosis for persons with HBsAg at UC San Diego Health and risk factors for HDV infection. This knowledge could inform us about the need for quality improvement initiatives such as anti-HDV reflex testing and clinician education about HDV screening.

Methods: In this study, the electronic medical record (EMR) was used to identify patients with HBsAg, HDV Ab testing and follow up testing with HDV RNA and HDV Ag at UC San Diego from January 1, 2013 to June 1, 2023. Data analysis and plotting were performed in Microsoft Excel SQL. Rates of different HDV tests completed in HBsAg+ patients were calculated using MS SQL. Demographics such as age, ethnicity, and sex, and risk factors, such as HCV Ab, intravenous drug use, and birth in countries with high HDV endemicity, were all counted via MS SQL and plotted using Microsoft Excel.

Results: Between January 1, 2013 and September 18, 2023, 484/1,457 (33%) patients with HBsAg+, were tested for HDV Ab. Among patients with HDV Ab+, 6/19 (31%) completed HDV RNA testing and 13/19 (68%) completed HDV Ag testing for confirmation of an active infection, while not recommended. Among 6 patients with HDV Ab+ who completed testing for HDV RNA, 2 were found to be HDV RNA+. HCV Ab+ was found to be present in 4/19 (21.05%) with HDV Ab+ versus 17/465 (3.66%) HDV Ab- patients. IDU visit diagnosis by ICD codes were present in 2/19 (10.53%) HDV Ab+ versus 13/465 (2.80%) of HDV Ab- patients.

Conclusions: This project is the first to identify rates of HDV testing and risk factors at UC San

Diego Health, or at any San Diego health center. According to our analysis, only one third of patients with HBsAg were tested for HDV Ab. However, less than one-third of patients with HDV Ab+ were appropriately screened for HDV RNA and a greater number of patients were incorrectly tested for HDV antigen. These findings may reflect provider misinformation regarding the recommended confirmatory testing cascade for identification of active HDV infection. Our results indicate suboptimal screening and assessment for HDV infection which could be improved by the implementation of double reflex testing: reflexive HDV Ab testing in persons with HBsAg and follow-up HDV RNA testing in persons with HDV Ab. One study confirmed higher reflex testing rates increased HDV infection detection by 5 times. In patients seen at UCSD Health, HCV rates were 17.39% higher and IDU rates 7.73% higher in individuals with HDV Ab+ compared to with HDV Ab-, highlighting priority populations for HDV screening among those HBsAg+. In summary, while HDV infection is associated with significant liver-related mortality, adherence to existing guidelines regarding HDV screening is poor.



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Awareness and Knowledge of Viral Hepatitis among Adolescents and Young Adults Receiving Lifelong Antiretroviral Therapy in Keffi, North-Central Nigeria.

Peter C^{1,2,3}

¹Federal Medical Centre, Keffi,, Nigeria, ²AYA Health Watch, Keffi,, Nigeria, ³Global Health and Infectious Disease Control Institute (GHIDI), Nasarawa State University, Keffi,, Nigeria

Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and Hepatitis C Virus (HCV) are blood-borne pathogens that commonly lead to chronic infections. Coinfections with these viruses are prevalent due to their shared modes of transmission, particularly among vulnerable populations such as People living with HIV (PLWHIV). The impact of coinfections is compounded by the hepatotoxic effects of antiretroviral therapy (ART), which can exacerbate liver-associated morbidity and mortality in these patients.

This cross-sectional study aimed to evaluate the knowledge and awareness levels of hepatitis B and C viruses among adolescents and young adults (15-24 years old) on lifelong antiretroviral therapy in Keffi, Nasarawa State, Nigeria. A total of 127 participants from three major healthcare facilities were surveyed using a structured questionnaire.

Results revealed a concerning trend, with 103 (81%) respondents exhibiting poor knowledge scores regarding hepatitis co-infections. Additionally, only 36% of participants demonstrated awareness of hepatitis B and C. Significant associations were found between awareness of hepatitis B & C and factors such as educational background, previous participation in health screenings, and vaccine awareness (p -values <0.05). Notably, respondents with good knowledge scores of hepatitis B expressed a preference for social media as a platform for health information dissemination ($p=0.03$). Furthermore, only 4 (3.1%) of participants had completed the three doses of the hepatitis B

vaccine, with 9 (7.1%) yet to receive full vaccination.

These findings revealed the urgent need for targeted educational interventions, increased healthcare engagement, and enhanced vaccination coverage to mitigate the burden of hepatitis co-infections among this vulnerable population in Keffi, Nasarawa State. Effective strategies for health communication, leveraging digital platforms, and strengthening vaccination programs are essential for improving knowledge, awareness, and preventive behaviors in this context.



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From Silence to Action: Integrating Policy and Community Action for Viral Hepatitis Elimination in Cross river State, Nigeria

Ayuk H¹, Amah M¹, Esu M¹, Bassey J², Okon-Ita D¹, Otu O¹, Iwara S³, Damian⁴, Irinam D⁵, Adepoju V⁶, Umebido C⁶, Oniyire A⁶, Strachan M⁷, Grabbe K⁷

¹Cross River State Ministry Of Health, Calabar, Nigeria,

²National AIDS, Viral Hepatitis and STIs Control Programme, , Nigeria, ³StCollins Iwara Development Initiative, , , ⁴Care for Social Welfare Initiative, , Nigeria, ⁵Bekwarra Hepatitis B Support and Advocacy Initiative,, , Nigeria, ⁶Jhpiego Nigeria, an affiliate of John Hopkins University, HIV and Infectious Diseases, , Nigeria, ⁷Jhpiego USA, affiliate of Johns Hopkins University, Baltimore, United States

Background: An estimated 304 million people live with viral hepatitis worldwide, with about 20 million of those living in Nigeria. In Cross River State, 828,365 people are estimated to have viral hepatitis (VH). Despite efforts from the government, partners and CSOs, de-prioritization of VH on the state health agenda and lack of funding has stalled elimination efforts. Through the Unitaied-funded STAR project, Jhpiego provided technical assistance to Cross River State in strengthening the viral hepatitis response in 2024. The objective is to highlight Cross River State's progress, achievements, challenges, and identify strategic actions necessary to accelerate progress toward viral hepatitis elimination by 2030.

Method: From November 2023 to April 2024, Jhpiego conducted a series of consultative meetings and advocacy with state stakeholders, including national and state ministries of health and other government agencies, implementing partners, CSOs/CBOs, professional associations and the private sector. These consultations identified key priorities for the state to address critical gaps in their response program. Priority areas include budget allocation, integration of VH into existing systems, establishment of referral/linkage networks, strengthening of M&E systems, and fostering effective and strategic partnerships. These insights shaped the development of the Cross River State Viral Hepatitis Strategic Plan (2024-2026), which was

launched in March, 2024. The strategic plan centres around priority thematic areas for hepatitis elimination: - HBV vaccination, prevention of mother-to-child transmission, diagnosis and treatment, harm reduction, blood and injection safety, advocacy, communication and social mobilization, leadership and governance, and monitoring evaluation, research and learning. Nine health facilities with comprehensive ART services were selected as pilot sites. Training of Trainers was conducted on viral hepatitis management and M&E, and the trainers were equipped to step-down the training to other frontline healthcare workers in their respective facilities; service delivery started May 2024.

Results: As an outcome of the technical assistance, the state now has a dedicated budget line for viral hepatitis, with \$38,000 allocated for activities in 2024. Pilot facilities are reporting using the national data collection tools. A viral load for VH sample transportation and referral model, facilitated by one of the CSOs has improved access to VH diagnosis and timely linkage to treatment, reducing both turnaround time and cost for clients in rural communities. Strengthened collaboration between state, CSOs and partners has streamlined viral hepatitis activities to create a more coordinated response. Viral hepatitis jingles produced in the three major languages of the state are currently being aired on radio stations as part of the state-wide awareness campaign. CSOs are also involved in community awareness creation and sensitization through educational sessions and culturally relevant messaging to improve VH awareness. In September 2024, the state revitalized the Viral Hepatitis Technical Working Group (TWG), with subcommittees driving implementation of viral hepatitis strategic pillars. These achievements mark a significant step in the state commitment to combat viral hepatitis.

Conclusion: Cross River State has commenced strategic efforts toward strengthening the state's viral hepatitis response, driven by clear policy, advocacy and community actions. However, challenges such as funding gaps, limited infrastructure, and high cost of diagnosis and treatment persists. Continued support, strategic partnerships, political commitment, technical assistance, and resource mobilization is required to scale up the state viral hepatitis elimination efforts.



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Project to Achieve Triple Elimination in Laos

Latthaphasavang V¹, Chanthala T¹, Visisombath N¹, Paboriboune P¹, Jourdain G²

¹Centre Of Infectiology Lao-christophe Merieux, Vientiane capital, Laos, ²Chiang Mai University, Chiang Mai, Thailand

Background: Laos has one of Asia's most severe HB epidemics, more concerning than HIV. The WHO "Triple Elimination Initiative" framework offers an opportunity to integrate interventions to prevent mother-to-child transmission (MTCT) of hepatitis B, HIV, and syphilis. A preliminary assessment suggested that limited resources, procedures, data, and public knowledge were key challenges to ensure that pregnant women, partners and their infants receive essential interventions to prevent MTCT. This project aims to design and test scalable processes to meet WHO Triple Elimination criteria in Laos.

Material and Methods: In collaboration with an NGOs involved in health promotion, a logical framework and an action plan were developed with a Women's association, representatives of communities, village health volunteers, health care workers, and the Ministry of Public Health involved departments. A Knowledge-Attitudes-Practice (KAP) survey and workshops were organized to identify difficulties, dysfunctions, and preferred solutions. 139 villages of 3 districts, the provincial hospital, 3 district hospitals, 3 military hospitals and 11 primary health care facilities in Vientiane Province (100 km from Vientiane Capital) were selected for their diversity (populations served, ground transportation difficulties during the rainy season.) Procedures to streamline effective processes were developed in line with WHO and national recommendations, with possibility to adapt to each specific context. A procurement system for HBsAg, HIV and syphilis antibody rapid tests, and tenofovir disoproxil fumarate (TDF) was established. The project developed IT systems to collect data from antenatal care attendance at village level, interventions in health care facilities, until infant HB post-vaccine testing. Based on the KAP survey, an information campaign for public engagement was started and the project was implemented in villages and health care facilities.

Results: In the preliminary KAP survey, among 518 women, 368 had been pregnant in the past. During their most recent pregnancy, 98% received antenatal care (ANC) (mean: 6.1 visits) at a primary facility (57%), district hospital (7%), or Provincial Hospital (35%). 51% were accompanied by partners. 34% reported a blood draw; two thirds knew they should be tested for infections. On average, women spent 3 hours and about 5 USD per ANC visit, which 20% found unaffordable. From April to September 2024, 1,440 pregnant women (median age: 26 years) and 878 (61%) of their partners were screened for three infections. HBsAg prevalence was 67 (4.7%) in women and 53 (6.0%) in partners. Of the 231 infants born in the project, 222 (96.1%) received a timely HB birth dose vaccine. Seven delivered at home and received the vaccine later, but two missed it due to staff misunderstandings. HIV was confirmed in 11 (0.8%) women and 4 (0.5%) partners who began antiretroviral therapy, and their 4 infants received antiretroviral prophylaxis; syphilis was found in 27 (1.9%) women and 13 (1.5%) partners, who were referred for treatment.

Conclusions: The project's initial phase confirmed that chronic hepatitis B prevalence was within expected values and that preventative interventions could be effectively implemented. Additional efforts are needed to ensure partner screening.



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Resistance-Associated NS5A Mutations in Hepatitis C Virus among Injection Drug Users with Therapy Experience (2019–2024)

Gasich E¹, Kasko A¹

¹The Republican Center for Hygiene, Epidemiology and Public Health, Minsk, Belarus

People who inject drugs (PWID) are at high risk of hepatitis C virus (HCV) infection. Studying mutations in the NS5A region of HCV associated with resistance to therapy in this risk group will help identify circulating HCV strains and prevent their spread. Objective: To assess the prevalence of resistance-associated substitutions (RAS) in the NS5A region among people who inject drugs (PWID) with HCV infection in the Republic of Belarus after therapy with direct-acting antiviral drugs (DAA) based on the results of monitoring in 2019-2024.

Materials and methods: The study included 141 samples obtained from patients who underwent therapy with NS5A inhibitors in 2019-2025. The NS5A fragment was sequenced on a 3500 genetic analyzer (Applied Biosystems, USA). Sequence analysis was performed using Sequencing Analysis Software v.5.1.1, SeqScape® v.3, BioEdit v.7.2.5. Resistance mutations were analyzed using <https://hcv.geno2pheno.org>.

Results: Subtype 3a was dominant in the study population (50.4%; 71/141). The second most common genotype was 1, represented by subtypes 1a (24.1%; 34/141) and 1b (24.8%; 35/141). 1 sample was of subtype 2a.

RAS for HCV 1a were detected in 14.7% in 30R/M (n=4) and 93C (n=1) codons. In HCV 1b samples, clinically significant substitutions were identified in 17.1%: 30Q (n=1), 30Q+31M (n=1), 30Q+31M+93H (n=2), 31V+93H (n=1), 93H (n=1). Among 3a subtypes, RAS were found in 14.1% of cases: 30K (n=2) and 93H (n=8). Mutations in codons 30, 31 and 93 confer resistance to almost the entire group of NS5A replication complex inhibitors: daclatasvir, elbasvir, ledipasvir, ombitasvir and veltapasvir. Also, the 62L substitution was

detected (21.1%; n=15), reducing sensitivity to daclatasvir.

Conclusions: The study data indicate a high frequency of HCV drug resistance mutations to DAAs among PWID who have not achieved a sustained virological response and indicate the need to determine the mutation profile before starting a repeated course of treatment.



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Integrating Hepatitis C and HIV Screening among Key Populations in Nepal: Findings from Programmatic Data to Inform Elimination Strategies

Ojha A¹, Sharma S¹, Pandey L¹, Bhandary S², Kunwar R², Konda R³, Poudel M⁴

¹National Center For AIDS And STD Control, Kathmandu, Nepal, ²Save the Children International, Nepal, Kathmandu, Nepal, ³FHI360 Nepal, Kathmandu, Nepal, ⁴Epidemiology and Disease Control Division, Kathmandu, Nepal

Background: Nepal is committed to eliminating hepatitis C virus (HCV) as a public health threat by 2030, in alignment with global targets. Key populations, particularly people who inject drugs (PWID), remain disproportionately affected by both HCV and HIV in Nepal. Despite expanded screening efforts, disaggregated data on HCV positivity among subgroups remain limited. This analysis aims to identify subpopulations with higher HCV burden to inform targeted interventions and integrated service delivery models.

Methods: We conducted a retrospective analysis of routine HCV screening data collected between January 2024 and March 2025 from harm reduction and HIV testing sites supported by the National Centre for AIDS and STD Control (NCASC) and implementing partners. Individuals with documented HCV test results in DHIS-2 tracker were included. Positivity rates were analyzed by risk group, sex, age category, and HIV co-infection status using descriptive statistics.

Results: Among 7,658 individuals screened for HCV, 476 tested positive for HCV, yielding an overall positivity rate of 6.2%. PWID accounted for 98% of those screened, with a positivity rate of 6.2%. Individuals categorized as "Others" (Didn't Prefer to identify themselves as any risk group) showed a higher positivity rate (7.2%) despite representing a smaller proportion of the screened population. Female clients had a marginally higher positivity rate (6.5%) compared to males (6.2%). Age-stratified analysis revealed significantly higher positivity rates in older age groups, 6.4% among those aged 40–49 years and 44.8% among those

aged 50–59 years compared to under 6% in younger age groups. From January 2024 to March 2025, 514 people living with HIV were also tested for HCV, of which 93 (18.1%) were HCV positive and 50 (53.8%) initiated treatment. Among key populations, PWID showed extremely high positivity (95.2%) but suboptimal treatment uptake (59.3%). Other groups, including migrants and MSM/TG, had limited access to treatment.

Conclusions: This analysis underscores the need for differentiated HCV testing strategies that extend beyond the traditional focus on PWID. Older adults and individuals in underrepresented risk categories exhibited disproportionately high positivity rates, suggesting missed opportunities for diagnosis. The high rate of HCV–HIV co-infection reinforces the urgency of integrating testing and treatment services within key population programs. Expanding dual HIV and HCV protocol prioritizing sub-populations with high positivity strategies. Leveraging the disaggregated data to inform strategic planning and resource allocation under the national hepatitis elimination framework. Strengthening targeted interventions and improving linkage to care, especially for PWID and underserved groups, is essential to advance HCV elimination among people living with HIV. These findings provide actionable insights to support Nepal's progress toward HCV elimination and offer transferable lessons for other low-resource settings with concentrated HIV and HCV epidemics.



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Correlation Between Quantitative HBsAg Levels and Histological Activity in Chronic Delta Hepatitis

Urinov E¹, Tuychiev L², Dolimov T¹

¹Republican Specialized Scientific Practical Medical Centre of Epidemiology, Microbiology, Infectious and parasitic disease, Tashkent, Uzbekistan, ²Tashkent Medical Academy, Tashkent, Uzbekistan

Background: Hepatitis Delta Virus (HDV-RNA), which depends on the hepatitis B virus surface antigen (HBsAg) for its life cycle, is not well understood regarding its relationship with quantitative HBsAg levels, liver cirrhosis, and histological activity in chronic delta hepatitis. This study investigates the association between serum HBsAg levels and fibrosis, as well as histological activity, in chronic HDV infection.

Materials and Methods: Ninety-three patients with chronic HDV infection were examined between 2022 and 2023 at a tertiary infectious disease hospital. Of these, 44 (47%) did not have liver cirrhosis, while 49 (53%) presented with varying degrees of cirrhosis. Quantitative HBsAg levels in the patients' serum were determined using the Chemiluminescence Immunoassay (CLIA) method, HDV RNA levels were measured via PCR, and correlations were assessed with the histological activity index (HAI), fibrosis index, HDV RNA levels, and transaminases (ALT, AST).

Results: Among both cirrhotic and non-cirrhotic patients, a significant correlation was observed between HBsAg and HDV RNA levels (cirrhotic: $r=0.571$, $P<0.001$; non-cirrhotic: $r=0.645$, $P<0.001$). In non-cirrhotic patients, HBsAg levels also correlated with transaminases (ALT: $P=0.001$, $r=0.498$; AST: $P=0.001$, $r=0.515$) and the histological activity index ($P<0.001$, $r=0.667$). However, neither HBsAg nor HDV RNA levels were predictive markers for the development of cirrhosis.

Conclusions: Quantitative HBsAg levels reflect viral replication and histological activity in non-cirrhotic patients with chronic delta hepatitis, highlighting

their potential utility in managing chronic HDV infection, particularly in patients without cirrhosis.



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Towards Achieving Elimination Targets in Nigeria: Comparative Assessment of Availability, Adequacy and Implementation of Budget for Viral Hepatitis Testing – Findings from the 2022 Hepatitis Evaluation to Amplify Testing and Treatment in Akwa-Ibom and Nasarawa States

Eieckam C¹, Green K¹, Bashorun A², Ward J³, Hierbert L³

¹West Africa Centre for Public Health and Development, Abuja, Nigeria, ²National AIDs, Viral Hepatitis and STI Control Programme, Abuja, Nigeria, ³Coalition for Global Hepatitis Elimination, Decatur, United States

Background: Nigeria, through the Federal Ministry of Health has outlined five thematic pillars undergirding efforts towards viral hepatitis elimination. These five pillars include; (a) Infant vaccination – 3 doses of HepB vaccine for infants (b) Prevention of Mother-to- Child transmission- HBV, HCV, HIV and Syphilis -Screening for pregnant women at Ante-natal post and communities (c) Blood and injection safety- complete screening of blood before transfusion (d) Harm reduction -use of sterile needles (e) Treatment – diagnosis and linkage to treatment services.

The effort in meeting the targets across these pillars is limited by huge funding gaps, especially at the sub-national level. Many states do not have the depth and capacity for robust resource mobilization, leading to huge gaps in meeting treatment and linkage targets, amongst others. The HEAT project assessed the availability, adequacy and performance of budget lines for viral hepatitis testing and treatment in 2 states – Akwa Ibom and Nasarawa.

Materials and Methods: A descriptive cross-sectional design in selected health facilities in study states. A non-probability purposive sampling was used to select 128 health facilities providing

HBV and HCV testing in the two states. An electronically configured instrument was used to collect data from healthcare providers in selected facilities. The questionnaire has 2 sections: A and B. Section A of the questionnaire comprises of health facility bio-data information, while the Section B obtain information on laboratory operations, e.g. number of tests per day/week/month, integration of hepatitis and HIV services, service payment options, availability and adequacy of budget for hepatitis services, etc. Data analysis was done using Microsoft Excel and SPSS vs 22.

Results: The results show that only 21% (27 of 129) of the facilities within the two States had budget for hepatitis testing services, In Nasarawa State 40% (25 of 63) of the facilities had budget for hepatitis testing services compared to only 3% (2 of 66) health facilities in Akwa Ibom State. Among 27 facilities in both states that reported having budget for hepatitis, only 14 reported having adequate budget for hepatitis testing services, In Akwa Ibom State only 1 facility reported having adequate budget for hepatitis testing services while in Nasarawa State only 13 facilities reported having adequate budget for hepatitis service. Amongst the few facilities in both states with Hepatitis testing budget, ninety two percent of the facilities in Nasarawa State with available budget for Hepatitis testing reported budget implementation as planned, compared to 50% of the facilities in Akwa Ibom state (note that only 3% (n=2) of the facilities in Akwa Ibom had available budget for Hepatitis).

Conclusions: The results have shown wide variations across the budgetary cascades of budget availability, adequacy and actual budget implementation. It is imperative that stakeholders, especially those working in the 2 study states, begin to strengthen efforts aimed at fund appropriation and domestic resource mobilization so as to increase the pool of funding resources needed to optimize viral hepatitis testing in the 2 states.



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Out-of-Pocket Expenses for Viral Hepatitis Screening among Pregnant Women Attending Antenatal Care: A Neglected Correlate for Low Dose HBV Vaccine in HBV-Prevalent Setting of North Central Nigeria

Onyemocho A¹, Gabriel A², Terrumun S³

¹Federal University of Health Sciences, Otuipo, Benue State, Nigeria, Otuipo, Nigeria, ²Departments of Community Medicine, Benue State University Teaching Hospital Makurdi, Benue State, Nigeria, Makurdi, Nigeria, ³Departments of Obstetrics and Gynaecology, Benue State University Teaching Hospital Makurdi, Benue State, Nigeria, Makurdi, Nigeria

Background: About 15%–30% of infants born to Human Immunodeficiency Virus (HIV)-positive mothers become HIV-infected in utero, and Hepatitis B Virus (HBV) infection during pregnancy or delivery has been estimated to account for more than one-third of chronic HBV infections globally. However, there is still a lopsided consideration of confidential test services for HBV, thereby denying the children the benefits of preventable complication's strategies, especially in resource constraint countries. This study assessed the effect of service charges on HBV notification among pregnant women who attended the antenatal clinic in an HIV/HBV-prevalent setting in North Central Nigeria.

Methods: A year retrospective study of secondary data from the Benue State University Teaching Hospital, Benue State, Nigeria, was carried out. The chi-square (χ^2) test was used to test the association between the independent variables and the main outcomes of the study, with statistical significance set at a p-value of 5%

Results: Out of 2,566 cases reviewed, all (100.0%) were screened for HIV free of charge, and 1028 (40.1%) paid for HBsAg screening. Of the 2,566, the overall HIV prevalence was 2.8% (n=72), while 50(4.9%) of those screened for HBsAg were seropositive, and 978(95.1%) were negative, while HIV/HBV co-infection was 2.6% (n=67), and 59.9%

(n=1538) were not reported for HBV. The relationship between the underreporting of positive and negative cases of HBsAg and service charges was statistically significant ($P < 0.005$).

Conclusion: The prevalence of those not screened for HBV due to service charges was high and that denied the children that may be positive for HBV vaccine. The free services charges implemented for HIV should be adopted for HBV for all pregnant women accessing antenatal care. This will improve the intervention strategies for HBV and as well strengthen countries' ability to deliver other routine vaccinations.



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Perceived and Actual Risks of Infectious Disease Acquisition among Adolescent Girls and Young Women Who Inject Drugs in an Underserved Nigerian Community: A Cross-Sectional Study Assessing the Barriers to Health Services

Ngige A¹, Isah A¹, Ezenri G¹, Nwachuya C¹, Onyehalu J¹, Idabor C¹, Akolo C²

¹Person-Centered HIV Research Team, Nsukka, Nigeria, ²FHI 360, Washington, United States

Background: Adolescent girls and young women who inject drugs (AGYW-PWID) are at higher risk of Hepatitis B and C acquisition, and are also exposed to other infectious diseases (ID), especially in low- and middle-income countries like Nigeria with a high burden of ID. This study assessed the perceived and actual risks of ID, and the barriers to health services among AGYW-PWID in an underserved Nigerian community.

Methods: A cross-sectional design was adopted to obtain responses from AGYW-PWID aged 18-35 years in Ajegunle, Nigeria in 2024 after Institutional Review Board approval. The perceived risks of IDs and barriers to healthcare of 88 randomly sampled respondents were assessed using an 18-item validated questionnaire. Appropriate statistical analysis was conducted, with significance set at $p < 0.05$.

Results: A total of 64 completed questionnaires were returned (response rate=72.72%). Majority of the respondents [41(64.1%)] were aged 18-24 years with 52 (81.3%) being unmarried. Over half [37 (57.8%)] of the respondents have been injecting drugs for the past six months. Most of the respondents [49 (76.6%)] believed they are not at risks of acquiring any IDs. Majority, [51 (79.7%)] of the respondents do not use any harm reduction strategy, with 26 (40.0%) and 25 (39.1%) agreed that stigma and costly healthcare services respectively prevents them from accessing HBV/HCV testing and treatments. Majority, [53

(82.8%)] of the respondents do not seek healthcare for drug use related infections, due stigma from healthcare workers [18 (28.10%)] and thought that the infection was not serious [30 (46.9%)]. Significant associations were observed between the respondents' frequency of drug injection and seeking healthcare for drug use related infection ($\chi^2=16.529$, $p < 0.001$).

Conclusion: Majority of the AGYW-PWID considered themselves at low risks of acquiring IDs but are at high risks as the majority do not use any harm reduction strategy. Barriers such as stigma and financial constraints resulted in low use of health services. This study highlights the need to integrate harm reduction strategies among AGYW-PWID, and the provision of affordable and accessible healthcare services with no stigma in Nigeria.



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Enhancing Hepatitis C Testing and Treatment Accessibility through Innovative Services

Fridman D¹

¹The LGBTQ +Center, Las Vegas, United States

Background: Hepatitis C (HCV) infections are rising among underserved populations, highlighting the need for accessible testing and treatment options. Our clinic serves a majority-minority population, with 70.8% of patients identifying as racial or ethnic minorities. This project evaluates the effectiveness of our testing protocols and plans to expand services through a mobile clinic targeting uninsured and underinsured patients.

Materials and Methods: From January 2023 to June 2024, our clinic saw 6,000 patients, completing 1,975 Hepatitis C tests. We utilized rapid INSTI tests that provide immediate results, allowing patients with positive tests to start treatment the same day. For positive blood test results, medical assistants scheduled follow-up appointments to initiate treatment and perform HCV RNA testing for confirmation. This streamlined approach enables patients to receive both testing and treatment under one roof, enhancing care continuity.

Results: Among the 1,975 Hepatitis C tests conducted, 103 patients tested positive and received subsequent treatment. This program facilitated timely diagnosis and treatment initiation, effectively addressing care gaps for at-risk populations. The planned expansion of INSTI Hepatitis C testing through a new mobile clinic aims to improve outreach and service delivery for HCV and HIV testing among vulnerable communities.

Conclusions: The targeted Hepatitis C testing and treatment strategies at our clinic have successfully identified and treated a significant number of patients, particularly within our majority-minority demographic. The upcoming mobile clinic will enhance access to essential services for uninsured and underinsured individuals, contributing to improved health outcomes in the community. Ongoing evaluations will assess the impact of

these expanded services on testing rates and treatment initiation.



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Identification of NS5B Resistance-Associated Mutations in Hepatitis C Virus Circulating in Treatment Naïve Cameroonian Patients

Mouchili Njifon A¹, Modiyinji A¹, Monamele C¹, Njouom R¹

¹Centre Pasteur of Cameroon, YAOUNDE, Cameroun,

²Department of Microbiology, Faculty of Sciences University of Yaounde I, YAOUNDE, Cameroun

Background: NS5B polymerase inhibitors form the basis of current treatment for hepatitis C virus (HCV) infection. Direct-acting antivirals (DAAs) offer highly effective treatment. However, the existence of mutations associated with resistance, particularly at the polymerase level of the non-structural protein 5B (NS5B), may reduce the efficacy of DAAs. The aim of this study was to identify possible natural mutations in the HCV NS5B gene associated with DAA resistance in treatment-naïve chronic hepatitis C patients in Cameroon.

Materials and Methods: Whole blood samples were collected from 925 treatment-naïve HCV-infected patients at the Centre Pasteur du Cameroun between January 2013 and October 2023. Plasma was then isolated and stored at -80°C for molecular analysis. NS5B gene fragments from the 925 samples were amplified with the specified primers and the nucleotide sequences were obtained using the Sanger sequencing system and the resistance profile was analysed using Geno2pheno [hcv] 0.92.

Results: Analysis of the 925 NS5B sequences revealed three genotypes, namely 1, 2 and 4, with numerous amino acid mutations. The significant S282T mutation, which induces a high level of resistance to SOF, was detected in one genotype 1 patient, while the NS5B C316N polymorphism, associated with resistance to HCV including SOF, was found in 16 genotype 1 sequences, the mutation associated with ribavirin resistance at positions Q309R was detected in 19 genotype 1 sequences, and the polymerase inhibitor L320F mutation was found in one genotype 4f sequence.

The following mutations were found to be linked to DAA resistance: E237G, M289L, A333V, D310N, V321A and V321I were found in our study in different genotypes.

Conclusion: Our study showed several different mutations in the NS5B gene in HCV patients who had not previously received DAA therapy. These mutations could increase the risk of therapeutic failure in the future.



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Screening, Testing and Treatment of Hepatitis C in Children and Adolescents Suffering from Thalassemia

Qureshi H, Rafiq , Sarwar G, Hayee G, Alam E, Dharejo Z⁶

¹Pakistan Medical Research Council, Karachi, Pakistan, ²board member "The Health Foundation" a NGO, Karachi, Pakistan , ³Deputy Director General (CDC), Health Department Sindh, , Pakistan

Background: HCV infection is common in thalassemic children but its treatment response is not well documented in Pakistan

Aim: to report the treatment response in HCV infected children and adolescents using velpatasvir in children

Methods: Thalassemic children aged 3 years and above were screened for anti HCV and those found reactive were further tested for HCVRNA. Those with detected virus were treated with single dose of velpatasvir for 8 weeks. SVR was checked at 12 weeks and 12 months to see the treatment response and the reinfection.

Results: A total of 646 children and adolescents were screened for anti HCV in 18 months and 112 (17.3%) were found reactive. HCV RNA was detected in 34 (30.3%) and not detected in 78cases. All with detected virus were treated with velpatasvir for 12 weeks. SVR 12 weeks was available in 29 cases and was achieved in 27 cases (93.1%) and not achieved in 3 cases (6.9%). SVR 12 months was available in 29 cases and was achieved in 25 cases (86.2%), not achieved in 04 cases (includes 01 non responder from 12 weeks SVR), while 3 were lost to follow up and 2 died.

Conclusion: HCV response to velpatasvir in children was 90% at 12 weeks and 86% at 24 weeks. This response is lower than that seen in adults in Pakistan.



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Association Between HCV Reactivity and HIV Viremia Amongst Key Populations (Female Sex Workers, Men Who Have Sex with Men, Transgender People & Persons Who Inject Drugs) – Findings from the 2020 Integrated Biological and Behavioral Surveillance in Nigeria

Ejeckam C¹, Green K¹, Ilori T², Agbo F²

¹Institute For Global Public Health, University Of Manitoba (Nigeria Office), Abuja, Nigeria, ²National Agency for the Control of AIDS, Abuja, Nigeria

Background: Key Population are critical in Nigeria's drive towards gaining epidemic control. Key populations bear a disproportionate burden of the epidemic, and having an uncontrollable spread of the HIV virus (i.e. viremia) amongst them is a rate-limiting step in the attainment of a holistic HIV epidemic control. People living with HIV, who become co-infected with HCV or HBV are at increased risk of liver related morbidity or mortality. Also, HCV or HBV infection can affect the management of HIV amongst PLHIVs. In Nigeria, the prevalence of HCV and HBV are 1.1% and 8.1% respectively while the HIV prevalence amongst Key Population is 28.8%, 25% and 15.5%, and 10.9% for Transgender People (TG), Men who have sex with men (MSM), Female Sex Workers (FSW) and Persons who Inject Drugs (PWID). The 2020 Integrated Bio-behavioral survey was conducted to assess the HIV prevalence and associated behavioral patterns, with a view to designing interventions for impact mitigation amongst Key Population.

Materials and Methods: The study adopted a multi-stage sampling procedure, using the hotspots list validated from the 2018 key population size estimation study in Nigeria as sample frame. During field data collection, an eligibility checklist based on UNAIDS blue book guidelines was administered on sample

participants and all those who met the eligibility criteria were randomly selected by trained interviewers until the individual KP typology sample size per state (i.e. 415,368,372 & 372 per state for FSW, PWID, MSM & TG) respectively was achieved. Each participant responded to both the behavioral and to the biological (Testing was based on the current national algorithm) component inputted on android tablets. Ethical approval was obtained from the National Health Research Ethics Committee (NHREC). Data was collected using the Survey CTO app while analysis was done using the Stata statistical package, vs 13.

Across all KP typology, about 2310 Dried Blood samples (100% of positives and 2% of negatives from the original analyzed IBBS samples) were shipped to Canada for phylogenetic analysis at the National Microbiology Laboratory, Winnipeg. Samples were tested for HCV reactivity and results compared with the odds of having uncontrollable spread of the virus (viremia) amongst various KP typology.

Results: The results show the risk of being viremic (i.e. having an uncontrolled HIV infection) for all 4 KPs, suggesting a 40-90% increase in risk of being viremic if participants were also reactive for HCV. About 32 samples out of the shipped 2310 samples were damaged. Specifically, of about 2,278 samples investigated (FSW:675, MSM:807, TG:580, PWID:216), the proportion of those with viremia who also were reactive for HCV are 64%, 42%, 44% and 41% across FSW, MSM, TG and PWID respectively. These are statistically significant at the $p < .05$ level (FSW:0.000, MSM:0.000, TG:0.003), adjusted for various confounders like age and education level, for all KPs except for PWID. The PWID sample size was the least (p-value 0.219).

Conclusions: The result shows the need for an integrated approach in managing HIV and other associated co-infections, if the goal of epidemic control by 2030 will be attained in Nigeria. Government and stakeholders in the national response must prioritize interventions, programs and policies aimed at achieving elimination of HIV, Hepatitis and Syphilis in Nigeria, especially amongst Key and other vulnerable population, in line with the provisions of national strategic guidelines.



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Assessing Progress Towards Hepatitis Elimination in Nigeria: Laboratory Capacity and Testing Utilization in Akwa Ibom and Nasarawa States

Ejembi J¹, Green K¹, Ejeckam C¹, Jinga F²

¹West African Centre For Public Health And Development, An Affiliate of Institute for Global Public Health, UOM, Abuja, Nigeria, ²National AIDS and STDs Control Programme, Abuja, Nigeria

Background: Achieving viral hepatitis elimination by 2030 necessitates robust infrastructure for diagnostic testing, data-driven resource allocation, and sustainable financing, particularly in resource-limited settings. This study assesses the laboratory capacity and hepatitis testing utilization across health facilities in Akwa Ibom and Nasarawa states, Nigeria. Findings provide insight into progress and challenges within local hepatitis response efforts, informing strategies to strengthen diagnostics and expand testing services.

Methods: We evaluated 129 health facilities (66 in Akwa Ibom and 63 in Nasarawa) for laboratory capacity, testing availability, staffing, and hepatitis B and C testing practices. Facilities were categorized by service level (primary, secondary, tertiary) and type (public, private), with data collected on testing entry points, facility staffing, and integration of hepatitis testing within other health programs. Budget allocation, testing frequency, and utilization rates were also analyzed.

Results: Public facilities constituted 76% of those assessed, with Akwa Ibom having more secondary care facilities (62%) and Nasarawa dominated by primary care (63%). Laboratory capacity for hepatitis B and C testing was universally available across facilities, with 100% offering serological tests. However, core antigen and PCR testing were limited, available in only 3% and 14% of facilities in Akwa Ibom and 16% and 19% in Nasarawa, respectively. Financial barriers were significant, with only 21% of facilities reporting dedicated budgets for hepatitis testing, primarily in Nasarawa. Testing was primarily funded out-of-

pocket, with 86% in Akwa Ibom and 98% in Nasarawa, posing a substantial obstacle to accessibility. Integration of hepatitis testing into other programs was low, with only 64% of facilities offering co-screening services with HIV, TB, or COVID-19 testing. Daily testing capacity was underutilized, with a maximum of 500 tests theoretically feasible for serology but only 21 conducted on average, underscoring the need to boost awareness and testing uptake.

Conclusion: Despite progress in diagnostic availability, significant challenges persist in budget limitations, testing underutilization, and resource distribution across Akwa Ibom and Nasarawa. Addressing these gaps by expanding government and private sector funding, promoting integrated testing programs, and improving service uptake is critical to advancing Nigeria's hepatitis elimination goals. Findings from this study underscore the importance of strengthened diagnostic infrastructure and sustainable financing strategies to support the scale-up of hepatitis testing services, providing a framework for achieving viral hepatitis elimination by 2030.



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Improving Hepatitis C Screening and Treatment Access for Key Populations in Johannesburg: A Prospective Study

Msolomba V¹, Majam M¹, Hatzold K²

¹Ezintsha a division of Wits Health Consortium (Pty) Ltd, Johannesburg, South Africa, ²Population Services International, Johannesburg, South Africa

Background: Hepatitis C Virus (HCV) infection remains a significant health issue among key populations (KPs) in Johannesburg, South Africa, with limited access to appropriate screening and treatment services. People who inject drugs (PWID), people who use drugs (PWUD), men who have sex with men (MSM), and sex workers (SW) face increased vulnerability to HCV, compounded by healthcare access barriers. This study evaluated the feasibility and impact of Hepatitis C Virus Self-Testing (HCVST) among these groups to improve early diagnosis and linkage to treatment.

Methods: From May 2023 to February 2024, HCVST was integrated with existing HIV services in Johannesburg for KPs, offering oral- and blood-based self-testing options. Participants who tested positive received confirmatory PCR testing and were offered treatment. The study aimed to understand the effectiveness of HCVST in increasing HCV awareness and accessibility among underserved populations.

Results: Of the 1,355 PWID and PWUD participants screened, 97% had no previous HCV testing history. Among these, 73.7% received positive HCV antibody results, and 63% were confirmed HCV-positive through PCR. Only 3.4% of confirmed cases began treatment, with 12 completing the regimen. The study revealed that many participants preferred decentralized, community-based care over clinic-based treatment, highlighting a need for more flexible service delivery models.

Conclusion: The study emphasizes the importance of customized, accessible HCV services for key populations in Johannesburg. Community-based

approaches, integrated with current health services, are essential to reach vulnerable groups and address treatment barriers. Collaborative efforts to adapt healthcare delivery models are vital for meaningful progress toward controlling HCV among these populations.



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Determinants of Unmet Needs of HBV Testing and Vaccination among Female Sex Workers in Rwanda: Behavioral and Biological Surveillance Survey, 2023

Nzeyimana Z², Ikuzo B², Gatete G², N. Rwibasira G²

¹ICAP at Columbia University, Kigali, Rwanda, ²Rwanda Biomedical Centre, Kigali, Rwanda

Background: Viral hepatitis claimed lives of 1.1 million people in 2022(1) and Hepatitis B virus (HBV) and Hepatitis C (HCV) infections cause around 96% of the deaths (2). Moreover, an estimated 80% of people infected with HBV or HCV remain undiagnosed worldwide in 2022(3). Sex workers are amongst people at high risk of HBV and are prioritized for HBV vaccination in many countries including Rwanda(4). This paper presents factors associated with unmet needs for HBV testing and vaccination among Female Sex Workers (FSWs) in Rwanda.

Setting: This study was conducted in Rwanda, a Country of thousand hills located in Great lakes region of the Eastern Africa. Females sex workers were reached from 5 provinces of the country.

Methods: This study analyzed data of the 2023 Biological and Behavioral Surveillance Survey (BBSS) among FSWs in Rwanda. STATA version 17 was used to analyze the data. To determine predictors of unmet needs of HBV testing and vaccination, participants' characteristics associated with HBV testing and vaccination were included in one logistic regression model producing adjusted odd ratios (aOR) using backward binary logistic regression analysis. Only variables showing significant statistical association were maintained in the model. Significant association was assumed at p value <0.05.

Results: Of the 2,542 FSWs enrolled in the 2023 BBSS in Rwanda and of them largest proportion was from Western (25.2% with n=641) while lowest was (16.7%, n=421) from was from Southern province. About 23.3% of the FSWs had ever been tested for HBV while 31.7% had

received one or more doses of HBV vaccine. On one hand, HBV testing was predicted by increasing age of the FSWs with those aged 45 years and more being 5.1 [aOR: 5.1 with 95% C.I: 3.3 – 7.9] times higher than those aged 15-24 years old. The testing was also by living in western province [aOR:1.7 with 95% CI: 1.3-2.3], having declining number of children with those with zero or one child presenting 1.6 folds of having ever testing for HBV than those with 6 children and above [aOR: 1.6 with 95% C.I: 1.1 - 2.2], and avoiding that others learn about her family member living with HIV [aOR: 1.3 with 95% :1.0-1.7]. On the other hand, HBV vaccination was determined by having sex work experience of from 11 years and above (aOR: 3.2 with 95% CI: 1.8-5.5 among FSWs with 21 to 50 years selling sex), living in Western province [aOR:1.8 with 95% 1.2-2.7], Having any type of Health cover [aOR:1.5 with 95% 1.0-2.1], being aware of HIV Positive status among FSW living with HIV, condom use during the last sex with a client [aOR:1.5 with 95% 1.0-2.1], and being divorced/separated/widowed [aOR:1.4 with 95% 1.0-1.8].

Conclusion: In conclusion HBV testing and vaccination coverage rates remain low among FSWs in Rwanda especially among younger aged FSWs. The study underscores the need for interventions aiming to promote healthcare seeking behaviors among FSWs along with ensuring that have health insurance.



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The Need for Decentralized Model of Care for Hepatitis C Direct Acting Antivirals Treatment Initiation in Active Hepatitis C Positive Patients Amongst People Who Use Drugs in Johannesburg Health District

Nhlapo N¹

¹Health Clinics/ Classic Health Consulting, Johannesburg , South Africa

Background: The prevalence of Hepatitis C in South Africa is notably high among key populations, particularly among people who inject drugs (PWID). A research study on Hepatitis C self-testing, conducted within the PWID community in Johannesburg between May 2023 and August 2024, confirmed this high prevalence, underscoring the urgent need for tailored intervention in this group.

Descriptions: Our study implemented a self-testing outreach model in PWID "hot spots" across Johannesburg, engaging 1,567 participants through directly observed self-testing. The results were significant: 998 participants, or 63.7%, tested positive for Hepatitis C antibodies. Among those, 854 were confirmed to have active Hepatitis C infections through PCR testing, revealing an 85.6% active infection rate among those with prior exposure.

Following PCR confirmation, participants were scheduled for clinical evaluation and treatment with Direct-Acting Antivirals (DAAs) at a centralized clinic. The outreach team facilitated appointments by pre-booking participants and coordinating transportation. However, engagement challenges within the PWID community led to frequent instances of missed appointments, with less than 5% of pre-booked participants showing up. Additionally, the South African guidelines, which mandate physician-centered initiation of DAAs, further hindered treatment access and contributed to a low

initiation rate. Only 37 out of 854 confirmed cases (4.3%) began DAA treatment.

Lessons Learned: This study highlights the need for a decentralized model of Hepatitis C testing, confirmation, and treatment for PWID. Enabling DAA initiation by more readily available nursing staff, rather than limiting it to physicians, could greatly improve treatment access and continuity.

Conclusions/Next Steps: To combat Hepatitis C effectively within the PWID community, advocacy for updated management guidelines and innovative care models is crucial. Expanding authority for DAA initiation to nursing staff and implementing decentralized, community-based treatment approaches are essential steps for achieving Hepatitis C elimination in South Africa.



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In Pursuit of Elimination Goals, Bridging Gaps in Hepatitis B Vaccination among Informal Health Care Providers in West Bengal

Mukherjee P¹, Sarkar P¹, Mukherjee C¹, Chatterjee S¹, Das D¹, Chatterjee S¹

¹Liver Foundation, West Bengal, Kolkata, India

Background: Hepatitis B is a major global health problem, particularly for healthcare workers who are at increased risk due to frequent exposure to blood-borne pathogens. It is clear that care providers informal health (IPs) provide 65-95% of primary care to rural people in low- and middle-income countries (LMICs). IPs are individuals who do not have formal training but practice allopathic medicine, and there are millions of them in India. While they are an important part of rural healthcare in India, they are still largely unprotected from hepatitis B, as vaccination programs tend to prioritize formal healthcare workers. The number of such IPs in West Bengal is approximately 120,000. The purpose of this study was to determine the knowledge level and vaccination status of IPs in three rural districts in West Bengal, Birbhum, South 24 Parganas, and Purulia.

Materials and Methods: Through a cross-sectional survey, 381 IPs were included and a structured pre-tested questionnaire study was conducted among them to collect data on socio-demographic characteristics, hepatitis knowledge and vaccination status using an 18-item questionnaire. Participants were predominantly middle-aged, with significant work experience and educational qualifications, making them well-suited for targeted educational interventions.

Results: Study reveals alarmingly low vaccination coverage; despite the essential role that IPs play in providing primary health care in these underserved regions. It was observed that there are large differences in vaccination coverage between individual districts in the studied population. In Birbhum, only 3.4% IPs were vaccinated, while Purulia had a vaccination

coverage of 8.8% and South 24 Parganas a slightly better 23.9%. Overall, only 10.8% of surveyed IPs were vaccinated, indicating a significant gap in hepatitis B protection among these health care providers. The study highlights the significant risks this group faces as they are often the first point of contact for rural patients in areas with limited formal health infrastructure. Knowledge score 8 out of 18, reflecting moderate awareness of liver health and hepatitis risks. However, the data highlighted critical gaps in knowledge, particularly regarding hepatitis B transmission and the importance of vaccination.

Conclusions: It has been observed that several factors contribute to low vaccination rates, mainly IPs not eligible for hepatitis B vaccination in government programs such as the National Viral Hepatitis Control Program (NVHCP). Their knowledge of disease risks and prevention is not optimal. The availability of vaccines is also extremely limited. Given the essential role of IPs in rural health care, the study recommends several key actions: expanding the NVHCP to include IPs for vaccination, launching information campaigns to educate them about hepatitis B, and implementing tailored, demographically specific interventions to improve vaccination. Addressing this critical gap will not only protect IPs, but also improve health care outcomes for the rural population they serve and contribute to broader public health efforts for hepatitis B control in India as well as targeted micro elimination.



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Metabolic Dysfunction-Associated Steatotic Liver Disease and Risk of Four Intrahepatic and Extrahepatic Diseases

Xiao Y¹¹Sun Yat-sen University, shenzhen, China

Introduction and Objectives: Recently, Delphi consensus proposed an overarching term steatotic liver disease (SLD), with various subcategories such as MASLD, MetALD and ALD. Our aim was to investigate the association between MASLD/MetALD/ALD and four intrahepatic and extrahepatic diseases (liver diseases, renal diseases, cardiovascular diseases, and cancers) in the UK Biobank cohort.

Patients and Methods: By defining hepatic steatosis as image-derived phenotype (IDP)-PDFF >5.21%, we defined MASLD as the presence of hepatic steatosis in conjunction with at least one cardiometabolic risk factor (CMRF) and low alcohol intake (less than 140 g/week for females and less than 210 g/week for males). MetALD was defined as hepatic steatosis, at least one cardiometabolic factor and moderate alcohol intake (140 to 350 g/week for females and 210 to 420 g/week for males), ALD was defined as hepatic steatosis, at least one cardiometabolic factor and excessive alcohol intake (more than 350 g/week for females and more than 420 g/week for males). The diseases outcomes were defined by the International Classification of Diseases-Tenth Revision codes (ICD-10). Specifically, in UK Biobank, the ICD-10 codes for liver diseases were B18.x, C22.x, K70.x–K77.x, and Z94.4. It's worth nothing that B18.x coded for chronic viral hepatitis. For renal diseases, the codes were I12.0, I13.1, N03.2–N03.3, N03.5–N03.7, N05.2–N05.7, N18.x–N19.x, N25.0, Z49.x, Z94.0, and Z99.2. For cardiovascular diseases, the codes were I09.9, I11.0, I13.0, I13.2, I21.x–I22.x, I25.2, I25.5, I42.0, I42.5–I42.9, I43.x, and I50.x. For cancers, the codes were C00.x–C97.x. The odd ratio (OR) and the hazard ratio (HR) were calculated using the logistic regression modals and Cox regression models, respectively.

Results: Among 39,230 eligible individuals, 6,865 MASLD subjects, 2,379 MetALD subjects and 884 ALD subjects were diagnosed. The last follow-up time was October 13, 2023. Consistent with the logistic analyses, MASLD/MetALD/ALD were significantly associated with a higher risk of liver diseases (HR=3.04 [95%CI:2.60~3.56], HR = 2.69 [95% CI: 2.12~3.42] and HR =3.99 [95%CI:2.92~5.45], respectively). Subjects with MASLD also had an increased higher risk of renal diseases (HR = 1.40 [95%CI:1.20~1.64]) and subjects with ALD had an increased higher risk of cancers (HR = 1.36 [95%CI:1.15~1.60]).

Conclusion: It is the first study to report the association between MASLD, MetALD, ALD and common intrahepatic and extrahepatic diseases based on magnetic resonance imaging data—PDFF. We found that MASLD, MetALD and ALD were risk factors for liver diseases. Meanwhile, MASLD was also a risk factor for renal diseases and ALD was a risk factor for cancers.



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Using Community Partnerships to Achieve HCV Micro-Elimination in Vancouver's Inner-City

Wiesmann C^{1,2}, Yi S², Truong D², Conway B^{1,2}

¹Simon Fraser University, Burnaby, Canada, ²Vancouver Infectious Diseases Centre, Vancouver, Canada

Background: The individuals living in Vancouver's inner city have some of the highest rates of hepatitis C virus (HCV) Canada, and the Vancouver Infectious Diseases Centre (VIDC) is working towards eliminating HCV in this population. The VIDC does this using an approach involving regular community pop-up clinics, or CPCs, at various inner-city. At each event, point-of-care HCV antibody testing is offered to up to 30 individuals. Individuals testing positive for HCV antibodies often have their blood drawn on site and those confirmed to be viremic are followed up with by outreach individuals and engaged in treatment under a multi-disciplinary model of care.

Purpose: It crucial to examine the efficacy of this approach for eliminating HCV in this community to determine the effectiveness of our model. Therefore, we aimed to determine whether VIDC is achieving a reduction in the prevalence of HCV in Vancouver's inner-city through a CPC approach to diagnosis and treatment.

Methods: As part of a partnership with Atira housing society, since 2022 CPCs have regularly been held in the common spaces of Atira inner-city buildings with the goal of achieving micro-elimination of HCV among the individuals living in these spaces. As a preliminary analysis, we determined the proportion of individuals testing positive for HCV antibodies, and those viremic, at CPC events held at 4 different Atira buildings in 2022 and in 2024. We then averaged the proportion of individuals testing positive at each location in 2022 and in 2024. Using this data, we were able to determine if there was a significant reduction in the proportion of individuals residing in these four buildings living with HCV in 2024 relative to 2022.

Results: We did not see a reduction in the proportion of individuals with HCV antibodies over time (32% in 2022 vs. 26% in 2024). However, we saw a clear reduction in the proportion of individuals residing in these residences with an active HCV infection (14% in 2022 vs. 4% in 2024; $p = 0.1$).

Conclusions: This study has demonstrated while PWID and under-housed inner-city residents may be a particularly difficult demographic to target for HCV treatment, with the help of community partnerships, a multidisciplinary approach to care, and continued testing and follow-up, we are on our way to achieving macro-elimination through micro-elimination of HCV among the residents of Vancouver's inner city. By decreasing barriers to care by bringing testing through CPCs, treatment through pharmaceutical delivery, and follow-up care through outreach workers directly to individuals, we can meet people where they are at and achieve high rates of HCV cure even among unstable and traditionally difficult-to-treat populations.



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Investigating Horizontal Transmission of Hepatitis C Virus in a Hemodialysis Clinic in Rio de Janeiro, Brazil: Evidence for Nosocomial Transmission and Reinfection

Vieira P¹, Gutierrez M¹, Roque P¹, Marques V¹, Lago B¹, Balassiano N¹, Baldin C¹, Couto F¹, Rodrigues J¹, Ennes A¹, Sousa P¹, Oliveira L¹, Guimarães L¹, Correa P¹, Lewis-Ximenez L¹, Mello F¹

¹Fundação Oswaldo Cruz, Rio De Janeiro, Brasil

Background: The World Health Organization estimates that 50 million people live chronically infected with the hepatitis C virus (HCV), with 1 million new infections occurring annually. HCV transmission occurs primarily through contact with contaminated blood, with the main routes of transmission being: injecting drug use, unscreened blood transfusions, and inadequate medical practices. In Brazil, the prevalence of HCV in hemodialysis (HD) clinics is 2.1%, notably higher compared to the 0.24% estimated in the general Brazilian population, likely due to frequent vascular access in HD, patient physical proximity, and substandard biosafety practices. Despite current therapies achieving cure rates of over 95%, reinfection is possible, especially among high-risk groups. This study aims to assess potential nosocomial transmission during an HCV outbreak in a HD clinic in Rio de Janeiro, Brazil.

Material and Methods: In early 2024, the HD clinic sought assistance from the Ambulatory of Viral Hepatitis /IOC/FIOCRUZ following recent anti-HCV seroconversion in two HD patients. Serum samples were collected from 206 HD patients and tested for HCV-RNA using real-time polymerase chain reaction (RT-qPCR). Positive samples underwent RT-PCR amplification of the NS5B region, followed by Sanger sequencing and phylogenetic analysis. To validate the initial NS5B findings, RT-PCR was also performed on the hypervariable regions (HVR-1 and HVR-2) of the viral envelope, followed by Sanger sequencing and phylogenetic analysis.

Results: Ten samples (10/206; 4.85%) were HCV-RNA positive, with viral loads ranging from 39,000 IU/mL to 32,400,000 IU/mL, indicating active HCV infection. Subsequent RT-PCR amplification of the NS5B gene, a conserved genomic region, revealed high genetic similarity among four patients, forming a distinct clade suggestive of direct transmission. Further phylogenetic analysis of the hypervariable region of the viral envelope, ideal for verifying direct transmission events, confirmed the nosocomial transmission. Additionally, our investigation has uncovered that a patient involved in the outbreak had previously been infected during two earlier outbreaks at the same facility, in 2017 and 2022. After diagnosis and antiviral treatment, the patient achieved a sustained virological response in both infections, the first with HCV subtype 1b and the second with subtype 1a. Re-infected in the 2024 outbreak with a subtype 1b strain, the patient was referred for a third treatment with direct-acting antivirals. This finding indicates the persistence of inadequate safety practices over an extended period. The recurrent infections underscore the urgent need for enhanced infection control measures and rigorous adherence to biosafety protocols to prevent future outbreaks and protect vulnerable patient populations.

Conclusion: These findings highlight the occurrence of nosocomial transmission and reinfection, underscoring the critical need for stringent medical practices and ongoing surveillance in vulnerable and continuously exposed populations to achieve viral hepatitis elimination.



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Neonatal Hepatitis B Prevention Programme: Implementation and Effectiveness in the Northern Region, New Zealand

Yim L¹, Gala G¹

¹NPHS Northern Region, Auckland, New Zealand

Background: Hepatitis B remains a global public health problem and a leading cause of chronic liver diseases, such as hepatocellular carcinoma (HCC) and cirrhosis. Although New Zealand is considered a low endemic country (2% prevalence), hepatitis B disproportionately affects Asian, Māori and Pacific Peoples. Vertical transmission of hepatitis B virus remains one of the leading causes of transmission worldwide. Over 90% of infants infected this way become chronic carriers. Preventing vertical transmission is thus a key part of the World Health Organization's (WHO) hepatitis B elimination strategy. New Zealand has had a neonatal hepatitis B prevention programme in place for several decades. However, previous studies suggest that implementation is suboptimal.

This study aims to evaluate the implementation and effectiveness of the neonatal hepatitis B prevention programme in the Northern Region of New Zealand by assessing uptake of key interventions; identifying gaps in delivery; and determining the programme's effectiveness in preventing neonatal infection.

Methods: A retrospective data cohort study using linked data from: clinical notifications to medical officers of health, the Aotearoa Immunisation Register (AIR), New Zealand Blood Service (infants who received hepatitis B immunoglobulin [HBIG]) and Éclair (lab antenatal blood test results). The study included infants born to hepatitis B positive mothers between 1 January 2022 and 31 December 2022.

We assessed maternal anti-viral eligibility and prescription, uptake of hepatitis B vaccination at birth (HepB-BD), HBIG administration, completion of the three-dose hepatitis B childhood vaccination schedule and serology testing at 9 months.

Results: A total of 124 at-risk infants from 122 birthing parents, two of which gave birth to twins, were identified. Ethnic distribution was: 60.7% Asian, 21.3% Pacific Peoples, 9.8% Māori, 4.1% Middle Eastern, Latin American and African (MELAA), and 4.1% European. Only 53 infants (42.7%) were notified to a medical officer of health.

Among 119 tested birthing parents, 19 (16.0%) were eligible for antivirals; 89.5% of these received prescriptions. HBIG administration was high (98.4%) and Hep B-BD was confirmed for 83.9% of at-risk infants. Over 95% completed the three-dose vaccination, though timeliness declined: 90% at 6 weeks, 85% at 3 months, and 74% at 5 months. Only 12% (15/124) underwent timely serological testing, all showing protective immunity and no evidence of infection.

Conclusion: Neonatal hepatitis B risk in the Northern Region of New Zealand disproportionately affects Asian Pacific and Māori populations. Although coverage of key interventions is generally high, low notification rates and inadequate serological follow-up limit the ability to accurately assess programme effectiveness. Strengthening data integration and enhancing follow-up of serological testing are essential to effectively monitor progress and achieve hepatitis B elimination targets.



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Nationwide Implementation of Free Hepatitis D Viral Load Testing in Brazil: Expanding Access to Viral Hepatitis Diagnosis

Mello V¹, Pezzuto P¹, Morais A¹, Guedes N¹, Diquique R¹, Peribanez-Gonzalez M¹, Bigolin A¹, Barreira D¹

¹Ministry Of Health Of Brazil, Brasília, Brazil

Background: Hepatitis B (HBV) and Hepatitis D (HDV) co-infection represents the most severe form of viral hepatitis in humans, with a high risk of progression to liver cirrhosis. In Brazil, the Amazon Basin — which largely encompasses the states of the Northern Region — is recognised as a hyperendemic area for HDV. Molecular detection of viral RNA is a crucial component for confirming the diagnosis of HDV infection. Since August/2024, the Brazilian Ministry of Health (MoH) has been providing the test freely through its Unified Health System (UHS), thereby expanding access to accurate diagnosis and contributing towards the global target of eliminating viral hepatitis by 2030. This study aimed to analyse the data related to the provision of HDV viral load quantification (HDV-VL) testing in Brazil.

Material and Methods: In partnership with the Oswaldo Cruz Foundation in Rondônia (FIOCRUZ-RO), this national initiative targets individuals with chronic HBV infection, reactive anti-HDV antibodies, with epidemiological links to HDV-endemic areas. Weekly, Central Public Health Laboratories from all 27 federal units send samples to FIOCRUZ-RO. Results are entered into the MoH's national health information system and made available to healthcare services within three working days. This study analysed data recorded from MoH's national health system between August/2024 to March/2025.

Results: Currently, 26 collection points sent samples to FIOCRUZ-RO. During the period under analysis, a total of 63 HDV-VL tests were requested and performed. The majority of samples originated from the Northern Region (n=59; 93.6%), with a notable concentration in the state of Rondônia

(n=55; 87.3%), followed by Amapá (n=2; 3.17%) and Roraima (n=2; 3.17%). The Southeast Region accounted for two tests (3.17%), both from the state of São Paulo, while the Centre-West and South Regions registered one test each (Federal District and Santa Catarina, respectively). The average turnaround time for results in 2024 was 1 ± 2.2 days. The mean age of UHS users who underwent testing was 48.7 years (ranging from 18 to 87 years), with the highest frequencies observed among individuals aged 60 years or older (n=16) and those aged 50–54 years (n=14). The majority were male at birth (n=36), self-identified as mixed race (n=39), and residents of urban areas (n=48). Of all tests performed, 23 (36.5%) yielded detectable viral loads, most of which were also from the Northern Region (n=22; 95.6%). To date, only one case with a detectable result has been identified outside the endemic region, located in the Central-West of the country.

Conclusions: The implementation of HDV-VL testing within the UHS has proven effective in enhancing the diagnostic accuracy of HDV infection in Brazil. This initiative provides valuable insight into actual test demand and supports more accurate estimates of infection prevalence. Despite the still limited number of test requests — including from high-prevalence areas such as the Northern Region, which covers much of the Amazon Basin — and the current centralisation of testing due to in-house methodology, the availability of this diagnostic tool represents a significant step towards eliminating viral hepatitis as a public health concern in Brazil.



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Hepatitis Delta Virus Infection in Ethiopia: A New Hotspot

Simbo T^{1,2}, Schlund F^{3,4}, Abegaz W², Le Gal F⁵, Gerber A⁵, Zheng S⁵, Negash A², Gudisa F¹, Birhanu D⁶, Hussien A⁷, Cheneke W⁸, Gudina E⁸, Nkongolo S^{4,9}, Lempp F^{3,4}, Rossvoll L¹⁰, Berhe N^{11,12}, Desalegn H^{13,14}, Urban S^{3,4}, Johannessen A^{10,12}

¹Adama Comprehensive Specialized Hospital Medical College, Adama, Ethiopia, ²Department of Microbiology, Immunology and parasitology, CHS, Addis Ababa University, Addis Ababa, Ethiopia, ³Department of Infectious Diseases, Molecular Virology, University Hospital Heidelberg, Heidelberg, Germany, ⁴German Center for Infection Research (DZIF), partner site Heidelberg, Germany, ⁵Centre national de référence des Hépatites Virales B, C et Delta, Laboratoire de Microbiologie clinique, Hôpital-Avicenne, Assistance Publique Hôpitaux de Paris; Université Sorbonne Paris Cité, Bobigny, France, ⁶Department of internal medicine, Dubti General Hospital, Ethiopia, ⁷Department of internal medicine, Jigjiga University Sheikh Hassen Yabare Comprehensive Specialized Hospital, Ethiopia, ⁸College of Health Sciences, Jimma University, Jimma, Ethiopia, ⁹University Hospital Heidelberg, Department of Internal Medicine IV (Gastroenterology, Hepatology, Infectious Diseases), Heidelberg, Germany, ¹⁰Department of Infectious Diseases, Vestfold Hospital Trust, Tonsberg, Norway, ¹¹Aklilu Lemma Research Institute, Addis Ababa University, Addis Ababa, Ethiopia, ¹²Centre for Global Health, University of Oslo, Oslo, Norway, ¹³St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, ¹⁴Toronto Centre for Liver Disease, University of Toronto, Canada

Background: Individuals with hepatitis B virus (HBV) and hepatitis D virus (HDV) co-infection are at higher risk of liver disease progression compared to those with HBV mono-infection. Ethiopia is endemic for HBV; however, little is known about the HDV prevalence outside the capital city. In the present study, we investigated the HDV prevalence and its clinical implications among HBV-infected individuals in various regions of Ethiopia.

Method: A cross-sectional study was conducted among 5976 adults with chronic HBV infection from December 2021 to December 2023. The study participants were recruited at four newly established HBV treatment centers located in Adama, Jimma, Jigjiga, and Dubti. Serum was investigated for HDV antibodies using a commercial ELISA method and anti-HDV positive samples were tested for HDV RNA using a commercial real-time PCR assay. HDV genotype was determined for RNA-positive samples by a Sanger method. Mann-Whitney U tests were used

to compare laboratory variables between anti-HDV positive and negative individuals. Bivariate and multivariate logistic regression were used to observe the association between dependent and independent variables.

Results: The median age was 30 years (interquartile range (IQR) 25 – 38) and 50.9% (3042/5976) were men. The overall HDV seroprevalence was 6.2% (368/5976). Dubti (Afar region) had the highest HDV seroprevalence with 17.2% (249/1449), followed by Jimma (Oromia region) with 3.8% (39/1013), Adama (Oromia region) with 3% (69/2312), and Jigjiga (Somali region) with 0.9% (11/1202). Of all anti-HDV positive samples, 63.8% (67/105) had detectable HDV RNA with a median viral load of 3.0 log₁₀ IU/ml (IQR 1.6-5.3). All strains were HDV genotype 1. Anti-HDV positive patients had higher median ALT (40 vs. 25 U/L, p<0.001), AST (40 vs. 27 U/L, p<0.001), APRI (0.4 vs. 0.3, p<0.001) and liver stiffness (6.7 vs. 5.3 kPa, p<0.001), and lower median HBV DNA viral load (2.3 log₁₀ vs. 2.9 log₁₀ IU/ml, p=0.008) compared to anti-HDV negative patients. In multivariable analysis, region of residence, age >35 years, ALT >40 U/L, HBV DNA <2000 IU/ml, and AST-to-platelet ratio index (APRI) >0.5 were associated with being anti-HDV positive.

Conclusion: The overall prevalence of HDV in Ethiopia is intermediate but the Afar region seems to be a hotspot for HDV transmission, while the neighboring Somali region had negligible seroprevalence. This highlights the need for further research into risk factors influencing HDV transmission. Individuals co-infected with HBV/HDV had more advanced liver injury compared to HBV mono-infected patients.



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Mitigating Hepatitis B Mother-To-Child Transmission through Early Detection and Prophylaxis; A Prospective Study at a Tertiary Care Center

RAWAT S¹, Singh V¹

¹Associate Professor Bundelkhand Medical College, Sagar, India,

²Bundelkhand Medical College, Sagar, India

Background: Viral hepatitis is the most common viral cause of hepatitis globally, with the Hepatitis B Virus (HBV) playing a significant role in its overall burden. In India, HBsAg prevalence ranges from 1.1% to 12.2%, with an average of 3-4%. Perinatal transmission is most common route of HBV infection. Vertical transmission risk in the case of HBsAg seropositivity is nearly 10-40%, whereas, in both HBsAg and HBeAg, seropositivity, increases to 70- 90%. We aimed estimate the seroprevalence of HBsAg in Pregnant women by early detection and to determine the prevention of mother-to-child transmission of HBV through anti-HBV immune globulin.

Material & Methods: This prospective study was conducted in Microbiology Department of BMC, Sagar for one year [May 2023 to April 2024], among pregnant women who attended ANC clinic. Serum samples subjected to HBsAg detection by rapid antigen card test and obtained results confirmed by ELISA test. ELISA positive mothers' baby samples were taken in the early neonatal period and subjected to ELISA test for detection of vertical transmission of infection. For data analysis, MS Excel 2010 was used, and appropriate statistical analysis was applied.

Results: Among the 9022 cases, 50 (0.55%) women found seropositive by RAT. Through ELISA 47 were found confirmed seropositive for HBsAg estimated Sero-prevalence was found to be 0.52%. Vertical transmission was found in 20.45 % of the positive cases, perinatal mortality was seen in only 2.12% % and miscarriage was found in 4.2 % of cases.

Conclusion: Screening of all irrespective of risk factors was helpful in diagnosis and timely management, to reduce the future burden of

disease on society and healthcare resources and gain insight into the effectiveness of methods of prevention of perinatal transmission with Immuno-prophylaxis of babies shortly after birth through administration of anti-HBV immune globulin.



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Towards Advancing Universal Health Coverage for Viral Hepatitis Elimination in Nigeria through Assessment of Payment Options for Viral Hepatitis Services in Akwa-Ibom and Nasarawa States- Lessons from the Hepatitis Evaluation to Amplify Testing and Treatment (HEAT) in Nigeria

Ejeckam C¹, Green K¹, Ejembi J¹, Bashorun A², Bosah E², Ward J³, Hierbert L³

¹West Africa Centre for Public Health and Development (WACPHD), Abuja, Nigeria, ²National AIDS, Viral Hepatitis and STI Control of Programme, Abuja, Nigeria, ³Coalition for Global Hepatitis Elimination, Decatur, United States

Background: According to the 2018 Nigeria Demographic and Health Survey, only 3% of people aged 15–49 years have a form of health insurance coverage. On May 19, 2022, Nigeria signed the National Health Insurance Authority Bill into law: it makes health insurance mandatory for all citizens and legal residents. It also creates a mechanism to finance health-service delivery for the poor and vulnerable. The 2014 Nigeria National Health Act provides a mechanism to mobilize resources from public, private, philanthropic, and ancillary sources to finance access to a basic package of health care. The principles of UHC are aimed at eliminating all forms of barriers to quality and affordable healthcare, including out-of-pocket expenditure for health service. Health insurance target the elimination of all forms of barrier that impedes an individual right to health. Unfortunately, in many disease areas, including hepatitis, Nigeria has not been able to meet the ideals of a functional health insurance initiative. Nigeria has a high burden of viral hepatitis with an estimated 15 – 20million people living with undiagnosed hepatitis B. The national average prevalences for HBV and HCV are 8.1% (10.3% in men and 5.8% in women) and 1.1% (1.3% in men and 1.0% in women) respectively.

Testing and Treatment cost are high in Nigeria. The HEAT project assessed the various payment options for patients seeking viral hepatitis testing and treatment services in Akwa-Ibom and Nasarawa states.

Materials and Methods: A descriptive cross-sectional design in selected health facilities in study states. A non-probability purposive sampling was used to select 128 health facilities providing HBV and HCV testing in the two states. An electronic configured instrument was used to collect data from healthcare providers in selected facilities. The questionnaire has 2 sections: A and B. Section A of the questionnaire comprises of health facility demography, while the Section B obtain information on laboratory operations, e.g. number of tests per day/week/month, integration of hepatitis and HIV services, service payment options, etc. Data analysis was done using Microsoft Excel and SPSS vs 22.

Results: Result show that 6%, 8%, 86% and 33% and 51%, 37%, 98% and 0% pay through government/national health insurance, private insurance, out-of-pocket and other sources in Akwa-Ibom and Nasarawa states respectively. A national summary shows that approximately 28%, 22%, 92% and 17% of patients pay through government/national health insurance, private insurance, out-of-pocket and other sources respectively.

Conclusions: The high rate of out-of-pocket health service expenditure in both states (Akwa Ibom: 86%, Nasarawa: 98%) negates the effort at advancing the ideals of universal health coverage. Institutional prioritization of health investments, sustainable social contract, and fruitful private–private partnerships can accelerate Nigeria's progress towards health for all. It is expected that findings from the HEAT project will guide stakeholders in current and future health financing planning in order to optimize uptake of viral hepatitis testing and treatment services.



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Mother-to-Child Transmission of Hepatitis B Virus and Associated Risk Factors in Government Health Facility, Addis Ababa Ethiopia

Jebessa G^{1,2}, Birhanu K², Tola H³, Mamo H²

¹Ethiopian Public Health Institute, Addis Ababa, Ethiopia, ²Addis Ababa University, Addis Ababa, Ethiopia, ³Salale University, Fiche, Ethiopia

Background: Viral hepatitis infection is a global challenge and is responsible for an estimated 1.4 million deaths globally. Hepatitis B virus (HBV) is accountable for 47% of these deaths. The major transmission route of HBV is through mother-to-child. In Ethiopia, there is limited evidence to indicate the burden of MTCT. Thus, this study determined the burden of HBV and associated risk factors among infants born from hepatitis B virus-positive mothers.

Methods: A cohort study was conducted to determine the MTCT of Hepatitis B Virus and associated risk factors in selected Government health facilities of Addis Ababa, Ethiopia. The study was done from May 2023 to January 2024. A total of 136 mothers and corresponding cord blood samples were collected. Hepatitis B Virus Deoxyribonucleic Acid (DNA), HBsAg, and HBeAg were tested. Questioners were administered to determine risk factors. Frequencies and percentages were used to summarize the data on the characteristics of infants. Logistic regression analysis was employed to identify factors associated with the positivity rate of MTCT of HBV. The Level of significance was set at 5%.

Result: The mean + SD age of mothers was 27+ 4.8 years. Among the mothers, 101(74.3%) had detectable HBV DNA viral load of those 16(15.8%) with >200,000 IU/ML viral load. On the other hand, 90(66.2%) newborn cord blood were positive for HBsAg. 34(25%) of the newborn cord blood had detectable HBV DNA viral load. 3(2.2%) of them having >200,000IU/ML HBV DNA Viral load. Viral load concentration > 200,000 IU/ML (AOR=0.184; 95% CI: (0.037-0.899); p-value 0.037), were significantly associated with MTCT of HBV.

Conclusion: A significant number of newborns' cord blood were positive for HBsAg, thus strengthening the prevention strategy in the antenatal care unit, treating mothers with high viral load, and initiating birth dose vaccination required to reduce the burden of MTCT of HBV.



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SMART-C[®], A Novel One Step Point of Care Test for Detection of HCV Antigens Compared to Polymerase Chain Reaction (PCR)

Shiha G¹, Hassan A¹, Nabil A¹, Soliman R¹, Mitsuhiro E²

¹Egyptian Liver Research Institute And Hospital, Mansoura, Egypt, ²Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan

Background and aim: In response to WHO recommendations on simplified service delivery to accelerate access to hepatitis C (HCV) testing and treatment, We have developed an innovative one step point of care test using a thermo-sensitive smart polymer, specifically P(NIPAAm-co-HIPAAm-co-SAKIPAAm), and is internationally patented. It has proven effective in extracting and enriching hepatitis C (HCV) antigens demonstrating 100% sensitivity and specificity—comparable to standard PCR methods with lower limit of detection of 36 IU/ml. We have also integrated it into a lateral flow assay and named it SMART-C. [1-4] Our aim is to validate its performance comparable to HCV RNA PCR while monitoring patients during treatment with Direct-Acting Antivirals (DAAs).

Method: Serum samples of 8 Chronic hepatitis C naïve patients and one treatment experience patient were taken at the following intervals: 0, 4, 10 and 12 days from start of DAAs and at end of treatment. Samples were used for diagnosis of HCV viremia using the novel thermo-sensitive smart polymer technology (SMART-C) and the results are compared to the gold standard PCR (Cobas ampliprep/TaqMan[®], Roche).

Results: HCV antigens extracted by thermo-sensitive smart polymer then detected by gold nanoparticles yielded the same results for positive and negative samples as detected by HCV RNA PCR. All patients tested negative for HCV RNA by PCR at the end of treatment The sensitivity and specificity are both 100%.

Conclusion: SMART C is designed to be a rapid, accurate, single-step test with an exceptionally low

detection limit comparable to PCR. If validated through multinational studies, it will enhance screening efforts and accelerate the elimination of care cascades especially in low- and middle-income countries (LMICs)

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Prevalence and Factors Associated with Liver Fibrosis among Adults with Chronic Hepatitis B Infection at Mbarara Regional Referral Hospital

Ucama P¹¹Medicus, Mbarara, Uganda

Background: The prevalence of chronic hepatitis B is high in low- and middle-income countries, with rates exceeding 8% in Sub-Saharan Africa. Liver fibrosis is a crucial stage in the progression of hepatitis B-related liver disease, leading to severe complications like cirrhosis and hepatocellular carcinoma. Transient elastography, a non-invasive test for detecting liver scarring, has improved liver fibrosis assessment, providing a practical alternative to liver biopsy. However, there is limited local data on the prevalence and determinants of liver fibrosis among adults with chronic hepatitis B infection using transient elastography.

Objectives: This study aimed to determine the prevalence and factors associated with liver fibrosis among patients with chronic hepatitis B infection at Mbarara Regional Referral Hospital (MRRH).

Methods: We conducted a cross-sectional study from November 2023 to March 2024 at the MRRH hepatitis clinic. We consecutively consented and enrolled patients aged ≥ 18 years who had persistent positive HepBsAg test for more than 6 months. Data on socio-demographics, comorbidities, and laboratory parameters were collected and transient elastography was performed. Liver fibrosis was considered in patients who had liver stiffness measurements above 7 kPa. The prevalence of liver fibrosis was expressed as a percentage. We used logistic regression analysis to determine the factors associated with liver fibrosis.

Results: A total of 96 participants were consecutively enrolled. The median age was 33.5

(IQR 26-42.5) years, and 58 (69.4%) were males. The median liver stiffness measurement was 6 (IQR 4.8-8.0) kPa. The prevalence of liver fibrosis was 35.5% (95% C.I, 26.4-45.5). Having hepatitis B viral load $\geq 20,000$ IU/ml (aPR, 2.94; 95% C.I, 1.81-4.18; $p < 0.001$), elevated ALT ≥ 42 IU (aPR, 3.17; 95% C.I, 1.80-5.60; $p < 0.001$), current smokers (aPR, 2.40, 95% C.I, 1.28-4.50; $p < 0.006$), current use of herbal medicine (aPR, 3.19, 95% C.I, 1.54-6.58; $p < 0.002$), and duration of hepatitis B infection for 2 years or more (aPR, 2.61; 95% C.I, 1.44-4.75; $p < 0.002$) are the factors that were independently associated with liver fibrosis.

Conclusion: At MRRH, the prevalence of liver fibrosis among patients with CHB is 35.5% by transient elastography. Hepatitis B viral load $\geq 20,000$ IU/ml, elevated ALT ≥ 42 IU, current smoking, current use of herbal medicine, and duration of hepatitis B infection for 2 years or more was associated with liver fibrosis. We recommend screening and close follow-up for liver fibrosis among patients with chronic hepatitis B with a viral load $\geq 20,000$ IU/ml and a duration of disease of 2 years and above. We also recommend ceasing the use of herbal medication and smoking.



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Evaluation of Novel Biomarkers to Assess HBV Functional Cure in Patients with Chronic HBV on Treatment

Xaba L¹

¹University Of Kwazulu Natal, Durban, South Africa

Aim: To assess the utility of qHBsAg and HBcrAg as novel biomarkers for functional cure in chronic hepatitis B suppressed patients on and off treatment

Objectives:

1. Perform chemiluminescent immunoassay to determine the levels of quantitative HBsAg, to assess HBsAg production and release.
2. Perform chemiluminescent immunoassay to determine HBcrAg levels, to assess cccDNA transcription and HHC risk.
3. Perform polymerase chain reaction to measure the amount of circulating HBV RNA levels, to assess cccDNA transcription.
4. Correlation of the novel biomarkers to HBV DNA (viral load) to determine the utility of each biomarker in a realistic HBV functional cure. Allowing additional information on the state of the disease for HBV clinical management and improving our understanding of the nature of HBV to eradicate HBV.

Rational: In 2016 World Health Organisation (WHO) proposed the elimination of HBV infections globally. 1st step is a 90% reduction of all incidence by 2030. To reach this goal we need a functional cure.

Overview: This study aims to assess 3 novel HBV biomarkers' ability to reflect the intrahepatic activity of HBV, indicate chronic HBC stages and highlight meaningful treatment endpoints that are required to reach a functional cure.

To determine which combination of these novel biomarkers may be successfully used as non-invasive biomarkers for evaluating a functional cure

This will be done by evaluating each biomarker's ability to determine intrahepatic cccDNA and its

transcriptional activity and better indicate the risk of viral reactivation for suppressed patients that are off treatment, by comparing them to patient HBV viral loads. The Quantification of intrahepatic cccDNA will allow a better understanding of HBV replicative and transcriptional activity.

Functional cure: Sustained undetectable HBsAg (<LLD 0.05 IU/ml) and HBV DNA (< LLQ 10 IU/ml) after a finite course of therapy (24 weeks of therapy)

Partial cure: HBsAg < 100 IU/ml and HBV DNA < LLQ at 24 weeks of treatment.

To be able to achieve this qHBsAg, HBeAg/anti-HBe and qHBV-DNA should be assessed with every regimen at baseline, on-treatment, end of treatment and 24 weeks off treatment and long-term off-treatment.

HBV genotype should be known at baseline.

HBV RNA, qHBcrAg and ultrasensitive qHBsAg should be explored.

The barrier to Functional Cure: The main challenge with developing a functional, complete or sterilizing cure has been the persistence of covalently closed circular DNA (cccDNA) in the hepatocytes of infected patients. Other barriers include integrated HBV DNA reservoir and impaired innate and adaptive immune responses. The assessment of viral reservoirs in the liver currently relies on invasive liver biopsy, a procedure that is hardly performed outside of research purposes (clinical trials and studies). Due to the small amounts of tissue obtained, a liver biopsy does not always show a true representation of the infection status of the liver. Measurements of individual HBcrAg coupled with qHBsAg and HBV RNA as biomarkers might provide a better understanding of what takes place within a hepatocyte without the need for invasive procedures.

This includes HBV gene expression, replication, cccDNA levels and activity during infection



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Advancing Hepatitis Elimination: Research, Innovation, and Strategies to Achieve 2030 Targets

Minani M

The global problem of viral hepatitis is still a big public health issue, with over 354 million people affected by hepatitis B and C around the world. To solve this problem, the World Health Organization (WHO) set a goal to eliminate viral hepatitis as a public health threat by 2030. This study examines how much progress has been made towards this goal, focusing on important areas like prevention, diagnosis, treatment, and reducing deaths.

This research uses different methods to study data from international databases, national health programs, and reports from other regions. It combines numbers about vaccination, diagnosis, and treatment with insights from people involved in elimination programs. The study shows that progress is different across regions. Richer countries are doing well in prevention and treatment, while poorer countries face challenges due to a lack of resources, weak health systems, and insufficient funding.

The main findings show that while vaccination for hepatitis B in newborns is good worldwide, there are still big gaps in vaccinating adults, especially those at high risk. Access to hepatitis C treatment has improved with new medicines like direct-acting antivirals. However, many countries still face high costs and weak healthcare systems, making it hard to provide treatment to everyone who needs it. The research also points out the need to include hepatitis services in general healthcare to manage other illnesses and keep patients in care.

This study calls for stronger global efforts to eliminate hepatitis, especially by increasing testing and treatment, improving health systems in low-income areas, and using new strategies like local community testing. If these actions are taken, the 2030 goals can be reached, but quick and equal progress is needed everywhere.



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Prevalence of Hepatitis B Infection in Niger State, North-Central Nigeria: A Medical Outreach Study

Sani Aliyu H¹, Shamsiyya U¹, Abdullahi Abdullahi S¹, Abdulkareem Arah R¹, Musa A¹, Ahmadu Bello F¹

¹Aspire Alliance For Niger State Youths (aany), Minna, Nigeria

Background: Hepatitis B is a viral infection that affects the liver, caused by hepatitis B virus (HBV), with over 257 million people infected worldwide, and 1.8 million new infections annually.

Materials and Methods: This cross-sectional study investigates the prevalence of Hepatitis B Virus Surface Antigen (HBsAg) among individuals in Niger State, Nigeria, particularly in rural areas.

Results: Conducted during the 2024 Niger State free medical outreach, the study involved 1,684 participants, revealing an overall HBsAg prevalence rate of 7%. Of the positive cases, 54% were female and 46% male, with the majority (75%) being adults. Variability in prevalence was noted across different local government areas (LGAs), with Bosso LGA reporting the highest rate at 15%, while Wushishi LGA had the lowest at 1%.

Conclusions: The findings underscore a significant public health concern, as many participants were unaware of their HBV status, highlighting the urgent need for increased awareness and screening initiatives. Despite the availability of effective vaccines, HBV continues to pose a major health threat, especially in areas with low socioeconomic status and limited access to healthcare.

Recommendations: The study recommends the implementation of targeted public health strategies, including mass vaccination, regular screening for high-risk populations, and community education on transmission and prevention. Strengthening healthcare infrastructure and collaboration with governmental and non-governmental organizations is essential to enhance diagnosis, treatment, and management of HBV. By

addressing these factors, it is possible to curb the rising trend of HBV infections in Niger State and improve overall public health outcomes.



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Immunoprophylaxis Failure and Vaccine Response in Infants Born to Mothers with Chronic Hepatitis B Infection in Djibouti

Darar Dirir S¹

¹Cnss, djibouti, Djibouti

Background: In endemic areas, vertical transmission of hepatitis B virus (HBV) remains a major source of the global reservoir of infected people. Eliminating mother-to-child transmission (MTCT) of HBV is at the heart of World Health Organization's goal of reducing the incidence of HBV in children to less than 0.1% by 2030. Universal screening for hepatitis B during pregnancy and neonatal vaccination are the main preventive measures.

To evaluate the efficacy of HBV vaccination combined with one dose of immunoglobulin in children born to hepatitis B surface antigen (HBsAg)-positive mothers in Djibouti city

Methods: We conducted a study in a prospective cohort of HBsAg-positive pregnant women and their infants. The study ran from January 2021 to May 2022, and infants were followed up to 7 mo of age. HBV serological markers and viral load in pregnant women were measured using aVidas microparticle enzyme-linked immunosorbent assay (Biomérieux, Paris, France) and the automated Amplix platform (Biosynex, Strasbourg, France). All infants received hepatitis B immunoglobulin and were vaccinated against HBV at birth. These infants were closely monitored to assess their seroprotective response and for failure of immunoprophylaxis. Simple logistic regression was also used to identify risk factors associated with immunoprophylaxis failure and poor vaccine response. All statistical analyses were performed with version 4.0.1 of the R software.

Results: Of the 50 pregnant women recruited, the median age was 31 years, ranging from 18 years to 41 years. The MTCT rate in this cohort was 4% (2/50) in HBsAg-positive women and 67% (2/3) in hepatitis B e antigen-positive women with a viral

load > 200000 IU/mL. Of the 48 infants who did not fail immunoprophylaxis, 8 (16%) became poor responders (anti-HB < 100 mIU/mL) after HBV vaccination and hepatitis B immunoglobulin, while 40 (84%) infants achieved a good level of seroprotection (anti-HB > 100 mIU/mL). Factors associated with this failure of immunoprophylaxis were maternal HBV DNA levels (> 200000 IU/mL) and hepatitis B e antigen-positive status (odds ratio = 158, 95% confidence interval: 5.05-4958, P < 0.01). Birth weight < 2500 g was associated with a poor immune response to vaccination (odds ratio = 34, 95% confidence interval: 3.01-383.86, P < 0.01).

Conclusion: Despite a failure rate of immunoprophylaxis higher than the World Health Organization target, this study showed that the combination of immunoglobulin and HBV vaccine was effective in preventing MTCT of HBV. Therefore, further studies are needed to better understand the challenges associated with immunoprophylaxis failure in infants in Djibouti city.



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Real-World Clinical Experience of Chronic Hepatitis B Treatment in Ethiopia, Sub-Saharan Africa

Shewaye A¹

¹Addis Ababa University, Addis Ababa, Ethiopia

Background: About three hundred fifty to four hundred million people are infected chronically with hepatitis B worldwide and about 780,000 people die annually of its complications. Ethiopia is located in the region of hepatitis B hyper-endemicity ranging from, 8–12%. However, up to 17% of HBV, infected patients present for care late with liver cirrhosis in sub-Saharan Africa (SSA). Fortunately, antiviral therapy of CHB has shown to be effective in preventing complications and improving survival even at stage of early cirrhosis. Tenofovir disoproxil fumarate (TDF) is among the oral antiviral approved for the treatment of CHB. TDF treatment has shown to be effective in a wider pool of the CHB populations. Literatures indicate long-term TDF treatment was associated with sustained virologic, biochemical, and serologic responses.

Objectives: This study aimed to assess the outcome of TDF treatment of Chronic Hepatitis B patients at Adera Medical center in Addis Ababa, Ethiopia.

Material and Methods: A hospital-based retrospective cross-sectional study was employed. Hundred forty-four CHB patients on TDF treatment were enrolled from January 2021 to March 2022. Sociodemographic, clinical, and laboratory parameters were collected. The data was entered and analyzed using SPSS (SPSS, Version 23).

Results: The mean age of the participants is 35.52 ± 10.34 . Three fourth of the patients (76.4%) were males. Fifteen patients progressed to decompensation at the end of the study period. 93.1% of the participants were HBeAg negative, while 5.6% had attained loss of HBsAg on TDF. A significant association ($p < 0.01$) between APRI improvement, with the duration of treatment, and baseline viral load was found. Paired sample t-test

showed an improvement in the mean APRI score of 0.2 (CI: 0.07–0.367; $p < 0.01$).

Conclusions: TDF is safe and effective in reducing viral load and complications among our patients. Not only did it show benefits in improving liver parameters and suppression of viral load, but also it has attained a functional cure in some patients.



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Seroprevalence of Hepatitis A, E, and Human Immunodeficiency Virus in People Who Use Drugs in South Korea

Jang E¹, Choi G¹, Jang O^{2,3}, Chon Y⁴, Cho S⁵, Kwon D⁶, Jeong S¹

¹Seoul National University Bundang Hospital, Seongnam, South Korea, ²Bugok National Hospital, Changnyeong, South Korea, ³Inje University Haeundae Paik Hospital, Busan, South Korea, ⁴Incheon Chamsarang Hospital, Incheon, South Korea, ⁵National Forensic Hospital, Gongju, South Korea, ⁶Daedong Hospital, Daegu, South Korea

Background: In South Korea, comprehensive data on the prevalence of viral infections such as hepatitis A virus (HAV), hepatitis E virus (HEV), and human immunodeficiency virus (HIV) among people who use drugs (PWUD) are scant. This study aims to explore the seroprevalence of these infections, with a particular focus on the susceptibility to non-parenteral viral hepatitis among PWUD.

Methods: A prospective multicenter cohort study was conducted from August 2022 to October 2023 at four drug rehabilitation centers, which collectively serve over 90% of PWUD in South Korea.

Results: Of the 318 PWUD screened for HAV, HEV, and HIV antibodies, 195 (61.3%) were positive for HAV IgG, 24 (7.6%) for HEV IgG, and 12 (3.8%) for HIV antibodies. HAV IgG positivity was highest in the 10s age group at 77.8%, decreasing to 35.4% in the 20s, 34.8% in the 30s, and 50% in the 40s. HEV IgG seroprevalence increased with age, showing 0% in the 10s, 3.1% in the 20s, 6.5% in the 30s, 4.7% in the 40s, 10.3% in the 50s, and 19.2% in the 60s. HIV seropositivity was most notable in the 30s at 15.2%, 4.6% in the 20s, and 3.1% in the 40s, with no cases observed in the 10s or those over 50. Among the 12 HIV-positive individuals, with an average age of 33.5 ± 6.7 years, none had HBV or HCV co-infections. Notably, 33.3% lacked anti-HBs antibodies, 91.7% lacked anti-HEV IgG, and 58.3% lacked anti-HAV IgG.

Conclusion: No HBV or HCV co-infection was observed in HIV-positive PWUD in South Korea. However, a significant proportion remained susceptible to HAV or HEV infection, underlining the need for increased awareness and preventive measures against non-parenteral viral hepatitis among this population.



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Detection of HDV-RNA in Semen and Vaginal Secretions in Patients with Chronic Delta Virus

Lkhagva-ochir O¹, Enkhjargal S², Enkhbat A³, Dashdorj N⁴, Oidovsambuu O⁵, Vangan N⁶

¹Liver Center, Ulaanbaatar, Mongolia, ²National University of Mongolia, Ulaanbaatar, Mongolia, ³Liver Center, Ulaanbaatar, Mongolia, ⁴Liver Center, Ulaanbaatar, Mongolia, ⁵National University of Mongolia, Ulaanbaatar, Mongolia, ⁶Mongolian National University of Medical Sciences, Ulaanbaatar, Mongolia

Background: Mongolia has the highest prevalence of the hepatitis D virus (HDV), leading to high morbidity and mortality from liver diseases and HCC. HDV causes the most severe form of chronic viral hepatitis. In a recent study, it was estimated that anti-HDV prevalence is 67.5% among HBsAg positive population in Mongolia. The prevalence of HDV infection is relatively high among sexually active and young people, thus, the virus might be transmitted during sexual intercourse. Therefore, it is important to confirm the possibility of sexual transmission of HDV by detecting HDV-RNA in the semen and vaginal secretions of patients with chronic hepatitis Delta.

Materials and Methods: From October 2022 to January 2023, patients from Liver Center, Ulaanbaatar, Mongolia were asked to enroll in this study. The males and females were to refrain from sexual activity for at least 48 hours prior to the test. Females also were recommended not to use any intravaginal products for at least 48 hours prior to the collection of vaginal/cervical swab specimens. The seminal fluids were collected in a sterile container by masturbation. Vaginal/cervical specimens were collected by rubbing with a swab dedicated to a molecular biology test. Viral RNA was extracted, and the presence of HDV-RNA was detected subsequently by real-time RT-PCR analysis.

Results: A total of 60 patients, (male 30, female 30, aged 23-47 years old) participated in the study. The average age of all participants is 35 years and 83.3% of them are married. In the male group, 50% (15/30) of seminal fluid samples were positive; in the female group, 80% (24/30) of

vaginal/cervical swab samples were positive. This result indicates that HDV is more likely present in the genital secretion of female patients than in the seminal fluid of male patients. For the male group, a correlation between HDV RNA existence in seminal fluid and serum RNA level was weakly observed. In contrast, the female group has a correlation between HDV RNA existence in the genital tract and serum RNA level. HDV-RNA was not detected in the sample from only one woman, who had a low number of HDV RNA in her serum sample (197IU/ml).

Conclusion: HDV RNA can be detected in the seminal fluid of male patients and in the vaginal secretions of female patients. The probability of HDV-RNA detection in male and female genital swab samples can be predicted based on the HDV viral load in the serum.



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Factors Influencing Antiviral Medication Adherence Among Chronic Hepatitis B Patients in Addis Ababa: A Multicenter Cross-Sectional Study

Berhane K¹

¹Adera Medical And Surgical Center, Addis Ababa, Ethiopia

Background: Chronic Hepatitis B virus (HBV) infection is a major global health concern, contributing significantly to mortality and morbidity. Long-term antiviral therapy can control HBV DNA levels, normalize liver enzymes, reverse liver fibrosis and cirrhosis, and improve tissue health. Effective management of chronic HBV, especially through sustained viral suppression with minimal drug resistance, requires a thorough understanding of medication adherence and the factors that influence it.

Objective: This study aimed to evaluate adherence to antiviral medication and identify factors affecting adherence among patients undergoing treatment for chronic HBV at the three hospitals in Addis Ababa, Ethiopia.

Methods: A Multicenter cross-sectional study was conducted from January 1, 2024, and June 30, 2024. Medication adherence was measured using the Morisky 8-item adherence questionnaire. Data were analyzed with SPSS version 26. Statistical analyses included frequency distribution, descriptive statistics (mean and standard deviation), and ordinal logistic regression to determine factors linked to medication adherence levels. The proportional odds model (POM) assumptions were verified using chi-square and parallel line tests.

Results: Among 349 participants, only 36.9% showed high adherence to medication, while 33.6% had medium adherence, and 29.5% exhibited low adherence. Factors significantly linked to medium or low adherence included having a low education level (aPOR: 3; 95% CI: 1.27–7.13), being unmarried (aPOR: 2.52; 95% CI: 1.15–5.50), living in rural areas (aPOR: 2.4; 95% CI: 1.09–5.20), not receiving counseling on adherence

from their physician (aPOR: 3.2; 95% CI: 1.61–6.50), and abnormal liver function tests (aPOR: 2.31; 95% CI: 1.08–4.92).

Conclusion: This study highlights a low rate of high medication adherence, with lower education level, unmarried status, rural residence, lack of adherence counseling, and abnormal liver function tests being key factors associated with lower adherence. Targeted interventions, especially for rural residents, individuals with lower education, and those who are unmarried, are essential to enhance adherence. Routine healthcare visits should include discussions on adherence, with an emphasis on physician counseling to improve patient outcomes.



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Patient Perspectives on Barriers and Enablers to a Treatment for All Approach for Hepatitis B

Ahad M^{1,2}, Wallace J^{1,3}, Whitton B⁴, Glasgow S⁴, Moussa D¹, Thompson A⁴, Wade A¹, Doyle J^{1,2}, Howell J^{1,2,4}

¹Burnet Institute, Melbourne, Australia, ²Monash University, Melbourne, Australia, ³La Trobe University, Melbourne, Australia, ⁴St Vincent's Hospital Melbourne, Melbourne, Australia

Background: There exist major gaps in diagnosis, linkage to and maintenance in hepatitis B care in Australia. For elimination targets to be met, access to and engagement in clinical care needs to be improved. Recommendations for clinical management of hepatitis B in Australia include that all patients should receive regular liver function test, viral load monitoring, and assessment of liver fibrosis. Under the current Australian treatment guidelines, not all people with hepatitis B are eligible for antiviral treatment. Among proposed approaches to hepatitis B clinical management is the treatment for all approach (treat-all). This approach involves providing antiviral treatment for all people diagnosed with hepatitis B from the time of diagnosis. This qualitative study explored patient perceptions of hepatitis B treatment and opinions on a treatment for all approach.

Materials and Methods: Twenty-three semi-structured interviews were conducted with patients from a metropolitan gastroenterology clinic in Melbourne, Australia. Of the interviewed participants, 13 were female and 10 were male, and 21 patients were born in countries other than Australia (the most common country of birth being Vietnam) and 2 were born in Australia. Participants were aged between 33 and 69 years. Data from semi-structured interviews were thematically analysed.

Results: Thirteen of the participants were open to a treat-all approach, eight were not, and two were unsure. Five enablers and four barriers were identified from thematic analysis. Enablers included: 1) perceived seriousness of hepatitis B

and its complications, 2) belief in medications, 3) belief in benefits of early intervention, 4) receiving support through the treatment experience, and 5) trust in medical professionals. Barriers included: 1) mental health effects of needing medication, 2) perceived culture of overmedicalization, 3) belief that the medication is unnecessary, and 4) cost and logistics associated with prescription medication.

Conclusions: Perspectives both for and against a treatment for all approach were discussed by participants. A key enabler identified is support for patients through the treatment process. Given that cure for hepatitis B is a future possibility, exploring the acceptability of a treatment for all approach and patient considerations for treatment is crucial preparatory work to determine acceptability of treatment. Enablers and barriers presented in this study can be used to inform models of care for hepatitis B.



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Challenges to Hepatitis B Elimination in Mali: Healthcare Workers' Knowledge and Practice Towards Screening and Access to Hepatitis B Birth Dose Vaccine

Fofana D¹, Guindo I, KAMPO M, Cissoko Y, Morand-Joubert L, Hawkins C, Diakité M

¹University of Sciences Techniques and Technologies of Bamako, USTTB, Bamako, Mali

Background: In Mali, HBV is significant public health concern infecting chronically infecting >8% of the general population. The diagnosis, management and prevention of HBV remains suboptimal due to lack of sufficient guidance at the national level.

Method: We conducted a survey among healthcare workers (HCW) to evaluate the HBV knowledge, practice, and prevention among HCW at different levels of the health pyramid. HCW were also asked about vaccine availability and availability of standard protocols for the prevention and treatment of HBV within each facility, access to diagnostic tests and barriers to testing and care at the health system level. Surveys were administered by whatsapp, text, in person to HCW from 26 healthcare facilities and 63 pharmacies in six regions of Mali.

Results: Three hundred and five (305) HCWs were included in this study, 187 (61.3%) were male and 41% were between 31-40 years. Most participants were medical doctors 49.8%, 88 (28.85%) were mid-wives, 84.6% are high (university) education level. Sexual contact was reported by most [214/305 (70%)] as the most common route of HBV transmission, followed by mother-to-child transmission [192/305 (63%)]. 183/305 (60%) providers believed that taking Tenofovir during pregnancy when the HBV viral load is high prevented HBV transmission. About 130/305 (42.6%) reported liver cancer and cirrhosis as possible complications. After a positive HBsAg diagnosis 145/305 (47.5%) of HCW said they performed viral load; 92/305(30%) performed liver function tests. 219/305 (71.8%) reported regularly

screening for HBV in women during their prenatal consultations, 66/305 (21.6%) of doctors said they only tested for HBV in the general population if the patient presented with symptoms. This screening is more often prescribed by doctors (exclusively at the 2nd and 3rd levels of the health care pyramid) than by midwives and nurses in the maternity wards surveyed. Over 275/305 (90%) of HCW said that HBV viral load VL was an excellent tool for identifying people at high risk of transmitting the infection. About half (55%) of HCW referred patients to a specialist when the HBV VL was high. High costs and lack of access were reported as the biggest barrier to HBV VL testing. HBV vaccine birth dose (HBV vaccine-BD, Engenix B10 monovalent vaccine; HBVAXpro5 or equivalent), was unavailable in 45/63(71.5%) of hospital pharmacies the centers where our HCW worked. The adult monovalent HBV vaccine (Engenix B20 or equivalent) was available at only 19/63 (15%) of hospitals. HBV vaccines were available on demand at Private Pharmacies outside of health centers at 79% and 68.2% respectively. Most of practitioners stated that they prescribed HBV vaccine-BD to newborns of AgHbs+ mothers, so that they could purchase it themselves.

Conclusion: This survey show that despite HCWs' knowledge of HBV infection and its complications, inadequate screening of pregnant women and health workers themselves, as well as difficulty accessing the birth dose of the HBV vaccine in health facilities in Mali, are challenges to the prevention of mother-to-child transmission of HBV. These difficulties pose major challenges to the prevention of mother-to-child transmission and elimination of HBV in the country.



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The Dominant Prevalence of Genotype D among Different HBV Infected Patient Groups, A Study from a Referral Center in South of Iran

Taghiabadi M¹

¹Shiraz University of Medical Sciences, Shiraz, Iran, ²Department of Virology, Iran University of Medical Sciences, Tehran, Iran, ³Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Background: There are more than 7 well-described Hepatitis B Virus (HBV) genotypes worldwide. This genetic diversity has been associated with differences in clinical outcomes. In Iran, genotype D was determined as the most common type of HBV. Compared to others, the Genotype D virus harbors a natural omission in Pre-s1, from aa 2 to 13.

Objectives: The aim of this study was to determine HBV genotype through the survey in Pre-s1 region and phylogenetic analysis coincidentally.

Material methods and Patients: A total of 60 sera samples were collected from patients infected with HBV. They included 30 asymptomatic carriers (22 male and 8 female, mid age: 51), 20 HCC and 10 Cirrhotic patients (26 male and 4 female, mid age: 53). The viral DNA was extracted using DNA extraction kit, and then HBV Pre-s1 gene region was amplified by Nested-Polymerase Chain Reaction (Nested-PCR). The sequences of samples were qualified by Alignment tool (BLAST), and then they were compared with other genotypes' sequences from Genbank by Multiple Sequencing Alignment.

Results: The sequencing results showed that all of 60 samples were containing genotype D related deletions in Pre-s1 region, from aa2 to 13, which was indicative for the presence of this genotype in all of them. Blast analysis and phylogenetic survey was also supportive of this finding.

Conclusions: In our region, HBV genotype D is dominant among different patient groups in Shiraz-Iran.



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The Survey of Pre-S1 Sequence Mutations among Different HBV Infected Groups, Possible Association with Disease Consequence

Taghiabadi M¹

¹Shiraz University of Medical Sciences, Shiraz, Iran, ²Department of Virology, Iran University of Medical Sciences, Tehran, Iran, ³Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Background: Mutations in the Pre-S1 gene of the Hepatitis B Virus (HBV) are among the most important viral factors associated with HBV infection outcomes. On behalf of researchers, some deletion/substitution mutations at the Pre-S1 region might be responsible for disease progression toward Cirrhosis (LC) and hepatocellular carcinoma (HCC).

Objectives: The aim of this study was to compare the mutations of the Pre-s1 region of HBV genotype D in HCC, Liver cirrhosis, and asymptomatic carriers.

Material Methods and Patients: A total of 60 sera samples were collected from patients infected with HBV. They included 30 asymptomatic carriers (ASCs) individuals samples (22 male and 8 female, mid-age: 51) and 30 HCC and Cirrhosis (20 HCC and 10 LC), (26 male and 4 female, mid-age: 53). The viral DNA was extracted using DNA extraction kit, and then HBV Pre-s1 gene region was amplified by Nested-Polymerase Chain Reaction (Nested-PCR). Finally, DNA sequences of samples were evaluated first by online Alignment tools (BLAST) then groups were compared together by Several Multiple Sequencing Alignment software.

Results: Out of 60 subjects, 33 samples had 14 deletions and 21 point mutations in the Pre-s1 region. In 18 ASCs samples, 11 critical substitution mutations, 14 deletions, and in 15 HCC/LC, 10 substitution mutations but not any deletions, were confirmed by comparing with other reference sequences. There were fewer critical mutations detected in Pre-s1 and interestingly no deletion mutations among LC/HCC groups.

Conclusions: Despite our imagination, a higher rate of mutations among asymptomatic carriers was delineated here which indicated that in genotype D, Pre-s1 deletions are dispensable factors for the progression of disease toward cirrhosis and HCC.



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Late Diagnosis of Chronic Viral Hepatitis and Advanced Liver Disease: A Systematic Review of the Evidence

Ibegu M¹

¹Menzies Institute for Medical Research, University of Tasmania, Hobart, Australia, ²Bayelsa State Hospitals Management Board, Yenagoa, Nigeria

Background: Late diagnosis of chronic hepatitis B and C is defined as occurring within two years of a diagnosis of hepatocellular carcinoma or decompensated cirrhosis. Timely diagnosis can greatly reduce the risk of these advanced liver diseases, through provision of treatment and care for hepatitis B and C. Despite recommendations from professional bodies internationally, late diagnosis of viral hepatitis continues to be a prevalent risk factor for liver-related mortality. The aim of this study was to synthesize published evidence regarding barriers and facilitators associated with late diagnosis of viral hepatitis.

Methods: We conducted a search of four biomedical databases from inception to June 2024. We included articles that explored factors associated with the late diagnosis of chronic viral hepatitis. Due to significant heterogeneity in key aspects across the studies, we conducted a narrative synthesis to summarise the identified barriers and facilitators.

Results: Twenty-two studies were eligible. Twelve studies focused specifically on hepatitis C, 5 on hepatitis B and 5 on both hepatitis B and C. Most studies were carried out in the USA. We did not find studies from the areas known to have the highest prevalence of hepatitis C. The proportion of late diagnosis ranged from 11% to 70% for studies on hepatitis C and 15% to 51% for studies on hepatitis B. Key barriers to hepatitis screening were older age, being male, history of alcohol misuse, hepatitis C/Diabetes mellitus comorbidity, and fewer physician visits. Conversely, facilitators included being female, history of injecting drug use, higher number of physician visits and hepatitis C/HIV co-infection.

Conclusions: Key barriers to early detection of viral hepatitis can be addressed through targeted strategies. For example, primary care-based screening for males and older individuals (irrespective of current risk factors), diabetic patients and those with a background of alcohol misuse are required. More studies are needed, particularly in regions with high viral hepatitis prevalence.

Implications: Undiagnosed individuals should be a priority, with efforts focused on identifying and linking them to treatment and care programs.



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Molecular Diversity of Hepatitis B Virus among Pregnant Women in Amhara National Regional State, Ethiopia

Dagnew M^{1,2}, Moges F¹, Tiruneh M¹, Million Y¹, Gelaw A¹, Adefris M¹, Belyhun Y^{1,2}, Liebert U², Maier M²

¹University Of Gondar, Gondar, Ethiopia, ²Leipzig University, Leipzig, Germany

Background: Despite the availability of effective vaccines and treatments for hepatitis B virus (HBV), it continues to be a major public health problem in sub-Saharan Africa including Ethiopia. Routine screening for HBV in pregnant women is widely recommended, but there is a lack of screening for HBV during pregnancy in Ethiopia. Therefore, this study aimed to assess viral load, and genetic diversity among pregnant women in the Amhara National Regional State, Ethiopia.

Materials and methods: Hepatitis B surface antigen (HBsAg) testing was performed on 1846 pregnant women, 85 of who tested positive were included in this study. HBV DNA was isolated from 85 positive sera, and the partial surface/polymerase gene was amplified and sequenced. HBV genotypes, sub-genotypes, serotypes and mutations in surface genes and polymerase were studied.

Results: Out of 85 pregnant women's HBsAg positive sera, 59(69.4%) had detectable viral DNA. The median viral load was 3.4 log IU/ml ranging from 2.6 to 7.6 and 46 samples were successfully sequenced and genotyped. Genotypes A and D were identified in 39 (84.8%) and 7 (15.2%); respectively. All genotype A isolates were further classified into sub-genotype A1 and serotype adw2 (84.8%) whereas genotype D isolates were further classified into three sub genotypes; 2 (4.3%) D2, 1(2.2%) D4, and 4 (8.7%) D10 with serotypes ayw2 (10.9%), and ayw3 (4.3%). There were 19 (41.3%) surface gene mutations in the major hydrophilic region (MHR). Six (13.1%) of them were discovered in MHR's 'a'-determinant region. Six polymerase gene mutations (13%) were identified.

Conclusion: Genotype A was the predominant genotype in the Amhara National Regional State. The surface and polymerase gene mutations identified in this study may lead to immune therapy failure, diagnostics escape and drug resistance. Thus, the data generated in this study will contribute to the planning of HBV diagnosis, vaccination and treatment, and most importantly to the prevention of vertical transmission of HBV in Ethiopia. Therefore, further molecular studies on HBV are warranted and continuous surveillance is important for patient management and for the prevention and control of HBV infection.



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Brazilian Contribution to the Elimination of Hepatitis B and C: Analysis of the National Laboratory Viral Load Quantification Network for Hepatitis in Brazil

Morais A¹, Conte F¹, Mello V¹, Bigolin A¹, Gonzalez M¹, Barreira D¹

¹Department of HIV/aids, Tuberculosis, Viral Hepatitis and Sexually Transmitted Infections, Ministry Of Health Of Brazil, Brasilia,, Brazil

Background: The Brazilian Ministry of Health (MoH) is committed to eliminating hepatitis B (HBV) and C (HCV) as public health threats by 2030. The national targets align with global elimination goals: diagnosing 90% of infected individuals, treating 80% of those diagnosed, reducing new infections by 90%, and cutting hepatitis-related mortality by 65%. Recognizing diagnosis and disease monitoring as essential drivers for access to care—and, consequently, elimination—the MoH guarantees free nationwide access to HBV and HCV testing. This includes viral load (VL) quantification for both viruses through a network of 67 high-throughput laboratories across the country. This study aimed to assess the productivity of VL laboratories in Brazil to evaluate their contribution to achieving the HBV and HCV elimination targets.

Material and Methods: The epidemiological report containing laboratory test results released in January to December 2024 was analyzed. The data were obtained from the National Laboratory Network Database under the MoH. The data were processed using excel.

Results: In 2024, a total of 93,430 HBV VL tests and 64,566 HCV VL tests were conducted nationwide. The average Turn Around Time (TAT) from sample reception at the laboratory to result release for HBV VL was 6.6±3.8 days, while for HCV VL it was 6.8±3.5 days. A total of 96 nationalities were identified among individuals who accessed testing. Among them, the most representative were Brazil, the Republic of Haiti, Venezuela, Angola, Paraguay, and Senegal. The distribution by sex remained

relatively stable. On average, 55% of the individuals identified as male, while 45% identified as female. A negligible percentage of cases (approximately 0.01%) had the sex not reported or ignored. The majority of individuals undergoing HBV VL and HCV VL self-identified as White (51% and 52%, respectively), followed by those who identified as Brown/Pardo (30% for HBV and 29% for HCV). Individuals identifying as Black represented 7% (HBV) and 9% (HCV) of the tested population. The proportion of Yellow (East Asian descent) individuals was 12% for HBV and 10% for HCV, while Indigenous individuals accounted for 1% and 0.1%, respectively. A very small percentage of records had missing race/color information (0.01% for HBV and 0.003% for HCV).

Conclusions: This analysis of HBV and HCV VL testing in Brazil provides a comprehensive overview of testing coverage, efficiency, and population representativeness. A high volume of tests has been consistently conducted to ensure the diagnosis and monitoring of these infections. The average TAT remained stable and within acceptable limits, highlighting the efficiency and operational consistency of the national laboratory network, essential for timely clinical decision-making. Notably, individuals from different nationalities were identified among the tested population reflecting the inclusive nature of the public health response and the diverse population accessing the free health services in Brazil. In summary, the findings reinforce the robust structure of Brazil's National Network for free VL Testing and underscore the importance of ongoing efforts to expand coverage, and optimize diagnostics. These actions are crucial for achieving the national and global goals for hepatitis B and C elimination.



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Integrating Viral Hepatitis Prevention in Europe's Beating Cancer Plan: A Pathway Towards Elimination

Jindal S¹, Hendrickx G¹, Valckx S¹, Van Damme P¹, Bivol S²

¹Viral Hepatitis Prevention Board (VHPB), Centre for the Evaluation of Vaccination, Vaccine and Infectious Disease Institute, University of Antwerp, Antwerp, Belgium, ²WHO Regional Office for Europe, Copenhagen, Denmark

Background: Chronic hepatitis B and C infections are among the leading causes of hepatocellular carcinoma (HCC), yet viral hepatitis (VH) prevention remains underrepresented in cancer control strategies. As Europe progresses toward VH elimination by 2030 as defined by WHO elimination goals, integrating VH prevention strategies into the EU's Beating Cancer Plan presents a vital opportunity. To address this, Viral Hepatitis Prevention Board (VHPB) convened a technical meeting in March 2025 to identify gaps and define strategies for advancing this integration.

Materials and Methods: The meeting gathered experts across public health, policy, hepatology, cancer epidemiology, modelling, health economy, vaccinology and data registries to explore the integration of VH and cancer prevention. Sessions explored the contribution of HBV/HCV to liver cancer, the impact of vaccination and treatment, the role of screening and surveillance, the inclusion of key populations, and policy tools to strengthen hepatitis elimination efforts. A panel focused on the integration of VH and cancer registries, while an open floor discussion identified barriers and solutions to linking VH and cancer prevention.

Results: The meeting confirmed that VH prevention significantly reduces the liver cancer burden through vaccination, harm reduction, and antiviral treatment. However, fragmented health systems, poor data integration, and limited prioritization of liver cancer obstruct full alignment with cancer control efforts. The panel on registries revealed that although VH and cancer data are collected separately, there is little interoperability.

The panellists emphasized the need for common variables, the use of routine healthcare data, and artificial intelligence to facilitate data linkage. Linking registries was found essential for epidemiological insight and evaluating policy impact. In the open floor discussion, the most cited barrier to integration was weak political will and policy commitment, followed by low awareness of the link between VH and cancer, insufficient data and linkage strategies, and limited advocacy. Participants also highlighted underfunding, stigma, and poor multi-sectoral coordination as potential vulnerabilities. Furthermore, national governments and policymakers were identified as holding the most responsibility for advancing hepatitis-related cancer prevention in Europe. When asked about effective strategies for ensuring VH remains a core focus in future EU health strategies, participants overwhelmingly agreed on the importance of demonstrating cost-effectiveness of prevention and treatment.

Conclusions: The meeting highlighted that while tools for VH elimination are available, success hinges on ensuring cost-effectiveness, improving data collection, and linking VH and cancer registries. To move forward, it is crucial to build momentum around advocacy and creating awareness of the link between VH and liver cancer, demonstrate health and economic benefits, and ensure equitable access to prevention and treatment for all populations. By leveraging these insights, European health strategies can create a coordinated response that brings us closer to eliminating hepatitis as a cause of cancer. Collaborative forums like this VHPB meeting are essential to define shared priorities, share evidence, foster innovation, and chart a unified path toward hepatitis elimination as cancer prevention. While the meeting focused on the European context, the strategies identified have broader relevance for global efforts to eliminate viral hepatitis as a public health threat.



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Practice of Healthcare Workers after Access to Viral Load in the Follow-up of Pregnant Women Tested Positive for HBsAg in Mali

Diallo M¹, Coulibaly T¹, Sissoko H², Sissoko M³, Guisse D², Traore A⁴, Freeland C⁵, Diarra B¹, Diakite M¹, Doumbia S¹, FOFANA D^{6,7}, Martinaud C⁸

¹University Clinical Research Center (UCRC), University of Sciences, Techniques and Technologies of Bamako (USTT-B), Bamako, Mali, ²Centre de Sante de Référence de la Commune III de Bamako, Bamako, Mali, ³Centre de santé communautaire de Djibouria, Kenieba, Mali, ⁴Centre de santé communautaire (ASACO-BAKON), Bamako, Mali, ⁵Hepatitis B Foundation, , , ⁶Institute for Global Health, Northwestern University, Chicago, IL 60208, USA, , , ⁷Sorbonne University, INSERM Pierre Louis Institute of Epidemiology and Public Health (iPLESP), for Department of Virology, Paris Public Hospital Assistance (AP-HP), Saint-Antoine Hospital, F-75012 Paris, France, , , ⁸Cepheid, ,

Background: The World Health Organization recommends screening for hepatitis B virus (HBV) in all pregnant women. For women positive for hepatitis B virus (HBsAg) WHO recommends antiviral prophylaxis during the second trimester (for women with high viral load or HBe-antigen positive) and vaccinating newborns at birth (birth dose) to prevent mother-to-child transmission (MTCT) in countries where HBV is endemic. Health care provider knowledge and understanding of HBV may be a determining factor in service delivery and medical management of these women. To understanding current knowledge, attitude and policy of health care providers seeing positive pregnant women, we interviewed healthcare workers (HCW) after receiving the viral load results of pregnant women screened for HBsAg+ in their health centers.

Materials and Methods: Pregnant women were screened during antenatal consultations at community health centers (CSCOMs) and reference health centers (CSREFs), respectively at the first and second levels of Mali's health pyramid, between July and September 2024. Pregnant women with HBsAg+ had their HBV viral load assessed by GeneXpert after diagnosis. Semi-structured interviews were conducted with HCW using the Kobo Collect application to collect the attitudes, practices and policy of the HCW involved

with these women, with a structured interview guide.

Results: None of the 4 centers performed Viral load (VL) tests locally, even those that had GeneXpert equipment for diagnosing tuberculosis. However, practitioners reported prescribing VL tests for women who had to undergo referral to a reference center in the health district equipped with the equipment or in local private laboratories. In this study, blood samples from women with HBsAg+ were sent to a university laboratory for CV testing. The viral load results were sent to the prescribers. Once the results had been received, the prescribers completed a questionnaire using Kobo Collect. Regardless of the viral load results, practitioners in the CSREFs said that they systematically referred pregnant women to a local specialist. In the CSCOMs, on the other hand, pregnant women were placed under surveillance without any antiviral treatment, regardless of their viral load. Despite a very high CV (288,000,000 IU/ml) in one of the pregnant women in one of the CSCOMs, she was kept under surveillance without receiving treatment. The main challenges to the use of CV by the sites were accessibility and availability of the test locally, interpretation of the results in relation to the recommendations, the cost of this analysis for the women, and the absence of biological follow-up after treatment decisions.

Conclusions: The results of this survey show that healthcare professionals have insufficient knowledge of WHO recommendations to implement effective HBV prevention strategies despite having access to CV. Our results suggest that there is an urgent need to strengthen the knowledge of healthcare professionals in the prevention of mother-to-child transmission of HBV, particularly in 1st and 2nd level community health centres, where more women are seen for antenatal consultations.



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Strategies to Achieve Hepatitis Elimination: Addressing Financial Barriers and Budget Allocation for Sustainable Testing in Nigeria

Ejembi J¹, Ejembi J¹, Ejeckam C¹, Adesina A¹, Jinga F², Bosah E²

¹West African Centre For Public Health And Development, An Affiliate of Institute for Global Public Health, UOM, Abuja, Nigeria, ²National AIDS and STDs Control Programme, Abuja, Nigeria

Background: Eliminating viral hepatitis as a public health threat by 2030 requires sustainable financing models and strategic budget allocation, especially in low-resource settings. In Nigeria, financial constraints pose a substantial barrier to scaling hepatitis B (HBV) and hepatitis C (HCV) testing services. This study evaluates financial barriers and budgetary provisions for hepatitis testing across health facilities in Akwa Ibom and Nasarawa states, Nigeria, and offers strategic insights for mobilizing resources to achieve sustainable testing.

Methods: A comprehensive analysis of 129 facilities (66 in Akwa Ibom and 63 in Nasarawa) was conducted to assess budget availability, funding sources, and cost burdens on patients for HBV and HCV testing. Data on budget allocation, service integration, and funding models were gathered, with a focus on financial support for laboratory capacity, supply chains, and workforce needs. Facilities were assessed for out-of-pocket costs, insurance coverage, and integration of testing budgets with other health programs.

Results: Only 21% of facilities reported dedicated budgets for hepatitis testing, with Nasarawa showing higher allocation (40%) compared to Akwa Ibom (3%). Facilities largely relied on patient out-of-pocket payments, with 86% in Akwa Ibom and 98% in Nasarawa using this funding method, significantly limiting access to low-income populations. Government health insurance schemes covered only 28% of testing costs overall, with a major gap in Akwa Ibom (6%) compared to Nasarawa (51%). Limited budget allocations further impacted the adequacy of hepatitis testing

supplies, with only 26% of facilities able to meet supply-side costs. Budgetary constraints also affected the integration of hepatitis testing into existing programs, with only 64% of facilities offering co-screening for HBV and HCV alongside services for HIV, TB, or COVID-19.

Conclusion: Addressing financial barriers is critical to realizing Nigeria's hepatitis elimination goals. Expanding government and private sector investment, integrating hepatitis testing with high-impact health services, and implementing subsidized or low-cost testing initiatives could alleviate financial burdens on patients and broaden service access. Findings highlight the need for a robust, multi-source funding strategy that can support continuous supply availability and testing workforce expansion. Scaling financial support for hepatitis elimination programs aligns with global strategies, underscoring how targeted resource allocation and financial policy adjustments can enhance service coverage in resource-limited settings.



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Outcome of Hepatitis B Screening and Vaccination Status of Participants at a Screening Program in a Nigerian Tertiary Hospital during World Hepatitis Day 2022: A Cross-Sectional Study

Okonkwo K¹, Obasi E², Adejumo O³

¹Federal Medical Centre, Owo, Owo, Nigeria, ²Alex Ekwueme Federal University Teaching Hospital, Ebonyi State, Abakaliki, Nigeria, ³University of Medical Sciences, Ondo State, Ondo, Nigeria

Background: Hepatitis B virus (HBV) infection is a global health problem with associated high morbidity and mortality. Alarming, only about 2% of those with hepatitis B are currently diagnosed. In fact, it is considered as a tropical neglected disease. The role of health advocacy is critical as it leads to increased diagnosis and treatment of people living with hepatitis B. This is cardinal to the achievement of the WHO's global hepatitis strategy, which aims to reduce new hepatitis infections by 90% and deaths by 65% between 2016 and 2030.

Aim: As part of World Hepatitis Day 2020 activities, we undertook a survey and screening of 145 persons (64 health care workers along with 81 non health care persons) in order to create awareness of hepatitis B infection, identify the participants' HBsAg status, vaccination status and to provide linkage to care as appropriate.

Methods: This was a cross-sectional study done at the University of Medical Sciences Teaching Hospital, Akure Annex, Ondo State, Nigeria. The study participants voluntarily presented themselves to be screened using a rapid test kit and completed a semi-structured investigator-administered questionnaire. They were also counselled on the various routes of hepatitis B infection, opportunities for care and vaccination as required.

Results: A total of 145 participants were studied. The mean age of the participants was 36.5 ± 11.0

years. There were 121 (83.4%) females and 24 (16.6%) males. The seroprevalence of HBV infection was 2.8%. Most (80%) of the study participants had previously heard about HBV infection. Sixty three (43.3%) of the study participants had prior testing for hepatitis B infection. One-hundred and twenty-three (84.4%) of the study participants had never received a vaccine.

Conclusion: Most of the study participants were aware of hepatitis B infection, though prior hepatitis B testing was sub-optimal. There was also a low vaccination rate among study participants. It is important to strengthen health advocacy in the general population to improve hepatitis B testing as well as vaccination to mitigate the burden of hepatitis B infection.



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Its Time for Action - Telling our Story: Lessons from the 2024 Commemoration of the World Hepatitis Day in Nigeria

Eieckam C¹, Green K¹, Bashorun A², Adebayo A²

¹West Africa Centre for Public Health and Development, Abuja, Nigeria, ²National AIDs, Viral Hepatitis and STI Control Programme, Abuja, Nigeria

Background: In May 2016, the World Health Assembly adopted the first global health sector strategy on viral hepatitis (2016 – 2021) with the aim of reducing new viral hepatitis infection by 90% and deaths by 65% by treating 80% of eligible persons with chronic hepatitis B or C infection by 2030. The resolution WHA 126.R16 included the commemoration of World Hepatitis Day (WHD) on the 28th of July each year. In keeping with this commitment, the government of Nigeria, through the Federal Ministry of Health and partners commemorated the 2024 WHD on Sunday 28th July 2024, beginning with a 3 days activity lined up for stakeholders. The theme of the 2024 WHD is: Time to Take Action.

Materials and Methods: The 2024 WHD fell on a Sunday. In the build up, the commemoration had a series of activities lined up from Wednesday 24th to Friday 26th July - ministerial press briefing, walk, free screening outreach. The ministerial press briefing held on Day 1, and was anchored by the National Coordinator of the National AIDs, viral hepatitis and STI control programme and the Director, Public Health in the Federal Ministry of Health. The highlight of the press briefing was on the efforts and progress towards achieving elimination targets across identified pillars. The briefing also created awareness on understanding viral hepatitis disease with questions and feedbacks received from participants. The second day (Day 2) was marked with "a walk" from the Ministry of Health to the Eagle Square, a strategic location in the city of Abuja. The walk was marked with the distribution of information, communication and education material (IECs). A free viral hepatitis screening held on Day 3.

Results: Through sensitization walk and the press briefing, awareness was raised on the impact of

viral hepatitis disease, with over 1500 copies of IEC materials distributed. Many participants heard for the first time that the national prevalence for HBV and HCV were 8.1% and 1.1% respectively, with more people becoming sensitized on the means of transmission of viral hepatitis B and C, and what prevention solutions are available. The screening outreach on the Day 3 July was registered a total of 338 persons for free viral hepatitis screening and counselling services. 4 persons out of 280 tested +ve for HBV (1.4%) while 1 out of 280 tested +ve for HCV (0.4%). The first 50 persons who tested negative for HBV received free first-dose vaccination, while the remaining 226 negatives for HBV were referred to health care facilities for vaccination. None of those tested were found to be HBV/HCV co-infected.

Conclusions: Viral hepatitis B and C are major public health concerns in Nigeria. The 2024 World Hepatitis Day celebration has brought increased knowledge on the epidemic in Nigeria. It is hoped that the lessons learnt will mobilize communities and stakeholders to "Take Actions" that will contribute to achieving Nigeria's national elimination goals by 2030.



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Fighting a Twin Enemy: A Descriptive Evaluation of HIV and Syphilis Testing among Pregnant Women in Liberia

Nyanplu T¹, Cephas M¹, Flomo J¹, Forleh A¹, Shekus¹

¹National Aids & Sti Control Program/ Ministry Of Health
Liberia, Monrovia, Liberia

Background: HIV and syphilis are a twin tragedy for exposed babies around the globe, with one million new syphilis and 1.5 million new HIV infections occurring in pregnant women every year. The prevalence of both infections among pregnant women accessing antenatal clinics (ANC) in Liberia is 1.6 and 1.3% respectively WHO recommends simultaneous dual testing for both infections to maximize access and efficiency. The National AIDS Control Program partnered with stakeholders to introduce dual testing in 2021 across selected antenatal clinics. We share our national experience and provide a descriptive evaluation of the women tested for both infections.

Description: stakeholder engagements, advocacy, and sensitization with staff of ANC clinics, between April 2021 and March 2022 led to the design of a road map adapted to country context. Guidelines and job aids were developed to support the training of providers. 124 master trainers were trained across the 15 counties to cascade training to staff of 563 health facilities. Data collection and monitoring tools were updated to collect data and to track dual testing. We evaluated the program for the period of January to December 2022.

Lessons learned: Of the 187,667 pregnant women tested for HIV, 1,878(1.0%) were HIV positive and were linked to ART. 111,799 (60%) were screened for syphilis with 1,652 (1.5%) testing positive and started on Benzathine penicillin. The other women (40%) were tested for HIV alone from peripheral clinics without stock of HIV/Syphilis dual test. The proportion of women tested positive for HIV (1.8%) and syphilis (2.3%) was highest for women 10-14 years than women 15years and above (0.9 and 1.5% respectively)

Table: Pregnant women tested for Syphilis and HIV - January - December 2022 (Source: Country DHIS2)

Age (Years)	Tested for Syphilis	Tested for HIV	Tested
Positive for Syphilis	Positive for HIV		
10 - 14	914	21 (2.3%)	1286
		(1.8%)	23
15 – 25+	110,885	1,631 (1.5%)	186, 3811,855
		(0.9%)	
Total	111799	1652 (1.5%)	187667 1878
		(1.0%)	

Conclusions/Next steps: Dual HIV and syphilis testing is feasible in Liberia. Supply chain support should be enhanced to assure commodity supply to include peripheral clinics. The comparatively higher prevalence of syphilis and HIV among pregnant women younger than 15 needs to be investigated.



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Low Testing and Vaccination Rates: A Cross-Sectional Analysis of Hepatitis B and HIV Intersections in Key Populations in Indonesia

Alethapeny P¹, Pramaiswari M¹, Anggarheni P¹, Wardhani B², Januraga P²

¹Faculty of Medicine, Universitas Pendidikan Ganesha, Singaraja, Indonesia, ²Center for Public Health Innovation, Universitas Udayana, Denpasar, Indonesia

Background: Hepatitis B virus remains a major global health concern due to complications such as liver cirrhosis and hepatocellular carcinoma. In Indonesia, hepatitis B virus is one of the leading causes of death, yet only a small portion of the estimated 6.7 million people living with hepatitis B virus have been diagnosed through screening tests. This underdiagnosis is particularly pronounced among key populations. These groups face multiple barriers to healthcare access, including stigma and discrimination, resulting in low levels of hepatitis B virus testing and vaccination coverage. This study aimed to analyze hepatitis B testing and vaccination coverage among men who have sex with other men, individuals who identify as bisexual, and transgender women based on an online survey conducted in Bali, Indonesia.

Material and methods: An online cross-sectional survey was conducted using a convenience sampling method between February and April 2024 in Bali, Indonesia. Individuals eligible for participation were those aged 18 years and older, assigned male at birth, and self-identifying as men who have sex with other men, those who identify as bisexual, or transgender women. Data collection was facilitated by outreach workers affiliated with three community-based clinics who distributed an online questionnaire using the Clappia platform. The survey gathered data on demographics and behaviors related to HIV and sexually transmitted infections. A total of 500 participants completed the survey. For this presentation, the relevant data on hepatitis-related behaviors were analyzed. Data analysis utilized descriptive statistics, chi-square tests, and multivariate logistic regression to

evaluate the association with hepatitis B virus testing.

Results: Among the 500 participants, 79.0% (395/500) identified as men who have sex with other men, 12.4% (62/500) as individuals who identify as bisexual, and 8.6% (43/500) as transgender women. Only 21.0% (105/500) of all respondents reported being tested for the hepatitis B virus within the previous 12 months. Among those tested, 3.8% (4/105) were reported to have positive results for the hepatitis B testing. A significant association was observed between hepatitis B virus testing and HIV status ($p=0.010$), where individuals living with HIV were more likely to have undergone hepatitis B virus testing. There were 42.2% (43/102) of those tested for hepatitis B reporting HIV-positive status compared to 28.7% (108/376) among those never tested. Previous hepatitis B virus vaccination was also strongly associated with testing uptake ($p<0.001$), with vaccination rates of 20.0% (21/105) among those tested versus 7.6% (30/395) among those never tested.

Conclusions: The findings highlight a substantial gap in hepatitis B virus testing among key populations in Indonesia, including men who have sex with other men, individuals who identify as bisexual, and transgender women. Integrating hepatitis B screening into existing HIV-related services offers an effective and efficient strategy for expanding coverage and facilitating early diagnosis. To achieve meaningful improvement, interventions must address structural barriers, such as stigma, low awareness, and fragmented service delivery. Holistic, community-informed approaches that provide equitable, respectful, and person-centered care are essential for improving health outcomes for populations disproportionately affected by hepatitis B virus and HIV co-infection.



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HCV: Test and See

Kelly M^{1,2}, Coelli L^{2,3}, Peereboom R², McKenna F²

¹The Albion Centre, South Eastern Sydney Local Health District, Sydney, Australia, ²Queanbeyan Sexual Health and Hepatitis C Service, Southern NSW Local Health District, Queanbeyan, Australia, ³Public Health Unit, Murrumbidgee Local Health Unit, Albury, Australia

Background/Approach: While world class progress has been made towards eliminating HCV in mainstream settings in Australia, targeted models of care are now needed, focusing on high-prevalence community settings like Alcohol and Other Drug (AOD) services. NSW Publicly Funded Sexual Health services (PFSHS) work closely with these settings.

Queanbeyan PFSHS is a rural, nurse-led service with remote medical oversight. It is located about 3.5 hours drive south west of Sydney. We provide clinical outreach services to Goulburn, an area of significant socioeconomic disadvantage. In 2023, we engaged the Goulburn Community AOD service to increase testing and treatment of HCV for AOD participants and provided fortnightly outreach. We utilised Dried Blood Spot (DBS) testing to diagnose HCV and Fibroscan® to assess fibrosis. We performed venepuncture, facilitated ultrasound, provided intensive case management, and used incentives to ensure clients were supported throughout their hepatitis journey.

Analysis/Argument: Nurse-led HCV outreach clinics are a cost-effective way of decentralizing care and increasing access to treatment in rural settings. Nurse-led models of care require excellent working relationships with a medical team to ensure timely clinical review and to access prescriptions. This outreach clinic was facilitated via virtual care and remote referral pathways.

Outcome/Results: The Goulburn AOD service has 77 active clients. Prior to the outreach clinics, none had been tested for HCV. 20 clients have now been tested for HCV (15%); 13/20 (65%) were HCV positive. 15% identified as Aboriginal Australian. All clients with HCV were marginalised, socially complex, and disengaged from mainstream healthcare. Challenges included poor venous access, inability to pay for prescriptions and homelessness.

This project also highlighted that without a local publicly funded liver clinic, access to a remote medical specialist was vital in providing clinical management for complex cases.

Conclusions/Applications: 11 of the 13 (85%) clients with HCV have commenced/completed treatment.

Goulburn AOD have registered to become a DBS site and plan to test the remaining clients supported by the PFSHS.

This is in line with recent focus from NSW Ministry of Health to enhance regional and rural access to care.



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Optimizing Resources through Integration for Efficient Viral Hepatitis Services - Lessons from the Hepatitis Evaluation to Amplify Testing and Treatment in Nigeria

Eieckam C¹, Green K¹, Adesina A¹, Bashorun A², Jinga F², Ward J³, Hierbert L³

¹West Africa Centre for Public Health and Development, Abuja, Nigeria, ²National AIDS, Viral Hepatitis and STI Control Programme, Abuja, Nigeria, ³Coalition for Global Hepatitis Elimination, Decatur, United States

Background: Building on the achievements and lessons from the implementation of the 2016-2021 Global Health Sector Strategy, the World Health Organization launched the new global health sector strategy on HIV, viral hepatitis and sexually transmitted infections (2022-2030) to guide member countries in implementing strategic programmes to achieve the goals of ending AIDs, viral hepatitis B and C, and sexually transmitted infections by 2030. In Nigeria, the National AIDS, viral hepatitis and STI Control Programme (NASCP) has operationalized the goal of triple elimination through an integrated Prevention of Mother-to-Child (PMTCT) services across facility and community structures. Through such integrative approach, Nigeria intends optimization of efforts in achieving holistic viral hepatitis control. The HEAT project assessed levels of integration across HIV and HCV/HBV in the 2 study states - Akwa-Ibom and Nasarawa.

Materials and Methods: A descriptive cross-sectional design in selected health facilities in study states. A non-probability purposive sampling was used to select 128 health facilities providing HBV and HCV testing in the two states. An electronic configured instrument was used to collect data from healthcare providers in selected facilities. The questionnaire has 2 sections: A and B. Section A of the questionnaire comprises of health facility bio-data information, while the Section B obtain information on laboratory operations, e.g. number of tests per day/week/month, integration of hepatitis and HIV services, service payment options, availability and

adequacy of budget for hepatitis services, integration (co-screening) of HIV and hepatitis, use of Covid-19 resources for hepatitis, etc. Data analysis was done using Microsoft Excel and SPSS vs 22.

Results: Approximately about 73% of facilities in Akwa-Ibom offer HBV and HIV co-screening while 27% do not. In Nasarawa, 59% of facilities offers HBV/HIV co-screening while 41% do not, while for HCV/HIV co-screening, 76% of facilities and 59% of facilities offers HCV/HIV co-screening while 24% and 41% of facilities do not offer such co-screening service in Akwa-Ibom and Nasarawa states respectively. A summary analysis of both states shows that 66% of facilities offer HBV and HIV co-screening while 68% of facilities offer HCV/HIV co-screening.

Also, about 26% of facilities in Akwa Ibom and 5% of facilities in Nasarawa were able to leverage on the COVID-19 resources (additional laboratory equipment) for enhancing viral hepatitis response. The consolidated state proportion for integrating viral hepatitis into Covid was 16%.

Conclusions: Integration of programmes efforts enables the use of limited resources to manage diseases of public health importance in more than one area. This study has revealed insightful information that can be used by all stakeholders in planning, and also highlights the missed opportunities in not being able to optimize Covid resources to strengthen viral hepatitis response in facilities across the states. It is recommended that relevant ministries, department and agencies use these findings to manage the national Hepatitis programmes.



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Characterization of Antigenic Preparations for Anti-hCV Screening Tests: Issue of Test Performance

Kasamba Ilunga E¹

¹Univesité de Lubumbashi, Lubumbashi, Congo - Kinshasa

Screening for anti-HCV antibodies is often subject to contradiction between different laboratories due to the use of tests from different manufacturers. In this study, we have proceeded to the identification of the various screening tests for anti-HCV antibodies with the main concerns of the characterization of each brand according to its principle, its antigenic preparation, and its evaluation in relation to the PCR RNA HC Positive and Negative samples.

Our results identified thirty-two anti-HCV tests, of which 90.7% of the anti-HCV antibody detection tests had the following principles: simple liquid phase immunochromatography and solid support, the other tests, their principles were based either on the immunoblot (3.125%) or on sandwich immunochromatography (6.25%). 22 tests (68.75%) had no specification of the antigen preparation 9 tests mentioned (28.125%) recombinant proteins and only 1 test (3.125%) Recombinant proteins + synthetic peptides The correspondence was the antigen preparation, and its composition was such that 12 tests of recombinant protein preparations consisted of 8 tests contained the core, NS3, NS4 and NS5 proteins; 1 tests nucleocapsid and non-structural proteins.

The evaluation of the anti-HCV tests presents on the Lubumbashi market, it turns out that the antigenic preparation tests: Core, NS3, NS4, NS5, meet the description of third-generation anti-HCV tests, because they consist of core antigens, NS3 and NS4 antigens combined and incorporated an NS5 epitope, showed significantly improved performance in terms of sensitivity and specificity.



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Decentralization of Hepatitis B Care in Sub-Saharan Africa: A Pilot Program in Ethiopia

Mekonnen H¹, Berhe N³, Johannessen A⁴

¹St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, ²University of Toronto, Toronto, Canada, ³Aklilu Lemma Institute of Pathobiology, Addis Ababa University, , Addis Ababa, Ethiopia, ⁴Centre for Global Health, University of Oslo, , Oslo, Norway

Background: Antiviral treatment lowers the risk of cirrhosis and hepatocellular carcinoma (HCC) in individuals with chronic hepatitis B (CHB). The clinical challenge lies in identifying patients at risk of disease progression to avoid unnecessary treatment in cases of self-limiting infection. Previous studies in Asia have pinpointed risk factors for progression to cirrhosis and HCC, forming the basis for treatment criteria in international liver society guidelines. However, the determinants of disease progression in sub-Saharan Africa remain largely unknown. The new WHO 2024 guidelines have simplified the criteria for initiating treatment, but their accuracy in identifying those in need of treatment in sub-Saharan Africa is uncertain.

Methods: This project aims to further simplify and operationalize CHB treatment in Ethiopia, enabling decentralization to rural settings crucial for universal access to antiviral therapy in Africa. We will evaluate different treatment models: i) the standard model ("treat only if..."), ii) the simplified model ("treat all except..."), and iii) the test-and-treat model ("treat all").

The standard model adheres to WHO recommendations, the simplified model draws on evidence from the largest African cohort study (HEPSANET), and the test-and-treat model is advocated by various civil society organizations. We will compare the three models in terms of clinical and programmatic outcomes. Additionally, we plan to assess the cost-effectiveness of these decentralized models against a hospital-based model. All patients will be monitored for three years as part of this project, which has received ethical approval from national and institutional ethics boards and began the study on selected regions in the country on September 2024.



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HBV Surface Antigen Loss Prediction: A Challenging Yet Achievable Goal

El-Basiony M^{1,2}, Soliman R^{1,5}, Agwa R^{2,4}, Ghoniem K¹, Elmalky N², El-domiaty N³, Shiha G^{1,2}

¹Egyptian Liver Research Institute And Hospital, Mansoura, Egypt, ²Hepatology and Gastroenterology Unit, Department of Internal Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt, ³Endemic Medicine Department, Faculty of Medicine, Helwan University, , Egypt, ⁴Department of Internal Medicine, Albaha University, Kingdom of Saudi Arabia, , Kingdom of Saudi Arabia, ⁵Department of Tropical Medicine, Faculty of Medicine, Port Said University,, , Egypt

Introduction and aim: Seroconversion of hepatitis B surface (HBs) antigen is an infrequent event of cure during treatment of chronic hepatitis B virus (HBV) patients. It was estimated to be about 1-2% annually in Asian and Western cases. The aim of our study is to assess factors that could predict HBV surface (HBs) antigen loss in chronic HBV patients treated by nucleos(t)ide analogues.

Methods: A total of 510 chronic HBV patients treated by (lamivudine, entecavir and tenofovir) with a median treatment time of 3.5 years (2.1-4.2 years). HBs antigen levels, HBV DNA levels, liver stiffness by FibroScan, liver functions tests, complete blood counts and prothrombin time were assessed at baseline and during follow up visits every 6 months.

Results: Out of the 510 treated chronic HBV patients; 34 patients achieved HBs antigen loss. Multivariant regressive analysis showed that HBs antigen levels and HBV DNA levels were significantly lower in patients achieving HBs antigen loss compared to whom don't achieve with median [IQR] values of (2.53 [2.15-2.89] log₁₀ IU/ml and 3.73 [3.66-3.83] log₁₀ IU/ml) versus (3.24 [2.81-3.68] log₁₀ IU/ml and 3.88 [3.69-4.22] log₁₀ IU/ml), with p < 0.001 and p = 0.022; respectively. Interestingly, 4/34 (11.8%) and 26/34 (76.5%) patients with HBs antigen loss had baseline HBs antigen levels below 100 IU/ml and ranging 100-1000 IU/ml respectively compared to 276/476 (58.0%) patients failed to achieve HBs antigen loss had baseline HBs antigen levels >1000 IU/ml (p value < 0.001) and there were only 5 (14.7%) cases of cirrhosis (liver stiffness > 13.4 kPa) in HBs antigen loss group and 29 (85.3%) had no

cirrhosis (p value 0.057). The cut-off point of basal HBs antigen quantitation to detect on-treatment HBs antigen loss was found to be 489 IU/ml with sensitivity 0.876 (95% CI 0.843 to 0.904), specificity 0.618 (95% CI 0.436 to 0.778), positive predictive value 0.970 (95% CI 0.939 to 0.977) and negative predictive value 0.262 (95% CI 0.213 to 0.436). The HBs antigen clearance group showed log₁₀ reduction of HBs antigen quantitation by 0.42 after 24 weeks of treatment in comparison to 0.04 in the failure group (p value < 0.001). Regarding treatment type in HBs antigen loss group; 19 cases was treated by entecavir and 15 by tenofovir and none of the Lamivudine treated patients achieved HBs antigen loss.

Conclusions: Low HBs antigen, HBV DNA levels, and absence of liver cirrhosis could be considered as baseline predictors of HBs antigen loss. Rapid decline of HBs antigenemia with treatment and absence of treatment relapses are on-treatment indicators of HBs antigen clearance.



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Missed Opportunities for Diagnosing HVC Infection in Patients Identified by an Emergency Department Screening Strategy

González J¹, Camelo Castillo A², Jordan Madrid T², Duarte Carazo A², Cabezas Fernández T², Rodríguez Maresca M², Carrodegua A¹, Vega Saenz J², Casado Martín M²

¹Gilead Sciences, Madrid & Portugal, Spain & Portugal,

²Torrecedenas University Hospital, Almería, Almería

Background: Emergency departments (EDs) are a strategic site for implementing screening strategies for Hepatitis C Virus (HCV) infection, allowing the identification of undiagnosed cases, particularly in vulnerable populations or those without access to other services such as primary care. However, missed diagnostic opportunities may delay treatment initiation and increase the health burden, highlighting the need to evaluate the effectiveness and limitations of these strategies. The aim was to identify indicators of missed opportunities for diagnosis and treatment of active HCV infection in patients identified through an emergency screening programme. Also, to analyse previous contacts with the health care system where diagnosis or treatment might have occurred.

Materials and Methods: A retrospective analysis of patients diagnosed with active HCV infection through an emergency department opportunistic screening programme (FOCUS programme) was performed between August 2021 and September 2024. Clinical records were reviewed to identify previous contacts with the health care system and possible indicators of missed opportunities, such as elevated transaminases, drug use, transfusions, and other exposure factors or risk situations.

Results: Of the 83 patients diagnosed with active HCV infection by screening, 92% had at least one previous contact with the healthcare system. Missed opportunities included elevated transaminases (56%), history of injecting or inhaling drug use (25%), coming from countries with high HCV prevalence (8%), and history of

incarceration (7%). Other factors identified were severe mental disorders, co-infection with HIV and transfusions before 1990. In addition, 44% of patients were aware of their infection status but had not received treatment due to fear of side effects of old treatments, co-morbidities, incarceration or refusal of treatment.

Conclusions: The results show significant gaps in the diagnosis and treatment of HCV prior to the implementation of screening in emergency departments, especially in patients with clear risk factors or suggestive clinical findings. The implementation of opportunistic screening through the FOCUS programme proved to be an important tool in detecting cases that would otherwise have remained undiagnosed. This evidence highlights the need for screening strategies at key points of care that could reduce underdiagnosis and complications associated with HCV.



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Safeguarding Generations: Innovative Approaches to Mother-To-Child Hepatitis B Prevention by HEP Initiative in Luangwa District, Eastern Zambia

Chisonde M¹

¹Hep Initiative, Lusaka, Zambia

Background: Africa is disproportionately affected by viral hepatitis, with approximately 90 million people living with hepatitis B and hepatitis C in Sub-Saharan Africa. Hepatitis - related liver cancer and mortality are increasing in Africa. Every year, it causes 1.34 million deaths globally (more deaths than are caused by HIV or malaria), making hepatitis the second biggest killer after tuberculosis. Although viral hepatitis B and C affect 325 million people globally, only 1 in 10 of those people have been tested, and only 1 in 5 have received appropriate treatment. Globally, an estimated 95% of people with hepatitis are unaware of their infection. This is mainly due to lack of awareness and access to testing services. Mother-To-Child Transmission has been identified as a major mode through which Hepatitis B is spread among children in the country. Most babies get Hepatitis B from their mothers. About 5 percent of babies that are infected by Hepatitis B, test positive for HIV. Infants born to infected mothers have a 90% chance of developing chronic hepatitis B if the mother is positive for both hepatitis B surface antigen and hepatitis B e-antigen. Sadly, there is inadequate research and available information on Hepatitis B in children which is mostly based on cases from adult patients.

Methods

Using Healthcare workers and Community Volunteers, while leveraging on existing mother and child health initiatives to integrate hepatitis prevention messaging and services in clinics, HEP Initiative engaged local communities in Luangwa District, screened pregnant women, linked those who tested positive for treatment, provided

hepatitis birth dose vaccines and psychological support to positive pregnant women.

Results: Between May 2024 to September 2024, HEP Initiative reached 10,000 women with Hepatitis prevention messaging, screened 1,423 pregnant women out of a target of 4,000, signifying 36% of the annual target. Of these, 75 tested positive and were linked to care. Those who tested positive are receiving constant follow ups, screened for mental health, provided with Psychological First Aid and linked to a peer support group for psychosocial support.

Conclusion: This abstract underscore the importance of addressing Mother -To- Child Transmission in reducing health disparities, particularly in high- risk populations where access to healthcare may be limited. Ensuring that all pregnant women are screened and treated appropriately helps promote social equity in health. This proactive approach not only protects individuals but also fosters healthier generations and stronger public health systems. We recommend programs that will focus on preventive measures, such as vaccination and timely treatment which significantly reduce the burden of Hepatitis B and improve health for future generations.



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The Pre-S2 Sequence Mutations Associated with HBV Disease Consequence among Different Patient Groups

Taghiabadi M¹

¹Shiraz University of Medical Sciences, Shiraz, Iran, ²Department of Virology, Iran University of Medical Sciences, Tehran, Iran, ³Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Background: Sequence variation in the Pre-s2 gene of the Hepatitis B Virus (HBV) is enumerated as an important viral factor contributing to infection outcome. While some studies indicated the role of Pre-S2 mutations in disease progression when evaluated in B and C genotypes, the data supporting this idea on genotype D is limited.

Objectives: The aim of this study was to investigate if deletion mutation in the Pre-S2 region is attributed to disease progression. Here, the mutations in this region are compared among patients with HCC, Liver cirrhosis, and asymptomatic carriers.

Material Methods and Patients: A total of 60 sera samples were collected from patients infected with HBV. They included 30 asymptomatic carriers (ASCs) individuals samples (22 male and 8 female, mid-age: 51) and 30 HCC and Cirrhosis (20 HCC and 10 LC), (26 male and 4 female, mid-age: 53). The viral DNA was extracted using DNA extraction kit, and then HBV Pre-s2 gene region was amplified by Nested-Polymerase Chain Reaction (Nested-PCR). Finally, DNA sequences of samples were qualified by Alignment tools (BLAST) then each group was compared with each other by Several Multiple Sequencing alignment software.

Results: The results indicated a higher rate of mutations among the ASCs group than in HCC/LC samples. In 26 ASCs samples (from a total of 30 samples) 13 critical point mutations in Pre-s2 were detected. Furthermore, in 7 ASCs, 7 deletion mutations were also revealed after analysis. On the contrary, 5 point mutations and no sign of deletion mutation in the LC/HCC group were

confirmed after comparing their sequence with references.

Conclusions: The rate of deletion/point mutations in asymptomatic carriers was higher than in HCC and cirrhotic patients so it indicated that in HBV genotype D, Pre-s2 deletions are dispensable factors for HBV disease progression.



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REASSURED Evaluation of the Bioline™ HCV Point-Of-Care Testing for Diagnosing Hepatitis C Virus Infection in Primary Healthcare Settings of Ghana: A Study Protocol and Preliminary Results

Duah E¹

¹University Of Pretoria, Pretoria, South Africa

Background: Hepatitis C Virus (HCV) infection is a silent epidemic that needs a comprehensive and contextualized approach to manage. Access to readily-available, affordable, and acceptable HCV point-of-care (POC) in-vitro diagnostics (IVDs) is equally required to meet the global HCV goals. However, most guidelines for evaluating these IVDs such as the WHO prequalification process and country-specific standards disproportionately focus on diagnostic performance. The REASSURED criteria provide a holistic and user-oriented evaluation of the IVDs in the populations they are meant to be used. Therefore, as part of a multinational study in sub-Saharan Africa, we are conducting an evaluation of the Bioline™ HCV POC test for diagnosing HCV infection in primary health care settings of Ghana using the REASSURED criteria.

Materials and Methods: We are conducting the field evaluation in three phases. The first phase uses a cross-sectional field evaluation study design to evaluate the diagnostic performance of the Bioline™ HCV POC test using HCV target populations from Ghana (People incarcerated in prison, people living with HIV, patients with clinician's request to conduct HCV test and blood donors receiving pre-donation HCV screening). The second phase uses mixed methods to ascertain operational characteristics and non-laboratory users' (community health nurses, midwives and physician assistants) perceptions of the use of the Bioline™ HCV POC test in primary healthcare settings in three (3) administrative districts of Ghana. In the third phase, we are using a cross-sectional survey to estimate the costs of accessing HCV diagnostics services using three proposed HCV

testing models to inform the affordability of the testing pathways and linkage to care in the primary healthcare clinics in these resource-limited and/or hard-to-reach settings of Ghana. This phase is being conducted concurrently with the second phase of the study. Active data collection is currently ongoing for all three phases in Ghana. Thematic analysis and quantitative data analysis will be performed using ATLAS.ti version 23.0.6 and StataCorp LLC's Stata statistical software version 16.0 respectively. The study protocol has been reviewed and fully approved by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, South Africa (281/2023) and the Ghana Health Service Ethics Review Committee, Ghana (GHS-ERC013/08/23).

Results: We will present the study protocol and preliminary results during the presentation in January 2025.



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Occult Hepatitis B Virus Infection (OBI) among Health Workers in Federal Teaching Hospital Katsina; North-Western Nigeria

Musa Y¹, Sanda A², Tijjani Saleh H¹, MOHAMMED BORODO M³

¹Gastroenterology Unit, Medicine Department, Federal Teaching Hospital Katsina, Katsina, Nigeria, ²Department of Medical Microbiology, Federal Teaching Hospital Katsina, Katsina, Nigeria, ³Gastroenterology Unit, Department of Medicine, Aminu Kano Teaching Hospital Kano, Kano, Nigeria

Introduction: Hepatitis B virus (HBV) infection is a major health burden of global concern with an estimated over 250 million current chronic infections. It is the leading cause of liver cirrhosis and hepatocellular cancer (HCC) principally in hyper-endemic areas like Nigeria. Occult HBV infection (OBI) results when HBV DNA is detectable in a patient's serum tested negative for HBV surface antigen (HBsAg). This occurs with or without serological evidence of previous infection i.e. antibody to HB core (anti-HBc) or antibodies to HBsAg (anti-HBs) or both. Since HBsAg is the main screening tool for HBV in Nigeria, there is a high chance of transmitting HBV from the blood of OBI persons through blood transfusion and more importantly by healthcare workers who are at high risk of contracting and/or disseminating the disease to others. The main objective of conducting this study was to determine the prevalence of occult HBV infection among healthcare workers in a single tertiary health center in North-Western Nigeria.

Methodology: This was a cross-sectional study where 84 staff (63 clinical and 21 non-clinical) of Federal Teaching Hospital Katsina (formerly Federal Medical Centre) consented and consecutively recruited proportionately into the study. All participants were screened for Hepatitis B surface antigen (HBsAg) and those found negative were enrolled for the main study. The staff's HBV profile and HBV DNA were subsequently assayed. Samples of subjects with detectable HBV DNA were further assayed for HBV genotype. All subjects with detectable HBV DNA had a Fibro scan done to assess the presence of

liver fibrosis and steatosis. Generated data was analyzed using SPSS version 20.

Results: The mean age \pm standard deviation (SD) of the study subjects was 36.19 ± 7.26 years, while respective mean age \pm SD for clinical and non-clinical staff were 36.46 ± 7.62 and 35.35 ± 6.10 years, T value = 0.6284 (P = 0.5314). Males constituted 56% of the study subjects with male to female ratio of 1.3:1. The prevalence of detectable HBV DNA (OBI) among the study subjects was 8.3% of which 85% were in non-clinical departments. The overall OBI prevalence among clinical staff was 1.6%, while that of non-clinical staff was 28.6%. All the OBI subjects had serological evidence of previous HBV exposure as evidenced by the presence of anti-HBc, therefore, they had seropositive occult HBV infection. Similarly, 57% of OBI subjects had their HBV genotype successfully assayed to be E. Mild fibrosis and steatosis were common among the OBI subjects.

Conclusion: OBI was predominantly detectable among non-clinical healthcare workers in the study institution. All the OBI cases had serological evidence of anti-HBc, while 57% had genotype E.



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Barriers to Linkage to Care in Patients Diagnosed with HCV Infection through Emergency Department Screening

González J¹, Camelo Castillo A², Jordan Madrid T², Duarte Carazo A², Cabezas Fernández T², Rodríguez Maresca M², Carrodegua A¹, Vega Saenz J², Casado Martín M²

¹Gilead Sciences, Madrid & Portugal, Spain & Portugal,

²Torrecedenas University Hospital, Almería, Almería

Background: Early linkage to care is a critical step in the management of hepatitis C virus (HCV) infection, particularly in patients diagnosed through emergency department (ED) screening programmes. However, several barriers may interfere with this process. The aim was to analyse documented barriers to linkage to care in patients diagnosed with HCV through ED screening.

Materials and Methods: A retrospective analysis of patients diagnosed with HCV through opportunistic ED screening between August 2021 and September 2024 was conducted. Medical records were reviewed to identify reasons that prevented initial linkage to care.

Results: Of the 83 diagnosed patients, 78% were contacted for linkage to care. For the remaining 22%, the main barriers identified were: death (EXITUS), which accounted for 55.6% of cases, including patients who died during admission, with terminal tumour disease or with a poor prognosis. Location problems affected 33.3% of patients who could not be contacted due to missing details, living outside the community or not responding to repeated communication attempts. Finally, critical medical conditions or clinical decisions accounted for 11.1% of cases, including patients with severe pathologies such as poor prognosis tumours or critical co-infections, where it was decided not to prioritise treatment or to refer to other specialists.

Conclusions: The main barriers to linkage to care in patients diagnosed with HCV by ED screening include death, location problems and critical clinical conditions. These findings highlight the need to develop strategies that address these

barriers to maximise the impact of screening on HCV elimination and ensure timely access to care.



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Preventive Measures for Neonates Exposed to Hepatitis B Virus Perinatally at the Korle Bu Teaching Hospital, Accra, Ghana

Amoah E¹, Afaa T¹

¹University Of Ghana Medical School, Accra, Ghana

Background: Hepatitis B virus (HBV) is the leading cause of liver cancer in Africa. Chronic hepatitis B (HBV) remains a significant public health problem in Ghana. The HBV prevalence in Ghana is estimated for subpopulations as follows: 8.36% in the adult population, 14.30% in the adolescent population, and 0.55% in children under five years. Of children infected with HBV at birth, 90% remain infected for life. Of newborns with chronic hepatitis B infection, 1 in 4 are at risk for premature death from HBV related liver disease and cancer. A timely dose of hepatitis B vaccine at birth (HepB-BD), prevents transmission of HBV. The combination of hepatitis B vaccine and hepatitis B immunoglobulin is 85-95% effective in reducing HBV infection from vertical transmission when given within 12 hours of birth. In Ghana at birth dose of HBV vaccine is not part of standard newborn care, but rather parents buy both the vaccine and immunoglobulin to be given to their exposed newborns as a means of post exposure prophylaxis. The aim of this review was to identify the number of neonates who received these preventive interventions at the Korle Bu Teaching Hospital, Accra, Ghana.

Materials and Methods: The study was a retrospective review of neonates exposed to HBV delivered at the Korle Bu Teaching Hospital (KBTH) from April to September 2024. These neonates were recruited from the neonatal ward and the post-natal ward (PNW). Data entry and analysis was carried out with Microsoft Excel and Statistical Package for Social Sciences (SPSS) version 20.

Results: There were ninety-four (94) neonates exposed to HBV during the period under review. Twenty (20) neonates were admitted into the neonatal ward for various neonatal conditions while seventy-four (74) were seen at the Post

Natal Ward. Details on interventions for twenty neonates at the PNW was not available. Seventy-four (74) neonates received hepatitis B vaccine while fifty-nine (59) received the hepatitis B immunoglobulin in addition to the vaccine. Of the twenty neonates admitted to the neonatal ward, eight (8) did not receive immunoglobulin while seven (7) neonates of the fifty-four (54) from the post-natal wards did not receive immunoglobulin. Thus, HBV exposed neonates admitted to the neonatal wards were three times less likely to receive the immunoglobulin compared to those on the PNW.

Conclusion: Hepatitis B vaccine was administered to all neonates exposed to hepatitis B virus during the period. However, uptake of hepatitis B immunoglobulin is suboptimal especially among those admitted to the neonatal ward and interventions are need to ensure availability and improve uptake.



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Rheumatoid Arthritis Is Associated with a Reduced Risk of Chronic Hepatitis B: A Two-Sample Mendelian Randomization Study

Zeng X¹

¹Sun Yat-sen University, Shenzhen, 中国

Background: Chronic hepatitis B (CHB) is a significant public health issue in East Asia. While several studies have suggested a association between CHB and autoimmune diseases such as rheumatoid arthritis (RA), the causal relationship remains uncertain. Clarifying this association could help improve our understanding of CHB susceptibility and inform future prevention strategies.

Methods: We conducted a two-sample Mendelian randomization (MR) analysis to explore the potential causal effect of RA on CHB. Genetic variants associated with RA were selected from a large multi-cohort genome-wide association study (GWAS). Summary-level data for CHB were obtained from an East Asian GWAS including 1,394 cases and 211,059 controls. Three MR methods including Inverse Variance Weighted (IVW), MR-Egger, and Weighted Median were used to ensure the robust of results.

Results: The IVW analysis (OR = 0.70, 95% CI: 0.56–0.83, $p = 2.00 \times 10^{-7}$) and Weighted Median analysis (OR = 0.67, 95% CI: 0.49–0.86, $p = 2.52 \times 10^{-5}$) showed that a genetic predisposition to RA was associated with a lower risk of CHB. This suggests a potential protective effect of RA on the development of CHB. No evidence of significant pleiotropy or heterogeneity was found, supporting the validity of the instrumental variables (Single Nucleotide Polymorphism) used in this study.

Conclusion: Our findings support a possible inverse causal relationship between RA and CHB, which is the first study in East Asia population. This study offers valuable insights into connection between autoimmunity and chronic Hepatitis B virus (HBV) infection, which may provides new

evidence that may contribute to the understanding and prevention of HBV.



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Bringing Hepatitis C Treatment to Regions of Armenia: Successful Cooperation with the Ministry of Health on Decentralization of Treatment as Part of the CUTTS HepC Project

Davtyan K¹, Nanushyan L⁴, Hellard M², Stooze M², Schroeder S², Flynn M², Voloshin A², Scott N², Mikayelyan Z¹, Lamand P¹, Ferrand-Dehaes C¹, Wisse E¹, Madden A³, Vickerman P⁶, Mayilyan Z⁷, Hovakimyan H⁵, Grigoryan R⁵, Davidyants A⁸, Mher D⁸, Mirzoyan M⁸, Stepanyan N⁸, Torosyan M¹¹, Tonoyan K⁹, Evinyan N⁹, Draper B², Pedrana A², Sargsyan K¹

¹Médecins du Monde - France (Mdm-France), France, France,
²Burnet Institute, City of Melbourne, Australia, ³INPUD
(International Network for People who Use Drugs), London, UK,
⁴Ministry of Health (Republic of Armenia), Yerevan, Armenia,
⁵RA MoH National Center for Infectious Diseases (NCID),
Yerevan, Armenia, ⁶University of Bristol, Bristol, England, ⁷Real
World, Real People NGO, Yerevan and regions, Armenia,
⁸Davidyants Laboratories, Yerevan and regions, Armenia,
⁹Gyumri Medical Center, Gyumri, Armenia, ¹⁰Vanadzor Medical
Center, Vanadzor, Armenia, ¹¹Kapan Medical Center, Kapan,
Armenia

Background: Hepatitis C (HCV) remains a significant health burden among people who inject drugs (PWID), with limited access to diagnosis and treatment. Historically, the National HCV treatment program in Armenia has been centralized in Yerevan, limiting access in underserved regions. The Ministry of Health (MOH), together with Médecins du Monde (MDM) and partners, Burnet Institute, International Network of People who Use Drugs (INPUD), University of Bristol, launched the CUTTS Models of Care (MoC) study to pilot a simplified, decentralized HCV model of care (MoC) for PWID.

Material and Methods: Initiated in October 2024, a non-randomised trial is evaluating two models: Arm 1 - simplified model of care and Arm 2 – “same day test and treat” model. The trial is being conducted in Yerevan and in three regions: Lori, Shirak and Syunik. Regional medical staff capacity is being enhanced through training, ongoing mentoring by supervising infectious diseases

specialist, and referral pathways for complex cases. The MoH provides Direct-Acting Antivirals (DAAs) for study participants.

Results: As of April 10, 2025, 351 participants were enrolled: 56% (197/351) were HCV Ab positive and 54% (106/197) RNA positive, with higher RNA positivity in regional sites 65% (64/98) compared to Yerevan 42% (42/99). In regional sites, among those with current HCV infection, fifteen had advanced fibrosis (including one case of decompensated cirrhosis), compared with two cases of cirrhosis in Yerevan.

Conclusions: Preliminary data shows high HCV exposure and infection rates among PWID, particularly in regional sites, highlighting the need for decentralised, simplified care. Moreover, the study has improved accessibility of HCV treatment in regions, where the prevalence of complex cases exceeds that in Yerevan. The study will explore the feasibility, scalability and cost-effectiveness of these models from a patient and health system perspective to understand how best to continue decentralisation of care.

Disclosure of Interest Statement:

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Establishing UK HCV Transmission Networks through Viral Sequence Surveillance and Clinic-Based Metadata

Badhan A¹, Gibani M¹, Marjaneh M¹, Kaye S¹, Dustan S¹, McClure M¹, Taylor G¹, Cooke G¹

¹Imperial College London, London, United Kingdom

Background: The World Health Organization (WHO) has set targets for the elimination of hepatitis C virus (HCV) as a public health threat by 2030, including a 90% reduction in new infections. Identifying transmission networks is critical to achieving these goals, and can be facilitated through ongoing surveillance of both new and existing infections. Viral sequence analysis has proven invaluable in elucidating transmission dynamics across various infectious diseases. In densely sampled populations, viral phylogenetics can be used to infer likely transmission pairs and transmission networks.

The Molecular Diagnostic Unit (MDU) at Imperial College London provides a HCV drug resistance analysis service for clinics across the UK. This study aims to explore transmission patterns within this cohort in addition to incorporating samples obtained from patients with acute HCV infection. Using phylogenetic analyses of sequence data collected through sequencing methodologies from 2017 to present, combined with core metadata elements such as referral clinic, geographical location, co-infection status and acute cases, we can identify transmission pairs.

Materials and Methods: Between 2017 and 2025, the MDU received plasma samples from HCV-infected individuals across the UK. Sequencing of a 1kb region of the HCV NS5B gene was performed on 1000 samples using both Sanger and Next Generation Sequencing (NGS) techniques. Phylogenetic trees were constructed using the Neighbor-Joining method, with evolutionary distances calculated via the maximum composite likelihood approach. Associated metadata from referring clinics was integrated with sequence data

to identify infection clusters and transmission networks.

Results: Among the 1000 sequenced samples, genotype distribution was as follows: 47% genotype 1a, 13% genotype 1b, 23% genotype 3, 7% genotype 2, 9% genotype 4, and <1% genotypes 5 and 6. Referral clinic data was available for samples from three centres. Phylogenetic analysis revealed clusters of closely related sequences within individual centres, as well as eight inter-centre clusters involving genotypes 1a, 1b, 3, and 4.

Conclusions: This preliminary analysis underscores the utility of viral phylogenetics in uncovering HCV transmission dynamics. The observed clustering both within and between centres suggests potential transmission networks that warrant further investigation, particularly with regard to the geographical origin (in UK) of the patients. Continued integration of sequence data with detailed metadata will enhance understanding of HCV spread and inform targeted public health interventions.

